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Physical activity for women with breast cancer after adjuvant therapy (Review)

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[Intervention Review]

Physical activity for women with breast cancer after adjuvant therapy

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ABSTRACT

Background

Women with a diagnosis of breast cancer may experience short- and long-term disease and treatment-related adverse physiological and psychosocial outcomes. These outcomes can negatively impact prognosis, health-related quality of life (HRQoL), and psychosocial and physical function. Physical activity may help to improve prognosis and may alleviate the adverse effects of adjuvant therapy.

Objectives

To assess effects of physical activity interventions after adjuvant therapy for women with breast cancer.

Search methods

We searched the Cochrane Breast Cancer Group (CBCG) Specialised Registry, the Cochrane Central Register of Controlled Trials (CENTRAL), MEDLINE, Embase, the Cumulative Index to Nursing and Allied Health Literature (CINAHL), the Physiotherapy Evidence Database (PEDro), SPORTDiscus, PsycINFO, ClinicalTrials.gov, and the World Health Organization (WHO) International Clinical Trials Registry Platform, on 18 September 2015. We also searched OpenGrey and Healthcare Management Information Consortium databases.

Selection criteria

We searched for randomised and quasi-randomised trials comparing physical activity interventions versus control (e.g. usual or standard care, no physical activity, no exercise, attention control, placebo) after adjuvant therapy (i.e. after completion of chemotherapy and/or radiation therapy, but not hormone therapy) in women with breast cancer.

Data collection and analysis

Two review authors independently selected studies, assessed risk of bias, and extracted data. We contacted trial authors to ask for additional information when needed. We calculated an overall effect size with 95% confidence intervals (CIs) for each outcome and used GRADE to assess the quality of evidence for the most important outcomes.

Main results

We included 63 trials that randomised 5761 women to a physical activity intervention (n = 3239) or to a control (n = 2524). The duration of interventions ranged from 4 to 24 months, with most lasting 8 or 12 weeks (37 studies). Twenty-eight studies included aerobic exercise only, 21 involved aerobic exercise and resistance training, and seven used resistance training only. Thirty studies described the comparison group as usual or standard care, no intervention, or control. One-fifth of studies reported at least 20% intervention attrition and the average physical activity adherence was approximately 77%.

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No data were available on effects of physical activity on breast cancer-related and all-cause mortality, or on breast cancer recurrence. Analysis of immediately postintervention follow-up values and change from baseline to end of intervention scores revealed that physical activity interventions resulted in significant small-to-moderate improvements in HRQoL (standardised mean difference (SMD) 0.39, 95% CI 0.21 to 0.57, 22 studies, 1996 women; SMD 0.78, 95% CI 0.39 to 1.17, 14 studies, 1459 women, respectively; low-quality evidence), emotional function (SMD 0.21, 95% CI 0.10 to 0.32, 26 studies, 2102 women, moderate-quality evidence; SMD 0.31, 95% CI 0.09 to 0.53, 15 studies, 1579 women, respectively; low-quality evidence), perceived physical function (SMD 0.33, 95% CI 0.18 to 0.49, 25 studies, 2129 women; SMD 0.60, 95% CI 0.23 to 0.97, 13 studies, 1433 women, respectively; moderate-quality evidence), anxiety (SMD -0.57, 95% CI -0.95 to -0.19, 7 studies, 326 women; SMD -0.37, 95% CI -0.63 to -0.12, 4 studies, 235 women, respectively; low-quality evidence), and cardiorespiratory fitness (SMD 0.44, 95% CI 0.30 to 0.58, 23 studies, 1265 women, moderate-quality evidence; SMD 0.83, 95% CI 0.40 to 1.27, 9 studies, 863 women, respectively; very low-quality evidence).

Investigators reported few minor adverse events.

Small improvements in physical activity interventions were sustained for three months or longer postintervention in fatigue (SMD -0.43, 95% CI -0.60 to -0.26; SMD -0.47, 95% CI -0.84 to -0.11, respectively), cardiorespiratory fitness (SMD 0.36, 95% CI 0.03 to 0.69; SMD 0.42, 95% CI 0.05 to 0.79, respectively), and self-reported physical activity (SMD 0.44, 95% CI 0.17 to 0.72; SMD 0.51, 95% CI 0.08 to 0.93, respectively) for both follow-up values and change from baseline scores.

However, evidence of heterogeneity across trials was due to variation in intervention components (i.e. mode, frequency, intensity, duration of intervention and sessions) and measures used to assess outcomes. All trials reviewed were at high risk of performance bias, and most were also at high risk of detection, attrition, and selection bias. In light of the aforementioned issues, we determined that the evidence was of very low, low, or moderate quality.

Authors' conclusions

No conclusions regarding breast cancer-related and all-cause mortality or breast cancer recurrence were possible. However, physical activity interventions may have small-to-moderate beneficial effects on HRQoL, and on emotional or perceived physical and social function, anxiety, cardiorespiratory fitness, and self-reported and objectively measured physical activity. The positive results reported in the current review must be interpreted cautiously owing to very low-to-moderate quality of evidence, heterogeneity of interventions and outcome measures, imprecision of some estimates, and risk of bias in many trials. Future studies with low risk of bias are required to determine the optimal combination of physical activity modes, frequencies, intensities, and durations needed to improve specific outcomes among women who have undergone adjuvant therapy.

PLAIN LANGUAGE SUMMARY

Physical activity for women with breast cancer who have completed active cancer treatment

Review question

What effects do physical activity (PA) interventions have on women with breast cancer who have completed cancer treatment?

Background

After receiving breast cancer treatment, women may experience adverse mental and physical events caused by the cancer and by its treatment. These adverse events can result in a shorter life after treatment and can have a negative impact on quality of life (QoL) and on physical and mental health. Some studies suggest that being regularly physically active after treatment might lower the chance that breast cancer may come back, or that women may die of breast cancer. Regular PA may lead to a wide range of other beneficial effects, including improved QoL, mental health, and physical function. We wanted to determine whether PA has an effect on risk of recurrence and dying from breast cancer, QoL, and other aspects of well-being in women who had breast cancer after treatment.

Study characteristics

We included only studies consisting of women with breast cancer who had completed active cancer treatment. These studies compared outcomes of women involved in PA interventions versus outcomes of those who were offered usual care or no PA. Participants must have been assigned to a group in random or somewhat random fashion. The evidence is current to September 2015.

Key results

This review includes 63 trials involving 5761 participants. Most trials (28) consisted of aerobic exercise (e.g. walking, cycling, dance), whereas seven trials included a resistance training-only group, and 21 trials included a combined aerobic exercise and resistance training group. One in five participants placed in a PA intervention group dropped out before the end of the study, and on average one-quarter of target PA sessions were missed by participants. We found no studies that looked at effects of PA after cancer treatment on risk of recurrence or dying from breast cancer or any other cause. We found that participants performing PA had more favourable values by the end of the intervention and experienced greater positive changes over the intervention period in terms of QoL, views on their emotional health and physical ability, social function, feelings of worry, stamina, PA levels, body fat, and strength of muscles, compared with usual care

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participants. Researchers found no effects on perceived health, ability to sleep, feelings of pain, sexual function, body mass index, waist-to-hip girth ratio, and bone health of the upper and lower spine or hip. At least three months after completion of the intervention, actual values and changes from the start of the intervention in feelings of tiredness, stamina, and self-reported PA levels remained more favourable in participants given PA intervention than in those given usual care. Both aerobic exercise only and combined aerobic and resistance training interventions improved QoL and stamina. Aerobic exercise improved views on perceived emotional health and physical ability, as well as social function and self-reported PA levels, whereas resistance training resulted in greater improvement in muscle strength. Combined aerobic and resistance training interventions led to reduced feelings of tiredness. Trialists reported few minor adverse events among those given PA interventions.

Quality of the evidence

We rated the quality of evidence related to various aspects of health as very low, low, or moderate. We noted wide variation among the interventions that we looked at in terms of types of PA, frequency of sessions per week, levels of effort among participants, and session and intervention duration. Also, researchers measured aspects of health in many different ways. Other problems with eligible studies included lack of information on how study authors placed participants in groups at random, whether researchers who were carrying out the tests knew which group the person being tested belonged to, and how researchers dealt with data missing from their studies. In many aspects, we could not rule out the chance that positive effects observed were small enough that they were not important. It is also possible that smaller studies that have not found favourable effects of PA in women with breast cancer after treatment have not been published, because study authors often find it difficult to publish studies that have not found beneficial effects.

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SUMMARY OF FINDINGS

Summary of findings for the main comparison. Physical activity versus control for women with breast cancer after adjuvant therapy (immediate postintervention values)

Physical activity versus control for women with breast cancer after adjuvant therapy

Patient or population: women with breast cancer after adjuvant therapy
Settings: home-based, facility-based, and combined home and facility-based
Intervention: physical activity
Comparison: control

Outcomes	Illustrative comparative risks* (95% CI)		No. of participants (studies)	Quality of the evidence (GRADE)	Comments
	Assumed risk	Corresponding risk			
	Control	Physical activity			
HRQoL at end of intervention follow-up Follow-up: median 12 weeks	Mean HRQoL at end of intervention follow-up ranged across control groups from **-2.70 to 2.72 standard deviation units**	Mean HRQoL at end of intervention follow-up in the intervention groups was **0.39 standard deviations higher** (0.21 to 0.57 higher)[a]	1996 (22 studies)	⊕⊕⊝⊝ **low**[b,c]	SMD 0.39 (0.21 to 0.57) re-expressed using FACT-G (0 to 104 scale); the intervention mean HRQoL was 5.9 (3.2 to 8.6) points higher than control (MID 5 to 6 points).
Emotional function/mental health at end of intervention follow-up Follow-up: median 12 weeks	Mean emotional function/mental health at end of intervention follow-up ranged across control groups from **-4.80 to 0.21 standard deviation units**	Mean emotional function/mental health at end of intervention follow-up in the intervention groups was **0.21 standard deviations higher** (0.10 to 0.32 higher)[a]	2102 (26 studies)	⊕⊕⊕⊝ **moderate**[d]	SMD 0.21 (0.10 to 0.32) re-expressed using FACT-EBW (0 to 24 scale); the intervention mean emotion function was 0.7 (0.3 to 1.0) points higher than control (MID 2 points).
Perceived physical function at end of intervention follow-up Follow-up: median 12 weeks	Mean physical function at end of intervention follow-up ranged across control groups from **-2.64 to 1.64 standard deviation units**	Mean physical function at end of intervention follow-up in the intervention groups was **0.33 standard deviations higher** (0.18 to 0.49 higher)[a]	2129 (25 studies)	⊕⊕⊕⊝ **moderate**[c,e]	SMD 0.33 (0.18 to 0.49) re-expressed using FACT-PBW (0 to 28 scale); the intervention mean physical function was 1.7 (0.9 to 2.5) points higher than control (MID 2 points).
Anxiety at end of intervention follow-up	Mean anxiety at end of intervention follow-up ranged across control groups from	Mean anxiety at end of intervention follow-up in the intervention groups was	326 (7 studies)	⊕⊝⊝⊝ **very low**[c,f]	SMD -0.57 (-0.95 to -0.19) re-expressed using PROMIS (0 to 9 scale); the intervention mean anxiety was 1.9 (3.2 to

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Follow-up: median 12 weeks	**-1.33 to 1.19 standard deviation units**	**0.57 standard deviations lower** (0.95 to 0.19 lower)[a]			0.6) points lower than control (MID 3 to 4.5 points).
Depression at end of intervention follow-up Follow-up: median 12 weeks	Mean depression at end of intervention follow-up ranged across control groups from **-0.79 to 2.84 standard deviation units**	Mean depression at end of intervention follow-up in the intervention groups was **0.34 standard deviations lower** (0.62 to 0.05 lower)[a]	657 (12 studies)	⊕⊕⊝⊝ **low**[g]	SMD -0.34 (-0.62 to -0.05) re-expressed using BDI-II (0 to 63 scale); the intervention mean depression was 3.8 (7.0 to 0.6) % lower than control (MID 18%).
Fatigue at end of intervention follow-up Follow-up: median 12 weeks	Mean fatigue at end of intervention follow-up ranged across control groups from **-1.83 to 1.69 standard deviation units**	Mean fatigue at end of intervention follow-up in the intervention groups was **0.32 standard deviations lower** (0.47 to 0.18 lower)[a]	2020 (26 studies)	⊕⊕⊕⊝ **moderate**[c,h]	SMD -0.32 (-0.47 to -0.18) re-expressed using FACT-F (0 to 52 scale); the intervention mean fatigue was 2.8 (4.1 to 1.6) points lower than control (MID 3 points).
Cardiorespiratory fitness at end of intervention follow-up Follow-up: median 12 weeks	Mean cardiorespiratory fitness at end of intervention follow-up ranged across control groups from **-0.51 to 3.59 standard deviation units**	Mean cardiorespiratory fitness at end of intervention follow-up in the intervention groups was **0.44 standard deviations higher** (0.30 to 0.58 higher)[1]	1265 (23 studies)	⊕⊕⊕⊝ **moderate**[i]	SMD 0.44 (0.30 to 0.58) re-expressed as VO_2max (mL/kg/min); the intervention mean was 2.1 (1.4 to 2.7) mL/kg/min higher than control (MID 3.5 mL/kg/min).

*The basis for the **assumed risk** (e.g. median control group risk across studies) is provided in footnotes. The **corresponding risk** (and its 95% confidence interval) is based on the assumed risk in the comparison group and the **relative effect** of the intervention (and its 95% CI).
BDI: Beck Depression Inventory; CI: confidence interval; FACT-EBW: Functional Assessment of Cancer Therapy Emotional Wellbeing; FACT-F: Functional Assessment of Cancer Therapy - Fatigue; FACT-G: Functional Assessment of Cancer Therapy-General; FACT-PBW: Functional Assessment of Cancer Therapy Physical Wellbeing; HRQoL: health-related quality of life; MID: minimal important difference; PROMIS: Patient Reported Outcomes Measurement Information System; SMD: standardised mean difference; VO_2max: maximal oxygen uptake.

GRADE Working Group grades of evidence.
High quality: Further research is very unlikely to change our confidence in the estimate of effect.
Moderate quality: Further research is likely to have an important impact on our confidence in the estimate of effect and may change the estimate.
Low quality: Further research is very likely to have an important impact on our confidence in the estimate of effect and is likely to change the estimate.
Very low quality: We are very uncertain about the estimate.

[a]As a rule of thumb, 0.2 SD represents a small effect, 0.5 SD a moderate effect, and 0.8 SD a large effect.
[b]We downgraded by two levels due to evidence of inconsistency supported by presence of substantial heterogeneity (I^2 = 50% to 90%) and point estimates widely differed and 95% confidence intervals that did not overlap (P value Chi^2 < 0.01), and suspected publication bias (Egger's test, P < 0.05).
[c]All trials lacked blinding of participants (performance bias), and most trials lacked blinding of outcome assessors (detection bias) and had incomplete outcome reporting and/or high attrition (attrition bias), but most were at a low risk of selection bias, reporting bias, and other bias, and therefore, we did not downgraded based on risk of bias.

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[d]We downgraded by one level because all trials lacked blinding of participants (performance bias) and most trials lacked blinding of outcome assessors (detection bias), had incomplete outcome reporting and/or high attrition (attrition bias), and half of them had unclear or inadequate randomisation and/or allocation concealment procedures..
[e]We downgraded by one level due to evidence of inconsistency supported by presence of substantial heterogeneity (I^2 = 50% to 90%) and point estimates widely differed and 95% confidence intervals that did not overlap (P value Chi^2 < 0.01).
[f]We downgraded by three levels due to evidence of inconsistency supported by presence of substantial heterogeneity (I^2 = 50% to 90%) and point estimates widely differed and 95% confidence intervals that did not overlap (P value Chi^2 < 0.01), suspected publication bias (Egger's test, P < 0.05), and imprecision because the 95% confidence intervals included negligible effects as well as an appreciable benefit (>0.5) and sample size did not meet the ''rule of thumb'' of approximately 400 (200 per group) participants.
[g]We downgraded by two levels due to evidence of inconsistency supported by presence of substantial heterogeneity (I^2 = 50% to 90%) and point estimates widely differed and 95% confidence intervals that did not overlap (P value Chi^2 < 0.01), and imprecision because the 95% confidence intervals included negligible effects as well as an appreciable benefit (>0.5). All trials lacked blinding of participants (performance bias), had incomplete outcome reporting and/or high attrition (attrition bias), and unclear or inadequate randomisation and/or allocation concealment procedures (selection bias), but because most were at a low risk of detection, reporting, and other bias, we did not downgraded based on risk of bias.
[h]We downgraded by one level due to evidence of inconsistency supported by presence of substantial heterogeneity (I^2 = 50% to 90%) and point estimates widely differed and 95% confidence intervals that did not overlap (P value Chi^2 < 0.01).
[i]We downgraded by one level because all trials lacked blinding of participants (performance bias) and most trials lacked blinding of outcome assessors (detection bias), had incomplete outcome reporting and/or high attrition (attrition bias), and had allocation concealment procedures that were inadequate or unclear (selection bias).

Summary of findings 2. Physical activity versus control for women with breast cancer after adjuvant therapy (change from baseline to end of intervention values)

Physical activity versus control for women with breast cancer after adjuvant therapy

Patient or population: women with breast cancer after adjuvant therapy
Settings: home-based, facility-based, and combined home and facility-based
Intervention: physical activity
Comparison: control

Outcomes	Illustrative comparative risks* (95% CI)		No. of participants (studies)	Quality of the evidence (GRADE)	Comments
	Assumed risk	Corresponding risk			
	Control	Physical activity			
HRQoL change from baseline to end of intervention Follow-up: median 12 weeks	Mean HRQoL change from baseline to end of intervention ranged across control groups from **-2.40 to 1.25 standard deviation units**	Mean HRQoL change from baseline to end of intervention in the intervention groups was **0.78 standard deviations higher** (0.39 to 1.17 higher)[a]	1459 (14 studies)	⊕⊕⊝⊝ **low**[b,c]	SMD 0.78 (0.39 to 1.17) re-expressed using FACT-G (0 to 104 scale); the intervention mean change was 5.0 (2.5 to 7.5) points higher than control (MID 5 to 6 points)
Emotional function/mental health change from base-	Mean emotional function/mental health change from baseline to end of in-	Mean emotional function/mental health change from baseline to end of intervention in the intervention groups was	1579 (15 studies)	⊕⊕⊕⊝ **low**[c,d]	SMD 0.31 (0.09 to 0.53) re-expressed using FACT-EBW (0 to 24 scale); the intervention mean change was 0.8 (0.2 to 1.3)

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line to end of intervention Follow-up: median 12 weeks	tervention ranged across control groups from **-0.39 to 3.47 standard deviation units**	**0.31 standard deviations higher** (0.09 to 0.53 higher)[a]			points higher than control (MID 2 points).
Perceived physical function change from baseline to end of intervention Follow-up: median 12 weeks	Mean physical function change from baseline to end of intervention ranged across control groups from **-1.34 to 1.66 standard deviation units**	Mean physical function change from baseline to end of intervention in the intervention groups was **0.60 standard deviations higher** (0.23 to 0.97 higher)[a]	1433 (13 studies)	⊕⊕⊕⊖ **moderate**[c,e]	SMD 0.60 (0.23 to 0.97) re-expressed using FACT-PBW (0 to 28 scale); the intervention mean change was 1.3 (0.5 to 2.1) points higher than control (MID 2 points).
Anxiety change from baseline to end of intervention Follow-up: median 11 weeks	Mean anxiety change from baseline to end of intervention ranged across control groups from **-1.47 to 0.73 standard deviation units**	Mean anxiety change from baseline to end of intervention in the intervention groups was **0.37 standard deviations lower** (0.63 to 0.12 lower)[a]	235 (4 studies)	⊕⊕⊖⊖ **low**[f]	SMD -0.37 (-0.63 to -0.12) re-expressed using PROMIS (0 to 9 scale); the intervention mean change was 4.6 (7.6 to 1.5) points lower than control (MID 3 to 4.5 points).
Depression change from baseline to end of intervention Follow-up: median 12 weeks	Mean depression change from baseline to end of intervention ranged across control groups from **-1.51 to 1.83 standard deviation units**	Mean depression change from baseline to end of intervention in the intervention groups was **0.34 standard deviations lower** (0.63 to 0.05 lower)[a]	816 (7 studies)	⊕⊖⊖⊖ **very low**[c,g]	SMD -0.34 (-0.63 to -0.05) re-expressed using BDI-II (0 to 63 scale); the intervention mean change was 2.5 (4.6 to 0.4) % lower than control (MID 18%).
Fatigue change from baseline to end of intervention Follow-up: median 12 weeks	Mean fatigue change from baseline to end of intervention ranged across control groups from **-1.81 to 1.83 standard deviation units**	Mean fatigue change from baseline to end of intervention in the intervention groups was **0.3 standard deviations lower** (0.61 lower to 0 higher)[a]	1289 (13 studies)	⊕⊕⊖⊖ **low**[c,h]	SMD -0.3 (-0.61 to 0) re-expressed using FACT-F (0 to 52 scale); the intervention mean change was 2.6 (5.2 to 0) points lower than control (MID 3 units).
Cardiorespiratory fitness change from baseline to end of intervention Follow-up: median 12 weeks	Mean cardiorespiratory fitness change from baseline to end of intervention ranged across control groups from **-1.45 to 2.38 standard deviation units**	Mean cardiorespiratory fitness change from baseline to end of intervention in the intervention groups was **0.83 standard deviations higher** (0.4 to 1.27 higher)[a]	863 (9 studies)	⊕⊖⊖⊖ **very low**[i]	SMD 0.83 (0.4 to 1.27) re-expressed using VO_2max (mL/kg/min); the intervention mean change was 2.3 (1.1 to 3.4) mL/kg/min higher than control (MID 3.5 mL/kg/min).

*The basis for the **assumed risk** (e.g. median control group risk across studies) is provided in footnotes. The **corresponding risk** (and its 95% confidence interval) is based on the assumed risk in the comparison group and the **relative effect** of the intervention (and its 95% CI).
BDI: Beck Depression Inventory; CI: confidence interval; FACT-EBW: FACT-EBW: Functional Assessment of Cancer Therapy Emotional Wellbeing; FACT-F: Functional Assessment of Cancer Therapy - Fatigue; FACT-G: Functional Assessment of Cancer Therapy - General; FACT-PBW: Functional Assessment of Cancer Therapy Physical Wellbeing;

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HRQoL: health-related quality of life; MID: minimal important difference; PROMIS: Patient Reported Outcomes Measurement Information System; SMD: standardised mean difference; VO_2max: maximal oxygen uptake.

GRADE Working Group grades of evidence.
High quality: Further research is very unlikely to change our confidence in the estimate of effect.
Moderate quality: Further research is likely to have an important impact on our confidence in the estimate of effect and may change the estimate.
Low quality: Further research is very likely to have an important impact on our confidence in the estimate of effect and is likely to change the estimate.
Very low quality: We are very uncertain about the estimate.

[a]As a rule of thumb, 0.2 SD represents a small effect, 0.5 SD a moderate effect, and 0.8 SD a large effect.
[b]We downgraded by two levels due to evidence of inconsistency supported by presence of considerable heterogeneity (I^2 = 75% to 100%) and point estimates widely differed and 95% confidence intervals that did not overlap (P value Chi^2 < 0.01), and suspected publication bias (Egger's test, P < 0.05).
[c]All trials lacked blinding of participants (performance bias), and most trials lacked blinding of outcome assessors (detection bias) and had incomplete outcome reporting and/or high attrition (attrition bias), but most were at a low risk of selection bias, reporting bias, and other bias, and therefore, we did not downgraded based on risk of bias.
[d]We downgraded by two levels due to evidence of inconsistency supported by presence of substantial heterogeneity (I^2 = 50% to 90%) and point estimates widely differed and 95% confidence intervals that did not overlap (P value Chi^2 < 0.01), and imprecision because the 95% confidence intervals included negligible effects as well as an appreciable benefit (>0.5).
[e]We downgraded by one level due to evidence of inconsistency supported by presence of considerable heterogeneity (I^2 = 75% to 100%) and point estimates widely differed and 95% confidence intervals that did not overlap (P value Chi^2 < 0.01).
[f]We downgraded by two levels due to suspected publication bias (Egger's test, P < 0.05), and imprecision because the 95% confidence intervals included negligible effects as well as an appreciable benefit (>0.5) and the sample size does not meet the ‘‘rule of thumb’’ of approximately 400 (200 per group) participants. The majority of trials were at a low risk of selection bias, attrition bias, reporting bias, and other bias, and therefore, we did not downgraded based on risk of bias.
[g]We downgraded by three levels due to evidence of inconsistency supported by presence of substantial heterogeneity (I^2 = 50% to 90%) and point estimates widely differed and 95% confidence intervals that did not overlap (P value Chi^2 < 0.01), suspected publication bias (Egger's test, P < 0.05), and imprecision because the 95% confidence intervals included negligible effects as well as an appreciable benefit (>0.5).
[h]We downgraded by two levels due to evidence of inconsistency supported by presence of considerable heterogeneity (I^2 = 75% to 100%) and point estimates widely differed and 95% confidence intervals that did not overlap (P value Chi^2 < 0.01), and imprecision because the 95% confidence intervals included null effects as well as an appreciable benefit (>0.5).
[i]We downgraded by three levels due to evidence of inconsistency supported of considerable heterogeneity (I^2 = 75% to 100%) and point estimates widely differed and 95% confidence intervals that did not overlap (P value Chi^2 < 0.01), suspected publication bias (included studies were small and the funnel plot shows asymmetry), and all trials lacked blinding of participants (performance bias) and most trials lacked blinding of outcome assessors (detection bias), had incomplete outcome reporting and/or high attrition (attrition bias), and had unclear or inadequate randomisation and/or allocation concealment procedures.

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BACKGROUND

Description of the condition

Worldwide, breast cancer is the most frequently diagnosed cancer among women, accounting for one in four of all new female cancer cases (1.7 million total cases) in 2012 (Ferlay 2013). Although incidence rates vary markedly across world regions, breast cancer is the most common cancer among women in both more developed and less developed regions, with slightly more cases reported in less developed (883,000 cases) than in more developed (794,000) regions (Ferlay 2013). Breast cancer is the most common cause of cancer death among women in less developed regions (324,000 deaths) and is the second most common cause of cancer death among women in more developed regions (198,000 deaths). Globally, researchers reported a 20% increase and a 14% increase in breast cancer incidence and mortality, respectively, from 2008 to 2012 (Ferlay 2013; Jemal 2011). Although incidence rates remain highest in more developed regions, mortality rates are relatively much higher in less developed countries - a fact that can be attributed to lack of both early detection and access to treatment facilities (IARC 2012).

In 2012, breast cancer was the most prevalent cancer worldwide with approximately 6.3 million women alive who had received a diagnosis of breast cancer in the previous five years, representing a 17% increase from 2008 figures (Bray 2013; Ferlay 2013). Owing in particular to this rising prevalence, attention to tertiary prevention among women with breast cancer has increased. In addition to risk of cancer recurrence, women with breast cancer often experience numerous short- and long-term disease- or treatment-related adverse physiological and psychosocial outcomes, such as cardiotoxicity, neurotoxicity, secondary leukaemia, lymphoedema, premature menopause, sexual dysfunction, infertility, weight gain, difficulty sleeping, and fatigue (Azim 2011; Beisecker 1997; Bovelli 2010; de Jong 2002). These adverse effects would be expected to have a negative impact on health-related quality of life (HRQoL) and physical function. In addition, these unwanted effects can be prolonged after completion of active treatment and may hinder the woman's return to normal life (Fong 2012).

Description of the intervention

Encouraging women with breast cancer after adjuvant therapy to adopt a healthy lifestyle, such as low alcohol consumption, greater fruit and vegetable consumption, and higher physical activity levels, may be important for improving quality of life and the health of survivors and, in turn, may reduce the healthcare burden (Demark-Wahnefried 2005). In particular, higher levels of physical activity represent a modifiable health behaviour that could alleviate the sequelae related to breast cancer and assist women in returning to the health status they had before receiving the diagnosis and treatment (Fong 2012). Physical activity is defined as any bodily movement produced by contraction of skeletal muscle that increases energy expenditure above a basal level, performed as part of occupation, active transportation, household and gardening chores, and recreational activities. Exercise, a subcategory of physical activity, is defined as planned, structured, and repetitive physical activity that is aimed at improving or maintaining one or more components of physical fitness (Caspersen 1985; Physical Activity Guidelines 2008). Current recommendations for breast cancer survivors are to avoid inactivity, return to normal daily activities as quickly as possible after surgery, continue these activities during and after non-surgical treatments, and engage in 150 minutes per week of moderate-intensity aerobic activity (e.g. any activity, such as brisk walking, that requires a moderate amount of effort and noticeably increases heart rate) (Schmitz 2010).

How the intervention might work

Evidence from observational data suggests that higher levels of physical activity in breast cancer survivors or post diagnosis are associated with reduced risk of dying from breast cancer or from all causes (Beasley 2012; Ibrahim 2011). Increased physical activity is also associated with reduced exposure to oestrogen and androgens and increased concentrations of sex hormone-binding globulin, as well as improved insulin sensitivity and decreased concentrations of insulin growth factor-1 and of adipokines and inflammatory markers, with the exception of a beneficial elevation in adiponectin concentrations (Lynch 2011). These effects of increased physical activity may serve as the mechanisms that can explain associated reductions in all-cause and breast cancer-related mortality. Furthermore, lack of physical activity has been shown to be related to weight gain post breast cancer diagnosis, which, in turn, has been linked to poorer survival in some studies (Camoriano 1990; Kroenke 2005). More active women have been found to possess a lower body mass index (BMI) and to be less likely to gain weight after diagnosis, thus improving their survival chances (Holmes 2005; Lahmann 2005).

Evidence suggests that physical activity can promote positive physiological and psychological benefits among cancer survivors after treatment (Brown 2012; Fong 2012; Galvao 2005; Ingram 2007; Knols 2005; Speck 2010). A recent meta-analysis revealed that physical activity was associated with important positive effects on physical function, body weight and BMI, and quality of life, which included physical and social functioning domains, among patients who had completed cancer treatment (Fong 2012). Results reported in a Cochrane review indicate that physical activity may have beneficial effects on overall HRQoL and on certain HRQoL domains, including cancer-specific concerns (e.g. breast cancer), body image and self-esteem, emotional well-being, sexuality, sleep disturbance, social functioning, anxiety, fatigue, and pain at varying follow-up periods (Mishra 2012a).

Why it is important to do this review

Despite benefits derived through physical activity, consensus has not been reached regarding the magnitude of benefit, the most effective delivery mode, and prescription of physical activity in breast cancer survivors. Physical activity interventions in this population typically are delivered under supervised - Courneya 2003; Milne 2008 - or self-directed, home-based conditions (Pinto 2005; Vallance 2008). They consist of, or serve as a way to compare, aerobic exercise training (Cadmus 2009; Herrero 2006), walking (Matthews 2007; Payne 2008), and resistance training (Schmitz 2009; Winters-Stone 2011). Their duration can vary from less than 10 weeks - Daley 2007; Fillion 2008 - to six months or longer (Schmitz 2009; Winters-Stone 2011). Previous systematic reviews and meta-analyses have included studies involving patients with all types of cancer (Brown 2012; Cramp 2010; Fong 2012; Knols 2010; Mishra 2012a; Mishra 2012b; Speck 2010), rather than focusing on patients with breast cancer; studies of patients with cancer who received adjuvant therapy (Carayol 2013; Markes 2009; McNeely 2006; Mishra 2012b); studies that focused on a particular physical activity mode,

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such as walking (Knols 2010), yoga (Cramer 2013), dance (Bradt 2011), or resistance training (Cheema 2014; Cheema 2008; Cramp 2010); or studies that investigated a particular outcome, such as quality of life - Cramp 2010; Mishra 2012a; Mishra 2012b - and upper limb dysfunction (McNeely 2010). Therefore, a systematic review and meta-analysis is needed to investigate effects of physical activity on the large range of outcomes reported in trials including women who have completed adjuvant therapy for breast cancer.

OBJECTIVES

To assess effects of physical activity interventions after adjuvant therapy for women with breast cancer.

METHODS

Criteria for considering studies for this review

Types of studies

We considered for inclusion in this review all randomised controlled trials (RCTs), as well as quasi-randomised controlled trials, investigating effects of physical activity interventions for women with breast cancer after adjuvant therapy.

Types of participants

We sought trials that included women with a diagnosis of breast cancer who had completed adjuvant therapy (radiotherapy or chemotherapy).

We excluded studies including cancers other than breast cancer unless separate data were available for the breast cancer subgroup. We also excluded studies including only patients with metastatic breast cancer (stage IV and above).

We excluded studies including women who were undergoing adjuvant therapy (radiotherapy and chemotherapy but not endocrine therapy) for breast cancer during the physical activity intervention.

Types of interventions

We included all trials that reported and evaluated effects of interventions such as physical activity (including exercise), as well as studies comparing a physical activity group versus a group described as receiving no physical activity and no exercise, and given control, attention control, usual or standard care, or placebo.

We excluded studies that:

- included an additional treatment arm or combined intervention arm (e.g. physical activity with diet modification) for which effects of physical activity could not be isolated;
- provided single exercise sessions that measured acute effects;
- investigated effects of physiotherapy; and
- were restricted to stretching or local muscular endurance (e.g. training of shoulders, back, or legs only) or therapeutic exercise regimens that addressed only specific impairments related to the shoulder, the arm, or both.

Types of outcome measures

For selected outcomes, we extracted:

- immediately postintervention follow-up values;
- three-month or longer postintervention follow-up values;
- change from baseline to end of intervention scores; and
- change from baseline to three-month or longer postintervention scores.

Primary outcomes Breast cancer-related mortality, defined as time from date randomised to date of death due to primary breast cancerHRQoL domains, via a validated questionnaire, including but not limited to physical function (e.g. performance of self-care and everyday physical activities), psychological function (e.g. emotional well-being, anxiety, depression, self-esteem), social and economic role function (e.g. performance of work or household responsibilities, social interactions), pain, and fatigue or vitality (e.g. energy)

Primary outcomes

- Breast cancer-related mortality, defined as time from date randomised to date of death due to primary breast cancer
- HRQoL domains, via a validated questionnaire, including but not limited to physical function (e.g. performance of self-care and everyday physical activities), psychological function (e.g. emotional well-being, anxiety, depression, self-esteem), social and economic role function (e.g. performance of work or household responsibilities, social interactions), pain, and fatigue or vitality (e.g. energy)

Secondary outcomes

- All-cause mortality, defined as time from date randomised to date of death (any cause)
- Breast cancer recurrence, defined as time from date of randomisation to emergence of local, regional, or distant recurrence or metastasis
- Cardiorespiratory fitness, defined as ability to engage in physical activities that rely on oxygen consumption as the primary source of energy, and measured directly or indirectly to obtain an individual's maximal oxygen uptake (VO_2max)
- Physical activity assessed as an outcome measure, defined as any bodily movement produced by contraction of skeletal muscle that increases energy expenditure above a basal level, and measured by self-report via questionnaires or objectively via accelerometers
- Body mass, BMI, body composition (e.g. measures such as body fat percentage, fat-free or lean mass, and fat mass) and other anthropometric measurements (e.g. waist and hip circumferences)
- Muscular strength, defined as maximal force (expressed in Newtons, kilograms, or pounds) that can be generated by a specific muscle or muscle group
- Bone health-related outcomes such as bone mineral density and bone mineral content
- Adverse events such as musculoskeletal injuries, lymphoedema, and illness (such as bronchitis and influenza)

Search methods for identification of studies

Electronic searches

We searched the following databases.

- Cochrane Breast Cancer Group (CBCG) Specialised Register. Details of search strategies used by the CBCG for identification of

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studies and procedures for coding of references are outlined in the CBCG module (http://onlinelibrary.wiley.com/o/cochrane/clabout/articles/BREASTCA/frame.html). We considered for inclusion in the review retrieved trials using the following terms: 'breast cancer', 'physical activity', 'physical activity intervention', 'exercise', 'walking', 'resistance training', 'weight training', 'weight lifting' or 'fitness'.

- MEDLINE (via PubMed); see Appendix 1.
- Embase (via Embase.com); see Appendix 2.
- Cochrane Central Register of Controlled Trials (CENTRAL; 2015, Issue 8) in the Cochrane Library; see Appendix 3.
- World Health Organization (WHO) International Clinical Trials Registry Platform (ICTRP) search portal (http://apps.who.int/trialsearch/Default.aspx) for all prospectively registered and ongoing trials; see Appendix 4.
- Clinicaltrials.gov (http://clinicaltrials.gov/); see Appendix 5.
- Cumulative Index to Nursing and Allied Health Literature (CINAHL) (via EBSCOhost.com); see Appendix 6.
- Physiotherapy Evidence Database (PEDro) (via PEDro.org.au); see Appendix 7.
- SPORTDiscus (via EBSCOhost.com); see Appendix 8.
- PsycINFO (via OvidSP); see Appendix 9.

Searching other resources

Bibliographic searching

We attempted to identify further studies by reviewing reference lists of identified relevant trials or reviews. We obtained a copy of the full article for each reference reporting a potentially eligible trial. When this was not possible, we attempted to contact trial authors to request additional information.

We conducted a search for relevant grey literature using OpenGrey and Healthcare Management Information Consortium (HMIC) databases.

Data collection and analysis

Selection of studies

We merged results of the searches described above and removed duplicate records on the same study. We examined titles and abstracts to remove obviously irrelevant reports. Two review authors (IML and GSM) independently screened and assessed records for eligibility. We resolved disagreements on study eligibility through consensus, and, when necessary, we met with a third review author not involved in the particular assessment (AMN) for discussion. We retrieved full-text articles of potentially relevant reports and linked together multiple reports of the same study. We examined full-text reports for compliance of studies with the eligibility criteria. We corresponded with investigators, when appropriate, to clarify study eligibility or to seek further information, such as missing data.

We recorded in the Characteristics of excluded studies table a list of studies that were close to inclusion but did not meet the criteria after further inspection.

We included non-English language trials and translated them, when necessary, so that we could assess eligibility and subsequently extract study data.

Data extraction and management

We devised a checklist of items to be considered during data collection. This checklist included the source of the report; confirmation of eligibility or reason for exclusion; methods such as study design, total duration, sequence generation, allocation sequence concealment, blinding, and other sources of bias; participant information such as total numbers, diagnostic criteria, and demographic information; dates of the study; intervention details; for each outcome of interest, the definition, unit of measurement and scales, time points of assessment, results including numbers of participants allocated to groups, sample size, missing data, summary of data for each group, and effect estimates with confidence intervals; and miscellaneous information such as funding sources, key conclusions, and details of any correspondence.

IML and GSM independently extracted trial data, and AMN arbitrated any conflicts not due to extractor error. We collated multiple publications for the same trial and used the most complete report (i.e. the one with outcomes most relevant to the review or with the most recent outcomes) as the primary reference.

Assessment of risk of bias in included studies

We summarised in the Characteristics of included studies table data collected from these reports. We used the Cochrane 'risk of bias' tool to assess possible sources of bias in the included reports (Higgins 2011). Assessment of risk of bias was a two-part process addressing specific domains such as sequence generation, allocation concealment, blinding, incomplete outcome data, selective reporting bias, and 'other issues'. The first part of the process describes what was reported to have happened in a study, and the second part includes judgement related to the risk of bias for each domain in that study. Two review authors (IML and GSM) assessed risk of bias, and a third review author (AMN) arbitrated conflicts not due to assessor error. If we found evidence of heterogeneity, large risk of bias, or low quality of evidence, we interpreted trial findings cautiously.

We have displayed our assessment of risk of bias in a 'risk of bias' table.

Measures of treatment effect

We performed a meta-analysis on an outcome only if at least two studies assessed that outcome; we did not perform meta-analysis if outcomes were too diverse, studies were at risk of serious bias, or evidence suggested serious publication or reporting bias.

We combined continuous outcomes (such as cardiorespiratory fitness, physical activity, anthropometric measures, muscular strength, and bone health-related outcomes) using mean difference (MD) when trials measured an outcome by using the same measurement method or scale to generate continuous data. We used standardised mean difference (SMD) when trials used different instruments to measure the same outcome.

For dichotomous outcomes (such as meeting physical activity guidelines), we used risk ratios (RRs) with 95% confidence intervals (CIs). We transformed data presented as odds ratios (ORs) using the method outlined in Chapter 12 of the *Cochrane Handbook for Systematic Reviews of Interventions* (Higgins 2011).

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For this review version, no outcomes were reported as time-to-event. In future review versions, for time-to-event outcomes such as mortality and recurrence, we will use hazard ratios (HRs) with 95% CIs. We will report the ratios of treatment effects for responses, so that HRs less than 1.0 will favour the physical activity intervention and HRs greater than 1.0 will favour usual care or control. To perform meta-analysis of time-to-event outcomes, we will obtain the log HR (intervention relative to control) and its standard error (SE). As outlined in Chapter 7 of the Cochrane Handbook for Systematic Reviews of Interventions (Higgins 2011), the log hazard ratio is estimated by (O - E)/V, which has an SE $1/\sqrt{V}$, where O represents the observed number of events in the intervention group, E the log-rank expected number of events in the intervention group, O-E the log-rank statistic, and V variance of the log-rank statistic. Alternatively, when trial authors analyse data using a Cox proportional hazards model, they directly report estimates of the log hazard ratio and its SE.

Unit of analysis issues

For trials that included more than one applicable physical activity group (Cormie 2014; Dolan 2016; Ergun 2013; Loh 2014; Martin 2013; Musanti 2012; Portela 2008; Short 2014; Vallance 2007) and more than one relevant control group (Daley 2007), we created, when possible, a single pair-wise comparison by combining outcome data as recommended in the *Cochrane Handbook for Systematic Reviews of Interventions* (Higgins 2011).

Dealing with missing data

We requested missing data from trial authors. If variability was presented by measures other than standard deviation, we obtained an estimate of the standard deviation (SD) using standard approaches for transforming data. We transformed CIs, t values, and P values to estimate SD using methods described in the *Cochrane Handbook for Systematic Reviews of Interventions* (Higgins 2011); if F-statistics were reported for comparisons of two groups, we transformed F-statistics into T-statistics using the following formula: $T = \sqrt{F}$, then estimated SD from the T-statistic.

Assessment of heterogeneity

For each outcome, we first assessed study heterogeneity using Cochran's χ^2 (Chi^2) test (Cochran 1954), with $P < 0.10$ indicating evidence of heterogeneity.

We evaluated inconsistency of results across studies by using the I^2 statistic. I^2 describes the percentage of variability in point estimates that is due to heterogeneity rather than to sampling error (Higgins 2003). In accordance with Higgins 2011, we interpreted I^2 values of 0% to 40% as 'might not be important', 30% to 60% as 'may represent moderate heterogeneity', 50% to 90% as 'may represent substantial heterogeneity', and 75% to 100% as showing 'considerable heterogeneity'. However, the importance of the observed value of I^2 depends on the magnitude and direction of effects and the strength of evidence of heterogeneity (e.g. P value from the Chi^2 test, CI for I^2).

We used a random-effects model to determine the average effect of physical activity because, in addition to the presence of random error (i.e. chance), differences between physical studies after adjuvant breast cancer treatment can result from real differences between study populations, types of adjuvant breast cancer treatment received, and the training stimulus. The random-effects model considers these additional sources of between-study variability, as well as within-study variability. We presented pooled intervention effect estimates and their 95% CIs for each outcome.

Assessment of reporting biases

To investigate publication bias, we prepared funnel plots and visually examined them for signs of asymmetry. We followed recommendations provided in the *Cochrane Handbook for Systematic Reviews of Interventions* (Higgins 2011) regarding statistical testing for funnel plot asymmetry. For example, if a sufficient number of trials were available in a particular analysis, we examined publication bias using Egger's linear regression method, with $P < 0.10$ taken as an indication of publication bias (Egger 1997). If we noted evidence of statistically significant asymmetry, we considered interpretations other than publication bias.

Data synthesis

We have presented pooled intervention effect estimates and their 95% CIs.

For continuous outcomes, we combined data using the inverse variance random-effects method (DerSimonian 1986).

For dichotomous outcomes, we applied the random-effects model (DerSimonian 1986), along with the Mantel-Haenszel method (Mantel 1959; Greenland 1985), to combine data.

For time-to-event outcomes, we combined study results using the generic inverse variance method. We carried out all analyses using Review Manager 5 (version 5.3) (RevMan).

IML and GSM assessed the quality of the evidence by using the GRADE system (Guyatt 2008); we have presented these results in the 'Summary of findings' tables.

Subgroup analysis and investigation of heterogeneity

We considered the following important methodological factors, physical activity programme design components, and participant characteristics as potential sources of heterogeneity: removal of the most extreme values; study quality based on risk of bias (low risk of bias vs moderate unclear/high risk of bias); menopausal status of participants (premenopausal vs postmenopausal); duration of intervention (shorter duration, i.e. ≤ 12 weeks, vs longer duration, i.e. > 12 weeks); measurement type (instrument/method used, e.g. direct vs indirect, subjective vs objective measurement); and mode of physical activity (aerobic exercise vs resistance training vs combination of aerobic and resistance exercise vs yoga, tai chi, qigong, and pilates interventions). When it was possible to inform physical activity prescription for patients with breast cancer post adjuvant therapy, we conducted subgroup analyses of treatment effect based on intervention mode (aerobic exercise vs resistance training vs combination of aerobic and resistance exercise vs yoga, tai chi, qigong, and pilates interventions), intensity (light and light-moderate vs moderate-high and high), duration of intervention (≤ 12 weeks vs > 12 weeks), format (individual vs group vs combined individual and group), setting (home-based vs facility-based vs home and facility-based combined), participants' menopausal status (premenopausal vs postmenopausal), and treatment regimen (chemotherapy vs no chemotherapy).

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Sensitivity analysis

We conducted sensitivity analyses to assess the robustness of review results by removing studies with high or unclear risk of bias.

RESULTS

Description of studies

Results of the search

Through a comprehensive literature search, we identified 8454 potentially relevant references and screened them for retrieval. After removing duplicates, we excluded a total of 5955 references upon title and abstract review and retrieved 211 references for more detailed evaluation. From these, we excluded 86 trials as they did not meet the inclusion criteria, and identified 63 trials as appropriate for inclusion in the current review (Figure 1). In addition, we identified 10 ongoing trials (Deli-Conwright 2014; Galiano-Castillo 2013; IRCT2014042117379N1; KIlbreath 2011; NCT02057536; NCT02235051; NCT02332876; NCT02420249; NCT02433067; NCT02527889), as well as three trials that were awaiting classification (Lahart 2016; Lohrisch 2011; Luu 2014). We did not include these latter trials in the analysis presented below but will consider them in future updates of this review. See Characteristics of included studies; Characteristics of excluded studies; Characteristics of studies awaiting classification; and Characteristics of ongoing studies.

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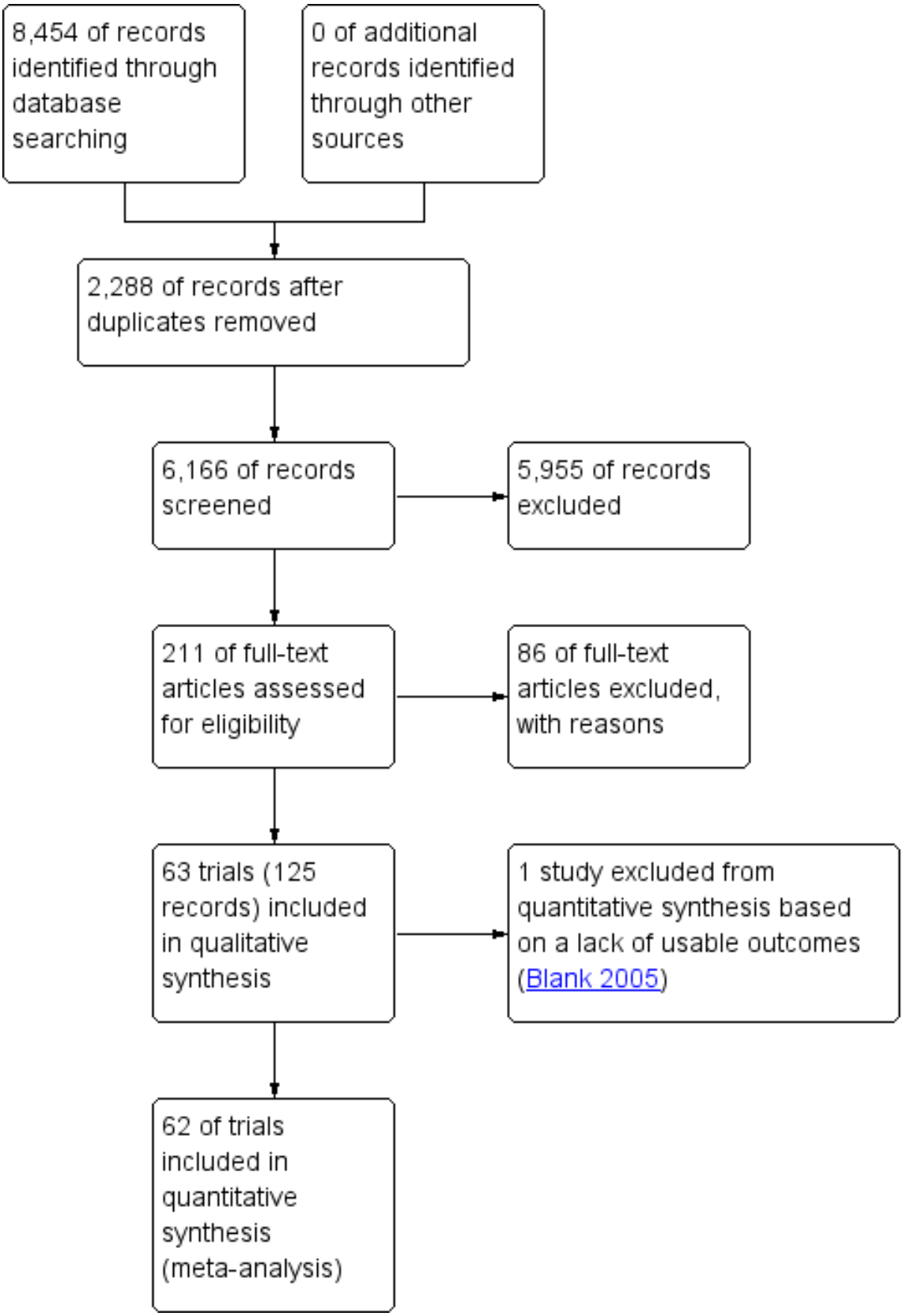
Figure 1. Study flow diagram.



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Included studies

Final selection resulted in inclusion of 63 trials in this review (Banasik 2011; Baruth 2013; Basen-Enquist 2006; Blank 2005; Bower 2011; Cadmus 2009; Cantarero-Villanueva 2013; Carson 2009; Cerulli 2014; Cormie 2014; Courneya 2003; Cuesta-Vargas 2014; Daley 2007; DeNysschen 2011; Do 2015; Dolan 2016; Duijits 2012; Ergun 2013; Fillion 2008; Guinan 2013; Hatchett 2013; Heim 2007; Herrero 2006; Irwin 2015; Kaltsatou 2011; Kiecolt-Glaser 2014; Kim 2015; Ligibel 2008; Littman 2012; Loh 2014; Loudon 2014; Malicka 2011; Martin 2013; Matthews 2007; McKenzie 2003; Mehnert 2011; Milne 2008; Murtezani 2014; Musanti 2012; Mustian 2004; Naumann 2012; Nieman 1995; Nikander 2007; Payne 2008; Peppone 2015; Pinto 2003; Pinto 2005; Pinto 2015; Portela 2008; Rahnama 2010; Rogers 2009; Rogers 2013; Rogers 2014; Rogers 2015; Saarto 2012; Schmitz 2005; Schmitz 2009; Segar 1998; Short 2014; Taleghani 2012; Vallance 2007; Waltman 2010; Winters-Stone 2011) (we used the earliest main publication of each trial as the trial reference). We reviewed and included information on trial characteristics and outcome-related data from an additional 125 publications that were secondary publications of these 63 trials. We corresponded with, and requested additional data from, nine trial authors (Baruth 2013; Carson 2009; Daley 2007; Heim 2007; Loh 2014; McKenzie 2003; Payne 2008; Peppone 2015; Vallance 2007), and four of these trial authors replied to requests for additional data (Daley 2007; Loh 2014; Payne 2008; Vallance 2007). Full descriptions of the included studies can be found under Characteristics of included studies.

Study design

Of the 63 included trials, 60 (95%) were RCTs, and three studies used a quasi-randomised design to allocate participants to treatment(s) (Cuesta-Vargas 2014; Heim 2007; Segar 1998). Twelve trials (19%) consisted of more than one exercise intervention group (Cormie 2014; DeNysschen 2011; Dolan 2016; Duijits 2012; Ergun 2013; Loh 2014; Martin 2013; Musanti 2012; Naumann 2012; Portela 2008; Short 2014; Vallance 2007). One study consisted of two comparison arms (usual care and exercise-placebo control in the form of stretching) (Daley 2007), and Duijits 2012 included a non-exercise cognitive-behaviour therapy group, while Naumann 2012 included a non-exercise counselling group. In all, investigators allocated 5761 participants (mean 91, range 14 to 573) to a physical activity intervention group (n of participants = 3239, mean 51, range 7 to 302) or a control group (n = 2524, mean 40, range 8 to 271).

Study participants

Forty trials (63%) reported numbers of participants at each cancer stage (Baruth 2013; Basen-Enquist 2006; Cadmus 2009; Cantarero-Villanueva 2013; Carson 2009; Cerulli 2014; Cormie 2014; Courneya 2003; DeNysschen 2011; Do 2015; Dolan 2016; Fillion 2008; Guinan 2013; Hatchett 2013; Herrero 2006; Irwin 2015; Kiecolt-Glaser 2014; Ligibel 2008; Littman 2012; Loh 2014; Loudon 2014; Matthews 2007; Mehnert 2011; Milne 2008; Murtezani 2014; Musanti 2012; Peppone 2015; Pinto 2003; Pinto 2005; Pinto 2015; Portela 2008; Rogers 2009; Rogers 2013; Rogers 2014; Rogers 2015; Schmitz 2005; Schmitz 2009; Short 2014; Vallance 2007; Winters-Stone 2011). Of these 40, 18 reported numbers of participants with stage 0 breast cancer (total n = 173, mean 6, range 1 to 28) (Baruth 2013; Basen-Enquist 2006; Cadmus 2009; Dolan 2016; Fillion 2008; Irwin 2015; Kiecolt-Glaser 2014; Littman 2012; Loudon 2014; Pinto 2003; Pinto 2005; Pinto 2015; Rogers 2014; Rogers 2015; Schmitz 2005; Schmitz 2009; Short 2014; Winters-Stone 2011), all 40 trials reported numbers of participants with stage I-II breast cancer (n = 1334, mean 33, range 5 to 194, and n = 753, mean 32, range 3 to 161, respectively), and 34 trials reported numbers of patients with stage III breast cancer (n = 413, mean 12, range 1 to 69) (Baruth 2013; Basen-Enquist 2006; Cadmus 2009; Cantarero-Villanueva 2013; Cerulli 2014; Cormie 2014; Courneya 2003; DeNysschen 2011; Do 2015; Dolan 2016; Fillion 2008; Guinan 2013; Hatchett 2013; Irwin 2015; Kiecolt-Glaser 2014; Ligibel 2008; Littman 2012; Loudon 2014; Matthews 2007; Mehnert 2011; Milne 2008; Murtezani 2014; Musanti 2012; Peppone 2015; Pinto 2015; Portela 2008; Rogers 2009; Rogers 2013; Rogers 2015; Schmitz 2005; Schmitz 2009; Short 2014; Vallance 2007; Winters-Stone 2011). Kim 2015 reported the numbers of participants with stage 0-I (n = 19) and stage II-III (n = 28) breast cancer. Five trials included a small number of patients with metastatic breast cancer (Banasik 2011; Basen-Enquist 2006; Hatchett 2013; Portela 2008; Short 2014).

Twenty-four (38%) trials reported participants' average time since cancer diagnosis (range 3.5 to 62.5 months) (Basen-Enquist 2006; Cadmus 2009; Carson 2009; Dolan 2016; Ergun 2013; Fillion 2008; Guinan 2013; Irwin 2015; Kiecolt-Glaser 2014; Kim 2015; Ligibel 2008; Littman 2012; Matthews 2007; Pinto 2003; Pinto 2005; Pinto 2015; Rogers 2013; Rogers 2015; Schmitz 2005; Schmitz 2009; Segar 1998; Vallance 2007; Waltman 2010; Winters-Stone 2011). In Hatchett 2013, 60% and 40% of participants were less than 30 months and 30 to 70 months post diagnosis, respectively, and Loh 2014 reported that 14 and 71 participants were within one year and two to five years post diagnosis, respectively. Eighteen (29%) trials reported average time beyond active treatment (range 3 months to 7.1 years) (Baruth 2013; Bower 2011; Cerulli 2014; Cormie 2014; Courneya 2003; Guinan 2013; Herrero 2006; Kaltsatou 2011; Kiecolt-Glaser 2014; Milne 2008; Naumann 2012; Nieman 1995; Peppone 2015; Pinto 2003; Rogers 2009; Schmitz 2005; Short 2014; Waltman 2010). Other studies reported that all participants were between two weeks and 30 months (Mustian 2004), two months and five years (Portela 2008), six months and four years (Irwin 2015), and 12 and 36 months (Daley 2007) post treatment; within four weeks (post surgery, Rogers 2015), six months (Cuesta-Vargas 2014; Martin 2013; Nikander 2007), one year (Cadmus 2009; Matthews 2007; Mehnert 2011), 1.5 years (Heim 2007), and two years post treatment (Musanti 2012); or at least four weeks (Saarto 2012), eight weeks (Banasik 2011; Blank 2005; Rogers 2015), three months (Kim 2015; Ligibel 2008; Littman 2012), six months (McKenzie 2003), one year (Winters-Stone 2011), and two years post treatment (Fillion 2008). Cantarero-Villanueva 2013 and Duijits 2012 reported that 48.3% and 80% of participants were 12 months and less post treatment, respectively.

Forty-eight (76%) trials reported the numbers of participants who had received chemotherapy (mean 68%, range 20% to 100%) (Baruth 2013; Basen-Enquist 2006; Bower 2011; Cadmus 2009; Cantarero-Villanueva 2013; Carson 2009; Cerulli 2014; Cormie 2014; Courneya 2003; Daley 2007; DeNysschen 2011; Do 2015; Dolan 2016; Duijits 2012; Ergun 2013; Fillion 2008; Guinan 2013; Hatchett 2013; Heim 2007; Herrero 2006; Irwin 2015; Kiecolt-Glaser 2014; Kim 2015; Ligibel 2008; Loh 2014; Loudon 2014; Malicka 2011; Matthews 2007; Milne 2008; Murtezani 2014; Musanti 2012; Mustian 2004; Naumann 2012; Nikander 2007; Peppone 2015; Pinto 2003; Pinto 2005; Pinto 2015; Rahnama 2010; Rogers 2009; Rogers 2015; Saarto 2012; Schmitz 2005; Schmitz 2009; Short 2014; Vallance 2007; Waltman 2010; Winters-Stone 2011). Five trials consisted entirely of participants who had received chemotherapy (Cerulli 2014; Ergun 2013; Guinan 2013; Herrero 2006; Rahnama 2010).

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Forty-six (73%) of the 63 trials reported participants' hormone therapy details (Baruth 2013; Blank 2005; Bower 2011; Cadmus 2009; Cantarero-Villanueva 2013; Carson 2009; Cerulli 2014; Cormie 2014; Courneya 2003; Daley 2007; Do 2015; Dolan 2016; Duijits 2012; Fillion 2008; Guinan 2013; Hatchett 2013; Heim 2007; Irwin 2015; Kiecolt-Glaser 2014; Kim 2015; Ligibel 2008; Malicka 2011; Matthews 2007; Milne 2008; Murtezani 2014; Musanti 2012; Mustian 2004; Naumann 2012; Nikander 2007; Payne 2008; Peppone 2015; Pinto 2003; Pinto 2005; Pinto 2015; Rahnama 2010; Rogers 2009; Rogers 2013; Rogers 2014; Rogers 2015; Saarto 2012; Schmitz 2005; Schmitz 2009; Short 2014; Vallance 2007; Waltman 2010; Winters-Stone 2011). The total number of participants who had received hormone therapy in these 46 trials was 3161 (mean n per study 69, range 9 to 442). Seventeen trials reported use of both selective oestrogen receptor modulators (SORMs) and aromatase inhibitors (AIs) (Cadmus 2009; Cantarero-Villanueva 2013; Carson 2009; Dolan 2016; Guinan 2013; Kim 2015; Ligibel 2008; Naumann 2012; Rogers 2009; Rogers 2013; Rogers 2014; Rogers 2015; Schmitz 2005; Schmitz 2009; Vallance 2007; Waltman 2010; Winters-Stone 2011). One study specifically investigated only women receiving AIs (Irwin 2015), and another reported only the number of participants receiving SORMs (Matthews 2007). A total of 690 participants (mean 38, range 5 to 182) had taken SORMs, and a total of 456 had taken AIs (mean 25, range 2 to 121).

The mean average age of participants in the 58 (92%) trials that reported this characteristic was 54 (mean age range 46 to 63) years. Heim 2007 reported the number of participants 30 to 50 years (n = 32) and 51 to 70 years (n = 31), and Blank 2005 reported the age range of participants (range 48 to 69 years). Two studies reported no age data (Hatchett 2013; Taleghani 2012). Twenty-seven trials (43%) reported the percentage of postmenopausal participants (Cadmus 2009; Cantarero-Villanueva 2013; Carson 2009; Courneya 2003; DeNysschen 2011; Dolan 2016; Ergun 2013; Fillion 2008; Guinan 2013; Irwin 2015; Kiecolt-Glaser 2014; Kim 2015; Ligibel 2008; Loh 2014; Matthews 2007; Milne 2008; Payne 2008; Pinto 2003; Rogers 2009; Rogers 2013; Rogers 2014; Rogers 2015; Saarto 2012; Schmitz 2005; Vallance 2007; Waltman 2010; Winters-Stone 2011). The mean percentage of postmenopausal participants in these trials was 78% (range 0 to 100%). Eleven (18%) trials included exclusively postmenopausal participants (Cadmus 2009; Courneya 2003; Dolan 2016; Ergun 2013; Irwin 2015; Kim 2015; Matthews 2007; Payne 2008; Rogers 2014; Waltman 2010; Winters-Stone 2011); Bower 2011 consisted of only premenopausal and perimenopausal participants, and Heim 2007 stated the percentage of participants who reported symptoms of menopause (n = 64%), rather than menopausal status.

Thirty trials (48%) reported the ethnicity of participants (Banasik 2011; Baruth 2013; Basen-Enquist 2006; Bower 2011; Cadmus 2009; Carson 2009; Daley 2007; DeNysschen 2011; Dolan 2016; Guinan 2013; Hatchett 2013; Irwin 2015; Kiecolt-Glaser 2014; Littman 2012; Loh 2014; Matthews 2007; Musanti 2012; Mustian 2004; Payne 2008; Peppone 2015; Pinto 2005; Pinto 2015; Rogers 2009; Rogers 2013; Rogers 2014; Rogers 2015; Schmitz 2005; Schmitz 2009; Segar 1998; Waltman 2010). Most participants were white (mean % participants = 83%). Black participants were the next largest ethnic group (n studies = 18; mean % participants = 11%). Loh 2014 consisted of Chinese (64%), Malay (25%), and Indian (11%) participants.

Thirty-two (51%) trials reported the education level of participants (Baruth 2013; Basen-Enquist 2006; Bower 2011; Cadmus 2009; Cantarero-Villanueva 2013; Carson 2009; Courneya 2003; Cuesta-Vargas 2014; Daley 2007; DeNysschen 2011; Do 2015; Duijits 2012; Ergun 2013; Fillion 2008; Hatchett 2013; Irwin 2015; Kiecolt-Glaser 2014; Kim 2015; Littman 2012; Loh 2014; Mehnert 2011; Murtezani 2014; Mustian 2004; Payne 2008; Pinto 2003; Pinto 2005; Pinto 2015; Schmitz 2005; Schmitz 2009; Segar 1998; Short 2014; Vallance 2007), with an average of 47% (range 22% to 70%) of participants reporting educational attainment of a university degree or higher. In addition, six trials reported the number of years in education (mean 15 years, mean range 14 to 16 years) (Matthews 2007; Rogers 2009; Rogers 2013; Rogers 2014; Rogers 2015; Saarto 2012). Twenty trials (37%) reported the sociodemographic status (i.e. earnings per week, month, or year) of participants (Banasik 2011; Bower 2011; Courneya 2003; DeNysschen 2011; Do 2015; Fillion 2008; Kiecolt-Glaser 2014; Kim 2015; Littman 2012; Loh 2014; Mustian 2004; Payne 2008; Pinto 2003; Pinto 2005; Rogers 2009; Rogers 2013; Rogers 2014; Rogers 2015; Short 2014; Vallance 2007). Three studies reported the percentage of participants earning > USD 40K (mean 61%, range 50% to 70%) (Mustian 2004; Payne 2008; Pinto 2005), eight studies reported the percentage earning > USD 50K (mean 61%, range 39% to 76%) (Banasik 2011; Kiecolt-Glaser 2014; Pinto 2003; Pinto 2005; Rogers 2009; Rogers 2013; Rogers 2014; Rogers 2015), three studies reported the percentage earning > USD 60K (mean 46%, range 30% to 65%) (Courneya 2003; Littman 2012; Payne 2008), one study reported that 56% of participants earned > USD 70K (DeNysschen 2011), three studies reported the percentage earning > USD 75K (mean 42%, range 17% to 55%) (Banasik 2011; Bower 2011; Kiecolt-Glaser 2014), and two studies reported participants earning > USD 80K (mean 28%, range 26% to 29%) (Littman 2012; Vallance 2007). Short 2014 reported that 39% of participants earned > USD 1K per week, and Kim 2015 noted that 42% of participants earned ≥ USD 2K per month. One study reported the percentage of participants at low (8%), medium (81%), and high (11%) income status (no definition of income categories were given) (Do 2015).

Fourteen (22%) trials reported comorbidity data for participants (Cadmus 2009; Daley 2007; Do 2015; Irwin 2015; Kim 2015; Peppone 2015; Rogers 2013; Rogers 2014; Rogers 2015; Saarto 2012; Short 2014; Vallance 2007; Waltman 2010; Winters-Stone 2011). Five of these 14 studies reported a comorbidity index score (mean 2.2, range 1.8 to 2.7) (Rogers 2009; Rogers 2013; Rogers 2014; Rogers 2015; Winters-Stone 2011). In three studies all participants had lymphoedema (Cormie 2014; Loudon 2014; McKenzie 2003), and another study included an arm of participants with lymphoedema and an arm at risk of lymphoedema (Schmitz 2009). Kim 2015 consisted entirely of participants with a diagnosis of osteopenia, and Irwin 2015 included participants reporting arthralgia.

Twenty (32%) studies included physical activity-specific eligibility criteria to recruit only 'sedentary', 'inactive', or those performing 'no activity' or 'not meeting recommended physical activity guidelines' (i.e. > 75 minutes of vigorous physical activity and > 150 minutes of moderate physical activity per week) (Baruth 2013; Basen-Enquist 2006; Cadmus 2009; Cerulli 2014; Ergun 2013; Herrero 2006; Ligibel 2008; Matthews 2007; Milne 2008; Mustian 2004; Naumann 2012; Pinto 2003; Pinto 2005; Pinto 2015; Rahnama 2010; Rogers 2009; Rogers 2013; Schmitz 2005; Segar 1998; Taleghani 2012). Twelve studies reported the mean baseline minutes of total, walking, moderate, or moderate-to-vigorous physical activity per week (mean ± SD min/week 108 ± 109 minutes, range 13 to 378 minutes) (Cadmus 2009; Cantarero-Villanueva

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2013; Courneya 2003; Guinan 2013; Irwin 2015; Kiecolt-Glaser 2014; Pinto 2005; Pinto 2015; Rogers 2009; Rogers 2014; Rogers 2015; Vallance 2007). Six studies expressed baseline physical activity in Met-h/week^{-1} (mean ± SD 19.5 ± 14.1 metabolic equivalent (MET)-h/week^{-1}, range 4 to 40 MET-h/week^{-1}) (Baruth 2013; Littman 2012; Matthews 2007; Musanti 2012; Saarto 2012; Schmitz 2009). Eleven studies categorised baseline physical activity to report the proportion of participants engaged in given amounts of physical activity (Daley 2007; Do 2015; Dolan 2016; Duijits 2012; Fillion 2008; Hatchett 2013; Heim 2007; Loh 2014; Mehnert 2011; Saarto 2012; Waltman 2010). A single study noted each of the following: participants' baseline walking steps/d (Nikander 20077), energy expenditure (Winters-Stone 2011), leisure score and sport physical activity score (Schmitz 2005), and self-selected levels of fitness (Loudon 2014). Four trials excluded participants who engaged in any/regular prior resistance exercise at the time of enrolment (Kim 2015; Schmitz 2005; Schmitz 2009; Winters-Stone 2011), two studies excluded participants performing regular yoga practice (Carson 2009; Peppone 2015), and one study recruited only participants with no prior practice or experience in traditional Greek dances (Kaltsatou 2011).

Twenty-eight trials (44%) reported the mean body mass of participants (Cadmus 2009; Cerulli 2014; Cormie 2014; Courneya 2003; Daley 2007; DeNysschen 2011; Dolan 2016; Duijits 2012; Heim 2007; Herrero 2006; Irwin 2015; Ligibel 2008; Littman 2012; Malicka 2011; Martin 2013; Matthews 2007; McKenzie 2003; Murtezani 2014; Musanti 2012; Naumann 2012; Nieman 1995; Nikander 2007; Pinto 2003; Rahnama 2010; Saarto 2012; Schmitz 2009; Vallance 2007; Winters-Stone 2011), and 38 (60%) trials reported mean BMI scores of participants (Baruth 2013; Basen-Enquist 2006; Bower 2011; Cadmus 2009; Cerulli 2014; Cormie 2014; Courneya 2003; Daley 2007; Dolan 2016; Duijits 2012; Ergun 2013; Herrero 2006; Irwin 2015; Kiecolt-Glaser 2014; Kim 2015; Ligibel 2008; Littman 2012; Loudon 2014; Matthews 2007; McKenzie 2003; Milne 2008; Murtezani 2014; Mustian 2004; Naumann 2012; Nikander 2007; Pinto 2003; Pinto 2005; Portela 2008; Rahnama 2010; Rogers 2009; Rogers 2013; Rogers 2014; Saarto 2012; Schmitz 2009; Short 2014; Vallance 2007; Waltman 2010; Winters-Stone 2011). Average mean body mass in these trials was 74 kg (SD 4.4 kg, range 65.5 to 84.7 kg), and average mean BMI was 28 kg/m^2 (SD 2.1 kg/m^2, range 23.4 to 32.1 kg/m^2). Two additional trials reported the numbers of participants who fell into particular BMI ranges (Do 2015; Heim 2007).

Intervention characteristics

Intervention length ranged from four weeks to 24 months. Most studies provided interventions lasting eight (Banasik 2011; Blank 2005; Cantarero-Villanueva 2013; Carson 2009; Cuesta-Vargas 2014; Daley 2007; Guinan 2013; Herrero 2006; Loh 2014; Loudon 2014; Malicka 2011; Martin 2013; McKenzie 2003; Naumann 2012; Nieman 1995; Taleghani 2012) or 12 weeks (three months) (Baruth 2013; Bower 2011; Cormie 2014; Duijits 2012; Ergun 2013; Hatchett 2013; Kiecolt-Glaser 2014; Matthews 2007; Milne 2008; Musanti 2012; Mustian 2004; Nikander 2007; Pinto 2003; Pinto 2005; Pinto 2015; Rogers 2009; Rogers 2013; Rogers 2014; Rogers 2015; Short 2014; Vallance 2007). Four (6%) studies conducted year-long interventions (Irwin 2015; Saarto 2012; Schmitz 2009; Winters-Stone 2011). Seventeen (27%) trials had a follow-up period that extended beyond completion of the intervention (Bower 2011; Cantarero-Villanueva 2013; Carson 2009; Daley 2007; Duijits 2012; Fillion 2008; Guinan 2013; Kiecolt-Glaser 2014; Loudon 2014; Pinto 2005; Pinto 2015; Rogers 2009; Rogers 2015; Segar 1998; Short 2014; Vallance 2007; Waltman 2010). Follow-up duration ranged from two weeks in Carson 2009 and Segar 1998 to 12 months in Waltman 2010; the most common follow-up duration was three months (n = 8; Bower 2011; Duijits 2012; Fillion 2008; Guinan 2013; Kiecolt-Glaser 2014; Pinto 2015; Rogers 2009; Rogers 2015). Two trials provided follow-up only to intervention groups (Do 2015; Dolan 2016).

Physical activity modes differed across trials. Only seven (11%) trials included a separate resistance training condition with no form of aerobic activity (i.e. any activity that uses large muscle groups, can be maintained continuously, and is rhythmical in nature) (Cormie 2014; Martin 2013; Musanti 2012; Schmitz 2005; Schmitz 2009; Waltman 2010; Winters-Stone 2011). Twenty-one (33%) trials involved an intervention arm that combined aerobic activity and resistance training (Cantarero-Villanueva 2013; Cuesta-Vargas 2014; Do 2015; Ergun 2013; Heim 2007; Herrero 2006; Irwin 2015; Kaltsatou 2011; Ligibel 2008; McKenzie 2003; Milne 2008; Musanti 2012; Naumann 2012; Nieman 1995; Pinto 2003; Portela 2008; Rahnama 2010; Rogers 2013; Rogers 2014; Short 2014; Taleghani 2012). Twenty-eight (44%) trials consisted of an aerobic activity-only condition (Baruth 2013; Basen-Enquist 2006; Cadmus 2009; Cerulli 2014; Courneya 2003; Daley 2007; DeNysschen 2011; Dolan 2016; Duijits 2012; Ergun 2013; Fillion 2008; Guinan 2013; Hatchett 2013; Loh 2014; Malicka 2011; Matthews 2007; Mehnert 2011; Murtezani 2014; Musanti 2012; Nikander 2007; Payne 2008; Pinto 2005; Pinto 2015; Rogers 2009; Rogers 2015; Saarto 2012; Segar 1998; Vallance 2007). Eight studies (13%) included a yoga-only arm (Banasik 2011; Blank 2005; Bower 2011; Carson 2009; Kiecolt-Glaser 2014; Littman 2012; Loudon 2014; Peppone 2015), and one study provided each of the following intervention arms: pilates only (Martin 2013), tai chi only (Mustian 2004), and qigong (similar to tai chi) only (Loh 2014).

Frequency (number of days per week) of physical activity ranged from two days to seven days per week, with most studies providing physical activity at least three days per week (n = 44; Baruth 2013; Blank 2005; Cadmus 2009; Cantarero-Villanueva 2013; Carson 2009; Courneya 2003; Cuesta-Vargas 2014; Daley 2007; DeNysschen 2011; Do 2015; Dolan 2016; Ergun 2013; Fillion 2008; Guinan 2013; Heim 2007; Herrero 2006; Kaltsatou 2011; Littman 2012; Loh 2014; Loudon 2014; Martin 2013; Matthews 2007; McKenzie 2003; Milne 2008; Murtezani 2014; Musanti 2012; Mustian 2004; Naumann 2012; Nieman 1995; Nikander 2007; Payne 2008; Pinto 2003; Pinto 2005; Pinto 2015; Portela 2008; Rahnama 2010; Rogers 2014; Rogers 2015; Saarto 2012; Segar 1998; Short 2014; Taleghani 2012; Vallance 2007; Winters-Stone 2011). Duration of sessions ranged from 15 minutes to longer than 95 minutes, with a modal duration of 60 minutes (n = 16; Cantarero-Villanueva 2013; Cerulli 2014; Cormie 2014; Cuesta-Vargas 2014; Fillion 2008; Kaltsatou 2011; Malicka 2011; Milne 2008; Mustian 2004; Naumann 2012; Nieman 1995; Nikander 2007; Saarto 2012; Schmitz 2005; Taleghani 2012; Winters-Stone 2011). Five studies gave participants a goal total number of minutes of physical activity to achieve each week (90 minutes/week, Ligibel 2008; 150 minutes/week, Irwin 2015; Rogers 2009; Rogers 2015; 150 to 180 minutes/week, Duijits 2012). The total number of sessions for physical activity interventions ranged between 12 and 260.

Among 48 (76%) trials that consisted of aerobic physical activity, 13 provided walking only (Baruth 2013; Ergun 2013; Fillion 2008;

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Heim 2007; Matthews 2007; Musanti 2012; Nieman 1995; Payne 2008; Portela 2008; Rahnama 2010; Rogers 2009; Rogers 2014; Rogers 2015), four involved primarily walking (Basen-Enquist 2006; Cadmus 2009; Irwin 2015; Vallance 2007), one involved Nordic walking (Malicka 2011), and one provided walking with gymnastics (Mehnert 2011). Other aerobic intervention modes involved arm ergometer exercise (McKenzie 2003), cycling only (Courneya 2003; Herrero 2006), deep water running (Cuesta-Vargas 2014), deep water aquatic exercise (Cantarero-Villanueva 2013), Greek dance (Kaltsatou 2011), horse riding (Cerulli 2014), line dancing and qigong (Loh 2014), and step aerobics and circuit training (involving steps, hops, and jumps) (Nikander 2007; Saarto 2012). In all other trials, participants performed the prescribed physical activity using a range of modes (e.g. treadmill, rowing ergometer, stair climbing).

Of the 45 studies providing an aerobic activity intervention, 39 reported frequency of aerobic activity ranging from two to seven days per week. In 33 (53%) studies, the number of aerobic activity sessions per week ranged between three and five (Baruth 2013; Cadmus 2009; Cantarero-Villanueva 2013; Cerulli 2014; Courneya 2003; Cuesta-Vargas 2014; Daley 2007; DeNysschen 2011; Do 2015; Dolan 2016; Ergun 2013; Fillion 2008; Herrero 2006; Kaltsatou 2011; Kim 2015; Littman 2012; Loh 2014; Matthews 2007; McKenzie 2003; Milne 2008; Murtezani 2014; Musanti 2012; Nieman 1995; Nikander 2007; Payne 2008; Pinto 2003; Pinto 2015; Portela 2008; Rogers 2014; Saarto 2012; Segar 1998; Taleghani 2012; Vallance 2007). Duration of aerobic activity ranged between 10 and 90 minutes. Twenty-four (38%) trials included aerobic activity sessions with duration of 30 minutes or greater (Baruth 2013; Cadmus 2009; Cantarero-Villanueva 2013; Cerulli 2014; Daley 2007; DeNysschen 2011; Do 2015; Ergun 2013; Fillion 2008; Heim 2007; Herrero 2006; Ligibel 2008; Loh 2014; Malicka 2011; Mehnert 2011; Nieman 1995; Nikander 2007; Pinto 2003; Pinto 2015; Portela 2008; Rogers 2014; Saarto 2012; Segar 1998; Vallance 2007).

Intensity of aerobic activity varied substantially between trials, as did methods used to measure and monitor intensity. Seventeen (27%) trials set intensity according to percentage of maximum heart rate (%HRmax range 40% to 80%) (Cadmus 2009; Cerulli 2014; Daley 2007; Herrero 2006; Irwin 2015; Kaltsatou 2011; Ligibel 2008; Malicka 2011; Milne 2008; Musanti 2012; Nieman 1995; Pinto 2003; Pinto 2005; Portela 2008; Rahnama 2010; Segar 1998; Taleghani 2012), four (6%) set percentage of target heart rate using the Karvonen method (Karvonen target heart rate range 35% to 80%) (Duijits 2012; Guinan 2013; Murtezani 2014; Rogers 2014), one (2%) study set intensity as heart rate at the intensity of activity that elicits a blood lactate concentration of 2 to 3 mmol, three (5%) studies used percentage of directly measured maximal oxygen uptake (% VO_2max range 45% to 75%) (Courneya 2003; Do 2015; Mehnert 2011), seven (11%) studies used rate of perceived exertion (RPE; range 10 to 16) (Baruth 2013; Daley 2007; DeNysschen 2011; Kim 2015; Matthews 2007; Nikander 2007; Saarto 2012), and 12 (19%) trials reported subjective intensity of the intervention (low to moderate, moderate, or moderate-to-vigorous intensity) (Basen-Enquist 2006; Cantarero-Villanueva 2013; Dolan 2016; Ergun 2013; Naumann 2012; Payne 2008; Pinto 2015; Rogers 2009; Rogers 2013; Rogers 2015; Short 2014; Vallance 2007). Two (3%) trials did not provide the intensity at which aerobic activity was performed (Fillion 2008; Heim 2007).

Frequency of interventions with resistance training ranged between two and five days, with a modal frequency of three days (n = 14; Ergun 2013; Heim 2007; Herrero 2006; Kaltsatou 2011; Kim 2015; Martin 2013; McKenzie 2003; Milne 2008; Musanti 2012; Naumann 2012; Nieman 1995; Pinto 2003; Taleghani 2012; Winters-Stone 2011). Cuesta-Vargas 2014 did not report resistance training frequency. Duration of resistance training sessions ranged between 15 and 90 minutes, with 11 studies reporting duration of 30 to 60 minutes (Cormie 2014; Ergun 2013; Herrero 2006; Ligibel 2008; Martin 2013; Milne 2008; Nieman 1995; Rahnama 2010; Schmitz 2005; Waltman 2010; Winters-Stone 2011). Eleven (17%) studies did not report the duration of sessions (Heim 2007; Irwin 2015; Kim 2015; McKenzie 2003; Musanti 2012; Pinto 2003; Portela 2008; Rogers 2013; Rogers 2014; Short 2014; Taleghani 2012). The number of resistance exercises ranged between four and 12, with a modal exercise number of nine (n = 6; Do 2015; Heim 2007; Kim 2015; Rahnama 2010; Schmitz 2005; Schmitz 2009). Seventeen (27%) trials provided resistance training exercises for both upper and lower body (Cormie 2014; Do 2015; Ergun 2013; Herrero 2006; Irwin 2015; Kim 2015; Martin 2013; Milne 2008; Musanti 2012; Portela 2008; Rahnama 2010; Rogers 2013; Rogers 2014; Schmitz 2005; Schmitz 2009; Waltman 2010; Winters-Stone 2011), one targeted the lower body and abdominals (Ligibel 2008), one targeted the upper body and abdominals (Pinto 2003), one described the programme as general strengthening (Cuesta-Vargas 2014), and four targeted the upper body only (Kaltsatou 2011; McKenzie 2003; Naumann 2012; Taleghani 2012). Remaining studies did not report areas of the body targeted by exercise (Heim 2007; Nieman 1995; Short 2014). One study combined resistance training with jump exercises with added resistance up to 10% of body weight (Winters-Stone 2011).

Ten (16%) trials used resistance machines (Irwin 2015; Kaltsatou 2011; Ligibel 2008; Portela 2008; Rahnama 2010; Schmitz 2005; Schmitz 2009; Segar 1998; Taleghani 2012; Waltman 2010), eight (13%) used free weights (i.e. dumbbells and barbells) (Cormie 2014; Pinto 2003; Portela 2008; Rahnama 2010; Schmitz 2005; Schmitz 2009; Waltman 2010; Winters-Stone 2011), and seven (11%) used resistance (Thera) bands (Ergun 2013; Kim 2015; Musanti 2012; Portela 2008; Rogers 2013; Rogers 2014; Winters-Stone 2011). The number of sets per resistance exercise ranged from one to four (mode 2 sets; Cuesta-Vargas 2014; Kim 2015; Milne 2008; Nieman 1995; Portela 2008; Rogers 2014; Taleghani 2012; Waltman 2010), and the number of repetitions per set ranged from 6 to 20, with the modal repetition range of 8 to 12 (n = 4; Irwin 2015; Taleghani 2012; Waltman 2010; Winters-Stone 2011). Intensity of resistance exercises was set according to the percentage of maximum weight a participant could lift in one repetition (%1RM range 65% to 85%) in four (6%) trials (Cormie 2014; Do 2015; Ligibel 2008; Winters-Stone 2011), with 12 to 15 repetition maximum in one trial (Herrero 2006), and with RPE in three (5%) trials (Martin 2013; Musanti 2012; Portela 2008); participants lifted "as much as they could" in Rahnama 2010, and as much as they could achieve "with good form" in Milne 2008.

Most of the eight yoga studies employed a form of Hatha yoga (n = 6; Hatha: Kiecolt-Glaser 2014; Peppone 2015; Iyengar: Banasik 2011; Blank 2005; Bower 2011; Viniyoga: Littman 2012); Loudon 2014 included a Satyananda yoga intervention arm, and Carson 2009 a Yoga of Awareness intervention arm. Yoga studies ranged between 4 and 24 weeks in duration, with four studies lasting eight weeks (Banasik 2011; Blank 2005; Carson 2009; Loudon 2014). Frequency of yoga practice ranged between two and seven sessions per week (mode 2 sessions/week; Banasik 2011; Bower 2011; Kiecolt-Glaser 2014; Peppone 2015), and yoga session duration ranged between

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20 and 90 minutes (mode 90 minutes; Banasik 2011; Bower 2011; Kiecolt-Glaser 2014; Loudon 2014). Investigators in these studies described the intensity of all yoga interventions as moderate, apart from Carson 2009, which referred to gentle intensity, and Peppone 2015, which described light intensity. Light-to-moderate-intensity qigong and tai chi interventions in Loh 2014 and Mustian 2004, respectively, had a duration of 8 weeks and 12 weeks, a frequency of three sessions per week, and session duration of 30 minutes (twice a week at home) or 90 minutes (once a week supervised) and 60 minutes, respectively. Martin 2013 provided the only pilates intervention, which consisted of three 50-minute sessions per week performed within an RPE intensity range of 9 to 14 for eight weeks.

In 24 (38%) trials, the intervention arm involved a psychobehavioural component designed to promote physical activity behaviour change (Baruth 2013; Basen-Enquist 2006; Carson 2009; Courneya 2003; Cuesta-Vargas 2014; Daley 2007; DeNysschen 2011; Duijits 2012; Ergun 2013; Fillion 2008; Hatchett 2013; Matthews 2007; Musanti 2012; Pinto 2005; Pinto 2015; Portela 2008; Rogers 2009; Rogers 2013; Rogers 2014; Rogers 2015; Segar 1998; Short 2014; Vallance 2007; Waltman 2010). Seven studies delivered the psychobehavioural component via group discussions (Basen-Enquist 2006; Carson 2009; Fillion 2008; Rogers 2009; Rogers 2013; Rogers 2014; Rogers 2015); some trials employed face-to-face counselling in a single session at the beginning of the intervention (Baruth 2013; Matthews 2007); others scheduled multiple sessions during the intervention period (Rogers 2009; Rogers 2013; Rogers 2015), mailed or emailed support (Hatchett 2013; Pinto 2005; Short 2014), or provided information booklets promoting physical activity behaviour change (Musanti 2012; Short 2014; Vallance 2007). Two studies applied cognitive-behavioural theories (Cuesta-Vargas 2014; Daley 2007), and one study utilised self-efficacy theory during supervised exercise sessions with participants (Waltman 2010). Segar 1998 included a study arm that applied self-awarded rewards to serve as reinforcements to induce physical activity behaviour change. Courneya 2003 incorporated into the intervention individual or small group meetings designed to outline goals and provide feedback on participants' progress. Eleven studies (17%) implemented weekly or fortnightly telephone counselling or monitoring throughout the intervention period (Baruth 2013; DeNysschen 2011; Duijits 2012; Ergun 2013; Fillion 2008; Matthews 2007; Musanti 2012; Pinto 2005; Pinto 2015; Portela 2008; Waltman 2010). The number of telephone counselling sessions ranged between 4 and 26, and their duration ranged from 5 to 15 minutes. Topics covered in the psychobehavioural component included goal setting, barriers to and benefits of physical activity, physical activity adherence monitoring and safety, behaviour reinforcement, and symptom management. Several studies included an educational component at baseline that was deemed not to promote physical activity behaviour change (Heim 2007; Irwin 2015; Mehnert 2011; Schmitz 2009). Two of these studies provided participants with education related to lymphoedema and other cancer-related topics (Irwin 2015; Schmitz 2009), one study provided education on how to perform specific exercises (Mehnert 2011), and another trial provided an educational programme, physical therapy, group exercise, and psycho-oncological interventions for both intervention and control groups (Heim 2007).

Interventions in 32 (51%) trials involved a supervised component (Banasik 2011; Bower 2011; Cantarero-Villanueva 2013; Cerulli 2014; Cormie 2014; Courneya 2003; Cuesta-Vargas 2014; Daley 2007; Do 2015; Dolan 2016; Ergun 2013; Herrero 2006; Kaltsatou 2011; Kiecolt-Glaser 2014; Littman 2012; Loudon 2014; Malicka 2011; Martin 2013; McKenzie 2003; Mehnert 2011; Milne 2008; Murtezani 2014; Mustian 2004; Naumann 2012; Nieman 1995; Peppone 2015; Portela 2008; Rahnama 2010; Schmitz 2005; Schmitz 2009; Segar 1998; Taleghani 2012); 16 (25%) trials included a home-based physical activity component (Baruth 2013; Basen-Enquist 2006; DeNysschen 2011; Duijits 2012; Ergun 2013; Hatchett 2013; Heim 2007; Kim 2015; Matthews 2007; Musanti 2012; Payne 2008; Pinto 2005; Pinto 2015; Portela 2008; Short 2014; Vallance 2007), and 17 (27%) studies provided an intervention that included both supervised and home-based physical activity (Blank 2005; Cadmus 2009; Carson 2009; Fillion 2008; Guinan 2013; Irwin 2015; Ligibel 2008; Loh 2014; Nikander 2007; Pinto 2003; Rogers 2009; Rogers 2013; Rogers 2014; Rogers 2015; Saarto 2012; Waltman 2010; Winters-Stone 2011). With regards to the format of physical activity interventions, 27 (43%) studies consisted of an individual physical activity format (Baruth 2013; Basen-Enquist 2006; Cerulli 2014; Courneya 2003; Daley 2007; DeNysschen 2011; Duijits 2012; Ergun 2013; Hatchett 2013; Heim 2007; Kim 2015; Matthews 2007; McKenzie 2003; Musanti 2012; Naumann 2012; Payne 2008; Pinto 2003; Pinto 2005; Pinto 2015; Portela 2008; Rogers 2013; Rogers 2014; Schmitz 2005; Short 2014; Taleghani 2012; Vallance 2007; Waltman 2010), 15 (24%) studies incorporated a group physical activity format (Banasik 2011; Bower 2011; Cantarero-Villanueva 2013; Cormie 2014; Cuesta-Vargas 2014; Fillion 2008; Herrero 2006; Kaltsatou 2011; Malicka 2011; Mehnert 2011; Milne 2008; Murtezani 2014; Mustian 2004; Peppone 2015; Schmitz 2009), and 14 (25%) studies used a combination of group and individual physical activity interventions (Blank 2005; Cadmus 2009; Carson 2009; Guinan 2013; Irwin 2015; Kiecolt-Glaser 2014; Ligibel 2008; Littman 2012; Loh 2014; Loudon 2014; Nikander 2007; Rogers 2009; Saarto 2012; Winters-Stone 2011). The format employed in the intervention was unclear in seven studies (Do 2015; Dolan 2016; Martin 2013; Nieman 1995; Rahnama 2010; Rogers 2015; Segar 1998).

Most trials enlisted the services of doctorate students, exercise physiologists, exercise/sports trainers/specialists, fitness/exercise instructors, health counsellors, kinesiologists, physical and sports therapists, physiotherapists, nurses, yoga instructors, or other professionals to lead the exercise programme (n = 46, 73%; Banasik 2011; Blank 2005; Bower 2011; Cadmus 2009; Cantarero-Villanueva 2013; Carson 2009; Cerulli 2014; Cormie 2014; Courneya 2003; Cuesta-Vargas 2014; Daley 2007; DeNysschen 2011; Do 2015; Duijits 2012; Ergun 2013; Fillion 2008; Hatchett 2013; Heim 2007; Herrero 2006; Irwin 2015; Kaltsatou 2011; Kiecolt-Glaser 2014; Kim 2015; Ligibel 2008; Littman 2012; Loh 2014; Loudon 2014; Matthews 2007; Mehnert 2011; Milne 2008; Mustian 2004; Naumann 2012; Peppone 2015; Pinto 2003; Portela 2008; Rogers 2009; Rogers 2013; Rogers 2014; Rogers 2015; Saarto 2012; Schmitz 2005; Schmitz 2009; Short 2014; Taleghani 2012; Waltman 2010; Winters-Stone 2011). Pinto 2015 trained breast cancer survivors to deliver the physical activity intervention; Baruth 2013 utilised doctorate students, Martin 2013 used sport and exercise science students, and Musanti 2012, Payne 2008, and Segar 1998 used research staff.

Most trials (n = 30; 48%) described the comparison arm as "usual" or "standard" care, "no intervention", "sedentary control", or "control", and 24 (38%) studies included a comparison arm that was a "waiting list" or "delayed exercise" control, wherein participants were offered a portion of or the full exercise programme at

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completion of the trial (Blank 2005; Cadmus 2009; Carson 2009; Cormie 2014; Courneya 2003; Cuesta-Vargas 2014; Do 2015; Dolan 2016; Duijits 2012; Hatchett 2013; Kiecolt-Glaser 2014; Ligibel 2008; Littman 2012; Loh 2014; Loudon 2014; Matthews 2007; Milne 2008; Peppone 2015; Pinto 2003; Pinto 2005; Rogers 2009; Rogers 2013; Schmitz 2005; Schmitz 2009). Baruth 2013 offered counselling to the usual care group at the end of the intervention period. In eight (13%) trials, the comparison group received an intervention that included health education (Bower 2011); phone calls (DeNysschen 2011); an educational programme, physical therapy, group discussion exercises, and psycho-oncological interventions (Heim 2007); psychosocial support therapy (Mustian 2004); light-intensity body conditioning/stretching exercises (e.g. flexibility, passive stretching) (Daley 2007; Musanti 2012; Winters-Stone 2011); and an attention control (Milne 2008; Pinto 2005).

Trial attrition and adherence

Fifty-five (87%) of the included trials reported attrition data. Nine trials (16%) reported no dropouts at postintervention follow-up in both intervention and control groups (Cerulli 2014; Cuesta-Vargas 2014; DeNysschen 2011; Ergun 2013; Malicka 2011; Martin 2013; Milne 2008; Nikander 2007; Segar 1998), and four additional trials (7%) reported no dropouts in the control group only (Baruth 2013; Mehnert 2011; Pinto 2005; Portela 2008). Twelve trials (22%) - Basen-Enquist 2006; Carson 2009; Do 2015; Herrero 2006; Ligibel 2008; Loh 2014; Loudon 2014; Mustian 2004; Nieman 1995; Pinto 2003; Portela 2008; Rogers 2013 - and eight trials (15%) - Do 2015; Guinan 2013; Herrero 2006; Loh 2014; Mustian 2004; Nieman 1995; Pinto 2003; Rogers 2013 - reported attrition of at least 20% in the intervention and control groups, respectively. Most trials that included a postintervention follow-up period reported greater attrition at least three months post intervention than immediately post intervention.

Fifty-two trials (83%) reported adherence data in several different ways, including average, median, range, number, or percentage of participants completing all or a certain percentage or number of sessions, numbers meeting physical activity guidelines, and minutes of physical activity achieved per week. Furthermore, some trials provided adherence data for completers only. Among trials that reported the percentage of completed aerobic exercise and resistance training sessions, average adherence was 79% (range 36% to 163% of targeted session) and 75% (range 26% to 98%), respectively. Most trials that included postintervention follow-up adherence data showed considerable reductions, for example, one trial reported that only 50% of intervention participants met the recommended physical activity guideline of 150 minutes of moderate-to-vigorous physical activity per week (Vallance 2007), and another trial observed a decrease in moderate-to-vigorous physical activity from 130 minutes per week at the end of intervention to 98 minutes three months later (Pinto 2015).

Outcome measures

Health-related quality of life outcomes

Investigators performed HRQoL assessment using the Cancer Rehabilitation Evaluation System Short Form (CARES-SF) (Schmitz 2005), the European Organization for Research and Treatment of Cancer (EORTC) Quality of Life Questionnaire-C30 (QLQ-C30) (Do 2015; Duijits 2012; Ergun 2013; Herrero 2006; Mehnert 2011; Saarto 2012), Functional Assessment of Cancer Therapy (FACT) - Fatigue (FACT-F) (Mustian 2004), EuroQol-five dimensions (EQ-5D) and EQ Visual Analogue Scale (Cuesta-Vargas 2014), Functional Assessment of Cancer Therapy - General (FACT-G) (Cadmus 2009; Cerulli 2014; Courneya 2003; Daley 2007; Heim 2007; Littman 2012; Loh 2014; Milne 2008; Murtezani 2014; Rogers 2009; Rogers 2015; Vallance 2007), Functional Assessment of Cancer Therapy-Breast (FACT-B) (Courneya 2003; Daley 2007; Heim 2007; Littman 2012; Loh 2014; Milne 2008; Murtezani 2014; Naumann 2012; Pinto 2015; Portela 2008; Rogers 2009; Rogers 2015; Short 2014; Vallance 2007), International Breast Cancer Study Group (IBCSG) Quality of Life Core Questionnaire (Baruth 2013), Lymphoedema Quality of Life Tool (LYMQOL) (Loudon 2014), Medical Outcomes Study Short Form-12 (MOS SF-12) (Cuesta-Vargas 2014; Fillion 2008), Medical Outcomes Study Short Form-36 (MOS SF-36) (Baruth 2013; Basen-Enquist 2006; Cadmus 2009; Cormie 2014; Duijits 2012; Kiecolt-Glaser 2014; McKenzie 2003; Mehnert 2011; Mustian 2004; Pinto 2015; Schmitz 2009; Winters-Stone 2011), National Medical Center and Beckman Research Institute Standard Instrument of Quality of Life Breast Cancer Survivors (Taleghani 2012), and Perceived General Health (Rogers 2009). We have provided in Table 1 details of HRQoL subscales (cognitive function, emotional function/metal health, general health perspective, perceived physical function, role function, sexual function, sleep, social function) and other psychological outcomes (anxiety, depression, fatigue and vitality, pain/disability, and self-esteem/body image) as provided in eligible studies.

Cardiorespiratory fitness outcomes

Investigators assessed cardiorespiratory fitness using maximal or submaximal tests for direct or indirect measurement of VO_2max/peak or by assessing the distance walked for a given time period. Six (10%) trials directly measured VO_2max/peak using a maximal exercise test (Courneya 2003; DeNysschen 2011; Dolan 2016; Herrero 2006; Irwin 2015; Mehnert 2011). Twelve (19%) studies assessed VO_2max indirectly either maximally or submaximally (Cerulli 2014; Daley 2007; Do 2015; Fillion 2008; Milne 2008; Musanti 2012; Naumann 2012; Rahnama 2010; Rogers 2009; Rogers 2013; Rogers 2014; Rogers 2015). Eleven (17%) studies assessed cardiorespiratory fitness using a field test (Basen-Enquist 2006; Heim 2007; Kaltsatou 2011; Kim 2015; Murtezani 2014; Mustian 2004; Nieman 1995; Nikander 2007; Pinto 2005; Portela 2008; Saarto 2012). Details of these cardiorespiratory outcomes are provided in Table 2. One trial assessed only the intervention group via a peak graded exercise stress test on a cycle ergometer (Pinto 2003). Other cardiovascular measures assessed in studies included resting heart rate (Courneya 2003; Dolan 2016; Rahnama 2010), resting systolic blood pressure (Cadmus 2009; Courneya 2003; Guinan 2013; Kaltsatou 2011; Rahnama 2010), resting diastolic blood pressure (Cadmus 2009; Courneya 2003; Guinan 2013; Rahnama 2010), and heart rate reserve (Courneya 2003).

Physical activity outcomes

In all, 23 (37%) studies measured physical activity via self-report and 12 (19%) studies performed objective measurements. Twenty (32%) studies reported both preintervention and postintervention physical activity (Baruth 2013; Basen-Enquist 2006; Cadmus 2009; Courneya 2003; Guinan 2013; Hatchett 2013; Irwin 2015; Kiecolt-Glaser 2014; Kim 2015; Littman 2012; Matthews 2007; Pinto 2005; Pinto 2015; Rogers 2009; Rogers 2015; Saarto 2012; Schmitz 2009; Short 2014; Vallance 2007; Winters-Stone 2011). Ten (16%) studies assessed preintervention to postintervention physical activity objectively via accelerometers (Guinan 2013; Matthews 2007; Pinto

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2005; Pinto 2015; Rogers 2009; Rogers 2014; Rogers 2015); Cadmus 2009, Short 2014, and Vallance 2007 used pedometers. We have provided details of these physical activity outcomes in Table 2.

Anthropometric outcomes

Anthropometric outcomes included in eligible studies consisted of body mass (n = 22; 35%), BMI (n = 19; 30%), hip circumference (n = 7; 11%), waist circumference (n = 9; 14%), and waist-to-hip ratio (n = 5; 8%). Nineteen (30%) studies included some body composition measure (Cadmus 2009; Cerulli 2014; Courneya 2003; Daley 2007; DeNysschen 2011; Guinan 2013; Herrero 2006; Ligibel 2008; Matthews 2007; Musanti 2012; Mustian 2004; Naumann 2012; Rogers 2009; Rogers 2013; Rogers 2014; Saarto 2012; Schmitz 2005; Schmitz 2009; Winters-Stone 2011). We have provided details of anthropometric and body composition outcomes in Table 2.

Muscular strength outcomes

Seventeen (27%) studies assessed lower body muscular strength (Cerulli 2014; Cormie 2014; Do 2015; Dolan 2016; Heim 2007; Milne 2008; Musanti 2012; Naumann 2012; Nieman 1995; Nikander 2007; Rogers 2009; Rogers 2013; Saarto 2012; Schmitz 2005; Schmitz 2009; Waltman 2010; Winters-Stone 2011), whereas 20 (32%) studies included a measure of upper body muscular strength (Cerulli 2014; Cormie 2014; Do 2015; Heim 2007; Irwin 2015; Kaltsatou 2011; Kim 2015; Malicka 2011; Milne 2008; Musanti 2012; Mustian 2004; Naumann 2012; Nikander 2007; Portela 2008; Rogers 2009; Saarto 2012; Schmitz 2005; Schmitz 2009; Waltman 2010; Winters-Stone 2011). We have provided details of muscular strength outcomes in Table 2. One study reported the "maximal weight lifted for each exercise during strength training sessions" only for the intervention group (Ligibel 2008).

Bone-related outcomes

Two (3%) studies measured total bone mineral content (BMC) using dual-energy X-ray absorptiometry (DEXA) (Cadmus 2009; Saarto 2012); Saarto 2012 assessed BMC of the distal tibia, tibial midshaft, and femoral neck. Six trials assessed bone mineral density (BMD) via DEXA (Cadmus 2009; Kim 2015; Rogers 2009; Saarto 2012; Waltman 2010; Winters-Stone 2011). Saarto 2012 assessed BMC, total cross-sectional area, cortical density, and density-weighted polar section modulus via peripheral quantitative computed tomography (pQCT) scans of the left distal tibia and tibial midshaft. Four (6%) studies provided data for biomarkers of bone turnover (Kim 2015; Mustian 2004; Waltman 2010; Winters-Stone 2011). We have provided details of bone-related outcomes in Table 2.

Excluded studies

We retrieved a total of 86 studies, then excluded them after review as they did not meet the inclusion criteria. We excluded 13 (15%) studies as they used a non-randomised controlled trial design and included no comparison group (Fernandez-Lao 2013; Fong 2014; Galantino 2013; Hojan 2013; Hunt-Shanks 2006; Hutnick 2005; Johnsson 2013; Lee 2010; Naumann 2012a; Sherman 2010; Speed-Andrews 2010; Sprod 2010; Ulger 2010). We excluded 13 (15%) studies as they did not analyse populations with breast cancer separately (Buffart 2012; Burnham 2002; Culos-Reed 2006; Demark 2006; Ibfelt 2011; LaStayo 2011; Ligibel 2012; May 2008; Oh 2010; Stevinson 2007; Tang 2010; Thorsen 2005; Van Weert 2005). We excluded two (2%) studies as they involved only patients with stage IV breast disease (Cunningham 1998; Headley 2004). We excluded one (1%) study as it involved only pretreatment patients with breast cancer (Cohen 2010), and 13 (15%) as they included patients receiving concurrent adjuvant chemotherapy and radiotherapy (Anderson 2012; Danhauer 2009; Hsiao-Fang 2013; Hsieh 2008; Husebo 2014; Isabell 2010; Kilbreath 2012; Moadel 2007; Naraphong 2015; Sandel 2005; Segal 2001; Taso 2014; Yuen 2007). We excluded 29 (34%) studies as they did not compare a physical activity intervention versus no physical activity, another intervention, or usual care (Benton 2014; Cadmus-Bertram 2011; Carter 2012; Cheema 2006; D'Atillio 2007; Damush 2006; De Backer 2007; Dimeo 2008; Eyigor 2010; Hanna 2008; Johansson 2005; Kovacic 2011; Noble 2012; Oldervoll 2011; Pinto 2008; Pinto 2013; Rabin 2006; Rabin 2009; Schmidt 2012; Schneider 2007; Schwartz 1999; Sprod 2005; Stan 2012; Stan 2013; Szczwpanska-Gieracha 2010; Turner 2004; Van Puymbroeck 2011; Wong 2012; Wu 2008). We excluded 10 (12%) studies in which the effect of physical activity could not be isolated because the intervention included dietary modification (Casla 2015; Djuric 2002; Kim Soo 2011; Mefferd 2007), lifestyle interventions and/or patient education (Bloom 2008; Cho 2006), or manual therapy (Cantarero-Villanueva 2012a; Cantarero-Villanueva 2012; Cantarero-Villanueva 2013a; Fernandez-Lao 2012). We excluded seven (8%) studies as the physical activity intervention was limited to shoulder and arm training (Gordon 2005; Hayes 2013; Jeff 2012; Kilbreath 2006; Kilgour 2008; McClure 2010; Tidhar 2010). For detailed information on reasons for exclusion of retrieved studies, see the Characteristics of excluded studies table.

Risk of bias in included studies

For each trial, we have detailed risk of bias in the 'Risk of bias' tables included under Characteristics of included studies and in the 'Risk of bias' summary provided in Figure 2. In addition, we have presented an overall assessment of risk of bias in Figure 3.

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Figure 2. Risk of bias summary: review authors' judgements about each risk of bias item for each included study.

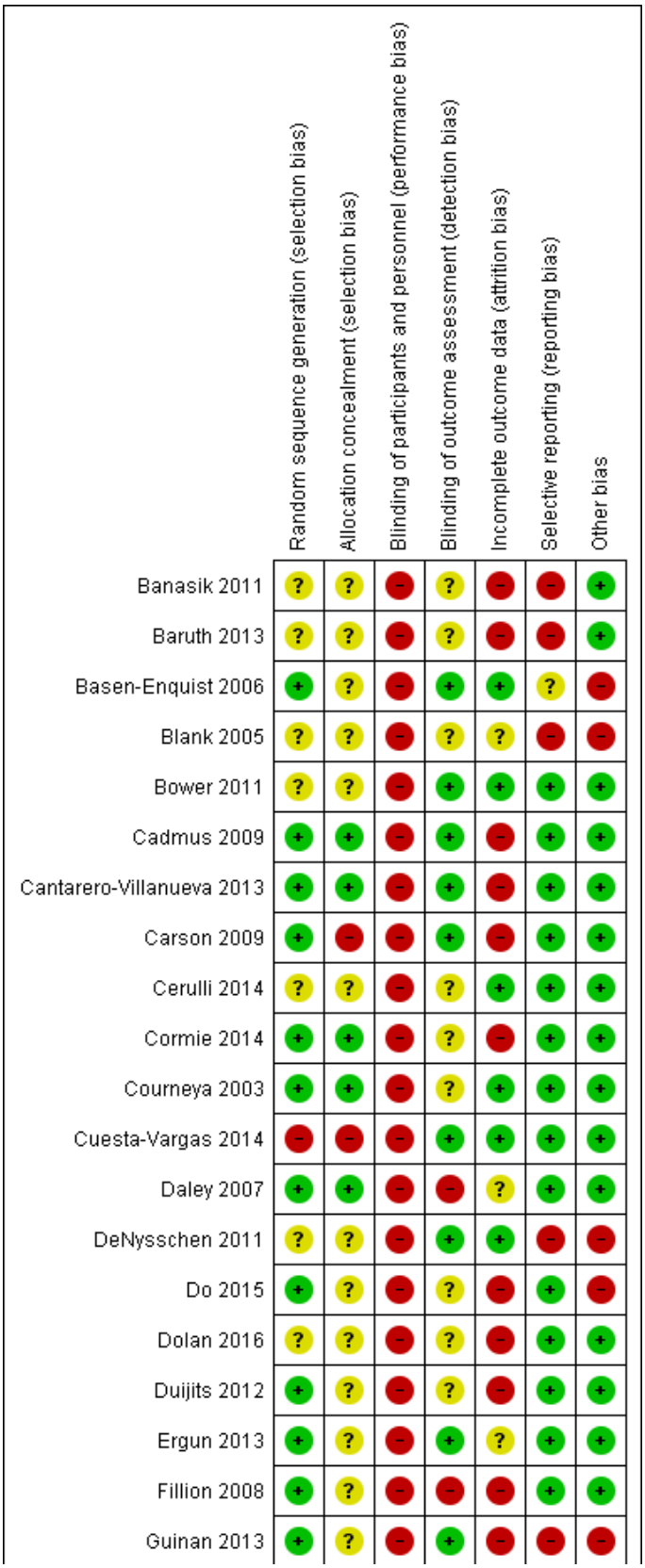

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Figure 2. (Continued)

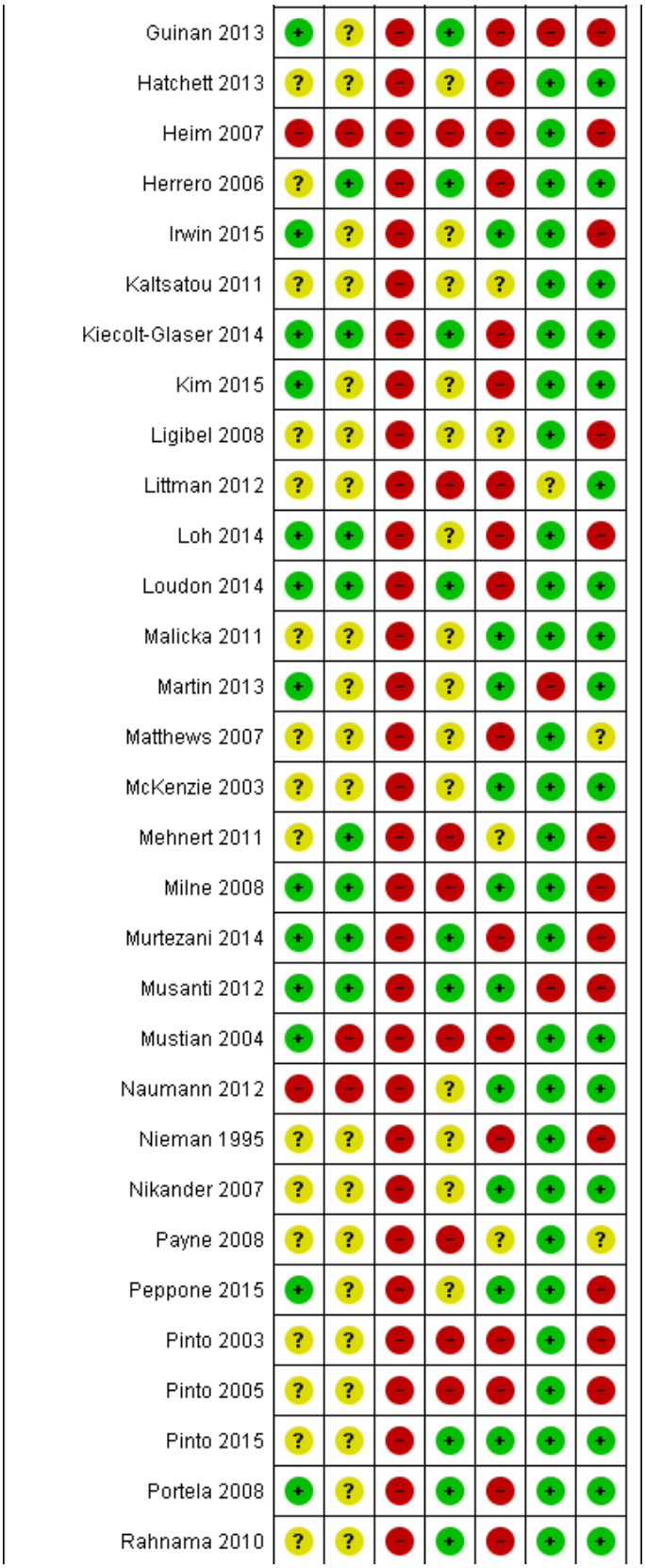

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Figure 2. (Continued)

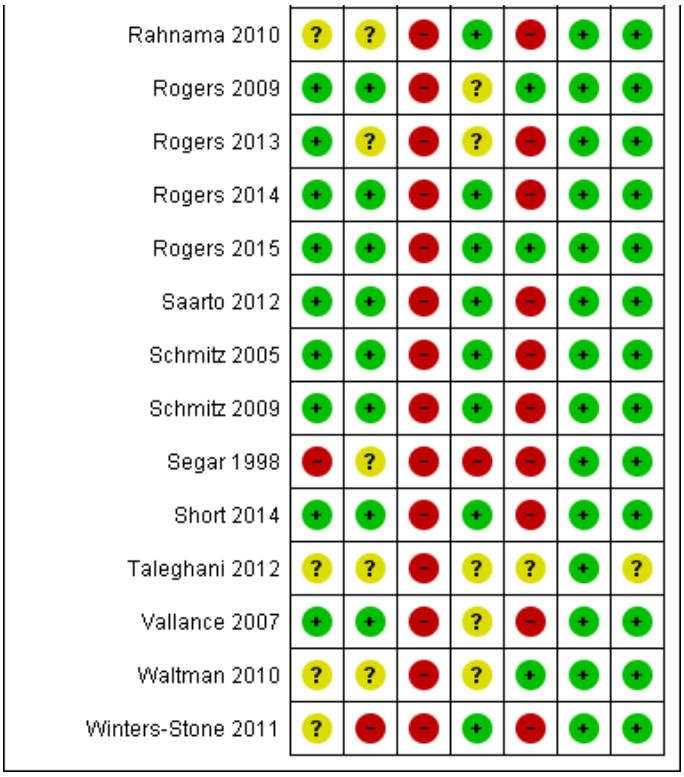
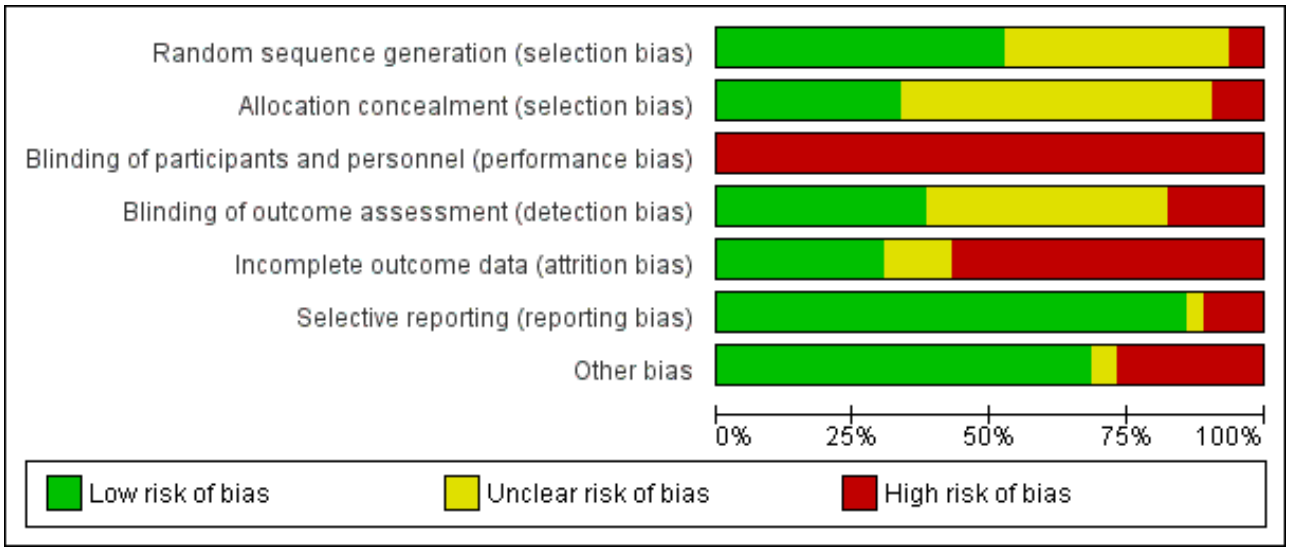


Figure 3. Risk of bias graph: review authors' judgements about each risk of bias item presented as percentages across all included studies.



Allocation

Thirty-two (51%) trials were at a low risk of selection bias owing to adequate generation of the randomised sequence because these trials used a random component to generate the sequence (Cadmus 2009; Cantarero-Villanueva 2013; Carson 2009; Cormie 2014; Courneya 2003; Daley 2007; Do 2015; Duijts 2012; Ergun 2013; Fillion 2008; Guinan 2013; Irwin 2015; Kiecolt-Glaser 2014; Kim 2015; Loh 2014; Loudon 2014; Martin 2013; Milne 2008; Murtezani 2014; Musanti 2012; Mustian 2004; Peppone 2015; Portela 2008; Rogers 2009; Rogers 2013; Rogers 2014; Rogers 2015; Saarto 2012; Schmitz 2005; Schmitz 2009; Short 2014; Vallance 2007). Four (6%) trials had high risk of selection bias as they used a non-random component to generate sequences (Cuesta-Vargas 2014; Heim 2007; Naumann 2012; Segar 1998). We considered 26 (41%) trials to have unclear risk of selection bias, mainly because study authors did not describe generation of the random sequence (Banasik 2011;

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Baruth 2013; Blank 2005; Bower 2011; Cerulli 2014; DeNysschen 2011; Dolan 2016; Hatchett 2013; Herrero 2006; Kaltsatou 2011; Ligibel 2008; Littman 2012; Malicka 2011; Matthews 2007; McKenzie 2003; Mehnert 2011; Nieman 1995; Nikander 2007; Payne 2008; Pinto 2003; Pinto 2005; Pinto 2015; Rahnama 2010; Taleghani 2012; Waltman 2010; Winters-Stone 2011).

Twenty-one (33%) studies were at low risk of selection bias owing to adequate concealment of allocation to the intervention because participants and investigators could not foresee assignment to study groups (Cadmus 2009; Cantarero-Villanueva 2013; Cormie 2014; Courneya 2003; Daley 2007; Herrero 2006; Kiecolt-Glaser 2014; Loh 2014; Loudon 2014; Mehnert 2011; Milne 2008; Murtezani 2014; Musanti 2012; Rogers 2009; Rogers 2014; Rogers 2015; Saarto 2012; Schmitz 2005; Schmitz 2009; Short 2014; Vallance 2007). Six (10%) trials were at high risk of selection bias because it was possible that participants and/or investigators could foresee assignment to study groups (Carson 2009; Cuesta-Vargas 2014; Heim 2007; Mustian 2004; Naumann 2012; Winters-Stone 2011). Although participant allocation was placed in sealed, sequentially numbered envelopes, trial authors in Winters-Stone 2011 did not report whether the envelopes were opaque. We determined that 36 (57%) studies had unclear risk of selection bias owing to allocation concealment, predominantly because investigators did not describe allocation concealment or did not describe allocation concealment in adequate detail for a decision to be made (Banasik 2011; Baruth 2013; Basen-Enquist 2006; Blank 2005; Bower 2011; Cerulli 2014; DeNysschen 2011; Do 2015; Dolan 2016; Duijits 2012; Ergun 2013; Fillion 2008; Guinan 2013; Hatchett 2013; Irwin 2015; Kaltsatou 2011; Kim 2015; Ligibel 2008; Littman 2012; Malicka 2011; Martin 2013; Matthews 2007; McKenzie 2003; Nieman 1995; Nikander 2007; Payne 2008; Peppone 2015; Pinto 2003; Pinto 2005; Pinto 2015; Portela 2008; Rahnama 2010; Rogers 2013; Segar 1998; Taleghani 2012; Waltman 2010).

Blinding

All trials included in this review were at high risk for performance bias because the nature of the intervention (i.e. physical activity) made it impossible to blind trial personnel and participants. We considered 24 (38%) studies to be at low risk of detection bias because outcome assessors were blinded to allocation of participants to study groups (Basen-Enquist 2006; Bower 2011; Cadmus 2009; Cantarero-Villanueva 2013; Carson 2009; Cuesta-Vargas 2014; DeNysschen 2011; Ergun 2013; Guinan 2013; Herrero 2006; Kiecolt-Glaser 2014; Loudon 2014; Murtezani 2014; Musanti 2012; Pinto 2015; Portela 2008; Rahnama 2010; Rogers 2014; Rogers 2015; Saarto 2012; Schmitz 2005; Schmitz 2009; Short 2014; Winters-Stone 2011). However, this was typically done for outcome assessors measuring physical fitness outcomes rather than in cases of self-report outcomes, such as HRQoL and psychological outcomes. Eleven (17%) studies were at high risk of detection bias owing to lack of blinding of outcome assessment (Daley 2007; Fillion 2008; Heim 2007; Littman 2012; Mehnert 2011; Milne 2008; Mustian 2004; Payne 2008; Pinto 2003; Pinto 2005; Segar 1998). Twenty-eight (44%) studies had unclear risk of detection bias (Banasik 2011; Baruth 2013; Bower 2011; Cerulli 2014; Cormie 2014; Courneya 2003; Do 2015; Dolan 2016; Duijits 2012; Hatchett 2013; Irwin 2015; Kaltsatou 2011; Kim 2015; Ligibel 2008; Loh 2014; Malicka 2011; Martin 2013; Matthews 2007; McKenzie 2003; Naumann 2012; Nieman 1995; Nikander 2007; Peppone 2015; Rogers 2009; Rogers 2013; Taleghani 2012; Vallance 2007; Waltman 2010).

Incomplete outcome data

Eighteen (29%) studies were at low risk of attrition bias owing to the quantity, nature, or handling of incomplete outcome data (i.e. no missing data or used an acceptable method for handling missing data, such as multiple imputation) (Basen-Enquist 2006; Bower 2011; Cerulli 2014; Courneya 2003; Cuesta-Vargas 2014; DeNysschen 2011; Irwin 2015; Malicka 2011; Martin 2013; McKenzie 2003; Milne 2008; Musanti 2012; Naumann 2012; Peppone 2015; Pinto 2015; Rogers 2009; Rogers 2015; Waltman 2010). Thirty-five (56%) trials had high risk of attrition bias owing to exclusion of participants with missing data, lack of description of how missing data were handled, or inappropriate methods of handling missing data, such as use of the last observation carried forward (LOCF) method (Banasik 2011; Baruth 2013; Cadmus 2009; Cantarero-Villanueva 2013; Carson 2009; Cormie 2014; Do 2015; Dolan 2016; Duijits 2012; Fillion 2008; Guinan 2013; Hatchett 2013; Heim 2007; Kiecolt-Glaser 2014; Kim 2015; Littman 2012; Loh 2014; Loudon 2014; Matthews 2007; Murtezani 2014; Mustian 2004; Nieman 1995; Pinto 2003; Pinto 2005; Portela 2008; Rahnama 2010; Rogers 2013; Rogers 2014; Saarto 2012; Schmitz 2005; Schmitz 2009; Segar 1998; Short 2014; Vallance 2007; Winters-Stone 2011). Ten (16%) studies had unclear risk of bias (Blank 2005; Daley 2007; Ergun 2013; Herrero 2006; Kaltsatou 2011; Ligibel 2008; Mehnert 2011; Nikander 2007; Payne 2008; Taleghani 2012).

Selective reporting

Most trials (n = 55; 87%) were at low risk of reporting bias, and, based on information provided by trial authors, we had no reason to believe that selective reporting of primary and secondary outcomes occurred. Owing to incomplete reporting of outcome variables, we considered six (10%) studies to be at high risk for reporting bias (Banasik 2011; Baruth 2013; DeNysschen 2011; Guinan 2013; Martin 2013; Musanti 2012), and only two (3%) studies to have unclear risk (Basen-Enquist 2006; Littman 2012).

Other potential sources of bias

Forty-five (71%) studies were at low risk of other biases, and we considered 16 (25%) trials to be at high risk of other biases (Basen-Enquist 2006; Blank 2005; DeNysschen 2011; Do 2015; Heim 2007; Irwin 2015; Ligibel 2008; Loh 2014; Mehnert 2011; Milne 2008; Murtezani 2014; Musanti 2012; Nieman 1995; Peppone 2015; Pinto 2003; Pinto 2005) owing to potential contamination (i.e. increased physical activity in usual care groups), possible occurrence of 'null bias' due to insufficiently delivered interventions (e.g. low adherence to intervention, high dropout rates), and imbalance between groups at baseline. Two (3%) studies were at unclear risk of other biases (Matthews 2007; Payne 2008).

Effects of interventions

See: **Summary of findings for the main comparison** Physical activity versus control for women with breast cancer after adjuvant therapy (immediate postintervention values); **Summary of findings 2** Physical activity versus control for women with breast cancer after adjuvant therapy (change from baseline to end of intervention values)

See Summary of findings for the main comparison and Summary of findings 2. For detailed information on each of the outcomes, as well as on numbers of trials reporting the outcomes, numbers of

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participants for whom outcomes were reported, statistical methods used for analysis, and effect estimates, see Data and analyses.

Breast cancer-related mortality

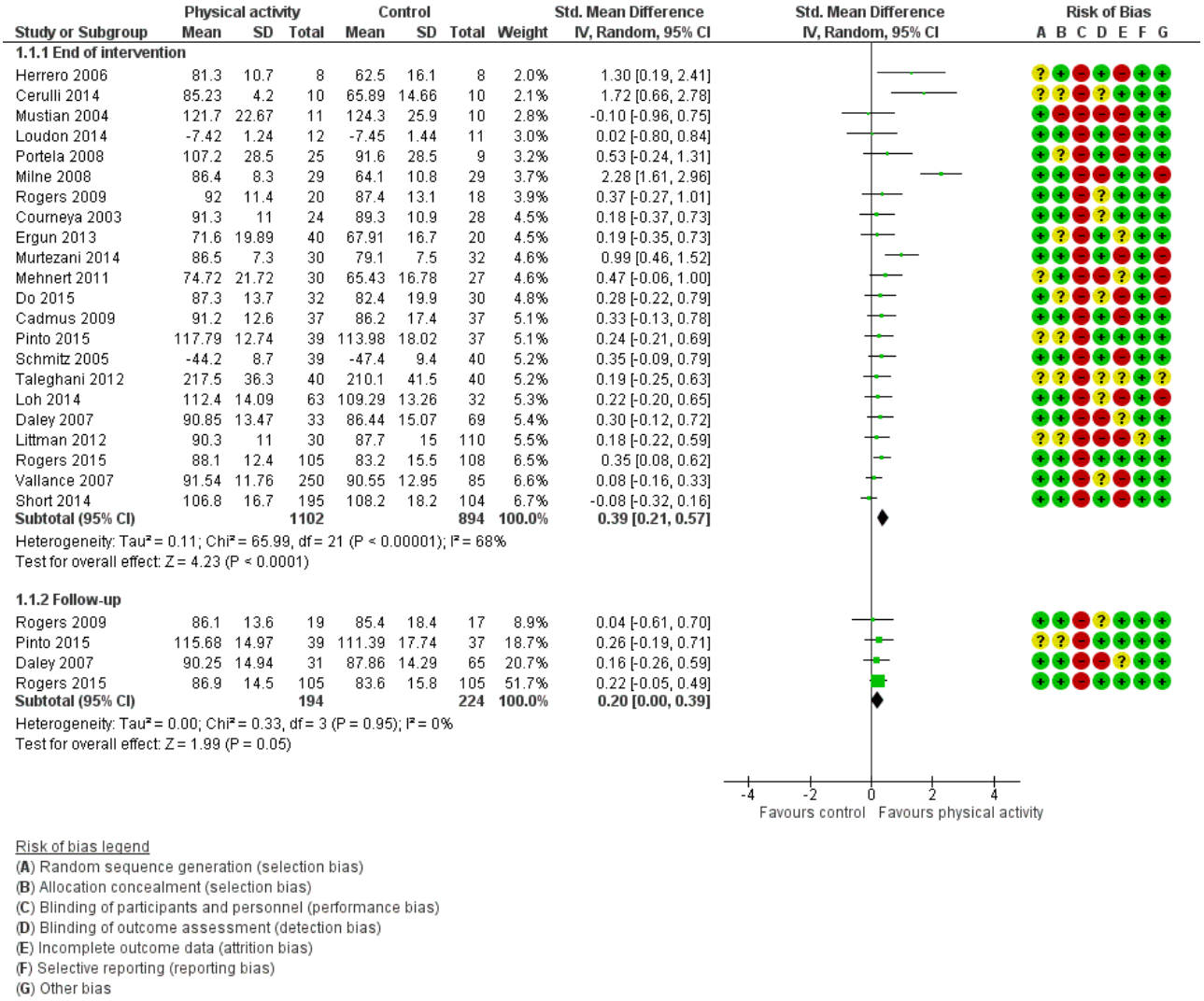
No randomised or quasi-randomised controlled trials reported breast cancer-related mortality.

Quality of life

Health-related quality of life

Immediately after physical activity interventions, follow-up values showed significant small improvement in overall HRQoL compared with control interventions (standardised mean difference (SMD) 0.39, 95% confidence interval (CI) 0.21 to 0.57, I^2 = 68%, 22 studies, 1996 participants; low-quality evidence; Analysis 1.1; Summary of findings for the main comparison). This improvement did not persist at three months or longer post intervention (Analysis 1.1; Figure 4). For analysis of immediately postintervention values, exclusion of the two most extreme trials lowered heterogeneity to a level where it might not be important (I^2 = 18%) while maintaining the significant effect of physical activity (Cerulli 2014; Milne 2008).

Figure 4. Forest plot of comparison: 1 Comparison: HRQoL outcomes, all physical activity vs control, outcome: 1.1 Overall HRQoL (follow-up values).



Change in overall HRQoL from baseline to end of intervention revealed significant moderate improvement with physical activity compared with control (SMD 0.78, 95% CI 0.39 to 1.17, I^2 = 90%, 14 studies, 1459 participants; low-quality evidence; Analysis 1.2; Figure 5; Summary of findings 2). This change in overall HRQoL persisted from baseline to three months or longer post intervention (SMD 0.52, 95% CI 0.15 to 0.88, I^2 = 0%, 2 studies, 132 participants; Analysis 1.2; Figure 5). Exclusion of extreme values did not reduce heterogeneity to acceptable levels for the change from baseline to end of intervention analysis.

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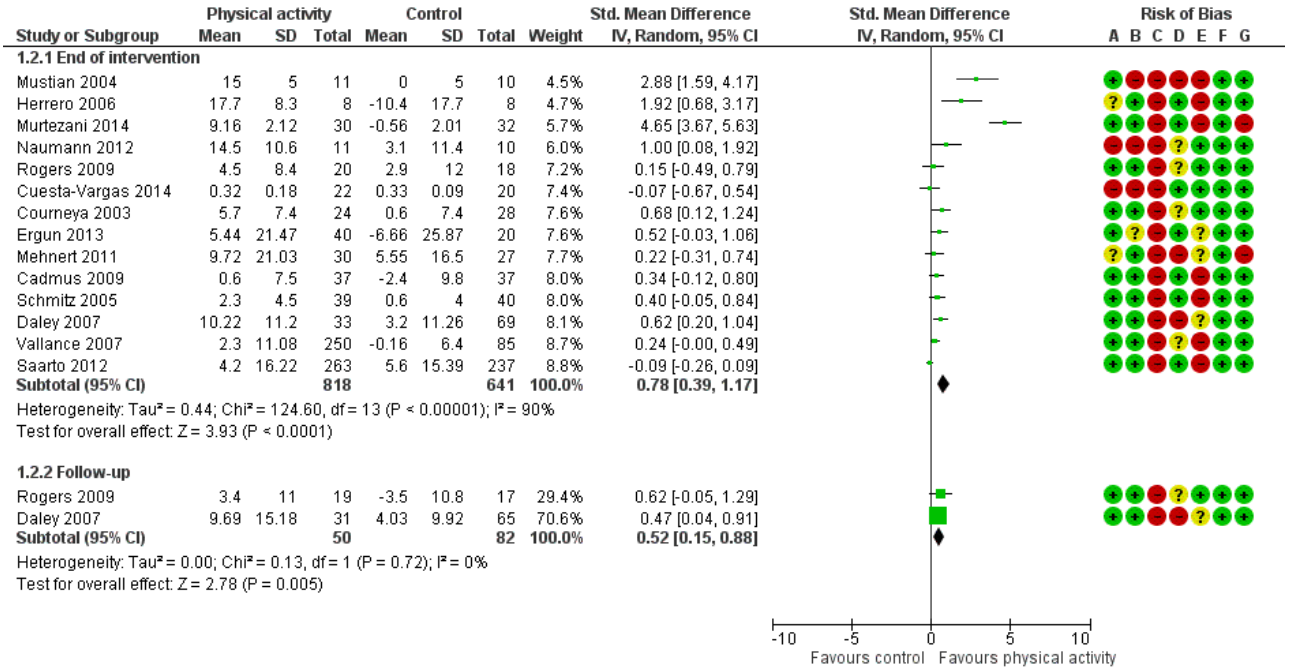
Figure 5. Forest plot of comparison: 1 Comparison: HRQoL outcomes, all physical activity vs control, outcome: 1.2 Overall HRQoL (change values).



Low versus unclear/high risk of bias studies

Data show significant small effects of physical activity on HRQoL compared with control for postintervention follow-up values in trials with both low and unclear/high risk of bias (SMD 0.43, 95% CI 0.19 to 0.66, I^2 = 76%, 15 studies, 1521 participants; and SMD 0.30, 95% CI 0.06 to 0.55, I^2 = 32%, 7 studies, 475 participants, respectively; Analysis 18.1). A significant moderate effect on change from baseline to end of intervention scores (SMD 0.70, 95% CI 0.28 to 1.12, I^2 = 91%, 11 studies, 1360 participants; Analysis 18.2) with physical activity was observed compared among controls only in trials with low risk of bias.

Postmenopausal only versus not postmenopausal only (i.e. premenopausal or varied menopausal statuses)

A significant small effect of physical activity versus control on immediately postintervention HRQoL values was observed only when 'not postmenopausal only' studies were analysed (SMD 0.42, 95% CI 0.22 to 0.63, I^2 = 73%, 19 studies, 1810 participants, Analysis 12.1). Significant small changes from baseline to end of intervention were found in postmenopausal only studies (SMD 0.49, 95% CI 0.19 to 0.79, I^2 = 0%, 3 studies, 186 participants; Analysis 12.2).

Measurement type

Analysis was possible only for EORTC QLQ-C30 and FACT-G and -B questionnaires, as only these questionnaires were included in at least two trials. Significant improvement in immediately postintervention values was noted in physical activity groups compared with control groups for FACT-G (mean difference (MD) 7.06, 95% CI 2.82 to 11.30, I^2 = 86%, 10 studies, 1094 participants) and FACT-B (MD 6.31, 95% CI 1.15 to 11.47, I^2 = 87%, 11 studies, 1395 participants) and for QLQ-C30 global health (MD 7.85, 95% CI 2.16 to 13.55, I^2 = 21%, 4 studies, 195 participants; Analysis 1.3; Analysis 1.5; Analysis 1.10). Between-group differences immediately post intervention represented a meaningful clinically important difference (MCID) for FACT-G (MCID 5 to 6 points) but not for FACT-B (MCID 7 to 8 points) (Eton 2004).

Significant changes from baseline to end of intervention scores in physical activity groups compared with control groups were found for FACT-G (MD 5.04, 95% CI 1.32 to 8.75, I^2 = 91%, 6 studies, 663 participants) and FACT-B (MD 8.16, 95% CI 2.56 to 13.76, I^2 = 89%, 6 studies, 605 participants), but changes in QLQ-C30 were not significant (Analysis 1.4; Analysis 1.6; Analysis 1.11). These changes from baseline scores represented an MCID in FACT-G and FACT-B. The FACT-breast cancer subscale indicated significant improvement in breast cancer symptoms in immediately postintervention follow-up values only (MD 1.98, 95% CI 0.92 to 3.04, I^2 = 48%, 11 studies, 1043 participants), but these improvements were below the MCID for this subscale (MCID 2 to 3 points) (Eton 2004). FACT-trial outcome index subscale analysis was possible only for immediately postintervention values and revealed no significant effect of physical activity compared with control.

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Intervention mode

Compared with control, data show improvement in overall HRQoL immediately post intervention for aerobic exercise (SMD 0.41, 95% CI 0.19 to 0.63, I^2 = 55%, 12 studies, 971 participants) and combined aerobic and resistance exercise (SMD 0.63, 95% CI 0.08 to 1.19, I^2 = 87%, 7 studies, 589 participants; Analysis 13.1). No differences were found for yoga, tai chi, qigong, and pilates interventions when compared with control. Trials on resistance training were too few for subgroup analysis of immediately postintervention values. We found a significant change from baseline to end of intervention in HRQoL for aerobic exercise interventions (SMD 0.68, 95% CI 0.22 to 1.15, I^2 = 92%, 12 studies, 971 participants; Analysis 13.2) compared with controls, but not for combined aerobic and resistance exercise interventions. Subgroup analyses of change from baseline scores were not possible for yoga, tai chi, qigong, and pilates or resistance training interventions.

Intervention intensity

Compared with control, light-to-moderate physical activity improved HRQoL (SMD 0.51, 95% CI 0.25 to 0.77, I^2 = 72%, 16 studies, 983 participants; Analysis 14.1). A similar result was observed at change from baseline to end of intervention (SMD 0.99, 95% CI 0.39 to 1.60, I^2 = 90%, 10 studies, 534 participants; Analysis 14.2).

Intervention duration ≤ 12 weeks versus > 12 weeks

Immediately post intervention, interventions of duration ≤ 12 weeks and > 12 weeks led to significant small improvement compared with controls (≤ 12 weeks: SMD 0.45, 95% CI 0.19 to 0.70, I^2 = 77%, 16 studies, 1404 participants; and > 12 weeks: SMD 0.38, 95% CI 0.10 to 0.65, I^2 = 35%, 6 studies, 399 participants; Analysis 15.1). However, interventions of ≤ 12 weeks but not > 12 weeks in duration led to significant large changes from baseline to end of intervention in HRQoL compared with controls (SMD 0.99, 95% CI 0.49 to 1.52, I^2 = 90%, 11 studies, 828 participants; Analysis 15.2).

Intervention format

All intervention settings led to significant improvement in immediate postintervention follow-up values compared with controls, with large effects evident for group format interventions (SMD 0.99, 95% CI 0.22 to 1.75, I^2 = 84%, 5 studies, 214 participants) compared with small effects for both individual and combined individual and group format interventions (SMD 0.21, 95% CI 0.03 to 0.38, I^2 = 39%, 10 studies, 1137 participants; and SMD 0.33, 95% CI 0.04 to 0.62, I^2 = 36%, 6 studies, 390 participants, respectively; Analysis 16.1). Both group and individual format interventions significantly improved change from baseline to end of intervention HRQoL scores (SMD 1.88, 95% CI 0.19 to 3.56, I^2 = 95%, 5 studies, 198 participants; and SMD 0.43, 95% CI 0.25 to 0.61, I^2 = 6%, 6 studies, 649 participants, respectively) compared with controls; combined group and individual format interventions led to no improvement (Analysis 16.2).

Intervention setting

Facility-based interventions resulted in moderate improvement in immediately postintervention follow-up values (SMD 0.55, 95% CI 0.27 to 0.83, I^2 = 71%, 15 studies, 833 participants) and large effects on change from baseline to end of intervention scores of HRQoL (SMD 1.18, 95% CI 0.53 to 1.82, I^2 = 90%, 10 studies, 492 participants; Analysis 17.1). Compared with controls, significant small effects on immediately postintervention HRQoL values were found for combined home and facility-based interventions (SMD 0.48, 95% CI 0.04 to 0.92, I^2 = 55%, 4 studies, 227 participants), and small effects were observed on change from baseline to end of intervention HRQoL scores for home-based interventions (SMD 0.27, 95% CI 0.04 to 0.50, I^2 = 0%, 2 studies, 375 participants; Analysis 17.2).

Studies from which data could not be extracted

Data could not be extracted from five trials that reported on HRQoL (Baruth 2013; Duijits 2012; Heim 2007; Herrero 2006; McKenzie 2003). Baruth 2013 reported their findings in Cohen d units (d < 2 indicates a trivial effect, 0.2 a small effect, 0.5 a medium effect, and ≥ 0.8 a large effect), and found that participants given a walking intervention showed improvement in indicators of QoL, such as current health (d = 0.27), as measured by the IBCSG QoL Core Questionnaire, and general health perspective (d = 0.66), as measured via MOS SF-36, compared with those in the control group. Duijits 2012 found no significant overall group differences over time in general health perspective measured via MOS SF-36. Heim 2007 reported that physical activity resulted in a significant group-by-time increase in HRQoL (P = 0.0015), measured via FACT-G, in favour of the intervention group. Herrero 2006 reported a significant mean change on the global scale (P = 0.002) after a training programme, as measured by the EORTC QLQ-C30, compared with a control. McKenzie 2003 found no significant group-by-time increases in general health (P > 0.05) measured via MOS SF-36 in the exercise group compared with the control group.

Quality of life subscales

Emotional function

For emotional function, immediately postintervention (moderate-quality evidence) and three months or longer postintervention follow-up values and change from baseline to end of intervention scores (low-quality evidence) showed small but significant effects of physical activity compared with controls, but not for change from baseline to three months or longer postintervention values (Summary of findings for the main comparison; Summary of findings 2; Table 3). Heterogeneity (I^2 = 72%) observed in the change from baseline to end of intervention analysis was reduced to a level that might not be important (I^2 = 23%) by removal of the most extreme trial value (Murtezani 2014); this could be further explained by the wide range of measurement instruments used, participants' menopausal status, and variations in study duration.

Sensitivity analysis revealed that significant effects on immediately postintervention follow-up values and on changes from baseline to end of intervention scores for emotional function were retained when only trials with low risk of bias were analysed (Analysis 18.3; Analysis 18.4). Significant improvement in emotional function was noted in immediately postintervention follow-up values for QLQ-C30 emotional function (Analysis 1.10), Profile of Mood States (POMS) total mood disturbance (Analysis 1.24), and POMS anger (Analysis 1.26), but not among postmenopausal only women; these effects were also observed for aerobic exercise and combined aerobic and resistance exercise interventions (interventions of low-to-moderate intensity, ≤ 12 weeks' duration, facility-based, group and individual format physical activity interventions) compared with controls. Significant changes from baseline to end of intervention were found for the FACT emotional well-being subscale (Analysis 1.15) and the MOS SF mental health scale (Analysis 1.19) among postmenopausal women (aerobic exercise only, light-to-moderate intensity, ≤ 12 weeks' duration,

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facility-based, individual format interventions) compared with controls. Improvement in FACT emotional well-being was below the minimum important difference of two points (Cella 2002a).

Perceived physical function

Analysis of immediately (moderate-quality evidence) and three months or longer postintervention follow-up values and changes from baseline to end of intervention scores (moderate-quality evidence) was possible for perceived physical function; all analyses revealed significant effects for physical activity compared with controls (Analysis 1.29; Analysis 1.30; Summary of findings for the main comparison; Summary of findings 2; Table 3). Removal of the most extreme immediately postintervention follow-up value - from Milne 2008 - reduced heterogeneity to a level that might not be considered important (I^2 from 61% to 18%), but removal of the most extreme change from baseline to end of intervention score - from Murtezani 2014 -, did not substantially lower heterogeneity. However, heterogeneity could be explained by the wide range of measurement instruments used, physical activity modes, participants' menopausal status, and variations in study duration.

Effects on immediately postintervention follow-up values and changes from baseline to end of intervention scores were maintained in a sensitivity analysis of studies with low risk of bias (Analysis 18.5; Analysis 18.6). Subgroup analyses showed significant effects of physical activity on immediately postintervention follow-up physical function values for FACT physical well-being and for MOS SF physical function composite and subscale instruments (Analysis 1.31; Analysis 1.33; Analysis 1.35), but not for postmenopausal women only; these effects were also observed for interventions consisting of aerobic exercise only (low-to-moderate intensity, ≤ 12 and > 12 weeks' duration, combined home and facility-based settings, group and individual formats) compared with controls. Improvement in FACT physical well-being was below the minimum important difference of two points (Cella 2002a). Change from baseline to end of intervention scores was significantly improved for the MOS SF physical function instrument (Analysis 1.36) and for interventions consisting of aerobic exercise only (low-to-moderate intensity, ≤ 12 weeks' duration, facility-based, group format) compared with controls.

Role function

Low-quality evidence suggests that immediately postintervention follow-up values, but not three months or longer postintervention follow-up values, or change from baseline to end of intervention scores (analysis of change from baseline to three months or longer postintervention scores was not possible), for role function showed a small statistically significant improvement with physical activity compared with control (Analysis 1.40; Analysis 1.41; Table 3). Heterogeneity was reduced to a level that might not be considered important (I^2 = 10%) by removal of the most extreme immediately postintervention follow-up values - from Milne 2008 - and could be explained by the wide range of measurement instruments used, intervention mode intensity, duration, setting, format, and menopausal status.

Sensitivity analyses revealed significant improvement in immediately postintervention role function values, but not in change from baseline to end of intervention scores, for physical activity interventions with low risk of bias compared with controls (Analysis 18.7; Analysis 18.8). Subgroup analyses revealed that the significant effect on immediately postintervention follow-up role function values was maintained for the FACT functional well-being measurement instrument (Analysis 1.42) and for interventions consisting of aerobic exercise only (light-to-moderate intensity, ≤ 12 and > 12 weeks' duration, individual format) compared with controls. Significant improvement in change from baseline to end of intervention role function scores was found in analysis of FACT functional well-being measurement data (Analysis 1.43), but not in other subgroup analyses.

Social function

For social function, analysis of both immediately postintervention follow-up values and change from baseline to end of intervention scores (both moderate-quality evidence) showed significant improvement with physical activity compared with control (Analysis 1.48; Analysis 1.49; Table 3). Data were insufficient for analyses of three months or longer postintervention follow-up values or change scores. Heterogeneity observed in the change from baseline to end of intervention scores analysis (I^2 = 87%) was accounted for by removal of the three most extreme values (Murtezani 2014; Saarto 2012; Vallance 2007), without altering the significant improvement in social function. Heterogeneity in the change from baseline to end of intervention analyses was also explained by the wide range of instruments used and by menopausal status and intervention mode.

Sensitivity analysis revealed significant improvement in postintervention follow-up values and in change from baseline to end of intervention scores of social function for physical activity trials with low risk of bias compared with controls (Analysis 18.9; Analysis 18.10). Significant effects on immediately postintervention social function values were maintained in analysis of the FACT social well-being subscale measurement instrument (Analysis 1.50), and with interventions consisting of aerobic exercise (light-to-moderate intensity, ≤ 12 weeks' duration, facility-based and combined home and facility-based settings, combined group and individual format) compared with controls. Significant improvement in change from baseline to end of intervention social function scores was found for the FACT social well-being subscale (Analysis 1.51), among postmenopausal women only, and for interventions consisting of aerobic exercise and combined aerobic and resistance exercise (light-to-moderate intensity, ≤ 12 weeks' duration, facility-based, individual format) compared with controls.

Cognitive function

We observed a significant but small effect, with no evidence of heterogeneity, of physical activity on cognitive function at immediately postintervention follow-up (low-quality evidence), but not at three months or longer postintervention follow-up, or change from baseline to end of intervention or change from baseline to three months or longer postintervention scores, compared with control (Analysis 1.56; Analysis 1.57; Table 3).

A sensitivity analysis revealed small significant improvement in postintervention follow-up cognitive function values with physical activity interventions at low risk of bias compared with controls (Analysis 18.11; Analysis 18.12). Subgroup analysis revealed significant improvement in postintervention follow-up cognitive function values with the POMS confusion subscale (Analysis 1.60), not among postmenopausal women only, and for interventions consisting of combined aerobic and resistance exercise (light-to-

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moderate intensity, all studies ≤ 12 weeks' duration). We observed no significant effect on change from baseline to end of intervention score for physical activity in any of the subgroup analyses.

General health perspective

Data show no significant effect of physical activity compared with control on overall general health perspective, or in analyses involving individual instruments, studies with low risk of bias, or any other subgroup analysis of follow-up values and change scores (very low-quality evidence for both) (Analysis 1.61; Analysis 1.62; Table 3).

Sexual function

Trialists noted no significant effects of physical activity interventions compared with controls on sexual function for follow-up values or change scores in main or subgroup analyses, or for any reported measure (very low-quality evidence for both) (Analysis 1.65; Analysis 1.66; Table 3).

Sleep

We observed no significant effects of physical activity on postintervention follow-up values and on change from baseline scores for overall sleep, any measure of sleep, sensitivity analysis by risk of bias, or subgroup analyses (low-quality evidence for both) compared with control (Analysis 1.68; Analysis 1.69; Table 3).

Studies from which HRQoL subscale data could not be extracted

Data could not be extracted from four trials that reported emotional function (Baruth 2013; Carson 2009; Duijits 2012; McKenzie 2003), five trials that reported perceived physical function (Baruth 2013; Duijits 2012; Heim 2007; Herrero 2006; McKenzie 2003), four trials reporting role function (Baruth 2013; Duijits 2012; Heim 2007; McKenzie 2003), three trials that reported social functioning (Baruth 2013; Duijits 2012; McKenzie 2003), and two trials that reported general health perspective (Duijits 2012; McKenzie 2003). Baruth 2013 observed significant effects on mood (d = 0.30), role-emotional (d = 0.14), mental health (d = 0.28), physical well-being (d = 0.38), physical functioning (d = 0.69), and role-physical function (d = 0.60), but not on social functioning (d = 0.04), as measured via MOS SF-36, with a walking intervention compared with a control. Duijits 2012 observed a significant effect on physical functioning (d = 0.41) but not on mental health, role-physical function, social functioning, or general health perspective, as measured via MOS SF-36, with physical exercise compared with cognitive-behavioural therapy (CBT), CBT and physical exercise combined, and control. McKenzie 2003 found no significant changes in role-emotional and mental health, physical functioning, role-physical function, social functioning, or general health perspective (via MOS SF-36) in an exercise group compared with a control group. Carson 2009 found no significant postintervention differences in negative mood between yoga and control groups. Heim 2007 reported that increases in physical and functional well-being (measured via FACT-G) from baseline to post intervention in both physical activity and control groups were sustained in the only exercise group at three months or longer postintervention follow-up. Herrero 2006 reported a significant mean change in physical function scale, as assessed via EORTC QLQ-C30 (P = .04), after an exercise programme compared with a control.

In one trial from which data could not be extracted, Kiecolt-Glaser 2014 found that cognitive complaints did not differ significantly between a yoga group and a wait-list group immediately following the intervention (P = 0.25), but participants in the yoga group reported 23% fewer cognitive problems than wait-list participants at three-month postintervention follow-up (P = 0.003). Mehnert 2011 did not report findings from analysis of sexual attractiveness, and Do 2015 did not report sexual functioning and sexual enjoyment outcomes.

Sleep data could not be extracted from two trials (Carson 2009; Payne 2008). Carson 2009 found a significant reduction in sleep disturbance (measured on a 0 to 9 scale) after a yoga intervention compared with control (P = 0.007), but this effect was not sustained after three months' follow-up (P = 0.17). Payne 2008 found a significant improvement in sleep quality assessed via the Pittsburgh Sleep Quality Index (PSQI) with a 12-week exercise intervention compared with a control (P =0.007). Payne 2008 also assessed sleep using Actigraph, and observed significant reductions in actual wake time (P = 0.02), actual sleep time (P = 0.05), and movement during sleep (P = 0.002), but no statistically significant improvement in sleep efficiency, with exercise compared with control.

HRQoL-related outcomes

Anxiety

Data show a significant reduction in anxiety with physical activity interventions, compared with controls, for both immediately postintervention follow-up values (very low-quality evidence) and change from baseline to end of intervention scores (low-quality evidence) (Analysis 2.1; Analysis 2.2; Summary of findings for the main comparison; Summary of findings 2; Table 3). Available data were insufficient for analysis of three months or longer follow-up values or change scores.

Heterogeneity observed in immediately postintervention follow-up anxiety analysis was lowered to a level that might not be considered important (I^2 from 60% to 38%) by removal of the most extreme value (Segar 1998), with maintenance of the significant effect of physical activity. Heterogeneity was explained by the range of assessment instruments used, participants' menopausal status, physical activity mode, and intervention setting and format.

Sensitivity analysis, which was possible only for immediately postintervention follow-up values, revealed a significant but small effect in physical activity trials with low risk of bias. Subgroup analysis revealed significantly improved immediately postintervention anxiety follow-up values for the POMS anxiety-tension subscale (Analysis 2.3), not for postmenopausal women only, with aerobic exercise only (light-to-moderate intensity, ≤ 12 weeks' duration, facility-based, group format interventions). Significant changes from baseline to end of intervention anxiety scores were noted for interventions including combined aerobic and resistance exercise (light-to-moderate intensity, ≤ 12 weeks' duration, facility-based, group format interventions). When the overall effect of physical activity on anxiety was expressed via the 0 to 9 PROMIS (Patient Reported Outcomes Measurement Information System) scale, effects on change from baseline to end of intervention scores, but not on immediately postintervention follow-up values, for anxiety revealed a minimum important difference improvement above the minimum important difference of 3 to 4.5 units (Summary of findings for the main comparison; Summary of findings 2) (Yost 2011).

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Depression (i.e. depressive symptoms)

Immediate and three months or longer post-physical activity intervention follow-up values (very low-quality evidence) and change from baseline to end of intervention (low-quality evidence) showed small significant improvement in depressive symptoms compared with controls (Analysis 3.1; Analysis 3.2; Summary of findings for the main comparison; Summary of findings 2; Table 3). Available data were insufficient for change from baseline to three months or longer postintervention analysis.

Heterogeneity observed in analysis of immediately postintervention follow-up values and change from baseline to end of intervention scores could be explained by the wide range of measurement instruments used, participants' menopausal status, physical activity mode and intensity, and variations in intervention duration, setting, and format.

Sensitivity analyses of trials with low risk of bias did not reveal significant effects of physical activity on depression, compared with controls, for immediately postintervention values or change from baseline to end of intervention scores (Analysis 18.23; Analysis 18.24). Subgroup analyses revealed significant effects on immediately postintervention follow-up depression values for Beck Depression Inventory and Profile of Mood States (POMS) depression and tension measurement instruments (Analysis 3.3; Analysis 3.6; Analysis 3.7), not for postmenopausal women only, with physical activity interventions (≤ 12 weeks' duration, facility-based, group format) compared with controls. However, improvement on the Beck Depression Inventory was below the minimum important difference of 18% (Button 2015). For change from baseline to end of intervention depression scores, significant effects were found for interventions that consisted of combined aerobic and resistance exercise (light-to-moderate intensity, ≤ 12 weeks' duration, facility-based, group format) compared with controls.

Fatigue

Both immediate (moderate-quality evidence) and three months or longer post-physical activity intervention follow-up values revealed significant but small beneficial effects on fatigue compared with controls (Analysis 4.1; Summary of findings for the main comparison; Table 3). Change from baseline to three months or longer postintervention values, but not change from baseline to end of intervention scores, demonstrated significant but small improvement in fatigue with physical activity compared with control (Analysis 4.2; Summary of findings 2; Table 3).

Removal of the most extreme studies for immediately postintervention follow-up fatigue values - Cantarero-Villanueva 2013; Milne 2008 - resulted in heterogeneity that might not have been important (I^2 = 9%). Heterogeneity was further explained by participants' menopausal status, physical activity mode, intensity, duration, setting, and format.

For immediately postintervention values only, sensitivity analysis revealed significant effects of physical activity on overall fatigue compared with control for studies with low risk of bias (Analysis 18.25; Analysis 18.26). Subgroup analyses of fatigue revealed significant improvement in immediately postintervention follow-up values as maintained for EORTC QLQ-30 fatigue scale, MOS SF vitality, POMS fatigue and vigour scales, and revised Piper Fatigue Scale (PFS) affective/meaning measurement instruments (Analysis 4.5; Analysis 4.12; Analysis 4.16; Analysis 4.20; Analysis 4.22), not for postmenopausal women only, with interventions consisting of aerobic exercise only, combined aerobic and resistance training, yoga, tai chi, qigong, and pilates (light-to-moderate intensity, ≤ 12 weeks' duration, facility-based, group or individual format). For change from baseline to end of intervention fatigue scores, significant effects of physical activity were maintained for combined aerobic and resistance training and for interventions ≤ 12 weeks' duration compared with control. Significant effects for revised PFS total fatigue scores were maintained at three months or longer postintervention follow-up, whereas significant changes from baseline to three months or longer postintervention values were observed with revised PFS total fatigue scores (Analysis 4.9; Analysis 4.10). When we expressed the overall effect of physical activity on fatigue using the FACT-F instrument, effects on fatigue immediately post intervention follow-up values and changes from baseline to end of intervention scores were below the minimum important difference of three units (Cella 2002; Summary of findings for the main comparison; Summary of findings 2). Pooled analysis of only vigour/vitality measures revealed small but significant improvement with physical activity interventions compared with controls, for immediately postintervention and three months or longer postintervention follow-up values, but not for change from baseline scores (Analysis 4.18; Analysis 4.19; Table 3).

Pain/disability

Low-quality evidence suggests no significant effect of physical activity compared with control on pain/disability (immediately postintervention follow-up and change from baseline to end of intervention analyses) both overall and in sensitivity analyses involving studies with low risk of bias (Analysis 5.1; Analysis 5.2; Analysis 18.27; Analysis 18.28; Table 3). No pain/disability data were available for three months or longer postintervention analysis.

Compared with controls, physical activity led to significant effects only for change from baseline to end of intervention scores for brief pain inventory severity score and disabilities of the arm, shoulder, and hand (DASH) (combined follow-up and change data) measurement instruments. Subgroup analyses did not reveal significant differences between groups in effects of physical activity on pain/disability for any of the analyses conducted.

Self-esteem

A small significant effect of physical activity versus control was observed on self-esteem scores for immediately postintervention follow-up values (moderate-quality evidence) but not for changes from baseline to end of intervention scores (low-quality evidence) or sensitivity analyses of trials with low risk of bias (Analysis 6.1; Analysis 6.2; Analysis 18.21; Analysis 18.22; Table 3). Owing to insufficient data, three months or longer follow-up or change analyses could not be performed.

Heterogeneity was reduced to 13% by removal of the most extreme immediately postintervention follow-up value (Musanti 2012); this was explained by the wide range of measurement instruments used, participants' menopausal status, physical activity modes and intensity, and variations in intervention duration, setting, and format.

For immediately postintervention values, significant effects of physical activity on self-esteem, compared with control, were

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maintained in analyses by the Physical Self-Perception Profile-attractiveness of body subscale (Analysis 6.4) (with interventions of light-to-moderate intensity, ≤ 12 weeks' duration, facility-based). A significant effect of physical activity versus control was found for change from baseline to end of intervention scores on the Rosenberg Self-Esteem (RSE) scale (Analysis 6.7).

Studies from which HRQoL-related outcomes data could not be extracted

Five trials assessed both anxiety and depression (Duijits 2012; Fillion 2008; Heim 2007; Loh 2014; Musanti 2012), whereas one additional study measured only depression (Schmitz 2005). No significant differences were found between physical activity and control groups for anxiety assessed via the Depression, Anxiety and Stress Scale (DASS)-21 (Loh 2014) or the Hospital Anxiety and Depression Scale (HADS) (Heim 2007), for depression assessed via HADS (Duijits 2012; Heim 2007; Loh 2014) or the Center for Epidemiologic Studies (CES) Depression Scale, or for frequency of depression (Schmitz 2005), psychological distress (assessed via HADS) (Duijits 2012), and combined anxiety and depression assessed by POM subscale scores (Fillion 2008). Musanti 2012 used combined anxiety and depression scores from HADS and observed a significant decrease over time only among participants who scored above the threshold of clinical significance on the HADS (score ≥ 11) at baseline (P = .001).

Data could not be extracted from six trials that assessed fatigue (Baruth 2013; Carson 2009; Heim 2007; Musanti 2012; Payne 2008; Peppone 2015). Baruth 2013 found significant small-to-moderate improvement in fatigue (d = –0.36) and moderate increases in vigour (d = 0.57) when comparing the walking intervention versus control. Musanti 2012 observed a significant reduction in clinically significant fatigue post physical activity versus control (both P < 0.000), whereas Heim 2007 found that at three months postintervention follow-up, but not immediately post intervention, fatigue was significantly reduced with physical activity compared with control (P = 0.003). However, Payne 2008 reported no group-by-time differences in fatigue. Of two trials that compared yoga interventions versus control, Carson 2009 found significant improvement in fatigue and vigour assessed via 0 to 9 scales (both P < 0.01) with yoga, whereas Peppone 2015 reported significantly greater improvement in fatigue and significantly greater reduction in levels of 'needing help finishing activities', time spent in bed, and feelings of heaviness in the body post yoga (all P < 0.05).

We could not extract pain/disability data from three trials (Baruth 2013; Peppone 2015; Carson 2009). Baruth 2013 found no effect on pain (d = –0.04) with a walking intervention compared with control. Compared with control, yoga was found to significantly reduce musculoskeletal symptoms, such as general pain, muscle aches, and total physical discomfort (all P < 0.05) in Peppone 2015, and joint pain in Carson 2009. In the only study from which self-esteem data could not be extracted (Mustian 2004), a significant improvement in self-esteem was observed from baseline to post tai chi intervention compared with control (P = 0.04).

All-cause mortality

No randomised or quasi-randomised controlled trials reported all-cause mortality.

Breast cancer recurrences

No randomised or quasi-randomised controlled trials reported breast cancer recurrence as an outcome. Seven studies reported breast cancer recurrence data as a reason for dropout or as an adverse event, with similar numbers in intervention and control groups (n = 15 and 14, respectively) (Basen-Enquist 2006; Fillion 2008; Ligibel 2008; Loudon 2014; Nieman 1995; Saarto 2012; Schmitz 2005).

Cardiorespiratory fitness

Data show significant small and large increases in cardiorespiratory fitness when all measurement methods were considered with physical activity interventions compared with controls for immediately postintervention follow-up values and for change from baseline to end of intervention scores, respectively (SMD 0.44, 95% CI 0.30 to 0.58, I^2 = 30%, 23 studies, 1265 participants; moderate-quality evidence; and SMD 0.83, 95% CI 0.40 to 1.27, I^2 = 82%, 9 studies, 863 participants; very low-quality evidence, respectively) (Analysis 7.1; Analysis 7.2; Summary of findings for the main comparison; Summary of findings 2). This effect was still evident three months or longer post intervention for both follow-up values and change from baseline scores (Table 3).

Removal of the most extreme value did not reduce heterogeneity in the change from baseline to end of intervention analysis (Nieman 1995). Heterogeneity in change from baseline to end of intervention scores was explained by risk of bias, menopausal status, intervention mode, and duration.

Sensitivity analysis revealed that a significant effect of physical activity versus control was evident across trials with low risk of bias for immediately postintervention follow-up values, but not for change from baseline to end of intervention scores (Analysis 18.29; Analysis 18.30). When separate measurement methods were considered, significant effects for physical activity, compared with control, were evident for directly assessed VO_2max/peak (mL/kg/min) for both immediate postintervention values and change from baseline to end of intervention scores, estimated VO_2max via a modified Bruce treadmill test (combined follow-up and change from baseline data), and 6-minute walk test performance (combined follow-up and change from baseline data) (Table 3). The mean difference for directly measured VO_2max/peak (1.89 mL/kg/min) was below the improvement of 3.5 mL/kg/min associated with a 13% decrease in risk of all-cause mortality in the general population (Kodama 2009). However, average improvement in walk distance (MD 54.74 m) exceeded the MCID of 32 to 34 m reported for this test in various clinical populations (Shoemaker 2013).

Significant improvement in postintervention follow-up cardiorespiratory fitness values was maintained for physical activity compared with control in subgroup analysis for postmenopausal women only, for both aerobic exercise and combined aerobic and resistance exercise interventions, regardless of intervention intensity, duration, setting, or format. Significant changes from baseline to end of intervention for cardiorespiratory fitness with physical activity interventions compared with controls were maintained for postmenopausal women only, with both aerobic exercise and combined aerobic and resistance exercise (physical activity modes, interventions of light-to-moderate intensity, facility-based, individual format, regardless of duration).

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Studies from which data could not be extracted

Two trials from which we were unable to extract data also reported on cardiorespiratory fitness (DeNysschen 2011; Heim 2007). DeNysschen 2011 (via maximal exercise testing) and Heim 2007 (via the Harvard Step Test) reported no significant improvement in cardiorespiratory fitness with physical activity compared with control.

Other outcomes-related to cardiorespiratory fitness

In a pooled analysis of just two studies, a significant increase in immediately postintervention follow-up peak power output during cycle ergometer testing was found for physical activity compared with control (Analysis 7.7). Furthermore, significant reductions were found in immediately postintervention follow-up values, but not in change from baseline to end of intervention scores, for resting heart rate observed with physical activity interventions compared with controls (Analysis 7.18; Analysis 7.19). Data show no significant effects for physical activity compared with control on peak heart rate and respiratory exchange ratio or resting systolic and diastolic blood pressure (Analysis 7.8; Analysis 7.9; Analysis 7.20; Analysis 7.21; Analysis 7.22; Analysis 7.23).

Physical activity assessed as an outcome measure

For overall self-reported physical activity, immediately postintervention follow-up values and change from baseline to end of intervention scores showed significant moderate improvement in intervention groups (SMD 0.52, 95% CI 0.33 to 0.71, I^2 = 72%, 17 studies, 2012 participants; low-quality evidence; and SMD 0.57, 95% CI 0.25 to 0.90, I^2 = 82%, 8 studies, 1274 participants; low-quality evidence, respectively) compared with control groups (Analysis 8.1; Analysis 8.2; Table 3). These significant effects persisted for both three months or longer postintervention follow-up values and change from baseline to three months or longer postintervention scores (Table 3).

Heterogeneity in self-reported physical activity analysis was explained by the intervention mode and setting for follow-up values, participants' menopausal status, and intervention setting and format for change scores.

For objectively measured physical activity, we found significant small and moderate effects of physical activity interventions compared with controls on both immediately postintervention follow-up values and change from baseline to end of intervention scores, respectively (SMD 0.43, 95% CI 0.19 to 0.66, I^2 = 67%, 10 studies, 1248 participants; moderate-quality evidence; and SMD 0.71, 95% CI 0.14 to 1.29, I^2 = 83%, 5 studies, 508 participants; low-quality evidence, respectively) (Analysis 8.17; Analysis 8.18; Table 3). No significant effect was observed for three months or longer postintervention follow-up values or change from baseline to three months or longer postintervention scores for objectively measured physical activity (Table 3).

For analysis of change from baseline to end of intervention objective physical activity scores, removal of the most extreme value reduced heterogeneity to levels that might not be important (I^2 = 0%) (Vallance 2007), while maintaining a significant effect. Heterogeneity was explained in analysis of both immediately postintervention follow-up and change from baseline to end of intervention by participants' menopausal status and by intervention intensity, setting, and format.

Sensitivity analyses of trials with low risk of bias maintained significant improvement in both self-reported and objective physical activity for immediately postintervention follow-up values, but not for change from baseline to end of intervention scores, compared with controls (Analysis 18.31; Analysis 18.32; Analysis 18.33; Analysis 18.34).

Analysis of trials that assessed moderate and moderate-to-vigorous physical activity immediately postintervention follow-up values via the self-report, a seven-day physical activity recall instrument revealed significant effects of interventions versus controls (Analysis 8.14). Analysis of immediately postintervention follow-up accelerometer-derived counts per minute also revealed significant increases with physical activity compared with control interventions (Analysis 8.22).

In subgroup analyses, we found significant effects of physical activity compared with controls on immediately postintervention follow-up self-reported physical activity values with aerobic exercise and yoga, tai chi, qigong, and pilates intervention modes, with individual and group and individual intervention formats, in addition to any intervention intensity, duration, or setting. For change from baseline to end of intervention, self-reported physical activity scores maintained significance regardless of intensity for interventions consisting of aerobic exercise only and combined aerobic and resistance exercise (≤ 12 weeks' duration, home-based and combined home and facility-based, individual and combined group and individual formats).

For objective physical activity, significant improvement in immediately postintervention follow-up values was found for physical activity interventions consisting of aerobic exercise only (light-to-moderate intensity, ≤ 12 weeks' duration, home-based and combined home and facility-based settings, individual and combined group and individual formats) compared with controls. Compared with controls, interventions of light-to-moderate intensity with combined home and facility-based setting and combined group and individual format maintained a significant effect on objectively measured physical activity change from baseline to end of intervention scores.

With regards to other physical activity outcomes, significant effects of interventions versus controls were found in change from baseline to end of intervention self-reported walking scores, and in both immediate postintervention follow-up values and change from baseline to end of intervention scores for self-reported total and moderate-intensity physical activity, and for objectively measured moderate-to-vigorous physical activity (Table 3). The odds of participants given physical activity interventions meeting recommended physical activity guidelines were significantly greater than for control participants immediately post intervention and at three months or longer post intervention (Table 3). No significant reductions in overall or objectively measured sedentary behaviour were found for physical activity interventions compared with controls (Analysis 8.25; Analysis 8.26; Analysis 8.27).

Studies from which data could not be extracted

Among trials from which no data on physical activity could be extracted, one trial measured the number of walking steps during one week before and in the middle of the 12-week intervention with a pedometer, but not post intervention (Nikander 2007),

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and another reported accelerometry data from baseline to post intervention in the intervention group only (Rogers 2013).

Body mass, BMI, body composition, and other anthropometric measurements

Body mass change from baseline to end of intervention, but not immediately postintervention follow-up body mass values, showed a significant effect of physical activity compared with control (MD -0.05 kg, 95% CI -0.98 to -0.01, I^2 = 59%, 11 studies, 1047 participants; low-quality evidence; Analysis 9.1; Analysis 9.2). However, no significant effect of physical activity was found for either follow-up or change from baseline BMI when compared with control (Analysis 9.3; Analysis 9.4).

Physical activity also resulted in a small but statistically significant reduction in postintervention follow-up values and in change from baseline to end of intervention body fat levels (SMD -0.18, 95% CI -0.34 to -0.03, I^2 = 35%, 18 studies, 1162 participants; moderate-quality evidence; and SMD -0.62, 95% CI -1.19 to -0.06, I^2 = 88%, 9 studies, 499 participants; low-quality evidence, respectively) compared with controls (Analysis 9.5; Analysis 9.6). Owing to insufficient data, three months or longer data analysis could not be performed for follow-up values nor for change scores in body mass, BMI, or body fat.

Removal of the most extreme values reduced heterogeneity to 0% in both body mass - Irwin 2015; Murtezani 2014 - and body fat - Schmitz 2005 - analyses. Heterogeneity in analysis of body mass was explained by participants' menopausal status and intervention mode and format, whereas heterogeneity observed in body fat analyses was explained by diversity in measurement type, participants' menopausal status, and intervention mode, intensity, duration, setting, and format.

Sensitivity analysis of physical activity trials at low risk of bias revealed no significant effects on follow-up nor change in body mass, BMI, and body fat when compared with controls (Analysis 18.35; Analysis 18.36; Analysis 18.37; Analysis 18.38; Analysis 18.39; Analysis 18.40). Analysis by body composition measurement type revealed significant reductions only in change in body fat %, fat mass, and lean mass from baseline to end of intervention as assessed via DEXA and immediately at postintervention follow-up, as well as change from baseline to end of intervention body fat as measured by bioelectrical impedance analysis (BIA) (Analysis 9.7; Analysis 9.8; Analysis 9.9; Analysis 9.10). Subgroup analyses revealed no significant effects of physical activity on body mass but significant changes in BMI from baseline to end of intervention with aerobic exercise compared with control. Subgroup analyses also showed significant reduction in immediately postintervention follow-up body fat values with interventions consisting of aerobic exercise (light-to-moderate intensity, facility-based, individual format) and significant reduction in changes in body fat from baseline to end of intervention for aerobic exercise interventions (moderate-to-high intensity, ≤ 12 weeks' duration) compared with control.

Among other anthropometric measurements, significant effects of physical activity versus control were found for change in both waist and hip circumferences from baseline to end of intervention (MD -1.71 cm, 95% CI -2.56 to -0.86, I^2 = 48%, 5 studies, 285 participants; and MD -2.37 cm, 95% CI -3.31 to -1.44, I^2 = 5%, 2 studies, 115 participants, respectively) but not for waist-to-hip ratio (WHR) (Analysis 9.20; Analysis 9.21; Analysis 9.22; Analysis 9.23; Analysis 9.24; Analysis 9.25; Table 3).

Studies from which data could not be extracted

Of four trials from which data could not be extracted, one found no changes in body mass (P = 0.53), BMI (P = 0.43), percentage body fat (P = 0.25), or muscle mass (P = 0.46) (Guinan 2013); one observed no significant differences in BMI and body fat percentage at post intervention between supervised exercise and usual care and between supervised exercise and exercise-placebo (Daley 2007). One trial reported no significant differences between intervention and control conditions at post intervention in BMI and in hip or waist circumference (Basen-Enquist 2006). Another trial reported postintervention body mass values for the intervention group only (Pinto 2003).

Muscular strength

For immediate postintervention follow-up values and change from baseline to end of intervention scores, physical activity showed significant increases in lower body (SMD 0.44, 95% CI 0.09 to 0.78, I^2 = 74%, 10 studies, 637 participants; low quality-evidence; and SMD 0.72, 95% CI 0.38 to 1.07, I^2 = 73%, 8 studies, 720 participants; low quality-evidence, respectively) and upper body (SMD 0.42, 95% CI 0.08 to 0.76, I^2 = 79%, 13 studies, 768 participants; very low quality-evidence; and SMD 0.72, 95% CI 0.30 to 1.14, I^2 = 86%, 8 studies, 832 participants; moderate-quality evidence, respectively) muscular strength compared with controls (Analysis 10.1; Analysis 10.2; Analysis 10.11; Analysis 10.12). We found insufficient three months or longer data for analysis.

Removal of the most extreme values did not reduce heterogeneity in any analyses. Heterogeneity was explained by intervention mode (follow-up values and change scores), intensity (follow-up values and change scores), setting (follow-up values), and format (change scores) in lower body strength analysis, rather than by participants' menopausal status (follow-up values), intervention mode (follow-up values), setting (follow-up values and change scores), and format (follow-up values).

Sensitivity analyses of studies with low risk of bias revealed significant effects for immediately postintervention follow-up values and change from baseline to end of intervention scores on lower body and upper body strength (Analysis 18.41; Analysis 18.42; Analysis 18.43; Analysis 18.44). In subgroup analyses, we found that physical activity significantly increased immediately postintervention follow-up lower body strength when measured via leg press (Analysis 10.3) for interventions involving resistance exercise (light-to-moderate intensity, > 12 weeks' duration, facility-based, group and individual formats). Changes in lower body strength from baseline to end of intervention significantly improved when assessed via leg press and leg extension (Analysis 10.4; Analysis 10.7), and for interventions that included a resistance exercise mode (facility-based, group and individual formats), regardless of intervention intensity and duration.

For immediately postintervention follow-up upper body strength, subgroup analyses revealed significant effects of physical activity on grip strength values (Analysis 10.15), with interventions involving aerobic exercise or resistance exercise (> 12 weeks' duration, home-based and home and facility-based combined settings, combined group and individual format). Significant effects of physical activity on change from baseline to end of intervention

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values were found via chest press (Analysis 10.14) for interventions consisting of resistance exercise (light-to-moderate intensity, > 12 weeks' duration, facility-based and combined home and facility-based settings, group format).

Studies from which data could not be extracted

Data could not be extracted from three trials (Heim 2007; Ligibel 2008; Musanti 2012). Ligibel 2008 reported only postintervention strength outcomes (measured by recording the maximal weight lifted for each exercise during strength training sessions) for the intervention group only. Heim 2007 reported no time-by-group interaction effects for leg extensor and arm flexor strength values, and Musanti 2012 did not report results of analysis of leg press data.

Bone health-related outcomes

No significant effect of physical activity, compared with control, was found for immediately postintervention follow-up values and change from baseline to end of intervention scores for BMC, femoral neck, lumbar spine, and total hip BMD values, and alkaline phosphate and serum N-telopeptides of type I collagen (NTx) concentrations, in the main analysis or in sensitivity analysis of low risk of bias trials (Analysis 11.1; Analysis 11.2; Analysis 11.3; Analysis 11.4; Analysis 11.5; Analysis 11.6).

No significant effects on total or hip BMD were found in any subgroup analyses, whereas analysis of combined follow-up and change from baseline to end of intervention lumbar spine BMD values revealed significant improvement only for resistance exercise interventions.

One trial from which data could be extracted found no difference for femoral neck and lumbar (L2–L4) bone mineral density (i.e. -0.01 change for each measure in both intervention and control groups) (Rogers 2009).

Adverse events

Of the 34 trials that provided data on adverse events, 10 trials reported no adverse events during the trial (Basen-Enquist 2006; Dolan 2016; Ergun 2013; Herrero 2006; Kim 2015; Loudon 2014; Naumann 2012; Rogers 2009; Waltman 2010; Winters-Stone 2011). Adverse events reported in intervention groups of the remaining studies included two instances of plantar fasciitis (Cadmus 2009), three reports of discomfort and low-intensity stiffness (Cantarero-Villanueva 2013), two recurrences of chronic back and shoulder problems (Irwin 2015), low back pain in one participant (Murtezani 2014), two instances of tendonitis in the shoulder and foot (Musanti 2012), one pelvis stress fracture and 14 further reports of back or lower extremity pain or injury (Rogers 2015), one instance each of chest pain and high blood pressure during a treadmill stress test (Rogers 2014), one report of intervention discontinuation due to chest pain developed during exercise (Pinto 2005), one report each of an asthma episode and a hypoglycaemia episode (Portela 2008), and an unspecified number of self-resolving musculoskeletal issues (Schmitz 2005). One trial reported a broken hip in one participant, which was not attributed to the yoga or control intervention (Loudon 2014). Ten participants in another trial developed musculoskeletal injuries, but it was not clear how many occurred in each group (Schmitz 2009). Of four trials that reported an impact on lymphoedema as an adverse event, one trial reported that three participants in the intervention group developed lymphoedema (Murtezani 2014), and three trials reported no lymphoedema exacerbations (Cormie 2014; Schmitz 2005; Schmitz 2009). Indeed in Schmitz 2009, the intervention group experienced reduced risk.

With regards to medical complications and poor health, one study reported medical complications as an adverse event in two control participants (Daley 2007). Payne 2008 reported worsening health condition as a reason for dropping out of the trial in both intervention and control groups (no numbers per group were provided); one participant each in the intervention and control groups reported health issues during Pinto 2015, four participants in the intervention group developed poor health leading to missing data in Short 2014, one participant in the intervention group and four in the control group discontinued the study because of poor health in Winters-Stone 2011, and in another study (Waltman 2010), continuation of health problems was a cause of missing data for two participants in the control group. Finally, one trial reported cognitive deficit leading to study discontinuation for 10 participants (Mustian 2004).

DISCUSSION

Summary of main results

We included 63 trials with a total of 5761 women with breast cancer post adjuvant therapy randomised to physical activity intervention (n = 3239) or comparison (n = 2524) groups. Modes of physical activity interventions differed across trials and included aerobic exercise such as walking, cycling, and water-based exercise; resistance training; and yoga, pilates, qigong, or tai chi. Investigators examined a wide and diverse range of outcomes and measures across trials, including health-related quality of life (HRQoL), HRQoL-related and psychological outcomes, cardiorespiratory fitness, physical activity as an outcome, anthropometric outcomes, muscular strength, and bone health outcomes. Attrition was a problem across trials, with one-fifth of trials reporting that at least 20% of participants dropped out of the intervention group. Similarly, few trials reported that participants had complied with the amount of physical activity prescribed, and approximately one-quarter of the targeted number of sessions were missed on average across trials reporting such data.

Physical activity interventions of a median of 12 weeks' duration resulted in significant small-to-moderate improvements in HRQoL, emotional function, perceived physical function, social function, anxiety, cardiorespiratory fitness, physical activity (both self-reported and objectively measured), body fat, and lower and upper body strength in analysis of both immediately postintervention follow-up values and change from baseline to end of intervention scores. Role function, cognitive function, depression, fatigue, vigour, and self-esteem improved only with physical activity interventions in analysis of immediately postintervention follow-up values, and only body mass and waist and hip circumferences were significantly reduced in the change from baseline to end of intervention scores analysis only. No significant improvements were noted in immediately postintervention follow-up values or change from baseline to end of intervention scores for general health, sexual function, sleep, pain, body mass index (BMI), waist-to-hip ratio (WHR), bone mineral content (BMC), BMD of the femoral neck, lumbar spine, or hip, and measures of bone formation (alkaline phosphatase) and bone resorption (serum biomarker N-terminal telopeptide (NTx)). Unfortunately, we could not find any

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evidence on effects of physical activity on breast cancer-related mortality, breast cancer recurrence, or all-cause mortality. Also, relatively few adverse events were reported across the included trials, suggesting that physical activity is safe for patients with breast cancer after they have received adjuvant therapy. Only HRQoL, perceived physical function, anxiety, cardiorespiratory fitness, and both self-reported and objective physical activity were considered precise effect estimates (i.e. 95% confidence intervals (CIs) do not include a harmful effect, or show no effect or negligible effects, and effects exceed a minimal important difference) for both immediately postintervention follow-up values and change from baseline to end of intervention score analyses, although effects on cognitive function, fatigue, and vigour were precise for immediately postintervention values alone, and social function and lower and upper body strength effects were precise for change from baseline to end of intervention scores only. When effects were re-expressed using the most commonly employed measure, physical activity interventions led to meaningful important differences (using change from baseline scores) in only HRQoL and anxiety (Summary of findings 2).

Available evidence regarding sustainability of the benefits of physical activity was limited because only 14 studies included a follow-up period of three months or longer beyond the end of the intervention for all conditions. Physical activity intervention improvements were sustained three months or longer post intervention for fatigue, cardiorespiratory fitness, and self-reported physical activity for both follow-up values and change from baseline scores. Beneficial effects on emotional health, physical function, depression, and vigour were still apparent in analysis of immediately postintervention follow-up values, and improvements in HRQoL remained significant in analysis of change from baseline to three months or longer post intervention. However, no significant improvements were found for physical activity interventions after three months or longer post intervention in analysis of follow-up values or change from baseline scores for cognitive function and objectively measured physical activity; or of follow-up values for HRQoL, role function, sit-to-stand performance, or change from baseline scores for emotional function values. No analysis was possible for general health perspective, sexual function, sleep, anxiety, pain, self-esteem, body mass, BMI, body fat %, WHR, waist and hip circumferences, upper and lower body strength, or bone health outcomes of three months or longer postintervention follow-up values or change from baseline to three months or longer postintervention scores.

We performed subgroup analysis by intervention mode, intensity, duration, setting, and format, wherever possible. Caution is required when interpreting these analyses owing to small sample sizes and high heterogeneity. Regarding mode of physical activity, both aerobic exercise and combined aerobic and resistance exercise interventions improved HRQoL and cardiorespiratory fitness, and aerobic exercise interventions resulted in greater increases in HRQoL-related outcomes, such as emotional, perceived physical, and social function, and in self-reported physical activity. Resistance exercise interventions were superior for improving upper and lower body strength, and combined aerobic and resistance exercise interventions led to reduced fatigue. Interventions of light or light-to-moderate intensity appeared to be more effective than those described as moderate or moderate-to-high intensity for improving HRQoL, emotional function, perceived physical function, social function, anxiety, cardiorespiratory fitness, objectively measured physical activity levels, and lower body muscular strength. Physical activity interventions longer than 12 weeks in duration were more effective than interventions of 12 weeks or less for improving only upper and lower body muscular strength, but interventions of 12 weeks or less were superior in improving HRQoL, emotional function, perceived physical function, social function, anxiety, depression, and fatigue. It appears that interventions that were facility-based were more effective than home-based interventions and those utilising combined home and facility-based physical activity in improving HRQoL, emotional function, perceived physical function, social function, anxiety, depression, and lower body strength. However, both home-based and combined home and facility-based interventions were superior in improving self-reported physical activity, although greater increases in objectively measured physical activity and upper body strength were observed in combined home and facility-based interventions. Group-based and individual-based interventions appear to be effective in improving HRQoL and lower body strength among breast cancer survivors compared with combined (both group- and individual-based) interventions, whereas individual-based and combined interventions were more effective than group-based interventions for improving self-reported physical activity. Group-based interventions were more effective in improving emotional function, perceived physical function, anxiety, and depression, whereas individual-based interventions were superior for cardiorespiratory fitness, and combined interventions were better for improving objective physical activity.

Overall completeness and applicability of evidence

The current review draws upon trials from across the world, although most trials were based in North America. This review includes 63 trials, of which 60 were randomised controlled trials (RCTs) and three were quasi-RCTs (we excluded non-randomised controlled trials) consisting of a total of 5761 participants. All trials included only participants with a diagnosis of breast cancer who had completed adjuvant cancer treatment (except for endocrine therapy). We excluded trials in which all participants had received a diagnosis of metastatic breast cancer (two trials), but five of the eligible trials included a small number of patients with metastatic breast cancer. Eligible trials used a wide range of intervention modes; however, most trials provided aerobic-based activity (e.g. walking, cycling, Nordic walking, dance, water-based exercise, horse-riding), and only seven trials included a resistance training-only study arm. Similarly, only one trial was available for each of pilates, qigong, and tai chi. We included trials only when it was possible to isolate effects of physical activity; therefore, we excluded interventions that combined physical activity with calorie restriction, manual therapy, or cognitive-behavioural therapy components if studies included a no physical activity control group that did not receive the additional component. The Characteristics of included studies table provides detailed information on trial attributes.

We obtained information from several electronic databases through a comprehensive search strategy (Cochrane Breast Cancer Group Specialised Register, MEDLINE PubMed, Embase, Central Register of Controlled Trials (CENTRAL) in the Cochrane Library, Cumulative Index to Nursing and Allied Health Literature (CINAHL), Physiotherapy Evidence Database (PEDro), SPORTDiscus, PsycINFO, OpenGrey, and Health Management

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Information Consortium (HMIC)) and via review of reference lists of other reviews on the topic (i.e. physical activity/exercise and cancer) and reference lists of all included trials. We identified future potentially eligible trials via the World Health Organization (WHO) International Clinical Trials Registry Platform (ICTRP) and clinicaltrials.gov. We applied no language or date restrictions in our search strategy. We included all outcomes apart from those related to specific impairments in the shoulder, the arm, or both (e.g. range of motion, arm volume, arm circumference), as well as blood biomarkers, which we excluded because they were beyond the scope of the current review. See Search methods for identification of studies for details.

Regarding applicability of evidence, owing to underreporting of sociodemographic characteristics of participants (cancer stage, cancer treatment received, race/ethnicity, menopausal status, education level, annual income, and baseline physical activity levels and body mass/BMI), a thorough comparison between trials with assessment of the generalisability of findings was not possible. However, based on the characteristics reported, most patients with breast cancer who were enrolled in eligible trials had stage I-III cancer, received chemotherapy, and were undergoing endocrine therapy. Most participants were postmenopausal and Caucasian, earned over USD 40,000, received at least a high school education (47% attained at least a University degree), and were overweight (BMI ≥ 25 kg/m^2). These characteristics would potentially limit the applicability of evidence to a broader population of patients with breast cancer.

Interventions tested in eligible trials were diverse in terms of mode, frequency, intensity, and duration, as well as sessions, setting, and format. As evidenced in our subgroup analysis, a paucity of data is available regarding the efficacy of activity modes, such as yoga (n = 8), resistance training (n = 7), pilates (n = 1), qigong (n = 1), and tai chi (n = 1); settings (facility-based vs home-based vs facility and home-based combined); and formats (individual-based vs group-based vs combined individual and group-based) across many of the outcomes examined in the current review. Variation in these important elements required to make physical activity recommendations limits the precision of evidence-informed decision making and applicability of findings. Furthermore, most trials were short-term (≤ 12 weeks' duration), and only a minority of trials included postintervention follow-up to assess the sustainability of intervention effects. Only one trial included a follow-up assessment 12 months post intervention. Most of the remaining studies included follow-up only at three months or less post intervention. Thus it is unclear how sustainable the beneficial effects of physical activity interventions would be.

Unfortunately, we could not provide an analysis of effects of physical activity interventions on one of our primary outcomes - breast cancer-related mortality - because currently no randomised or quasi-randomised controlled trials have reported this outcome. Similarly, physical activity interventions for breast cancer recurrence and all-cause mortality could not be investigated owing to lack of available data. We assessed outcomes for which sufficient data were available using a wide range of instruments with varying psychometric properties (i.e. level of measurement, reliability, validity, responsiveness) (see analysis). Although analysis of outcomes by different instrument types used revealed varying intervention effects, sample size was small in many analyses. Furthermore, HRQoL and subscales and HRQoL-related psychological outcomes were reliant on self-report and therefore were at risk of biases such as recall and social desirability. We included analyses of both follow-up values and change from baseline values; however, owing to underreporting, change from baseline analyses included smaller sample sizes than were included in analyses of follow-up values. Similarly, small samples for analyses of sleep, anxiety, waist-to-hip ratio, and waist and hip circumferences precluded firm conclusions.

Quality of the evidence

The GRADE system revealed moderate-quality evidence by end of intervention follow-up for change from baseline to end of intervention values analyses of HRQoL, physical function, and social function; for follow-up values analyses of BMI, body fat %, cardiorespiratory fitness, emotional function, fatigue, self-esteem, and objective physical activity; and for change from baseline values analysis of upper body strength (Guyatt 2008). Low-quality evidence was provided by the end of intervention follow-up for change from baseline to end of intervention values analyses of cognition, sleep, pain, role function, self-reported physical activity, and lower body strength; for follow-up values analyses of depression and mass; and for change from baseline values analyses of anxiety, BMI, body fat %, emotional function, fatigue, objective physical activity, and self-esteem. Although very low-quality evidence was provided by end of intervention follow-up for change from baseline to end of intervention values analyses of femoral neck, lumbar spine, and hip BMD, general health, and sexual function, follow-up values analyses included anxiety and upper body strength and change from baseline values analyses of depression, cardiorespiratory fitness, and upper body strength. Specifically, all trials were at risk of performance bias owing to inability to blind study participants to administration of physical activity. Most trials were at risk of selection bias owing to inadequate or unclear allocation concealment, detection bias, lack of blinding of outcome assessors, and attrition bias due to incomplete outcome data reporting (most often as a result of high attrition and inadequate handling of missing data). However, a large number of trials were at unclear risk of selection and detection bias, which may reflect poor quality of reporting rather than poor methodological practices. When we performed sensitivity analyses of both immediately postintervention values and change from baseline to end of intervention by including only trials at lower risk of bias, we found that effects of physical activity interventions on HRQoL, emotional function, physical function, social function, anxiety, and lower body and upper body muscular strength remained significant and were of similar or higher magnitude than when all studies were included.

When considering both end of intervention follow-up and change from baseline to end of intervention values, we found precise estimates of effects of physical activity interventions on HRQoL, self-reported physical function, cardiorespiratory fitness, and both self-reported and objective physical activity. In addition, precise effect estimates were provided from change values analyses of social function, lower and upper body strength, and end of intervention follow-up fatigue. Heterogeneity was evident in all outcomes, except for sleep, cognition, pain, and self-esteem, for both end of intervention follow-up and baseline to end of intervention change values analyses; for BMI, body fat %, emotional function, mass, sexual function, and social function immediately

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postintervention values analyses; and for anxiety change from baseline to end of intervention change values analyses.

Evidence of heterogeneity might be explained by several factors including variation in participant characteristics (e.g. disease severity, treatment regimen, menopausal status, baseline levels of outcomes), components of the physical activity intervention (e.g. frequency, intensity, duration, mode of activity), and types of comparison groups used (e.g. attention control, usual care, delayed intervention), including potential variations in usual care. Both our exploration of heterogeneity and subgroup analyses were limited owing to the large number of potential heterogeneity factors, small sample sizes, and underreporting of key components (e.g. ~ 50% of trials reported an assessment of activity intensity). For instance, variation in intervention components within each mode of intervention (i.e. aerobic, resistance, combined aerobic and resistance exercise, and interventions such as yoga, tai chi, qigong, and pilates) impacts consistency and limits confidence in our analyses by intervention mode.

Potential biases in the review process

Strengths of this review include the comprehensive search strategy, which comprised a search of 12 databases, review of reference lists of relevant reviews in the field and reference lists of all included trials, systematic appraisal of study quality through GRADE and risk of bias through the Cochrane 'Risk of bias' tool, and systematic and well-defined data synthesis. In addition, we applied a broad definition of physical activity, which included lower intensity interventions such as tai chi, qigong, pilates, yoga, horse-riding, and line-dancing, as well as higher-intensity activities such as resistance exercise and interval training. Inclusion of lighter-intensity activities might be contentious, but application of the World Health Organization (WHO) definition of physical activity (i.e. any bodily movement produced by contraction of skeletal muscle that increases energy expenditure above a basal level) meant that interventions including these types of activities were eligible (Caspersen 1985). It is important to note that we attempted to isolate effects of physical activity as much as possible; therefore, we excluded trials that combined physical activity with another component (e.g. dietary modification), in which a potential synergistic or additive effect could not be ruled out. In particular, this criterion led to exclusion of several studies that would potentially have been eligible, including trials that combined physical activity with dietary modification (Casla 2015; Djuric 2002; Kim Soo 2011; Mefferd 2007), educational counselling (Bloom 2008; Cho 2006), or manual therapy (Cantarero-Villanueva 2012; Cantarero-Villanueva 2012a; Cantarero-Villanueva 2013a; Fernandez-Lao 2012). Although the contributions of these additional components to the overall effect of physical activity may be small, an effect could not be isolated and accounted for; therefore, the review authors believe that a more robust approach would be to exclude them from the review. We analysed effects of physical activity interventions on a broad range of outcomes, including both patient-important outcomes, such as HRQoL, and objective outcomes related to future health, such as cardiorespiratory fitness.

The search strategy was designed and applied to ensure that review authors identified and retrieved the maximal number of eligible published and grey literature trials. We applied no language restrictions, so that all trials published in non-English language were translated and screened for eligibility. However, although we screened several non-English language trials for eligibility, we found none to be eligible. Similarly, we found no additional eligible trials through our searches of grey literature. In spite of our comprehensive search strategy, it is still possible that this review may have a publication bias. We have presented funnel plots for end of intervention follow-up (Figure 6) and change from baseline to end of intervention values (no shown) from analyses of our primary outcome of overall HRQoL. Visual inspection of both figures revealed asymmetry, indicating that some publication bias for HRQoL may characterise this field of research; this was supported by Egger's test for these analyses (P = 0.06 and 0.07, respectively). To investigate publication bias in the remaining outcomes for which we identified a sufficient number of studies (n > 10), we also performed Egger's test (Egger 1997) analyses of body mass (both end of intervention follow-up and change from baseline to end of intervention values) and BMI (immediately postintervention values), which suggested publication bias (P < 0.10). Whereas we included fewer than 10 studies in analyses of both follow-up and change values for anxiety, BMD of femoral neck, lumbar spine, and hip, cognitive function, general health, pain, sexual function, and sleep, and in analyses of change values for depression, self-esteem, and self-reported and objectively measured physical activity, inspection of funnel plots revealed asymmetry, suggesting the presence of publication bias. In all cases, observed asymmetry was evident particularly because trials were lacking on the side of the plot that would suggest a negative effect of physical activity. A potential rationale for apparent publication bias in the change from baseline to postintervention values analysis may be underreporting of change values in the included trials, rather than lack of unpublished trials with negative findings. Across most analyses, fewer trials were available for analysis of these change values than were available for analysis of follow-up values. We may have missed potentially eligible trials in our grey literature search, although it is unclear whether additional trials found only in the grey literature would meaningfully impact the results of this review, given that these types of trials typically include small samples and produce inclusive results (McAuley 2000).

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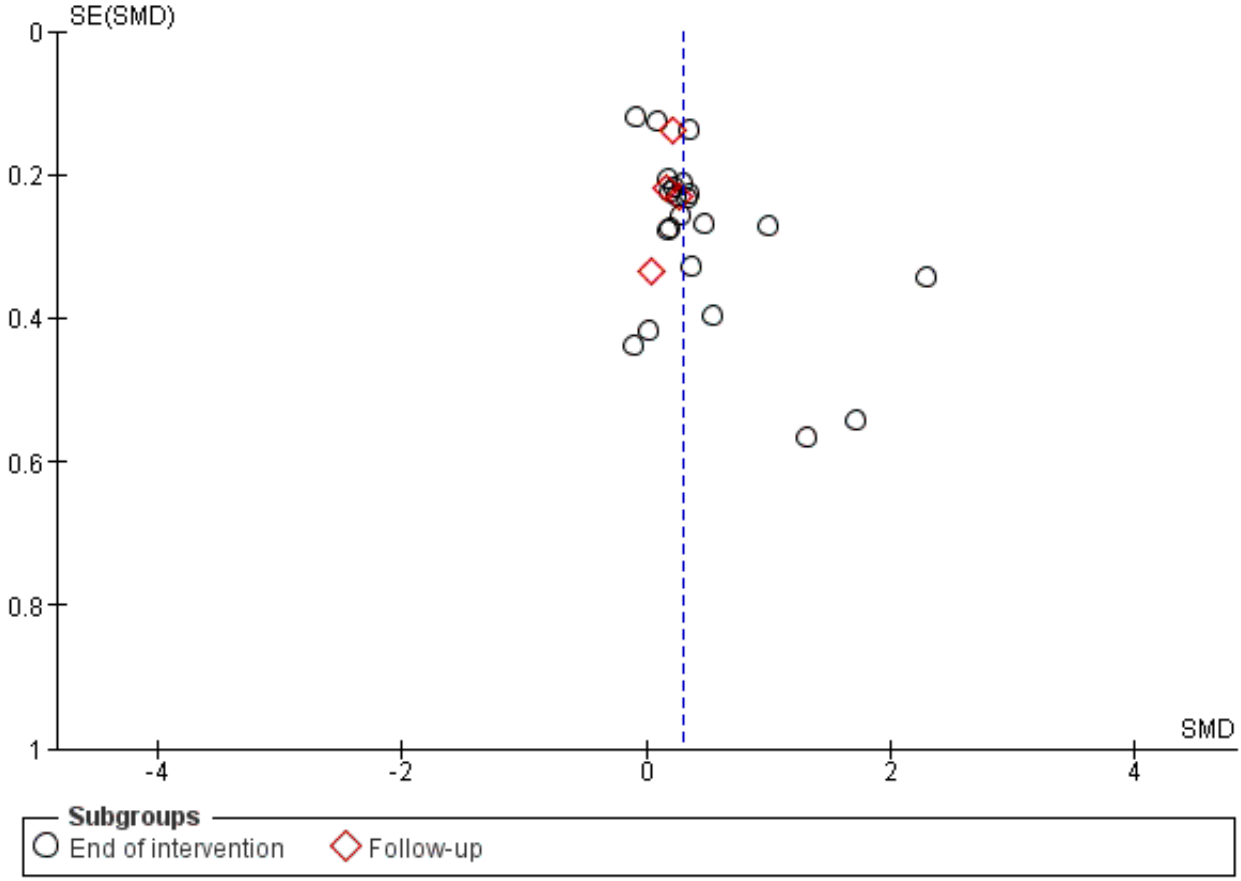
Figure 6. Funnel plot of comparison: 1 Comparison: HRQoL outcomes, all physical activity vs control, outcome: 1.1 Overall HRQoL (follow-up values).



Deviations from our proposed protocol were few. However, we did not perform planned analysis of effects of physical activity on blood biomarkers because we considered these outcomes to be beyond the scope of the current review, and because uncertainty persists regarding the prognostic value of blood biomarkers in breast cancer populations (Ballard-Barbash 2012). Therefore, future reviews are required to explore both the prognostic value and effects of physical activity on biomarkers that might be relevant to patients with a diagnosis of breast cancer, such as glucose, insulin, inflammatory cytokines, and growth factors. We originally planned to conduct subgroup analyses by participants' menopausal status (premenopausal vs postmenopausal) and treatment regimen (chemotherapy vs no chemotherapy). However, we identified insufficient numbers of trials that included premenopausal patients with breast cancer and those who had not undergone chemotherapy to perform these analyses.

We corresponded with and requested additional data from nine trial authors (Baruth 2013; Carson 2009; Daley 2007; Heim 2007; Loh 2014; McKenzie 2003; Payne 2008; Peppone 2015; Vallance 2007), four of whom (Daley 2007; Loh 2014; Payne 2008; Vallance 2007) replied to our requests. Of these four trial authors, only the authors of Vallance 2007 were able to provide data on all outcomes requested. The addition of data obtained from these trial authors allowed us to increase sample sizes in quantitative meta-analyses and to perform more complete analyses, leading to more robust conclusions. Conversely, our inability to obtain complete data may have contributed to observed publication bias.

Agreements and disagreements with other studies or reviews

Several relatively recent systematic reviews have investigated effects of physical activity/exercise on health outcomes among patients with cancer; however, some included all cancer types (Bourke 2013; Bourke 2014; Bradt 2011; Brown 2011; Brown 2012; Buffart 2012a; Chiu 2015; Craft 2012; Cramp 2012; Ferrer 2011; Fong 2012; Knols 2010; Mishra 2012a; Speck 2010; Winters-Stone 2010; Zimmer 2016), instead of focusing on breast cancer only (Battaglini 2014; Bluethmann 2015; Bluethmann 2016; Bourke 2013; Bourke 2014; Cheema 2014; Chung 2013; Duijts 2011; Keilani 2016; Meneses-Echavez 2015; Nelson 2016; Pan 2015; Paramanandam 2014; Yang 2016; Zeng 2014; Zhu 2016). Most of these systematic reviews included a meta-analysis (Bluethmann 2015; Bluethmann 2016; Bourke 2013; Bourke 2014; Bradt 2011; Brown 2011; Brown 2012; Buffart 2012a; Candy 2016; Cheema 2014; Chiu 2015; Craft 2012; Cramp 2012; Duijts 2011; Ferrer 2011; Fong 2012; Knols 2010; Lee 2010a; Meneses-Echavez 2015; Mishra 2012a; Pan 2015; Paramanandam 2014; Speck 2010; Yang 2016; Zeng 2014; Zhu 2016). Some of the listed systematic reviews focused on specific outcomes, such as aromatase inhibitor-associated arthralgia

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(Yang 2016), breast cancer-related lymphoedema (Keilani 2016; Nelson 2016; Paramanandam 2014), bone health (Winters-Stone 2010), cancer-related fatigue (Brown 2011; Cramp 2010; Meneses-Echavez 2015), cognitive impairments (Chan 2015; Zimmer 2016), depressive symptoms (Brown 2012; Craft 2012), physical activity/exercise behaviour (Bluethmann 2015; Bluethmann 2016; Bourke 2013; Bourke 2014; Knols 2010), outcome maintenance (Spark 2013), sexual function (Candy 2016), sleep (Chiu 2015), and quality of life (Ferrer 2011; Mishra 2012a; Zeng 2014). Some investigated effects of particular types of physical activity such as dance/movement therapy (Bradt 2011), physical activity interventions based on behaviour change theory (Bluethmann 2015; Bluethmann 2016), physical activity and/or dietary interventions (Spark 2013), resistance exercise (Cheema 2014; Keilani 2016; Nelson 2016; Paramanandam 2014), supervised exercise (Meneses-Echavez 2015), tai chi (Lee 2010a; Pan 2015), walking (Chiu 2015; Knols 2010), and yoga (Buffart 2012a), and others included trials in which participants were still undergoing breast cancer treatment (Battaglini 2014; Bradt 2011; Brown 2011; Brown 2012; Buffart 2012a; Cheema 2014; Chung 2013; Cramp 2012; Duijts 2011; Fong 2012; Lee 2010a; Meneses-Echavez 2015; Mishra 2012a; Spark 2013; Zeng 2014; Zhu 2016; Zimmer 2016).

Similar to meta-analyses included in the current review, previous meta-analyses investigating effects of physical activity found improvements in HRQoL in analyses that included only trials involving solely breast cancer survivors (Duijts 2011; Fong 2012; Mishra 2012a; Zeng 2014; Zhu 2016), trials including mostly (83%) breast cancer survivors (Speck 2010), and trials with female cancer survivors (Ferrer 2011). Similarly, two previous systematic reviews concluded that physical activity improves HRQoL among breast cancer survivors (Battaglini 2014; Chung 2013). Likewise, our findings of improvement in breast cancer-specific HRQoL were similar to those of previous meta-analyses (Mishra 2012a; Speck 2010). Although previous meta-analyses of resistance exercise interventions found improvements in HRQoL among breast cancer survivors in Cheema 2014 and among patients with breast cancer-related lymphoedema in Paramanandam 2014, owing to differences in review methods (both reviews included trials comprising patients with breast cancer who were undergoing adjuvant therapy, and Cheema 2014 combined overall HRQoL and physical function values in analysis), we did not identify a sufficient number of trials for investigation of this particular analysis. Similarly, in conflict with Buffart 2012a, we found no effects of yoga interventions on HRQoL among patients with breast cancer. However, Buffart 2012a included trials in which participants were undergoing breast cancer treatment. Unlike previous meta-analyses (Lee 2010a; Pan 2015), we could not perform a meta-analysis of only tai chi interventions owing to lack of available eligible trials. However, we found evidence of double-counting of trials within these analyses, for instance, the six publications produced from the single trial of Mustian 2004, were included separately in analyses of Pan 2015.

Among HRQoL-related outcomes, we observed improvement in emotional function similar to those reported in three meta-analyses (Mishra 2012a; Zeng 2014; Zhu 2016), perceived physical function increases similar to those reported by Speck 2010, and enhanced social function similar to that described by Zhu 2016. However, Mishra 2012a found no improvements in perceived physical or social function, and Speck 2010 reported no increase in mental health or social, emotional, and role function with physical activity interventions. Unlike one previous meta-analysis (Paramanandam 2014), we found no improvements in perceived physical function, specifically with resistance exercise. Similarly, we found no change in emotional, social, or role function with yoga, unlike Buffart 2012a, although, similar to this meta-analysis, we found no effect on physical function among breast cancer survivors. Consistent with findings of the Mishra 2012a meta-analysis and the Zimmer 2016 systematic review, we did not find an effect of physical activity on cognitive function among breast cancer survivors. One previous systematic review - Chan 2015 - concluded, based on two trials, that physical activity interventions were effective in improving executive function and self-reported concentration among patients with breast cancer after chemotherapy. However, our findings of no effect of physical activity on sexual function of breast cancer survivors differed from those of Mishra 2012a, which reported a small effect at six months, but was in agreement with the findings of three other meta-analyses (Candy 2016; Speck 2010; Zhu 2016). Our finding of no effect of physical activity on the general health perspectives of breast cancer survivors was consistent with that of Mishra 2012a. In agreement with two meta-analyses (Buffart 2012a; Zhu 2016), we found no effects of physical activity interventions on sleep outcomes. However, one previous meta-analysis found improvement in sleep disturbance with physical activity when comparing follow-up values with those of the comparison group at 12 weeks' follow-up (Mishra 2012a), and another meta-analysis revealed that moderate-intensity walking exercise improved sleep among patients with breast cancer (Chiu 2015).

Regarding other psychological outcomes, we found significant reductions in anxiety with physical activity interventions; this was consistent with the findings of two previous meta-analyses among breast cancer survivors (Mishra 2012a; Zhu 2016), as well as one examining effects of yoga among cancer survivors (Buffart 2012a), but not with the findings of two other meta-analyses (Duijts 2011; Speck 2010). Although we found a small decrease in depression with physical activity interventions, we failed to find a significant reduction in the change from baseline to end of intervention values analysis. Two previous meta-analyses found no effect of physical activity on depression (Mishra 2012a; Speck 2010), and another six found a significant reduction in depression among cancer and breast cancer survivors (Brown 2012; Buffart 2012a; Craft 2012; Duijts 2011; Fong 2012; Zhu 2016). We found a significant but small decrease in fatigue in favour of physical activity interventions when we analysed immediately postintervention values; however we noted a significant reduction in fatigue in the change from baseline to at least three months follow-up analysis, and we found that the change from baseline to end of intervention values analysis was not significant (P = 0.05). Several other meta-analyses showed significant reduction in fatigue with physical activity among cancer survivors (Brown 2011; Buffart 2012a; Cramp 2012; Speck 2010), as well as breast cancer survivors (Duijts 2011; Fong 2012; Meneses-Echavez 2015; Mishra 2012a); however, similar to the current review, one review did not find significant reductions in fatigue (Zhu 2016).

Our finding of no effect of physical activity on pain among breast cancer survivors is consistent with that of previous meta-analyses (Mishra 2012a; Pan 2015; Speck 2010; Yang 2016), although Mishra 2012a observed significant effects when using follow-up values at 12 weeks only. Similar to Mishra 2012a and Duijts 2011, we found improvements in self-esteem/body image among breast cancer

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survivors, although two previous meta-analyses could analyse only body image and reported improvement with physical activity interventions (Speck 2010; Zeng 2014).

We found improved cardiorespiratory fitness when comparing physical activity versus control groups, which was consistent with the findings of previous meta-analyses in mixed cancer population trials (Bourke 2013; Bourke 2014; Fong 2012; Speck 2010), as well as one systematic review involving only trials of physical activity among breast cancer survivors over the previous 25 years (Battaglini 2014). However, Fong 2012 did not report significant improvement in a separate subanalysis involving only trials consisting solely of breast cancer survivors. Previous meta-analyses of Bluethmann 2015, Bluethmann 2016, and Speck 2010 were consistent with our finding of increased physical activity (both self-reported and objectively measured physical activity) among breast cancer survivors given physical activity interventions. Furthermore, we found that increases in self-reported, but not objectively measured, physical activity were maintained at least three months post intervention, which is somewhat supported by a previous meta-analysis (Spark 2013). Spark 2013 investigated the number of trials consisting of breast cancer survivors that achieved successful postintervention maintenance of physical activity and/or dietary outcomes. The authors of Spark 2013 found that four out of nine studies that targeted physical activity improvement among primarily breast cancer survivors achieved successful maintenance of physical activity at least three months post intervention, although another four trials involving only breast cancer survivors did not achieve successful maintenance.

Our finding of significant but small decreases in body mass (change from baseline to end of intervention values only) was consistent with the findings of two previous meta-analyses (Fong 2012; Speck 2010); however, Fong 2012 found no decreases in a separate analysis of breast cancer survivors only. In agreement with the findings of Fong 2012, we found no significant reduction in BMI among breast cancer survivors. However, Speck 2010 did note reductions in BMI in physical activity trials consisting mostly of breast cancer survivors. We also found significant small reductions in body fat (both follow-up and change values) similar to those reported by Speck 2010 but in disagreement with the findings of Fong 2012.

In agreement with previous meta-analyses of mostly breast cancer survivors in Speck 2010 and only breast cancer survivors in Fong 2012, we found that physical activity interventions improved both upper and lower body strength and lower body strength. This finding was also supported by a previous systematic review (Battaglini 2014). Similarly, in subgroup analyses by intervention mode, we observed the greatest effect with resistance exercise. Previous meta-analyses - Cheema 2014; Paramanandam 2014 - and systematic reviews - Chung 2013; Keilani 2016; Nelson 2016 - have concluded that resistance exercise interventions improve upper and lower body strength among breast cancer survivors, while adding that these strength gains are achieved safely without triggering changes in lymphoedema status, worsening symptoms, or increasing arm volume. Our findings of a lack of effect of physical activity on BMD is consistent with a previous systematic review of exercise interventions to improve bone health in adult cancer survivors (Winters-Stone 2010). Winters-Stone 2010 found that only two of eight included trials reported significant effects of aerobic exercise on preservation of BMD at the spine or in the whole body, and none reported exercise benefits at the hip.

Differences between the current review and previous reviews are likely due to variations in time and design of search strategies, as well as in eligibility criteria and their application. Specifically, previous reviews focused on certain types of interventions or outcomes and/or included mixed cancer populations at various stages of treatment.

AUTHORS' CONCLUSIONS

Implications for practice

Physical activity may have small to moderate beneficial effects on overall health-related quality of life (HRQoL), some HRQoL domains (such as emotional, perceived physical, and social function), anxiety, cardiorespiratory fitness, self-reported and objectively measured physical activity, body fat, and lower and upper body muscular strength among women with breast cancer after adjuvant therapy. Furthermore, at the end of the study period, participants in physical activity interventions achieved more favourable values for role and cognitive function, depressive symptoms, fatigue, vigour, and self-esteem compared with survivors in control groups. In addition, physical activity may lead to greater albeit modest decreases in body mass and waist and hip circumferences from the beginning to the end of the intervention. We found a small number of minor adverse events and no evidence of negative/harmful effects of physical activity interventions. Therefore, physical activity could be considered relatively safe and effective in improving HRQoL along with psychological, behavioural, and physical outcomes in breast cancer survivors.

Positive results must be interpreted cautiously owing to the heterogeneity and imprecision of observed effects, the risk of bias in many trials (primarily performance, attrition, detection, and selection bias), and very low-to-moderate quality of evidence. Variations in design of physical activity interventions (i.e. modes of physical activity, frequency and intensity of sessions, duration of both sessions and intervention, and level of behavioural support given), risks of bias, and diversity among instruments used to assess outcomes likely explain most of the heterogeneity observed. In addition, most statistically significant effects were small to moderate and lacked precision (i.e. 95% confidence intervals (CIs) included a harmful effect, no effect, or a negligible effect). When effects were re-expressed via the most commonly employed measurement tool or test, physical activity interventions led to meaningful clinically important differences in overall HRQoL and anxiety only. Furthermore, intervention adherence and attrition varied greatly across trials. All of these factors limit the degree to which results are attributable to physical activity interventions, and as a result the practical application of findings.

We found limited evidence related to maintenance of outcomes beyond the period of active intervention. Only a minority of trials included data regarding outcome maintenance at least three months post intervention. Therefore, although we observed sustained favourable effects of physical activity interventions on fatigue, cardiorespiratory fitness, and self-reported physical activity at least three months post intervention, these analyses were based on small sample sizes. Furthermore, assessments of follow-up beyond intervention completion were affected by poorer adherence and greater attrition than were seen in

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assessments performed immediately post intervention. Owing to these limitations, it is difficult to draw firm conclusions regarding how sustainable effects of physical activity interventions are beyond the intervention period. Owing to insufficient available data, we could make no conclusions regarding maintenance of general health perspective, sexual function, sleep, anxiety, pain, self-esteem, mass, body mass index (BMI), body fat, waist-to-hip ratio (WHR), waist and hip circumferences, upper and lower body strength, or bone health outcomes.

From a practice perspective, we need a greater understanding of which components of physical activity interventions can lead to more optimal effects on outcomes important to breast cancer survivors. Our findings appear to suggest that effects of physical activity are not transferable across all modes, and that the mode of physical activity chosen may influence potential benefits received. Therefore, practitioners would benefit from knowledge of which mode or combination of modes of physical activity (e.g. continuous aerobic exercise, high-intensity intermittent exercise, resistance training, yoga, tai chi, pilates) coupled with physical activity prescription components (frequency, intensity and duration of sessions and programme) is optimal for improving a particular outcome. In addition, understanding which behavioural change techniques facilitate the greatest physical activity adherence would promote the sustainability of physical activity-induced benefits.

Implications for research

This systematic review and meta-analysis of 63 trials investigated effects of physical activity interventions among women with breast cancer after adjuvant therapy and found that after physical activity interventions, breast cancer survivors had more favourable postintervention values and experienced greater changes during the intervention period in overall health-related quality of life (HRQoL); in emotional, perceived physical, and social function; and in anxiety, cardiorespiratory fitness, self-reported and objectively measured physical activity, body fat, and lower and upper body strength. Furthermore, despite a non-significant change from baseline to end of intervention, breast cancer survivors given physical activity interventions had more favourable values post intervention for role and cognitive function, depression, fatigue, vigour, and self-esteem compared with survivors given control interventions. Conversely, although end of intervention values in the intervention group were not different from those in the control group, breast cancer survivors experienced greater decreases in body mass and in waist and hip circumferences during the intervention period. We found no data on effects of physical activity on breast cancer-related mortality, breast cancer recurrence, or all-cause mortality. Therefore, future research is required to investigate effects of physical activity interventions on these as primary outcomes. Similarly, limited data are available regarding the cost-effectiveness of physical activity interventions for women with breast cancer after adjuvant therapy. Further research is needed to determine whether physical activity interventions offer equivalent or superior health outcomes for a similar level of expenditure compared with other available interventions.

Although available data were scarce, three months or longer postintervention follow-up values for emotional and perceived physical function, depression, fatigue, vigour, cardiorespiratory fitness, and self-reported physical activity were more favourable among intervention groups, and intervention groups maintained greater change from baseline to three months or longer postintervention values in HRQoL, fatigue, cardiorespiratory fitness, and self-reported physical activity, compared with control groups. Therefore, additional trials that include long-term follow-up assessments beyond completion of interventions are required to establish whether effects of a physical activity intervention are maintained beyond the active intervention period. In addition, future research is needed to determine the optimal duration after intervention completion at which breast cancer survivors should receive follow-up assessments.

Future trials could help to enhance precision around effect estimates for presented outcomes by adopting more rigorous methods. A large proportion of trials included relatively small sample sizes, with 28 of the 63 trials consisting of intervention and control groups including fewer than 30 breast cancer survivors. More adequately powered trials are required for each particular outcome. Most of the outcomes included in this current meta-analysis were secondary outcomes in the included trials. For some outcomes, such as fatigue, we found little evidence from trials that specifically targeted improvement for this outcome. Trials could ensure that appropriate randomisation and allocation concealment are performed by using computer sequence generation coupled with either telephone- or Internet-based central randomisation, or at least sealed opaque envelopes. Although blinding of participants to the allocation of physical activity is not possible (even though physical activity placebo interventions may be an option), when possible, such as in non-patient-reported outcomes, assessments could be conducted by an independent clinician blinded to allocation. In addition, trials could limit loss to follow-up rates by better monitoring participants during the intervention period and by using attention and delayed intervention control groups. However, when loss to follow-up occurs, incomplete missing data could be analysed appropriately via intention-to-treat analysis based on a multiple imputation method. Establishing risk of bias across trials was made difficult by inadequate reporting; adherence to CONSORT reporting guidelines for randomised controlled trials (RCTs) would increase transparency in future trials and would aid their critical appraisal and interpretation (Moher 2010).

Further research is necessary to establish the optimal physical activity prescription needed to improve a particular desired outcome. Trials manipulate different modes, frequencies, intensities, and durations of both sessions and interventions to determine their effects on specific outcomes important to women with breast cancer post adjuvant therapy, and to provide more refined physical activity guidelines for breast cancer survivors. In addition, because compliance with physical activity interventions during and after the intervention period is an issue, future research is required to gain a better understanding of the most effective physical activity behaviour change techniques among breast cancer survivors. Comparisons of findings between trials were challenging owing to the heterogeneous range of measures used to assess outcomes included in the current review. Consensus on the most valid and reliable measures for assessment of each outcome would help researchers to address this issue. Similarly, when possible, researchers could utilise more objective measures to assess outcomes of interest (e.g. use of accelerometers to measure physical activity, use of functional tests to measure physical function).

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* Indicates the major publication for the study

CHARACTERISTICS OF STUDIES

Characteristics of included studies *[ordered by study ID]*

Banasik 2011

Methods	Study design: single-centre RCT Number randomised: 18; 9 to yoga intervention, 9 to wait-list control Study start: not reported; stop date: not reported Length of intervention: 8 weeks Length of follow-up: to end of intervention Country: USA
Participants	Age, years (mean SD): • Intervention: 63.3 (6.9) • Control: 62.4 (7.3) Stage, n (%): • All women had a diagnosis of stage II-IV breast cancer. Inclusion criteria: • Women with stage II-IV breast cancer who were at least 2 months post treatment Exclusion criteria: • Receiving Herceptin therapy (an immune modifier). • Pregnant or lactating • Past or current history of another neoplasm • Active serious infection, or immune deficiency • History of psychiatric disorders requiring use of psychoactive medications or of documented alcohol or drug abuse • Taking current steroid therapy or other known immunomodulating medications • Physical condition preventing participation in yoga

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Banasik 2011 *(Continued)*

Interventions	9 participants assigned to exercise intervention: • Active yoga practice used in this study was primarily physical in nature and included poses traditionally found in beginning Iyengar classes. Sessions were more physically demanding than those of restorative or gentle yoga, with progressing difficulty of poses, including increased duration of weight-bearing on the arms as individual abilities improved. Two 90-minute group yoga sessions per week were performed over 8 weeks. Adherence: Seven participants in the yoga group who completed the study attended an average of 14 of 16 possible yoga sessions (87.5%) with a range of 12 to 15 sessions. 9 participants assigned to control: • Control group participants were instructed to continue their regular routines and were offered an opportunity for yoga programme participation at the end of the study period. Contamination of control group: not reported
Outcomes	Outcomes: • Quality of life via Functional Assessment of Cancer Therapy Form B (FACT-B) • Fatigue by a fatigue score determined by averaging Likert scale responses to fatigue-related items using the same scoring range • Salivary cortisol via collected salivary samples using salivette collection vials (Starsedt Inc., Newton, NC) 4 times during the day for 2 consecutive days at baseline and again 8 weeks later. The supernatant was assayed for cortisol via enzyme-linked immunoassay kits (R&D Systems, Minneapolis, MN). Numbers of participants assessed: • Intervention: baseline, 9; at 8 weeks, 7 • Control: baseline, 9; at 8 weeks, 7 Adverse events: not reported
Notes	Trial registration link: none available Trial authors contacted: no Intention-to-treat analysis: no Funding: in part by University of Washington Center for Women's Health and Gender Research, Washington State University Cancer Prevention and Research Center, and in part by Washington State University College of Nursing

Risk of bias

Bias	Authors' judgement	Support for judgement
Random sequence generation (selection bias)	Unclear risk	"Randomly assigned"; method of randomisation was not reported.
Allocation concealment (selection bias)	Unclear risk	Whether allocation was concealed was not reported.
Blinding of participants and personnel (performance bias) All outcomes	High risk	Owing to the nature of the intervention, it was not possible to conceal allocation to the intervention from participants.

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Banasik 2011 *(Continued)*

Blinding of outcome assessment (detection bias) All outcomes	Unclear risk	Blinding of outcome assessments was not described.
Incomplete outcome data (attrition bias) All outcomes	High risk	Analyses included only 14 participants - 7 in each group - who completed the study.
Selective reporting (reporting bias)	High risk	Summary outcomes of FACT-B were not provided (FACT-B, FACT-G, and TOI).
Other bias	Low risk	Trial appears to be free of other problems that could put it at high risk of bias.

Baruth 2013

Methods	Study design: single-centre RCT Number randomised: 32; 20 to intervention, 12 to control Study start: not reported; stop date: not reported Length of intervention: 12 weeks Length of follow-up: to end of intervention Country: USA
Participants	Age, years (mean SD): • Intervention: 57.4 (6.1) • Control: 54.9 (6.5) Stage, n (%): • Intervention: stage 0, 1 (7.1%); stage I, 5 (35.7%); stage II, 7 (50.0%); stage III, 1 (7.1%); missing, 6 • Control: stage 0, 0 (0.0%); stage I, 5 (41.7%); stage II, 5 (41.7%); stage III, 0 (0.0%); missing, 2 Inclusion criteria: • Given a diagnosis of stage I-III cancer, had completed adjuvant treatment within the previous 12 months, and were postmenopausal • Free of cardiovascular disease and major orthopaedic limitations • Not regularly active (< 5 days/week)
Interventions	20 participants assigned to exercise intervention: • 12-Week home-based walking programme (3 to 5 days per week of 20 to 30 to 40 minutes at RPE 10 to 11 to 12 to 15 by week 8) using the Active Choices model developed and refined by King and colleagues. Primary purpose of the intervention was to increase walking. Participants received a brief (~30 minutes) in-person counselling session, followed by 5 short (10 to 15 minutes each) telephone counselling calls during weeks 1, 2, 4, 7, and 10. • Initial one-on-one counselling session focussed on goal setting and exercise safety. Subsequent counselling calls applied key constructs of the social cognitive theory, whereby the counsellor and participants discussed a specific behaviour change principle (e.g. social support, rewards) that participants could use to increase their walking. Adherence:

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Baruth 2013 *(Continued)*

- On average, participants completed 86.2 ± 11.9% (range 62.1% to 100%) of prescribed walking sessions each week (missing logs were assigned zeros for the number of walking sessions completed during those particular weeks; data not shown).

12 participants assigned to control:

- Usual care control group asked to maintain usual physical activity levels throughout the 12-week study period. Study staff had contact with this group only at follow-up appointments. Upon completion of the study, women in the usual care control group received baseline intervention counselling session, materials, and pedometer.

Contamination of control group: not reported

Outcomes	Outcomes:
	• QoL assessed via 2 measures:
	  * Medical Outcomes 36-Item Short Form Health Survey (MOS SF-36)
	  * International Breast Cancer Study Group (IBCSG) QoL Core Questionnaire, breast cancer-specific questionnaire, developed to measure the impact of adjuvant therapy on QoL. Questionnaire consists of 10 single-item visual analogue scales, anchored at both ends with words describing highest and lowest extremes of item content.
	• 13-Item subscale of the Functional Assessment of Cancer Therapy: Fatigue (FACT-Fatigue) questionnaire used to assess fatigue
	• Completed 41-item validated Community Health Activities Model Program for Seniors (CHAMPS) questionnaire
	
	Numbers of participants assessed:
	• Intervention: baseline, 20; at 12 weeks, 18
	• Control: baseline, 12; at 12 weeks, 12
	
	Adverse events: none reported

Notes	Trial registration link: none available Trial authors contacted: yes, for additional data (means and SDs for outcomes), but trial authors did not reply Intention-to-treat analysis: no Funding: supported by the US Army, Grant # DAMD17-01-1-0628

Risk of bias

Bias	Authors' judgement	Support for judgement
Random sequence generation (selection bias)	Unclear risk	"Participants were randomized 2:1 (intervention: control)". It is unclear how the allocation sequence was generated.
Allocation concealment (selection bias)	Unclear risk	Whether treatment assignment was concealed from study personnel and participants was not described.
Blinding of participants and personnel (performance bias) All outcomes	High risk	Owing to the nature of the intervention, it was not possible to conceal allocation to the intervention from participants.
Blinding of outcome assessment (detection bias) All outcomes	Unclear risk	Blinding of outcome assessments was not described.

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Baruth 2013 *(Continued)*

Incomplete outcome data (attrition bias) All outcomes	High risk	Post-test data at 12 weeks were collected on 94% of participants; only completers were analysed.
Selective reporting (reporting bias)	High risk	Physical activity data post intervention were not reported.
Other bias	Low risk	Trial appears to be free of other problems that could put it at high risk of bias.

Basen-Enquist 2006

Methods	Study design: single-centre RCT Number randomised: 60; 30 to intervention, 25 to standard care Study start: April 2003; stop date: April 2004 Length of intervention: 6 months Length of follow-up: to end of intervention Country: USA
Participants	Age, years (mean SD): • Intervention: 55.7 (11.1) • Control: 54.4 (11.7) Stage, n (%): • Intervention: DCIS, 9 (27); stage I, 9 (27); stage II, 7 (21); stage III, 8 (24); stage IV, 1 (3); missing, 1 • Control: DCIS, 4 (17); stage I, 8 (33); stage II, 8 (33); stage III, 3 (13); stage IV, 1 (4); missing, 1 Inclusion criteria: • Within 7 years of a breast cancer diagnosis • No longer receiving treatment for breast cancer (except hormone therapy) • Not engaging in focussed moderate physical activity for 30 minutes or longer a day most days of the week Exclusion criteria: • Clearance received from physician to ensure that they had no medical conditions contraindicating moderately intensive exercise
Interventions	35 participants assigned to exercise intervention: • Participants in the lifestyle programme attended 90-minute group meetings each week for 16 weeks, and every other week for 8 weeks (21 sessions total). Behaviour change methods were based on the transtheoretical model. Participants were taught to assess their motivational readiness for physical activity, which they did every 4 to 5 weeks, and received booklets about increasing physical activity matched to their stage of readiness. • Intervention sessions emphasised information and skills such as benefits of physical activity, making small changes, overcoming barriers, goal setting, rewarding yourself, and self-monitoring. Several methods of self-monitoring were used, including recording minutes of activity and recording steps using a pedometer. Information and skills were sequenced so that cognitive methods (e.g. recognising benefits of physical activity) were presented in earlier sessions and behavioural methods (e.g. monitoring steps, rewarding yourself) were presented in later sessions.

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Basen-Enquist 2006 *(Continued)*

	Adherence: Among those who started the intervention, the mean number of sessions attended was 14.6 out of 21 (SD 5.1), with a range of 2 to 21 sessions. 25 participants assigned to control: • During 6-month intervention period, standard care participants received 2 mailings of the same written material as the intervention group, which included topics related to breast cancer survivorship but did not address physical activity, and standard care participants did not meet as a group.
Outcomes	Outcomes: • Physical activity during the past week assessed via a 7-day physical activity recall questionnaire (7-DPAR), an interviewer-administered measure • Physical performance assessed via a 6-minute endurance walk test; a 50-foot walk test; a timed sit-to-stand test; a timed reach-up test; and a forward-reach test • Anthropometric measures such as BMI, hip and waist circumferences • Quality of life assessed via Medical Outcomes 36-Item Short Form Health Survey • Patient satisfaction measured via a brief questionnaire administered to participants in the lifestyle programme during the last session of the programme • Lymphoedema assessed by a physical therapist who measured arm girth circumferentially at predetermined bilateral points. Jobst measuring tapes were used to take circumferential measurements every inch and a half, starting at the elbow and moving toward the shoulder and toward the wrist. Numbers of participants assessed: • Intervention: baseline, 35; at 6 months, 28 • Control: baseline, 25; at 6 months, 23 Adverse events: The intervention group did not show a significantly larger number of increases in arm circumference compared with the standard care group.
Notes	Trial registration link: none available Trial authors contacted: no Intention-to-treat analysis: yes Funding: grants R21 CA89519 and R25 CA57730 from the National Cancer Institute

Risk of bias

Bias	Authors' judgement	Support for judgement
Random sequence generation (selection bias)	Low risk	“Participants were assigned to study arms using a form of adaptive randomization called minimization”.
Allocation concealment (selection bias)	Unclear risk	Whether the allocation was concealed is unclear.
Blinding of participants and personnel (performance bias) All outcomes	High risk	Owing to the nature of the intervention, it was not possible to conceal allocation to the intervention from participants.
Blinding of outcome assessment (detection bias) All outcomes	Low risk	Staff conducting assessments were blind to participants’ study condition.

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Basen-Enquist 2006 *(Continued)*

Incomplete outcome data (attrition bias) All outcomes	Low risk	All participants who were randomised were included in the analysis, regardless of their attendance at intervention sessions. Data for participants who did not complete the 6-month assessment were imputed based on regression models predicting outcomes in the remaining sample, using covariates and design variables.
Selective reporting (reporting bias)	Unclear risk	No selective reporting of outcomes is apparent.
Other bias	High risk	Imbalance between numbers allocated to intervention and control groups could potentially lead to additional bias.

Blank 2005

Methods	Study design: single-centre RCT Number randomised: 18; 9 to intervention, 9 to control Study start, not reported; stop date, not reported Length of intervention: 8 weeks Length of follow-up: to end of intervention Country: USA
Participants	Age: • Ages 48 to 69 years Stage: • Stage I-III breast cancer Inclusion criteria: • Minimum of 8 weeks post chemotherapy • Oestrogen receptor positive status • Surgery for lumpectomy, modified mastectomy, or full mastectomy (with/without reconstruction) • Life expectancy greater than 6 months • Adequate blood cell counts and kidney, liver, and cardiac function • Physical and mental ability to attend all yoga training sessions Exclusion criteria: • Receiving Herceptin therapy, current steroid therapy, or other known immunomodulating medications • Pregnancy or current lactation • Past or current history of another neoplasm, active serious infection, or immune deficiency • Documented alcohol or drug abuse • History of psychiatric disorders requiring use of psychotropic medications
Interventions	9 participants assigned to exercise intervention:

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Blank 2005 *(Continued)*

	• Beginning level Iyengar yoga class 3 times per week (2 supervised and 1 home-based). Attention to alignment and symmetry, use of props, and careful sequencing all improve stamina, strength, flexibility, and confidence, while decreasing stress and side effects. Adherence: not reported 9 participants assigned to control: • Wait-list control
Outcomes	Outcomes: • 31-Question self-report survey about reasons for participation, feelings of stress, level of physical and mental effort during class sessions, and perceptions about how yoga practice influenced awareness Numbers of participants assessed: • Intervention: at 6 weeks, 9 • Control: at 6 weeks, 9 Adverse events: not reported
Notes	Trial registration link: none available Trial authors contacted: no Intention-to-treat analysis: unclear Funding: not reported

Risk of bias

Bias	Authors' judgement	Support for judgement
Random sequence generation (selection bias)	Unclear risk	"Women were randomized", but it was unclear how the allocation sequence was generated.
Allocation concealment (selection bias)	Unclear risk	Whether treatment assignment was concealed from study personnel and participants was not described.
Blinding of participants and personnel (performance bias) All outcomes	High risk	Owing to the nature of the intervention, it was not possible to conceal allocation to the intervention from participants.
Blinding of outcome assessment (detection bias) All outcomes	Unclear risk	Blinding of outcome assessments was not described.
Incomplete outcome data (attrition bias) All outcomes	Unclear risk	It is unclear how many participants were included in each outcome assessment.
Selective reporting (reporting bias)	High risk	Outcome measures were poorly described and reported. Scores for each question were not reported.
Other bias	High risk	Outcomes were not assessed at baseline, so it was not possible to assess whether outcomes changed as a result of intervention.

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Bower 2011

Methods	Study design: single-centre RCT Number randomised: 31; 16 to intervention, 15 to control Study start: March 2007; stop date: July 2010 Length of intervention: 12 weeks Length of follow-up: to end of intervention, at 3 months post intervention Country: USA
Participants	Age, years (mean SD): • Intervention: 54.4 (5.7) • Control: 53.3 (4.9) Stage, n (%): • Stage 0-II Inclusion criteria: • Original diagnosis of stage 0-II breast cancer • Completed local and/or adjuvant cancer therapy (with the exception of hormone therapy) at least 6 months previously • Ages 40 to 65 years • Postmenopausal • No other cancer in the past 5 years • Experiencing persistent cancer-related fatigue Exclusion criteria: • Chronic medical conditions or regular use of medications associated with fatigue (e.g. untreated hypothyroidism, diabetes, autoimmune disease, anaemia (defined as haematocrit < 24), chronic fatigue syndrome) • Evidence that fatigue was driven primarily by a medical or psychiatric disorder other than cancer (e.g. current major depression, insomnia, sleep apnoea) • Evidence that fatigue was driven primarily by other non-cancer-related factors (e.g. shift work, recent change in activity or schedule) • Physical problems or conditions that could make yoga unsafe (e.g. serious neck injury, unstable joints) • Body mass index (BMI) > 31 kg/m^2
Interventions	16 participants assigned to exercise intervention: • Iyengar yoga, a traditional form of Hatha yoga, performed in groups of 4 to 6 women for 90 minutes twice a week for 12 weeks Adherence: Over 80% of participants attending at least 20 of the 24 yoga classes offered. Mean number of classes attended was 18.9 of 24 classes (78%), and median number was 22 of 24 classes (92%). At 3-month follow-up, 9 of 14 women who attended the yoga classes (64%) were continuing to use techniques learned in class. Control group: 15 assigned to control: • Health education classes conducted for 120 minutes once a week for 12 weeks (24 hours) in groups of 4 to 7 women. Classes were led by a PhD-level psychologist with clinical experience.

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Bower 2011 *(Continued)*

	Adherence: In the education group, the mean number of classes attended was 9.2 of 12 classes (77%), and the median number was 11 of 12 classes (92%).
Outcomes	Primary outcome: • Subjective fatigue severity assessed with the Fatigue Symptom Inventory (FSI) Secondary outcomes: • Vigour assessed by the vigour subscale of the Multi-dimensional Fatigue Symptom Inventory (MFSI) • Depressive symptoms assessed via the Beck Depression Inventory-II (BDI-II) • Subjective sleep quality assessed by the Pittsburgh Sleep Quality Index (PSQI) • Feelings of stress assessed on the Perceived Stress Scale • Timed chair-stands used to assess lower extremity strength and endurance • Functional reach test used to assess strength, flexibility, and balance • Self-efficacy for managing fatigue assessed via the fatigue subscale of the Human Immunodeficiency Virus Self-Efficacy Questionnaire adapted for breast cancer • Fatigue interference with activities, mood, and enjoyment of life assessed with the interference subscale of the FSI Numbers of participants assessed: • Intervention: n = 16 at baseline, n = 14 post intervention, n = 13 months after intervention • Control: n = 15 at baseline, n = 13 post intervention, n = 13 months after intervention .Adverse events: none reported
Notes	Trial registration link: none available Trial authors contacted: no Intention-to-treat analysis: yes Funding: National Center for Complementary and Alternative Medicine/National Institutes of Health (NCCAM/NIH U01-AT003682; Iyengar Yoga for Breast Cancer Survivors with Persistent Fatigue)

Risk of bias

Bias	Authors' judgement	Support for judgement
Random sequence generation (selection bias)	Unclear risk	"Allocation sequence was generated independently by the study statistician", but it is unclear how the allocation sequence was generated.
Allocation concealment (selection bias)	Unclear risk	"Allocation was concealed in opaque envelopes" but whether "sequential" is not mentioned.
Blinding of participants and personnel (performance bias) All outcomes	High risk	Owing to the nature of the intervention, it was not possible to blind participants; however, it is unclear whether the outcome was influenced by lack of masking.
Blinding of outcome assessment (detection bias) All outcomes	Low risk	"Outcomes assessors for the performance tasks were blinded to group assignment, and all were trained in standardized testing procedures".
Incomplete outcome data (attrition bias) All outcomes	Low risk	"All statistical analyses were performed on an intent-to-treat basis". Mixed model analysis was used to account for missing data.

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Bower 2011 *(Continued)*

Selective reporting (reporting bias)	Low risk	No selective reporting of outcomes is apparent.
Other bias	Low risk	Trial appears to be free of other problems that could put it at high risk of bias.

Cadmus 2009

Methods	Study design: single-centre RCT Number randomised for 6-month study: 75; to intervention; 37, to control, 38 Number randomised for 12-month study: 50; to intervention, 25; to control, 25 Study start: March 2004; stop date: July 2006 Length of intervention: 6 months; subsample study: 12 months Length of follow-up: to end of intervention Country: USA
Participants	Age, years (mean SD): • Intervention: 56.5 (9.5) • Control: 55.1 (7.7) Stage, n (%): • Intervention: in situ, 4 (11); stage I, 20 (54); stage II, 10 (27), stage IIIA, 3 (8) • Control: in situ, 4 (11); stage I, 10 (27); stage II, 18 (46), stage IIIA, 6 (16) Inclusion criteria: • Postmenopausal women • Ages 40 to 75 years • Stage 0-IIIA breast cancer • 1 to 10 years post diagnosis • ≥ 12 months post completion of adjuvant treatment • Physically able to exercise and physician consent to begin an exercise programme • Sedentary activity pattern (< 60 minutes/week) Exclusion criteria: • Diagnosis of recurrent or other primary cancer event • Current smoker • Diabetes mellitus • Current or planned enrolment in a structured weight loss programme
Interventions	37 participants assigned to exercise intervention: • Exercise intervention consisted of a combined supervised training programme at a local health club and a home aerobic training programme. Participants exercised at the health club during designated

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Cadmus 2009 *(Continued)*

sessions 3 times per week and were instructed to exercise 2 days/week on their own, either at the health club or at home.

- Intervention consisted primarily of walking, although participants could choose to meet the exercise goal through other forms of aerobic activity. Participants were asked to perform three 15-minute sessions during week 1, building to five 30-minute moderate-intensity sessions by week 5. Exercise started at 50% of predicted maximal heart rate (220-age) and was gradually increased to approximately 60% to 80% of predicted maximal heart rate.

Adherence:

- Exercise group participants averaged 123 minutes/week (SD 52) of moderate-to-vigorous-intensity sports/recreational activity (range 0 to 637)
- 34% of exercisers met the study goal of 150 minutes/week
- 56% completed at least 120 minutes/week (80% of the study goal)
- 67% attended supervised exercise sessions
- 96% reported exercising at least twice per week at home

38 participants assigned to control:

- Control groups were told that they could exercise on their own if they chose, but that the study's physical activity programme would not be available to them. They received all exercise programme materials at 6-month follow-up. Participants in both groups were also asked not to make significant changes in their dietary habits.

Outcomes

Outcomes:

- Happiness assessed by the 2-item Fordyce Happiness Measure
- Self-esteem assessed on the Rosenberg Self-Esteem (RSE) Scale
- Depression assessed via the Centers for Epidemiological Studies—Depression Scale (CES-D)
- Anxiety assessed by the State-Trait Anxiety Index (STAI)
- Stress assessed on Cohen's 10-Item Perceived Stress Scale
- Quality of life (QoL) assessed by FACT-B and Medical Outcomes 36-Item Short Form Health Survey (MOS SF-36)
- Physical activity assessed via a 7-day physical activity log (PAL) and daily steps recorded on a 7-day pedometer log
- Anthropometric measurements including body weight, body mass index (BMI), total percent body fat, and lean mass obtained with whole-body dual-energy X-ray absorptiometry (DEXA)
- Bone mineral density and bone mineral content via DEXA
- Waist and hip circumferences
- Insulin and plasma concentrations of total insulin-like growth factor-1 (IGF-1) and insulin-like growth factor binding protein-3 (IGFBP-3) measured in serum with an enzyme-linked immunosorbent assay (ELISA) kit
- Systolic and diastolic blood pressure (available for 65 participants)
- Metabolic variable assays, fasting high-density lipoprotein (HDL-C), triglycerides, blood glucose (all enzymatically measured via Alfa Wassermann ACE Alera Chemistry Analyzer with reagents supplied by the company), and metabolic syndrome z-score (all outcomes available for 65 participants)

Numbers of participants assessed:

- Intervention: baseline, 37 (35 for metabolic variable assays); at 6 months, 37 (35 for metabolic variable assays)
- Control: baseline, 38 (30 for metabolic variable assays); at 6 months, 37 (30 for metabolic variable assays)

Adverse events: none reported

Notes

Trial registration link: none available

Trial authors contacted: no

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Cadmus 2009 *(Continued)*

Intention-to-treat analysis: yes but last observation carried forward (LOCF)

Funding: Lance Armstrong Foundation, American Cancer Society, Susan G. Komen. In part by the National Center of Research Resources (NIH)

Risk of bias

Bias	Authors' judgement	Support for judgement
Random sequence generation (selection bias)	Low risk	Random number generator was used.
Allocation concealment (selection bias)	Low risk	"The randomization code for each participant was obtained by the principal investigator (who was not involved in recruitment or data collection) only after baseline measures for that individual had been completed and staff conducting clinic visits did not have access to the randomization program".
Blinding of participants and personnel (performance bias) All outcomes	High risk	Owing to the nature of the intervention, it was not possible to conceal allocation to the intervention from participants.
Blinding of outcome assessment (detection bias) All outcomes	Low risk	Study personnel and outcome assessors were not masked or blinded to study interventions.
Incomplete outcome data (attrition bias) All outcomes	High risk	Last observation carried forward (LOCF) approach was used; "baseline QoL values were carried forward".
Selective reporting (reporting bias)	Low risk	No selective reporting of outcomes is apparent.
Other bias	Low risk	Trial appears to be free of other problems that could put it at high risk of bias.

Cantarero-Villanueva 2013

Methods	Study design: single-centre RCT Numbers allocated, 68; 34 to exercise intervention; 34 to usual care Study start: March 2009; stop date: June 2010 Length of intervention: 8 weeks Length of follow-up: at 6 months after discharge Country: Spain
Participants	Age, years (mean SD): • Intervention: 48.4 (10.8) • Control: 46.2 (7.4) Stage, n (%): • Intervention: stage I, 4 (12.4); stage II, 23 (72.0); stage IIIA, 5 (15.5) • Control: stage I, 10 (34.4); stage II, 14 (48.3); stage IIIA, 5 (17.3)

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Cantarero-Villanueva 2013 *(Continued)*

	Inclusion criteria: • Between 25 and 65 years old with a diagnosis of breast cancer (stage I-IIIA) • Finished oncology treatment except hormone therapy in the previous 18 months • Exhibit clinically significant fatigue (> 3 in total score on the Piper Fatigue Scale) Exclusion criteria: • Receiving oncology treatment at the time of the study • Physical limitations associated with orthopaedic conditions
Interventions	34 participants assigned to exercise intervention: • 8-Week water-based intervention was carried out 3 times per week for a duration of 60 minutes (10 minutes of warm-up, 40 minutes of aerobic and endurance exercises, and 10 minutes of cool-down exercises) in an indoor heated swimming pool sized 25 × 12.5 m, with 140 to 200 cm water depth, 28°C of water temperature, and 30°C of room temperature. • Aerobic exercises consisted of different horizontal movements: forward and backward jogging with arms moving, pulling, and pressing; leaps, leg cross-overs, and hopping movements focussing on movement in multiple directions. Endurance exercises were considered moderate as the parameters set for each exercise included 2 to 3 sets of 8 to 12 repetitions. Adherence: • 34 participants finished the aquatic exercise programme and completed 84% of the 24 physical therapy sessions (mean ± SD, 20 ± 4 sessions). 34 participants assigned to control: • Participants allocated to the usual care group followed oncologist recommendations for maintaining a healthy lifestyle based on adequate nutrition, energy balance, and maintaining usual activities.
Outcomes	Primary outcomes: • Piper Fatigue Scale (PFS) score Secondary outcomes: • Mood state assessed via the Spanish version of the Profile of Mood States (POMS) containing 63 adjectives rated by participants on a 5-point scale • Lower body muscular strength assessed via the "multiple sit-to-stand test" involves counting the time in seconds needed by participants to rise until they reach full knee extension and sit back, 10 times, as fast as possible • Muscular endurance of abdominal muscles tested via the trunk curl static endurance test Numbers of participants assessed: • Intervention: baseline, 34; at 8 weeks, 34; at 6 months, 32 • Control: baseline, 34; at 8 weeks, not stated; at 6 months, 29 Adverse events: Adverse effects reported during the study included discomfort or low-intensity pain/stiffness after an exercise session in 3 participants; nevertheless, they continued the programme.
Notes	Trial registration link: none available Trial authors contacted: no Intention-to-treat analysis: no

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Cantarero-Villanueva 2013 *(Continued)*

Funding: Health Institute Carlos III and PN I+D+I 2008-2011, Madrid, Spanish government (grant no. FIS PI10/02749); Research Office of the University of Granada, Spain

Risk of bias

Bias	Authors' judgement	Support for judgement
Random sequence generation (selection bias)	Low risk	Computer-generated numbers produced a sequence that was entered into opaque envelopes.
Allocation concealment (selection bias)	Low risk	"Computer-generated number sequence was entered into opaque envelopes. These envelopes were opened by a blinded researcher after the first outcome measurement".
Blinding of participants and personnel (performance bias) All outcomes	High risk	Owing to the nature of the intervention, it was not possible to conceal allocation to the intervention from participants.
Blinding of outcome assessment (detection bias) All outcomes	Low risk	Assessors were blinded to treatment allocation.
Incomplete outcome data (attrition bias) All outcomes	High risk	Only those who completed postintervention and 6-month assessments were included in analysis.
Selective reporting (reporting bias)	Low risk	No selective reporting of outcomes is apparent.
Other bias	Low risk	Trial appears to be free of other problems that could put it at high risk of bias.

Carson 2009

Methods	Study design: single-centre RCT Number randomised: 37; 17 to intervention, 20 to control Study start: June 2005; stop date: October 2006 Length of intervention: 8 weeks Length of follow-up: at 8 weeks, at 3 months Country: USA
Participants	Age, years (mean SD): • Intervention: 53.9 (9.0) • Control: 54.9 (6.2) Stage, n (%): • Intervention: stage IA, 7 (41.2); stage IIA, 5 (29.4); stage IIB, 5 (29.4) • Control: stage IA, 8 (40.0); stage IIA, 6 (30.0); stage IIB, 6 (30.0) Inclusion criteria: • At least 1 hot flash per day on 4 or more days per week

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Carson 2009 *(Continued)*

	• No signs of active breast cancer • No current cytotoxic chemotherapy • Diagnosis of breast cancer at stage IA-IIB ≥ 2 years before • No hormone replacement therapy currently or within prior 3 months • Stabilised on a constant regimen of menopausal symptom medications and supplements for at least 3 weeks • Taking antidepressants, stabilised at a fixed dose for at least 3 months Exclusion criteria: • Resided > 70 miles from the research site and thus were less likely to attend intervention sessions • Unavailable to attend the intervention on the day and at the time offered (most yoga groups were scheduled so as to be accessible to women holding full-time day jobs) • Currently engaged in intensive yoga practice (> 3 days/week) • Received treatment for serious psychiatric disorders (e.g. schizophrenia) in the previous 6 months • Not English speaking
Interventions	17 participants assigned to exercise intervention: • Yoga of Awareness including yoga postures, breathing techniques, meditation, study of pertinent topics, group discussion. Once per week (participants were encouraged to spend time practicing yoga strategies daily at home, but actual adherence to this was not reported) for a duration of 40 minutes over 8 weeks Adherence: On average, participants attended 6 of the 8 classes (range 0 to 8). Only 3 women attended < 4 classes. Adherence to daily yoga practice, average 30 minutes/d at post and 16 minutes at 3 months Control group: 20 assigned to control: • Wait-list
Outcomes	Treatment outcomes. assessed via a brief daily diary measurement strategy • Daily menopausal symptoms on 0 to 9 scales in which higher scores reflected greater amounts, common menopausal symptoms across the preceding 24 hours: hot flash frequency, hot flash severity, joint pain, fatigue, negative mood, sleep disturbance, night sweats, and bother (menopausal symptom-related distress). Primary outcome of hot flash total scores was computed as frequency × severity. • With 0 to 9 scales in which higher scores reflected greater amounts, 3 therapeutic processes targeted by the Yoga of Awareness programme—relaxation, vigour, and acceptance—were assessed by telephone voice system diaries. • Minutes spent in daily yoga practice (post and follow-up assessments only) Numbers of participants assessed: • Intervention: n = 17 at baseline, n = 13 at 8 weeks, n = 13 at 3 months • Control: n = 20 at baseline, n = 17 at 8 weeks, n = 17 at 3 months Adverse events: not reported
Notes	Trial registration link: none available Trial authors contacted: yes, for means and SDs for outcomes. However, trial authors did not provide these data.

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Carson 2009 *(Continued)*

	Intention-to-treat analysis: no Funding: Susan G. Komen Breast Cancer Foundation

Risk of bias

Bias	Authors' judgement	Support for judgement
Random sequence generation (selection bias)	Low risk	Random number table was used.
Allocation concealment (selection bias)	High risk	"Concealed in envelopes"; sequential sequencing or opaque envelopes were not mentioned.
Blinding of participants and personnel (performance bias) All outcomes	High risk	Owing to the nature of the intervention, it was not possible to blind participants; however, it is unclear whether the outcome was influenced by lack of masking.
Blinding of outcome assessment (detection bias) All outcomes	Low risk	Research assistant collecting assessment data was kept blind with regard to participant condition assignments.
Incomplete outcome data (attrition bias) All outcomes	High risk	No ITT, and no mention of how missing data were handled. 8 participants did not complete the intervention.
Selective reporting (reporting bias)	Low risk	No selective reporting of outcomes is apparent.
Other bias	Low risk	Trial appears to be free of other problems that could put it at high risk of bias.

Cerulli 2014

Methods	Study design: single-centre RCT Number randomised: 20; 10 to exercise, 10 to control Study start and stop dates: not reported Length of intervention: 16 weeks Length of follow-up: to end of intervention Country: Italy
Participants	Age, years (mean SD): • Intervention: 45.3 (4.3) • Control: 46.0 (2.8) Stage, n (%): • Intervention: stage I, 3 (30); stage II, 5 (50); stage III, 2 (20) • Control: stage I, 1 (10); stage II, 5 (50); stage III, 4 (40) Inclusion criteria: • Age 40 to 50 years • Conclusion of all cancer-related treatments at least 6 months previously

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Cerulli 2014 *(Continued)*

	• Mastectomy • No external physical activity for at least the preceding 12 months • Medical eligibility for non-competitive athletic activity
Interventions	10 participants assigned to exercise intervention: • All intervention group participants received two 1-hour therapeutic horse-riding treatments at an intensity of 65% to 70% of HR maximum (220-age) per week, for 16 weeks. Each riding session consisted of 3 phases: (1) warm-up, horse-caring, and grooming; (2) riding; and (3) unsaddling and grooming activities. Adherence: not reported 10 assigned to control: • Participants randomly assigned to control group were instructed not to begin any new formal physical exercise programme
Outcomes	Outcomes: • Maximal oxygen consumption (VO_2max) obtained via the Astrand–Rhyming cycle ergometer test • Maximal strength of principal muscle groups assessed by an inertial measurement system (Free-Power; Sensorize, Rome, Italy). Maximal strength evaluated for each of 5 weight lifting machines (Technogym SpA, Cesena, Italy): leg press, leg extension, leg curl, shoulder press, and vertical traction. Participants were asked to perform at least 2 repetitions at 30%, 50%, and 70% of presumed 1RM. • Body composition (fat mass % and total body water %) assessed via a portable multi-frequency digital bioelectrical impedance device (Handy 3000; DS Medica, Milano, Italy) • Quality of life assessed via FACT-G • Fatigue assessed by FACT-F Numbers of participants assessed: • Intervention: baseline, 10; at 16 weeks, 10 • Control: baseline, 10; at 16 weeks, 10 Adverse events: none reported
Notes	Trial registration link: none available Trial authors contacted: no Intention-to-treat analysis: no dropouts reported Funding: not reported

Risk of bias

Bias	Authors' judgement	Support for judgement
Random sequence generation (selection bias)	Unclear risk	"Patients were randomly divided into two groups". It is unclear how the allocation sequence was generated.
Allocation concealment (selection bias)	Unclear risk	Whether treatment assignment was concealed from study personnel and participants was not described.
Blinding of participants and personnel (performance bias) All outcomes	High risk	Owing to the nature of the intervention, it was not possible to blind participants.

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Cerulli 2014 *(Continued)*

Blinding of outcome assessment (detection bias) All outcomes	Unclear risk	Whether study personnel and outcome assessors were masked or blinded to study interventions was not reported.
Incomplete outcome data (attrition bias) All outcomes	Low risk	No dropouts were reported.
Selective reporting (reporting bias)	Low risk	No selective reporting of outcomes is apparent.
Other bias	Low risk	Trial appears to be free of other problems that could put it at high risk of bias.

Cormie 2014

Methods	Study design: RCT Number randomised: 62; 22 to high-load resistance exercise, 21 to low-load resistance exercise, 19 to control Study start: June 2010; stop date: not stated Length of intervention: 3 months Length of follow-up: to end of intervention Country: Australia
Participants	Age, years (mean SD): • High-load resistance exercise (HLRE): 56.1 (8.1) • Low-load resistance exercise (LLRE): 57.0 (10.0) • Control: 58.6 (6.7) Stage, n (%): • HLRE: stage I, 2 (9.1); stage II, 18 (81.8); stage III, 2 (9.1) • LLRE: stage I, 5 (23.8); stage II, 10 (47.6); stage III, 6 (28.6) • Control: stage I, 6 (31.6); stage II, 9 (47.3); stage III, 4 (21.1) Time since cancer diagnosis, mean (SD) years: • HLRE: 5.9 (6.1) • LLRE: 6.1 (5.2) • Control: 9.5 (9.8) Inclusion criteria: • Histological diagnosis of breast cancer at least 1 year before the study • Clinical diagnosis of breast cancer-related lymphoedema and medical clearance from general practitioner • Clinical diagnosis of lymphoedema defined as having at least a 5% inter-limb discrepancy in volume or circumference at the point of greatest visible difference Exclusion criteria:

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Cormie 2014 *(Continued)*

	• Unstable lymphoedema defined as receiving intensive therapy (i.e. decongestive therapy or antibiotics for infection) within the previous 3 months • Musculoskeletal, cardiovascular, and/or neurological disorder that could inhibit exercise
Interventions	43 participants assigned to 1 of 2 resistance exercise interventions • Two 60-minute exercise sessions were performed per week for 3 months. Intensity varied across conditions (moderate-high (12 to 16 RPE); high-load, 75% to 85% of 1RM using 10-6 RM, 1 to 4 sets per exercise; low-load, 55% to 65% of 1RM using 20-15 RM, 1 to 4 sets per exercise) • Exercise sessions were conducted in groups of up to 8 to 10 participants. The resistance exercise regimen included 6 exercises that targeted major upper body muscle groups including chest, back, shoulders, upper arms, and forearms (chest press, seated row/lat pulldown, shoulder press/lateral raise, biceps curl, triceps extension, and wrist curl). Additionally, 2 exercises targeting major muscle groups of the lower body were performed (leg press/leg extension, squat/lunge). Adherence: Exercise attendance was high for both resistance training groups, with an average of 23.2 ± 1.9 out of a possible 24 sessions attended (HLRE 23.4 ± 1.1; LLRE 22.9 ± 2.4). 19 participants assigned to control: • Participants randomised to the control group were offered the exercise programme after completion of the intervention period. All participants were instructed to maintain their usual lymphoedema self-care management regimen, physical activity levels, and diet throughout the intervention period.

Outcomes	Primary outcome:
	
	• Severity of swelling associated with breast cancer-related lymphoedema assessed via standard objective measures:
	  * Bioimpedance spectroscopy (BIS) impedance ratio
	  * DEXA
	  * Arm circumference measurements
	
	Secondary outcomes:
	
	• Severity of symptoms assessed via:
	  * Disability of the Arm, Shoulder, and Hand questionnaire (DASH)
	  * Brief pain inventory questionnaire (BPI)
	  * Arm morbidity subscale of the Functional Assessment of Chronic Illness Therapy breast cancer questionnaire for patients with lymphoedema (FACT-B+4)
	  * Arm symptoms subscale of the European Organization for Research and Treatment of Cancer breast cancer module (QLQ-BR23)
	• Maximal grip strength tested with an isometric hand dynamometer (Model 78011; Lafayette Instruments, Lafayette, IN, USA). Affected and non-affected limbs were assessed individually, and the best of 3 trials was reported.
	• Maximal strength of major muscle groups assessed by the 1RM method in chest press, seated row, and leg press exercises
	• Muscle endurance assessed by a repetition maximum test, which involved participants performing the maximal number of repetitions possible with 70% of current 1RM in the chest press, seated row, and leg press
	• Range of motion about the wrist, elbow, and shoulder assessed by standard goniometric techniques
	• Health-related QoL assessed with MOS SF-36
	
	Numbers of participants assessed:
	
	• HLRE: baseline, 22; at 3 months, 22
	• LLRE: baseline, 21; at 3 months, 21
	• Control: baseline, 19; at 3 months, 19

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Cormie 2014 *(Continued)*

	Adverse events: No lymphoedema exacerbations or any other adverse events were reported.
Notes	Trial registration link: ACTRN12610000788077 (http://www.anzctr.org.au/ACTRN12610000788077.aspx) Trial authors contacted: no Intention-to-treat analysis: yes, but using LOCF Funding: Edith Cowan University and University of Canberra

Risk of bias

Bias	Authors' judgement	Support for judgement
Random sequence generation (selection bias)	Low risk	Participants were randomised in an allocation ratio of 1:1:1 by a random assignment computer programme.
Allocation concealment (selection bias)	Low risk	Exercise physiologists involved in assigning participants to groups were blinded to the allocation sequence.
Blinding of participants and personnel (performance bias) All outcomes	High risk	Owing to the nature of the intervention, it was not possible to conceal allocation to the intervention from participants.
Blinding of outcome assessment (detection bias) All outcomes	Unclear risk	Blinding of outcome assessments was not described.
Incomplete outcome data (attrition bias) All outcomes	High risk	Missing data were addressed by imputing change across time as zero.
Selective reporting (reporting bias)	Low risk	No selective reporting of outcomes is apparent.
Other bias	Low risk	Trial appears to be free of other problems that could put it at high risk of bias.

Courneya 2003

Methods	Study design: single-centre RCT Number randomised: 53; intervention, 25; control, 28 Study start: May 2001; stop date: June 2001 Length of intervention: 15 weeks Length of follow-up: to end of intervention Country: Canada
Participants	Age, years (mean SD): • Intervention: 59 (5) • Control: 58 (6) Stage, n (%):

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Courneya 2003 *(Continued)*

- Intervention: stage I, 10 (42); stage IIA, 6 (25); stage IIB, 6 (25); stage IIIA, 2 (8)
- Control: stage I, 11 (39); stage II A, 11 (39); stage IIB, 5 (18); stage IIIA, 1 (4)

Inclusion criteria:

• Histologically confirmed stage I-IIIB breast cancer

• Diagnosis between January 1999 and June 2000

• Completed surgery, radiotherapy, and/or chemotherapy (≥ 6 months before randomisation) with or without current tamoxifen or arimidex therapy

• Postmenopausal (not experiencing menstrual periods for previous 12 months)

• Non-smokers (not smoking for previous 12 months)

• Between 50 and 69 years of age

• English-speaking

• Willing to travel to the exercise facility

Exclusion criteria:

• Known cardiac disease

• Uncontrolled hypertension

• Uncontrolled thyroid disease

• Diabetes

• Mental illness

• Infection

• Immune or endocrine abnormality

• Body weight reduction ≥ 10% in the past 6 months

• Positive exercise stress test

Interventions

25 participants assigned to exercise intervention:

- Participants trained 3 times per week for 15 weeks on recumbent or upright cycle ergometers. Exercise intensity was set at the power output that elicited the ventilatory equivalent for carbon dioxide to ensure optimal training adaptations. This training intensity corresponds to approximately 70% to 75% of VO_2max in untrained participants. Exercise duration began at 15 minutes for weeks 1 through 3, then systematically increased by 5 minutes every 3 weeks thereafter to 35 minutes for weeks 13 through 15.

Adherence:

Exercise group completed 98.4% (44.3 of 45) of prescribed exercise sessions.

28 participants assigned to control:

- Control group did not train and were asked not to begin a structured exercise programme. To reduce attrition, control group was offered the intervention after the trial ended.

Outcomes

Primary outcomes:

- VO_2peak
- Overall QoL assessed by FACT-B scale and FACT-General (FACT-G) scale
- Natural killer (NK) cell cytotoxic activity in isolated peripheral blood mononuclear cells

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Courneya 2003 *(Continued)*

- C-reactive protein (CRP) assessed in serum by enzyme-linked immunosorbent assay kit

Other outcomes:

- Peak power output, oxygen consumption, and power output at the ventilatory equivalent for oxygen, and oxygen consumption and power output at the ventilatory equivalent for carbon dioxide
- QoL outcomes such as happiness assessed by the Happiness Measure, self-esteem assessed on the RSE scale, and fatigue assessed via FACT-F
- Body composition outcomes were body weight, BMI, and sum of skinfolds (biceps, triceps, subscapular, suprailiac, and medial calf)
- Exercise outside of the exercise intervention monitored via the Leisure Score Index (LSI) of the Godin Leisure-Time Exercise Questionnaire
- Fasting insulin, glucose, insulin resistance, IGF-I, IGF-II, IGFBP-1, IGFBP-3, and IGF-I:IGFBP-3 molar ratio
- Whole blood neutrophil function, phenotypes of isolated mononuclear cells, estimations of unstimulated and phytohemagglutinin (PHA)-stimulated mononuclear cell function {rate of [3H] thymidine uptake, production of proinflammatory [interleukin (IL)-1alpha, tumour necrosis factor, TNF-alpha, IL-6] and anti-inflammatory cytokines (IL-4, IL-10, transforming growth factor-beta 1)}
- Blood pressure measurements obtained by trained, certified individuals who used a random zero sphygmomanometer
- Total cholesterol, high-density lipoprotein cholesterol (HDL-C), triglycerides (TGs), and low-density lipoprotein cholesterol (LDL-C) calculated via the Friedewald formula. TC:HDL-C ratio calculated as total cholesterol divided by HDL-C

Numbers of participants assessed:

- Intervention: baseline, 25; at 15 weeks, 24
- Control: baseline, 28; at 15 weeks, 26

Adverse events:

- Intervention: lymphoedema (n = 3), gynaecological complication (n = 1), influenza (n = 1)
- Control: foot fracture (n = 1), bronchitis (n = 1)

Notes

Trial registration link: none available

Trial authors contacted: no

Intention-to-treat analysis: no

Funding: NCIC, CCS, Canadian Institutes of Health Research, Izaak Walton Killiam Memorial Scholarship, Alberta Heritage Foundation for Medical Research studentship

Risk of bias

Bias	Authors' judgement	Support for judgement
Random sequence generation (selection bias)	Low risk	Random numbers table. Block permutation procedure was used.
Allocation concealment (selection bias)	Low risk	“The allocation sequence and group assignments were generated by a research assistant and then enclosed in sequentially numbered and sealed envelopes”.
Blinding of participants and personnel (performance bias) All outcomes	High risk	Owing to the nature of the intervention, it was not possible to conceal allocation to the intervention from participants.

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Courneya 2003 *(Continued)*

Blinding of outcome assessment (detection bias) All outcomes	Unclear risk	Participants were not blinded for self-report measures. Participants were blinded to their exercise test results until after the trial. Exercise physiologists were blinded for physical outcome measures. Laboratory staff and those who assessed study endpoints were blinded to treatment assignment.
Incomplete outcome data (attrition bias) All outcomes	Low risk	One study participant withdrew from the intervention group. Two participants withdrew from the control group and were not included in cardiopulmonary outcome analyses. Only 1 participant who had withdrawn from the exercise group was missing from QoL analyses.
Selective reporting (reporting bias)	Low risk	No selective reporting of outcomes is apparent.
Other bias	Low risk	Trial appears to be free of other problems that could put it at high risk of bias.

Cuesta-Vargas 2014

Methods	Study design: single-centre quasi-RCT Number randomised: 42; 22 to intervention, 20 to control Study start: September 2010; stop date: July 2012 Length of intervention: 8 weeks Length of follow-up: to end of intervention Country: Spain
Participants	Age, years (mean SD): • Intervention: 47.3 (6.6) • Control: 48.7 (9.7) Stage, n (%): • Not reported Inclusion criteria: • History of primary breast cancer • Within 1 year of cancer diagnosis • Aged 25 to 65 years • Post cancer treatment in the past 6 months (eligible if receiving hormone therapy) • Cancer-free at the time of study enrolment Exclusion criteria: • Fear of aquatic exercise that would prevent participation in deep water running programme
Interventions	22 participants assigned to 8-week exercise intervention: • Land-based exercise and deep water running (DWR) combined with education based on cognitive-behavioural principles • Each session was performed in groups of 8 to 10 participants and comprised 30 minutes of land-based exercise followed by 20 minutes of DWR, with an additional 10 minutes of warm-up and cool-

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Cuesta-Vargas 2014 *(Continued)*

down time. Land-based exercise included 15 minutes of full-body mobility and 15 minutes of general strengthening exercises. Deep water running (cross-country style) simulates running by using a flotation device in water levels over head height.

- From weeks 1 to 4, DWR workload corresponded to heart rate at 2 mmol of lactic acid. For weeks 5 to 8, workload was set at 3 mmol of lactic acid, based on pretest lactic acid values.

Adherence:

42 participants attended more than 80% of the 24 treatment sessions. Although 2 intervention participants reported 'wake up tired in the morning' after 1 session, this event did not impact programme completion and was not repeated.

22 participants assigned to control:

- Wait-list control group

Outcomes	Primary outcome: • Fatigue assessed by the PFS-R Other outcomes: • Physical and mental general health via MOS SF-12 • QoL via European Quality of Life 5 dimensions (EuroQoL-5D) and European Visual Analogue Scale (EuroQoL-VAS) Numbers of participants assessed: • Intervention: baseline, 22; post intervention, 22 • Control: baseline, 20; post intervention, 20 Adverse events: No further adverse events were associated with participation in the intervention.
Notes	Trial registration link: none available Trial authors contacted: no Intention-to-treat analysis: No missing data were reported. Funding: not reported

Risk of bias

Bias	Authors' judgement	Support for judgement
Random sequence generation (selection bias)	High risk	Participants were allocated in order of arrival to complete each group.
Allocation concealment (selection bias)	High risk	Allocation was not concealed from researchers.
Blinding of participants and personnel (performance bias) All outcomes	High risk	Owing to the nature of the intervention, it was not possible to conceal allocation to the intervention from participants.
Blinding of outcome assessment (detection bias) All outcomes	Low risk	"Assessor, who was blinded to participant group allocation"
Incomplete outcome data (attrition bias)	Low risk	No missing data were reported.

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Cuesta-Vargas 2014 *(Continued)*

All outcomes		
Selective reporting (reporting bias)	Low risk	No selective reporting of outcomes is apparent.
Other bias	Low risk	Trial appears to be free of other problems that could put it at high risk of bias.

Daley 2007

Methods	Study design: single-centre RCT Number randomised: 108; 34 to exercise therapy, 36 to exercise placebo, 38 to control Study start: January 2003; stop date: July 2005 Length of intervention: 8 weeks Length of follow-up: at 24 weeks Country: UK
Participants	Age, years (mean SD): • Exercise therapy group: 51.6 (8.8) • Exercise placebo group: 50.6 (8.7) • Control: 51.1 (8.6) Stage: • Exercise therapy: not reported • Exercise placebo: not reported • Control: not reported Inclusion criteria: • Women who were not regularly active • Treated for localised breast cancer 12 to 36 months • Aged 18 to 65 years • Willing to attend supervised exercise sessions 3 times per week for 8 weeks • Exercise pre-contemplator, contemplator, or preparer as defined by the TTM Exclusion criteria: • Women with metastases • Inoperable or active locoregional disease determined ineligible by clinician • Physical or psychiatric impairment that would seriously influence physical mobility • Nausea, anorexia, or other diseases affecting health • High activity level • Contraindication to exercise, assessed by Physical Activity Readiness
Interventions	34 participants assigned to 8-week exercise intervention:

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Daley 2007 *(Continued)*

- Supervised one-to-one aerobic exercise performed 3 times per week for 50 minutes at moderate intensity (65% to 85% of age-adjusted HR maximum and RPE of 12 to 13)
- In addition to exercise therapy, a variety of cognitive-behavioural techniques for promoting exercise behaviour change were explored with participants during sessions.

36 participants assigned to exercise placebo:

- Exercise placebo group also attended 24 one-to-one 50-minute sessions during 8 weeks; performed light-intensity body conditioning/stretching (e.g. flexibility, passive stretching) exercises during which HR was maintained below 40% heart rate reserve (HR typically was kept below 100 beats per minute). No exercise counselling or behavioural change advice was provided; instead, conversations were centred on topics of everyday life (i.e. weather, news items, and families). Participants assigned to exercise placebo were otherwise asked to continue with their lifestyle as normal.

Adherence:

Attended at least 70% (at least 17 of 24 sessions) of sessions; exercise therapy group, 77%; exercise placebo group, 88.9%

38 participants assigned to control:

- No activity or education. Usual care group was asked to continue with their lives as usual.

Outcomes

Primary outcomes:

- FACT-G
- FACT-B

Secondary outcomes:

- Fatigue assessed with Revised PFS
- Satisfaction with life
- Depression assessed by BDI-II
- Physical Self-Perception Profile, including five 6-item subscales: perceived sports competence, attractiveness of body, physical conditioning competence, physical strength competence, and physical self-worth
- Physical activity and exercise behaviour assessed by asking participants how often they had participated in 1 or more physical activities for 20 to 30 minutes per session in the past 5 months and by completing the stage of change for exercise ladder (SOC)
- Aerobic fitness assessed via submaximal 8-minute single-stage walking test performed on a treadmill
- Weight and BMI
- Body fat assessed by bioelectrical impedance analysis
- Muscle function assessed by a Bioidex isokinetic machine

Numbers of participants assessed:

- Intervention: baseline, 34; at week 8, 33; at week 24, 31
- Exercise placebo: baseline, 36; at week 8, 36; at week 24, 34
- Control: baseline, 38; at week 8, 33; at week 24, 31

Adverse events: not reported

Notes

Trial registration link: none available

Trial authors contacted: yes, trial authors provided additional outcome data

Intention-to-treat analysis: unclear

Funding: Cancer Research UK (grant number: CE8304)

Risk of bias

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Daley 2007 *(Continued)*

Bias	Authors' judgement	Support for judgement
Random sequence generation (selection bias)	Low risk	"performed using stratified random permuted blocks"
Allocation concealment (selection bias)	Low risk	Telephone randomisations service was provided by an independent trials unit.
Blinding of participants and personnel (performance bias) All outcomes	High risk	Owing to the nature of the intervention, it was not possible to conceal allocation to the intervention from participants.
Blinding of outcome assessment (detection bias) All outcomes	High risk	"Outcome assessors were not blinded to participants' group allocation".
Incomplete outcome data (attrition bias) All outcomes	Unclear risk	"Data were analysed on an ITT basis" It is unclear how this was done.
Selective reporting (reporting bias)	Low risk	No selective reporting of outcomes is apparent.
Other bias	Low risk	Trial appears to be free of other problems that could put it at high risk of bias.

DeNysschen 2011

Methods	Study design: single-centre RCT Number randomised: 100; 36 to exercise begun during treatment (EE), 30 to exercise begun after treatment (CE), 34 to control Study start and stop dates: 1999 to 2006 Length of intervention: 4 to 6 months Length of follow-up: at 1 year from baseline Country: USA
Participants	Age, years (mean SD): • Intervention (EE): 48.7 (8.4) • Intervention (CE): 49.5 (9.5) • Control: 51.6 (10.9) Stage, n (%): • Intervention (EE): stage I, 13 (39.4); stage II, 14 (42.4); stage III, 6 (48.2) • Intervention (CE): stage I, 11 (39.3); stage II, 15 (53.6); stage III, 2 (7.1) • Control: stage I, 14 (42.4); stage II, 13 (39.4); stage III, 6 (18.2) Inclusion criteria: • Women aged 18 years or older • Confirmed diagnosis of breast cancer • Beginning second cycle of chemotherapy • Ability to read, write, and understand English

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DeNysschen 2011 *(Continued)*

	• Mentally able to understand and able to provide written informed consent • Karnofsky Performance Scale (KPS) score > 60 Exclusion criteria: • Receiving concurrent radiotherapy for another disease • Had bone marrow transplantation • Uncontrolled hypertension or diabetes mellitus • Pain intensity rating ≥ 3 on a 0 to 10 numerical scale • Lytic bone lesion or other orthopaedic limitations • History of major depression or sleep disorders • Chemotherapy in the past year • Diagnosis of AIDS-related malignancies or leukaemia • Absolute contradictions to exercise testing as established by American College of Sports Medicine (1995)
Interventions	66 participants assigned to exercise intervention (36 to EE, 30 to CE): • Individualised programme adjusted to participant's fitness level and adjusted weekly to maintain the exercise prescription. Programme consisted of cardiovascular/aerobic exercise of participants' choice (e.g. walking, jogging, cycling) performed 3 to 5 times per week for 30 minutes at 2- to 14-point intensity level (Borg scale, moderate exertion) over 4 to 6 months 30 participants assigned to control: • Usual care; telephoned weekly by research nurse to enquire about their health Adherence: EE group reported adherence rate of 74% by end of intervention and 78% by end of follow-up; CE group reported 86% adherence at end of intervention
Outcomes	No primary outcome stated: • Physical activity questionnaire recorded self-reported exercise activities, frequency, intensity, and duration • Physical performance measured on Karnofsky Performance Status (KPS) scale • Symptom checklist: list of 25 symptoms commonly experienced by individuals receiving chemotherapy. Format is a Likert-type rating scale with descriptive anchors from 0 = none to 10 = terrible/awful • Body composition via DEXA (fat mass, percent fat, lean body mass) • Cardiorespiratory fitness assessed by maximal exercise testing Outcomes measured: • EE group: n = 36 at baseline, n = 36 at 4 to 6 months (end of intervention) • CE group: n = 30 at baseline, n = 30 at 4 to 6 months (end of intervention) • Control group: n = 34 at baseline, n = 34 at 4 to 6 months (end of intervention) Adverse events: none reported
Notes	Trial registration link: none available Trial authors contacted: no Intention-to-treat analysis: no missing data evident in this study

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DeNysschen 2011 *(Continued)*

Funding: National Cancer Institute; Clinical & Translational Science Institute, Clinical Research Center

Risk of bias

Bias	Authors' judgement	Support for judgement
Random sequence generation (selection bias)	Unclear risk	Generation of random sequence was not described.
Allocation concealment (selection bias)	Unclear risk	Whether treatment assignment was concealed from study personnel and participants was not described.
Blinding of participants and personnel (performance bias) All outcomes	High risk	Owing to the nature of the intervention, it was not possible to conceal allocation to the intervention from participants.
Blinding of outcome assessment (detection bias) All outcomes	Low risk	"Measurements of study variables were taken by research nurses who were blinded to the participants' group assignment".
Incomplete outcome data (attrition bias) All outcomes	Low risk	No missing data were reported.
Selective reporting (reporting bias)	High risk	Data on cardiorespiratory fitness and on physical activity were not reported.
Other bias	High risk	Control group and intervention groups were reported as having similar activity levels as intervention groups post intervention, possible contamination. Low adherence rate of 74% by end of intervention and 78% at end of follow-up in the intervention group

Do 2015

Methods	Study design: single-centre RCT Number randomised: 212; 106 to early exercise group (EEG), 106 to delayed exercise group (DEG) Study start: not reported; stop date, not reported Length of intervention: 4 weeks. Length of follow-up: at 6 to 8 weeks only in early exercise group Country: South Korea
Participants	Baseline demographic and medical history variables for 32 in EEG and for 30 in DEG Age, years (mean SD): • EEG: 47.1 (8.5) • DEG: 48.3 (8.2) Stage, n (%): • EEG: stage I, 3 (9.3); stage IIA, 13 (40.6); stage IIB, 12 (37.5); stage III, 4 (12.5) • DEG: stage I, 2 (6.6); stage IIA, 15 (50.0); stage IIB, 10 (33.3); stage III, 3 (10.0)

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Do 2015 *(Continued)*

	Inclusion criteria: • Not reported Exclusion criteria: • Evidence of recurrent disease or other musculoskeletal involvement such as low back pain, disc problems, osteoarthritis, rheumatoid arthritis, shoulder problems
Interventions	106 participants assigned to early exercise intervention: • 40 minutes of aerobic exercise (40% to 75% of VO_2max) and 20 minutes of resistance exercise (9 different exercises of 2 sets of 8 to 12 repetitions at 60% to 80% of 1 repetition maximum for exercises of the extremities, or 5 to 10 repetitions for exercises of the axial muscles) 5 times a week over 4 weeks Adherence: not reported 106 participants assigned to control: • Delayed exercise group (DEG; n = 30) completed exercise programme from 4 to 8 weeks.
Outcomes	Outcomes: • QoL evaluated based on European Organization for Research and Treatment of Cancer Core Quality of Life Questionnaire (EORTC QLQ-C30) (version 3) and EORTC QLQ-BR23 • Cardiorespiratory function measured on the cycle test. Patients commenced cycling at 20 W and workload was increased by 25 W every minute. Test was completed when patients reached 85% of estimated maximal heart rate. Cardiorespiratory test score was assessed as power output that coincided with 85% maximal heart rate. • Fatigue Severity Scale (FSS) consists of 9 questions responded to via a Likert scale ranging from 1 to 7, with lower scores meaning “disagreement” (greater disagreement with lower scores) and higher scores meaning “agreement” in the same fashion. • Maximal isometric strength was assessed in 4 muscle groups bilaterally with a hand-held digital dynamometer. Muscles assessed included elbow flexors, hip flexors, hip abductors, hip extensors, knee extensors, and knee flexors. Muscular groups were tested in the middle of the joint range. Numbers of participants assessed: • EEG: baseline, 32; at 2 weeks, 32; at 4 weeks, 32; at 6 weeks, 32; at 8 weeks, 32 • DEG: baseline, 30; at 2 weeks, 30; at 4 weeks, 30; at 6 weeks, 30; at 8 weeks, 30 Adverse events: not reported
Notes	Trial registration link: none available Trial authors contacted: no Intention-to-treat analysis: no Funding: not reported

Risk of bias

Bias	Authors' judgement	Support for judgement
Random sequence generation (selection bias)	Low risk	"1:1 ratio using a computer-generated allocation sequence”
Allocation concealment (selection bias)	Unclear risk	Whether allocation was concealed was not reported.

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Do 2015 *(Continued)*

Blinding of participants and personnel (performance bias) All outcomes	High risk	Owing to the nature of the intervention, it was not possible to conceal allocation to the intervention from participants.
Blinding of outcome assessment (detection bias) All outcomes	Unclear risk	Not mentioned whether study personnel and outcome assessors were masked or blinded to study interventions
Incomplete outcome data (attrition bias) All outcomes	High risk	Analysis performed only on "completers"; withdrawals not included in analysis.
Selective reporting (reporting bias)	Low risk	No selective reporting of outcomes is apparent.
Other bias	High risk	Dropout rate was high (71%).

Dolan 2016

Methods	Study design: single-centre RCT Number randomised: 36, 12 to aerobic interval training (AIT), 12 to continuous moderate training (CMT), 12 to control Study start: February 2013; stop date: December 2014 Length of intervention: 6 weeks Length of follow-up: at 3 months for physical activity Country: Canada
Participants	Age, years (mean SD): • AIT: 56.2 (9) • CMT: 56.3 (9) • Control: 59.4 (9) Stage, n (%): • AIT: stage 0, 0 (0); stage I, 1 (3); stage II, 5 (15); stage III, 3 (9); other, 1 (3) • CMT: stage 0, 1 (3); stage I, 2 (6); stage II, 2 (6); stage III, 5 (15); other, 1 (3) • Control: stage 0, 1 (3); stage I, 4 (12); stage II, 2 (6); stage III, 3 (9); other, 0 (0) Time since cancer diagnosis, mean years: • AIT: 6 • CMT: 4 • Control: 7 Inclusion criteria: • Completed different combinations of surgery, chemotherapy, radiation, and hormonal therapy for early-stage breast cancer (stage I-IIIA) • Postmenopausal status was a set condition to minimise possible confounding factors associated with oestrogen status, treatment, and exercise response.

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Dolan 2016 *(Continued)*

	Exclusion criteria: • Received diagnosis of metastatic disease, uncontrolled hypertension, history of cardiac disease, or pulmonary disease • Did not receive approval from physician to participate • Age > 75 years • BMI> 40 kg/m^2 • Could not commit to 18 exercise sessions in 6 weeks • Any other contraindications to exercise
Interventions	23 participants assigned to 1 of 2 exercise interventions: • AIT group was prescribed an interval programme that started with 2 weeks of introductory intervals at a maximal intensity of 80% VO_2peak, followed by progressively higher intensity interval bouts of 3 supervised sessions per week for 4 weeks, eventually requiring 2-minute efforts that would elicit close to maximal effort. • CMT was prescribed a continuous, moderate-intensity aerobic protocol. Depending on baseline fitness and experience, individuals completed 3.22 km (2 miles) at initial intensity of 55% to 60% VO_2peak for 3 supervised sessions per week. By end of week 5, individuals progressed to 4.02 km (2.5 miles) at 70% VO_2peak (6-week intervention). • Exercise sessions were matched by ensuring a set distance was covered at each session, starting with a minimum of 3.22 km and progressing to 4.02 km by week 5 (2 to 2.5 miles). Adherence: CMT group (n = 11) completed 17.8 sessions that took an average of 40 minutes to complete and covered a total distance of 65.34 km. AIT group (n = 12) completed 17.8 high-intensity interval sessions in average time of 36 minutes and covered a total distance of 64.86 km. At 3 months, 92% of women in the AIT group reported achieving or superseding the recommended weekly exercise dose according to guidelines. Only 42% of individuals in the CMT group reported meeting the recommended dose. 10 participants assigned to control: • Control group was offered a delayed exercise intervention. Exercise volume in the control group was not officially tracked. All participants were asked to maintain their current normal dietary habits and daily activities for the 6-week duration. If individuals deviated from their current habits, they were asked to report changes at endpoint.
Outcomes	Primary outcomes: • VO_2max via maximal incremental cardiopulmonary exercise protocol and expired gases analysed via the TrueOne 2400 metabolic cart (Parvo Medics Inc., Sandy, UT) Secondary outcomes: • Weight (kg) • Hip circumference (cm) • Resting heart rate (RHR) noted after 5 minutes of seated silence • Muscle strength 1RM assessed on the leg press. Maximum weight and number of repetitions used to estimate 1 repetition • Insulin measured by the Siemens Immulite 2500 (Siemens Healthcare Diagnostics, Newark, DE, USA) • Glucose measured via Siemens ADIVA 1800 (Siemens Healthcare Diagnostics, Newark, DE, USA) • CRP measured on Siemens BNII (Siemens Healthcare Diagnostics, Newark, DE, USA) • Homeostatic Model Assessment (HOMA)-insulin resistance Numbers of participants assessed:

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Dolan 2016 *(Continued)*

	• AIT: baseline, 12, at 6 weeks, 12 • CMT: baseline, 12; at 6 weeks, 11 • Control: baseline, 12; at 6 weeks, 10 Adverse events: No adverse events occurred during supervised exercise sessions or were self-reported by participants.
Notes	Trial registration link: none available Trial authors contacted: no Intention-to-treat analysis: no Funding: BC Sports Medicine Research Foundation

Risk of bias

Bias	Authors' judgement	Support for judgement
Random sequence generation (selection bias)	Unclear risk	"Randomly assigned"; method of randomisation not reported
Allocation concealment (selection bias)	Unclear risk	Whether allocation was concealed was not reported.
Blinding of participants and personnel (performance bias) All outcomes	High risk	Owing to the nature of the intervention, it was not possible to conceal allocation to the intervention from participants.
Blinding of outcome assessment (detection bias) All outcomes	Unclear risk	Not mentioned whether study personnel and outcome assessors were masked or blinded to study interventions
Incomplete outcome data (attrition bias) All outcomes	High risk	Analysis performed only on "completers"; withdrawals not included in analysis
Selective reporting (reporting bias)	Low risk	No selective reporting of outcomes is apparent.
Other bias	Low risk	Trial appears to be free of other problems that could put it at high risk of bias.

Duijits 2012

Methods	Study design: multi-centre RCT Number randomised: 422; 109 to cognitive-behavioural therapy (CBT); 104 to physical exercise; 106 to CBT and physical exercise combined; 103 to control group Study start: January 2008; recruitment stop date: December 2009 Length of intervention: 12 weeks Length of follow-up: at 6 months (at 3 months post intervention) Country: Netherlands

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Duijits 2012 *(Continued)*

Participants	Age, years (mean SD): • CBT: 48.2 (5.7) • Exercise: 47.7 (5.6) • CBT + Exercise: 49.0 (4.9) • Control: 47.8 (6.0) Stage: • Stages: T1-4, N0-1, and M0 (i.e. stage I-IIIC) Inclusion criteria: • Primary breast cancer (stages T1-4, N0-1, and M0) • Younger than 50 years and premenopausal at diagnosis • Had received adjuvant chemotherapy and/or hormonal therapy • Disease-free at study entry • Reported at least a minimal level of menopausal symptoms • Chemotherapy had to be completed at least 4 months before but not more than 5 years before study entry (hormonal therapy could still be ongoing) Exclusion criteria: • Lack of basic proficiency in Dutch • Serious cognitive or psychiatric problems • Serious physical comorbidity • Obesity (body mass index > 35), because exercise may be contraindicated as a treatment for hot flashes in obese women • Participating in concurrent studies targeted at menopausal symptoms or involving similar interventions
Interventions	109, 104, and 106 participants were assigned to CBT, exercise and CBT, and exercise 12-week intervention, respectively: • CBT consisted of 6 weekly group sessions of 90 minutes each and 1 booster session 6 weeks post completion, including relaxation exercises. The primary focus of CBT was on hot flashes and night sweats, but other symptoms (e.g. vaginal dryness) and problem areas (such as body image, sexuality, and mood disturbance) were also addressed. • The aerobic exercise programme was an individually tailored, home-based, self-directed exercise programme of 2.5 to 3 hours per week. During the intake session, the physiotherapist assisted each woman in selecting an appropriate form of exercise (e.g. swimming, running, cycling). Each woman was provided with a heart rate monitor and was instructed in its use to achieve a target heart rate (60% to 80% Karvonen). During weeks 4 and 8, women had telephone interviews with the physiotherapist to discuss their experiences and possible need to adjust the programme. During the last week, women visited the clinic for a final session, during which they received advice on how best to maintain their desired level of physical activity. • Women in the combined intervention group underwent CBT and exercise programmes concurrently. Adherence: • Fifty-eight per cent of the CBT group, 64% of the PE group, and 70% of the CBT and exercise group did not meet criteria for compliance (i.e. at least 4 of 6 CBT sessions and/or minimum of 24 PE training sessions, with an average of 3 kCals/kg or 6.45 METs per session).

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Duijits 2012 *(Continued)*

	103 participants assigned to control: • Wait-list control: On completion of the study, control group participants could choose to undergo the CBT or PE programme.
Outcomes	Primary outcomes: • Endocrine symptoms assessed by the 18-item endocrine subscale of the Functional Assessment of Cancer Therapy questionnaire (FACT-ES) • Hot flashes and night sweats (HF/NS) assessed by the Hot Flush Rating Scale. The Hot Flush Rating Scale comprised 2 items measuring frequency of hot flashes and night sweats (HF/NS frequency rating) and 3 items measuring the extent to which these symptoms were perceived to be problematic and interfered with daily life (HF/NS–problem rating). Secondary outcomes: • Sexual functioning assessed by the Sexual Activity Questionnaire (SAQ) • Urinary symptoms assessed by the 5-item incontinence scale of the Bristol Female Lower Urinary Tract Symptoms Questionnaire (BFLUTS) • Body image assessed by the 4-item QLQ-BR23 subscale • Psychological distress assessed by the 14-item Hospital Anxiety and Depression Scale (HADS) • Generic HRQoL assessed by the MOS SF-36, which includes 8 subscales as well as physical and mental component scores • Program compliance assessed via session attendance records for CBT participants and number and intensity of training sessions, as recorded by the heart rate monitor, for PE participants. Participants were considered to be compliant if they attended at least 4 of 6 CBT sessions and/or had a minimum of 24 PE training sessions, with an average of 3 kCals/kg per session (or 6.45 METs). Numbers of participants assessed: • CBT: baseline, 109; at 12 weeks, 86; at 6 months, 88 • Exercise: baseline, 104; at 12 weeks, 87; at 6 months, 79 • CBT + Exercise: baseline, 106; at 12 weeks, 90; at 6 months, 89 • Control: baseline, 103; at 12 weeks, 89; at 6 months, 84 Adverse events: not reported
Notes	Trial registration link: https://clinicaltrials.gov/ct2/show/NCT00582244 Trial authors contacted: no Intention-to-treat analysis: no Funding: supported by grant No. NKI 2006-3470 from the Dutch Cancer Society; the Integral Cancer Center, Amsterdam; the Pink Ribbon Foundation; and Polar Electro Nederland

Risk of bias

Bias	Authors' judgement	Support for judgement
Random sequence generation (selection bias)	Low risk	“Computerized block randomization”
Allocation concealment (selection bias)	Unclear risk	Whether treatment assignment was concealed from study personnel and participants was not described. Centralised randomisation was not mentioned.
Blinding of participants and personnel (performance bias) All outcomes	High risk	Owing to the nature of the intervention, it was not possible to conceal allocation to the intervention from participants.

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Duijits 2012 *(Continued)*

Blinding of outcome assessment (detection bias) All outcomes	Unclear risk	No mention of whether study personnel and outcome assessors were masked or blinded to study interventions
Incomplete outcome data (attrition bias) All outcomes	High risk	"Missing values were replaced by the average score of the completed items in the same scale for each individual, provided that at least 50% of the items in that scale had been completed".
Selective reporting (reporting bias)	Low risk	No selective reporting of outcomes is apparent.
Other bias	Low risk	Trial appears to be free of other problems that could put it at high risk of bias.

Ergun 2013

Methods	Study design: single-centre RCT Number randomised: 60; 20 to supervised exercise, 20 to home exercise, 20 to control Study start: not reported; stop date: not reported Length of intervention: 12 weeks Length of follow-up: to end of intervention Country: Turkey
Participants	Age, years (mean SD): • Supervised exercise: 49.7 (8.3) • Home exercise: 55.1 (6.9) • Control: 50.3 (10.4) Stage, n (%): • Not stated but recurrent or progressing breast cancer excluded Inclusion criteria: • Completion of surgical therapy, radiation therapy, and chemotherapy • Postmenopausal • Not smoking in the past year • Agreeing to participate in the study • Absence of any physical condition that would prevent exercising • Having the cognitive capacity to answer the questions Exclusion criteria: • Recurrent or progressing breast cancer, lymphoedema, serious cardiac disease or unregulated hypertension, acute or chronic respiratory disease, mental disease, any infection, any immune or endocrinological disorder that would alter immune indicators, rheumatic disease, serious musculoskeletal disease (that would hinder exercising) • Loss of more than 10% of body weight in the past 6 months

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Ergun 2013 *(Continued)*

	• Attended a regular exercise programme in the past 6 months
Interventions	40 participants assigned to two 12-week exercise interventions: • Supervised exercise group performed aerobic exercise + resistive exercise for 45 minutes/d for 3 days/week and brisk walking for 30 minutes/d for 3 days/week. Exercise programme comprised 10 minutes of warming, breathing exercise, upper and lower limb resistive exercises with Theraband set at moderate resistance, and semi-squatting periods. Warming exercise comprised brisk walking, rhythmical range-of-motion exercises, repeated 10 times, for upper and lower limb joints; cool-down exercises comprised breathing, stretching (shoulder and pectoral muscles, gastrocnemius-soleus, flexors and rotators of the hip, back muscles) and relaxation exercises. • Home exercise group performed brisk walking for 30 minutes/d for 3 days/week. Participants in groups 1 and 2 were taught how to measure their heart rate and maximal heart rate for age calculated to establish pace of walking. • All participants were given a 30-minute education regarding adverse effects of breast cancer, prevention of lymphoedema, and related activities, and were given a patient information booklet that included lymphoedema-specific exercises. Adherence: No data on adherence were reported. 20 participants assigned to control: • Participants received only the education programme mentioned above.
Outcomes	Primary outcomes: • Angiogenesis and apoptosis-related molecules including interleukin-6, interleukin-8, tumour necrosis factor alpha, epithelial neutrophil activating protein-78, platelet-derived growth factor, vascular endothelial growth factor, growth-related oncogene alpha, regulated upon activation, normal T cell, thrombopoietin, angiogenin, oncostatin M, and monocyte chemotactic proteins 1, 2, and 3 Secondary outcomes: • HRQoL via EORTC QLQ-C30 • Fatigue assessed via the Brief Fatigue Inventory (BFI) • Depression via the BDI Numbers of participants assessed: • Supervised exercise: baseline, 20; at 12 weeks, 20 • Home exercise: baseline, 20; at 12 weeks, 18 • Control: baseline, 20; at 12 weeks, 20 Adverse events: No participants experienced any side effects or developed lymphoedema (although 1 participant developed metastasis).
Notes	Trial registration link: none available Trial authors contacted: no Intention-to-treat analysis: unclear Funding: supported by Ege University Medical Faculty BAP project (Project Number: 2010-TIP-069)

Risk of bias

Bias	Authors' judgement	Support for judgement
Random sequence generation (selection bias)	Low risk	Using random numbers table

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Ergun 2013 *(Continued)*

Allocation concealment (selection bias)	Unclear risk	Whether treatment assignment was concealed from study personnel and participants was not described.
Blinding of participants and personnel (performance bias) All outcomes	High risk	Owing to the nature of the intervention, it was not possible to conceal allocation to the intervention from participants.
Blinding of outcome assessment (detection bias) All outcomes	Low risk	"Molecular biologists that performed the measurements and the oncology specialist who made the assessment were blind to the exercise groups of the patients".
Incomplete outcome data (attrition bias) All outcomes	Unclear risk	Missing data handling methods were not reported.
Selective reporting (reporting bias)	Low risk	No selective reporting of outcomes is apparent.
Other bias	Low risk	Trial appears to be free of other problems that could put it at high risk of bias.

Fillion 2008

Methods	Study design: single-centre RCT Number randomised: 94; 48 to intervention group, 46 to control group Study start: not reported; stop date: not reported Length of intervention: 4 weeks Length of follow-up: at 3 months Country: Canada
Participants	Age, years (mean SD): • Intervention: 53.09 (9.65) • Control: 51.84 (10.25) Stage, n (%): • Intervention: stage 0, 2 (4.5); stage I, 21 (47.7); stage II, 18 (40.9); stage III, 3 (6.8) • Control: stage 0, 4 (9.3); stage I, 17 (39.5); stage II, 12 (27.9); stage III, 10 (23.3) Inclusion criteria: • Diagnosis of initial non-metastatic breast cancer • Completion of initial breast cancer treatment no longer than 2 years before enrolment • Receipt of 1 series of adjuvant treatments of radiation therapy, or had received radiation therapy in combination with other adjuvant treatments (e.g. chemotherapy, hormonal therapy) • Ability to understand and speak French • Residence near the cancer centre • Availability to take part in a series of 4 weekly sessions

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Fillion 2008 *(Continued)*

	• Acceptance of randomisation procedure pass revised Physical Activity Readiness Medical Examination • Authorisation of supervising physician before performing fitness assessment Exclusion criteria: • Clinical levels of depression symptoms, as measured by HADS (score > 10) • Insomnia, as defined by the Diagnostic and Statistical Manual of Mental Disorders, Fourth Edition • Any symptom of cancer recurrence • Known severe health problems other than cancer
Interventions	48 participants assigned to exercise intervention: • 4 weekly group meetings of 2.5 hours and 1 short telephone booster session (5 to 15 minutes) • 1 hour devoted to supervision of walking training by a kinesiologist or a trained research nurse • 1.5 hours devoted to psychoeducational fatigue management sessions Adherence: • 45 of 48 participants completed the full treatment Co-intervention: psychoeducational fatigue management 46 participants assigned to control: • Normal activity
Outcomes	Primary outcome: • Fatigue measured by General/Physical Fatigue subscale of the MFSI Other outcomes: • Cardiorespiratory fitness measured as submaximal oxygen consumption, estimated from single-stage treadmill walking test • QoL measured with MOS SF-12 • Energy level measured via the vigour subscale of the shortened POMS • Anxiety and depression measured on the POMS Numbers of participants assessed: • Intervention: baseline, 48; at 4 weeks, 45; at 3 months, 45 • Control: baseline, 46; at 4 weeks, 43; at 3 months, 43 Adverse events: cancer recurrence: 2 in exercise group, 1 in control group
Notes	Trial registration link: none available Trial authors contacted: no Intention-to-treat analysis: no Funding: Fonds de Recherche en Sante du Quebec, Investigator Award

Risk of bias

Bias	Authors' judgement	Support for judgement
Random sequence generation (selection bias)	Low risk	Sequence of randomisation was “computer generated”.

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Fillion 2008 *(Continued)*

Allocation concealment (selection bias)	Unclear risk	"Sealed envelopes, which were concealed to both kinesiologist and patient"; no mention of whether they were sequential or opaque
Blinding of participants and personnel (performance bias) All outcomes	High risk	Owing to the nature of the intervention, it was not possible to conceal allocation to the intervention from participants.
Blinding of outcome assessment (detection bias) All outcomes	High risk	Study personnel and outcome assessors were not masked or blinded to study interventions.
Incomplete outcome data (attrition bias) All outcomes	High risk	Four participants from the exercise group were not included in the analyses (withdrew, n = 1; cancer recurrence, n = 2; metastatic breast cancer diagnosis, n = 1); 3 participants from the control group were not included in the analyses (withdrew, n = 2; cancer recurrence, n = 1).
Selective reporting (reporting bias)	Low risk	No selective reporting of outcomes is apparent.
Other bias	Low risk	Trial appears to be free of other problems that could put it at high risk of bias.

Guinan 2013

Methods	Study design: RCT Number randomised: 26 total; 16 to an exercise intervention, 10 to a control Study start: March 2010; stop date: January 2011 Length of intervention: 8 weeks Length of follow-up: at 3 months post intervention Country: Ireland
Participants	Age, years (mean SD): • Intervention: 50.05 (8.27) • Control: 45.05 (9.04) Stage, n (%): • Intervention: stage I, 3 (18.8); stage II, 10 (62.6); stage III, 3 (18.8) • Control: stage I, 4 (40.0); stage II, 3 (30); stage III, 3 (30) Inclusion criteria: • Breast cancer survivors who had consented to the PEACH trial • Completion of adjuvant chemotherapy or radiotherapy with curative intent within the preceding 2 to 6 months • Receipt of neoadjuvant chemotherapy or chemoradiotherapy followed by surgery • Continuing onto adjuvant hormone therapy and anti-Her2 directed therapy • Ability to understand English • Willingness to be randomised

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Guinan 2013 *(Continued)*

	• Medical clearance to exercise • Aged 21 to 69 Exclusion criteria: • Evidence of active cancer • Chronic medical and orthopaedic conditions that would preclude exercise (e.g. uncontrolled congestive heart failure or angina, recent MI, breathing difficulties requiring oxygen use, hospitalisation) • Taking beta-blocker medication • Prior history of another cancer in previous 5 years (exceptions: non-melanoma skin cancer, non-invasive cancer of the cervix) • Confirmed pregnancy • Dementia or psychiatric illness that would preclude ability to participate in study • Incomplete haematological recovery after chemotherapy (WCC < 3, Hb < 10, or platelets < 100) • BMI > 35 • LVEF post chemotherapy < 50% or > 20% deterioration of baseline compared with LVEF before systemic treatment
Interventions	16 participants assigned to exercise intervention: • Twice-weekly supervised aerobic intervention and a home exercise programme for 8 weeks. Participants rotated between 3 aerobic exercise stations during the class (stationary bike, treadmill, rowing ergometer). Participants with "poor" fitness started the intervention at an intensity range of 35% to 55% heart rate reserve (HRR), participants with "fair" fitness started at 40% to 60% HRR, and those classified as "average" commenced at 45% to 65%HRR. Aerobic intensity zones were progressed by 5% HRR every 2 weeks. Duration of individual sessions was 21 minutes in week 1, progressed to 42 minutes in week 8 (3-minute increase every 2 weeks alternate with intensity increase). Adherence: 6/16 (37.5%) adhered to < 90% of the exercise class but completed follow-up assessments. 10 participants assigned to control: • Did not engage in a structured exercise programme but were offered an exercise advice session following final assessment
Outcomes	Outcomes: • Body composition including body weight estimated by a bioimpedance analyser (Tanita MC 180 MA Multi-Frequency Body Composition Analyzer; Tanita Corp., Tokyo, Japan) • Waist circumference measured at midpoint between top of the iliac crest and last rib • Resting blood pressure measured by the auscultatory method following a 5-minute rest period. Blood pressure measurements were taken on the non-surgical side, in duplicate, and averaged for data entry. • Venous blood samples taken to measure glucose, insulin, lipid profile (TC), HDL-C, LDL-C and triglycerides, glycosylated haemoglobin levels (HBA1c), and CRP. Insulin resistance was calculated via HOMA: [(fasting glucose (mmol/L) × fasting insulin (mU/L))/22.5] • Metabolic syndrome diagnosed in the presence of any 3 of the following: elevated waist circumference (≥ 80 cm); elevated triglycerides (≥ 1.7 mmol/L) or drug therapy for lipid abnormalities; reduced HDL-C (< 1.3 mmol/L) or drug therapy for lipid abnormalities; elevated blood pressure (systolic ≥ 130 mmHg and/or diastolic ≥ 85 mmHg) or antihypertensive medication; elevated fasting glucose (≥ 100 mg/dL) or glucose-lowering medication • Physical activity measured objectively with the triaxial RT3 activity monitor (Stayhealthy Inc., Montrovia, CA, USA). Participants wore the monitor for 7 days, during waking hours, following each assessment.

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Guinan 2013 *(Continued)*

- Physical activity measured subjectively with the Godin Leisure Time Exercise Questionnaire, which records the frequency of strenuous, moderate, and mild exercise bouts of at least 15 minutes' duration
- Estimated dietary record (Medical Research Council, UK) prepared by participants. Diaries were analysed via WISP (Tinuveil Software, Llanfechell, Anglesey, UK) nutrition analysis programme.

Numbers of participants assessed:

- Intervention: baseline, 8 weeks, and 3 months post intervention, 16 (except total and HDL-C, TC:HDL ratio, triglycerides, glucose, and HBA1c); 15 (LDL-C, insulin); HOMA, 14
- Control: baseline, 8 weeks, and 3 months post intervention, 10 (except LDL-C, insulin, HOMA, HBA1c, sedentary activity, light-, moderate-, and vigorous-intensity activity); 9

Adverse events: not reported

Notes	Trial registration link: https://clinicaltrials.gov/ct2/show/NCT01030887 Trial authors contacted: no Intention-to-treat analysis: yes, but LOCF used Funding: not reported

Risk of bias

Bias	Authors' judgement	Support for judgement
Random sequence generation (selection bias)	Low risk	Computer-generated random numbers list
Allocation concealment (selection bias)	Unclear risk	Whether allocation was concealed was not reported.
Blinding of participants and personnel (performance bias) All outcomes	High risk	Owing to the nature of the intervention, it was not possible to conceal allocation to the intervention from participants.
Blinding of outcome assessment (detection bias) All outcomes	Low risk	“Assessments were completed by the same researcher at every visit who was blinded to the participants’ group assignment”.
Incomplete outcome data (attrition bias) All outcomes	High risk	LOCF procedure was used for missing variables.
Selective reporting (reporting bias)	High risk	Unlike all other outcomes, no baseline data were reported for C-reactive protein; only change values with 95% CIs were provided. Cardiorespiratory fitness and quality of life were mentioned as outcomes in parent trial; no reasons given for omission of these data here. Only P values for body composition variables were provided.
Other bias	High risk	Small sample size and imbalance between numbers allocated to the intervention and control group could give rise to additional biases.

Hatchett 2013

Methods	Study design: single-centre RCT

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Hatchett 2013 *(Continued)*

	Number randomised: 87; 43 to intervention, 42 to control Study start: not stated; stop date: not stated Length of intervention: 12 weeks Length of follow-up: to end of intervention Country: USA
Participants	Data available only for those who completed the study Age, years (mean SD): • Intervention: not reported • Control: not reported Stage, n (%): • Intervention: stage I, 10 (36); stage II, 17 (47); stage III, 6 (17); stage IV, 3 (8) • Control: stage I, 14 (37); stage II, 17 (45); stage III, 5 (13); stage IV, 2 (5) Inclusion criteria: • Female breast cancer survivors • Completion of cancer treatment • 18 years of age or older • Ability to access and navigate the Internet • Ability to communicate through email • Ability to complete online questionnaires • No current physical activity reported at the outset of the intervention • Ability to engage in physical activity safely
Interventions	43 participants assigned to exercise intervention: • Participants assigned to the 12-week intervention group received a weekly email message for the first 5 weeks of the intervention followed by email messages every other week for the next 6 weeks of the intervention. These messages were designed to influence social cognitive theory (SCT) variables of interest to enhance participants' physical activity. • Participants were offered access to an e-counsellor, who offered advice regarding exercise and physical activity. • General exercise recommendations for cancer rehabilitation established by the Rocky Mountain Cancer Rehabilitation Institute were used to craft exercise prescriptions. Components of the exercise prescription for patients with cancer are the same as those recommended by the American College of Sports Medicine. Adherence: For the treatment group, investigators reported 2.81 (SD 2.11) days of exercise per week at 6 weeks and 3.47 (SD 2.19) days of exercise per week at 12 weeks. 42 participants assigned to control: • Control group did not receive email messages, nor did they have access to an e-counsellor. At the end of 12 weeks, those assigned to the control group were offered the opportunity to participate in the intervention.

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Hatchett 2013 *(Continued)*

Outcomes	Outcomes: • 7-DPAR used as the physical activity measure • Self-regulation measured on a 20-item, 5-point Likert-type instrument (1 = never; 5 =most frequent). Self-regulation instrument contains 5 subscales: (1) self-monitoring, (2) cognitive goal setting, (3) social support, (4) reinforcements, and (5) relapse prevention. • Exercise self-efficacy measured via a 14-item questionnaire. Responses to items are summed and divided by 14 for a mean self-efficacy score. The higher the score on the self-efficacy instrument, the greater is one's confidence to overcome barriers to exercise. • Exercise role identity measured by a 9-item, 5-point Likert-type instrument developed by Anderson and Cychosz. Possible minimum and maximum values of scores are 0to 45. Higher score indicates strong self-identity as an exerciser. • Outcome expectancy value assessed with a 19-item self-report questionnaire developed by Steinhardt and Dishman Numbers of participants assessed: • Intervention: baseline, 43; at 6 and 8 weeks, 36 • Control: baseline, 42; at 6 and 8 weeks, 38 Adverse events: not reported
Notes	Trial registration link: none available Trial authors contacted: no Intention-to-treat analysis: no Funding: not reported

Risk of bias

Bias	Authors' judgement	Support for judgement
Random sequence generation (selection bias)	Unclear risk	"Randomly assigned"; method of randomisation not reported
Allocation concealment (selection bias)	Unclear risk	Whether allocation was concealed was not reported.
Blinding of participants and personnel (performance bias) All outcomes	High risk	Owing to the nature of the intervention, it was not possible to conceal allocation to the intervention from participants.
Blinding of outcome assessment (detection bias) All outcomes	Unclear risk	Blinding of outcome assessments was not described.
Incomplete outcome data (attrition bias) All outcomes	High risk	"The final sample included 74 participants (control group n = 38, intervention group n = 36)". Participants who dropped out were not included in analysis.
Selective reporting (reporting bias)	Low risk	No selective reporting of outcomes is apparent.
Other bias	Low risk	Trial appears to be free of other problems that could put it at high risk of bias.

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Heim 2007

Methods	Study design: single-centre quasi-RCT Number randomised: 63; 32 to intervention, 31 to control Study start: not reported; stop date: not reported Length of intervention: not reported Length of follow-up: at 3 months post intervention Country: Germany
Participants	Age, years; n (%): • Intervention: 31 to 50 years, 14 (44); 51 to 70 years, 18 (56) • Control: 31 to 50 years, 18 (58); 51 to 70 years, 13 (42) Stage: • Intervention: not reported • Control: not reported Inclusion criteria: • Score ≥ 4 on a linear analogue scale evaluating fatigue, ranging in value from 0 to 10 Exclusion criteria: • Psychiatric condition • < 6 weeks since surgery or chemotherapy
Interventions	32 participants assigned to exercise intervention: • Educational programme, physical therapy, group exercises (non-physical activity), and psycho-oncological interventions • Resistance exercises performed for 30 minutes 3 times per week, and aerobic exercises performed 2 times per week for 30 minutes • Brochure with instructions for 9 muscle strength and 9 stretching exercises for all large muscle groups, demonstrated by instructor • Instructions for aerobic exercises (walking programme), co-ordination, and relaxation Adherence: • Adherence to muscle strength was 26% at end of rehabilitation and 37% at 3 months after rehabilitation. • Adherence to stretching was 30% at end of rehabilitation and 42% at 3 months after rehabilitation. • Adherence to aerobic exercises was 163% at end of rehabilitation and 192% at 3 months after rehabilitation. 31 participants assigned to control: • Educational programme, physical therapy, group exercises (non-physical activity), and psycho-oncological interventions
Outcomes	Outcomes: • Quality of life assessed via FACT-G • Fatigue assessed via FACT-F • Depression and anxiety assessed via HADS

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Heim 2007 *(Continued)*

	• MFI • Questionnaire on physical activity and motivation to perform exercises and sport (self-developed) • Cardiopulmonary fitness via Harvard step test • Muscular strength with Digimax Multifunktionstest • Maximal isometric muscle strength via dynamometer for arm flexors and leg extensors Numbers of participants assessed: • Intervention: baseline, not reported; end of rehabilitation, 32 • Control: baseline, not reported; end of rehabilitation, 31 Adverse events: not reported
Notes	Trial registration link: none available Trial authors contacted: yes, contacted for means and *s* for outcomes. However, trial authors did not provide these data. Intention-to-treat analysis: no Funding: German Fatigue Society

Risk of bias

Bias	Authors' judgement	Support for judgement
Random sequence generation (selection bias)	High risk	"According to their admission to hospital; depending on the alternating weeks they were allocated to the intervention group or the control group".
Allocation concealment (selection bias)	High risk	Owing to use of alternating weeks in the randomisation process, allocation was not concealed from investigators.
Blinding of participants and personnel (performance bias) All outcomes	High risk	Owing to the nature of the intervention, it was not possible to conceal allocation to the intervention from participants.
Blinding of outcome assessment (detection bias) All outcomes	High risk	Study personnel and outcome assessors were not masked or blinded to study interventions.
Incomplete outcome data (attrition bias) All outcomes	High risk	Complete data were available for 59 participants, but no information on missing participants was provided. "More patients in the control group (15) than in the training group (12) did not continue the study".
Selective reporting (reporting bias)	Low risk	No selective reporting of outcomes is apparent.
Other bias	High risk	Study was poorly described, and adherence to resistance exercises was low (42%).

Herrero 2006

Methods	Study design: single-centre RCT Number randomised: 20; 10 to intervention, 10 to control Study start: recruitment started November 2003; stop date: April 2004

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Herrero 2006 *(Continued)*

	Length of intervention: 8 weeks Length of follow-up: to end of intervention Country: Spain
Participants	Age, years (mean SD): • Intervention: 50 (5) • Control: 51 (10) Stage, n (%): • Intervention: stage I, 3 (37.5); stage II, 5 (62.5); not provided, 2 • Control: stage I, 4 (50); stage II, 4 (50); not provided, 2 Inclusion criteria: • Postmenopausal women surviving breast cancer • 2 to 5 years post treatment • 40 to 60 years old • Previous anticancer treatment consisting of surgery with axillary lymphadenectomy and both post-surgery radiation therapy and chemotherapy • Walking less than a total of 30 to 60 minutes 3 days per week • Performing no strenuous exercise such as running, cycling, swimming, or resistance training Exclusion criteria: • Cardiac disease (NYHA II or greater) • Uncontrolled hypertension (blood pressure > 160/90 mmHg) • Uncontrolled pain, or any other condition that contraindicated exercise training • Patients with cancer or cancer survivors, for example, increased risk of bone fracture • Severe anaemia (< 8 g/dL) • Platelet count lower than 50×10^9/µL, 7; lymphoedema
Interventions	10 participants assigned to exercise intervention: • 10-Minute warm-up and cool-down periods, consisting of cycle-ergometer pedaling at very light work-loads and stretching exercises for all major muscle groups • 70-Minute core portion of the training session divided into resistance and aerobic training • Resistance training with 11 exercises engaging the major muscle groups (chest press, shoulder press, leg extension, leg curl, leg press, leg calf rise, abdominal crunch, low back extension, arm curl, arm extension, and lateral pull-down), each for 12 to 15 repetitions at 12 to 15 repetitions maximum • Aerobic training consisting of pedaling on a cycle-ergometer for 20 minutes at 70% maximal heart rate (HRmax) observed during pretraining cardiorespiratory test. Duration and intensity of sessions were gradually increased during the 8-week period, so that participants completed 30 minutes of continuous pedaling at 80% HRmax by end of training programme. • Stretching of muscles involved in an exercise performed at the end of each set of resistance exercises Adherence: • Mean (SD) percentage adherence was 91.1% (6.9%). 10 participants assigned to control:

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Herrero 2006 *(Continued)*

- During the 8-week period, participants in the control group followed their usual sedentary lifestyle (physical activity level < walking for a total of 30 to 60/min 3 days per week and performing no strenuous exercise such as running, cycling, swimming, or resistance training).

Outcomes	Primary outcomes: • Cardiorespiratory test to measure peak oxygen uptake (VO_2peak) • Dynamic strength endurance test, maximum number of repetitions for chest and leg press exercises at 30% to 35% and 100% to 110% of body mass • Sit-stand test, frequency count per time • EORTC QLQ-C30 questionnaire used to assess quality of life • Haematocrit and haemoglobin levels • Circulating cytokine levels by human cytokine immunoassay, including beta nerve growth factor (beta-NGF), cutaneous T cell-attracting chemokine (CTACK), exotoxin, fibroblast growth factor (FGF) basic, granulocyte colony-stimulating factor (G-CSF), granulocyte-macrophage colony-stimulating factor (gmCSF), growth-related oncogene (GRO)α , hepatocyte growth factor (HGF), intercellular adhesion molecule (ICAM)1, interferon (IFN)α2, IFNγ, interleukin (IL)1α, IL1β, IL1ra, IL2, IL2ra, IL3, IL4, IL6, IL7, IL8, IL9, IL10, IL12, IL13, IL15, IL16, IL17, IL18, interferon-inducible protein (IP)10, leukaemia inhibitory factor (LIF), macrophage colony-stimulating factor (MCS-F), macrophage inflammatory protein (MIP)1α, MIP1β, macrophage migration inhibitory factor (MIF), monocyte chemotactic protein (MCP)1, MCP3, monokine induced by IFNγ (MIG), platelet-derived growth factor (PDGF) bb, stem cell factor (SCF), stem cell growth factor (SCGF)β, stromal cell-derived factor (SDF)1α, tumour necrosis factor-related apoptosis-inducing ligand (TRAIL), TNFα, TNFβ, vascular cell adhesion molecule (VCAM)1, and vascular endothelial growth factor (VEGF). IL10/TNFα ratio was calculated. Other outcomes: • Peak power output (PPO) and PPO/body mass, ventilation peak (VE_{peak}); heart rate max, peak values of ventilatory equivalent for oxygen (VE/VO_2), carbon dioxide (VE/VCO_2), and respiratory exchange ratio (RER) • Body composition assessed indirectly through changes in body mass and subcutaneous skinfolds • Skinfold measurements made at 3 sites (triceps, abdominal, and suprailiac) to allow estimation of percentage of body fat • Total muscle mass (kg) estimated from anthropometrical data following the prediction equation with use of multi-slice magnetic resonance imaging Numbers of participants assessed: • Intervention: baseline, 10; at 8 weeks, 8 • Control: baseline, 10; at 8 weeks, 8 Adverse events: No major adverse effects and no major health problems were noted among participants in both groups over the 8-week period.
Notes	Trial registration link: none available Trial authors contacted: no Intention-to-treat analysis: no Funding: Universidad Europea de Madrid

Risk of bias

Bias	Authors' judgement	Support for judgement
Random sequence generation (selection bias)	Unclear risk	Generation of the random sequence was not described.

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Herrero 2006 *(Continued)*

Allocation concealment (selection bias)	Low risk	"The treatment allocation system was set up so that the researcher who was in charge of enrolling participants did not know in advance which treatment the next person would get".
Blinding of participants and personnel (performance bias) All outcomes	High risk	Owing to the nature of the intervention, it was not possible to conceal allocation to the intervention from participants.
Blinding of outcome assessment (detection bias) All outcomes	Low risk	"Research assistants (exercise physiologists) with no knowledge of group assignments were designated to measure the outcome variables".
Incomplete outcome data (attrition bias) All outcomes	High risk	2 participants in each group withdrew, but no information was provided on reasons for withdrawal, and their data were not included in analysis.
Selective reporting (reporting bias)	Low risk	No selective reporting of outcomes is apparent.
Other bias	Low risk	Trial appears to be free of other problems that could put it at high risk of bias.

Irwin 2015

Methods	Study design: single-centre RCT Number randomised: 121; 61 to intervention, 60 to control Study start: June 2009; stop date: June 2013 Length of intervention: 12 months Length of follow-up: to end of intervention Country: USA
Participants	Age, years (mean SD): • Intervention: 62.0 (7.0) • Control: 60.5 (7.0) Stage, %: • Intervention: stage 0, 1 (1); stage I, 36 (59); stage II, 18 (30); stage III, 6 (10) • Control: stage 0, 0 (0); stage I, 37 (62); stage II, 19 (32); stage III, 4 (7) Inclusion criteria: • Physically inactive (i.e. < 90 minutes per week of physical activity in the past 6 months and no strength training in the past year) • Postmenopausal women given diagnosis 0.5 to 4.0 years before enrolment with hormone receptor–positive stage I to III breast cancer • Receiving an aromatase inhibitor for at least 6 months • Experiencing arthralgia at least mild in severity for at least 2 months (i.e. score of ≥ 3 of 10 for worst pain item of Brief Pain Inventory)

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Irwin 2015 *(Continued)*

	• Arthralgia started after initiation of aromatase inhibitor therapy or when pre-existing joint pain was exacerbated by the use of aromatase inhibitors Exclusion criteria: • None reported
Interventions	61 participants assigned to the following intervention: • Combination of a twice-per-week supervised resistance training programme (under supervision of American College of Sports Medicine–certified cancer exercise trainer) at a local health club, and a home-based aerobic exercise programme of 150 minutes per week, in accordance with current exercise recommendations for cancer survivors • Aerobic exercise intervention consisted of 150 minutes per week of primarily brisk walking (treadmill or outside), although participants could choose other aerobic exercise, such as stationary bicycling. Intensity of aerobic exercise started at 50% of maximal heart rate (determined from VO_2max testing) and increased over the first month to 60% to 80% of maximal heart rate for the study duration. • Twice-weekly strength training protocol consisted of 6 exercises (i.e. bench press, latissimus pull-down, seated row, leg press, leg extension, and leg curl) performed at 8 to 12 repetitions for 3 sets. • Intensity of resistance exercise: Participants progressed up to 3 sets per exercise over the first month. After 2 sessions during which a participant lifted the same weight 12 times during each set, weight was increased by the smallest possible increment. Adherence to the intervention: • Aerobic, mean (SD) daily activity log aerobic exercise minutes/week: 119 (78) • Resistance, twice per week attendance % (SD): 70 (28) 60 participants assigned to control: • Women were instructed to continue with their usual activities. Participants were not discouraged from exercising on their own but were not given any exercise instruction until the end of the study. Women were telephoned monthly by research staff to determine aromatase inhibitor adherence. Both exercise and usual-care groups were provided with an educational booklet prepared for the this study, which addressed breast cancer topics such as lymphoedema and fatigue. Topics were discussed monthly over the telephone.
Outcomes	Primary outcomes: • Arthralgia via 3 different questionnaires: (1) BPI; (2) Western Ontario and McMaster Universities Osteoarthritis (WOMAC) index, which measures lower extremity joint symptoms in the past 7 days in 3 domains: pain, stiffness, and physical function; and (3) DASH questionnaire, which measures physical function and symptoms in patients with musculoskeletal disorders of the upper limbs • Grip strength via bulb dynamometer (squeezing a rubber ball with the dominant hand with pressure in psi averaged over 3 trials) Secondary outcomes: • Pain medication via medicine supplement questionnaire • Aromatase inhibitor adherence via a log reviewed monthly by telephone • Weight taken twice and averaged. • Physical activity via questionnaire (Kriska et al, 1990) assessing the past 6 months of activity, including type, frequency, and duration of 20 activities • Cardiorespiratory fitness measured with a standard VO_2max treadmill test Numbers of participants assessed: • Intervention: 61; completed 3 and 6 months, 58 (95%); completed 9 and 12 months, 45 (94%) • Control: 60; completed 3 and 6 months, 49 (82%); completed 9 and 12 months, 38 (80%) Adverse events: No adverse effects occurred as a result of the exercise programme.

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Irwin 2015 *(Continued)*

Notes	Trial registration link: https://clinicaltrials.gov/ct2/show/NCT02056067 Trial authors contacted: no Intention-to-treat analysis: yes Funding: supported by National Cancer Institute Grant No. R01 CA132931 and in part by a grant from the Breast Cancer Research Foundation (M.L.I.), Yale Cancer Center Support Grant No. P30 CA016359, and Clinical and Translational Science Award Grant No. UL1 TR000142, from the National Center for Advancing Translational Science

Risk of bias

Bias	Authors' judgement	Support for judgement
Random sequence generation (selection bias)	Low risk	"Permuted block randomisation (at 1:1 ratio) with random block size was performed, stratified by joint pain before AI therapy and current bisphosphonate use".
Allocation concealment (selection bias)	Unclear risk	Whether treatment assignment was concealed from study personnel and participants was not described.
Blinding of participants and personnel (performance bias) All outcomes	High risk	Owing to the nature of the intervention, it was not possible to conceal allocation to the intervention from participants.
Blinding of outcome assessment (detection bias) All outcomes	Unclear risk	Blinding of outcome assessments was not described.
Incomplete outcome data (attrition bias) All outcomes	Low risk	Mixed-model repeated measures analysis was employed. This approach is robust because it includes all available data and accounts for correlations between repeated measures.
Selective reporting (reporting bias)	Low risk	No selective reporting of outcomes is apparent.
Other bias	High risk	"Given funding cuts, the last 25 of the 121 women recruited were enrolled into a 6-month rather than 12-month trial". Therefore, participants received interventions of different durations.

Kaltsatou 2011

Methods	Study design: single-centre RCT Number randomised: 27; 14 to intervention, 13 to control Study start: not reported; stop date: not reported Length of intervention: 24 weeks Length of follow-up: to end of intervention Country: Greece
Participants	Age, years (mean SD):

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Kaltsatou 2011 *(Continued)*

- Intervention: 56.6 (4.2)
- Control: 57.1 (4.1)

Stage:

- Not reported

Inclusion criteria:

• Participating only in the dancing exercising programme in which none of the participants had prior physical practice or experience in traditional Greek dances

• All participants had been given a diagnosis and surgically treated for breast cancer

• Completed cancer therapies, including surgery, radiotherapy, and chemotherapy and stopped all medical treatments at least 3 months before beginning of the study

Exclusion criteria:

• Poorly controlled hypertension

• Any health condition that would deter patient from performing the exercises

Interventions	14 participants assigned to exercise intervention: • 60-Minute sessions were performed 3 times per week for 24 weeks, and included warm-up, aerobic training with Greek traditional dances, upper body training, and cool-down. • Warm-up period lasted 10 minutes and included range of motion exercises and stretching. Aerobic training phase lasted 25 minutes and included learning and practising traditional Greek dances (intensity between 65% and 80% of maximum heart rate). Dance phase consisted of basic, low-impact steps, performed in a single group while holding hands in a semi-circle. Duration of each dance was 3 to 4 minutes, and breaks between dances lasted 15 seconds. • Upper body exercise training and cool-down lasted 25 minutes and emphasised stretching and resistance training with the use of variable resistance machines. Adherence: • Not reported 13 participants assigned to control: • Participants in the control group continued their usual daily schedule.
Outcomes	Outcome measures: • Physical function assessed via a 6-minute walking test. Participants instructed to walk as comfortably as possible in 6 minutes • Handgrip strength assessed on both sides with a baseline handheld dynamometer. Participants were seated with the forearm in neutral position and the elbow at 90 degrees. They squeezed the handgrip as hard as they could. The mean of 3 measurements was used for further analysis. • Arm volume measured with a measuring tape to estimate arm volume • BDI used to evaluate severity of depression • In addition, participants completed Life Satisfaction Inventory (LSI). The LSI is a 13-item multi-dimensional inventory that validates the satisfaction that the participant receives from her lifestyle. • Resting blood pressure and heart rate measured after the individual had been sitting calmly for 5 minutes. HR was estimated by palpation for four 15-second periods, and blood pressure was measured by a sphygmomanometer. Numbers of participants assessed: • Intervention: baseline, 14; at 24 weeks, not reported • Control: baseline, 13; at 24 weeks, not reported

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Kaltsatou 2011 *(Continued)*

	Adverse events: none reported
Notes	Trial registration link: none available Trial authors contacted: no Intention-to-treat analysis: no missing data reported Funding: not reported

Risk of bias

Bias	Authors' judgement	Support for judgement
Random sequence generation (selection bias)	Unclear risk	Generation of the random sequence was not described.
Allocation concealment (selection bias)	Unclear risk	Whether treatment assignment was concealed from study personnel and participants was not described.
Blinding of participants and personnel (performance bias) All outcomes	High risk	Owing to the nature of the intervention, it was not possible to conceal allocation to the intervention from participants.
Blinding of outcome assessment (detection bias) All outcomes	Unclear risk	Blinding of outcome assessments was not described.
Incomplete outcome data (attrition bias) All outcomes	Unclear risk	It is unclear whether any data were missing, as this was not reported.
Selective reporting (reporting bias)	Low risk	No selective reporting of outcomes is apparent.
Other bias	Low risk	Trial appears to be free of other problems that could put it at high risk of bias.

Kiecolt-Glaser 2014

Methods	Study design: RCT Number randomised: 200; 100 to the Hatha yoga intervention, 100 to wait-list control Study start: not stated; stop date: not stated Length of intervention: 12 weeks Length of follow-up: at 3 months Country: USA
Participants	Age, years (mean SD): • Intervention: 51.8 (9.8) • Control: 51.3 (8.7) Stage, n (%):

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Kiecolt-Glaser 2014 *(Continued)*

- Intervention: stage 0, 9 (9%); stage I, 46 (46%); stage IIA, 27 (27%); stage IIB, 10 (10%); stage IIIA, 8 (8%)
- Control: stage 0, 9 (9%); stage I, 43 (%); stage IIA, 25 (25%); stage IIB, 13 (13%); stage IIIA, 10 (10%)

Inclusion criteria:

• Completed breast cancer treatment (except for tamoxifen/aromatase inhibitors) between 2 months and 3 years previously

Exclusion criteria:

• Engaged in over 5 hours of vigorous physical activity per week

• Prior history of any other cancer (except basal or squamous cell skin cancer)

• Major medical conditions such as anaemia, diabetes, multiple sclerosis, chronic obstructive pulmonary disease, symptomatic ischaemic heart disease, uncontrolled hypertension, or liver or kidney failure

• Severe cognitive impairment (e.g. dementia, Alzheimer's disease) or abuse of alcohol or drugs

• Current yoga practice or prior yoga practice exceeding 3 months

Interventions	100 participants assigned to exercise intervention: • Twice-weekly 90-minute Hatha Yoga classes for 12 weeks • Home practice strongly encouraged, and women recorded total home plus class practice time in weekly logs. Women were also given a commercial yoga video for cancer survivors as a home practice aid. Adherence: In the yoga group, participants attended a mean of 18.1 (75.4%) of 24 classes with a median of 19 (79.1%) of 24 classes and reported an average of 24.69 minutes per day of total home plus class practice across 12 weeks. 100 participants assigned to control: • Participants assigned to wait-list control were told to continue performing their usual activities, and to refrain from beginning any yoga practice. After final assessment, they were offered the yoga classes.
Outcomes	Outcomes: • Fatigue via total score on the MFSI-SF • Vitality in the past month via the MOS SF-36 Energy Scale. Higher scores indicate greater vitality and thus lower fatigue. • CES-D assessing depressive symptoms in the past week • Cognitive complaints assessed on the Breast Cancer Prevention Trial (BCPT) Cognitive Problems Scale • Sleep quality and disturbances rated by participants using the Pittsburgh Sleep Quality Index • Perceived support assessed by the Interpersonal Support Evaluation List • Lipopolysaccharide (LPS)-stimulated production of IL-6, IL-1β, and TNF-alpha. LPS-stimulated cytokines measured from isolated peripheral blood mononuclear cells according to Meso Scale Discovery kit instructions • Physical activity via CHAMPS questionnaire • Mass and BMI • Data on foods and beverages consumed in the past 90 days provided through the Women's Health Initiative Food Frequency Questionnaire (FFQ) .Numbers of participants assessed: • Intervention: baseline, 100; post intervention, 96; at 3-month follow-up, 94 • Control: baseline, 100; post intervention, 90; at 3-month follow-up, 87

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Kiecolt-Glaser 2014 *(Continued)*

	Adverse events: Two events appeared potentially attributable to the yoga intervention: Two women reported recurrence of chronic back and/or shoulder problems.
Notes	Trial registration link: https://clinicaltrials.gov/ct2/show/NCT00486525 Trial authors contacted: no Intention-to-treat analysis: no Funding: grants No. R01 CA126857, R01 CA131029, K05 CA172296, UL1RR025755, and CA016058 from the National Institutes of Health

Risk of bias

Bias	Authors' judgement	Support for judgement
Random sequence generation (selection bias)	Low risk	"online randomization program to obtain the block randomization sequence"
Allocation concealment (selection bias)	Low risk	"The data manager had no participant contact".
Blinding of participants and personnel (performance bias) All outcomes	High risk	Owing to the nature of the intervention, it was not possible to conceal allocation to the intervention from participants.
Blinding of outcome assessment (detection bias) All outcomes	Low risk	"Participants were told not to mention their group assignment to study personnel during their post-treatment assessments; questionnaires were administered via computer. The technicians who analysed blood samples were blind to all other data".
Incomplete outcome data (attrition bias) All outcomes	High risk	No ITT analysis. Participants were excluded from analysis if they did not complete either of the post-treatment assessments.
Selective reporting (reporting bias)	Low risk	No selective reporting of outcomes is apparent.
Other bias	Low risk	Trial appears to be free of other problems that could put it at high risk of bias.

Kim 2015

Methods	Study design: single-centre RCT Number randomised: 43; 23 to the home-based exercise + supplement intervention, 20 to a supplement-only control Study start: January 2012; stop date: August 2013 Length of intervention: 6 months Length of follow-up: to end of intervention Country: South Korea
Participants	Age, years (mean SD): • Intervention: 55.7 (5.3)

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Kim 2015 *(Continued)*

	• Control: 56.3 (6.7) Stage, n (%): • Intervention: stage 0-I, 7 (31.8); stage II-III, 15 (68.2) • Control: stage 0-I, 12 (60.0); stage II-III, 8 (40.0) Inclusion criteria: • Women aged 20 to 70 years • Diagnosis of stage 0 to III breast cancer • Completed primary treatment at least 3 months earlier and were postmenopausal • Osteopenia diagnosed by a bone mineral density screening test Exclusion criteria: • Having other cancer(s) • Bone metastasis • Disease that could influence bone metabolism • Under treatment for osteoporosis • Condition that precluded unsupervised exercise • Participating regularly in resistance exercise (2 or more 30-minute sessions per week)
Interventions	23 participants assigned to exercise intervention: • For women in the exercise group, supplements (500 mg calcium and 1000 IU vitamin D) were combined with a 6-month home-based exercise intervention. • Participants were instructed to walk on 3 non-consecutive days for a total of at least 150 minutes per week (RPE 11 to 13). Walking was combined with elastic band resistance exercises performed 2 to 3 days per week. Participants used resistance bands colour-coded for resistance levels to perform 2 sets of 8 to 10 repetitions of 5 upper body and 4 lower body exercises targeting major muscle groups at light-to-moderate intensity. • Intervention was based on self-efficacy theory and consisted of telephone counselling, exercise logs to review progress, exercise goal setting, and a DVD showing someone accomplishing exercise goals. Two 30-minute education sessions with a 28-page workbook were provided before women initiated exercise. Telephone counselling was provided through 18 15-minute sessions (weekly for 3 months and at 2-week intervals thereafter) by 2 nurses trained in exercise prescription. Adherence: Mean adherence rate was 69.5% for walking and 48.5% for resistance exercise. 20 participants assigned to control: • Women in the control group were a supplement-only group (500 mg calcium and 1000 IU vitamin D) and were instructed to record their supplement intake in logs. They were not instructed to avoid exercise but were not included in the exercise intervention.
Outcomes	Primary outcomes: • Bone mineral density (g/cm^2) of the lumbar spine (L1-4), femur neck, and total hip with DEXA Other outcomes: • Serum calcium by Arsenazo III dye method • Serum 25-hydroxyvitamin D by radioimmunoassay

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Kim 2015 *(Continued)*

- Physical activity assessed via the Godin Leisure-time exercise questionnaire
- Aerobic capacity measured by the 6-minute walk test
- Forearm grip strength (kg) assessed via handgrip dynamometer
- Lower-extremity muscular strength measured by the chair-stand test (as many stands from sitting position in 30 seconds as possible)
- Lower body muscular endurance assessed by the wall-squat test (hold squat position for as long as possible with back against a wall)

Numbers of participants assessed:

- Intervention: baseline, 23; at 6 months, 20
- Control: baseline, 20; at 6 months, 19

Adverse events: "No injuries or adverse events and no symptoms of lymphedema were reported in either group".

Notes	Trial registration link: none available Trial authors contacted: no Intention-to-treat analysis: yes, but LOCF Funding: Basic Science Research Program through the National Research Foundation of Korea funded by the Ministry of Education, Science, and Technology

Risk of bias

Bias	Authors' judgement	Support for judgement
Random sequence generation (selection bias)	Low risk	Computer-generated randomisation was used.
Allocation concealment (selection bias)	Unclear risk	Sealed, sequentially numbered envelops were used, but trial authors did not report whether they were opaque.
Blinding of participants and personnel (performance bias) All outcomes	High risk	Owing to the nature of the intervention, it was not possible to conceal allocation to the intervention from participants.
Blinding of outcome assessment (detection bias) All outcomes	Unclear risk	Primary outcome (bone mineral density) was assessed by technicians blinded to group allocation, but trial authors did not report whether assessors of the remaining were also blinded to group allocation.
Incomplete outcome data (attrition bias) All outcomes	High risk	Missing data were imputed by the LOCF method.
Selective reporting (reporting bias)	Low risk	No selective reporting of outcomes is apparent.
Other bias	Low risk	Trial appears to be free of other problems that could put it at high risk of bias.

Ligibel 2008

Methods	Study design: single-centre RCT

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Ligibel 2008 *(Continued)*

	Number randomised: 101; 51 to intervention, 50 to control Study start: May 2004; stop date: October 2006 Length of intervention: 16 weeks Length of follow-up: to end of intervention Country: USA
Participants	Age, years (mean SD): • Intervention: 52 (9) • Control: 53 (9) Stage, n (%): • Intervention: stage I, 22 (43); stage II, 22 (6); stage III, 6 (12); missing, 0 (0) • Control: stage I, 21 (43); stage II, 22 (44); stage III, 4 (8), missing, 2 (4) Inclusion criteria: • Histological evidence of stage I-III invasive breast cancer • Completion of any chemotherapy and/or radiation therapy at least 3 months before enrolment • Absence of diabetes • No use of corticosteroids • BMI > 25 and/or body fat percentage > 30% • Baseline participation in less than 40 minutes of physical activity per week • Hormonal therapy allowed as long as participants continued therapy for duration of the study Exclusion criteria: • Evidence of persistent or recurrent breast cancer • Other malignancy • Uncontrolled heart disease • Other contraindications to exercise
Interventions	51 participants assigned to 16-week exercise intervention: • Resistance training programme (2 sessions of 50 minutes per week) focussed largely on lower body and core muscle strength, given limited data regarding the impact of upper body exercise on risk of lymphoedema. Exercises included leg press, quad extension, hamstring curl, hip adductor, hip abductor, abdominal crunches, calf press, and leg lifts. Intensity of resistance training started at 80% of maximum weight from baseline strength testing, increased by 10% each week. • Participants were asked to perform 90 minutes of cardiovascular exercise on their own each week. Each participant was given a pedometer and a heart rate monitor on enrolment. Participants were allowed to choose their own form of exercise, as long as it produced a heart rate in the target zone (55% to 80% maximum heart rate). • Staff worked with a personal trainer during each of these sessions, monitored by exercise physiologists Adherence: • Although 11 participants ultimately did not complete the intervention, at least partial exercise data were available for 49 participants. According to intent-to-treat analyses, participants attended a mean

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Ligibel 2008 *(Continued)*

	of 73% of scheduled strength training sessions and performed 114 minutes of aerobic exercise per week. 50 participants assigned to control: • Control group received routine care for 16 weeks and then was offered consultation with an exercise trainer at the end of the control period. All participants were asked to avoid changes in dietary habits undertaken to lose weight for the duration of the study. Contamination of control group: not reported
Outcomes	Outcomes: • Anthropometric measurements; BMI, waist circumference measured at the bending line, and hip measurement recorded at point of maximum girth; waist-to-hip ratio • Body composition measured by a bioelectric impedance analyser • Glucose measured with a hexokinase ultraviolet assay • Insulin measured via immunochemiluminometric assay and measured in µU/mL (1 µU/mL = 6.954 pmol/L) • Insulin resistance calculated by HOMA, with the following formula: HOMA = [insulin (µU/ mL) × glucose (mg/dL)]/405 • Serum leptin and adiponectin determined by radioimmunoassay • Serum high-molecular-weight adiponectin (HMWA) measured by ELISA Time points of assessment: baseline, completion of the 16-week study period Numbers of participants assessed: • Intervention: baseline, 51; at 16 weeks post intervention, 40 • Control: baseline, 50; at 16 weeks post intervention, 42 Adverse events: not reported
Notes	Trial registration link: none available Trial authors contacted: no Intention-to-treat analysis: unclear; ITT approach was not described Funding: supported by the American Society of Clinical Oncology and the Lance Armstrong Foundation

Risk of bias

Bias	Authors' judgement	Support for judgement
Random sequence generation (selection bias)	Unclear risk	Generation of the random sequence was not described: “participants were randomly assigned 1:1 to an exercise intervention group or control group”.
Allocation concealment (selection bias)	Unclear risk	Whether treatment assignment was concealed from study personnel and participants was not described.
Blinding of participants and personnel (performance bias) All outcomes	High risk	Owing to the nature of the intervention, it was not possible to conceal allocation to the intervention from participants.
Blinding of outcome assessment (detection bias) All outcomes	Unclear risk	“although hormonal assays were performed by technicians blinded to group assignment, anthropometric measures were collected by unblinded study staff”

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Ligibel 2008 *(Continued)*

Incomplete outcome data (attrition bias) All outcomes	Unclear risk	ITT approach mentioned but not described
Selective reporting (reporting bias)	Low risk	No selective reporting of outcomes is apparent.
Other bias	High risk	High dropout numbers in intervention group (11/51; 22%) and in control group (8/50; 16%)

Littman 2012

Methods	Study design: single-centre RCT Number randomised: 63; 32 to intervention, 31 to control Study start: May 2007; stop date: April 2008 Length of intervention: 6 months Length of follow-up: to end of 6-month intervention Country: USA
Participants	Age, years (mean SD): • Intervention: 60.6 (7.1) • Control: 58.2 (8.8) Stage, n (%): • Intervention: stage 0, 14 (43.8); stage I, 7 (21.9); stage II, 10 (31.3); stage III, 1 (3.1) • Control: stage 0, 14 (45.2); stage I, 10 (32.3); stage II, 5 (16.1); stage III, 2 (6.5) Inclusion criteria: • Age between 21 and 75 years • Completion of breast cancer treatment (stage 0-III) at least 3 months before (with the possible exception of ongoing hormonal therapies such as tamoxifen or aromatase inhibitors) • BMI ≥ 24 kg/m^2 (or ≥ 23 kg/m^2, if of Asian descent) Exclusion criteria: • Myocardial infarction or stroke in the previous 6 months • Diabetes • Current yoga practice • Pregnancy or plans to become pregnant • Other factors that might lead to poor retention and yoga practice, which included plans to leave the study area during the follow-up period or any contraindications to practising yoga
Interventions	32 participants assigned to exercise intervention: • Yoga intervention was based on viniyoga, a Hatha therapeutic style of yoga that involves physical stretches and poses, breath control, and meditation. Each yoga practice opened with 5 to 10 minutes of centring exercises to promote relaxation and internal focus, followed by 50 to 60 minutes of seated

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Littman 2012 *(Continued)*

and standing poses, and closed with 10 to 15 minutes of guided relaxation, breathing exercises, and meditation.

- Participants were given the goal of practising 5 times per week, including at least one 75-minute facility-based class. Women were permitted and encouraged to attend 2 or 3 facility-based classes if they desired; the remainder of their weekly practice sessions (i.e. 2 (if they attended 3 classes) to 4 (if they attended 1 class)) were to be completed at home (20 to 30 minutes in duration).

Adherence:

- Women attended an average of 19.6 facility-based classes (range, 1 to 61; median, 20.5) and practised at home an average of 55.8 times (range, 2 to 102; median, 62) during the 6-month intervention.

14 participants assigned to control:

- Participants in the wait-list control group were asked to not begin yoga and were not contacted again until it was time to schedule their 6-month follow-up assessment.

Outcomes

Primary outcome measures:

- QoL assessed by FACT-G and the breast cancer module (FACT-B) consisting of 13 additional items
- Fatigue assessed by the 13-item Fatigue Scale (FACT-F) developed specifically for the cancer population
- Body weight (kg) measured in a dressing gown with undergarments

Secondary outcomes:

- Waist and hip circumferences measured in a dressing gown with undergarments
- Physical activity collected through a self-administered version of the Modifiable Activity Questionnaire, which includes usual frequency, duration, and number of months of recreational activities performed during previous 12 (baseline) or 6 (6-month follow-up questionnaire) months. Physical activity converted to MET-h per week

Numbers of participants assessed:

- Intervention: baseline, 32; at 6 months, 30 complete QoL and fatigue; weight and blood collection, 28
- Control: baseline, 31; at 6 months, 27 QoL and fatigue, weight and blood collection

Adverse events: not reported

Notes

Trial registration link: https://clinicaltrials.gov/ct2/show/NCT00476203

Trial authors contacted: no

Intention-to-treat analysis: no

Funding: supported in part by the Office of Research and Development Cooperative Studies Program, Department of Veterans Affairs and the Transdisciplinary Research in Energetics in Cancer (NCI 1U54 CA116847)

Risk of bias

Bias	Authors' judgement	Support for judgement
Random sequence generation (selection bias)	Unclear risk	Generation of the random sequence was not described,
Allocation concealment (selection bias)	Unclear risk	Whether treatment assignment was concealed from study personnel and participants was not described.
Blinding of participants and personnel (performance bias)	High risk	Owing to the nature of the intervention, it was not possible to conceal allocation to the intervention from participants.

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Littman 2012 *(Continued)*

All outcomes		
Blinding of outcome assessment (detection bias) All outcomes	High risk	"we were unable to blind assessors to group assignment"
Incomplete outcome data (attrition bias) All outcomes	High risk	"We used an intent-to-treat approach". However, "those who did not provide follow-up values were not included in analyses".
Selective reporting (reporting bias)	Unclear risk	Blood was collected, but no outcome measures were specified or reported.
Other bias	Low risk	Trial appears to be free of other problems that could put it at high risk of bias.

Loh 2014

Methods	Study design: single-centre RCT Number randomised: 197; 66 to Qigong, 65 to group line-dancing, 66 to control Study start: not reported; stop date: not reported Length of intervention: 8 weeks Length of follow-up: to end of intervention (at 12 months post intervention for intervention-only groups) Country: Malaysia
Participants	Baseline data available for 95 participants (32, Qigong; 31, line-dancing; 32, usual care): Age, years (mean SD): • Qigong: not reported • Line-dancing: not reported • Control: not reported Stage, n (%): • Qigong: stage I, 11 (34.4); stage II, 21 (65.6) • Line-dancing: stage I, 10 (32.3); stage II, 21 (67.7) • Control: stage I, 12 (37.5); stage II, 20 (62.5) Inclusion criteria: • Medical contraindication to exercise • Major medical condition such as epilepsy, uncontrolled hypertension, major orthopaedic problem or acute cardiovascular disease (patients given diagnosis in the past 6 months and still medically unstable) • Completed primary cancer treatment with no evidence of metastasis • At least 1 year post diagnosis Exclusion criteria: • Medical contraindication to exercise

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Loh 2014 *(Continued)*

	• Major medical condition such as epilepsy, uncontrolled hypertension, major orthopaedic problem or acute cardiovascular disease (patients given diagnosis in the past 6 months and still medically unstable) • Currently practising Qigong or line-dancing • Engaging in more than 4 hours of vigorous physical activity
Interventions	131 participants assigned to one of two 8-week exercise interventions: • Qigong group: Low- to moderate-intensity internal Qigong (*Zhi Neng* Qigong) programme (group activity) was employed. Participants were encouraged to practise a 30-minute routine at home, twice a week (using the supplementary recording provided on a compact disc) during the 8-week intervention. • Line-dancing group: Group line-dancing programme with moderate-intensity movements. This intervention consisted of 4 sets of aerobic movements that were taught face-to-face once a week. Each session began with a 10-minute warm-up period; 60-minute dancing sequences; and a 10-minute cool down. Two rest intervals of 5 minutes were provided during the session. Participants were encouraged to practice a 30-minute routine at home, twice a week (aided by a compact disc recording of music used during the face-to-face session). Adherence: Adherence rates were 63% for Qigong and 65% for line-dancing. 66 participants were assigned to control. No change was made to usual management of participants assigned to this group, but they were offered the Qigong or line-dancing programme at the end of the 8-week intervention period.
Outcomes	Primary outcomes: • Quality of life measured with FACT-B Other outcomes: • Fatigue in the previous 7 days measured by the 13-item FACIT-F • Experience of negative emotional states measured on the Depression and Anxiety Stress Scale-21 (DASS-21) Numbers of participants assessed: • Qigong: baseline, 66; at 8 weeks, 32 (at post 12 months, 14) • Line-dancing: baseline, 65; at 8 weeks, 31 (at post 12 months, 9) • Control: baseline, 66; at 8 weeks, 32 (at post 12 months, 0) Adverse events: not reported
Notes	Trial registration link: none available Trial authors contacted: yes, trial authors provided additional means and SDs for some outcomes Intention-to-treat analysis: no, "Outliers more than 1.5SD, were removed, and missing data were replaced with mean-substitution" Funding: not reported

Risk of bias

Bias	Authors' judgement	Support for judgement

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Loh 2014 *(Continued)*

Random sequence generation (selection bias)	Low risk	"Block randomisation (block size=six) was performed by one of the researchers".
Allocation concealment (selection bias)	Low risk	"Masking of treatment allocation were conducted, with 'matching' active, placebo and control, using a free online Random Allocation Software".
Blinding of participants and personnel (performance bias) All outcomes	High risk	Owing to the nature of the intervention, it was not possible to conceal allocation to the intervention from participants.
Blinding of outcome assessment (detection bias) All outcomes	Unclear risk	Blinding of outcome assessments was not described.
Incomplete outcome data (attrition bias) All outcomes	High risk	Inappropriate handling of missing data: "Outliers more than 1.5SD, were removed, and missing data were replaced with mean-substitution".
Selective reporting (reporting bias)	Low risk	No selective reporting of outcomes is apparent.
Other bias	High risk	Very high attrition. Only 48% of participants randomised at baseline completed postintervention assessments; therefore, less than half of participants received only part of the intervention.

Loudon 2014

Methods	Study design: multi-centre RCT Numbers allocated, 28; 15 to exercise intervention, 13 to control Study start: February 2011; stop date: May 2011 Length of intervention: 8 weeks Length of follow-up: at 12 weeks Country: Tasmania, Australia
Participants	Baseline data available for 12 in intervention and 11 in control: Age, years (mean SD): • Intervention: 55.1 (2.5) • Control: 60.5 (3.6) Stage, n (%): • Intervention: stage 0, 0 (0); stage I, 3 (25); stage II, 6 (50); stage III, 3 (25) • Control: stage 0, 1 (9); stage I, 4 (3); stage II, 5 (45); stage III, 1 (9) Inclusion criteria: • Stage I unilateral secondary lymphoedema of the arm, as defined by the International Society of Lymphology and confirmed by a professional lymphoedema therapist • Completed treatment for breast cancer (surgery, radiotherapy, and chemotherapy) at least 6 months previously

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Loudon 2014 *(Continued)*

	• Over 18 years of age • Sufficient English literacy to provide informed consent Exclusion criteria: • Recurrent cancer • Infection • Receiving complex lymphoedema therapy • Pregnancy • Wore a pacemaker, which would affect bioimpedance spectroscopy (BIS) readings • Severe psychological illness
Interventions	15 participants assigned to exercise intervention: • 8-Week Yoga intervention consisted of 1 supervised sessions per week (90 minutes) and 6 home-based sessions per week (45 minutes). • Yoga session consisted of documented breathing practices, physical postures, meditation, and relaxation techniques according to the Satyananda Yoga tradition. • Participants were given a DVD with a 45-minute yoga session and were instructed to perform it daily. The DVD followed the same sequence of practices as the class, with fewer postures and shorter relaxation. Participants received a log book in which they recorded their daily practice along with any relevant comments. Adherence: Attendance at group yoga sessions was high (97%), as was self-reported compliance with the home practice DVD (86%). 13 participants assigned to control: • Participants randomised to the control group maintained their usual self-care as advised by their lymphoedema therapist. Self-care included wearing of compression sleeves, self-massage, skin protection, and continued usual lymphatic treatment. Control group was offered yoga classes at completion of the final measurement.
Outcomes	Primary outcome: • Arm volume of lymphoedema measured by circumference; extracellular fluid measured by bioimpedance spectroscopy Secondary outcomes: • Tissue induration measured by tonometry • Severity of sensations, pain, and fatigue, and degree to which sensations, pain, and fatigue limited activity on the day of measurement on a 10-cm visual analogue scale (VAS). A score of 0 cm indicated “no discomfort”, and a score of 10 cm indicated “the worst imaginable”. • Quality of life based on the Lymphoedema Quality of Life Tool (LYMQOL). Total QoL was self-recorded with scores from 0 to 10, 10 being the best and 0 the worst rating on the day of testing. Subscales, each consisting of several questions, for function, symptoms, appearance, and emotions were also self-recorded. Each question was scaled from 1 to 4, with 4 being the worst. The score for each subscale was based on the mean of ratings for subscale-related questions. A higher score indicates a lower QoL rating for that subscale. Numbers of participants assessed: • Intervention: baseline, 15; at 8 weeks, 12; at 12 weeks, 9 • Control: baseline, 13; at 8 weeks, 11; at 12 weeks, 10

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Loudon 2014 *(Continued)*

	Adverse events: No adverse events were attributable to the yoga or to the control intervention.
Notes	Trial registration link: none available Trial authors contacted: no Intention-to-treat analysis: no https://www.anzctr.org.au/Trial/Registration/TrialReview.aspx?ACTRN=12611000202965 Funding: Swan Research Institute (SRI) and Faculty of Health Sciences Seed Funding, UTAS. Equipment was provided by Flinders University and University of Tasmania.

Risk of bias

Bias	Authors' judgement	Support for judgement
Random sequence generation (selection bias)	Low risk	"randomisation based on a computer-generated random number system"
Allocation concealment (selection bias)	Low risk	"An individual not associated with the trial will perform the randomisation". "Group notification will be in a sealed envelope given to women after completion of the baseline measurement".
Blinding of participants and personnel (performance bias) All outcomes	High risk	Owing to the nature of the intervention, it was not possible to conceal allocation to the intervention from participants.
Blinding of outcome assessment (detection bias) All outcomes	Low risk	"Measurements, based on validated instruments and protocols, were taken by trained researchers blinded to the group allocation and previous results".
Incomplete outcome data (attrition bias) All outcomes	High risk	Only those who completed post-intervention and 1-month-after-cessation assessments were included in analysis.
Selective reporting (reporting bias)	Low risk	No selective reporting of outcomes is apparent.
Other bias	Low risk	Trial appears to be free of other problems that could put it at high risk of bias.

Malicka 2011

Methods	Study design: single-centre RCT Number randomised: 38; 23 to a Nordic walking intervention, 15 to control Study start: not reported; stop date: not reported Length of intervention: 8 weeks Length of follow-up: to end of intervention Country: Poland
Participants	Age, years, mean:

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Malicka 2011 *(Continued)*

- Overall: 62.8

Stage, n (%):

- Intervention: not reported
- Control: not reported

Inclusion criteria:

• Women after treatment for breast cancer

Exclusion criteria:

• None reported

Interventions	23 participants assigned to exercise intervention: • Warm-up (10-minute): exercise of upper extremities with the use of poles, not only to prepare the body for the subsequent effort but also as part of lymphoedema prophylaxis • Nordic walking (40-minute) aimed at learning and improving walking technique with the use of special poles (load applied was 85% of HRmax (220–age), with pulse monitored by Polar testers throughout the activity • Concluding part (10-minute) involving application of muscle stretching, respiratory, and relaxation exercises, taking into account lymphoedema prophylaxis Adherence: Not reported 15 participants assigned to control: • Control group comprised 15 women not participating in any rehabilitation programme (no physical activity for the same duration).
Outcomes	Outcomes: • Biodex Multi-Joint 3 isokinetic dynamometer used to assess muscle strength bilaterally with the upper limb push-pull attachment of the Biodex (pushing motion consisting of shoulder flexion and elbow extension, and pulling motion consisting of shoulder extension and elbow flexion) • Upper extremities circumference (volume of lymphoedema) Time points of assessment: baseline, at 8 weeks Numbers of participants assessed: • Intervention: baseline, 23; at 8 weeks, 23 • Control: baseline, 15; at 8 weeks, 15 Adverse events: not reported
Notes	Trial registration link: none available Trial authors contacted: no Intention-to-treat analysis: yes, no missing data were reported Funding: none reported

Risk of bias

Bias	Authors' judgement	Support for judgement

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Malicka 2011 *(Continued)*

Random sequence generation (selection bias)	Unclear risk	"The participants were randomly assigned to one of two groups". No method stated
Allocation concealment (selection bias)	Unclear risk	Whether treatment assignment was concealed from study personnel and participants was not described.
Blinding of participants and personnel (performance bias) All outcomes	High risk	Owing to the nature of the intervention, it was not possible to conceal allocation to the intervention from participants.
Blinding of outcome assessment (detection bias) All outcomes	Unclear risk	Blinding of outcome assessments was not described.
Incomplete outcome data (attrition bias) All outcomes	Low risk	No missing data (no dropouts) are apparent.
Selective reporting (reporting bias)	Low risk	No selective reporting of outcomes is apparent.
Other bias	Low risk	Trial appears to be free of other problems that could put it at high risk of bias.

Martin 2013

Methods	Study design: single-centre RCT Number randomised: 26; 8 to MVe Fitness Chair, 8 to traditional resistance training, 10 to control (no exercise) Study start: not reported but participants enrolled from January to December 2009; stop date: not reported Length of intervention: 8 weeks Length of follow-up: to end of intervention Country: Australia
Participants	Age, years (mean SD): • MVe Fitness Chair: 44.6 (8.0) • Resistance training: 47.8 (11.5) • Control: 49.5 (14.5) Stage, n (%): • All 26 participants given diagnosis of stage I, II, or III breast cancer Inclusion criteria: • Female • Age 29 to 69 years • Diagnosis of stage I, II, or III breast cancer and completion of all treatments within 6 months

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Martin 2013 *(Continued)*

	• Consent from oncologist to participate • Underwent strict health screening Exclusion criteria: • Cardiorespiratory disease; bone, joint, or muscle pain or abnormalities that would compromise the participant's ability to complete the exercise training protocol • Already enrolled in a formal exercise programme
Interventions	16 participants assigned to 1 of 2 exercise interventions: • Target of 3 days of 50-minute sessions consisted of MVe Fitness Chair (n = 8) or traditional resistance training (n = 8). • Both interventions are described as resistance training: MVe Fitness Chair (single leg pump, mermaid, front leg pump, calf raises, 2-arm pump, and pelvic lift), traditional resistance training (crunches, oblique crunches, ball squats, calf raises, chest press, bridge). • The 2 protocols matched in volume of work and sequence of muscles exercised. For both interventions, exercise sessions started with 15 minutes of aerobic exercise at 65% to 75% heart rate reserve, using a treadmill, elliptical, or stationary cycle, followed by 5 minutes of total body stretching, then 25 minutes of resistance training. After performing resistance exercises, participants cooled down and stretched for 5 minutes. • Intensity of resistance exercise was quantified on the RPE scale from 6 to 20. Week 1: RPE 9 to 10; weeks 2 to 3, RPE 10 to 11; weeks 4 to 6, RPE 12 to 13; weeks 7 to 8, RPE 13 to 14. Adherence: MVe Fitness Chair group had a mean adherence rate of 83.3%. Resistance training group had an average adherence rate of 81.2%. 10 participants assigned to control: • Control group was asked to not exercise.
Outcomes	Outcomes: • Muscular endurance evaluated by combined repetitions on a standardised push-up test, a partial curl-up test, and the Dynamic Muscular Endurance Test Battery for Cancer Patients of Various Ages. This protocol provides a table, divided into age groups, which shows what percentage of body weight participants should lift for each exercise. Exercises consisted of single-arm dumbbell biceps curls on each arm, lateral pull-downs on a cable machine, seated machine leg extensions, and prone machine hamstring curls via resistance training machines (Magnum Fitness Retro Series Machine, South Milwaukee, WI). Participants performed repetitions at 60 beats per minute to a metronome until they could not keep up with the rhythm, could not perform any more repetitions, or chose to stop. Summed total repetitions performed on push-ups, partial curl-ups, both biceps curls, lateral pull-downs, leg extension, and hamstring curls created a composite score used in analysis of muscular endurance. Other outcomes: • Narrative feedback Numbers of participants assessed: • Intervention: baseline, 8; post intervention, 8 • Control: baseline, 10; post intervention, 10 Adverse events: not reported
Notes	Trial registration link: none available Trial authors contacted: no

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Martin 2013 *(Continued)*

Intention-to-treat analysis: yes, no missing data were reported

Funding: Peak Pilates donated the MVe Fitness Chairs used in this study to the Get REAL & HEEL Breast Cancer Rehabilitation Program. No other financial support was received for this project.

Risk of bias

Bias	Authors' judgement	Support for judgement
Random sequence generation (selection bias)	Low risk	"Simple randomization with replacement"
Allocation concealment (selection bias)	Unclear risk	Not described
Blinding of participants and personnel (performance bias) All outcomes	High risk	Owing to the nature of the intervention, it was not possible to conceal allocation to the intervention from participants.
Blinding of outcome assessment (detection bias) All outcomes	Unclear risk	Blinding of outcome assessments was not described.
Incomplete outcome data (attrition bias) All outcomes	Low risk	No data were missing.
Selective reporting (reporting bias)	High risk	Oxygen saturation was not reported. Composite score for all tests was reported. Data for individual tests were not provided.
Other bias	Low risk	Trial appears to be free of other problems that could put it at high risk of bias.

Matthews 2007

Methods	Study design: single-centre RCT Number randomised: 36; 23 to intervention, 13 to wait-list control Study start: not reported; stop date: not reported Length of intervention: 12 weeks Length of follow-up: to end of intervention Country: USA
Participants	Age, years (mean SD): • Intervention: 51.3 (9) • Control: 56.9 (12.3) Stage, n (%): • Intervention: stage I, 13 (59); stage II/III, 4 (18); not available, 5 (23) • Control: stage I, 9 (64); stage II/III, 3 (21); not available, 2 (14) Inclusion criteria:

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Matthews 2007 *(Continued)*

	• Diagnosis of stage I–III cancer • Completed adjuvant treatment in the past 12 months • Postmenopausal • Free of cardiovascular disease and major orthopaedic limitations • Not currently exercising on a regular basis (≥ 5 days/week) Exclusion criteria: • None reported
Interventions	22 participants assigned to exercise intervention: • Brief home-based intervention consisted of a single in-person counselling visit (30 minutes) followed by up to 5 short telephone counselling calls during weeks 1, 2, 4, 7, and 10 calls after randomisation (10 to 15 minutes/call). • Home-based intervention primarily sought to increase walking, consisting of walking at a moderate-intensity (RPE 11 to 13) from 3 to 5 sessions per week (weeks 1 to 4, 3/week; weeks 5 to 7, 4/week; weeks 8 to 12, 5/week) of 20 to 40 minutes (weeks 1 to 4, 20 to 30 minutes/session; weeks 5 to 12, 30 to 40 minutes/session6) over 12 weeks. Adherence: • Average adherence over 12 weeks to walking goals of the intervention as reported in monthly walking logs was 94% (SD 0.48); average walking time reported in the walking logs was 147 minutes/week. 14 participants assigned to control: • Control participants were asked to maintain their current (baseline) activity levels over the course of the study. They were provided no materials or advice about exercise. No efforts were made after randomisation to stop women in this condition from initiating or increasing their activity levels on their own. • Women in the control condition received baseline intervention counselling and materials (e.g. pedometer) upon completion of the study and were offered the opportunity to receive as much telephone counselling as they wanted after this.
Outcomes	Outcomes: • Physical activity assessed by both CHAMPS and, in a subsample (n = 23), the Manufacturing Technology Actigraph • Body weight and BMI • Body composition measured for descriptive purposes by 2 methods: bioelectrical impedance analysis in 13 participants, and DEXA in the other 23 participants Time points of assessment: baseline, 6 weeks, and 12 weeks. For body composition-dependent variables: baseline and 12 weeks Numbers of participants assessed: • Intervention: baseline, 22; at 6 weeks, not reported; at 12 weeks, not reported • Control: baseline, 14; at 6 weeks, not reported; at 12 weeks, not reported Adverse events: not reported
Notes	Trial registration link: none available Trial authors contacted: no Intention-to-treat analysis: yes, but LOCF used

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Matthews 2007 *(Continued)*

	Funding: Vanderbilt-Ingram Cancer Center, South Carolina Cancer Center, and Vanderbilt General Clinical Research Center

Risk of bias

Bias	Authors' judgement	Support for judgement
Random sequence generation (selection bias)	Unclear risk	Generation of the random sequence was not described; "participants were randomly assigned 2:1 to an exercise intervention group or control group".
Allocation concealment (selection bias)	Unclear risk	Whether treatment assignment was concealed from study personnel and participants was not described.
Blinding of participants and personnel (performance bias) All outcomes	High risk	Owing to the nature of the intervention, it was not possible to conceal allocation to the intervention from participants.
Blinding of outcome assessment (detection bias) All outcomes	Unclear risk	Blinding of outcome assessments was not described.
Incomplete outcome data (attrition bias) All outcomes	High risk	ITT analyses based on the last observation carried forward method; missing data not reported
Selective reporting (reporting bias)	Low risk	No selective reporting of outcomes is apparent.
Other bias	Unclear risk	Some participants were contacted via a list of participants from a breast cancer case-control study. Therefore, these women may have been particularly motivated to adopt the walking programme.

McKenzie 2003

Methods	Study design: single-centre RCT Number randomised: 14; 7 to exercise intervention, 7 to control Study start: not reported; stop date: not reported Length of intervention: 8 weeks Length of follow-up: to end of intervention Country: Canada
Participants	Age, years (mean SD): • Intervention: 56.4 (10.4) • Control: 56.9 (8.2) Stage, n (%): • Stage I-II Inclusion criteria:

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McKenzie 2003 *(Continued)*

	• Underwent breast cancer treatment for stage I or II breast cancer that had been completed more than 6 months before enrolling in the study • Subsequently developed unilateral lymphoedema > 2 cm and < 8 cm for at least 1 measurement point Exclusion criteria: • Stage III lymphoedema, bilateral disease • Required medication that might affect upper extremity swelling
Interventions	7 participants assigned to exercise intervention: • Three days per week of resistance training included specific exercises, beginning with a light weight and progressing as tolerated by each participant. Strength exercises prescribed were seated row, bench press, latissimus dorsi pull-down, 1 arm bent-over rowing, triceps extension, and biceps curl. Two sets of 10 repetitions for each exercise were done for the first week; 3 sets of 10 were done thereafter. Training sessions consisted of a 5- to 7-minute period of aerobic warm-up such as cycling or walking, 5 minutes of stretching, the strength training programme, and a cool-down period. • After 2 weeks, upper body aerobic exercise with an arm cycle ergometer was added to the programme. Participants exercised under supervision. After a programme that began with five 1-minute bouts of cycling at resistance of 8.3 W, the programme progressed to 20 minutes of continuous cycling with resistance up to 25 W. Adherence: Not reported 7 participants assigned to control: • Control participants were given no specific exercise instruction until after they completed the study, at which time they had the option of being taught the exercise programme.
Outcomes	Outcomes: • Arm circumference and volume measurements • HRQoL via the MOS SF-36 Numbers of participants assessed: • Intervention: baseline, 7; at week 8, 7 • Control: baseline, 7, 7; at week 8, 7 Adverse events: not reported
Notes	Trial registration link: none available Trial authors contacted: Trial authors were contacted for means and SDs for outcomes. However, they did not provide these data. Intention-to-treat analysis: yes, no missing data were reported Funding: not reported

Risk of bias

Bias	Authors' judgement	Support for judgement
Random sequence generation (selection bias)	Unclear risk	“randomly assigned”, but method not mentioned

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McKenzie 2003 *(Continued)*

Allocation concealment (selection bias)	Unclear risk	Whether treatment assignment was concealed from study personnel and participants was not described.
Blinding of participants and personnel (performance bias) All outcomes	High risk	Owing to the nature of the intervention, it was not possible to conceal allocation to the intervention from participants.
Blinding of outcome assessment (detection bias) All outcomes	Unclear risk	No mention of whether study personnel and outcome assessors were masked or blinded to study interventions
Incomplete outcome data (attrition bias) All outcomes	Low risk	No missing data
Selective reporting (reporting bias)	Low risk	No selective reporting of outcomes is apparent.
Other bias	Low risk	Trial appears to be free of other problems that could put it at high risk of bias.

Mehnert 2011

Methods	Study design: single-centre RCT Number randomised: 63; 35 to intervention, 28 to control Study start: not reported; stop date: not reported Length of intervention: 10 weeks Length of follow-up: to end of intervention Country: Germany
Participants	Age, years (mean SD): • Intervention: 53.03 (7.40) • Control: 50.64 (9.44) Stage, n (%): • Intervention: stage I, 17 (56.7); stage IIA, 8 (26.7); stage IIB, 3 (10.0); stage IIIA, 1 (3.3); stage IIIB, 1 (3.3) • Control: stage I, 13 (46.4); stage IIA, 7 (25.0); stage IIB, 5 (17.9); stage IIIA, 3 (10.7); stage IIIB, 0 (0) Inclusion criteria: • 18 to 65 years old • Primary non-metastatic breast cancer • Minimum 4 weeks after completion of chemotherapy, radiation therapy, or both • Any disorder that could interfere with ability to perform the physical exercise programme Exclusion criteria: • Severe acute or chronic illness other than cancer (e.g. disorders of the musculoskeletal system)
Interventions	35 participants assigned to exercise intervention:

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Mehnert 2011 *(Continued)*

- Gymnastics, movement games, and relaxation
- Moderate walking and jogging conducted outside
- Exercise performed twice weekly for 90-minute duration at an intensity of 60% VO_2max, over 10 weeks
- Although 35 women were assigned to the exercise intervention, 5 women refused to participate before baseline assessment.

Adherence:

Not reported

28 participants assigned to control:

- Usual care

Outcomes	Outcomes: • Anxiety and depression measured with HADS • Cancer-specific QoL measured by EORTC-QLQ-C30 • Generic QoL measured via MOS SF-36 • Psychological symptoms measured with SCL-90R • Body image assessed via a German version of the Body Image Questionnaire (BIQ) Numbers of participants assessed, anxiety and depression: • Intervention: anxiety and depression: baseline, 30; at 10 weeks, 30. Individual body image: baseline, 27; at 10 weeks, 27. Social body image: baseline, 30; at 10 weeks, 27 • Control: anxiety and depression: baseline, 28; at 10 weeks, 28. Individual body image: baseline, 27; at 10 weeks, 27. Social body image: baseline, 27; at 10 weeks, 27 Numbers of individuals with data for cancer-specific HRQoL, generic HRQoL, and psychological symptoms were not reported. Adverse events: not reported
Notes	Trial registration link: none available Trial authors contacted: no Intention-to-treat analysis: unclear how missing data were handled Funding: Friedrich and Louise Homann Foundation, Hamburg, Germany

Risk of bias

Bias	Authors' judgement	Support for judgement
Random sequence generation (selection bias)	Unclear risk	It is unclear how the allocation sequence was generated.
Allocation concealment (selection bias)	Low risk	Randomisation was adequately concealed through external randomisation.
Blinding of participants and personnel (performance bias) All outcomes	High risk	Owing to the nature of the intervention, it was not possible to conceal allocation to the intervention from participants.
Blinding of outcome assessment (detection bias) All outcomes	High risk	Study personnel and outcome assessors were not masked or blinded to study interventions.

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Mehnert 2011 *(Continued)*

Incomplete outcome data (attrition bias) All outcomes	Unclear risk	It is unclear how missing data were handled. Five randomised participants were reported to have "cancelled" participation in the exercise group.
Selective reporting (reporting bias)	Low risk	No selective reporting of outcomes is apparent.
Other bias	High risk	Participation in physical exercise by women (91%) in study groups before the intervention was commenced could have contributed to bias.

Milne 2008

Methods	Study design: single-centre RCT (12-week study included here) Number randomised: 58; 29 to immediate exercise intervention, 29 to delayed exercise intervention Study start: January 2005; stop date: recruitment ended March 2005 Length of intervention: 12 weeks Length of follow-up: to end of intervention Country: Australia
Participants	Age, years (mean SD): • Intervention: 55.2 (8.4) • Control: 55.1 (8.0) Stage, n (%): • Intervention: stage I, 6 (20.7); stage IIA, 14 (48.3); stage IIB, 9 (31.0); stage IIA, 0 (0.0) • Control: stage I, 9 (31.0); stage IIA, 11 (37.9); stage IIB, 7 (24.1); stage IIIA, 2 (6.9) Inclusion criteria: • Women with stage I–II breast cancer • ≥ 18 years old • English speaking • Within 24 months of cancer diagnosis • Completed all treatments except hormone therapy Exclusion criteria: • Evidence of recurrent disease • Previously engaged in any formal exercise programme for 6 months before participation in this study • Failed the revised Physical Activity Readiness Questionnaire • Evidence of recurrent disease
Interventions	29 participants assigned to exercise intervention: • Aerobic training (cycle and rowing ergometers, mini-trampoline, and step-up blocks) and resistance training (12 different exercises, including chest press, chest extension, biceps curls, triceps extension,

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Milne 2008 *(Continued)*

	leg extension, leg curls, hip abduction and adduction, back extension, abdominal crunches, standing flies, and leg press) 3 times per week for 1 hour per session over 12 weeks • Cardiovascular component was conducted for 20 minutes and ended with a 5-minute cool-down period, whereas for the resistance exercise component, participants performed 2 sets of 10 to 15 repetitions of light weights and progressed to a heavier weight once current weight and repetitions could be achieved and with good form. Participants performed 5 minutes of stretching at the beginning and end of each session. Adherence: • Average intervention attendance was 60.4% (21.7 of 36 sessions) with a median of 23 (63.9%) and a range of 11 to 36. 29 participants assigned to control: • Control group was asked not to participate in exercise during weeks 1 to 12 and received telephone calls at weeks 3, 6, 9, and 12.
Outcomes	Primary outcome: • QoL outcomes based on FACT-B scale Other outcomes: • Fatigue measured on the Schwartz Cancer Fatigue Scale • Social physique anxiety measured by the Social Physique Anxiety Scale-7 (SPAS-7) • Physical fitness assessed by submaximal fitness tests performed before and after exercise training. Aerobic fitness was measured by the Aerobic Power Index (API) cycle test. • Strength was measured by recording the weight used during performance of specific exercises (i.e. biceps curls, leg presses, and chest extensions). • The Behavioral Regulation for Exercise Questionnaire-2 (BREQ-2) was developed to provide a measure that assessed the self-determination continuum in exercise. BREQ-2 subscale items were as follows: amotivation, intrinsic motivation, identified regulation, introjected regulation, and extrinsic motivation. Responses to each question were scored on a 5-point Likert scale (0 to 4) indicating how true each item was for the individual, from not at all to very true. BREQ-2 total score was established by calculating the sum of each subscale score. • Basic Psychological Needs Satisfaction Scale (BPNS) was used to measure autonomy, competence, and relatedness. The BPNS is a revised version of the 21-item Basic Need Satisfaction at Work Scale, which was used to assess the extent to which employees experienced satisfaction of their 3 basic needs—autonomy (7 items), competence (6 items), and relatedness (8 items)—at their job. Numbers of participants assessed: • Intervention: baseline, 29; at 6 weeks, 29; at 12 weeks, 28 • Control: baseline, 29; at 6 weeks, 29; at 12 weeks, 28 Adverse events: none reported
Notes	Trial registration link: none available Trial authors contacted: no Intention-to-treat analysis: yes, but LOCF was used Funding: CCS and NCIC/CCS Sociobehavioral Cancer Research Network

Risk of bias

Bias	Authors' judgement	Support for judgement

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Milne 2008 *(Continued)*

Random sequence generation (selection bias)	Low risk	Randomisation by computer-generated programme
Allocation concealment (selection bias)	Low risk	"Group assignments were concealed from the project director who recruited participants to the trial".
Blinding of participants and personnel (performance bias) All outcomes	High risk	Owing to the nature of the intervention, it was not possible to conceal allocation to the intervention from participants.
Blinding of outcome assessment (detection bias) All outcomes	High risk	Study personnel and outcome assessors were not masked or blinded to study interventions.
Incomplete outcome data (attrition bias) All outcomes	Low risk	Minimal loss to follow-up
Selective reporting (reporting bias)	Low risk	No selective reporting of outcomes is apparent.
Other bias	High risk	Intervention adherence rate was low (61.3%).

Murtezani 2014

Methods	Study design: single-centre RCT Number randomised: 73; 37 to intervention, 36 to control Study start: not reported; stop date: not reported Length of intervention: 10 weeks Length of follow-up: to end of intervention Country: Kosovo
Participants	Characteristics data based on 62 participants (30 in exercise group, 32 in control group) Age, years (mean SD): • Intervention: 53 (11) • Control: 51 (11) Stage, n (%): • Intervention: stage I, 10 (33); stage IIa, 11 (37); stage IIb, 6 (20); stage IIIa, 3 (10) • Control: stage I, 15 (47); stage IIa, 8 (25); stage IIb, 7 (22); stage IIIa, 2 (6) Inclusion criteria: • Histologically confirmed early-stage breast cancer with no evidence of recurrent or progressive disease • Completed surgery, radiotherapy, and/or chemotherapy with or without current hormone therapy Exclusion criteria:

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Murtezani 2014 *(Continued)*

	• Known cardiac disease • Uncontrolled hypertension • Thyroid disease, respiratory disease, diabetes, mental illness, infection, immune or endocrine abnormality
Interventions	37 participants assigned to exercise intervention: • Women assigned to the intervention group attended a supervised group exercise programme, 3 times per week for 10 weeks. The exercise programme was divided into a warm-up period, followed by moderate-intensity aerobic exercises (50% to 75% age predicted HRmax), finishing with a cool-down period. • Warm-up period consisted of 5 minutes of cycling. Core portion consisted of aerobic exercise programme performed on treadmills, stationary bicycles, and stair-climbing machines. Duration of aerobic exercise was initially 15 minutes, and session was divided equally among the 3 exercise modalities (treadmills, stationary bicycles, and stair-climbing machines). Sessions ended with 5 minutes of cool-down exercises consisting of slow walking. Aerobic exercise period was increased by 2 minutes a week, such that this period lasted 35 minutes during week 10. Adherence: Exercise adherence was 84.9%. 36 participants assigned to control: • Control group was told to maintain sedentary lifestyle for 10 weeks.
Outcomes	Primary outcome: • Cardiorespiratory fitness via a 12-minute walk test Other outcomes: • Mass and BMI • QoL via FACT-B Numbers of participants assessed: • Intervention: baseline, 37; at 10 weeks, 30 • Control: baseline, 36; at 10 weeks, 32 Adverse events: Three participants developed lymphoedema.
Notes	Trial registration link: none available Trial authors contacted: no Intention-to-treat analysis: no Funding: none

Risk of bias

Bias	Authors' judgement	Support for judgement
Random sequence generation (selection bias)	Low risk	"computer-generated random allocation sequences"
Allocation concealment (selection bias)	Low risk	"sequences that were prepared centrally by the trial statistician"

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Murtezani 2014 *(Continued)*

Blinding of participants and personnel (performance bias) All outcomes	High risk	Owing to the nature of the intervention, it was not possible to conceal allocation to the intervention from participants.
Blinding of outcome assessment (detection bias) All outcomes	Low risk	The assessor was blinded with regard to allocation of participants to treatment groups.
Incomplete outcome data (attrition bias) All outcomes	High risk	"The data analyses included only those participants who had completed the 10 week interventional period".
Selective reporting (reporting bias)	Low risk	No selective reporting of outcomes is apparent.
Other bias	High risk	Inappropriate statistical analysis was performed (independent t-tests done on change values).

Musanti 2012

Methods	Study design: single-centre RCT Number randomised: 55; 12 to aerobic exercise intervention, 17 to resistance exercise intervention, 13 to combined aerobic and resistance exercise intervention, 13 to flexibility control Study start: October 2004; stop date: March 2006 Length of intervention: 12 weeks Length of follow-up: to end of intervention Country: USA
Participants	Age, years (mean SD): • Aerobic intervention: 51 (5.5) • Resistance intervention: 52 (8.9) • Aerobic and resistance intervention: 48 (6.7) • Flexibility control: 52 (7.9) Stage, n (%): • Aerobic intervention: stage I, 5 (42); stage II, 5 (42); stage III, 2 (16) • Resistance intervention: stage I, 5 (29); stage II, 10 (59); stage III, 2 (12) • Aerobic and resistance intervention: stage I, 7 (54); stage II, 6 (46); stage III, 0 (0) • Flexibility control: stage I, 8 (62); stage II, 3 (23); stage III, 2 (15) Inclusion criteria: • English-speaking women • Stage I–IIIB breast cancer after completion of adjuvant chemotherapy at least 3 months or radiation therapy at least 6 weeks before entry • No more than 24 months beyond their last treatment • Hormonal therapy could be ongoing.

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Musanti 2012 *(Continued)*

	Exclusion criteria: • Medical history or physical examination revealed evidence of anaemia (haemoglobin <10 mg/dL), uncontrolled hypertension, congestive heart failure, pulmonary disease, diabetes, and thyroid or musculoskeletal disease • Current enrolment in a weight loss or exercise programme • Positive response to any question on the Physical Activity Readiness Questionnaire, thus indicating the need for medical clearance before starting an exercise programme
Interventions	42 participants assigned to aerobic, resistance, or aerobic plus resistance exercise interventions: • Aerobic exercise: walking at 40% to 65% HRmax, progressing to 85% HRmax for 15 minutes, progressing to 30 minutes • Resistance exercise performed at an intensity of RPE (0 to 10) 3 to 5 progressing to 7 to 8 • Aerobic exercise was performed 3 times per week; resistance exercise was performed 3 times per week; in resistance plus aerobic group, aerobic exercise was performed 4 to 5 times per week and resistance was performed 2 times per week. • All participants in intervention groups were prescribed flexibility exercise as part of the warm-up routine. • In-person verbal instruction plus demonstration was used to teach participants how to do their assigned exercises. • Each participant received a written guidebook that included general information about exercise participation, such as clothing and safety tips, as well as an individualised exercise prescription, exercise instructions, and an exercise log sheet. Adherence: • Aerobic intervention: mean compliance percentage, 107% • Resistance intervention: mean compliance percentage, 91% • Aerobic and resistance intervention: mean compliance percentage, 101% • Flexibility control: mean compliance percentage, 82% 13 participants assigned to flexibility control: • Flexibility control group consisted of a minimum of 60 sessions in total.
Outcomes	Outcomes: • Cardiorespiratory fitness via Bruce protocol • Muscular strength assessed by 6-repetition maximum chest press, seated row, and leg press • Muscular endurance assessed by YMCA bench press and curl-up test • Flexibility measures of hip flexion, hip backward extension, shoulder flexion, shoulder posterior elevation, and shoulder abduction made with a goniometer • Mass, arm and waist circumferences, and body composition via BIA • Physical Self-Perception Profile and RSE Scale used as esteem measures • Anxiety and depression assessed via HADS • Physical activity via Godin Leisure Time Questionnaire at baseline only • Resting heart rate and blood pressure Numbers of participants assessed: • Aerobic intervention: baseline, 12; at 12 weeks, 10 • Resistance intervention: baseline, 17; at 12 weeks, 9 • Aerobic and resistance intervention: baseline, 13; at 12 weeks, 11 • Control: baseline, 13; at 12 weeks, 12

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Musanti 2012 *(Continued)*

	Five women returned the survey data form but refused final fitness testing because of time constraints related to work and family obligations; therefore, fitness test participant number was 37. Adverse events: tendinitis (n = 2): 1 in the shoulder, the other in the foot
Notes	Trial registration link: none available Trial authors contacted: no Intention-to-treat analysis: yes Funding: award from the Greater NYC Affiliate of the Susan G. Komen Breast Cancer Foundation, Inc., New York, NY

Risk of bias

Bias	Authors' judgement	Support for judgement
Random sequence generation (selection bias)	Low risk	“computer-generated randomization table generated”
Allocation concealment (selection bias)	Low risk	“Allocation to study group was made….by the statistical department of the cancer centre and maintained by office staff in the clinical research office".
Blinding of participants and personnel (performance bias) All outcomes	High risk	Owing to the nature of the intervention, it was not possible to conceal allocation to the intervention from participants.
Blinding of outcome assessment (detection bias) All outcomes	Low risk	Physical fitness tests: “The same research assistant, blinded to participant group allocation, preformed these measurements at the pre-intervention and post-intervention measurement time points”.
Incomplete outcome data (attrition bias) All outcomes	Low risk	“Missing data were random and were handled using multiple imputations”. Reasons for withdrawal were given.
Selective reporting (reporting bias)	High risk	Not all physical fitness test outcomes were reported.
Other bias	High risk	Small sample size was further impacted by high rate of withdrawal (24%).

Mustian 2004

Methods	Study design: single-centre RCT Number randomised: 31; 17 to Tai Chi Chuan intervention, 14 to control Study start: not reported; stop date: not reported Length of intervention: 12 weeks Length of follow-up: to end of intervention Country: USA
Participants	Age, years (mean SD): • 52 (9); range 33 to 78

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Mustian 2004 *(Continued)*

	Stage: • Stage 0-IIIB (stage data not reported) Inclusion criteria: • Female • Histological diagnosis of primary breast cancer stage 0–IIIB • Between 1 week and 30 months after treatment • No drainage tubes or catheters • Not engaging in moderate-to-vigorous physical activity more than once a week • Physician's clearance for fitness testing and exercise • No physical limitations prohibiting exercise • No clinical diagnosis of mental disorder, as defined by use of psychotropic drugs and self-report Exclusion criteria: • None reported
Interventions	17 participants assigned to exercise intervention, including Tai Chi Chuan (TCC): • 10 minutes of warm-up stretching and basic Chi Kung (stationary TCC fundamentals) • TCC 3 times per week. Each session consisted of approximately 40 minutes of TCC, and participants learned a 15-move short form of Yang style TCC. • During the last 10 minutes of each session, participants were instructed in regulatory breathing, imagery, and meditation to enhance TCC skills and provide an exercise cool-down. • Participants were instructed not to begin any other physical exercise programmes and not to change their normal daily physical activity during the course of the study. Adherence: • Intervention: 72% exercise rate with 100% compliance • Control: 67% attendance rate with 100% compliance 14 participants assigned to psychosocial support: • Supportive-expressive group therapy model conducted in an open-ended format that placed strong emphasis on teaching behavioural coping strategies and providing peer support and group cohesion • Participants instructed not to begin any physical exercise programmes and not to change their normal daily physical activity in any way for the duration of the study
Outcomes	Primary outcomes: • FACT-F, 28-question survey: scale from 0 to 4 • Self-esteem assessed by RSE Scale: scoring: 1 = strongly agree, 5 = strongly disagree • Aerobic capacity, estimated by a 6-minute walk test protocol Secondary outcomes: • Muscular strength evaluated with a handgrip dynamometer to assess maximal voluntary grip strength • Flexibility assessed via goniometer measurements • Body composition calculated by bioelectrical impedance analysis

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Mustian 2004 *(Continued)*

- Blood markers:
  * Serum concentrations of insulin measured by radioimmunoassay assay
  * IGF-I, IGFBP-1, and IGFBP-3 measured by immunoradiometric assay
  * Serum cytokines (IL-2, IL-6, and IFN-γ) measured by OPTEIA ELISA kits
  * Serum NTx levels determined with an enzyme-linked immunosorbent assay and a specific monoclonal antibody for NTx (osteomark serum NTx)
  * Serum BSAP levels determined by a chemiluminescent immunoassay
  * To measure the balance between bone formation and bone resorption, trial authors used the formula proposed by Eastell et al to calculate a bone remodelling index (BRI). A positive number for the BRI indicates a net bone gain; a negative number indicates a net bone loss.

Numbers of participants assessed:

- Intervention: baseline, 17; at 6 weeks, 11; at 12 weeks, 11
- Control: baseline, 14; at 6 weeks, 10; at 12 weeks, 10

16 participants had evaluable blood samples before and after the intervention for bone-biomarker tests. 19 participants gave evaluable blood samples for IGF-1, IGFBP-1, IGFBP-3, and IL-6; 18 and 16 blood samples were evaluable for IL-2 and 16 for IFN-γ, respectively.

Adverse events: no cancer recurrence reported; cognitive deficits reported as reason for treatment termination

Notes	Trial registration link: none available Trial authors contacted: no Intention-to-treat analysis: no Funding: Susan Stout Exercise Science Research Fund, Sally Schindel Cone Women's and Gender Studies Research Fund

Risk of bias

Bias	Authors' judgement	Support for judgement
Random sequence generation (selection bias)	Low risk	"Randomization was achieved by flipping a coin".
Allocation concealment (selection bias)	High risk	Allocation was not concealed from study personnel.
Blinding of participants and personnel (performance bias) All outcomes	High risk	Owing to the nature of the intervention, it was not possible to conceal allocation to the intervention from participants.
Blinding of outcome assessment (detection bias) All outcomes	High risk	Study personnel and outcome assessors were not masked or blinded to study interventions.
Incomplete outcome data (attrition bias) All outcomes	High risk	Withdrawals were not included in analyses (intervention, n = 6; control, n = 4).
Selective reporting (reporting bias)	Low risk	No selective reporting of outcomes is apparent.
Other bias	Low risk	Trial appears to be free of other problems that could put it at high risk of bias.

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Naumann 2012

Methods	Study design: quasi-RCT Number randomised: 46; 11 to psychological counselling only, 12 to exercise only, 12 to combined exercise and psychological counselling, 11 to usual care Study start: not stated; stop date: not stated Length of intervention: 8 weeks Length of follow-up: to end of intervention Country: Australia
Participants	Age, years (mean SD): • Counselling: 55.1 (7.5) • Exercise: 49.0 (10.0) • Exercise and counselling: 49.0 (8.2) • Control: 51.8 (11.5) Stage, n (%): • Stage I–III invasive breast cancer Inclusion criteria: • Female with confirmed stage I–III invasive breast cancer within 12 months of treatment completion (except hormone therapy) • Aged 35 to 70 years • Sufficiently fluent in English • Either not participating in structured regular exercise or nutrition programmes in the past 6 months or currently not meeting American College of Sports Medicine guidelines for adequate physical activity (> 150 minutes/week) Exclusion criteria: • Acute or chronic bone, joint, or muscular abnormalities that would compromise ability to participate in exercise • Immune deficiency that would compromise ability to participate in exercise • Failure of Physical Activity Readiness Questionnaire • Presence of metastatic disease
Interventions	24 participants assigned to 1 of 2 exercise interventions: • Participants in the exercise group received 8 weeks of individualised exercise training, 3 times per week, for 45 to 60 minutes. The target goal for each participant was 150 minutes per week of moderate-intensity physical activity, which met American College of Sports Medicine guidelines. Each exercise programme was individualised according to baseline health and fitness levels and personal goals. Each session included cardiovascular training, strength training, patient-specific rehabilitation, core training, and flexibility. • Participants in counselling-only and combined exercise and counselling groups underwent psychological counselling by meeting with an accredited counsellor for a 1-hour session once a week for 8 weeks. Counsellors employed a client-centred therapy approach based on the individual needs of each participant, whereby they facilitated disclosure of feelings and anxieties, clarified issues, and provided reassurance and support for the women as required.

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Naumann 2012 *(Continued)*

	Adherence: Participants completed an average of 84% of all scheduled exercise sessions and 87% of all scheduled counselling sessions, with no significant differences among groups. 11 participants assigned to control: • Usual care
Outcomes	Outcomes: • Quality of life via FACT-B • Fatigue via PFS • Depression via BDI • Mass and BMI • Body composition via a 7-site skinfold measurement (triceps, chest, subscapular, midaxilla, abdomen, suprailiac, and thigh) • Cardiorespiratory endurance assessed by the Modified Bruce Treadmill Protocol • YMCA bench press test utilised to estimate upper body muscular strength • 1RM leg press test utilised to assess lower body dynamic strength, with a seated leg press set at a 45-degree angle Numbers of participants assessed: • Counselling: baseline, 11; at 8 weeks, 10 • Exercise: baseline, 12, at 8 weeks, 11 • Exercise and counselling: baseline, 12; at 8 weeks, 12 • Control: baseline, 11; at 8 weeks, 10 Adverse events: No adverse reactions to participation in exercise or counselling intervention were reported.
Notes	Trial registration link: none available Trial authors contacted: no Intention-to-treat analysis: yes Funding: Foggarty grant and Health Benefits Funds, through the University of Notre Dame Australia

Risk of bias

Bias	Authors' judgement	Support for judgement
Random sequence generation (selection bias)	High risk	“randomized to each group on a rolling enrolment basis”
Allocation concealment (selection bias)	High risk	Rolling enrolment was used; therefore, allocation was not concealed.
Blinding of participants and personnel (performance bias) All outcomes	High risk	Owing to the nature of the intervention, it was not possible to conceal allocation to the intervention from participants.
Blinding of outcome assessment (detection bias) All outcomes	Unclear risk	Blinding of outcome assessments was not described.

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Naumann 2012 *(Continued)*

Incomplete outcome data (attrition bias) All outcomes	Low risk	Baseline data for the 3 women who dropped out after randomisation were included in the intention-to-treat analysis.
Selective reporting (reporting bias)	Low risk	No selective reporting of outcomes is apparent.
Other bias	Low risk	Trial appears to be free of other problems that could put it at high risk of bias.

Nieman 1995

Methods	Study design: single-centre RCT Number randomised: 16; 8 to exercise intervention, 8 to control Study start: not reported; stop date: not reported Length of intervention: 8 weeks Length of follow-up: to end of intervention Country: USA
Participants	Age, years (mean SE): • Intervention: 60.8 (4.0) • Control: 51.2 (4.7) Stage: • Not reported Inclusion criteria: • All patients had been diagnosed with breast cancer • Had undergone surgery, adjuvant chemotherapy, and/or radiotherapy • Not currently receiving chemotherapy or radiation treatment Exclusion criteria: • None reported
Interventions	8 participants assigned to exercise intervention: • 3 sessions per week for 60 minutes consisting of weight training and walking, over 8 weeks • Weight training consisting of 7 different resistance exercises for 2 sets of 12 repetitions (30 minutes) • Walking on an indoor track for 30 minutes at a heart rate of 138 ± 13 bpm (about 75% heart rate max) Adherence: • Average attendance 87% (range, 72% to 100%) 8 participants assigned to control: • Sedentary control
Outcomes	Outcomes: • Symptom-limited exercise testing on a treadmill

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Nieman 1995 *(Continued)*

- Leg extension strength testing on a Kin Com computerised testing station
- Cardiorespiratory fitness assessed by a 6-minute walking test
- Venous blood collection for assessment of natural killer cell cytotoxic activity by chromium release assay and concentration of circulating immune cells, including per cent total natural killer and T-cell subsets

Numbers of participants assessed:

- Intervention: baseline, 8; at 8 weeks, 6
- Control: baseline, 8; at 8 weeks, 6

Adverse events: 2 recurrences of disease

Notes	Trial registration link: none available Trial authors contacted: no Intention-to-treat analysis: no Funding: supported in part by a grant from the National Institute of Aging

Risk of bias

Bias	Authors' judgement	Support for judgement
Random sequence generation (selection bias)	Unclear risk	Generation of the random sequence was not described.
Allocation concealment (selection bias)	Unclear risk	Whether treatment assignment was concealed from study personnel and participants was not described.
Blinding of participants and personnel (performance bias) All outcomes	High risk	Owing to the nature of the intervention, it was not possible to conceal allocation to the intervention from participants.
Blinding of outcome assessment (detection bias) All outcomes	Unclear risk	Blinding of outcome assessments was not described.
Incomplete outcome data (attrition bias) All outcomes	High risk	Analysis was performed only on participants who completed the intervention.
Selective reporting (reporting bias)	Low risk	No selective reporting of outcomes is apparent.
Other bias	High risk	Potential imbalances at baseline; "larger than expected baseline differences in these variables and others including NKCA"

Nikander 2007

Methods	Study design: RCT Number randomised: 29; 15 to intervention, 14 to control Study start: not reported; stop date: not reported

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Nikander 2007 *(Continued)*

	Length of intervention: 12 weeks Length of follow-up: to end of 12-week intervention Country: Finland
Participants	Age, years (mean SD): • Intervention: 52.5 (6.4) • Control: 51.3 (7.3) Stage: • Intervention: not reported • Control: not reported Inclusion criteria: • Histologically proven invasive breast cancer • Adjuvant chemotherapy within 6 months • Duration of endocrine therapy no longer than 6 months • Aged from 35 to 65 Exclusion criteria: • Haematogenous metastases • No systemic adjuvant therapy • Pregnancy or lactation • Severe cardiac disease (NYHA class III or higher) • Myocardial infarction within 12 months • Uncontrolled hypertension • Verified osteoporosis • Other serious illness or medical condition that could be a contraindication for exercise • Not capable of training (severe knee arthrosis, ligament or cartilage injury at lower extremity) • Residence more than 1 hour from the exercise centre • Competitive athlete
Interventions	15 participants assigned to exercise intervention: • During alternate weeks, the effective part of guided training was based on step aerobics or circuit training. In total, the 12-week planned 3-weekly exercise programme was intended to consist of 1 weekly guided training session and at least 2 home training sessions (intensity of exercise: first 2 weeks, intensity of training was moderate (RPE = 11); intensity was increased gradually from moderate to somewhat hard or hard levels (RPE = 14 to 16) during 12-week exercise period). • Step aerobics consisted of several typical step movements resulting in a total of 150 to 180 jumps and leaps to diverging directions during each session. • Circuit training consisted of 3 rounds of 8 to 10 different vigorous movements such as rope-jumping and skate-jumping, resulting in a total of 100 to 150 jumps and leaps during each session. • The home training session consisted of about 100 leaps and jumps similar to those employed in the circuit training programme. In addition, endurance training (walking, cycling, swimming, etc.) per-

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Nikander 2007 *(Continued)*

formed at the same RPE was recommended to complement the home training session in terms of total duration.

- Each session was performed for 50 to 60 minutes (10-minute warm-up, 30- to 40-minute main session, 10-minute cool-down).

Adherence:

- "Ignoring three participants (2 withdrawals and 1 participant who attended only three guided sessions), the adherence to the weekly-supervised training sessions was 78%". The most common reasons for not attending the session included a holiday trip or flu. Home training was performed 2.1 times per week on average. The mean duration of home training sessions was 21 minutes.

14 participants assigned to control:

- Control group was advised to continue normal daily routines and activities during the 12-week follow-up period.

Outcomes	Outcomes: • Figure-8 running (a measure of dynamic agility) • Counter movement jump (a measure of dynamic muscle performance) measured with a force-plate • Maximal isometric muscle force of leg extension and elbow flexion tests assessed by an isometric leg press and an arm dynamometer • Cardiorespiratory fitness assessed via a 2-km walking test • Weight and BMI Numbers of participants assessed: • Intervention: baseline, 14; at 12 weeks, 14 • Control: baseline, 14; at 12 weeks, 14 "One participant withdrew from the study before randomization due to family reasons". Adverse events: not reported
Notes	Trial registration link: none available Trial authors contacted: no Intention-to-treat analysis: no, but minimal loss to follow-up Funding: Support from The Finnish Cancer Foundation, Pirkanmaa Cancer Society Finland, and AstraZeneca Finland is greatly appreciated.

Risk of bias

Bias	Authors' judgement	Support for judgement
Random sequence generation (selection bias)	Unclear risk	Generation of the random sequence was not described.
Allocation concealment (selection bias)	Unclear risk	Whether treatment assignment was concealed from study personnel and participants was not described.
Blinding of participants and personnel (performance bias) All outcomes	High risk	Owing to the nature of the intervention, it was not possible to conceal allocation to the intervention from participants.
Blinding of outcome assessment (detection bias)	Unclear risk	Blinding of outcome assessments was not described.

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Nikander 2007 *(Continued)*

All outcomes		
Incomplete outcome data (attrition bias) All outcomes	Low risk	Loss to follow-up was minimal. An ITT approach was stated but not described. One participant withdrew from each group after baseline assessments were taken, but these participants were not included in ITT analysis.
Selective reporting (reporting bias)	Low risk	No selective reporting of outcomes is apparent.
Other bias	Low risk	Trial appears to be free of other problems that could put it at high risk of bias.

Payne 2008

Methods	Study design: single-centre RCT Number randomised: 20; 10 to intervention, 10 to control Study start and stop dates: 9-month period but dates not reported Length of intervention: 14 weeks Length of follow-up: to end of intervention Country: USA
Participants	Age, years (mean SD): • 64.7 (6.3) Stage: • Intervention: not reported • Control: not reported Inclusion criteria: • Postmenopausal women with diagnosis of breast cancer who were receiving hormonal therapy with tamoxifen, anastrozole, or letrozole (the 3 most frequently prescribed hormonal medications during the period of recruitment and study enrolment) • Aged 55 years and older and with complaints of fatigue • Karnofsky Performance Scale score ≥ 80 • English speaking • No documented history of neurological deficits or mental illness such as psychotic depression in the past year • No neuromuscular deficits that would contraindicate a walking exercise intervention Exclusion criteria: • None reported
Interventions	10 participants assigned to exercise intervention: • Four weekly 20-minute home-based walking sessions with pedometers over 14 weeks Adherence:

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Payne 2008 *(Continued)*

	• 9 out of 10 women completed the study; adherence data on numbers of sessions completed were not specified: "the authors were unable to verify actual adherence to study parameters, such as the number of times per week that subjects actually completed the 20-minute walk". 10 participants assigned to control: • Usual care
Outcomes	Outcomes: • Fatigue measured using Revised PFS • Sleep disturbance measured by PSQI • depressive symptoms measured via CES-D • Blood biomarkers including cortisol, serotonin, IL-6, bilirubin markers Numbers of participants assessed: • Intervention: baseline, 10; at 12 weeks and at 14 weeks, 9 • Control: baseline, 10; at 12 weeks, 9; at 14 weeks, 9 Adverse events: not reported
Notes	Trial registration link: none available Trial authors contacted: Trial authors were contacted for means and SDs for outcomes. Trial authors did provide some additional data, but not for all requested outcomes. Intention-to-treat analysis: unclear, no description of how missing data were handled Funding: NIH/National Institute of Nursing Research

Risk of bias

Bias	Authors' judgement	Support for judgement
Random sequence generation (selection bias)	Unclear risk	Generation of allocation sequence was not described.
Allocation concealment (selection bias)	Unclear risk	Whether treatment assignment was concealed from study personnel and participants was not described.
Blinding of participants and personnel (performance bias) All outcomes	High risk	Owing to the nature of the intervention, it was not possible to conceal allocation to the intervention from participants.
Blinding of outcome assessment (detection bias) All outcomes	High risk	Study personnel and outcome assessors were not masked or blinded to study interventions.
Incomplete outcome data (attrition bias) All outcomes	Unclear risk	Trial authors did not describe how missing data were handled. Participants in each group withdrew from the study.
Selective reporting (reporting bias)	Low risk	No selective reporting of outcomes is apparent.
Other bias	Unclear risk	Characteristics of participants in each group were not well described; therefore, it was difficult to assess whether groups were similar at baseline.

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Peppone 2015

Methods	Study design: multi-centre RCT Number randomised: 167; 75 to Yoga intervention, 92 to control Study start: 2007; stop date: 2012 Length of intervention: 4 weeks Length of follow-up: to end of intervention Country: USA
Participants	Age, years (mean SE): • Intervention: 55.1 (1.24) • Control: 53.2 (0.86) Stage, n (%): • Intervention: stage 0-I, 32 (44.4); stage II, 30 (41.7); stage III, 10 (13.9) • Control: stage I, 48 (53.9); stage II 31 (34.8); stage III, 10 (11.2) Inclusion criteria: • Enrolled between 2 and 24 months post surgery, chemotherapy, and/or radiation therapy. For the original study, eligible survivors were required to: • Have a confirmed diagnosis of cancer • Have undergone and completed standard treatment for cancer • Have sleep disturbance (indicated by a response ≥ 3 on a clinical symptom inventory using an 11-point scale anchored by ‘‘0’’ = no sleep disturbance and ‘‘10’’ = worst possible sleep disturbance) • Be able to read English • Be 21 years of age or older • Be able to give written informed consent • Not have maintained a regular personal practice of yoga within the 3 months before enrolling in the study, or be planning to start yoga on their own during the time they are enrolled in the study • Not have a confirmed diagnosis of sleep apnoea • Not be receiving any form of treatment for cancer, with the exception of hormonal or monoclonal antibody therapy • Not have metastatic cancer Exclusion criteria: • Not reported
Interventions	75 participants assigned to exercise intervention: • YOCAS (Yoga intervention based on gentle Hatha and restorative yoga) twice a week for 4 weeks. Each session had a duration of 75 minutes and was performed in groups. Adherence: Not reported

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Peppone 2015 *(Continued)*

	92 participants assigned to control: • Wait-list standard care control; participants were offered YOCAS training after completing study requirements. During the control period, they received the same attention (as the intervention group) from staff, apart from YOCAS training. Participants were asked not to start a new yoga or exercise regimen on their own during this 4-week period to avoid exercise contamination.
Outcomes	Outcomes: Musculoskeletal symptoms assessed via selected extracted questions from the following validated questionnaires: • University of Rochester Cancer Center Symptom Inventory (URCC SI) • FACIT-F • MFSI-Short Form Numbers of participants assessed: • Intervention: baseline, 72; at 4 weeks, 72 • Control: baseline, 92; at 4 weeks, 92 Adverse events: not reported
Notes	Trial registration link: https://clinicaltrials.gov/ct2/show/NCT00397930 Trial authors contacted: Trial authors were contacted for means and SDs for outcomes. However, they did not provide these data. Intention-to-treat analysis: yes, no missing data were reported Funding: NCI and the Office of Cancer Complementary and Alternative Medicine

Risk of bias

Bias	Authors' judgement	Support for judgement
Random sequence generation (selection bias)	Low risk	"Group assignment was determined by a computer-generated random numbers table in blocks of two and an allocation ratio of 1:1".
Allocation concealment (selection bias)	Unclear risk	Whether allocation was concealed was not reported.
Blinding of participants and personnel (performance bias) All outcomes	High risk	Owing to the nature of the intervention, it was not possible to conceal allocation to the intervention from participants.
Blinding of outcome assessment (detection bias) All outcomes	Unclear risk	It was not mentioned whether study personnel and outcome assessors were masked or blinded to study interventions.
Incomplete outcome data (attrition bias) All outcomes	Low risk	No missing data were reported; "all data were analysed using the intent-to-treat principle".
Selective reporting (reporting bias)	Low risk	No selective reporting of outcomes is apparent.
Other bias	High risk	This study consisted of a secondary analysis from the original study; "the original RCT was designed to test the effect of yoga on sleep quality in all cancer survivors. There was no a priori aim in the study to examine the effect of yoga

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Peppone 2015 *(Continued)*

	on musculoskeletal symptoms in breast cancer survivors on endocrine therapy".

Pinto 2003

Methods	Study design: single-centre RCT Number randomised: 24; 12 to intervention, 12 to control Study start: not reported; stop date: not reported Length of intervention: 12 weeks Length of follow-up: to end of intervention Country: USA
Participants	Age, years (mean SD): • 52.5 (6.8) Stage, n (%): • Stage 0, 2 (9); stage I, 18 (78); stage II, 3 (13) Inclusion criteria: • Sedentary women (exercised < 3 times per week for 20 minutes per session) • Received diagnosis of breast cancer (stage 0, I, or II) over the past 3 years • Postsurgery patients who had completed chemotherapy or radiation treatment Exclusion criteria: • Medical or current psychiatric illness that would make compliance with the study protocol difficult or dangerous (e.g. coronary artery disease, hypertension, diabetes) • Orthopaedic problems or neuropathies that would limit exercise training • Medications that would alter training responses (e.g. beta-blockers) or affect distress outcomes (e.g. antidepressants)
Interventions	12 participants assigned to exercise intervention: • Following exercise tolerance test, the supervised exercise intervention group was taught basic exercise principles and techniques (e.g. stretching techniques, warm-up/cool-down). • Exercise session developed into 10 minutes of warm-up (cardiovascular and flexibility), 10 minutes of cool-down (cardiovascular and flexibility), and 30 minutes of cardiovascular activity in one's target heart rate zone (60% to 70% of peak heart rate by the end of the 12-week intervention). • Cardiovascular activities included treadmill walking, arm and leg ergometers, arm cycling, stationary cycling, and rowing. Participants used at least 3 modes of physical activity per session that would ensure at least 1 cardiovascular arm activity. • During the last month, participants performed strength training with light weights (1- to 5-lb handheld weights) for the triceps, biceps, pectoral muscles, shoulders, and upper back, and stomach crunches; these muscle endurance exercises were offered to improve upper body endurance. The total duration of sessions was 50 minutes. Also, participants were given instructions for exercising at home and were encouraged to start to exercise on their own at least once a week. Adherence:

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Pinto 2003 *(Continued)*

- Three participants withdrew; the remaining 9 participants completed 88% of the 36 sessions.

12 participants assigned to control:

- Wait-list control group
- Asked not to change current level of physical activity for 12 weeks
- On completion of assessments, participants were offered the exercise programme free of charge

Outcomes	Outcomes: • Peak workload, exercise time, blood pressure, heart rate, and rate pressure product were assessed during a peak graded exercise stress test on a cycle ergometer (post-test included only exercise group participants). • POMS, a 65-item questionnaire, measures a variety of mood states including anger, tension/anxiety, depression, vigour, fatigue, confusion, and total mood disturbance; vigour and total mood score were used as primary outcomes in this study. Response options are presented on a scale of 0 to 4 (0 = not at all, 4 = extremely). • BES, a 35-item scale, assesses a participant's evaluation of sexual attractiveness, weight concerns, and physical condition with 3 subscales, on which higher scores indicate higher esteem. • Positive and Negative Affect Scale (PANAS) was used to assess the participant's positive and negative affect. Each of the 20 items on the PANAS required a response to "how you are feeling at the moment?" on a 1 to 5 Likert scale (1 = very slightly, 5 = extremely). Numbers of participants assessed: • Intervention: baseline, 12; after intervention, 9 • Control: baseline, 12; after intervention, 6 Nine participants in the intervention group completed exercise stress tests post intervention; 3 participants in this group withdrew but provided postintervention questionnaire data. Adverse events: not reported
Notes	Trial registration link: none available Trial authors contacted: no Intention-to-treat analysis: no Funding: National Institute of Mental Health

Risk of bias

Bias	Authors' judgement	Support for judgement
Random sequence generation (selection bias)	Unclear risk	Generation of the random sequence was not described.
Allocation concealment (selection bias)	Unclear risk	Whether treatment assignment was concealed from study personnel and participants was not described.
Blinding of participants and personnel (performance bias) All outcomes	High risk	Owing to the nature of the intervention, it was not possible to conceal allocation to the intervention from participants.
Blinding of outcome assessment (detection bias) All outcomes	High risk	Study personnel and outcome assessors were not masked or blinded to study interventions.

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Pinto 2003 *(Continued)*

Incomplete outcome data (attrition bias) All outcomes	High risk	Postintervention exercise stress test and weight data were unavailable for the control group, and postintervention mood and self-esteem data were available for only half of the control group. Six (50%) control participants were not included in the analyses.
Selective reporting (reporting bias)	Low risk	No selective reporting of outcomes is apparent.
Other bias	High risk	Small sample size was further hampered by a high dropout rate, particularly in the control group (50%).

Pinto 2005

Methods	Study design: RCT Number randomised: 86; 43 to intervention, 43 to control Study start: not reported; stop date: not reported Length of intervention: 12 weeks Length of follow-up: at 12 weeks, and at 6 months and 9 months post baseline Country: USA
Participants	Age, years (mean SD): • Intervention: 53.4 (9.1) • Control: 52.9 (10.4) Stage, n (%): • Intervention: stage 0, 8 (18.6); stage I, 17 (39.5); stage II, 18 (41.9) • Control: stage 0, 6 (14.0%); stage I, 15 (34.9); stage II, 22 (51.2) Inclusion criteria: • Age ≥ 18 years • Currently sedentary (exercised < 1 time per week for 20 minutes at vigorous intensity or < 2 times per week for 30 minutes at moderate intensity for the past 6 months) • Received diagnosis of stage 0 to II breast cancer over the last 5 years and completed surgery, chemotherapy, and/or radiation • Ambulatory (able to walk a mile without assistive devices) • Willing to be randomised Exclusion criteria: • Prior history of cancer (exception: non-melanoma skin cancer) • Medical or current psychiatric illness that could make compliance with the study protocol difficult or dangerous (e.g. cardiovascular disease, diabetes, orthopaedic problems that limit exercise training)
Interventions	43 participants assigned to exercise intervention: • Instructions were provided on how to exercise at a moderate intensity level (activities at 55% to 65% HRmax), how to monitor heart rate, and how to warm up before exercise and cool down after exercise.

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Pinto 2005 *(Continued)*

- The programme promoted activities such as brisk walking, biking, swimming, and use of home exercise equipment. For the first few weeks, participants exercised at least 2 days per week; this increased over the 12 weeks to at least 5 days per week. The duration of individual sessions for the first few weeks was at least 10 minutes; this increased over the 12 weeks to at least 30 minutes.
- Participants received weekly physical activity counselling via telephone. This group also received mailed weekly tip sheets on physical activity and cancer survivorship.
- After completing end-of-intervention assessments, participants received monthly calls for 3 months to prompt and reinforce regular physical activity. These monthly calls stopped after 3 months; at that time, participants were asked to try to maintain regular physical activity.

Adherence:

- Participants wore a pedometer at week 1, and participants reported an average of 43.12 (SD 44.32) minutes of exercise per week; at week 12, they reported a mean of 128.53 (SD 76.82) minutes/week of exercise.
- Average percentage adhering to target physical activity in intervention group over the course of 12-week intervention was 40.7%.

43 participants assigned to control:

- No change in current level of physical activity for 12 weeks
- Phone calls from research staff
- Cancer survivor tip worksheet

Outcomes	Outcomes: • Objective physical activity monitored by a Caltrac accelerometer • Self-reported physical activity assessed by 7-DPAR via a standardised self-report interview • Rockport 1-mile walk test with measurement of time taken to walk 1 mile • Mood states including anger, tension/anxiety, depression, vigour, fatigue, confusion, and total mood disturbance; vigour and total mood score - primary outcomes in this study - assessed by POMS, a 65-item questionnaire • Level of fatigue assessed by asking participants to place a vertical mark on a 10-cm linear analogue scale. This scale was scored by measuring the distance in millimetres from the left anchor (i.e. “0”) to the vertical mark. Higher scores represent greater fatigue. • Participant's evaluation of sexual attractiveness, weight concerns, and physical condition assessed by BES, a 35-item scale with 3 subscales, on which higher scores indicate higher esteem. • Individual’s motivational readiness for physical activity assessed by Stage of Motivational Readiness for physical activity. • Exercise self-efficacy assessed on a 5-item measure that determines confidence in one’s ability to engage in regular exercise in specific situations. • Decisional balance for exercise assessed by a 16-item questionnaire that comprised items reflecting positive (Pro) and negative (Con) aspects of exercise adoption. Numbers of participants assessed: • Intervention: baseline, 43; after intervention, 39 • Control: baseline, 43; after intervention, 43 Adverse events: not reported
Notes	Trial registration link: none available Trial authors contacted: no Intention-to-treat analysis: yes, but used LOCF Funding: National Cancer Institute grant

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Pinto 2005 *(Continued)*

Risk of bias

Bias	Authors' judgement	Support for judgement
Random sequence generation (selection bias)	Unclear risk	Generation of the random sequence was not described.
Allocation concealment (selection bias)	Unclear risk	Whether treatment assignment was concealed from study personnel and participants was not described.
Blinding of participants and personnel (performance bias) All outcomes	High risk	Owing to the nature of the intervention, it was not possible to conceal allocation to the intervention from participants.
Blinding of outcome assessment (detection bias) All outcomes	High risk	Study personnel and outcome assessors were not masked or blinded to study interventions.
Incomplete outcome data (attrition bias) All outcomes	High risk	LOCF approach was used. Four participants withdrew from the exercise group before the end of the 12-week intervention. Two participants withdrew from the control group before the 6-month assessment, and another 2 participants withdrew from the control group before the 9-month assessment. Reasons for control group withdrawals were not given.
Selective reporting (reporting bias)	Low risk	No selective reporting of outcomes is apparent.
Other bias	High risk	Adherence to physical activity was low (40.7%).

Pinto 2015

Methods	Study design: multi-centre RCT Number randomised: 76; 39 to intervention, 37 to control Study start: January 2010; stop date: April 2012 Length of intervention: 12 weeks Length of follow-up: at 24 weeks Country: USA
Participants	Age, years (mean SD): • Intervention: 55.64 (8.59) • Control: 55.59 (10.59) Stage, n (%): • Intervention: stage 0, 3 (7.69); stage I, 16 (41.03); stage II, 16 (41.03); stage III, 4 (10.26) • Control: stage 0, 2 (5.41); stage I, 13 (35.14); stage II, 18 (48.65); stage III, 4 (10.81) Inclusion criteria: • Aged ≥ 21 years with diagnosis of stage 0–III breast cancer in the past 5 years

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Pinto 2015 *(Continued)*

	• Completed surgery (patients receiving ongoing chemotherapy (most had completed), radiation, or hormone treatment were eligible) • Ability to read and speak English • Ability to walk a half-mile without stopping • Sedentary: < 30 minutes/week of vigorous physical activity or < 90 minutes/week of moderate-intensity physical activity for the past 6 months • Access to a telephone and willingness to receive calls Exclusion criteria: • Medical or psychiatric problems (e.g. myocardial infarction, orthopaedic problems) that might interfere with protocol adherence
Interventions	39 participants assigned to physical activity intervention: • Intervention consisted of telephone-delivered counselling tailored to participants' motivational readiness. Participants also received a pedometer (Digiwalker) and a heart rate monitor with instructions to use these during physical activity. Participants were instructed on maintaining physical activity logs (type of moderate-vigorous physical activity, duration, heart rate, rate of perceived exertion, and pedometer steps) to facilitate self-monitoring. • During weekly calls, coaches were asked to build a supportive relationship with participants while assessing their motivational readiness, monitoring activity, identifying and solving problem barriers to activity, and identifying health concerns. • Overall goal was to encourage participants to gradually increase the amount of moderate-vigorous physical activity (e.g. brisk walking) over 12 weeks to recommended goal of ≥ 30 minutes of moderate-intensity physical activity on most days of the week. • Participants also received the reach-to-recovery (RTR) programme, whereby coaches responded to questions that participants asked about breast cancer and its treatment and provided informational and emotional support. Adherence: At 12 weeks, weekly moderate-vigorous physical activity participation in the intervention group averaged 130 minutes, and at week 24, 98 minutes. 37 participants assigned to control: • Control group was provided Reach-to-Recovery informational booklets, and coaches provided information and support for participants' questions and concerns about breast cancer. During weekly calls, coaches also administered a Weekly Symptom Questionnaire that assessed problems such as headaches. Participants were asked not to join a structured programme of MVPA during the 12-week intervention phase. After completing assessments at 24 weeks, they were provided the same physical activity tip sheets as were sent to the physical activity Plus RTR group.
Outcomes	Primary outcome: • Moderate-vigorous physical activity assessed via the 7-DPAR, which was interviewer-administered Other outcomes: • HRQoL via the MOS SF-36, which assesses 8 health concepts (e.g. physical functioning, bodily pain) • HRQoL also assessed via FACT-B • Physical and functional effects of fatigue assessed via FACIT-F. In this 13-item scale, scores range from 6 (high fatigue) to 52 (low fatigue). Numbers of participants assessed: • Intervention: baseline, 39; at 12 weeks, 36; at 24 weeks, 36 • Control: baseline, 37; at 12 weeks, 32; at 24 weeks, 31

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Pinto 2015 *(Continued)*

	Adverse events: not reported
Notes	Trial registration link: https://clinicaltrials.gov/ct2/show/NCT00948701 Trial authors contacted: no Intention-to-treat analysis: yes Funding: grant from the National Cancer Institute (R01CA132854) to the first trial author

Risk of bias

Bias	Authors' judgement	Support for judgement
Random sequence generation (selection bias)	Unclear risk	"Seventy six breast cancer survivors were randomized to PA Plus RTR or RTR Control".
Allocation concealment (selection bias)	Unclear risk	Whether treatment assignment was concealed from study personnel and participants was not described.
Blinding of participants and personnel (performance bias) All outcomes	High risk	Owing to the nature of the intervention, it was not possible to conceal allocation to the intervention from participants.
Blinding of outcome assessment (detection bias) All outcomes	Low risk	“A research assistant (blind to the participant’s group assignment) was responsible for collecting all data by mail or by telephone”.
Incomplete outcome data (attrition bias) All outcomes	Low risk	“Generalized linear models take a likelihood-based approach to estimation and thus make use of all available data without directly imputing missing values”.
Selective reporting (reporting bias)	Low risk	No selective reporting of outcomes is apparent.
Other bias	Low risk	Trial appears to be free of other problems that could put it at high risk of bias.

Portela 2008

Methods	Study design: single-centre RCT Number randomised: 44; 16 to gym-exercise, 19 to home-exercise, 9 to no-exercise control Study start: recruitment began 2004; stop date: recruitment ended 2007 Length of intervention: 26 weeks Length of follow-up: to end of intervention Country: Puerto Rico
Participants	Data available on the 34 participants who completed postintervention testing: Age, years (mean SD): • Gym-based exercise: 49.8 (6.9) • Home-based exercise: 51.2 (7.3) • Control: 59.6 (16.7)

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Portela 2008 *(Continued)*

Stage, n (%):

- Gym-based exercise: stage I, 0 (0); stage II, 3 (25); stage III, 6 (50); stage IV, 0 (0); missing, 3 (25)
- Home-based exercise: stage I, 3 (23); stage II, 5 (38); stage III, 2 (15); stage IV, 0 (0); missing, 3 (23)
- Control: stage I, 2 (22); stage II, 2 (22); stage III, 1 (11); stage IV, 1 (11); missing, 3 (33)

Inclusion criteria:

• Women with new diagnosis of unilateral breast cancer who had received surgical treatment for breast cancer in the past 5 years, with or without adjuvant therapy

Exclusion criteria:

• Unstable cardiac disease

• Coagulopathies

• Active psychiatric conditions

• Metastasis

• Haemoglobin level < 8.0 g/dL

• Absolute neutrophil count < 0.5 × 1000/mL

• Platelet count < 50 × 1000/mL

• Ataxia, dizziness, or peripheral sensory neuropathy

• Loss of more than 35% of premorbid weight

• Dyspnoea

• Bone pain

• Severe nausea, extreme fatigue, and extreme muscle weakness.

Exclusion criteria are considered contraindications to moderate-intensity exercise programme following cancer diagnosis.

Interventions	35 participants assigned to 1 of 2 exercise interventions: • Gym-exercise group, in which staff met with participants once a week for exercise supervision and progression. The gym had qualified personnel who were present to assist participants during their exercise routine. • Home-exercise group, in which participants met with staff once a week, for the first 3 weeks. Thereafter, they met once a month to monitor and progress the exercise programme, in terms of walking and resistance intensity. A weekly telephone call was made by the program co-ordinator. • Both groups performed 2 resistance training sessions and 3 aerobic training sessions per week. The aerobic exercise mode was walking (30 minutes per session) for both groups. For the gym-exercise group, resistance exercises targeted muscle groups of the chest, back, upper extremities, abdomen, and lower extremities. Weight training exercises were performed mainly with weight training machines, and when participants experienced difficulty with the machines, free weights were used. The resistance exercise component for the home group was provided via elastic bands (Theraband) and consisted of exercises targeting the chest, back, upper extremities, abdomen, and lower extremities muscle groups. • Intensity of exercise: Gym-exercise group, aerobic: walking at 60% to 80% HRmax (220-age); resistance, 2 to 3 sets of 10 to 15 reps at 13 to 15 RPE (on 6 to 20 scale). Home-exercise group, aerobic: walking at 12 to 16 RPE (6 to 20 scale); resistance, 2 to 3 sets of 10 to 15 reps at 13 to 15 RPE (on 6 to 20 scale). Adherence: • Gym-based exercise: Participation in aerobic sessions ranged from 19 to 54 (a mean of 37 sessions), for a percentage of participation ranging from 24% to 69%. Participation in strengthening sessions

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Portela 2008 *(Continued)*

ranged from 12 to 46 (a mean of 33 sessions), for a percentage of participation ranging from 23% to 88%.

- Home-based exercise: Endurance participation ranged from 27 to 69 sessions completed (a mean of 55 sessions); percentage of participation ranged from 35% to 88%.
- Participation in strengthening sessions ranged from 18 to 57 (a mean of 45 sessions); percentage of participation ranged from 35% to over 100%.

9 participants assigned to control:

- The control group continued receiving usual care provided by their physicians. At the end of their participation in the study, control group participants were offered an orientation session on the benefits of participating in an exercise programme, along with exercise brochures for home exercises and elastic bands.

Outcomes	Outcome: • 12-Minute walk test used to assess cardiorespiratory fitness • Handgrip strength examined with a handheld dynamometer. Participants were evaluated in a seated position, with the arm resting at the side and the elbow flexed at 90° and the forearm in mid-position between pronation and supination. • BMI measured as an outcome • Spanish version of FACT-B also administered to assess quality of life • Function measured via the DASH questionnaire • Shoulder flexion, abduction, and external rotation examined through goniometry • Volumetric measurements collected to monitor the development of lymphoedema with a volumetric oedema gauge; water displacement volumetry included to provide an estimate of volume of the upper extremity; volumetric measurements of the entire arm collected with the participant in a seated position Numbers of participants assessed: • Gym-based exercise: baseline, 16; at 13 weeks and post intervention, 12 • Home-based exercise: baseline, 19; at 13 weeks and post intervention, 13 • Control: baseline, 9; at 13 weeks and post intervention, 9 Adverse events: • None of the women had lymphoedema before enrolment in the study, and no participant developed it during the course of the study. One participant developed an asthma episode during the 12-minute walk test at baseline evaluation. • Another participant had an episode of hypoglycaemia while at the gym during an exercise session in the morning - the result of skipping breakfast. • Three participants presented high blood pressure (above 140/90 mmHg) during their participation in the exercise programmes. • One participant from the gym-exercise group complained of severe headache at the second evaluation session, after 3 months of participating in the programme without any symptoms. • One participant from the gym-exercise group complained of severe headache at the second evaluation session, after 3 months of participating in the programme without any symptoms. • A participant in the gym-exercise group complained of foot pain before beginning participation in the exercise programme. After the first exercise session, she commented on increased pain, underwent foot surgery recommended by her podiatrist, and decided not to continue in the study.
Notes	Trial registration link: none available Trial authors contacted: no Intention-to-treat analysis: no

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Portela 2008 *(Continued)*

	Funding: grant number 5P20RR011126 from the National Center for Research Resources, a component of the National Institutes of Health

Risk of bias

Bias	Authors' judgement	Support for judgement
Random sequence generation (selection bias)	Low risk	Randomisation of participants was performed by a computer-generated scheme developed with the Statistical Analysis System.
Allocation concealment (selection bias)	Unclear risk	Whether allocation was concealed is unclear.
Blinding of participants and personnel (performance bias) All outcomes	High risk	Owing to the nature of the intervention, it was not possible to conceal allocation to the intervention from participants.
Blinding of outcome assessment (detection bias) All outcomes	Low risk	"One physical therapist, blinded to group assignment, evaluated the participants in this study. Participants were instructed not to discuss their exercise programs or group assignment with the evaluator".
Incomplete outcome data (attrition bias) All outcomes	High risk	Pre-post-test analysis was performed only on those who completed all assessments. No information regarding handling of missing data was provided.
Selective reporting (reporting bias)	Low risk	No selective reporting of outcomes is apparent.
Other bias	Low risk	Trial appears to be free of other problems that could put it at high risk of bias.

Rahnama 2010

Methods	Study design: single-centre RCT Number randomised: 32; intervention, not specified; control, not specified Study start: not reported; stop date: not reported Length of intervention: 15 weeks Length of follow-up: to end of intervention Country: Iran
Participants	Age, years: • 50 to 65 Stage: stage I-IIIB Inclusion criteria: • 50 to 65 years old • Women who received surgery, chemotherapy, and radiotherapy and currently were taking hormone therapy • Stage I-IIIB

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Rahnama 2010 *(Continued)*

	• No specific illness in the past 6 months • No experience of a menstrual cycle • No participation in exercise training or physical activity in the past 6 months • No change in body weight during this period (last 6 months) as great as 10% of their whole body weight Exclusion criteria: • None reported
Interventions	The number of participants assigned to the exercise intervention was not specified: • Participants took part in supervised walking programme 2 times per week at 45% maximum heart rate during weeks 1 to 5, 55% maximum heart rate during weeks 6 to 10, and 65% maximum heart rate during weeks 11 to 15. The duration of walking progressed from 25 minutes during weeks 1 to 5 to 35 minutes during weeks 6 to 10. • Resistance training (60 minutes per session) was performed on different days from walking and included 9 resistance training exercises performed on Cybex strength training equipment (Smith press squats, leg press, leg extension, seated leg curl, lat pull-downs) and with free weights (bench press, overhead press, biceps curls, and triceps kickbacks). Adherence: not reported Number of participants assigned to control not specified: • Control group participated in measurements only and were asked not to participate in any physical activity or exercise training. All participants were asked to avoid changes in dietary habits for weight loss purposes for the duration of the study.
Outcomes	Outcomes: • Weight, BMI, waist and hip circumferences • Blood pressure measured with a Japanese sphygmomanometer model ALPK2 in seated position • Resting heart rate measured each morning with the heart rate monitor belt • VO_2max assessed by modified Bruce protocol • Insulin measured by electrochemiluminescent immunoassay; glucose measured with a hexokinase ultraviolet assay; insulin resistance calculated by the HOMA; LDL-C and triglycerides measured enzymatically Numbers of participants assessed: • Intervention: baseline, not specified; at 15 weeks, 14 • Control: baseline, not specified; at 15 weeks, 15 Adverse events: not reported
Notes	Trial registration link: none available Trial authors contacted: no Intention-to-treat analysis: no Funding: none specified

Risk of bias

Bias	Authors' judgement	Support for judgement

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Rahnama 2010 *(Continued)*

Random sequence generation (selection bias)	Unclear risk	Generation of the random sequence was not described.
Allocation concealment (selection bias)	Unclear risk	Whether treatment assignment was concealed from study personnel and participants was not described.
Blinding of participants and personnel (performance bias) All outcomes	High risk	Owing to the nature of the intervention, it was not possible to conceal allocation to the intervention from participants.
Blinding of outcome assessment (detection bias) All outcomes	Low risk	"All the measurements were obtained twice and recorded by one staff that was blinded to subjects in pre- and post-tests".
Incomplete outcome data (attrition bias) All outcomes	High risk	Three participants withdrew during the study period; reasons for withdrawals were not reported. No intention-to-treat analysis was performed.
Selective reporting (reporting bias)	Low risk	No selective reporting of outcomes is apparent.
Other bias	Low risk	Trial appears to be free of other problems that could put it at high risk of bias.

Rogers 2009

Methods	Study design: single-centre RCT Number randomised: 41; 21 to intervention, 20 to control Study start: April 2006; stop date: July 2007 Length of intervention: 12 weeks Length of follow-up: immediately post intervention and at 3 months post intervention Country: USA
Participants	Age, years (mean SD): • Intervention: 52 (15) • Control: 52 (8) Stage, n (%): • Intervention: stage I, 6 (29); stage II, 11 (52); stage III, 4 (19) • Control: stage I, 6 (30); stage II, 10 (50); stage III, 4 (20) Inclusion criteria: • English-speaking female breast cancer survivors between the ages of 18 and 70 years with a diagnosis of stage I, II, or IIIA disease • Currently taking aromatase inhibitors or selective estrogenic receptor modulators and expected to remain on hormonal therapy for the duration of the study (i.e. ≥ 8 months) Exclusion criteria: • Diagnosis of dementia or organic brain syndrome

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Rogers 2009 *(Continued)*

	• Medical, psychological, or social characteristic that would interfere with ability to fully participate in programme activities and assessments (e.g. psychosis, schizophrenia) • Contraindication to participation in a regular physical activity programme (e.g. unstable angina, debilitating arthritis pain) • Breast cancer recurrence or metastatic disease; inability to ambulate; planning to relocate out of the study area during the 8-month study period • Engaged in > 60 minutes of vigorous physical activity or > 150 minutes of moderate plus vigorous activity per week during the past month (based on self-report)
Interventions	21 participants assigned to exercise intervention: • Behaviour change intervention with goal of gradually increasing all participants to 150 minutes of moderate walking per week • 6 discussion group sessions with a clinical psychologist who encouraged social support, provided breast cancer survivor exercise role models, and covered the following topics: journaling, time management, stress management, dealing with exercise barriers, and behaviour modification • 12 individual supervised exercise sessions • 3 individual ''face-to-face'' update counselling sessions with an exercise specialist that tapered to a home-based programme by the end of the intervention Adherence: • Intervention participants completed 100% (252/252) of individual exercise sessions, 95% (60/63) of individual update sessions, and 98% (123/126) of group sessions, for an overall 99% adherence to all possible intervention sessions (435/441). • Of 63 individual update sessions with exercise specialists, 4 (6%) were administered by telephone rather than face-to-face owing to logistical reasons and participant preference. 20 participants assigned to control: • Control group was provided written materials related to physical activity obtained from the American Cancer Society. These materials were considered ''usual care'' because of their availability to the general public. No specific instructions were given to the control group concerning physical activity behaviour change. Participants randomised to the control group were given the opportunity to receive the intervention at no charge once postintervention assessments were complete
Outcomes	Outcomes: • Physical activity assessed by GT1M accelerometer for 7 consecutive days. Outcomes included total activity counts, total steps, and minutes of light, moderate, hard, and very hard activity. • Leisure time activity assessed via the Godin Leisure-Time Exercise Questionnaire. Outcomes included were average weekly duration and frequency of light, moderate, and vigorous leisure time activity for the past month. Reported duration was multiplied by frequency to determine the minutes per week spent at each of the 3 intensity levels (light, moderate, and vigorous). • Physical activity stage of readiness (i.e. stage of change) before learning about the study and post intervention assessed on a previously validated scale • Submaximal treadmill test based on the Naughton protocol with the endpoint of 85% of predicted maximal heart rate used to determine fitness on the basis of a published regression equation estimating total oxygen cost of walking at the treadmill grade and speed achieved • Muscle strength assessed with a back/leg extensor dynamometer and handgrip dynamometer. The maximum reading (best of 3 efforts) provided the absolute strength measure in kilograms. • Anthropometric measures including BMI and waist and hip circumferences measured on a non-stretching tape measure, with the participant standing with abdomen relaxed and arms at sides. At each testing, 3 measurements were obtained and results averaged before calculation of the waist-to-hip ratio. • DEXA performed using a Lunar Prodig to determine percentage body fat and bone mineral density

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Rogers 2009 *(Continued)*

- Perceived health assessed by asking participants to rate their general health on a 5-point Likert scale from 1 = poor to 5 = excellent. Participants were asked to report the number of sick days missed from work in the past month by completing a single fill-in-the-blank question.
- Based on the sum of 5-point Likert scales, quality of life measured with the 37-item FACT-B
- 13-Item FACT-F, 19-item FACT - Endocrine Symptoms (FACT-ES), and 42-item FACT - Cognitive (FACT-Cog) used to assess fatigue, endocrine symptoms, and cognitive function, respectively
- Sleep dysfunction assessed via the PSQI with scoring according to the published protocol so that a higher score indicates greater sleep dysfunction (i.e. habitual sleep efficiency, sleep latency, sleep duration, subjective sleep quality, use of sleeping medication, daytime dysfunction, and global score). Owing to limited survey space, the sleep disturbances subscale was not included, requiring that the global score be obtained by obtaining the sum of 6 rather than the usual 7 domains.
- Joint pain, stiffness, and physical function assessed by the 5-point Likert scale version (i.e. 1 = none to 5 = extreme) of the 24-item WOMAC, a measure of lower extremity pain and function

Numbers of participants assessed:

- Intervention: baseline, 21; at 12 weeks, 20; at 6 months, 19
- Control: baseline, 20; at 12 weeks, 18 (19, DEXA); at 6 months, 17

Adverse events: No adverse events related to the intervention nor to other study procedures occurred. The following non-serious, non-related events were recorded: wheezing requiring physician valuation for asthma, cholinergic urticaria, herpes zoster, sinusitis, back pain related to falling, and elective cosmetic reconstructive surgery.

Notes	Trial registration link: none available Trial authors contacted: no Intention-to-treat analysis: no, but minimal loss to follow-up (n = 2) Funding: Southern Illinois University School of Medicine Excellence in Academic Medicine Award, Brooks Medical Research Fund, and Memorial Medical Center Foundation Regional Cancer Center

Risk of bias

Bias	Authors' judgement	Support for judgement
Random sequence generation (selection bias)	Low risk	Randomisation was computer generated.
Allocation concealment (selection bias)	Low risk	“Randomization was kept in sealed envelopes until randomization to prevent bias in group allocation by study personnel”.
Blinding of participants and personnel (performance bias) All outcomes	High risk	Owing to the nature of the intervention, it was not possible to conceal allocation to the intervention from participants.
Blinding of outcome assessment (detection bias) All outcomes	Unclear risk	It was not mentioned whether study personnel and outcome assessors were masked or blinded to study interventions.
Incomplete outcome data (attrition bias) All outcomes	Low risk	Loss to follow-up was minimal. Reasons for exclusions were presented.
Selective reporting (reporting bias)	Low risk	No selective reporting of outcomes is apparent.

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Rogers 2009 *(Continued)*

Other bias	Low risk	Trial appears to be free of other problems that could put it at high risk of bias.

Rogers 2013

Methods	Study design: single-centre RCT Number randomised, 28; 15 to intervention, 13 to control Study recruitment start: June 2008; recruitment stop date: April 2009 Length of intervention: 3 months Length of follow-up: to end of intervention Country: USA
Participants	Age, years (mean SD): • Intervention: 58.0 (6.1) • Control: 53.7 (13.9) Stage, n (%): • Intervention: stage I, 10 (67); stage II, 4 (27); stage III, 1 (7) • Control: stage I, 5 (39); stage II, 5 (39); stage III, 3 (23) Inclusion criteria: • Female • Stage I, II, IIIA breast cancer survivors between the ages of 18 and 70 years • Not currently receiving (and not planning to receive during the study duration) chemotherapy or radiation therapy • ≥ 8 weeks post surgery • English speaking • Medical clearance for participation provided by physician Exclusion criteria: • Dementia or organic brain syndrome • Medical, psychological, or social characteristics that would interfere with ability to fully participate in study activities (e.g. psychosis) • Contraindication to participate in a regular physical activity programme • Metastatic or recurrent disease • Inability to ambulate • Engaging in ≥ 60 weekly minutes of vigorous physical activity or ≥ 150 weekly minutes of moderate plus vigorous activity during the past month (based on self-report) • Anticipated elective surgery during the intervention that would interfere with participation (e.g. breast reconstructive surgery) • Did not live or work within 50 miles of study site

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Rogers 2013 *(Continued)*

Interventions	15 participants assigned to exercise intervention: • Behavioural change intervention towards increasing physical activity (150 minutes weekly) and resistance training (20 repetitions of 8 different exercises using major muscle groups) over 6 months. Participants were tapered from supervised sessions with an exercise specialist to non-supervised home-based exercise sessions within the first 6 weeks of the intervention. • Participants attended 6 group discussion sessions with a clinical psychologist during the first 9 weeks. They also met with exercise specialists for face-to-face updates of their physical activities every 2 weeks during the final 6 weeks of the intervention. Adherence: • The 14 participants completing the intervention attended 100% supervised exercise with exercise specialist (168/168), 100% of update sessions with exercise specialist (42/42), 73% of group sessions (61/84), and 87.5% of resistance exercise sessions (21/24). • Adherence to aerobic physical activity (based on accelerometer): Improvement was noted in weekly minutes of moderate-intensity physical activity for the intervention group vs the usual care group (i.e. 45.4 vs 37.7; mean between-group difference = 83.1; effect size (d) =.76; P = .097). At M3, the mean for moderate-intensity physical activity in the intervention group was 198.4 ± 111.7 minutes per week. • With regard to resistance training, the 12 participants in the intervention group providing M3 data completed 21 of 24 possible resistance exercise sessions over the 12-week period (87.5%) and reported a weekly average of 1.8 sessions per week. During the final 4 weeks of the intervention, intervention participants completed 5 of the 8 sessions (63%; weekly average = 1.3 sessions). 13 participants assigned to control: • Control group received written materials from the American Cancer Society, which included general information about physical activity and diet after cancer diagnosis but no specific recommendations regarding exercise behaviour. Participants were told that they could receive the intervention free of charge at completion of the study.
Outcomes	Outcomes: • Adherence to intervention physical activity recommendations measured with 7-day MTI/ActiGraph accelerometer monitoring (aerobic) and exercise log (resistance) • Submaximal treadmill test based on the Naughton protocol for estimated fitness • Muscle strength measured with a back/leg dynamometer • Body composition (BMI, waist-to-hip ratio, body fat percentage via bioelectric impedance (i.e. Quantum X by RJL Systems), in a standardised fashion (i.e. same time of day for each measurement after a 4-hour fast) • Pro-inflammatory and anti-inflammatory cytokines: 5 cytokines - IL-1 beta, IL-6, IL-8, IL-10, and TNF-alpha - measured by the MILLIPLEX MAP human high-sensitivity cytokine assay. Total adiponectin measured via adipokine MILLIPLEX panel A, leptin via MILLIPLEX adipokine panel B (HADK2-61K), and high-molecular-weight adiponectin via an ELISA kit • Fatigue via FSI • Self-reported sleep dysfunction measured on the PSQI, which was scored according to the published protocol (i.e. higher score indicates greater sleep dysfunction) • Sleep latency and efficiency measured objectively with the same accelerometer used in measuring physical activity by transferring to the wrist when in bed. Participants recorded time in and out of bed on a record sheet. Numbers of participants assessed: • Intervention: baseline, 15; at 3 months, 14 • Control: baseline, 13; at 3 months, 12 Adverse events: Three adverse events were identified - 2 related and non-serious in the intervention group, and 1 non-related and serious in the control group.
Notes	Trial registration link: https://clinicaltrials.gov/ct2/show/NCT00640666

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Rogers 2013 *(Continued)*

Trial authors contacted: no

Intention-to-treat analysis: no

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Risk of bias

Bias	Authors' judgement	Support for judgement
Random sequence generation (selection bias)	Low risk	"Randomization was based on computer generated numbers, performed in blocks of 4, and revealed in the order in which participants completed baseline testing".
Allocation concealment (selection bias)	Unclear risk	Whether treatment assignment was concealed from study personnel and participants was not described.
Blinding of participants and personnel (performance bias) All outcomes	High risk	Owing to the nature of the intervention, it was not possible to conceal allocation to the intervention from participants.
Blinding of outcome assessment (detection bias) All outcomes	Unclear risk	"All assays were performed by an investigator blinded to the experimental treatment". Other outcome assessment blinding was not described.
Incomplete outcome data (attrition bias) All outcomes	High risk	Data analysis was based only on study participants completing both baseline and 3-month follow-up. 8 participants were excluded.
Selective reporting (reporting bias)	Low risk	No selective reporting of outcomes is apparent.
Other bias	Low risk	Trial appears to be free of other problems that could put it at high risk of bias.

Rogers 2014

Methods	Study design: single-centre RCT Number randomised: 46; 22 to intervention, 24 to control group Study start: not reported; stop date: not reported Length of intervention: 3 months Length of follow-up: to end of intervention Country: USA
Participants	Baseline data available for 20 intervention and 24 control participants: Age, years (mean SD): • Intervention: 57.2 (5.5) • Control: 55.2 (9.1)

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Rogers 2014 *(Continued)*

Stage, n (%):

- Intervention: DCIS, 3 (15.0); stage I, 10 (50.0); stage II, 7 (35.0)
- Control: DCIS, 5 (20.8); stage I, 11 (45.8); stage II, 8 (33.3)

Inclusion criteria:

• Female

• 30 to 70 years of age, ductal carcinoma in situ (DCIS), stage I or II breast cancer

• At least 4 weeks status post final primary treatment administration (longer-term therapies such as aromatase inhibitors, oestrogen receptor modulators allowed)

• ≥ 8 weeks post surgical procedure

• English speaking

• Medical clearance for participation provided by physician

• Postmenopausal

• Average fatigue over the past week rated as ≥ 3 on a 1 to 10 Likert scale, or sleep dysfunction ≥ 1 on a 0 to 3 Likert scale

• Willingness to abstain from “as needed” medications for 7 days before each blood draw

Exclusion criteria:

• Metastatic or recurrent breast cancer

• Inability to ambulate without assistance

• Unstable angina

• New York Heart Association Class II, III, or IV congestive heart failure

• Uncontrolled asthma

• Interstitial lung disease

• Current use of steroids

• Having been told by a physician to do only exercise prescribed by a physician

• Dementia or organic brain syndrome

• Schizophrenia or active psychosis

• Connective tissue or rheumatological disease (i.e. systemic lupus erythematosus, rheumatoid arthritis, amyloidosis, Reiter's syndrome, psoriatic arthritis, mixed connective tissue disease, Sjögren's syndrome, progressive systemic sclerosis, CREST syndrome, polymyositis, dermatomyositis, vasculitis, polymyalgia rheumatic, temporal arteritis)

• Participating, on average, in more than 20 minutes of physical activity on 2 or more days per week during the past 6 months

• Elective surgery planned to occur during the time of the intervention that would interfere with intervention participation (e.g. breast reconstructive surgery)

• Living or working > 50 miles from study site

• Lack of transportation to study site

• Changes in usual medications expected during the study time period

• Planning to move residence out of the local area during the 5 months of study participation

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Rogers 2014 *(Continued)*

	• Planning to travel out of the local area for vacation during the first 4 weeks of the intervention, or planning to travel out of the local area for longer than a week during the last 8 weeks of the intervention • Contraindication to participation in exercise (i.e. moderate-intensity walking and strength training with resistance bands)
Interventions	22 participants allocated to exercise intervention: • Aerobic component: Participants were gradually advanced by week 9 to 40-minute bouts of moderate-intensity (i.e. 48% to 52% of heart rate reserve) walking 4 times per week with no more than 1 day between bouts (e.g. exercise on Monday, Wednesday, Thursday, Saturday each week, exercise on Tuesday, Wednesday, Friday, Sunday each week), resulting in a total weekly goal of 160 aerobic minutes. Participants attended 26 individual supervised exercise sessions with an exercise specialist (3 per week for first 2 weeks and 2 per week for last 10 weeks). Participants were also instructed to exercise at home (2 walking sessions per week in last 10 weeks of the intervention). • Resistance component: Resistance training occurred twice weekly during the same sessions as supervised aerobic walking (e.g. Monday/Thursday, Tuesday/Friday). The strength of resistance bands was advanced as tolerated at intervals ≥ 2 weeks. Eight different resistance exercises focussed on the major muscle groups were included, with up to 2 sets of 15 repetitions per exercise. • Behavioural component: To improve adherence, behavioural support was provided at 6 group meetings with a clinical psychologist or psychology intern under the supervision of a clinical psychologist (every other week) based on a prior successful behaviour change intervention. Intervention participation occurred in cohorts or "waves" to enhance social support provided by group meetings. Adherence (based on session record sheets): • Aerobic component: 91% • Resistance component: 93% 24 participants assigned to control: • Control group was instructed not to change exercise behaviour beyond what they were doing at the time of study enrolment.
Outcomes	Primary outcome: • Physical activity assessed by MTI/Actigraph accelerometer Other outcomes: • Cancer-related fatigue (intensity) and interference assessed with the FSI • General fatigue assessed by the Patient Reported Outcomes Measurement Information System (PROMIS) • Diet via 3-day diet record • Cardiorespiratory fitness measured by submaximal treadmill testing based on a modified Naughton protocol • Body composition assessed by bioelectrical impedance, BMI, and waist-to-hip ratio • Extensor leg strength measured by back and leg dynamometer • IL-6, IL-8, IL-10 and TNF-alpha cytokines measured by high sensitivity human cytokine assay • Depression and anxiety assessed via PROMIS • Self-reported sleep disturbance assessed by the PSQI • Self-reported sleep assessed with PROMIS • Sleep latency measured via accelerometers (Actigraph) Numbers of participants assessed: • Intervention: baseline, 22; at 3 months, 19 • Control: baseline, 24; at 3 months, 23

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Rogers 2014 *(Continued)*

	Adverse events: • No serious adverse effects occurred. • Of the non-serious adverse effects: * 2 participants in the intervention group had a modification of their resistance training programme due to ongoing pre-existing lymphoedema. * 2 participants in the intervention group broke their wrist as the result of a motor vehicle accident and had a new breast lump with negative mammography. * 2 participants in the control group experienced high blood pressure during treadmill fitness testing.
Notes	Trial registration link: https://clinicaltrials.gov/ct2/show/NCT01147367 Trial authors contacted: no Intention-to-treat analysis: no Funding: supported by National Cancer Institute R21CA135017

Risk of bias

Bias	Authors' judgement	Support for judgement
Random sequence generation (selection bias)	Low risk	"randomization in blocks of four based on computer generated numbers"
Allocation concealment (selection bias)	Low risk	"Participants were randomized in the order in which they completed baseline testing. Randomization numbers were kept in sealed, opaque envelopes so that study staff and participants were unaware of group allocation until all baseline testing was complete".
Blinding of participants and personnel (performance bias) All outcomes	High risk	Owing to the nature of the intervention, it was not possible to conceal allocation to the intervention from participants.
Blinding of outcome assessment (detection bias) All outcomes	Low risk	Physical measures were obtained by individuals who were blinded to participants' study group allocation.
Incomplete outcome data (attrition bias) All outcomes	High risk	"Intent-to-treat analysis was performed (i.e. differences between the study groups were assessed with all data regardless of the participant's adherence to the exercise in the intervention group or self-initiation of exercise in the control group)". However, only participants with follow-up data were included in analysis (4 participants were excluded).
Selective reporting (reporting bias)	Low risk	No selective reporting of outcomes is apparent.
Other bias	Low risk	Trial appears to be free of other problems that could put it at high risk of bias.

Rogers 2015

Methods	Study design: multi-centre RCT Number randomised: 222; 110 to intervention, 112 to control

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Rogers 2015 *(Continued)*

	Study start: January 2010; stop date: September 2013 Length of intervention: 3 months Length of follow-up: at 3 months Country: USA
Participants	Age, years (mean SD): • Intervention: 54.9 (9.3) • Control: 53.9 (7.7) Stage, n (%): • Intervention: stage DCIS, 13 (11.8); stage I, 47 (42.7); stage II, 37 (33.6); stage III, 13 (11.8) • Control: stage DCIS, 12 (10.7); stage I, 46 (41.1); stage II, 41 (36.6); stage III, 13 (11.6) Inclusion criteria: • Women aged 18 to 70 years with history of ductal carcinoma in situ (DCIS) or stage I-IIIA breast cancer who were not currently receiving or planning to receive chemotherapy or radiation therapy • C8 weeks post surgical procedure • English speaking • Medical clearance for participation provided by physician • Participating, on average, in 30 minutes of vigorous physical activity or 60 minutes of moderate activity per week during the past 6 months Exclusion criteria: • Dementia or organic brain syndrome • Disorders that would interfere with ability to fully participate in assessments and BEAT Cancer activities (e.g. psychosis, schizophrenia) • Contraindication to participation in regular physical activity • Metastatic or recurrent breast cancer • Inability to ambulate • Elective surgery anticipated during the intervention that would interfere with participation (e.g. breast reconstructive surgery) • Travel plans interfering with scheduled study sessions • Participating in another exercise study
Interventions	110 participants assigned to exercise intervention: • 3-Month BEAT Cancer intervention included 12 supervised exercise sessions (aerobic walking on the treadmill) with a trained exercise specialist, which were tapered over the first 6 weeks to an exclusively home exercise programme. • Duration of individual sessions starting at 15 to 25 minutes during week 1, to 30 to 50 minutes by week 7 (intensity: week 1, 40% to 59% of heart rate reserve, 10-point RPE = 1.5 to 3; week 7, 40% to 59% of heart rate reserve, 10-point RPE = 3.5 to 5.5). • Frequency starting with 3 weekly exercise sessions during week 1, to 150 minutes weekly of moderate-intensity physical activity by week 7 (i.e. ≥ 3 weekly sessions) • During the second 6 weeks of the intervention, participants attended a face-to-face update counselling session with the exercise specialist every 2 weeks.

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Rogers 2015 *(Continued)*

- Participants also attended 6 discussion group sessions led by trained facilitators during the first 9 weeks of the intervention.

Adherence:

Adherence to planned BEAT Cancer components was 98% for supervised exercise sessions, 96% for update sessions, and 91% for discussion group sessions. Only 5 BEAT Cancer participants did not receive the allocated intervention (i.e. did not complete 75% of all intervention components combined).

112 participants assigned to control:

- Usual care participants received printed American Cancer Society materials describing physical activity recommendations for cancer survivors (e.g. *Living Smart: The American Cancer Society's Guide to Eating Healthy and Being Active*). No additional instructions regarding physical activity were provided with the materials.

Outcomes	Primary outcome: • Weekly minutes of ≥ moderate-intensity physical activity assessed by the MTI/Acti-Graph accelerometer (models GT1M and GT3X) Other outcomes: • Godin Leisure-Time Exercise Questionnaire, which assesses volitional, leisure time physical activity (minutes of ≥ moderate-intensity physical activity) • Aerobic fitness measured by a submaximal treadmill test and modified Naughton protocol • Quality of life measured via FACT-B Numbers of participants assessed: • Intervention: baseline, 110; at 3 months, 106; at 6 months, 105 • Control: baseline, 112; at 3 months, 110; at 6 months, 108 Adverse events: Only 1 related serious adverse event occurred (intervention group; pelvic stress fracture). Related expected adverse events in the BEAT Cancer group included back or lower extremity musculoskeletal pain or injury (n = 14), heart rate monitor rash (n = 1), fall while walking (n = 1), breast reconstruction (n = 3), and chest pain during treadmill fitness testing (n = 1). Related adverse events in the UC group included arm tingling (n = 1) during the treadmill test and knee tendonitis (n = 1).
Notes	Trial registration link: none available Trial authors contacted: no Intention-to-treat analysis: yes Funding: supported by National Cancer Institute R01CA136859

Risk of bias

Bias	Authors' judgement	Support for judgement
Random sequence generation (selection bias)	Low risk	Randomisation, based on computer-generated numbers, is performed in blocks of 4 within each site to facilitate equal distribution between the 2 study groups at each site.
Allocation concealment (selection bias)	Low risk	Computer generated numbers for each site; numbers were placed in sealed, opaque envelopes and were delivered to the collaborating site with a written protocol for use.
Blinding of participants and personnel (performance bias)	High risk	Owing to the nature of the intervention, it was not possible to conceal allocation to the intervention from participants.

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Rogers 2015 *(Continued)*

All outcomes		
Blinding of outcome assessment (detection bias) All outcomes	Low risk	"Assessment tools are administered … by an exercise specialist (blinded to the participant's study group allocation) in the exercise laboratory".
Incomplete outcome data (attrition bias) All outcomes	Low risk	"All analyses were intention-to-treat with all data available being used".
Selective reporting (reporting bias)	Low risk	No selective reporting of outcomes is apparent.
Other bias	Low risk	Trial appears to be free of other problems that could put it at high risk of bias.

Saarto 2012

Methods	Study design: single-centre RCT Number randomised: 573; 302 to intervention, 271 to control Study start and stop dates: enrolment between September 2005 and September 2007 Length of intervention: 12 months Length of follow-up: at 6 and 12 months (end of intervention) after baseline Country: Finland
Participants	Age, years, at baseline, mean (range): • Intervention: 52 (36-68) • Control: 52 (35-68) Stage: • All stage T1-4, N0-3, M0 (i.e. stage I to IIIC) Inclusion criteria: • Histologically confirmed newly diagnosed invasive breast cancer (T1-4 N0-3 M0) • Pre- and postmenopausal women treated with adjuvant chemotherapy or radiation therapy within last 4 months • Started endocrine therapy (anti-oestrogens, aromatase inhibitors, luteinising hormone-releasing hormone agonists, or a combination) no more than 4 months earlier • 35 to 68 years old • Signed informed consent before the start of protocol-specific procedures Exclusion criteria: • Male gender • Prior malignancy except basal cell carcinoma or in situ carcinoma • Hematogenous metastases (M1) • Systemic adjuvant therapy • Postmenopausal women with anti-oestrogens as the only adjuvant treatment (with or without radiation therapy)

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Saarto 2012 *(Continued)*

	• Pregnancy or recent lactation (< 1 year) • Severe cardiac disease (NYHA Class III or greater) • Myocardial infarction within 12 months • Uncontrolled hypertension • Verified osteoporosis (proximal femur or lumbar spine T-score < -2.5 or fracture without trauma) • Concomitant medications affecting calcium and bone metabolism such as bisphosphonates, calcitonin, parathyroid hormone, selective oestrogen receptor modulators, oral corticosteroids (over 6 months), anticonvulsants (phenytoin, carbamatsebin), and prolonged heparin therapy • Other diseases affecting calcium and bone metabolism such as hyperthyroidism, newly diagnosed hypothyroidism, primary hyperparathyroidism, renal failure, chronic hepatic diseases, organ transplant • Residency more than 1 hour from the exercise centre • Competitive athlete • Treated only with radiation therapy • Incapable of training (e.g. severe cardiac disease, osteoporosis, severe knee arthrosis, ligament or cartilage injuries at lower extremities) • Other serious illness or medical condition, which could be a contraindication to exercise
Interventions	302 participants assigned to a 2-component supervised 12-month exercise training intervention, with each component performed in alternate weeks. Components included: • On alternate weeks, the effective part of guided training was based on step aerobics or circuit training. In total, the planned 60-minute weekly exercise programme was intended to consist of supervised training sessions and 2 to 3 home training sessions. • Step aerobics consisted of 150 to 180 jumps and leaps in diverging directions, progressing from 10-cm high benches to 15-cm benches after 4 months, and to 20-cm benches after 8 months. Music was set at 118 beats per minute. • Circuit training started with 100 steps and hops per session and progressed to 150 to 180 steps and hops per session, with more demanding jumps in the later phase. The session started with a 20-second training period followed by a 60-second rest, and progressed to a 40:60 second training/rest ratio, then a 30:60 second ratio with more demanding jumps such as heel drops, star jumps, and skate jumps. • The home training session consisted of about 100 leaps and jumps similar to those employed in the circuit training programme. In addition, endurance training (walking, cycling, swimming, etc.) performed at the same RPE was recommended to complement the home trainiIng session in terms of total duration. • Mostly aerobic with some anaerobic activity. Intensity of exercise for first 2 weeks was moderate (RPE = 11), and intensity was increased gradually from moderate to somewhat hard or hard levels (RPE = 14 to 16) during the 12-week exercise period. Adherence: Premenopausal trainees attended a median of 30/52 (58%) supervised training sessions: • 6/124 (5%) did not attend any training; 23/124 (18%) attended < once a month; 78/124 (63%) attended at least every second week (i.e. > 25 times). Based on 109 returned training diaries, premenopausal participants completed home training on average 2.8 times weekly for a total time of 2.9 hours. The median total number of training sessions (supervised and home training sessions together) was 3.3 times per week (interquartile range 2.4 to 4.6). Postmenopausal trainees attended a median of 33/52 (63%) training sessions: • 2/138 (< 2%) did not attend any session; 27/138 (20%) attended sessions < once a month; 96/138 (70%) attended at least every second week. Based on 122 returned training diaries, postmenopausal partic-

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Saarto 2012 *(Continued)*

	ipants completed home training on average 3.2 times (107%) weekly for a total time of 3.5 hours. The median total number of training sessions was 4.3 times per week (interquartile range 2.3 to 5.4). 271 participants assigned to control: • Usual care
Outcomes	No primary outcome was identified. Physical outcomes: • Cardiorespiratory fitness assessed via 2-km walk (minutes) • Dynamic neuromuscular performance assessed by figure-8 running test (seconds) • Physical activity collected via a recalled questionnaire (MET-h per week) • Body composition assessed via DEXA (fat mass, lean mass) • Bone density assessed via DEXA (total bone mineral content, lumbar spine and femoral neck bone mineral density) In subsample study of 86 participants (37 intervention and 40 control): • Countermovement jump force assessed via force plate • Maximal isometric muscle force of leg extension via isometric leg press • Maximal isometric grip strength via isometric hand dynamometer • Body composition via DEXA (fat percentage) • Left distal tibia and tibial midshaft bone mineral content via pQCT scan QoL outcomes: • QoL measured by EORTC QLQ-C30 • Fatigue measured with FACIT-F scale • Depression measured via BDI Numbers of participants assessed: • Intervention: at baseline, 302; at 12 months, 262 • Control: at baseline, 271; at 12 months, 236 Numbers of participants assessed in subsample study: • Intervention: at baseline, 37; at 12 months, 30 • Control: at baseline, 40; at 12 months, 37 Adverse events: none reported
Notes	Trial registration link: https://clinicaltrials.gov/ct2/show/NCT00639210 Trial authors contacted: no Intention-to-treat analysis: no Funding: Finnish Cancer Institute; Finnish Cancer Foundation; Academy of Finland; Social Insurance Institution of Finland; Finnish Ministry of Education; Finska Läkaresällskapet; Special government grant for health science research; Helander Foundation; Gyllenberg Foundation; Paulo Foundation; Kurt and Doris Palander Foundation; Finnish Cultural Foundation and Medical Fund of the Pirkanmaa Hospital District; Finnish AstraZeneca-sponsored step benches for the study; Finnish Breast Cancer Group

Risk of bias

Bias	Authors' judgement	Support for judgement

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Saarto 2012 *(Continued)*

Random sequence generation (selection bias)	Low risk	"A computer-generated randomisation schedule was used to allocate patients".
Allocation concealment (selection bias)	Low risk	"Study nurse performed randomisation after baseline visit". "randomisation was centralised"
Blinding of participants and personnel (performance bias) All outcomes	High risk	Owing to the nature of the intervention, it was not possible to conceal allocation to the intervention from participants.
Blinding of outcome assessment (detection bias) All outcomes	Low risk	"examiner blinded"
Incomplete outcome data (attrition bias) All outcomes	High risk	Incorrect ITT; "Analyses were performed on an intention-to-treat basis for all participants who completed the baseline and at least one follow-up measurement"
Selective reporting (reporting bias)	Low risk	No selective reporting of outcomes is apparent.
Other bias	Low risk	Trial appears to be free of other problems that could put it at high risk of bias.

Schmitz 2005

Methods	Study design: single-centre RCT Number randomised: 86; 43 to intervention, 43 to delayed exercise control Study start: October 2001; stop date: June 2002 Length of intervention: 6 months Length of follow-up: to end of intervention Country: USA
Participants	Age, years (mean SD): • Intervention: 53.3 (8.7) • Control: 52.8 (7.6) Stage, n (%): • Intervention: stage 0, 7 (18); stage I, 6 (26.1); stage II, 13 (56.5); stage III, 3 (13) • Control: stage 0, 1 (4.4); stage I, 7 (30.4); stage II, 13 (56.5); stage III, 2 (8.7) Inclusion criteria: • Completed all treatment except hormonal therapy for breast cancer • Body weight stable within 10% over the past year • Non-smoker for at least the past 2 years • Sedentary to moderately physically active (no more than 3 sessions per week of no more than moderate-intensity activity; no weight training history)

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Schmitz 2005 *(Continued)*

	Exclusion criteria: • Medical condition prohibiting participation in a weight training programme • Morbidly obese (BMI > 40 kg/m^2) • Hypertensive (systolic blood pressure > 160 mmHg, diastolic blood pressure > 99 mmHg, or both) • Currently on a weight loss plan or planning to start a weight loss plan during the period of the study • Planning to move away from the area or to be away from the area for > 3 weeks during study • Not pregnant or lactating, and not planning to become pregnant during the study period
Interventions	43 participants assigned to exercise intervention: • Resistance training was performed twice weekly for 6 months. Each 60-minute session consisted of 9 common weight training exercises with variable resistance machines and free weights (for muscles of the chest, back, shoulders, arms, buttocks, hips, and thighs). • Stretching exercises were performed before and after each weight training session. • Participants were asked to make no changes in other elements of their exercise programme (e.g. walking, bicycling, swimming) while incorporating weight training. Adherence: • From baseline to 6 months: 1 participant attended < 80% of sessions. • From months 7 to 12: 14 exercise group participants attended < 70% of sessions. 43 participants assigned to control: • Wait-list
Outcomes	Primary outcomes: • Baecke Questionnaire given to assess participant physical activity outside of the weight training protocol • Cancer Rehabilitation Evaluation System – Short-Form (CARES-SF), which includes 59 items and 5 subscales for physical, psychosocial, medical interaction, marital, sexual, and other miscellaneous subscales. Items assessed on a 5-point Likert scale (0 = "not at all", 1 = "a little", 2 = "a fair amount", 3 = "much", 4 = "very much") that queries the applicability of the problem/statement to the participant within the last month. Items of CARES-SF are combined into a global summary score. Both global summary score and individual subscale scores range from 0 to 100; lower scores indicate fewer problems. • Anthropometric measurements including waist circumference, body weight, and height • DEXA (used to measure body composition), in addition to a skin pinch meter/scale • Upper (bench press) and lower body strength (leg press) assessed by 1-repetition maximum (1RM) • Depressive symptoms measured with the CES-D, a 20-item questionnaire scored on a standard 4-point scale (0 to 3) for each item, with a potential range of 0 to 60 • Fasting blood glucose and plasma insulin levels assessed by colourimetric reflectance spectrophotometry and chemiluminescent immunoassay, respectively • Insulin resistance measure used in this study: the HOMA index • ELISAs to assess IGF-I, IGF-II, IGFBP-1, IGFBP-2, and IGFBP-3 • Lymphoedema measured 3 ways: arm circumference measurements, self-report of diagnosis, self-report of symptoms Numbers of participants assessed: • Intervention: baseline, 43; at 6 months, 38 • Control: baseline, 43; at 6 months, 40 Adverse events: cancer recurrence: 4 in total - 2 each in intervention and control groups; some limited musculoskeletal issues that were self-resolving

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Schmitz 2005 *(Continued)*

Notes	Trial registration link: none available Trial authors contacted: no Intention-to-treat analysis: no Funding: Susan G. Komen Foundation, grants to the UMN GCRC from the NIH

Risk of bias

Bias	Authors' judgement	Support for judgement
Random sequence generation (selection bias)	Low risk	"Random number table"
Allocation concealment (selection bias)	Low risk	"The randomization procedure used prevented investigators from influencing treatment allocation".
Blinding of participants and personnel (performance bias) All outcomes	High risk	Owing to the nature of the intervention, it was not possible to conceal allocation to the intervention from participants.
Blinding of outcome assessment (detection bias) All outcomes	Low risk	Physiological measures were taken by trained staff blinded to participant status, with the exception of strength measures.
Incomplete outcome data (attrition bias) All outcomes	High risk	4 participants were lost to follow-up in the intervention group - 2 for recurrences and 2 as the result of withdrawals; 3 participants were lost to follow-up in the control group - 2 for recurrences and 1 as the result of withdrawal; none of these were included in analyses.
Selective reporting (reporting bias)	Low risk	No selective reporting of outcomes is apparent.
Other bias	Low risk	Trial appears to be free of other problems that could put it at high risk of bias.

Schmitz 2009

Methods	Study design: single-centre RCT Number randomised: 295; 148 (71 with lymphoedema and 77 without lymphoedema) to the intervention, 147 (70 with lymphoedema and 77 without lymphoedema) to control Study start: October 2005; stop date: August 2008 Length of intervention: 12 months Length of follow-up: to end of intervention Country: USA
Participants	Age, for women with lymphoedema, years (mean SD): • Intervention: 56 (9) • Control: 58 (10) Age, for women without lymphoedema, years (mean SD):

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Schmitz 2009 *(Continued)*

- Intervention: 54 (8)
- Control: 56 (8)

Stage, for women with lymphoedema, n (%):

- Intervention: DCIS, 0 (0); stage I, 33 (46); stage II, 1 (1); stage III, 22 (31); unknown, 15 (31)
- Control: DCIS 0 (0); stage I, 24 (14); stage II, 0 (0); stage III, 22 (31); unknown, 24 (34)

Stage, for women without lymphoedema, n (%):

- Intervention: DCIS 1 (1); stage I, 43 (56); stage II, 8 (10); stage III, 25 (33)
- Control: DCIS 0 (0); stage I, 43 (56); stage II, 6 (8); stage III, 28 (3)

Inclusion criteria:

• Female

• History of unilateral non-metastatic breast cancer

• Body mass index (calculated as weight in kilograms divided by height in meters squared) ≤ 50

• Currently cancer free

• No medical condition that would limit participation in exercise

• No weight lifting during the year before study entry

• No plans for surgery or to be away for at least 1 month during the study

• Currently weight stable and not actively trying to lose weight

Additional inclusion criteria, for women with lymphoedema:

• 1 to 15 years post diagnosis

• At least 1 lymph node removed

• Presence of lymphoedema

Additional inclusion criteria, for women without lymphoedema:

• 1 to 5 years post diagnosis

• At least 2 lymph nodes removed

• No prior lymphoedema diagnosis

• No evidence of current lymphoedema

Exclusion criteria for women with lymphoedema:

• Intensive therapy in the past 3 months

• Recorded 10% change in volume or circumference of affected arm in the past 3 months for ≥ 7 days

• More than 1 lymphoedema-related infection requiring antibiotics (cellulitis) in the past 3 months

Interventions	148 participants (71 with lymphoedema and 77 without lymphoedema) assigned to the exercise intervention, consisting of progressive strength (weight) training: • Weight lifting intervention group received a 1-year membership to a community fitness centre (YMCA). Resistance training was performed twice weekly (13 weeks supervised and 13 weeks unsupervised). • Each 90-minute session consisted of upper body exercises (seated row, supine dumbbell press, lateral or front raise, biceps curl, and triceps push-down), which were performed with dumbbells or variable resistance machines, and lower body exercises (leg press, back extension, leg extension, and leg curl), which were performed with variable resistance machines.

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Schmitz 2009 *(Continued)*

- Weight was increased for each exercise by the smallest possible increment after 2 sessions of 3 sets of 10 repetitions with no change in arm symptoms.

Adherence:

- For women with lymphoedema: Median attendance at weight lifting sessions was 88%.
- For women without lymphoedema: Median attendance at weight lifting sessions was 79%.

147 participants (70 with lymphoedema and 77 without lymphoedema) assigned to control:

- Wait-list control
- Requested not to change current level of exercise

Outcomes

Outcomes:

- Physical activity outside intervention assessed with the IPAQ
- Muscular strength assessed by bench press and leg press
- Anthropometric measures, weight, BMI, and body fat %; fat mass and lean mass via DEXA scan
- Body image measured on the Body Image and Relationship Scale
- QoL assessed with the MOS SF-36 version 2
- Diet assessed via the Diet History Questionnaire
- Lymphoedema-related outcomes (not included in this review): Primary outcome was lymphoedema onset defined as a 5% or greater increase in arm swelling, which was defined by interlimb water volume difference [(affected arm volume − unaffected arm volume)/unaffected arm volume]. Water volume displacement was used to measure arm volumes at baseline and at 12 months.

For women with lymphoedema, outcomes were measured as follows:

- Intervention: baseline, 71; at 1 year, 65
- Control: baseline, 70; at 1 year, 65

For women without lymphoedema, outcomes were measured as follows:

- Intervention: baseline, 77; at 1 year, 66
- Control: baseline, 77; at 1 year, 68

Adverse events among participants with lymphoedema:

- Eight musculoskeletal injuries reported. Cumulative incidence of musculoskeletal injury in the weight lifting group was 10.2 (95% CI 9.4 to 11.1) per 100 breast cancer survivors.

Adverse events among participants without lymphoedema:

- Two musculoskeletal injuries reported. Cumulative incidence of musculoskeletal injury in the weight lifting group was 3.4 (95% CI 2.9 to 3.9) per 100 breast cancer survivors.

Notes

Trial registration link: https://clinicaltrials.gov/ct2/show/NCT00194363

Trial authors contacted: no

Intention-to-treat analysis: no

Funding: NIH/National Cancer Institute and the Public Health Services Research Grant

Risk of bias

Bias	Authors' judgement	Support for judgement
Random sequence generation (selection bias)	Low risk	Allocation sequence was a computer-generated minimisation scheme.

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Schmitz 2009 *(Continued)*

Allocation concealment (selection bias)	Low risk	"...de-identified data for ... variables were entered after completion of all baseline measures, the study coordinator then called participants to reveal the outcome of randomization and to schedule groups for the supervised groups"
Blinding of participants and personnel (performance bias) All outcomes	High risk	Owing to the nature of the intervention, it was not possible to conceal allocation to the intervention from participants.
Blinding of outcome assessment (detection bias) All outcomes	Low risk	Measurements obtained by "trained staff who were unaware of the study-group assignments" "Measurement staff (including CLTs) were blinded to treatment allocation".
Incomplete outcome data (attrition bias) All outcomes	High risk	No evidence suggests that missing data were adequately and appropriate addressed. Large numbers of study participants withdrew; 11 women without lymphoedema withdrew from the intervention group and 9 women without lymphoedema withdrew from the control group.
Selective reporting (reporting bias)	Low risk	No selective reporting of outcomes is apparent.
Other bias	Low risk	Trial appears to be free of other problems that could put it at high risk of bias.

Segar 1998

Methods	Study design: single-centre quasi-randomised partial cross-over controlled trial. Only first treatment period included here Number randomised: 30; 10 to exercise intervention, 10 to exercise and behavioural intervention, 10 to control Study start: not reported; stop date: not reported Length of intervention: 10 weeks Length of follow-up: at 12 weeks Country: USA
Participants	Age, years (mean SD): • Intervention groups: 47.5 (7.1) • Control group: 51.8 (8.1) Stage, n (%): • Intervention groups: not reported • Control group: not reported Inclusion criteria: • Any type of breast cancer surgery • 30 to 65 years old • Not currently participating in exercise

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Segar 1998 *(Continued)*

	• No contraindications to exercise • Written release from the physician Exclusion criteria: • Cardiovascular or pulmonary disease • Known physical disabilities
Interventions	10 participants assigned to exercise intervention: • Request to exercise a minimum of 30 minutes at an intensity ≥ 60% of age-predicted maximum heart rate on 4 days per week over 10 weeks, with type of exercise (stationary bike, stair climbers, and hydraulic resistance exercise equipment) as chosen by participant 10 participants assigned to exercise and behavioural modification intervention: • Exercise as described for the exercise behavioural modification group by self-awarded rewards (activity, food, treats, or movies) to serve as reinforcements Adherence: • Overall compliance assessed from self-reported exercise logs averaged 1363 (SD 577) minutes over 10 weeks, where 100% compliance was equivalent to 1200 minutes. • Compliance for participants reaching at least 89% averaged 1532 (SD 103) minutes (mean compliance of 130%) with a range from 89% to 250%. 10 participants assigned to control: • Instructions to maintain sedentary lifestyle
Outcomes	Primary outcomes: • Change in depressive symptoms measured by the 21-item BDI questionnaire, with scale score ranging between 0 and 63. Higher score indicates greater depressive symptoms. • Change in anxiety symptoms measured with the STAI (20 items; 1 = not at all, 4 = very much so) • Change in self-esteem measured by the RSE Inventory - a unidimensional 64-item questionnaire with 10 scales that reflect self-evaluation of self-esteem Time points of assessments: baseline, at 10 weeks Numbers of participants assessed: • Intervention: baseline, 16; at 10 weeks, 16 • Control: baseline, 8; at 10 weeks, 8 Reasons for missing data: • Intervention: no missing data reported • Control: no missing data reported Adverse events: none reported Subgroup analysis: none reported
Notes	Trial registration link: none available Trial authors contacted: no Intention-to-treat analysis: no Funding: Michigan Initiative for Women's Health Grant

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Segar 1998 *(Continued)*

Risk of bias

Bias	Authors' judgement	Support for judgement
Random sequence generation (selection bias)	High risk	"Subjects were rotated sequentially into two treatment conditions and one control group".
Allocation concealment (selection bias)	Unclear risk	Whether treatment assignment was concealed from study personnel and participants was not described.
Blinding of participants and personnel (performance bias) All outcomes	High risk	Owing to the nature of the intervention, it was not possible to conceal allocation to the intervention from participants.
Blinding of outcome assessment (detection bias) All outcomes	High risk	Study personnel and outcome assessors were not masked or blinded to study interventions.
Incomplete outcome data (attrition bias) All outcomes	High risk	4 participants were excluded from the exercise group and 2 from the control group. Exclusion from analyses occurred because of attrition or non-compliance with the study protocol.
Selective reporting (reporting bias)	Low risk	No selective reporting of outcomes is apparent.
Other bias	Low risk	Trial appears to be free of other problems that could put it at high risk of bias.

Short 2014

Methods	Study design: single-centre RCT Number randomised: 330; 109 to intervention tailored-print, 110 to intervention targeted-print, 111 to control Study start: October 2010; stop date: October 2013 Length of intervention: 3 months Length of follow-up: at 4 and 10 months post intervention Country: Australia
Participants	Age, years, mean (range): • Intervention tailored-print: 56 (34-74) • Intervention targeted-print: 55 (36-82) • Control: 55 (33-75) Stage, n (%): • Intervention tailored-print: stage 0, 3 (2,9); stage I, 27 (26.5); stage II, 32 (31.4); stage III, 23 (22.6); stage IV, 2 (1.9); stage unknown, 15 (14.7) • Intervention targeted-print: stage 0, 3 (2,8); stage I, 22 (20.8); stage II, 45 (42.5); stage III, 20 (18.8); stage IV, 1 (0.9); stage unknown, 15 (14.5) • Control: stage 0, 1 (0.9); stage I, 25 (23.4); stage II, 36 (33.6); stage III, 26 (24.3); stage IV, 3 (2.8); stage unknown, 16 (14.9)

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Short 2014 *(Continued)*

	Inclusion criteria: • Female breast cancer survivors over the age of 18 • Finished “active” cancer treatment (defined as surgery, chemotherapy, and/or radiotherapy) • Could read and write in English Exclusion criteria: • Not reported
Interventions	330 participants assigned to 2 different physical activity behavioural change interventions: • Intervention tailored-print: Participants received 3 social cognitive theory-based computer-tailored A4 4-page newsletters over a 12-week period (6 weeks apart). Newsletters were iteratively tailored via personal physical activity and demographic, psychosocial, and health-related information derived from individual assessments at baseline; and physical activity and goal-setting information derived from "update cards", which were sent to participants via mail at 4 weeks and 8 weeks post baseline. If participants’ update cards were not returned within 2 weeks, newsletters were printed without iterative physical activity and goal-setting feedback. A recommendation was provided to engage in aerobic PA of at least moderate intensity for 30 minutes or longer most days of the week. Participants were also encouraged to perform resistance training exercises 1 to 3 times per week. However, no specific instructions for resistance training exercises were provided. • IBntervention targeted-print: Participants received a copy of the 54-page (A5) theory of planned behavior-based booklet *Exercise for Health: An Exercise Guide for Breast Cancer Survivors*, which has been evaluated in a previous study. We made minor changes to the guidebook to adapt it for an Australian audience (e.g. substituting photos and text related to snow). A recommendation was provided to engage in aerobic PA of at least moderate intensity for 30 minutes or longer most days of the week. Participants were also encouraged to perform resistance training exercises (at least 6 exercises) 1 to 3 times per week. However, no specific instructions for resistance training exercises were provided. Adherence: • Intervention tailored-print: change in % meeting aerobic guidelines (150 minutes/week) at 4 months vs baseline, +23.9%; mean (SD) resistance exercise score (sessions*exercise) at 4 months: 13.5 (27.0) • Intervention targeted-print: change in % meeting aerobic guidelines (150 minutes/week) at 4 months vs baseline, +12.5%; mean (SD) resistance exercise score at 4 months: 10.9 (27.4) 111 participants assigned to control: • Received the brochure *An Active Way to Better Health*, describing national PA guidelines for Australian adults
Outcomes	Primary outcome: • Self-reported minutes of physical activity (aerobic and resistance exercise) measured by the adapted version of the LSI of the Godin Leisure-Time Exercise Questionnaire Other outcomes: • Adherence to meeting PA guidelines for aerobic (150 minutes of aerobic activity over at least 5 days of the week) and resistance-based (1 session per week containing at least 6 exercises, based on the lower suggested threshold) activity, calculated on the basis of participants’ self-reported PA • Mean daily steps assessed via at least 3 days of pedometry and a step count diary • Self-reported sitting time measured with a validated 5-item scale assessing sitting time across 5 different domains on a weekday and on a weekend day • Health-related quality of life measured by FACT-B version 4 • Fatigue measured via the FACIT-Fatigue scale Numbers of participants assessed: • Intervention tailored-print: baseline, 109; at 4 months, 98

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Short 2014 *(Continued)*

	• Intervention targeted-print: baseline, 110; at 4 months, 97 • Control: baseline, 111; at 4 months, 104 Adverse events: not reported
Notes	Trial registration link: https://www.anzctr.org.au/Trial/Registration/TrialReview.aspx?ACTRN=12611001061921 Trial authors contacted: no Intention-to-treat analysis: yes, but LOCF Funding: funded by the Cancer Institute New South Wales Research Scholar Award (10/RSA/1-27 - Trial ID in Australian New Zealand)

Risk of bias

Bias	Authors' judgement	Support for judgement
Random sequence generation (selection bias)	Low risk	"computer-generated block randomisation sequence"
Allocation concealment (selection bias)	Low risk	Sequence "implemented in a blinded fashion by an administrative assistant not involved in the project"
Blinding of participants and personnel (performance bias) All outcomes	High risk	Owing to the nature of the intervention, it was not possible to conceal allocation to the intervention from participants.
Blinding of outcome assessment (detection bias) All outcomes	Low risk	"All project team members were blinded to this process until allocation was complete".
Incomplete outcome data (attrition bias) All outcomes	High risk	Inappropriate handling of missing data in the analyses; "primary analysis was conducted using all observed data, and sensitivity analyses using the baseline observations carried forward approach were conducted to explore the impact of missing data"
Selective reporting (reporting bias)	Low risk	No selective reporting of outcomes is apparent.
Other bias	Low risk	Trial appears to be free of other problems that could put it at high risk of bias.

Taleghani 2012

Methods	Study design: single-centre RCT Number randomised: 80; 40 to intervention, 40 to control Study start: September 2009; stop date: February 2010 Length of intervention: 8 weeks Length of follow-up: to end of intervention Country: Iran
Participants	Age, years:

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Taleghani 2012 *(Continued)*

	• Overall: Women aged 15 to 55 were eligible. Stage, n (%): • Overall: stage I-III Inclusion criteria: • Women with breast cancer stages I-III • Aged 15 to 55 years • Two years since completion of breast cancer-related treatment (except for hormone therapy) • Performance status 0 to 4 (as determined by ECOG scale of WHO) Exclusion criteria: • Evidence of disease recurrence • Treatment with anticoagulants, signs of cardiac disease • Underwent arrhythmia or MI • Dementia or other psychotic condition • Regular exercise 2 to 3 sessions per week in the past 6 months
Interventions	40 participants assigned to exercise intervention: • Protocol included 3 phases of warm-up (containing warm-up and ballistic exercises), heavy resistance training, and cooling down (containing cooling down and ballistic exercises). Exercise sessions were conducted under the supervision and guidance of a coach for each individual participant in this study. • In the first 5 minutes, ballistic and stretching exercises were done to warm up. In the next phase, participants slowly jogged on an electronic treadmill, which showed their heart rate and calories consumed, for 7 minutes. They then pedaled a magnetic stationary bike, equipped with an LCD to show heart rate and consumed calories, for another 7 minutes. The intensity of participants' exercise was controlled by the maximum heart rate index. Therefore, participants exercised at 55% of intensity rate for the first 2 weeks, 65% of intensity from weeks 3 to 6, and 75% of intensity from weeks 7 to 8. • After doing aerobic exercises and taking a rest, participants performed heavy resistance training with a chest press machine, in 2 sets of 8 to 12 repetitions. Adherence: Not reported 40 participants assigned to control: • No information provided
Outcomes	Primary outcome: • Standard instrument of quality of life for breast cancer survivors (National Medical Center and Beckman Research Institute) Numbers of participants assessed: • Intervention: baseline, 40; at 8 weeks, not reported • Control: baseline, 40; at 8 weeks, not reported Adverse events: not reported
Notes	Trial registration link: none available Trial authors contacted: no

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Taleghani 2012 *(Continued)*

Intention-to-treat analysis: unclear

Funding: Isfahan University of Medical Sciences

Risk of bias

Bias	Authors' judgement	Support for judgement
Random sequence generation (selection bias)	Unclear risk	"randomly divided into two groups of study and control"; method not stated
Allocation concealment (selection bias)	Unclear risk	Whether treatment assignment was concealed from study personnel and participants was not described.
Blinding of participants and personnel (performance bias) All outcomes	High risk	Owing to the nature of the intervention, it was not possible to conceal allocation to the intervention from participants.
Blinding of outcome assessment (detection bias) All outcomes	Unclear risk	Blinding of outcome assessments was not described.
Incomplete outcome data (attrition bias) All outcomes	Unclear risk	Numbers of participants included in postintervention analyses were not provided.
Selective reporting (reporting bias)	Low risk	No selective reporting of outcomes is apparent.
Other bias	Unclear risk	Trial appears to be free of other problems that could put it at high risk of bias.

Vallance 2007

Methods

Study design: single-centre RCT

Number randomised: 337; 94 to print material intervention (PM), 94 to pedometer intervention (PED), 93 to combination of print material and pedometers intervention (COM), 96 to control

Study start: July 2005; stop date: April 2006

Length of intervention: 12 weeks

Length of follow-up: to end of intervention, at 6 months post intervention

Country: Canada

Participants

Age, years, mean (range):

- PM: 57 (31-88)
- PED: 58 (34-75)
- COM: 58 (38-86)
- Control: 57 (37-90)

Stage, n (%):

- PM group: stage I, 53 (56.4); stage IIA, 26 (27.7); stage IIB, 11 (11.8); stage IIIA, 4 (4.3)
- PED group: stage I, 38 (40.4); stage IIA, 35 (37.2); stage IIB, 15 (16.0); stage IIIA, 6 (6.4)

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Vallance 2007 *(Continued)*

- COM group: stage I, 55 (59.1); stage IIA, 23 (24.7); stage IIB, 11 (11.8); stage IIIA, 4 (4.3)
- Control: stage I, 48 (50); stage IIA, 27 (28.1); stage IIB, 13 (13.5); stage IIIA, 8 (12.0)

Inclusion criteria:

• Histologically confirmed stage I-IIIA breast cancer

• Physician approval

• Freedom from chronic medical and orthopaedic conditions that would preclude physical activity (e.g. congestive heart failure, recent knee or hip replacement)

• English as spoken language

• Completion of adjuvant therapy except hormone therapy

• Current absence of breast cancer

Exclusion criteria:

• None reported

Interventions	281 (PM, 94; PED, 94; COM, 94) participants assigned to three 12-week interventions: • PM group received a copy of *Exercise for Health: An Exercise Guide for Breast Cancer Survivors*. • PED group received a Digi-Walker SW-200 pedometer and a 12-week step calendar. • COM group received both interventions (i.e. PM and PED). • All groups received a standard recommendation to perform 30 minutes of moderate-vigorous PA 5 days a week. • Survivors meeting PA guidelines at baseline were encouraged to increase their PA minutes per day and/or days per week. Adherence to intervention materials immediately post intervention: • Survivors in 2 groups that received PED as an intervention (i.e. COM and PED; n = 187) recorded their pedometer steps on 83.3% (70 of 84) of study days. Survivors in 2 groups that received PM (i.e. COM and PM; n = 163) reported reading the entire PM an average of 2.1 times for an average of 113 minutes. • Retention for this study was 89.7% (338 of 377) and did not differ among groups. Adherence to intervention materials at 6-month follow-up: • Among survivors in the 2 groups that received a PED (COM and PED; N = 136), 38.5% (N = 52) reported that they continued to wear their PED during the 6-month follow-up period. Survivors in the 2 groups that received PM (COM and PM; N = 127) reported reading the entire PM an average of 1.3 times for an average of 42 minutes during the 6-month follow-up period. 60% of survivors reported reading the PM at least once, and 34% reported reading the PM for at least 30 minutes. • Overall retention was 71% (266/377) at the 6-month follow-up time point and did not statistically differ among groups. 96 participants assigned to control: • Control group was given the standard recommendation to perform 30 minutes of moderate-vigorous physical activity 5 days a week. Participants in this group wore a pedometer only for baseline and postintervention assessments.
Outcomes	Primary outcome: • Self-reported moderate-vigorous physical activity between baseline and post intervention (i.e. 12 weeks), assessed by the LSI of the Godin Leisure-Time Exercise Questionnaire Other outcomes: • Self-reported QoL assessed by FACT-B

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Vallance 2007 *(Continued)*

- Fatigue assessed on the Fatigue Scale from the FACT measurement system. On QoL and fatigue scales, higher scores represent better QoL/fatigue or less severe symptoms.
- Brisk walking assessed by the LSI of the Godin Leisure-Time Exercise Questionnaire
- Objective step counts assessed via a 7-day step test with the Digi-Walker pedometer

Numbers of participants assessed:

PM: baseline, 94; post intervention, 81; 6 months post intervention, 62

PED: baseline, 94; post intervention, 88; 6 months post intervention, 69

COM: baseline, 93; post intervention, 84; 6 months post intervention, 67

Control: baseline, 96; post intervention, 85; 6 months post intervention, 68

Adverse events: none reported

Notes	Trial registration link: https://clinicaltrials.gov/ct2/show/NCT00221221 Trial authors contacted: yes, additional data were received from trial authors Intention-to-treat analysis: no Funding: National Cancer Institute of Canada (NCIC) with funds from the Canadian Cancer Society (CCS) and the CCS/NCIC Sociobehavioral Cancer Research Network

Risk of bias

Bias	Authors' judgement	Support for judgement
Random sequence generation (selection bias)	Low risk	Computer-generated random numbers list
Allocation concealment (selection bias)	Low risk	"A research assistant generated the group assignments in sequentially numbered and sealed opaque envelopes".
Blinding of participants and personnel (performance bias) All outcomes	High risk	Owing to the nature of the intervention, it was not possible to conceal allocation to the intervention from participants.
Blinding of outcome assessment (detection bias) All outcomes	Unclear risk	It was not mentioned whether study personnel and outcome assessors were masked or blinded to study interventions.
Incomplete outcome data (attrition bias) All outcomes	High risk	For all analyses, an intention-to-treat approach was employed with LOCF.
Selective reporting (reporting bias)	Low risk	No selective reporting of outcomes is apparent.
Other bias	Low risk	Trial appears to be free of other problems that could put it at high risk of bias.

Waltman 2010

Methods	Study design: multi-centre RCT Number randomised: 249; 124 to intervention, 125 to control

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Waltman 2010 *(Continued)*

	Study start: not reported; stop date: not reported Length of intervention: 24 months. Length of follow-up: at 36 months Country: USA
Participants	Only baseline characteristics of sample completing the 24-month study period were reported: Age, years (mean SD): • Overall: 58.7 (7.5) • Intervention: age ≤ 60 y - n (%), 60 (55); age > 60 y - 50 (45) • Control: age ≤ 60 y - n (%), 69 (61); age > 60 y - 44 (39) Stage, n (%): • Intervention: stage 0, 17 (14.2); stage I, 57 (47.5); stage II, 46 (38.3) • Control: stage 0-III (proportions not reported) Inclusion criteria: • 35 to 75 years of age • History of stage 0 (in situ), I, or II breast cancer • BMD T-score of -1.0 or less at any of 3 sites (hip, spine, forearm) • At least 6 months post breast cancer treatment and 12 months postmenopausal • Residing within 100 miles of 1 of 4 research sites (Omaha, Lincoln, Kearney, and Scottsbluff, NE) • Physician's permission to participate Exclusion criteria: • Recurrence of breast cancer • Currently taking hormone therapy, bisphosphonates, glucocorticosteroids, or other drugs affecting bone • Currently engaging in strength training exercises • Body mass index ≥ 35 • Serum calcium, creatinine, or thyroid-stimulating hormone (if on thyroid therapy) outside normal limits • Active gastrointestinal problems or other conditions that prohibited strength training exercises; risedronate, calcium, or vitamin D intake
Interventions	124 participants allocated to strength and weight training exercise interventions: • Resistance component: Strength and weight training exercises for hip, spine, and forearm were modified with permission from exercises in Nelson and Wernick's (1997) book entitled *Strong Women Stay Young*. For the first 32 weeks, participants exercised twice weekly for 30 to 45 minutes in their homes; they were not to lift beyond 20-pound hand or ankle weights because of safety concerns. After 32 weeks, participants exercised using weight machines at a nearby fitness centre. Facilitative strategies, such as education, feedback, and coaching—based on Bandura's (1997) self-efficacy theory—were used by both exercise trainers and research nurses during phone contacts and home or fitness centre visits to promote adherence to exercises. • Certified exercise trainers demonstrated exercises to participants and safety precautions in performing exercises, monitored performance during exercises, instructed participants how to progressively

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Waltman 2010 *(Continued)*

increase weights lifted, and assisted participants in the transition from home-based to fitness centre exercise. Exercise trainers made 45-minute home or fitness centre visits to participants every 2 weeks at the beginning of home-based and fitness-centre exercises and every 2 months for the remainder of the 24-month study. At orientation and 6-month booster sessions, an exercise physiologist demonstrated the correct performance of each exercise in the study, safety precautions in performing exercises, and use of weight machines.

Adherence % (self-reported but also validated by research nurses during monthly interviews):

- Average (SD) 24-month adherence to resistance exercise for the 110 women was 69.4% (24.0).

125 participants assigned to control:

- Participants in the comparison group received calcium and vitamin D supplementation and risedronate but performed no resistance exercises.

Outcomes	Outcomes: • BMD at total hip, femoral neck, L1-L4 spine, total radius, and 33% radius measured by DEXA • Bone resorption (nmol/L BCE) assessed via serum NTx assay • Bone formation (U/L) assessed via bone-specific alkaline phosphatase (Alkphase B) serum assay • Muscle strength (peak torque body weight at 60 degrees) assessed via Biodex System 3 Pro Velocity Spectrum Evaluation. Knee, hip, and wrist flexion and extension were measured on the non-dominant, non-operative arm and on 1 leg by physical therapists using this system. • Dynamic balance assessed by the timed backward tandem walk • Adherence was operationally defined as the ratio of reported to desired exercise sessions attended and was further validated by research nurses during a monthly interview via the Adherence and Risk Factor Documentation Interview technique. • Incidence of falls • Physical activity via 7-day physical activity record-adapted Numbers of participants assessed: • Intervention: baseline, 124; at 12 months, not reported; at 24 months, 110 • Control: baseline, 125; at 12 months, not reported; at 24 months, 113 Adverse events: No long-term adverse effects from exercises were noted for any of the 110 women exercising, including women with a history of lymphoedema.
Notes	Trial registration link: https://clinicaltrials.gov/ct2/show/NCT00567606 Trial authors contacted: no Intention-to-treat analysis: yes Funding: National Institute of Nursing Research (1 R01NR07743–01A1)

Risk of bias

Bias	Authors' judgement	Support for judgement
Random sequence generation (selection bias)	Unclear risk	Participants "were randomised to exercise plus medication (n = 110) or medication only (n = 113) treatment groups, and randomisation was stratified by years of post menopause". Randomisation method was not stated.
Allocation concealment (selection bias)	Unclear risk	Whether treatment assignment was concealed from study personnel and participants was not described.
Blinding of participants and personnel (performance bias)	High risk	Owing to the nature of the intervention, it was not possible to conceal allocation to the intervention from participants.

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Waltman 2010 *(Continued)*

All outcomes		
Blinding of outcome assessment (detection bias) All outcomes	Unclear risk	Blinding of outcome assessments was not described.
Incomplete outcome data (attrition bias) All outcomes	Low risk	"intent to treat paradigm was used where data from all participants were analysed according to randomised assignment regardless of protocol adherence" "The generalized estimating equation (GEE) method with an exchangeable structure for repeated measures data was used to fit a generalized linear model to examine factors associated with muscle strength, balance, BMD, and bone turnover including time of testing (baseline, 12 and 24 months) and group assignment (exercise or medication only)".
Selective reporting (reporting bias)	Low risk	No selective reporting of outcomes is apparent..
Other bias	Low risk	Trial appears to be free of other problems that could put it at high risk of bias.

Winters-Stone 2011

Methods	Study design: single-centre RCT Number randomised: 106; 52 to intervention, 54 to control Study start: October 2006; stop date: January 2009 Length of intervention: 12 months Length of follow-up: to end of intervention Country: USA
Participants	Age, years (mean SD): • Intervention: 63.3 (6.7) • Control: 62.2 (6.7) Stage, n (%): • Intervention: stage 0, 4 (7.7); stage I, 20 (38.5); stage II, 25 (48.1); stage IIIA, 1 (1.9); not reported, 2 (3.8) • Control: stage 0, 2 (3.7); stage I, 22 (40.7); stage II, 19 (35.2); stage IIIA, 5 (9.3); not reported, 6 (11.1) Inclusion criteria: • Diagnosis of stage 0–IIIA breast cancer at or after age 50 • Postmenopausal • ≥ 1 year post chemotherapy or radiotherapy • Non-osteoporotic • No bone-altering medication other than adjuvant hormone therapy • Physician clearance to exercise • No regular participation in resistance and/or impact exercise (fewer than two 30-minute sessions per week) in the past month

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Winters-Stone 2011 *(Continued)*

	• Physical and cognitive ability to complete study testing Exclusion criteria: • None reported
Interventions	52 participants assigned to 1-year exercise intervention: • Resistance plus impact intervention (POWIR: Prevent Osteoporosis With Impact + Resistance) used in this study complied with American College of Sports Medicine (ACSM) recommendations for preserving bone health in postmenopausal women by using resistance and/or impact exercise at moderate-to-high bone-loading forces. • Resistance training at loads corresponding to 60% to 70% of 1RM for 1 to 3 sets of 8 to 12 repetitions to build lean mass and strength in novice weight lifters and older adults. Free weights were used to apply resistance—dumbbells for upper body, weighted vests for lower body, and a barbell for 1 combined upper + lower body exercise. • Impact exercise consisted of 2-footed jumps from the ground to a target height 1″ from the floor with a bent-knee landing, performed with weighted vests on and in sets of 10. During a single exercise session, participants warmed up, performed 1 to 6 jump sets, 1 to 2 sets of 3 to 4 upper body exercises, and 3 to 4 lower body exercises, then cooled down. • Home exercises were similar to those performed in the supervised class, except that resistance bands replaced free weights for upper body exercises, and lower body exercises were performed without weighted vests. Adherence: • Total average attendance: intervention, 57%; control, 62% • Supervised-only average attendance: intervention, 76%; control, 72% • Home-only average attendance: intervention, 23%; control, 44% 54 participants assigned to control: • Progressive low-intensity stretching, 3 times per week for 1 year • Participants performed a series of whole body stretching and relaxation exercises in a seated or lying position. • Selected exercises were chosen to minimise weight-bearing forces, so that little stimulus to the musculoskeletal system was applied and energy expenditure was minimal.
Outcomes	Primary outcomes: • Bone mineral density of hip and spine via DEXA • Biomarkers of blood turnover; serum osteocalcin (ng/mL) and urinary deoxypyridinoline cross-links (nmol/mmolCr) by ELISA Other outcomes: • Body weight and body composition assessed via DEXA • Habitual physical activity measured with the CHAMPS physical activity questionnaire for older adults (kcal/day in all activities) • Habitual calcium (dietary + supplemental) • Total energy intake assessed with the 2005 Block Food Frequency Questionnaire Numbers of participants assessed: • Intervention: baseline, 52; at 6 months, 33; at 12 months, 36 • Control: baseline, 54; at 6 months, 32; at 12 months, 31 Adverse events: No adverse effects were associated with participation in either group.
Notes	Trial registration link: https://clinicaltrials.gov/ct2/show/NCT00591747

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Winters-Stone 2011 *(Continued)*

Trial authors contacted: no

Intention-to-treat analysis: yes, but data were available only for per-protocol analyses

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Risk of bias

Bias	Authors' judgement	Support for judgement
Random sequence generation (selection bias)	Unclear risk	Generation of the random sequence was not described
Allocation concealment (selection bias)	High risk	"Group assignments were placed in sealed, sequentially numbered envelopes and opened by the participant following the completion of baseline testing". Envelopes were not opaque.
Blinding of participants and personnel (performance bias) All outcomes	High risk	Owing to the nature of the intervention, it was not possible to conceal allocation to the intervention from participants.
Blinding of outcome assessment (detection bias) All outcomes	Low risk	"Trained technicians blinded to group assignment" carried out testing.
Incomplete outcome data (attrition bias) All outcomes	High risk	The intent-to-treat (ITT) analysis was performed via hierarchical linear modelling. However, although inferences were based on ITT analyses, data were available only for per-protocol analyses (in table format). High attrition rate was reported in the intervention group.
Selective reporting (reporting bias)	Low risk	No selective reporting of outcomes is apparent.
Other bias	Low risk	Trial appears to be free of other problems that could put it at high risk of bias.

1RM: 1-repetition maximum.
7-DPAR: 7-day physical activity recall questionnaire.
ACSM: American College of Sports Medicine.
AIDS: acquired immunodeficiency syndrome.
AIT: aerobic interval training.
API: Aerobic Power Index.
BCE: Bone Collagen Equivalents.
BCPT: Breast Cancer Prevention Trial.
BDI: Beck Depression Inventory.
BES: Body Esteem Scale.
BFLUTS: Bristol Female Lower Urinary Tract Symptoms Questionnaire.
BIQ: Body Image Questionnaire.
BIS: bioimpedance spectroscopy.
BMI: body mass index.
BPI: Brief Pain Inventory.
BPNS: Basic Psychological Needs Satisfaction Scale.
BREQ-2: Behavioral Regulation for Exercise Questionnaire-2.
BRI: bone remodelling index.
BSAP: bone-specific alkaline phosphatase.
CARES-SF: Cancer Rehabilitation Evaluation System Short Form.

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CBT: cognitive-behavioural therapy.
CCS: Canadian Cancer Society.
CE: exercise begun after treatment.
CES-D: Centers for Epidemiological Studies—Depression Scale.
CHAMPS: Community Health Activities Model Program for Seniors.
CI: confidence interval.
CMT: continuous moderate training.
COM: combination of print material and pedometers intervention.
CP: chemotactic protein.
CRP: C-reactive protein.
CTACK: cutaneous T cell-attracting chemokine.
DASH: Disability of the Arm, Shoulder, and Hand questionnaire.
DASS-21: Depression and Anxiety Stress Scale-21.
DCIS: ductal carcinoma in situ.
DEG: delayed exercise group.
DEXA: dual-energy X-ray absorptiometry.
DWR: deep water running.
ECOG: Eastern Cooperative Oncology Group.
EE: exercise begun during treatment.
EEG: early exercise group.
ELISA: enzyme-linked immunosorbent assay.
EORTC QLQ-BR23: European Organization for Research and Treatment of Cancer core quality of life questionnaire.
EORTC QLQ-C30: European Organization for Research and Treatment of Cancer core quality of life questionnaire: breast cancer-specific module.
EuroQoL-5D: European Quality of Life 5 dimensions.
EuroQoL-VAS: European Quality of Life visual analogue scale.
FACIT-F: Functional Assessment of Chronic Illness Therapy - Fatigue.
FACT: Functional Assessment of Cancer Therapy.
FACT-B: Functional Assessment of Cancer Therapy - Breast.
FACT-Cog: Functional Assessment of Cancer Therapy - Cognitive.
FACT-ES: Functional Assessment of Cancer Therapy - Endocrine Subscale.
FACT-F: Functional Assessment of Cancer Therapy - Fatigue.
FACT-G: Functional Assessment of Cancer Therapy - General.
FFQ: Food Frequency Questionnaire.
FGF: fibroblast growth factor.
FSI: Fatigue Symptom Inventory.
FSS: Fatigue Severity Scale.
G-CSF: granulocyte colony-stimulating factor.
gmCSF: granulocyte-macrophage colony-stimulating factor.
GRO: growth-related oncogene.
HADS: Hospital Anxiety and Depression Scale.
HbA1c: glycosylated haemoglobin.
HDL-C: high-density lipoprotein cholesterol.
HF/NS: hot flashes and night sweats.
HGF: hepatocyte growth factor.
HLRE: high-load resistance exercise.
HMWA: high-molecular-weight adiponectin.
HOMA: homeostatic model assessment.
HR: heart rate.
HRmax: maximum heart rate.
HRR: heart rate reserve.
IBCSG: International Breast Cancer Study Group.
ICAM: intercellular adhesion molecule.
IFN: interferon.
IGF: insulin-like growth factor.
IGFBP: insulin-like growth factor binding protein.
IL: interleukin.
IP: inducible protein.
IPAQ: International Physical Activity Questionnaire.
ITT: intention-to-treat.
KPS: Karnofsky Performance Status.
LDL-C: low-density lipoprotein cholesterol.

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LIF: leukaemia inhibitory factor.
LLRE: low-load resistance exercise.
LOCF: last observation carried forward.
LPS: lipopolysaccharide.
LSI: Leisure Score Index; Life Satisfaction Inventory.
LVEF: left ventricular ejection fraction.
MCS-F: macrophage colony-stimulating factor.
MET-h: metabolic equivalent hours.
METs: metabolic equivalents.
MFI: Multi-dimensional Fatigue Inventory.
MFSI: Multi-dimensional Fatigue Symptom Inventory.
MFSI-SF: Multi-dimensional Fatigue Symptom Inventory Short Form.
MI: myocardial infarction.
MIG: monokine induced by IFNγ.
MIP: macrophage inflammatory protein.
MOS SF-36: Medical Outcomes Study Short Form-36.
MVPA: moderate-vigorous physical activity.
NCI: National Cancer Institute.
NCIC: National Cancer Institute of Canada.
NGF: nerve growth factor.
NK: natural killer.
NKCA: natural killer cell activity.
NTx: N-terminal telopeptide.
NYHA: New York Heart Association.
PA: physical activity.
PAL: physical activity log.
PANAS: Positive and Negative Affect Scale.
PDGF: platelet-derived growth factor.
PE: physical education.
PED: pedometer intervention.
PFS: Piper Fatigue Scale.
PFS-R: Revised Piper Fatigue Scale.
PHA: phytohemagglutinin.
PM: print material.
POMS: Profile of Mood States.
PPO: peak power output.
pQCT: peripheral quantitative computed tomography.
PROMIS: Patient Reported Outcomes Measurement Information System.
PSQI: Pittsburgh Sleep Quality Index.
QLQ-BR23: quality of life questionnaire: breast cancer-specific module.
QoL: quality of life.
RCT: randomised controlled trial.
RER: respiratory exchange ratio.
RM: repetition maximum.
RPE: rate of perceived exertion.
RSE: Rosenberg Self-Esteem Scale.
RTR: reach-to-recovery.
SAQ: Sexual Activity Questionnaire.
SCF: stem cell factor.
SCGF: stem cell growth factor.
SCL-90R: Symptom Checklist-90 Revised.
SCT: social cognitive theory.
SD: standard deviation.
SDF: stromal cell-derived factor.
SOC: stage of change.
SPAS-7: Social Physique Anxiety Scale-7.
STAI: State-Trait Anxiety Index.
TC: total cholesterol.
TCC: Tai Chi Chuan.
TG: triglyceride.
TNF: tumour necrosis factor.
TOI: Trial Outcome Index.

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TRAIL: tumour necrosis factor-related apoptosis-inducing ligand.
TTM: Transtheoretical model.
URCC SI: University of Rochester Cancer Center Symptom Inventory.
VCAM: vascular cell adhesion molecule.
VE/VCO_2: minute ventilation carbon dioxide production relationship.
VE/VO_2: minute ventilation oxygen production relationship.
VEGF: vascular endothelial growth factor.
VE_{peak}: peak ventilation.
VO_2max: maximal oxygen uptake.
VO_2peak: peak oxygen uptake.
WCC: white cell count.
WHO: World Health Organization.
WOMAC: Western Ontario and McMaster Universities Osteoarthritis Index.
YMCA: Young Men's Christian Association.
YOCAS: yoga intervention based on gentle Hatha and restorative yoga.

Characteristics of excluded studies *[ordered by study ID]*

Study	Reason for exclusion
Anderson 2012	This study was excluded because it included patients undergoing adjuvant cancer therapy.
Benton 2014	This study was excluded as it did not compare physical activity vs no physical activity or usual care.
Bloom 2008	This study was excluded because the effects of physical activity could not be isolated.
Buffart 2012	This study was excluded because the breast cancer population was not analysed separately.
Burnham 2002	This study was excluded because the breast cancer population was not analysed separately.
Cadmus-Bertram 2011	This study was excluded as it did not compare physical activity vs no physical activity, another intervention, or usual care.
Cantarero-Villanueva 2012	This study was excluded because the effects of physical activity could not be isolated (physical activity + manual therapy).
Cantarero-Villanueva 2012a	This study was excluded because the effects of physical activity could not be isolated (physical activity + manual therapy).
Cantarero-Villanueva 2013a	This study was excluded because the effects of physical activity could not be isolated (physical activity + manual therapy).
Carter 2012	This study was excluded as it did not compare physical activity vs no physical activity or usual care.
Casla 2015	This study was excluded because the effects of physical activity could not be isolated (physical activity + diet modification).
Cheema 2006	This study was excluded as it did not compare physical activity vs no physical activity or usual care.
Cho 2006	This study was excluded because the effects of physical activity could not be isolated (physical activity + education intervention).
Cohen 2010	This study was excluded because all patients were at pretreatment stage.
Culos-Reed 2006	This study was excluded because the breast cancer population was not analysed separately.
Cunningham 1998	This study was excluded because groups included all participants with metastatic disease.

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Study	Reason for exclusion
D'Atillio 2007	This study was excluded because it lacked a non-physical activity comparison group.
Damush 2006	This study was excluded as it did not compare physical activity vs no physical activity or usual care.
Danhauer 2009	This study was excluded because some participants were receiving treatment during the study.
De Backer 2007	This study was excluded as it did not compare physical activity vs no physical activity or usual care.
Demark 2006	This study was excluded because it did not include a separate analysis of participants with breast cancer.
Dimeo 2008	This study was excluded as it did not compare physical activity vs no physical activity or usual care.
Djuric 2002	This study was excluded because the effects of physical activity could not be isolated (physical activity + diet modification).
Eyigor 2010	This study was excluded because it lacked a non-physical activity comparison group.
Fernandez-Lao 2012	This study was excluded because the effects of physical activity could not be isolated (physical activity + manual therapy).
Fernandez-Lao 2013	This study was excluded because it was a non-randomised controlled trial.
Fong 2014	This study was excluded because it was a non-randomised controlled trial.
Galantino 2013	This study was excluded because it did not include a comparison group.
Gordon 2005	This study was excluded because it included exercises restricted to stretching and local muscular endurance (i.e. training of shoulders).
Hanna 2008	This study was excluded as it did not compare physical activity vs no physical activity or usual care.
Hayes 2013	This study was excluded because it included participants undergoing adjuvant cancer therapy.
Headley 2004	This study was excluded because all included participants had metastatic disease initiating chemotherapy.
Hojan 2013	This study was excluded because it did not include a comparison group.
Hsiao-Fang 2013	This study was excluded because it included participants undergoing chemotherapy.
Hsieh 2008	This study was excluded because it included participants undergoing chemotherapy and radiotherapy.
Hunt-Shanks 2006	This study was excluded because it did not include a comparison group.
Husebo 2014	This study was excluded because it included participants undergoing chemotherapy.
Hutnick 2005	This study was excluded because it was a non-randomised controlled trial.
Ibfelt 2011	This study was excluded because the breast cancer population was not analysed separately.
Isabell 2010	This study was excluded because it included participants undergoing chemotherapy and radiotherapy.

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Study	Reason for exclusion
Jeff 2012	This study was excluded because it included exercises restricted to stretching and local muscular endurance (i.e. training of shoulders).
Johansson 2005	This study was excluded as it did not compare physical activity vs no physical activity, another intervention, or usual care.
Johnsson 2013	This study was excluded because it did not include a comparison group.
Kilbreath 2006	This study was excluded because it included exercises restricted to stretching and local muscular endurance (i.e. training of shoulders).
Kilbreath 2012	This study was excluded because it included participants undergoing chemotherapy and radiotherapy.
Kilgour 2008	This study was excluded because it included exercises restricted to stretching and local muscular endurance (i.e. training of shoulders).
Kim Soo 2011	This study was excluded because the effects of physical activity could not be isolated (physical activity + diet modification).
Kovacic 2011	This study did not include a physical activity intervention but used a relaxation intervention instead.
LaStayo 2011	This study was excluded because the breast cancer population was not analysed separately.
Lee 2010	This study was excluded because it compared exercise vs historical control (non-randomised controlled trial).
Ligibel 2012	This study was excluded because the breast cancer population was not analysed separately.
May 2008	This study was excluded because the breast cancer population was not analysed separately.
McClure 2010	This study was excluded because it included exercises restricted to stretching and local muscular endurance (i.e. training of shoulders).
Mefferd 2007	This study was excluded because the effects of physical activity could not be isolated (physical activity + diet modification).
Moadel 2007	This study was excluded because it included participants undergoing chemotherapy and radiotherapy, as well as participants with metastatic disease.
Naraphong 2015	This study was excluded because it included participants undergoing chemotherapy.
Naumann 2012a	This study was excluded because it was a non-randomised controlled trial.
Noble 2012	This study was excluded as it did not compare physical activity vs no physical activity or usual care.
Oh 2010	This study was excluded because the breast cancer population was not analysed separately.
Oldervoll 2011	This study was excluded as it did not compare physical activity vs no physical activity or usual care.
Pinto 2008	This study was excluded as it did not compare physical activity vs no physical activity or usual care.
Pinto 2013	This study was excluded as it did not compare physical activity vs no physical activity or usual care (healthcare professional gave PA advice to both intervention groups).

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Study	Reason for exclusion
Rabin 2006	This study was excluded because it lacked a non-physical activity comparison group.
Rabin 2009	This study was excluded as it did not compare physical activity vs no physical activity or usual care.
Sandel 2005	This study was excluded because it included participants undergoing adjuvant cancer therapy.
Schmidt 2012	This study was excluded because it lacked a non-physical activity comparison group.
Schneider 2007	This study was excluded as it did not compare physical activity vs no physical activity or usual care.
Schwartz 1999	This study was excluded as it did not compare physical activity vs no physical activity or usual care.
Segal 2001	This study was excluded because it included participants undergoing adjuvant cancer therapy.
Sherman 2010	This study was excluded because it was a controlled clinical trial (participants allocated according to patient preference and intervention availability).
Speed-Andrews 2010	This study was excluded because it did not include a comparison group.
Sprod 2005	This study was excluded because it lacked a non-physical activity comparison group.
Sprod 2010	This study was excluded because it was a non-randomised controlled trial.
Stan 2012	This study was excluded as it did not compare physical activity vs no physical activity or usual care.
Stan 2013	This study was excluded as it did not compare physical activity vs no physical activity or usual care.
Stevinson 2007	This study was excluded because the breast cancer population was not analysed separately.
Szczwpanska-Gieracha 2010	This study was excluded as it did not compare physical activity vs no physical activity or usual care.
Tang 2010	This study was excluded because the breast cancer population was not analysed separately.
Taso 2014	This study was excluded because it included participants undergoing adjuvant cancer therapy.
Thorsen 2005	This study was excluded because the breast cancer population was not analysed separately.
Tidhar 2010	This study was excluded because it involved therapeutic exercise regimens addressing only specific impairments related to shoulder, arm, or both.
Turner 2004	This study was excluded as it did not compare physical activity vs no physical activity or usual care.
Ulger 2010	This study was excluded because it did not include a comparison group.
Van Puymbroeck 2011	This study was excluded because it lacked a non-physical activity comparison group.
Van Weert 2005	This study was excluded because the breast cancer population was not analysed separately.
Wong 2012	This study was excluded as it did not compare physical activity vs no physical activity or usual care.
Wu 2008	This study was excluded as it did not compare physical activity vs no physical activity or usual care.
Yuen 2007	This study was excluded because it included participants undergoing adjuvant cancer therapy.

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Characteristics of studies awaiting assessment *[ordered by study ID]*

Lahart 2016

Methods	Study design: RCT Number expected to be randomised: 80; 40 to exercise intervention, 40 to control Study start: January 2010; stop date: March 2013 Length of intervention: 6 months
Participants	Age, years (mean SD): • Intervention: 52.4 (10.3) • Control: 54.7 (8.3) Stage: stage I–III Inclusion criteria: • Females aged 18 to 72 years • Diagnosis of invasive breast cancer (stage I-III) within 2 years of enrolment • Post surgery and no surgery planned for at least the next 6 months • Fully completed adjuvant therapy (radiotherapy and/or chemotherapy) not including hormonal therapy • No previous malignancy • Willing to be randomised • Willing to maintain contact with investigators over 6 months Exclusion criteria: • Inability to participate in PA because of severe disability (e.g. severe arthritic conditions) • Psychiatric illness • Vulnerable individuals, such as pregnant women or any other patients for whom PA was not approved by their oncologist owing to the presence of 1 or more contraindications to exercise for patients with cancer

Interventions	• Intervention:
	  • Participants received a face-to-face consultation, followed by a support telephone call at the end of months 1, 2, and 3 (i.e. a total of 3 telephone calls). During each of the last 2 months (4 and 5), participants received mailed PA reminder leaflets encouraging their participation in home-based physical activity. Face-to-face consultations were conducted by the primary researcher immediately after initial baseline measurements and were based on 4 core motivational interviewing principles: expressing empathy, developing discrepancy, rolling with resistance, and supporting self-efficacy. The goal of follow-up phone calls (end of months 1 to 3) was to prevent relapse back to inactivity and/or improve maintenance of physical activity (accumulating 30 minutes of moderate-intensity PA 3 to 5 days/week); researchers covered topics similar to those discussed in the face-to-face consultation.
	• Usual care:
	  • Participants randomised to the usual care arm received standard information regarding PA (i.e. current recommended PA guidelines), as provided to all participants with breast cancer treated at the site. Usual care group participants were instructed to maintain their current lifestyle.

Outcomes	Primary outcome:

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Lahart 2016 *(Continued)*

	• Total physical activity levels via IPAQ Secondary outcomes: • Weight maintenance and BMI • Body composition (body fat %) via bioelectrical impedence analysis • HRQoL assessed via FACT-B • Blood biomarkers: The Vitros 5 IFS Chemistry System (Ortho Clinical Diagnostics Inc., Rochester, NY, USA) was used to measure all lipid components; however, total cholesterol, HDL-C, and triglycerides were measured on multi-layered slides, whereas measurement of LDL-C required a dual-chamber package. Plasma glucose was measured with the VITROS 5.1 FS Chemistry System (Johnson and Johnson Inc., Langhorne, PA, USA); insulin was estimated via solid-phase 2-site chemiluminescence immunometric assay (Immulite 2000 Analyser, Siemens Healthcare Diagnostics, Deerfield, IL, USA); HOMA-insulin resistance was evaluated from fasting glucose and insulin.
Notes	Country of trial: UK https://clinicaltrials.gov/ct2/show/NCT02408107 Dr. Ian Lahart; I.Lahart@wlv.ac.uk

Lohrisch 2011

Methods	Study design: RCT Number randomised: 22; 11 to exercise intervention, 11 to control Study start: not reported; study completion: not reported Length of intervention: 48 weeks
Participants	Eligible women with postmenopausal early breast cancer had arthralgias/myalgias (A/M) related to adjuvant anastrozole. Among 20 evaluated participants: • Baseline median age was 62. • BMI was 26 kg/m^2 in Exercise and Control arms. • Median number of arthralgia/myalgia sites was 5, with a median worst score of 2 (CTC version 2 criteria).
Interventions	Exercise participants exercised 3 times weekly for 48 weeks: for the first 12 weeks in a supervised setting; for the second 12 weeks, supervised once weekly and independently twice weekly; for the last 24 weeks, independently via aerobic and resistance programmes tailored to their fitness.
Outcomes	Primary outcome: • Change in SF-36 bodily pain domain scores at week 12 (W12) Secondary outcomes: • Change in bone mineral density (BMD) • Change in body mass index (BMI) • Strength (bench press and leg strength) • Hot flash index

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Lohrisch 2011 *(Continued)*

Notes	Study closed owing to poor accrual after 3 years, with 22 (11 exercise and 11 exercise) of the planned 72 participants enrolled at 2 sites among 98 screened. Only conference abstract is available.

Luu 2014

Methods	Study design: RCT Number randomised: 38; 24 to a yoga intervention, 14 to control Study start: not reported; study completion: not reported Length of intervention: 12 weeks
Participants	"Urban underserved breast cancer survivors"
Interventions	Participants were randomised to the treatment group (1-hour Hatha yoga classes) or the wait-list control group. Frequency of yoga classes per week is unclear.
Outcomes	Outcomes: • Quality of life via FACT-B • Spiritual well-being via functional assessment of chronic illness therapy - spiritual well-being
Notes	Only conference abstract is available.

A/M: arthralgia/myalgia.
BMD: bone mineral density.
BMI: body mass index.
CTC: common toxicity criteria.
FACT-B: Functional Assessment of Cancer Therapy - Breast.
HDL-C: high-density lipoprotein cholesterol.
HOMA: homeostatic model assessment.
HRQoL: health-related quality of life.
IPAQ: International Physical Activity Questionnaire.
LDL-C: low-density lipoprotein cholesterol.
PA: physical activity.
RCT: randomised controlled trial.
SD: standard deviation.
SF-36: Short Form-36.

Characteristics of ongoing studies *[ordered by study ID]*

Deli-Conwright 2014

Trial name or title	Exercise Program for Early Breast Cancer Survivors
Methods	Accrual: not reported Accrual target: 100 breast cancer survivors Multi-centre/single-centre: single centre, but participants will be encouraged in a home-based exercise session over 30 to 45 minutes once weekly Phase of trial: not reported

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Deli-Conwright 2014 *(Continued)*

	Country where trial is being conducted: USA (Los Angeles, CA) Any intended follow-up details: 12 weeks Stated study design: RCT, efficacy study
Participants	Inclusion criteria: • Newly diagnosed (I-III) first primary invasive breast cancer • Underwent lumpectomy or mastectomy • Completed neoadjuvant/adjuvant chemotherapy and able to initiate Exercise programme (if randomised to that arm) within 12 weeks of therapy completion • Body mass index (BMI) > 25 kg/m^2 or body fat > 30% (as determined by Dr. Dieli-Conwright at baseline visit) • Currently participate in less than 60 minutes of physical activity per week • May use adjuvant endocrine therapy if use will be continued for duration of study period • Non-smoker (i.e. not smoking during previous 12 months) • Willing to travel to the exercise facility and USC • Able to provide physician clearance to participate in exercise programme • Women of all racial and ethnic backgrounds to be included in the study enrolment process Exclusion criteria: • History of chronic disease including diabetes, uncontrolled hypertension, or thyroid disease • Weight reduction ≥ 10% in the past 6 months • Diagnosis of human epidermal growth factor receptor 2 (HER2)-positive tumour (exclusion due to patient use of Herceptin medication for 1 year following chemotherapy) • Metastatic disease • Planned reconstructive surgery with flap repair during trial and follow-up period • Cardiovascular, respiratory, or musculoskeletal disease or joint problems that preclude moderate physical activity
Interventions	ARM 1: • Intervention details: Participants complete supervised exercise sessions over 60 minutes thrice weekly and are encouraged to participate in a home-based exercise session over 30 to 45 minutes once weekly for 16 weeks. ARM 2: • Comparator details: Participants refrain from increasing physical activity levels for 16 weeks.
Outcomes	Primary outcome: • Change in components of metabolic syndrome (i.e. hypertension, high waist circumference, hyperglycaemia, low/high-density lipoproteins, elevated triglycerides) Secondary outcomes: • Cardiorespiratory fitness (4-minute walk test) • Muscle strength (10-RM leg extension, leg flexion, chest press, seated row) • Body composition (DEXA, weight, height, lean mass, % body fat, hip circumference)

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Deli-Conwright 2014 *(Continued)*

	• Quality of life (SF-36, FACT-B, CES-D) • Shoulder strength (muscle force for scapular plane elevation and external rotation) • Shoulder function (measured with goniometer at 90° external rotation, forward flexion) • Upper limb musculoskeletal disorder assessment (Disabilities of the Arm, Shoulder, and Hand - DASH - and Penn Shoulder Scale - PSS) • Biomarkers - inflammation and endocrine function (analysed in peripheral blood)
Starting date	Start date: May 2012 Estimated completion date: May 2017
Contact information	Christina Dieli-Conwright, PhD; 323-442-2905 Email: cdieli@usc.edu
Notes	Trial registration link: https://clinicaltrials.gov/show/NCT01140282 Sponsor of the trial: University of Southern California, National Cancer Institute This study is still recruiting participants. Intention-to-treat analysis: not reported Funding considerations: not funded by Pharma or otherwise

Galiano-Castillo 2013

Trial name or title	Telehealth System to Improve Quality of Life in Breast Cancer Survivors
Methods	Accrual: 72 Accrual target: 80 breast cancer survivors Multi-centre/single-centre: not reported but most likely home-based (paper or registry does not explicitly say this) Phase of trial: not reported Country where trial is being conducted: Spain Any intended follow-up details: 8 weeks Stated study design: RCT, efficacy study
Participants	Inclusion criteria: • 18 to 65 years of age • Female • Diagnosis of stage I, II, or IIIA breast cancer • Medical clearance for participation • Without chronic disease or orthopaedic disease that would interfere with ability to participate in a physical activity programme • Access to Internet • Basic ability to use the computer or living with a relative who has this ability • Completion of adjuvant therapy except for hormone therapy • No history of cancer recurrence

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Galiano-Castillo 2013 *(Continued)*

	• Interest in improving lifestyle: fitness/stress level • Signed informed consent Exclusion criteria: • Not reported
Interventions	ARM 1: • Intervention details: • Behavioral telerehabilitation group: Interventions will be based on providing cardiovascular, mobility, strength, and stretching exercises through telerehabilitation system. ARM 2: • Comparator details: information about usual care
Outcomes	Primary outcome: • Quality of life (European Organization for Research and Treatment of Cancer Core Quality of Life Questionnaire 30) Secondary outcomes: • Algometry (pressure pain thresholds measured through an electronic algometer) • Pain (visual analogue scale and brief pain inventory) • Body composition (weight, body mass index, skeletal muscle mass, and percentage of body fat obtained through bioelectrical impedance analysis) • Physical measurements (abdominal McQuade test, handgrip strength and back muscle strength via digital dynamometers, and multiple sit-to-stand test used to assess general lower extremity endurance) • Cardiorespiratory fitness (International Fitness Scale and 6-minute walk test) • Fatigue via PFS-Revised • Anxiety and depression via HADS • Cognitive function (Trail Making Test and Auditory Consonant Trigram) • Accelerometry (Actigraph tri-axial accelerometer)
Starting date	Start date: March 2012 Estimated completion date: July 2014
Contact information	Manuel Arroyo-Morales Email: marroyo@ugr.es
Notes	Trial registration link: https://clinicaltrials.gov/ct2/show/NCT01801527 Sponsor of the trial: Universidad de Granada and Carlos III Health Institute Intention-to-treat analysis: not reported Funding considerations: not funded by Pharma or otherwise

IRCT2014042117379N1

Trial name or title	Comparing Self-Efficacy, Outcome Expectations for Promoting the Physical Activity of Women With Breast Cancer in Two Groups With and Without Educational Program
Methods	Study design: RCT

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IRCT2014042117379N1 *(Continued)*

	Number expected to be randomised: 70 Study start: September 2014; estimated stop date: November 2015 Length of intervention: 8 weeks
Participants	50 malignant neoplasms of breast cancer Inclusion criteria: • Final diagnosis of breast cancer by a physician • Individual consent and spousal consent if married • Physician's written consent to participation in the educational programme • Ability to read and write Exclusion criteria: • Therapist's prescription for a ban on attending sessions • Lack of desire to participate in the study • Absence for more than 1 session during educational sessions • Cognitive disorder diagnosed during the educational intervention Age: not reported
Interventions	Intervention 1: • The first session is devoted to identifying need for patient education in the experimental group. Participants then receive education during at least 4 90-minute sessions with respect to the barriers to self-efficacy in physical activity, energy management, stress management, lymphoedema prevention, and other topics mentioned in the group. Training sessions are presented in PowerPoint by relevant experts on each topic. • Educational activities are intended for promotion of self-efficacy, brainstorming strategies, verbal persuasion, successor experience, and framing questions in the group. Usual care: • No special arrangement is made for the control group, except for normal medical care.
Outcomes	Primary outcomes: • Self-efficacy for physical activity (measured before and 1 month after the intervention via the standard self-efficacy questionnaire for physical activity by Bandura) • Outcome expectation for physical activity (measured before and 1 month after the intervention via the "questionnaire") Seconday outcome: • Physical activity (measured before and 3 months after the intervention by "standard physical activity measurement questionnaire")
Starting date	20 March 2014
Contact information	Rahele Solymani Rahelesolymani@hlth.mui.ac.ir; raheel_s59@yahoo.com
Notes	Country of trial: Iran, Islamic Republic of

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IRCT2014042117379N1 *(Continued)*

http://apps.who.int/trialsearch/Trial2.aspx?TrialID=IRCT2014042117379N1

KIlbreath 2011

Trial name or title	Exercise to Prevent Osteoporosis as a Consequence of Hormone Treatment in Post Menopausal Women Treated for Breast Cancer
Methods	Accrual: not reported Accrual target: 60 Multi-centre/single-centre: multi-centre Phase of trial: not reported Country where trial is being conducted: Australia Any intended follow-up details: no follow-up Stated study design: RCT, blinded
Participants	Inclusion criteria • Postmenopausal • Above 18 years of age • Mmenses history and/or surgery • Stage I-III breast cancer • Oestrogen receptor and/or progesterone receptor positive breast cancer • Commenced taking aromatase inhibitor within 10 weeks • Eastern Collaborative Oncology Group performance status ≤ 2 (Oken et al, 1982) • Sedentary. Exclusion criteria • Any clinical or radiological evidence of distant spread of disease • Any HRT in the past 12 months • Taken bisphosphonates in the past 6 months • Prior treatment with continuous systemic glucocorticoids in the past 6 months • Current treatment with any drugs known to affect the skeleton (e.g. calcitonin, calcitriol, mithramycin, gallium nitrate) • History of diseases that influence bone metabolism, such as Paget's disease or ongoing thyroid toxicosis • Previous or concomitant malignancy (apart from breast cancer) in the past 5 years except adequately treated basal or squamous cell carcinoma of the skin or in situ carcinoma of the cervix
Interventions	ARM 1: • Intervention details: exercise programme - exercise training will run for 12 months, 3 times per week for approximately 1 hour each session. A trainer will meet women at their local community gym 3 times per week for the first 4 weeks, then once a month for the rest of the year. The programme will consist of a 5-minute warm-up, 25 minutes of high-impact exercise using steps (jumping, running, hopping), 25 minutes of resistance exercise in the limbs and trunk with free

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KIlbreath 2011 *(Continued)*

	weights and resistance equipment, and a 5-minute cool-down. Daily calcium carbonate (1200 mg) and vitamin D (1000 IU) supplements ARM 2: • Comparator details: daily calcium carbonate (1200 mg) and vitamin D (1000 IU) supplements. No exercise prescription
Outcomes	Primary outcome: • Bone mineral density (DEXA scans of spine and hip) Secondary outcomes: • Biochemical markers of bone remodelling (bone formation and resorption) • Self-report outcomes (quality of life questionnaire and medical outcomes survey short forms) • Lymphoedema status • Bone mineral density (DEXA scans of trochanteric, femoral neck, and spinal bone mineral density)
Starting date	Start date: May 2008 Estimated completion date: not reported
Contact information	Prof Sharon Kilbreath Email: sharon.kilbreath@sydney.edu.au
Notes	Trial registration link: https://www.anzctr.org.au/Trial/Registration/TrialReview.aspx?id=82762 Sponsor of the trial: Cancer Australia Trial authors were contacted and we were informed by the authors that the study had been completed and they were preparing for publication. Intention-to-treat analysis: not reported Funding considerations: not funded by Pharma or otherwise

NCT02057536

Trial name or title	The Effect of an Exercise Program in Breast Cancer Patients With Joint Pain While Taking Aromatase Inhibitors
Methods	Study design: RCT Number expected to be randomised: 30 Study start: January 2014; estimated stop date: January 2015 Length of intervention: 8 weeks
Participants	Stage: I-III Time since cancer diagnosis: not specified Inclusion criteria: • Women over age 40 with histological evidence of hormone receptor positive breast cancer • Postmenopausal • Adjuvant AI therapy

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NCT02057536 *(Continued)*

	• Significant joint discomfort/stiffness when attempting activities of daily living, which began or significantly increased after initiation of AI therapy • Currently not in an active directed exercise programme (> 60 minutes 2×/week) • Age: 40 years or older Ethnicity: not reported
Interventions	8-Week directed exercise programme
Outcomes	Primary objective: • Change in Pain Disability Index from baseline to 8 weeks
Starting date	January 2014
Contact information	Christiana Care/Helen F. Graham Cancer Center, Newark, DE, USA 19713
Notes	Country of trial: USA https://ClinicalTrials.gov/show/NCT02057536

NCT02235051

Trial name or title	Exercise Intervention in Preventing Breast Cancer Recurrence in Postmenopausal Breast Cancer Survivors
Methods	Study design: RCT Number expected to be randomised: 50 Study start: May 2015; estimated stop date: November 2016 Length of intervention: 16 weeks
Participants	Stage: I-IIIA Time since cancer diagnosis: within first 3 years post treatment Inclusion criteria: • Women with diagnosis of first primary invasive oestrogen receptor (ER) positive (+) breast cancer (stage I-IIIA) within first 3 years post treatment • Postmenopausal women • Women of childbearing potential and men must agree to use adequate contraception (hormonal or barrier method of birth control or abstinence) before study entry and for 6 months following duration of study participation; should a woman become pregnant or suspect that she is pregnant while participating in the trial, she should inform her treating physician immediately • Any body mass index (BMI) • Sedentary (has not participated in a regular exercise programme in the past 12 months) • Non-smoker (not smoking during previous 12 months) • Willing and able to travel to the exercise facility • Diagnosis of first primary invasive ER+ breast cancer (stage I-IIIA)

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NCT02235051 *(Continued)*

	• Has undergone a lumpectomy or mastectomy • Completed adjuvant chemotherapy and/or radiation within 3 years before study enrolment (when cytokine levels are predicted to be high) and able to initiate an exercise programme • May use adjuvant endocrine therapy if use will be continued for duration of study period • Must have the ability to understand and the willingness to sign a written informed consent Age: 56 years and older Ethnicity: not reported
Interventions	Patients participate in a supervised Curves exercise programme 3 days a week for 16 weeks. The circuit-style workout consists of 14 exercises constructed with pneumatic or hydraulic resistance that target opposing muscle groups in a concentric-only fashion. Each session at a Curves facility will include 2 complete circuits, which corresponds to exercising for approximately 30 minutes, followed by a standardised stretching routine.
Outcomes	Primary objectives: • To test the hypothesis that regular exercise increases DNA repair capacity • To test the hypothesis that regular exercise reduces inflammatory response • To test the hypothesis that regular exercise modulates telomerase activity Secondary objectives: • To assess adherence to the study protocol • To examine differences in body composition before and after the exercise intervention • To examine differences in fitness before and after the exercise intervention • To test the hypothesis that regular exercise improves quality of life in breast cancer survivors • To examine the safety of the exercise intervention
Starting date	May 2015
Contact information	Principal Investigator: Jessica Clague DeHart Contact: Jessica Clague DeHart; 800-826-4673; jclague@coh.org
Notes	Country of trial: USA https://ClinicalTrials.gov/show/NCT02235051

NCT02332876

Trial name or title	Physical Activity and Neuropsychological Outcomes in a Cancer Population
Methods	Study design: RCT Number expected to be randomised: 87 Study start: August 2014; estimated stop date: August 2017 Length of intervention: 12 weeks
Participants	Stage: I-III Time since cancer diagnosis: less than 5 years

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NCT02332876 *(Continued)*

	Inclusion criteria: • Breast cancer survivors; diagnosis at stage I, II, or III less than 5 years ago • Not scheduled for or currently undergoing chemotherapy; sedentary, defined as engaging in less than 60 minutes of moderate-to-vigorous physical activity each week • Accessible geographically and by telephone • Access to the Internet • Endorse experience difficulties with thinking abilities • Participants on adjuvant therapy (e.g. tamoxifen, aromatase inhibitors) must be able and willing to remain on that treatment for the 3-month intervention period to prevent confounding of biomarker concentrations by treatment. Age: 21 to 85 years Ethnicity: not reported
Interventions	12-Week individually tailored phone and email-based exercise programme
Outcomes	Primary objective: • Change in score on the NIH Toolbox Cognition measure from baseline to 12 weeks
Starting date	August 2014
Contact information	Sheri Hartman, Assistant Professor, University of California, San Diego
Notes	Country of trial: USA https://ClinicalTrials.gov/show/NCT02332876

NCT02420249

Trial name or title	Qigong for Breast Cancer Survivors
Methods	Study design: RCT Number expected to be randomised: 60 Study start: March 2015; estimated stop date: May 2017 Length of intervention: 3 months
Participants	Stage: not reported Time since cancer diagnosis: not reported Inclusion criteria: • History of a breast malignancy at any stage • History of mastectomy or lumpectomy with or without adjuvant chemotherapy or radiotherapy • Completed conventional cancer treatment and medically stable • No known neurological deficits resulting from breast cancer treatment or other neurological disorders

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NCT02420249 *(Continued)*

	• Persistent lymphoedema defined as a circumference difference > 2 cm at any point between the surgical upper limb and the contralateral upper limb • Female aged 18 or above Age: 18 years or above Ethnicity: Chinese
Interventions	Participants assigned to the Qigong group will receive Qigong training. The Qigong training programme will be run for 3 months with 2 supervised 1-hour sessions per week. Participants will learn the 18 Forms of Tai Chi Internal Qigong. Training sessions will be conducted by a qualified Qigong instructor from the Natural Health Qigong Association.
Outcomes	Primary objectives: • Change in upper limb circumference • Change in arterial resistance and blood flow velocities • Change in shoulder flexibility • Change in shoulder muscular strength • Change in body balance Secondary objective: • Change in quality of life
Starting date	March 2015
Contact information	Shirley SM Fong, PT, PhD; 852-970-90337; smfong@hku.hk
Notes	Country of trial: Hong Kong https://ClinicalTrials.gov/show/NCT02420249

NCT02433067

Trial name or title	Physical Activity Intervention on Myocardial Function in Patients With HER2 + Breast Cancer (CARDAPAC)
Methods	Study design: RCT Number expected to be randomised: 117 Study start: April 2015; estimated stop date: April 2017 Length of intervention: 12 weeks
Participants	Stage: not specified Time since cancer diagnosis: receiving adjuvant trastuzumab after undergoing surgery for breast cancer Inclusion criteria: • First breast cancer HER2 + histologically confirmed

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NCT02433067 *(Continued)*

	• WHO grade performance index ≤ 1 • Normal renal function (creatinine clearance ≥ 60 mL/min^{-1}) • Normal heart function with LVEF ≥ 50% • Normal liver function (AST and ALT normal) • Physical activity certificate issued by a cardiologist or an oncologist • Active contraception or postmenopausal • Age: 18 to 65 years Ethnicity: not reported
Interventions	Participants will participate in a physical activity intervention 3 times per week for 3 months and an interval training programme on a cycle-ergometer.
Outcomes	Primary objective: • To evaluate any change in the left ventricular ejection fraction (LVEF), as evaluated by echocardiography, from baseline to 6 months Secondary objectives: To measure any changes in the following from baseline to 3 months and 6 months: • Weight and volume of left and right ventricular by echocardiography • Body composition evaluated by impedance and with tape measure and pliers of Harpenden • Metabolic responses evaluated with enzyme-linked immunosorbent assay (ELISA) • Maximal voluntary quadriceps evaluated with chair quadriceps with strain gauge • Quality of life evaluated with questionnaire • Pain evaluated with questionnaire • Fatigue evaluated with questionnaire • Level of physical activity evaluated with questionnaire • Pulmonary function evaluated with respiratory functional test and maximal exercise test • Hormonal responses evaluated with ELISA • inflammatory responses evaluated with ELISA
Starting date	April 2015
Contact information	Contact: Fabienne Mougin-Guillaume, PhD; fabienne.mougin-guillaume@univ-fcomte.fr Principal Investigator: Nathalie Meneveau
Notes	Country of trial: France https://clinicaltrials.gov/show/NCT02433067

NCT02527889

Trial name or title	The Effect of Resistive Exercise on Forearm Blood Flow and Tissue Oxygenation Among Breast Cancer Survivors With or at Risk for Breast Cancer-Related Lymphoedema (BCRL)
Methods	Study design: RCT Number expected to be randomised: 150 Study start: July 2015; estimated stop date: December 2016 Length of intervention: 8 weeks

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NCT02527889 *(Continued)*

Participants	Stage: not reported Time since cancer diagnosis: not reported Inclusion criteria: • Female breast cancer survivors • Remained disease free, as defined by unremarkable clinical examination within recent 6 months, with a clinical diagnosis of stable lymphoedema and without lymphoedema Age: 18 to 70 years Ethnicity: Chinese
Interventions	Participants assigned to the exercise group will receive a supervised resistive exercise programme, which includes 1-hour physiotherapist-supervised small group-based exercise sessions twice a week for 8 weeks. Before resistive exercises, participants will perform warm-up with movements of large joints and shoulder girdle for 15 minutes. Resistive exercises will focus on the major muscle groups in the upper body. Loading of resistive exercises will be prescribed and progressed according to individual capacity and will reach a level of moderate-to-high loading (6 to 12 repetition maximum); these will be followed by stretching exercises specific to the muscle groups trained after the session. Control group: no intervention; all 30 participants recruited
Outcomes	Primary objectives: • Changes in brachial artery blood flow as measured by a Doppler ultrasonic device with a linear probe • Changes in tissue oxygenation as measured by near-infrared spectroscopy Secondary objectives: To measure changes at 20 weeks in: • Arm circumference as measured by a tape measure at 10-cm interval from the ulnar styloid process • Extent of lymphoedema as measured by bioelectrical impedance spectroscopy • Self-reported lymphoedema symptoms • Hand grip strength as measured by hand grip dynamometer • Upper limb range of motion measurement • Shoulder range of motion measured with a standard goniometer • Quality of life measured by FACT-Breast Cancer Subscale Questionnaire
Starting date	July 2015
Contact information	Rufina Lau; (852)27666718; Rufina.Lau@polyu.edu.hk
Notes	Country of trial: Hong Kong https://clinicaltrials.gov/ct2/show/NCT02527889

ALT: alanine aminotransferase.
AST: aspartate aminotransferase.
BMI: body mass index.
CES-D: Centers for Epidemiological Studies—Depression Scale.
DASH: Disability of the Arm, Shoulder, and Hand questionnaire.
DEXA: dual-energy X-ray absorptiometry.
ELISA: enzyme-linked immunosorbent assay.

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FACT-B: Functional Assessment of Cancer Therapy - Breast.
HADS: Hospital Anxiety and Depression Scale.
HER2: human epidermal growth factor receptor 2.
LVEF: left ventricular ejection fraction.
PFS: Piper Fatigue Scale.
PSS: Penn Shoulder Scale.
RCT: randomised controlled trial.
RM: repetition maximum.
USC: University of Southern California.
WHO: World Health Organization.

DATA AND ANALYSES

Comparison 1. Comparison: HRQoL outcomes, all physical activity vs control

Outcome or subgroup title	No. of studies	No. of participants	Statistical method	Effect size
1 Overall HRQoL (follow-up values)	22		Std. Mean Difference (IV, Random, 95% CI)	Subtotals only
1.1 End of intervention	22	1996	Std. Mean Difference (IV, Random, 95% CI)	0.39 [0.21, 0.57]
1.2 Follow-up	4	418	Std. Mean Difference (IV, Random, 95% CI)	0.20 [0.00, 0.39]
2 Overall HRQoL (change values)	14		Std. Mean Difference (IV, Random, 95% CI)	Subtotals only
2.1 End of intervention	14	1459	Std. Mean Difference (IV, Random, 95% CI)	0.78 [0.39, 1.17]
2.2 Follow-up	2	132	Std. Mean Difference (IV, Random, 95% CI)	0.52 [0.15, 0.88]
3 FACT-G (follow-up values)	10		Mean Difference (IV, Random, 95% CI)	Subtotals only
3.1 End of intervention	10	1094	Mean Difference (IV, Random, 95% CI)	7.06 [2.82, 11.30]
3.2 Follow-up	3	342	Mean Difference (IV, Random, 95% CI)	2.81 [-0.46, 6.08]
4 FACT-G (change values)	6		Mean Difference (IV, Random, 95% CI)	Subtotals only
4.1 End of intervention	6	663	Mean Difference (IV, Random, 95% CI)	5.04 [1.32, 8.75]
4.2 Follow-up	2	132	Mean Difference (IV, Random, 95% CI)	6.16 [1.63, 10.69]
5 FACT-B (follow-up values)	11		Mean Difference (IV, Random, 95% CI)	Subtotals only
5.1 End of intervention	11	1395	Mean Difference (IV, Random, 95% CI)	6.31 [1.15, 11.47]
5.2 Follow-up	4	421	Mean Difference (IV, Random, 95% CI)	3.77 [0.11, 7.43]
6 FACT-B (change values)	6		Mean Difference (IV, Random, 95% CI)	Subtotals only

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Outcome or subgroup title	No. of studies	No. of participants	Statistical method	Effect size
6.1 End of intervention	6	605	Mean Difference (IV, Random, 95% CI)	8.16 [2.56, 13.76]
6.2 Follow-up	2	132	Mean Difference (IV, Random, 95% CI)	6.95 [1.34, 12.56]
7 FACT Breast Cancer Subscale (follow-up values)	11		Mean Difference (IV, Random, 95% CI)	Subtotals only
7.1 End of intervention	11	1043	Mean Difference (IV, Random, 95% CI)	1.98 [0.92, 3.04]
7.2 Follow-up	4	386	Mean Difference (IV, Random, 95% CI)	3.20 [-0.65, 7.05]
8 FACT Breast Cancer Subscale (change values)	7		Mean Difference (IV, Random, 95% CI)	Subtotals only
8.1 End of intervention	7	646	Mean Difference (IV, Random, 95% CI)	1.78 [-0.14, 3.70]
8.2 Follow-up	1	36	Mean Difference (IV, Random, 95% CI)	1.30 [-1.56, 4.16]
9 FACT Trial Outcome Index (follow-up values)	4		Mean Difference (IV, Random, 95% CI)	Subtotals only
9.1 End of intervention	4	658	Mean Difference (IV, Random, 95% CI)	7.90 [-1.24, 17.04]
9.2 Follow-up	1	213	Mean Difference (IV, Random, 95% CI)	3.60 [0.01, 7.19]
10 EORTC QLQ-C30 Global Health (follow-up values)	4		Mean Difference (IV, Random, 95% CI)	Subtotals only
10.1 End of intervention	4	195	Mean Difference (IV, Random, 95% CI)	7.85 [2.16, 13.55]
10.2 Follow-up	0	0	Mean Difference (IV, Random, 95% CI)	0.0 [0.0, 0.0]
11 EORTC QLQ-C30 Global Health (change values)	4		Mean Difference (IV, Random, 95% CI)	Subtotals only
11.1 End of intervention	4	633	Mean Difference (IV, Random, 95% CI)	9.53 [-2.43, 21.49]
11.2 Follow-up	0	0	Mean Difference (IV, Random, 95% CI)	0.0 [0.0, 0.0]
12 Overall emotional function/mental health (follow-up values)	26		Std. Mean Difference (IV, Random, 95% CI)	Subtotals only
12.1 End of intervention	26	2102	Std. Mean Difference (IV, Random, 95% CI)	0.21 [0.10, 0.32]
12.2 Follow-up	7	655	Std. Mean Difference (IV, Random, 95% CI)	0.20 [0.03, 0.36]
13 Overall emotional function/mental health (change values)	15		Std. Mean Difference (IV, Random, 95% CI)	Subtotals only
13.1 End of intervention	15	1579	Std. Mean Difference (IV, Random, 95% CI)	0.31 [0.09, 0.53]

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Outcome or subgroup title	No. of studies	No. of participants	Statistical method	Effect size
13.2 Follow-up	3	179	Std. Mean Difference (IV, Random, 95% CI)	0.06 [-0.29, 0.41]
14 FACT Emotional well-being (follow-up values)	11		Mean Difference (IV, Random, 95% CI)	Subtotals only
14.1 End of intervention	11	1064	Mean Difference (IV, Random, 95% CI)	0.47 [0.01, 0.94]
14.2 Follow-up	3	311	Mean Difference (IV, Random, 95% CI)	0.14 [-0.85, 1.14]
15 FACT Emotional well-being (change values)	6		Mean Difference (IV, Random, 95% CI)	Subtotals only
15.1 End of intervention	6	582	Mean Difference (IV, Random, 95% CI)	0.96 [0.34, 1.57]
15.2 Follow-up	1	36	Mean Difference (IV, Random, 95% CI)	0.79 [-0.67, 2.25]
16 MOS SF Mental composite (follow-up values)	5		Mean Difference (IV, Random, 95% CI)	Subtotals only
16.1 End of intervention	5	563	Mean Difference (IV, Random, 95% CI)	0.49 [-1.09, 2.06]
16.2 Follow-up	3	281	Mean Difference (IV, Random, 95% CI)	2.27 [0.05, 4.50]
17 MOS SF Mental composite (change values)	2		Mean Difference (IV, Fixed, 95% CI)	Subtotals only
17.1 End of intervention	2	294	Mean Difference (IV, Fixed, 95% CI)	2.22 [-0.95, 5.40]
17.2 Follow-up	0	0	Mean Difference (IV, Fixed, 95% CI)	0.0 [0.0, 0.0]
18 MOS SF Mental health (follow-up values)	7		Mean Difference (IV, Random, 95% CI)	Subtotals only
18.1 End of intervention	7	524	Mean Difference (IV, Random, 95% CI)	1.67 [-0.65, 3.99]
18.2 Follow-up	2	196	Mean Difference (IV, Random, 95% CI)	3.49 [-0.97, 7.95]
19 MOS SF Mental health (change values)	5		Mean Difference (IV, Fixed, 95% CI)	Subtotals only
19.1 End of intervention	5	333	Mean Difference (IV, Fixed, 95% CI)	2.22 [0.70, 3.74]
19.2 Follow-up	0	0	Mean Difference (IV, Fixed, 95% CI)	0.0 [0.0, 0.0]
20 MOS SF Emotional role (follow-up values)	5		Mean Difference (IV, Fixed, 95% CI)	Subtotals only
20.1 End of intervention	5	330	Mean Difference (IV, Fixed, 95% CI)	-0.00 [-1.09, 1.09]
20.2 Follow-up	1	120	Mean Difference (IV, Fixed, 95% CI)	3.06 [-11.55, 17.67]
21 MOS SF Emotional role (change values)	4		Mean Difference (IV, Fixed, 95% CI)	Subtotals only

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Outcome or subgroup title	No. of studies	No. of participants	Statistical method	Effect size
21.1 End of intervention	4	213	Mean Difference (IV, Fixed, 95% CI)	0.23 [-0.79, 1.24]
21.2 Follow-up	0	0	Mean Difference (IV, Fixed, 95% CI)	0.0 [0.0, 0.0]
22 EORTC QLQ-C30 Emotional function (follow-up values)	3		Mean Difference (IV, Random, 95% CI)	Subtotals only
22.1 End of intervention	3	135	Mean Difference (IV, Random, 95% CI)	11.53 [3.96, 19.11]
22.2 Follow-up	0	0	Mean Difference (IV, Random, 95% CI)	0.0 [0.0, 0.0]
23 EORTC QLQ-C30 Emotional function (change values)	3		Mean Difference (IV, Random, 95% CI)	Subtotals only
23.1 End of intervention	3	573	Mean Difference (IV, Random, 95% CI)	0.90 [-5.12, 6.92]
23.2 Follow-up	0	0	Mean Difference (IV, Random, 95% CI)	0.0 [0.0, 0.0]
24 POMS total mood disturbance (follow-up values)	3		Std. Mean Difference (IV, Random, 95% CI)	Subtotals only
24.1 End of intervention	3	161	Std. Mean Difference (IV, Random, 95% CI)	-0.93 [-1.55, -0.32]
24.2 Follow-up	1	61	Std. Mean Difference (IV, Random, 95% CI)	-0.54 [-1.06, -0.03]
25 POMS total mood disturbance (change values)	2		Std. Mean Difference (IV, Random, 95% CI)	Subtotals only
25.1 End of intervention	2	143	Std. Mean Difference (IV, Random, 95% CI)	0.07 [-0.65, 0.79]
25.2 Follow-up	2	143	Std. Mean Difference (IV, Random, 95% CI)	0.09 [-0.23, 0.42]
26 POMS anger subscale (follow-up values)	2		Std. Mean Difference (IV, Random, 95% CI)	Subtotals only
26.1 End of intervention	2	79	Std. Mean Difference (IV, Random, 95% CI)	-0.78 [-1.25, -0.31]
26.2 Follow-up	1	61	Std. Mean Difference (IV, Random, 95% CI)	-0.44 [-0.94, 0.07]
27 Happiness/satisfaction with life (follow-up values)	4		Std. Mean Difference (IV, Random, 95% CI)	Subtotals only
27.1 End of intervention	4	209	Std. Mean Difference (IV, Random, 95% CI)	0.61 [-0.16, 1.37]
27.2 Follow-up	0	0	Std. Mean Difference (IV, Random, 95% CI)	0.0 [0.0, 0.0]

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Outcome or subgroup title	No. of studies	No. of participants	Statistical method	Effect size
28 Happiness/satisfaction with life (change values)	3		Std. Mean Difference (IV, Random, 95% CI)	Subtotals only
28.1 End of intervention	3	182	Std. Mean Difference (IV, Random, 95% CI)	0.28 [-0.05, 0.62]
28.2 Follow-up	0	0	Std. Mean Difference (IV, Random, 95% CI)	0.0 [0.0, 0.0]
29 Overall physical function (follow-up values)	25		Std. Mean Difference (IV, Random, 95% CI)	Subtotals only
29.1 End of intervention	25	2129	Std. Mean Difference (IV, Random, 95% CI)	0.33 [0.18, 0.49]
29.2 Follow-up	6	637	Std. Mean Difference (IV, Random, 95% CI)	0.21 [0.06, 0.37]
30 Overall physical function (change values)	13		Std. Mean Difference (IV, Random, 95% CI)	Subtotals only
30.1 End of intervention	13	1433	Std. Mean Difference (IV, Random, 95% CI)	0.60 [0.23, 0.97]
30.2 Follow-up	1	36	Std. Mean Difference (IV, Random, 95% CI)	0.17 [-0.48, 0.83]
31 FACT Physical well-being (follow-up values)	11		Mean Difference (IV, Random, 95% CI)	Subtotals only
31.1 End of intervention	11	1064	Mean Difference (IV, Random, 95% CI)	1.44 [0.31, 2.56]
31.2 Follow-up	3	311	Mean Difference (IV, Random, 95% CI)	1.17 [0.22, 2.12]
32 FACT Physical well-being (change values)	6		Mean Difference (IV, Random, 95% CI)	Subtotals only
32.1 End of intervention	6	579	Mean Difference (IV, Random, 95% CI)	1.60 [-0.85, 4.05]
32.2 Follow-up	1	36	Mean Difference (IV, Random, 95% CI)	0.9 [-2.37, 4.17]
33 MOS SF Physical composite (follow-up values)	4		Mean Difference (IV, Fixed, 95% CI)	Subtotals only
33.1 End of intervention	4	437	Mean Difference (IV, Fixed, 95% CI)	1.78 [0.12, 3.43]
33.2 Follow-up	2	163	Mean Difference (IV, Fixed, 95% CI)	1.30 [-1.23, 3.82]
34 MOS SF Physical composite (change values)	2		Mean Difference (IV, Fixed, 95% CI)	Subtotals only
34.1 End of intervention	2	294	Mean Difference (IV, Fixed, 95% CI)	2.56 [-0.13, 5.25]
34.2 Follow-up	0	0	Mean Difference (IV, Fixed, 95% CI)	0.0 [0.0, 0.0]

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Outcome or subgroup title	No. of studies	No. of participants	Statistical method	Effect size
35 MOS SF Physical function (follow-up values)	7		Mean Difference (IV, Random, 95% CI)	Subtotals only
35.1 End of intervention	7	515	Mean Difference (IV, Random, 95% CI)	2.09 [0.03, 4.15]
35.2 Follow-up	2	239	Mean Difference (IV, Random, 95% CI)	2.71 [-1.58, 6.99]
36 MOS SF Physical function (change values)	5		Mean Difference (IV, Random, 95% CI)	Subtotals only
36.1 End of intervention	5	333	Mean Difference (IV, Random, 95% CI)	2.08 [0.21, 3.94]
36.2 Follow-up	0	0	Mean Difference (IV, Random, 95% CI)	0.0 [0.0, 0.0]
37 EORTC QLQ-C30 Physical function (follow-up values)	3		Mean Difference (IV, Random, 95% CI)	Subtotals only
37.1 End of intervention	3	135	Mean Difference (IV, Random, 95% CI)	2.99 [-1.64, 7.63]
37.2 Follow-up	0	0	Mean Difference (IV, Random, 95% CI)	0.0 [0.0, 0.0]
38 EORTC QLQ-C30 Physical function (change values)	3		Mean Difference (IV, Random, 95% CI)	Subtotals only
38.1 End of intrevention	3	573	Mean Difference (IV, Random, 95% CI)	3.12 [-3.24, 9.49]
38.2 Follow-up	0	0	Mean Difference (IV, Random, 95% CI)	0.0 [0.0, 0.0]
39 Body Esteem Scale - Physical condition (follow-up values)	2		Mean Difference (IV, Random, 95% CI)	Subtotals only
39.1 End of intervention	2	106	Mean Difference (IV, Random, 95% CI)	4.41 [0.57, 8.25]
39.2 Follow-up	0	0	Mean Difference (IV, Random, 95% CI)	0.0 [0.0, 0.0]
40 Overall role function (follow-up values)	18		Std. Mean Difference (IV, Random, 95% CI)	Subtotals only
40.1 End of intervention	18	1370	Std. Mean Difference (IV, Random, 95% CI)	0.29 [0.07, 0.51]
40.2 Follow-up	2	249	Std. Mean Difference (IV, Random, 95% CI)	0.13 [-0.12, 0.38]
41 Overall role function (change values)	12		Std. Mean Difference (IV, Random, 95% CI)	Subtotals only
41.1 End of intervention	12	1315	Std. Mean Difference (IV, Random, 95% CI)	0.14 [-0.05, 0.33]
41.2 Follow-up	1	36	Std. Mean Difference (IV, Random, 95% CI)	0.37 [-0.29, 1.03]

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Outcome or subgroup title	No. of studies	No. of participants	Statistical method	Effect size
42 FACT Functional well-being (follow-up values)	11		Mean Difference (IV, Random, 95% CI)	Subtotals only
42.1 End of intervention	11	1064	Mean Difference (IV, Random, 95% CI)	1.67 [0.29, 3.06]
42.2 Follow-up	2	249	Mean Difference (IV, Random, 95% CI)	0.68 [-0.65, 2.01]
43 FACT Functional well-being (change values)	6		Mean Difference (IV, Fixed, 95% CI)	Subtotals only
43.1 End of intervention	6	582	Mean Difference (IV, Fixed, 95% CI)	0.72 [0.42, 1.01]
43.2 Follow-up	1	36	Mean Difference (IV, Fixed, 95% CI)	1.31 [-1.02, 3.64]
44 MOS SF Physical role (follow-up values)	3		Mean Difference (IV, Fixed, 95% CI)	Subtotals only
44.1 End of intervention	3	143	Mean Difference (IV, Fixed, 95% CI)	-0.16 [-1.47, 1.15]
44.2 Follow-up	0	0	Mean Difference (IV, Fixed, 95% CI)	0.0 [0.0, 0.0]
45 MOS SF Physical role (change values)	3		Mean Difference (IV, Random, 95% CI)	Subtotals only
45.1 End of intervention	3	155	Mean Difference (IV, Random, 95% CI)	0.46 [-1.52, 2.43]
45.2 Follow-up	0	0	Mean Difference (IV, Random, 95% CI)	0.0 [0.0, 0.0]
46 EORTC QLQ-C30 Role function (follow-up values)	3		Mean Difference (IV, Random, 95% CI)	Subtotals only
46.1 End of intervention	3	135	Mean Difference (IV, Random, 95% CI)	0.44 [-5.78, 6.66]
46.2 Follow-up	0	0	Mean Difference (IV, Random, 95% CI)	0.0 [0.0, 0.0]
47 EORTC QLQ-C30 Role function (change values)	3		Mean Difference (IV, Fixed, 95% CI)	Subtotals only
47.1 End of intervention	3	573	Mean Difference (IV, Fixed, 95% CI)	-1.08 [-4.52, 2.36]
47.2 Follow-up	0	0	Mean Difference (IV, Fixed, 95% CI)	0.0 [0.0, 0.0]
48 Overall social well-being/function (follow-up values)	18		Std. Mean Difference (IV, Random, 95% CI)	Subtotals only
48.1 End of intervention	18	1557	Std. Mean Difference (IV, Random, 95% CI)	0.19 [0.08, 0.30]
48.2 Follow-up	1	213	Std. Mean Difference (IV, Random, 95% CI)	0.09 [-0.18, 0.36]
49 Overall social well-being/function (change values)	12		Std. Mean Difference (IV, Random, 95% CI)	Subtotals only

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Outcome or subgroup title	No. of studies	No. of participants	Statistical method	Effect size
49.1 End of intervention	12	1384	Std. Mean Difference (IV, Random, 95% CI)	0.52 [0.16, 0.87]
49.2 Follow-up	1	36	Std. Mean Difference (IV, Random, 95% CI)	0.69 [0.01, 1.36]
50 FACT Social well-being (follow-up values)	11		Mean Difference (IV, Random, 95% CI)	Subtotals only
50.1 End of intervention	11	1064	Mean Difference (IV, Random, 95% CI)	0.77 [0.11, 1.43]
50.2 Follow-up	1	213	Mean Difference (IV, Random, 95% CI)	0.5 [-1.02, 2.02]
51 FACT Social well-being (change values)	6		Mean Difference (IV, Fixed, 95% CI)	Subtotals only
51.1 End of intervention	6	582	Mean Difference (IV, Fixed, 95% CI)	1.93 [1.58, 2.28]
51.2 Follow-up	1	36	Mean Difference (IV, Fixed, 95% CI)	3.86 [0.17, 7.55]
52 MOS SF Social functioning (follow-up values)	5		Mean Difference (IV, Fixed, 95% CI)	Subtotals only
52.1 End of intervention	5	234	Mean Difference (IV, Fixed, 95% CI)	-0.32 [-1.87, 1.23]
52.2 Follow-up	0	0	Mean Difference (IV, Fixed, 95% CI)	0.0 [0.0, 0.0]
53 MOS SF Social functioning (change values)	4		Mean Difference (IV, Fixed, 95% CI)	Subtotals only
53.1 End of intervention	4	213	Mean Difference (IV, Fixed, 95% CI)	1.05 [-0.08, 2.18]
53.2 Follow-up	0	0	Mean Difference (IV, Fixed, 95% CI)	0.0 [0.0, 0.0]
54 EORTC QLQ-C30 Social function (follow-up values)	2		Mean Difference (IV, Random, 95% CI)	Subtotals only
54.1 End of intervention	2	73	Mean Difference (IV, Random, 95% CI)	7.55 [-11.77, 26.86]
54.2 Follow-up	0	0	Mean Difference (IV, Random, 95% CI)	0.0 [0.0, 0.0]
55 EORTC QLQ-C30 Social function (change values)	3		Mean Difference (IV, Random, 95% CI)	Subtotals only
55.1 End of intervention	3	573	Mean Difference (IV, Random, 95% CI)	2.14 [-8.02, 12.30]
55.2 Follow-up	0	0	Mean Difference (IV, Random, 95% CI)	0.0 [0.0, 0.0]
56 Overall cognitive function (follow-up values)	5		Std. Mean Difference (IV, Random, 95% CI)	Subtotals only
56.1 End of intervention	5	189	Std. Mean Difference (IV, Random, 95% CI)	0.40 [0.11, 0.69]

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Outcome or subgroup title	No. of studies	No. of participants	Statistical method	Effect size
56.2 Follow-up	2	97	Std. Mean Difference (IV, Random, 95% CI)	0.31 [-0.09, 0.71]
57 Overall cognitive function (change values)	5		Std. Mean Difference (IV, Random, 95% CI)	Subtotals only
57.1 End of intervention	5	672	Std. Mean Difference (IV, Random, 95% CI)	-0.00 [-0.27, 0.26]
57.2 Follow-up	2	97	Std. Mean Difference (IV, Random, 95% CI)	0.20 [-0.20, 0.60]
58 EORTC QLQ-C30 Cognitive function (follow-up values)	2		Mean Difference (IV, Fixed, 95% CI)	Subtotals only
58.1 End of intervention	2	73	Mean Difference (IV, Fixed, 95% CI)	2.43 [-5.75, 10.61]
58.2 Follow-up	0	0	Mean Difference (IV, Fixed, 95% CI)	0.0 [0.0, 0.0]
59 EORTC QLQ-C30 Cognitive function (change values)	3		Mean Difference (IV, Fixed, 95% CI)	Subtotals only
59.1 End of intervention	3	573	Mean Difference (IV, Fixed, 95% CI)	-3.25 [-6.31, -0.18]
59.2 Follow-up	0	0	Mean Difference (IV, Fixed, 95% CI)	0.0 [0.0, 0.0]
60 POMS confusion subscale (follow-up values)	2		Std. Mean Difference (IV, Fixed, 95% CI)	Subtotals only
60.1 End of intervention	2	79	Std. Mean Difference (IV, Fixed, 95% CI)	-0.66 [-1.12, -0.19]
60.2 Follow-up	1	61	Std. Mean Difference (IV, Fixed, 95% CI)	-0.45 [-0.96, 0.06]
61 Overall general health (follow-up values)	9		Std. Mean Difference (IV, Random, 95% CI)	Subtotals only
61.1 End of intervention	9	456	Std. Mean Difference (IV, Random, 95% CI)	0.18 [-0.08, 0.45]
61.2 Follow-up	1	36	Std. Mean Difference (IV, Random, 95% CI)	-0.22 [-0.87, 0.44]
62 Overall general health (change values)	9		Std. Mean Difference (IV, Random, 95% CI)	Subtotals only
62.1 End of intervention	9	906	Std. Mean Difference (IV, Random, 95% CI)	0.17 [-0.07, 0.40]
62.2 Follow-up	1	36	Std. Mean Difference (IV, Random, 95% CI)	0.07 [-0.59, 0.72]
63 MOS SF General health (follow-up values)	5		Mean Difference (IV, Random, 95% CI)	Subtotals only

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Outcome or subgroup title	No. of studies	No. of participants	Statistical method	Effect size
63.1 End of intervention	5	233	Mean Difference (IV, Random, 95% CI)	2.14 [-2.61, 6.88]
63.2 Follow-up	0	0	Mean Difference (IV, Random, 95% CI)	0.0 [0.0, 0.0]
64 MOS SF General health (change values)	4		Mean Difference (IV, Fixed, 95% CI)	Subtotals only
64.1 End of intervention	4	213	Mean Difference (IV, Fixed, 95% CI)	0.10 [-1.26, 1.45]
64.2 Follow-up	0	0	Mean Difference (IV, Fixed, 95% CI)	0.0 [0.0, 0.0]
65 Overall sexual function (follow-up values)	5		Std. Mean Difference (IV, Fixed, 95% CI)	Subtotals only
65.1 End of intervention	5	411	Std. Mean Difference (IV, Fixed, 95% CI)	0.16 [-0.04, 0.35]
65.2 Follow-up	1	102	Std. Mean Difference (IV, Fixed, 95% CI)	0.19 [-0.20, 0.58]
66 Overall sexual function (change values)	3		Std. Mean Difference (IV, Random, 95% CI)	Subtotals only
66.1 End of intervention	3	693	Std. Mean Difference (IV, Random, 95% CI)	0.22 [-0.08, 0.52]
66.2 Follow-up	0	0	Std. Mean Difference (IV, Random, 95% CI)	0.0 [0.0, 0.0]
67 Body Esteem Scale - sexual attractiveness (follow-up values)	2		Mean Difference (IV, Fixed, 95% CI)	Subtotals only
67.1 End of intervention	2	100	Mean Difference (IV, Fixed, 95% CI)	1.71 [-1.41, 4.82]
67.2 Follow-up	0	0	Mean Difference (IV, Fixed, 95% CI)	0.0 [0.0, 0.0]
68 Overall sleep (follow-up values)	5		Std. Mean Difference (IV, Fixed, 95% CI)	Subtotals only
68.1 End of intervention	5	188	Std. Mean Difference (IV, Fixed, 95% CI)	-0.09 [-0.37, 0.20]
68.2 Follow-up	1	31	Std. Mean Difference (IV, Fixed, 95% CI)	-0.49 [-1.20, 0.23]
69 Overall sleep (change values)	3		Std. Mean Difference (IV, Random, 95% CI)	Subtotals only
69.1 End of intervention	3	136	Std. Mean Difference (IV, Random, 95% CI)	0.14 [-0.20, 0.48]
69.2 Follow-up	0	0	Std. Mean Difference (IV, Random, 95% CI)	0.0 [0.0, 0.0]
70 PSQI Global sleep score (follow-up values)	5		Mean Difference (IV, Fixed, 95% CI)	Subtotals only
70.1 End of intervention	5	317	Mean Difference (IV, Fixed, 95% CI)	-0.47 [-1.01, 0.08]

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Outcome or subgroup title	No. of studies	No. of participants	Statistical method	Effect size
70.2 Follow-up	1	31	Mean Difference (IV, Fixed, 95% CI)	-1.5 [-3.63, 0.63]
71 PSQI Global sleep score (change values)	2		Mean Difference (IV, Fixed, 95% CI)	Subtotals only
71.1 End of intervention	2	80	Mean Difference (IV, Fixed, 95% CI)	0.54 [-1.11, 2.19]
71.2 Follow-up	0	0	Mean Difference (IV, Fixed, 95% CI)	0.0 [0.0, 0.0]
72 PSQI sleep quality (follow-up values)	2		Mean Difference (IV, Random, 95% CI)	Subtotals only
72.1 End of intervention	2	80	Mean Difference (IV, Random, 95% CI)	-0.24 [-0.81, 0.32]
72.2 Follow-up	0	0	Mean Difference (IV, Random, 95% CI)	0.0 [0.0, 0.0]
73 PSQI sleep efficiency (follow-up values)	3		Mean Difference (IV, Fixed, 95% CI)	Subtotals only
73.1 End of intervention	3	100	Mean Difference (IV, Fixed, 95% CI)	0.15 [-0.24, 0.53]
73.2 Follow-up	0	0	Mean Difference (IV, Fixed, 95% CI)	0.0 [0.0, 0.0]
74 PSQI sleep latency (follow-up values)	3		Mean Difference (IV, Fixed, 95% CI)	Subtotals only
74.1 End of intervention	3	100	Mean Difference (IV, Fixed, 95% CI)	0.19 [-0.16, 0.55]
74.2 Follow-up	0	0	Mean Difference (IV, Fixed, 95% CI)	0.0 [0.0, 0.0]
75 PSQI sleep duration (follow-up values)	2		Mean Difference (IV, Fixed, 95% CI)	Subtotals only
75.1 End of intervention	2	80	Mean Difference (IV, Fixed, 95% CI)	0.06 [-0.28, 0.41]
75.2 Follow-up	0	0	Mean Difference (IV, Fixed, 95% CI)	0.0 [0.0, 0.0]
76 PSQI daytime dysfunction (follow-up values)	3		Mean Difference (IV, Random, 95% CI)	Subtotals only
76.1 End of intervention	3	100	Mean Difference (IV, Random, 95% CI)	-0.08 [-0.51, 0.35]
76.2 Follow-up	0	0	Mean Difference (IV, Random, 95% CI)	0.0 [0.0, 0.0]
77 PSQI medication use (follow-up values)	2		Std. Mean Difference (IV, Random, 95% CI)	Subtotals only
77.1 End of intervention	2	80	Std. Mean Difference (IV, Random, 95% CI)	-0.06 [-0.50, 0.38]
77.2 Follow-up	0	0	Std. Mean Difference (IV, Random, 95% CI)	0.0 [0.0, 0.0]

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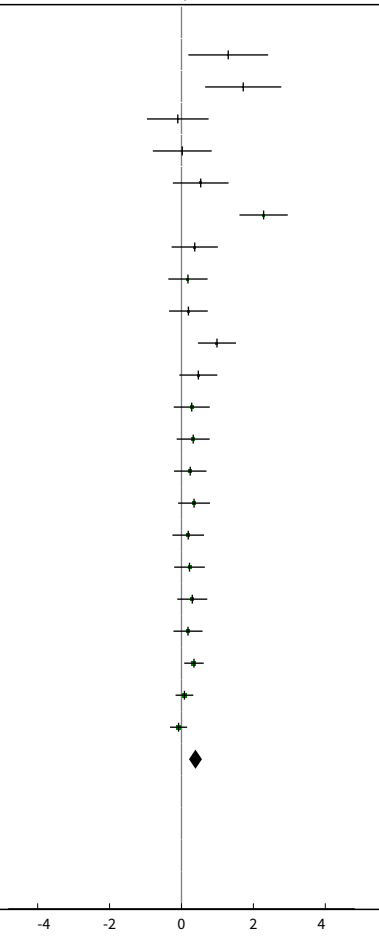
Outcome or subgroup title	No. of studies	No. of participants	Statistical method	Effect size
78 Accelerator-derived sleep efficiency (follow-up values)	2		Mean Difference (IV, Fixed, 95% CI)	Subtotals only
78.1 End of intervention	2	62	Mean Difference (IV, Fixed, 95% CI)	-2.25 [-5.52, 1.01]
78.2 Follow-up	0	0	Mean Difference (IV, Fixed, 95% CI)	0.0 [0.0, 0.0]
79 Accelerator-derived sleep latency (follow-up values)	2		Mean Difference (IV, Fixed, 95% CI)	Subtotals only
79.1 End of intervention	2	62	Mean Difference (IV, Fixed, 95% CI)	-2.04 [-4.78, 0.69]
79.2 Follow-up	0	0	Mean Difference (IV, Fixed, 95% CI)	0.0 [0.0, 0.0]

Analysis 1.1. Comparison 1 Comparison: HRQoL outcomes, all physical activity vs control, Outcome 1 Overall HRQoL (follow-up values).

Study or subgroup	Physical activity N	Physical activity Mean(SD)	Control N	Control Mean(SD)	Std. Mean Difference Random, 95% CI	Weight	Std. Mean Difference Random, 95% CI
1.1.1 End of intervention							
Herrero 2006	8	81.3 (10.7)	8	62.5 (16.1)		1.96%	1.3[0.19,2.41]
Cerulli 2014	10	85.2 (4.2)	10	65.9 (14.7)		2.1%	1.72[0.66,2.78]
Mustian 2004	11	121.7 (22.7)	10	124.3 (25.9)		2.79%	-0.1[-0.96,0.75]
Loudon 2014	12	-7.4 (1.2)	11	-7.4 (1.4)		2.96%	0.02[-0.8,0.84]
Portela 2008	25	107.2 (28.5)	9	91.6 (28.5)		3.16%	0.53[-0.24,1.31]
Milne 2008	29	86.4 (8.3)	29	64.1 (10.8)		3.69%	2.28[1.61,2.96]
Rogers 2009	20	92 (11.4)	18	87.4 (13.1)		3.86%	0.37[-0.27,1.01]
Courneya 2003	24	91.3 (11)	28	89.3 (10.9)		4.46%	0.18[-0.37,0.73]
Ergun 2013	40	71.6 (19.9)	20	67.9 (16.7)		4.52%	0.19[-0.35,0.73]
Murtezani 2014	30	86.5 (7.3)	32	79.1 (7.5)		4.58%	0.99[0.46,1.52]
Mehnert 2011	30	74.7 (21.7)	27	65.4 (16.8)		4.59%	0.47[-0.06,1]
Do 2015	32	87.3 (13.7)	30	82.4 (19.9)		4.78%	0.28[-0.22,0.79]
Cadmus 2009	37	91.2 (12.6)	37	86.2 (17.4)		5.08%	0.33[-0.13,0.78]
Pinto 2015	39	117.8 (12.7)	37	114 (18)		5.13%	0.24[-0.21,0.69]
Schmitz 2005	39	-44.2 (8.7)	40	-47.4 (9.4)		5.18%	0.35[-0.09,0.79]
Taleghani 2012	40	217.5 (36.3)	40	210.1 (41.5)		5.22%	0.19[-0.25,0.63]
Loh 2014	63	112.4 (14.1)	32	109.3 (13.3)		5.31%	0.22[-0.2,0.65]
Daley 2007	33	90.9 (13.5)	69	86.4 (15.1)		5.39%	0.3[-0.12,0.72]
Littman 2012	30	90.3 (11)	110	87.7 (15)		5.48%	0.18[-0.22,0.59]
Rogers 2015	105	88.1 (12.4)	108	83.2 (15.5)		6.46%	0.35[0.08,0.62]
Vallance 2007	250	91.5 (11.8)	85	90.6 (13)		6.63%	0.08[-0.16,0.33]
Short 2014	195	106.8 (16.7)	104	108.2 (18.2)		6.68%	-0.08[-0.32,0.16]
Subtotal ***	**1102**		**894**			**100%**	**0.39[0.21,0.57]**
Heterogeneity: Tau^2=0.11; Chi^2=65.99, df=21(P<0.0001); I^2=68.17%							
Test for overall effect: Z=4.23(P<0.0001)							
1.1.2 Follow-up							



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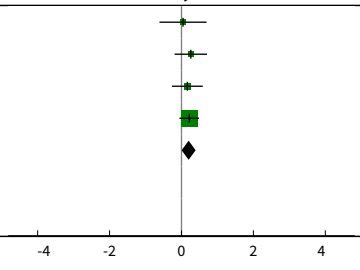
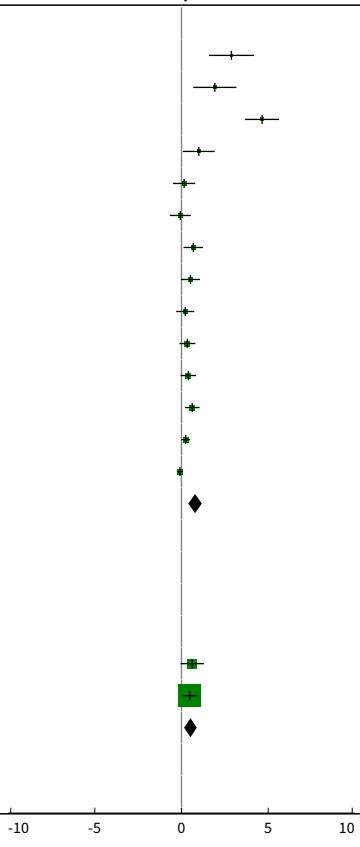
Study or subgroup	Physical activity N	Physical activity Mean(SD)	Control N	Control Mean(SD)	Std. Mean Difference Random, 95% CI	Weight	Std. Mean Difference Random, 95% CI
Rogers 2009	19	86.1 (13.6)	17	85.4 (18.4)		8.89%	0.04[-0.61,0.7]
Pinto 2015	39	115.7 (15)	37	111.4 (17.7)		18.65%	0.26[-0.19,0.71]
Daley 2007	31	90.3 (14.9)	65	87.9 (14.3)		20.74%	0.16[-0.26,0.59]
Rogers 2015	105	86.9 (14.5)	105	83.6 (15.8)		51.72%	0.22[-0.05,0.49]
Subtotal ***	**194**		**224**			**100%**	**0.2[0,0.39]**
Heterogeneity: Tau²=0; Chi²=0.33, df=3(P=0.95); I²=0%							
Test for overall effect: Z=1.99(P=0.05)							



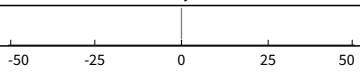
Analysis 1.2. Comparison 1 Comparison: HRQoL outcomes, all physical activity vs control, Outcome 2 Overall HRQoL (change values).

Study or subgroup	Physical activity N	Physical activity Mean(SD)	Control N	Control Mean(SD)	Std. Mean Difference Random, 95% CI	Weight	Std. Mean Difference Random, 95% CI
1.2.1 End of intervention							
Mustian 2004	11	15 (5)	10	0 (5)		4.53%	2.88[1.59,4.17]
Herrero 2006	8	17.7 (8.3)	8	-10.4 (17.7)		4.69%	1.92[0.68,3.17]
Murtezani 2014	30	9.2 (2.1)	32	-0.6 (2)		5.72%	4.65[3.67,5.63]
Naumann 2012	11	14.5 (10.6)	10	3.1 (11.4)		5.99%	1[0.08,1.92]
Rogers 2009	20	4.5 (8.4)	18	2.9 (12)		7.23%	0.15[-0.49,0.79]
Cuesta-Vargas 2014	22	0.3 (0.2)	20	0.3 (0.1)		7.37%	-0.07[-0.67,0.54]
Courneya 2003	24	5.7 (7.4)	28	0.6 (7.4)		7.56%	0.68[0.12,1.24]
Ergun 2013	40	5.4 (21.5)	20	-6.7 (25.9)		7.63%	0.52[-0.03,1.06]
Mehnert 2011	30	9.7 (21)	27	5.6 (16.5)		7.73%	0.22[-0.31,0.74]
Cadmus 2009	37	0.6 (7.5)	37	-2.4 (9.8)		7.97%	0.34[-0.12,0.8]
Schmitz 2005	39	2.3 (4.5)	40	0.6 (4)		8.02%	0.4[-0.05,0.84]
Daley 2007	33	10.2 (11.2)	69	3.2 (11.3)		8.11%	0.62[0.2,1.04]
Vallance 2007	250	2.3 (11.1)	85	-0.2 (6.4)		8.65%	0.24[-0,0.49]
Saarto 2012	263	4.2 (16.2)	237	5.6 (15.4)		8.8%	-0.09[-0.26,0.09]
Subtotal ***	**818**		**641**			**100%**	**0.78[0.39,1.17]**
Heterogeneity: Tau²=0.44; Chi²=124.6, df=13(P<0.0001); I²=89.57%							
Test for overall effect: Z=3.93(P<0.0001)							
1.2.2 Follow-up							
Rogers 2009	19	3.4 (11)	17	-3.5 (10.8)		29.38%	0.62[-0.05,1.29]
Daley 2007	31	9.7 (15.2)	65	4 (9.9)		70.62%	0.47[0.04,0.91]
Subtotal ***	**50**		**82**			**100%**	**0.52[0.15,0.88]**
Heterogeneity: Tau²=0; Chi²=0.13, df=1(P=0.72); I²=0%							
Test for overall effect: Z=2.78(P=0.01)							



Analysis 1.3. Comparison 1 Comparison: HRQoL outcomes, all physical activity vs control, Outcome 3 FACT-G (follow-up values).

Study or subgroup	Physical activity N	Physical activity Mean(SD)	Control N	Control Mean(SD)	Mean Difference Random, 95% CI	Weight	Mean Difference Random, 95% CI
1.3.1 End of intervention							



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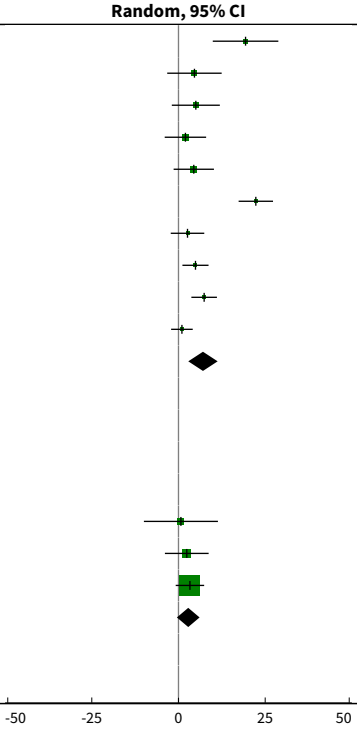
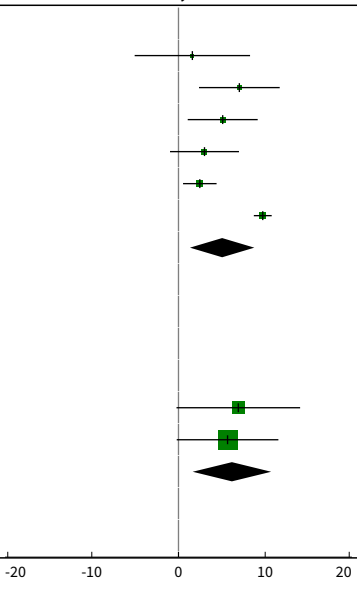
Study or subgroup	Physical activity N	Physical activity Mean(SD)	Control N	Control Mean(SD)	Mean Difference Random, 95% CI	Weight	Mean Difference Random, 95% CI
Cerulli 2014	10	85.2 (4.2)	10	65.9 (14.7)		7.6%	19.34[9.89,28.79]
Rogers 2009	20	92 (11.4)	18	87.4 (13.1)		8.61%	4.6[-3.25,12.45]
Cadmus 2009	37	91.2 (12.6)	37	86.2 (17.4)		9.21%	5[-1.92,11.92]
Courneya 2003	24	91.3 (11)	28	89.3 (10.9)		9.83%	2[-3.97,7.97]
Daley 2007	33	90.9 (13.5)	69	86.4 (15.1)		9.94%	4.41[-1.4,10.22]
Milne 2008	29	86.4 (8.3)	29	64.1 (10.8)		10.47%	22.3[17.34,27.26]
Littman 2012	30	90.3 (11)	110	87.7 (15)		10.54%	2.6[-2.23,7.43]
Rogers 2015	105	88.1 (12.4)	108	83.2 (15.5)		11.14%	4.9[1.14,8.66]
Murtezani 2014	30	86.5 (7.3)	32	79.1 (7.5)		11.19%	7.4[3.72,11.08]
Vallance 2007	250	91.5 (11.8)	85	90.6 (13)		11.46%	0.99[-2.13,4.11]
Subtotal ***	**568**		**526**			**100%**	**7.06[2.82,11.3]**
Heterogeneity: Tau²=38.26; Chi²=64.11, df=9(P<0.0001); I²=85.96%							
Test for overall effect: Z=3.26(P=0)							
1.3.2 Follow-up							
Rogers 2009	19	86.1 (13.6)	17	85.4 (18.4)		9.4%	0.7[-9.97,11.37]
Daley 2007	31	90.3 (14.9)	65	87.9 (14.3)		26.95%	2.39[-3.91,8.69]
Rogers 2015	105	86.9 (14.5)	105	83.6 (15.8)		63.64%	3.3[-0.8,7.4]
Subtotal ***	**155**		**187**			**100%**	**2.81[-0.46,6.08]**
Heterogeneity: Tau²=0; Chi²=0.22, df=2(P=0.89); I²=0%							
Test for overall effect: Z=1.68(P=0.09)							



Analysis 1.4. Comparison 1 Comparison: HRQoL outcomes, all physical activity vs control, Outcome 4 FACT-G (change values).

Study or subgroup	Physical activity N	Physical activity Mean(SD)	Control N	Control Mean(SD)	Mean Difference Random, 95% CI	Weight	Mean Difference Random, 95% CI
1.4.1 End of intervention							
Rogers 2009	20	4.5 (8.4)	18	2.9 (12)		12.31%	1.6[-5.05,8.25]
Daley 2007	33	10.2 (11.2)	69	3.2 (11.3)		15.43%	7.02[2.37,11.67]
Courneya 2003	24	5.7 (7.4)	28	0.6 (7.4)		16.41%	5.1[1.07,9.13]
Cadmus 2009	37	0.6 (7.5)	37	-2.4 (9.8)		16.51%	3[-0.98,6.98]
Vallance 2007	250	2.3 (11.1)	85	-0.2 (6.4)		19.3%	2.46[0.53,4.39]
Murtezani 2014	30	9.2 (2.1)	32	-0.6 (2)		20.05%	9.72[8.69,10.75]
Subtotal ***	**394**		**269**			**100%**	**5.04[1.32,8.75]**
Heterogeneity: Tau²=17.63; Chi²=53.23, df=5(P<0.0001); I²=90.61%							
Test for overall effect: Z=2.66(P=0.01)							
1.4.2 Follow-up							
Rogers 2009	19	3.4 (11)	17	-3.5 (10.8)		40.34%	6.9[-0.23,14.03]
Daley 2007	31	9.7 (15.2)	65	4 (9.9)		59.66%	5.66[-0.2,11.52]
Subtotal ***	**50**		**82**			**100%**	**6.16[1.63,10.69]**
Heterogeneity: Tau²=0; Chi²=0.07, df=1(P=0.79); I²=0%							
Test for overall effect: Z=2.67(P=0.01)							



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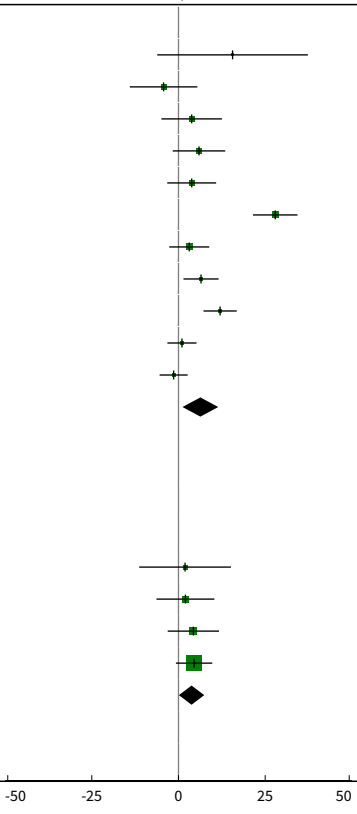
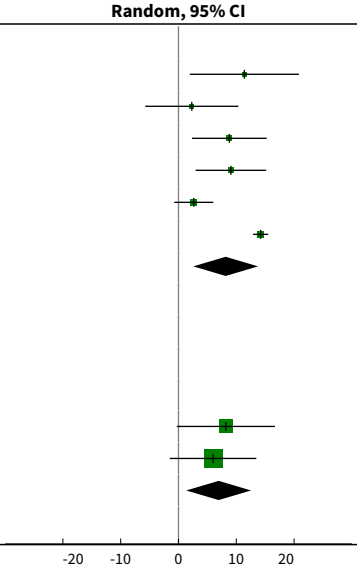
Analysis 1.5. Comparison 1 Comparison: HRQoL outcomes, all physical activity vs control, Outcome 5 FACT-B (follow-up values).

Study or subgroup	Physical activity N	Physical activity Mean(SD)	Control N	Control Mean(SD)	Mean Difference Random, 95% CI	Weight	Mean Difference Random, 95% CI
1.5.1 End of intervention							
Portela 2008	25	107.2 (28.5)	9	91.6 (28.5)		3.77%	15.6[-6.11,37.31]
Rogers 2009	20	114.4 (16.2)	18	118.7 (14.4)		8.07%	-4.3[-14.03,5.43]
Courneya 2003	24	119.6 (16.9)	28	115.8 (14.9)		8.55%	3.8[-4.93,12.53]
Daley 2007	33	115.1 (17.6)	69	109.2 (19.5)		9.1%	5.91[-1.66,13.48]
Pinto 2015	39	117.8 (12.7)	37	114 (18)		9.34%	3.81[-3.24,10.86]
Milne 2008	29	110.5 (10.3)	29	82.6 (14.3)		9.63%	27.9[21.49,34.31]
Loh 2014	63	112.4 (14.1)	32	109.3 (13.3)		9.92%	3.11[-2.65,8.87]
Rogers 2015	105	115.9 (17.2)	108	109.4 (20.4)		10.2%	6.5[1.44,11.56]
Murtezani 2014	30	113.2 (9.7)	32	101.2 (9.5)		10.31%	12[7.22,16.78]
Vallance 2007	250	120.2 (16.3)	85	119.2 (17.3)		10.53%	1[-3.2,5.2]
Short 2014	219	106.8 (16.7)	111	108.2 (18.2)		10.58%	-1.4[-5.44,2.64]
Subtotal ***	**837**		**558**			**100%**	**6.31[1.15,11.47]**
Heterogeneity: Tau^2=61.3; Chi^2=75.46, df=10(P<0.0001); I^2=86.75%							
Test for overall effect: Z=2.4(P=0.02)							
1.5.2 Follow-up							
Rogers 2009	19	112.6 (17.6)	17	110.7 (22.3)		7.64%	1.9[-11.33,15.13]
Daley 2007	31	115.4 (20.1)	65	113.4 (18.2)		19.21%	2[-6.34,10.34]
Pinto 2015	39	115.7 (15)	37	111.4 (17.7)		24.43%	4.29[-3.11,11.69]
Rogers 2015	105	115.1 (18.8)	108	110.6 (20.2)		48.73%	4.5[-0.74,9.74]
Subtotal ***	**194**		**227**			**100%**	**3.77[0.11,7.43]**
Heterogeneity: Tau^2=0; Chi^2=0.34, df=3(P=0.95); I^2=0%							
Test for overall effect: Z=2.02(P=0.04)							



Analysis 1.6. Comparison 1 Comparison: HRQoL outcomes, all physical activity vs control, Outcome 6 FACT-B (change values).

Study or subgroup	Physical activity N	Physical activity Mean(SD)	Control N	Control Mean(SD)	Mean Difference Random, 95% CI	Weight	Mean Difference Random, 95% CI
1.6.1 End of intervention							
Naumann 2012	11	14.5 (10.6)	10	3.1 (11.4)		13.02%	11.4[1.96,20.84]
Rogers 2009	20	5.4 (10.8)	18	3.1 (14.1)		14.49%	2.3[-5.75,10.35]
Courneya 2003	24	9.1 (14.1)	28	0.3 (8.5)		16.22%	8.8[2.34,15.26]
Daley 2007	33	13.5 (14.6)	69	4.4 (15)		16.6%	9.07[2.96,15.18]
Vallance 2007	250	3.8 (12.7)	80	1.2 (13.7)		19.23%	2.64[-0.75,6.03]
Murtezani 2014	30	13.4 (2.7)	32	-0.8 (2.5)		20.45%	14.21[12.9,15.52]
Subtotal ***	**368**		**237**			**100%**	**8.16[2.56,13.76]**
Heterogeneity: Tau^2=39.49; Chi^2=47.55, df=5(P<0.0001); I^2=89.48%							
Test for overall effect: Z=2.86(P=0)							
1.6.2 Follow-up							
Rogers 2009	19	4.1 (12)	17	-4.1 (13.8)		43.69%	8.2[-0.29,16.69]
Daley 2007	31	13.5 (19.6)	65	7.5 (11.8)		56.31%	5.98[-1.5,13.46]
Subtotal ***	**50**		**82**			**100%**	**6.95[1.34,12.56]**
Heterogeneity: Tau^2=0; Chi^2=0.15, df=1(P=0.7); I^2=0%							



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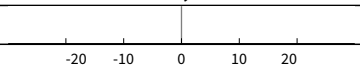
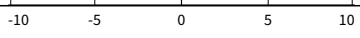
Study or subgroup	Physical activity N	Physical activity Mean(SD)	Control N	Control Mean(SD)	Mean Difference Random, 95% CI	Weight	Mean Difference Random, 95% CI
Test for overall effect: Z=2.43(P=0.02)							



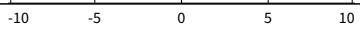
Analysis 1.7. Comparison 1 Comparison: HRQoL outcomes, all physical activity vs control, Outcome 7 FACT Breast Cancer Subscale (follow-up values).

Study or subgroup	Physical activity N	Physical activity Mean(SD)	Control N	Control Mean(SD)	Mean Difference Random, 95% CI	Weight	Mean Difference Random, 95% CI
1.7.1 End of intervention							
Rogers 2009	20	27 (5.5)	18	26.7 (6.4)		5.58%	0.3[-3.51,4.11]
Banasik 2011	7	8.8 (3.1)	7	8.4 (3.9)		5.83%	0.37[-3.33,4.07]
Courneya 2003	24	28.4 (6.7)	28	26.4 (5.1)		6.88%	2[-1.28,5.28]
Murtezani 2014	30	26.6 (5.6)	32	22.1 (5.5)		8.5%	4.5[1.73,7.27]
Milne 2008	29	24.1 (4.9)	29	18.5 (5.8)		8.51%	5.6[2.84,8.36]
Daley 2007	32	24.4 (5.7)	32	21.3 (5.2)		8.8%	3.1[0.42,5.78]
Cadmus 2009	37	26.7 (5.8)	37	24.1 (5.9)		8.87%	2.6[-0.07,5.27]
Littman 2012	30	26.8 (4.2)	27	25.2 (5.5)		9.26%	1.6[-0.96,4.16]
Pinto 2015	39	27 (5.4)	37	26.3 (5)		10.23%	0.69[-1.64,3.02]
Rogers 2015	105	27.8 (6.2)	108	26.2 (6.3)		13.41%	1.6[-0.08,3.28]
Vallance 2007	250	28.7 (6.5)	85	28.6 (6.2)		14.11%	0.06[-1.49,1.61]
Subtotal ***	**603**		**440**			**100%**	**1.98[0.92,3.04]**
Heterogeneity: Tau^2=1.45; Chi^2=19.14, df=10(P=0.04); I^2=47.76%							
Test for overall effect: Z=3.66(P=0)							
1.7.2 Follow-up							
Rogers 2009	19	26 (6)	17	25.3 (6.7)		21.57%	0.7[-3.47,4.87]
Daley 2007	30	25.3 (5.9)	31	23.6 (5.6)		24.88%	1.67[-1.21,4.55]
Pinto 2015	39	27.1 (6.1)	37	25.2 (4.8)		25.86%	1.94[-0.51,4.39]
Rogers 2015	105	28.2 (5.7)	108	20.5 (5.4)		27.69%	7.7[6.21,9.19]
Subtotal ***	**193**		**193**			**100%**	**3.2[-0.65,7.05]**
Heterogeneity: Tau^2=13.38; Chi^2=27.76, df=3(P<0.0001); I^2=89.19%							
Test for overall effect: Z=1.63(P=0.1)							



Analysis 1.8. Comparison 1 Comparison: HRQoL outcomes, all physical activity vs control, Outcome 8 FACT Breast Cancer Subscale (change values).

Study or subgroup	Physical activity N	Physical activity Mean(SD)	Control N	Control Mean(SD)	Mean Difference Random, 95% CI	Weight	Mean Difference Random, 95% CI
1.8.1 End of intervention							
Naumann 2012	11	1.6 (3.8)	10	2.3 (3.9)		11.48%	-0.7[-4,2.6]
Rogers 2009	20	1 (5.3)	18	0.3 (5)		11.53%	0.7[-2.58,3.98]
Daley 2007	32	24.4 (5.7)	32	21.3 (5.2)		12.97%	3.1[0.42,5.78]
Courneya 2003	24	3.3 (4)	28	-0.3 (3.2)		14.64%	3.6[1.61,5.59]
Cadmus 2009	37	1 (3)	37	0.8 (3.4)		15.8%	0.2[-1.26,1.66]
Vallance 2007	250	1.4 (4.8)	85	1 (3.9)		16.58%	0.34[-0.68,1.36]
Murtezani 2014	30	4.2 (1.4)	32	-0.2 (1.4)		17.01%	4.48[3.79,5.17]



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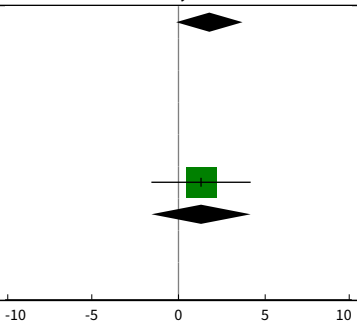
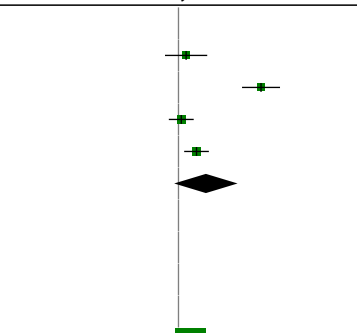
Study or subgroup	Physical activity N	Physical activity Mean(SD)	Control N	Control Mean(SD)	Mean Difference Random, 95% CI	Weight	Mean Difference Random, 95% CI
Subtotal ***	**404**		**242**			**100%**	**1.78[-0.14,3.7]**
Heterogeneity: Tau²=5.49; Chi²=63.43, df=6(P<0.0001); I²=90.54%							
Test for overall effect: Z=1.82(P=0.07)							
1.8.2 Follow-up							
Rogers 2009	19	0.7 (3.7)	17	-0.6 (4.9)		100%	1.3[-1.56,4.16]
Subtotal ***	**19**		**17**			**100%**	**1.3[-1.56,4.16]**
Heterogeneity: Tau²=0; Chi²=0, df=0(P<0.0001); I²=100%							
Test for overall effect: Z=0.89(P=0.37)							



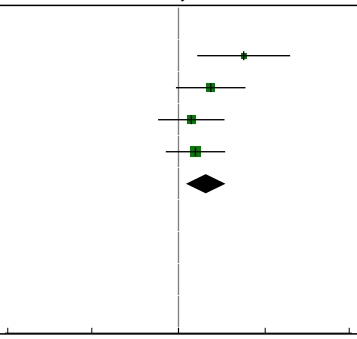
Analysis 1.9. Comparison 1 Comparison: HRQoL outcomes, all physical activity vs control, Outcome 9 FACT Trial Outcome Index (follow-up values).

Study or subgroup	Physical activity N	Physical activity Mean(SD)	Control N	Control Mean(SD)	Mean Difference Random, 95% CI	Weight	Mean Difference Random, 95% CI
1.9.1 End of intervention							
Courneya 2003	24	77 (12)	28	74.8 (10.1)		23.98%	2.2[-3.89,8.29]
Milne 2008	29	70.3 (7.9)	29	46.5 (12.8)		24.47%	23.8[18.33,29.27]
Vallance 2007	250	91 (13.5)	85	90.2 (14.9)		25.77%	0.8[-2.79,4.39]
Rogers 2015	105	74.2 (11.9)	108	69 (14.5)		25.78%	5.2[1.64,8.76]
Subtotal ***	**408**		**250**			**100%**	**7.9[-1.24,17.04]**
Heterogeneity: Tau²=81.1; Chi²=50.37, df=3(P<0.0001); I²=94.04%							
Test for overall effect: Z=1.69(P=0.09)							
1.9.2 Follow-up							
Rogers 2015	105	73.6 (12.4)	108	70 (14.3)		100%	3.6[0.01,7.19]
Subtotal ***	**105**		**108**			**100%**	**3.6[0.01,7.19]**
Heterogeneity: Not applicable							
Test for overall effect: Z=1.96(P=0.05)							



Analysis 1.10. Comparison 1 Comparison: HRQoL outcomes, all physical activity vs control, Outcome 10 EORTC QLQ-C30 Global Health (follow-up values).

Study or subgroup	Physical activity N	Physical activity Mean(SD)	Control N	Control Mean(SD)	Mean Difference Random, 95% CI	Weight	Mean Difference Random, 95% CI
1.10.1 End of intervention							
Herrero 2006	8	81.3 (10.7)	8	62.5 (16.1)		15.63%	18.8[5.4,32.2]
Mehnert 2011	30	74.7 (21.7)	27	65.4 (16.8)		25.23%	9.29[-0.73,19.31]
Ergun 2013	40	71.6 (19.9)	20	67.9 (16.7)		27.12%	3.69[-5.88,13.26]
Do 2015	32	87.3 (13.7)	30	82.4 (19.9)		32.02%	4.9[-3.66,13.46]
Subtotal ***	**110**		**85**			**100%**	**7.85[2.16,13.55]**
Heterogeneity: Tau²=7.29; Chi²=3.82, df=3(P=0.28); I²=21.43%							
Test for overall effect: Z=2.7(P=0.01)							
1.10.2 Follow-up							



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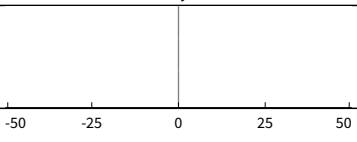
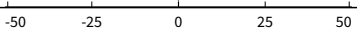
Study or subgroup	Physical activity N	Physical activity Mean(SD)	Control N	Control Mean(SD)	Mean Difference Random, 95% CI	Weight	Mean Difference Random, 95% CI
Subtotal ***	**0**		**0**				**Not estimable**
Heterogeneity: Not applicable							
Test for overall effect: Not applicable							



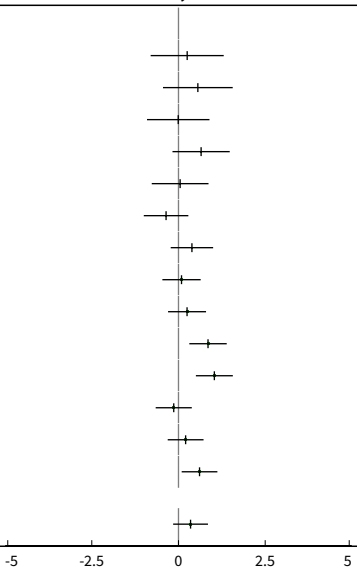
Analysis 1.11. Comparison 1 Comparison: HRQoL outcomes, all physical activity vs control, Outcome 11 EORTC QLQ-C30 Global Health (change values).

Study or subgroup	Physical activity N	Physical activity Mean(SD)	Control N	Control Mean(SD)	Mean Difference Random, 95% CI	Weight	Mean Difference Random, 95% CI
1.11.1 End of intervention							
Herrero 2006	8	17.7 (8.3)	8	-10.4 (17.7)		22%	28.1[14.55,41.65]
Ergun 2013	40	5.4 (21.5)	20	-6.7 (25.9)		22.37%	12.1[-1.05,25.25]
Mehnert 2011	30	9.7 (21)	27	5.6 (16.5)		25.46%	4.17[-5.6,13.94]
Saarto 2012	263	4.2 (16.2)	237	5.6 (15.4)		30.17%	-1.4[-4.17,1.37]
Subtotal ***	**341**		**292**			**100%**	**9.53[-2.43,21.49]**
Heterogeneity: Tau^2=121.42; Chi^2=21.28, df=3(P<0.0001); I^2=85.9%							
Test for overall effect: Z=1.56(P=0.12)							
1.11.2 Follow-up							
Subtotal ***	**0**		**0**				**Not estimable**
Heterogeneity: Not applicable							
Test for overall effect: Not applicable							



Analysis 1.12. Comparison 1 Comparison: HRQoL outcomes, all physical activity vs control, Outcome 12 Overall emotional function/mental health (follow-up values).

Study or subgroup	Physical activity N	Physical activity Mean(SD)	Control N	Control Mean(SD)	Std. Mean Difference Random, 95% CI	Weight	Std. Mean Difference Random, 95% CI
1.12.1 End of intervention							
Banasik 2011	7	0.5 (0.4)	7	0.4 (0.3)		1.01%	0.25[-0.8,1.3]
Herrero 2006	8	90.6 (9.3)	8	83.3 (14.8)		1.11%	0.56[-0.45,1.56]
Mustian 2004	9	24.8 (2)	10	24.8 (3.2)		1.35%	-0.01[-0.91,0.89]
Pinto 2003	12	-10.8 (28.1)	12	-27.2 (19.5)		1.59%	0.65[-0.17,1.48]
Loudon 2014	12	-1.6 (0.7)	11	-1.6 (0.5)		1.61%	0.05[-0.77,0.87]
Rogers 2009	20	20 (3.1)	18	21.1 (2.9)		2.45%	-0.36[-1,0.28]
Cuesta-Vargas 2014	22	42.9 (19.2)	20	32.3 (33.3)		2.66%	0.39[-0.22,1]
Basen-Enquist 2006	28	78.2 (10.6)	23	77.2 (12)		3.15%	0.09[-0.46,0.64]
Courneya 2003	24	21.5 (3.4)	28	20.7 (3)		3.19%	0.25[-0.3,0.79]
Milne 2008	29	19.6 (2.4)	29	16.7 (4.1)		3.27%	0.85[0.31,1.39]
Do 2015	32	87.4 (8.8)	30	70.4 (21.5)		3.33%	1.03[0.5,1.57]
Littman 2012	30	20.3 (4)	27	20.8 (3.1)		3.45%	-0.14[-0.66,0.38]
Mehnert 2011	30	77 (35.8)	28	69.1 (40.5)		3.5%	0.21[-0.31,0.72]
Cantarero-Villanueva 2013	32	-17175 (4279)	29	-20390 (6113)		3.52%	0.61[0.09,1.12]
Murtezani 2014	30	19.5 (3.3)	32	18.3 (3.5)		3.65%	0.35[-0.15,0.85]



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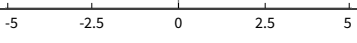
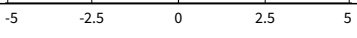
Study or subgroup	Physical activity N	Physical activity Mean(SD)	Control N	Control Mean(SD)	Std. Mean Difference Random, 95% CI	Weight	Std. Mean Difference Random, 95% CI
Daley 2007	33	19.1 (4.2)	33	18.5 (3.3)		3.87%	0.16[-0.32,0.64]
Cadmus 2009	37	20.5 (3)	37	19.8 (4.2)		4.21%	0.19[-0.27,0.65]
Pinto 2015	39	54.2 (9.3)	37	52.5 (9.6)		4.29%	0.18[-0.27,0.63]
Schmitz 2005	39	-45.6 (8.2)	40	-48.2 (8.2)		4.39%	0.31[-0.13,0.76]
Pinto 2005	39	-8 (20.7)	43	-16.5 (28.8)		4.49%	0.33[-0.1,0.77]
Loh 2014	63	19.9 (2.8)	32	20 (3.2)		4.66%	-0.04[-0.46,0.39]
Fillion 2008	44	48.5 (7.9)	43	47.5 (9.1)		4.73%	0.12[-0.3,0.54]
Duijits 2012	37	73.9 (34.7)	89	77.5 (34.3)		5.36%	-0.1[-0.49,0.28]
Rogers 2015	105	20.6 (2.9)	108	19.7 (3.2)		8.02%	0.29[0.02,0.56]
Schmitz 2009	112	53.2 (9.6)	120	53.8 (8.7)		8.39%	-0.07[-0.32,0.19]
Vallance 2007	250	20.3 (3.3)	85	19.9 (3.4)		8.74%	0.11[-0.14,0.35]
Subtotal ***	**1123**		**979**			**100%**	**0.21[0.1,0.32]**
Heterogeneity: Tau²=0.02; Chi²=34.19, df=25(P=0.1); I²=26.88%							
Test for overall effect: Z=3.71(P=0)							
1.12.2 Follow-up							
Rogers 2009	19	19.5 (3.1)	17	20.8 (3)		6.13%	-0.42[-1.08,0.25]
Cantarero-Villanueva 2013	32	-17306 (4501)	29	-19915 (4966)		9.95%	0.54[0.03,1.06]
Daley 2007	31	19.5 (4.5)	31	19 (3.3)		10.47%	0.14[-0.36,0.64]
Pinto 2015	39	53.4 (8.6)	37	50.5 (10.9)		12.52%	0.3[-0.16,0.75]
Fillion 2008	44	51.4 (7.6)	43	48 (9.3)		14.04%	0.4[-0.02,0.82]
Duijits 2012	36	77.5 (37.5)	84	74.4 (37.2)		16.31%	0.08[-0.31,0.47]
Rogers 2015	105	20.5 (3.5)	108	20 (3.2)		30.58%	0.15[-0.12,0.42]
Subtotal ***	**306**		**349**			**100%**	**0.2[0.03,0.36]**
Heterogeneity: Tau²=0.01; Chi²=6.64, df=6(P=0.36); I²=9.63%							
Test for overall effect: Z=2.28(P=0.02)							



Analysis 1.13. Comparison 1 Comparison: HRQoL outcomes, all physical activity vs control, Outcome 13 Overall emotional function/mental health (change values).

Study or subgroup	Physical activity N	Physical activity Mean(SD)	Control N	Control Mean(SD)	Std. Mean Difference Random, 95% CI	Weight	Std. Mean Difference Random, 95% CI
1.13.1 End of intervention							
Herrero 2006	8	9.3 (19.6)	8	-2.1 (5.9)		3.3%	0.74[-0.28,1.77]
Mustian 2004	9	2.4 (2.5)	10	0.1 (1.7)		3.53%	1.06[0.08,2.03]
Naumann 2012	11	1 (2.7)	10	-0.1 (2.7)		4.11%	0.39[-0.48,1.26]
Rogers 2009	20	0.9 (2.5)	18	-0.1 (2.7)		5.69%	0.38[-0.27,1.02]
Murtezani 2014	30	2.1 (0.8)	32	0.5 (0.9)		6.09%	1.8[1.21,2.4]
Courneya 2003	24	2.3 (3.1)	28	0.8 (2.9)		6.47%	0.49[-0.06,1.05]
Cormie 2014	43	4.4 (9)	19	2.7 (8.6)		6.59%	0.19[-0.35,0.73]
Mehnert 2011	30	2.3 (35.5)	28	3.6 (17.6)		6.84%	-0.04[-0.56,0.47]
Cantarero-Villanueva 2013	32	-1445 (4452)	29	353 (3323)		6.9%	-0.45[-0.96,0.06]
Cadmus 2009	37	0.3 (2.2)	37	-0.5 (3.3)		7.4%	0.28[-0.18,0.74]
Schmitz 2005	39	2.5 (4.4)	40	0.3 (3.9)		7.49%	0.52[0.08,0.97]
Pinto 2005	39	-3.8 (27.7)	43	-11.5 (25.8)		7.62%	0.28[-0.15,0.72]
Schmitz 2009	58	3.3 (23.2)	62	3.1 (17.2)		8.41%	0.01[-0.35,0.37]
Vallance 2007	250	0.5 (3.5)	85	0.1 (2.5)		9.49%	0.12[-0.13,0.36]



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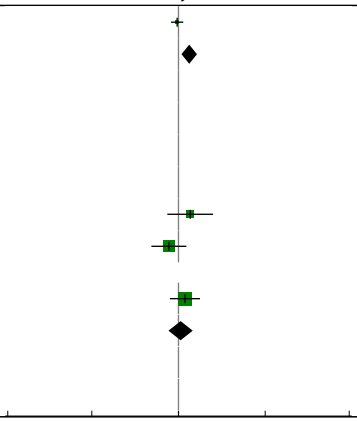
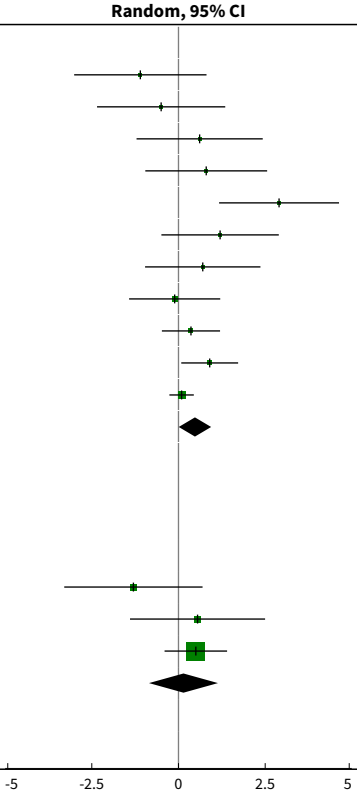
Study or subgroup	Physical activity N	Physical activity Mean(SD)	Control N	Control Mean(SD)	Std. Mean Difference Random, 95% CI	Weight	Std. Mean Difference Random, 95% CI
Saarto 2012	263	1.2 (17.8)	237	1.9 (18.5)		10.06%	-0.04[-0.21,0.14]
Subtotal ***	**893**		**686**			**100%**	**0.31[0.09,0.53]**
Heterogeneity: Tau²=0.12; Chi²=50.63, df=14(P<0.0001); I²=72.35%							
Test for overall effect: Z=2.71(P=0.01)							
1.13.2 Follow-up							
Rogers 2009	19	0.5 (2.7)	17	-0.3 (1.7)		22.91%	0.34[-0.32,1]
Cantarero-Villanueva 2013	32	-1324 (5711)	29	-121 (1606)		34.56%	-0.28[-0.78,0.23]
Pinto 2005	39	3.1 (27.9)	43	-2 (26.2)		42.53%	0.19[-0.25,0.62]
Subtotal ***	**90**		**89**			**100%**	**0.06[-0.29,0.41]**
Heterogeneity: Tau²=0.03; Chi²=2.72, df=2(P=0.26); I²=26.5%							
Test for overall effect: Z=0.34(P=0.73)							



Analysis 1.14. Comparison 1 Comparison: HRQoL outcomes, all physical activity vs control, Outcome 14 FACT Emotional well-being (follow-up values).

Study or subgroup	Physical activity N	Physical activity Mean(SD)	Control N	Control Mean(SD)	Mean Difference Random, 95% CI	Weight	Mean Difference Random, 95% CI
1.14.1 End of intervention							
Rogers 2009	20	20 (3.1)	18	21.1 (2.9)		4.91%	-1.1[-3.01,0.81]
Littman 2012	30	20.3 (4)	27	20.8 (3.1)		5.17%	-0.5[-2.35,1.35]
Daley 2007	33	19.1 (4.2)	33	18.5 (3.3)		5.3%	0.61[-1.21,2.43]
Courneya 2003	24	21.5 (3.4)	28	20.7 (3)		5.61%	0.8[-0.96,2.56]
Milne 2008	29	19.6 (2.4)	29	16.7 (4.1)		5.75%	2.9[1.17,4.63]
Murtezani 2014	30	19.5 (3.3)	32	18.3 (3.5)		5.94%	1.2[-0.49,2.89]
Cadmus 2009	37	20.5 (3)	37	19.8 (4.2)		6.11%	0.7[-0.96,2.36]
Loh 2014	63	19.9 (2.8)	32	20 (3.2)		8.61%	-0.11[-1.42,1.2]
Vallance 2007	250	20.3 (3.3)	85	19.9 (3.4)		14.44%	0.36[-0.48,1.2]
Rogers 2015	105	20.6 (2.9)	108	19.7 (3.2)		14.75%	0.9[0.08,1.72]
Banasik 2011	7	0.5 (0.4)	7	0.4 (0.3)		23.42%	0.09[-0.26,0.44]
Subtotal ***	**628**		**436**			**100%**	**0.47[0.01,0.94]**
Heterogeneity: Tau²=0.21; Chi²=17.02, df=10(P=0.07); I²=41.26%							
Test for overall effect: Z=1.99(P=0.05)							
1.14.2 Follow-up							
Rogers 2009	19	19.5 (3.1)	17	20.8 (3)		20.38%	-1.3[-3.29,0.69]
Daley 2007	31	19.5 (4.5)	31	19 (3.3)		21.18%	0.55[-1.4,2.5]
Rogers 2015	105	20.5 (3.5)	108	20 (3.2)		58.44%	0.5[-0.4,1.4]
Subtotal ***	**155**		**156**			**100%**	**0.14[-0.85,1.14]**
Heterogeneity: Tau²=0.23; Chi²=2.71, df=2(P=0.26); I²=26.13%							
Test for overall effect: Z=0.28(P=0.78)							



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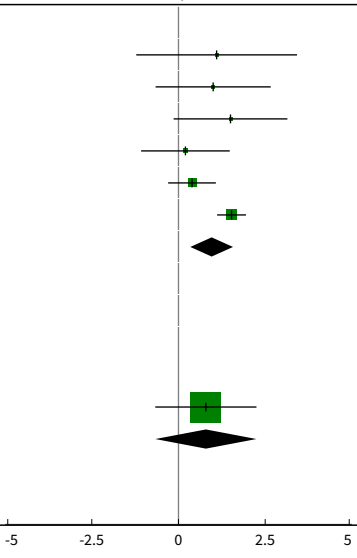
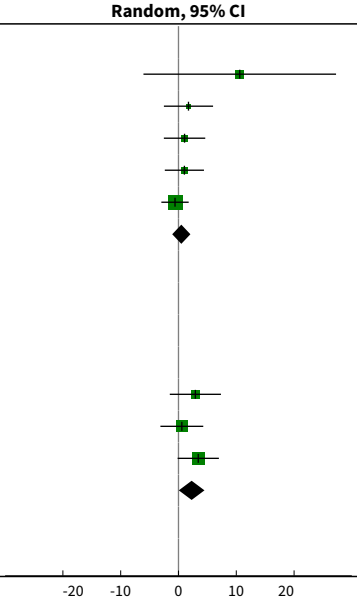
Analysis 1.15. Comparison 1 Comparison: HRQoL outcomes, all physical activity vs control, Outcome 15 FACT Emotional well-being (change values).

Study or subgroup	Physical activity N	Physical activity Mean(SD)	Control N	Control Mean(SD)	Mean Difference Random, 95% CI	Weight	Mean Difference Random, 95% CI
1.15.1 End of intervention							
Naumann 2012	11	1 (2.7)	10	-0.1 (2.7)		5.97%	1.1[-1.22,3.42]
Rogers 2009	20	0.9 (2.5)	18	-0.1 (2.7)		10.15%	1[-0.66,2.66]
Courneya 2003	24	2.3 (3.1)	28	0.8 (2.9)		10.33%	1.5[-0.14,3.14]
Cadmus 2009	37	-0.3 (2.2)	37	-0.5 (3.3)		14.52%	0.2[-1.08,1.48]
Vallance 2007	250	0.5 (3.5)	85	0.1 (2.5)		26.12%	0.39[-0.3,1.08]
Murtezani 2014	30	2.1 (0.8)	32	0.5 (0.9)		32.91%	1.53[1.11,1.95]
Subtotal ***	**372**		**210**			**100%**	**0.96[0.34,1.57]**
Heterogeneity: Tau^2=0.25; Chi^2=10.23, df=5(P=0.07); I^2=51.12%							
Test for overall effect: Z=3.04(P=0)							
1.15.2 Follow-up							
Rogers 2009	19	0.5 (2.7)	17	-0.3 (1.7)		100%	0.79[-0.67,2.25]
Subtotal ***	**19**		**17**			**100%**	**0.79[-0.67,2.25]**
Heterogeneity: Not applicable							
Test for overall effect: Z=1.06(P=0.29)							



Analysis 1.16. Comparison 1 Comparison: HRQoL outcomes, all physical activity vs control, Outcome 16 MOS SF Mental composite (follow-up values).

Study or subgroup	Physical activity N	Physical activity Mean(SD)	Control N	Control Mean(SD)	Mean Difference Random, 95% CI	Weight	Mean Difference Random, 95% CI
1.16.1 End of intervention							
Cuesta-Vargas 2014	22	42.9 (19.2)	20	32.3 (33.3)		0.89%	10.6[-6.06,27.26]
Pinto 2015	39	54.2 (9.3)	37	52.5 (9.6)		13.71%	1.73[-2.52,5.98]
Fillion 2008	44	48.5 (7.9)	43	47.5 (9.1)		19.34%	1.05[-2.53,4.63]
Duijits 2012	37	49.4 (8.9)	89	48.4 (8.7)		21.63%	1.02[-2.37,4.41]
Schmitz 2009	112	53.2 (9.6)	120	53.8 (8.7)		44.43%	-0.6[-2.96,1.76]
Subtotal ***	**254**		**309**			**100%**	**0.49[-1.09,2.06]**
Heterogeneity: Tau^2=0; Chi^2=2.75, df=4(P=0.6); I^2=0%							
Test for overall effect: Z=0.61(P=0.54)							
1.16.2 Follow-up							
Pinto 2015	39	53.4 (8.6)	37	50.5 (10.9)		25.24%	2.92[-1.5,7.34]
Duijits 2012	36	48.7 (9.5)	82	48.1 (9.3)		35.95%	0.58[-3.13,4.29]
Fillion 2008	44	51.4 (7.6)	43	48 (9.3)		38.81%	3.42[-0.15,6.99]
Subtotal ***	**119**		**162**			**100%**	**2.27[0.05,4.5]**
Heterogeneity: Tau^2=0; Chi^2=1.28, df=2(P=0.53); I^2=0%							
Test for overall effect: Z=2(P=0.05)							



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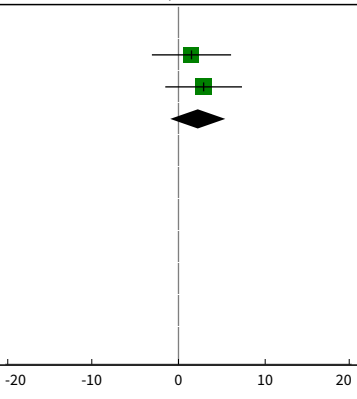
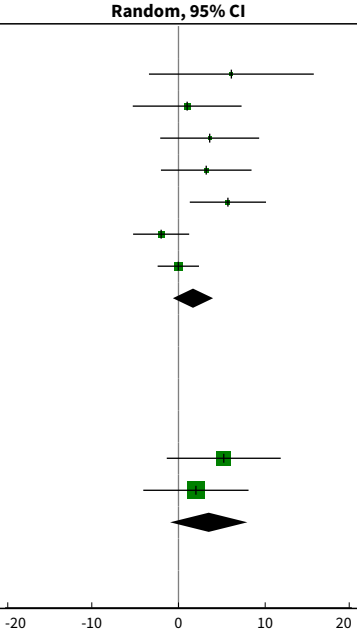
Analysis 1.17. Comparison 1 Comparison: HRQoL outcomes, all physical activity vs control, Outcome 17 MOS SF Mental composite (change values).

Study or subgroup	Physical activity N	Physical activity Mean(SD)	Control N	Control Mean(SD)	Mean Difference Fixed, 95% CI	Weight	Mean Difference Fixed, 95% CI
1.17.1 End of intervention							
Cormie 2014	43	4.2 (8.8)	19	2.7 (8.3)		48.4%	1.5[-3.07,6.07]
Schmitz 2009	112	3.3 (18.6)	120	0.4 (15.5)		51.6%	2.9[-1.52,7.32]
Subtotal ***	**155**		**139**			**100%**	**2.22[-0.95,5.4]**
Heterogeneity: Tau²=0; Chi²=0.19, df=1(P=0.67); I²=0%							
Test for overall effect: Z=1.37(P=0.17)							
1.17.2 Follow-up							
Subtotal ***	**0**		**0**				**Not estimable**
Heterogeneity: Not applicable							
Test for overall effect: Not applicable							



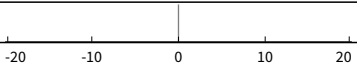
Analysis 1.18. Comparison 1 Comparison: HRQoL outcomes, all physical activity vs control, Outcome 18 MOS SF Mental health (follow-up values).

Study or subgroup	Physical activity N	Physical activity Mean(SD)	Control N	Control Mean(SD)	Mean Difference Random, 95% CI	Weight	Mean Difference Random, 95% CI
1.18.1 End of intervention							
Mehnert 2011	30	69.3 (18.3)	28	63.2 (18.6)		5.08%	6.1[-3.41,15.61]
Basen-Enquist 2006	28	78.2 (10.6)	23	77.2 (12)		9.79%	1[-5.27,7.27]
Duijits 2012	37	73.7 (15)	89	70.1 (14.6)		11.18%	3.6[-2.1,9.3]
Cadmus 2009	37	50.6 (10.9)	37	47.4 (12)		12.55%	3.2[-2.02,8.42]
Pinto 2015	39	81.8 (12.7)	37	76.1 (5.8)		15.42%	5.7[1.3,10.1]
Schmitz 2009	58	52.2 (9.5)	62	54.2 (8.5)		20.67%	-2[-5.23,1.23]
Mustian 2004	9	24.8 (2)	10	24.8 (3.2)		25.3%	-0.02[-2.4,2.36]
Subtotal ***	**238**		**286**			**100%**	**1.67[-0.65,3.99]**
Heterogeneity: Tau²=4.06; Chi²=10.99, df=6(P=0.09); I²=45.39%							
Test for overall effect: Z=1.41(P=0.16)							
1.18.2 Follow-up							
Pinto 2015	39	79.7 (13.2)	37	74.5 (15.8)		46.04%	5.22[-1.35,11.79]
Duijits 2012	36	71.8 (15.7)	84	69.8 (15.2)		53.96%	2.01[-4.06,8.08]
Subtotal ***	**75**		**121**			**100%**	**3.49[-0.97,7.95]**
Heterogeneity: Tau²=0; Chi²=0.49, df=1(P=0.48); I²=0%							
Test for overall effect: Z=1.53(P=0.13)							



Analysis 1.19. Comparison 1 Comparison: HRQoL outcomes, all physical activity vs control, Outcome 19 MOS SF Mental health (change values).

Study or subgroup	Physical activity N	Physical activity Mean(SD)	Control N	Control Mean(SD)	Mean Difference Fixed, 95% CI	Weight	Mean Difference Fixed, 95% CI
1.19.1 End of intervention							



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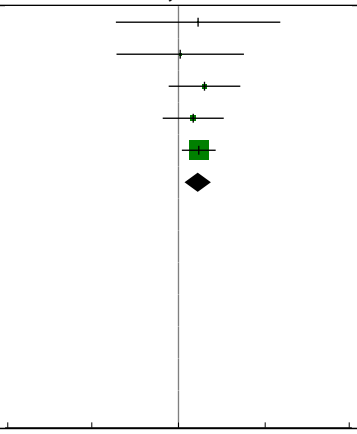
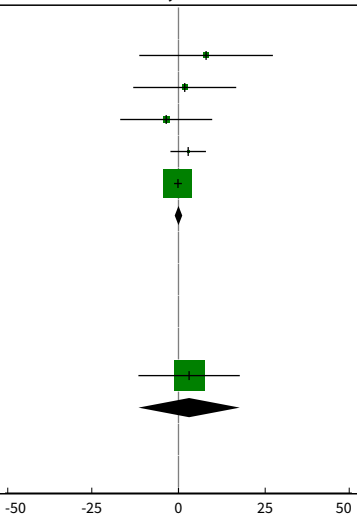
Study or subgroup	Physical activity N	Physical activity Mean(SD)	Control N	Control Mean(SD)	Mean Difference Fixed, 95% CI	Weight	Mean Difference Fixed, 95% CI
Mehnert 2011	30	4.8 (17.6)	28	2.5 (19.1)		2.57%	2.26[-7.22,11.74]
Schmitz 2009	58	3.3 (23.2)	62	3.1 (17.2)		4.28%	0.2[-7.15,7.55]
Cormie 2014	43	4.7 (7.8)	19	1.7 (7.6)		13.56%	3[-1.13,7.13]
Cadmus 2009	37	0.8 (6.6)	37	-0.9 (8.7)		18.67%	1.7[-1.82,5.22]
Mustian 2004	9	2.4 (2.5)	10	0.1 (1.7)		60.92%	2.34[0.39,4.29]
Subtotal ***	**177**		**156**			**100%**	**2.22[0.7,3.74]**
Heterogeneity: Tau²=0; Chi²=0.53, df=4(P=0.97); I²=0%							
Test for overall effect: Z=2.86(P=0)							
1.19.2 Follow-up							
Subtotal ***	**0**		**0**				**Not estimable**
Heterogeneity: Not applicable							
Test for overall effect: Not applicable							



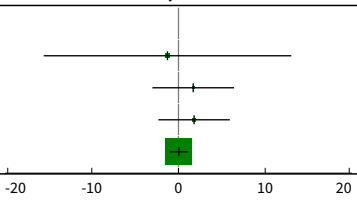
Analysis 1.20. Comparison 1 Comparison: HRQoL outcomes, all physical activity vs control, Outcome 20 MOS SF Emotional role (follow-up values).

Study or subgroup	Physical activity N	Physical activity Mean(SD)	Control N	Control Mean(SD)	Mean Difference Fixed, 95% CI	Weight	Mean Difference Fixed, 95% CI
1.20.1 End of intervention							
Mehnert 2011	30	77 (33.8)	28	69.1 (40.5)		0.32%	7.96[-11.3,27.22]
Basen-Enquist 2006	28	81.2 (27)	25	79.4 (28)		0.54%	1.8[-13.05,16.65]
Duijits 2012	37	73.9 (34.7)	89	77.5 (34.3)		0.68%	-3.54[-16.8,9.72]
Cadmus 2009	37	50.2 (10.4)	37	47.4 (12)		4.54%	2.8[-2.32,7.92]
Mustian 2004	9	2.3 (1.2)	10	2.4 (1.3)		93.92%	-0.15[-1.27,0.97]
Subtotal ***	**141**		**189**			**100%**	**-0[-1.09,1.09]**
Heterogeneity: Tau²=0; Chi²=2.21, df=4(P=0.7); I²=0%							
Test for overall effect: Z=0(P=1)							
1.20.2 Follow-up							
Duijits 2012	36	77.5 (37.5)	84	74.4 (37.2)		100%	3.06[-11.55,17.67]
Subtotal ***	**36**		**84**			**100%**	**3.06[-11.55,17.67]**
Heterogeneity: Not applicable							
Test for overall effect: Z=0.41(P=0.68)							



Analysis 1.21. Comparison 1 Comparison: HRQoL outcomes, all physical activity vs control, Outcome 21 MOS SF Emotional role (change values).

Study or subgroup	Physical activity N	Physical activity Mean(SD)	Control N	Control Mean(SD)	Mean Difference Fixed, 95% CI	Weight	Mean Difference Fixed, 95% CI
1.21.1 End of intervention							
Mehnert 2011	30	2.3 (35.5)	28	3.6 (17.6)		0.51%	-1.27[-15.55,13.01]
Cormie 2014	43	4.4 (9)	19	2.7 (8.6)		4.64%	1.7[-3.01,6.41]
Cadmus 2009	37	0.9 (12)	37	-0.9 (4.4)		6.07%	1.8[-2.32,5.92]
Mustian 2004	9	0.3 (1)	10	0.2 (1.4)		88.78%	0.05[-1.03,1.13]



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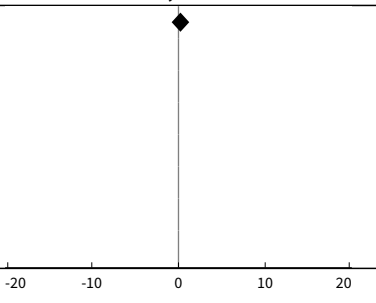
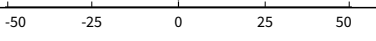
Study or subgroup	Physical activity N	Physical activity Mean(SD)	Control N	Control Mean(SD)	Mean Difference Fixed, 95% CI	Weight	Mean Difference Fixed, 95% CI
Subtotal ***	**119**		**94**			**100%**	**0.23[-0.79,1.24]**
Heterogeneity: Tau²=0; Chi²=1.08, df=3(P=0.78); I²=0%							
Test for overall effect: Z=0.44(P=0.66)							
1.21.2 Follow-up							
Subtotal ***	**0**		**0**				**Not estimable**
Heterogeneity: Not applicable							
Test for overall effect: Not applicable							



Analysis 1.22. Comparison 1 Comparison: HRQoL outcomes, all physical activity vs control, Outcome 22 EORTC QLQ-C30 Emotional function (follow-up values).

Study or subgroup	Physical activity N	Physical activity Mean(SD)	Control N	Control Mean(SD)	Mean Difference Random, 95% CI	Weight	Mean Difference Random, 95% CI
1.22.1 End of intervention							
Mehnert 2011	30	67.5 (26.9)	27	62 (27.3)		22.97%	5.46[-8.64,19.56]
Herrero 2006	8	90.6 (9.3)	8	83.3 (14.8)		29.01%	7.3[-4.81,19.41]
Do 2015	32	87.4 (8.8)	30	70.4 (21.5)		48.02%	17[8.72,25.28]
Subtotal ***	**70**		**65**			**100%**	**11.53[3.96,19.11]**
Heterogeneity: Tau²=13.26; Chi²=2.8, df=2(P=0.25); I²=28.53%							
Test for overall effect: Z=2.99(P=0)							
1.22.2 Follow-up							
Subtotal ***	**0**		**0**				**Not estimable**
Heterogeneity: Not applicable							
Test for overall effect: Not applicable							



Analysis 1.23. Comparison 1 Comparison: HRQoL outcomes, all physical activity vs control, Outcome 23 EORTC QLQ-C30 Emotional function (change values).

Study or subgroup	Physical activity N	Physical activity Mean(SD)	Control N	Control Mean(SD)	Mean Difference Random, 95% CI	Weight	Mean Difference Random, 95% CI
1.23.1 End of intervention							
Mehnert 2011	30	3.1 (27.1)	27	5.3 (29.2)		14.13%	-2.19[-16.87,12.49]
Herrero 2006	8	9.3 (19.6)	8	-2.1 (5.9)		14.96%	11.4[-2.78,25.58]
Saarto 2012	263	1.2 (17.8)	237	1.9 (18.5)		70.91%	-0.7[-3.89,2.49]
Subtotal ***	**301**		**272**			**100%**	**0.9[-5.12,6.92]**
Heterogeneity: Tau²=10.66; Chi²=2.73, df=2(P=0.25); I²=26.86%							
Test for overall effect: Z=0.29(P=0.77)							
1.23.2 Follow-up							
Subtotal ***	**0**		**0**				**Not estimable**
Heterogeneity: Not applicable							
Test for overall effect: Not applicable							

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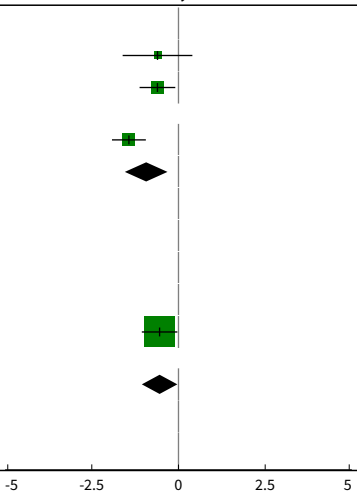
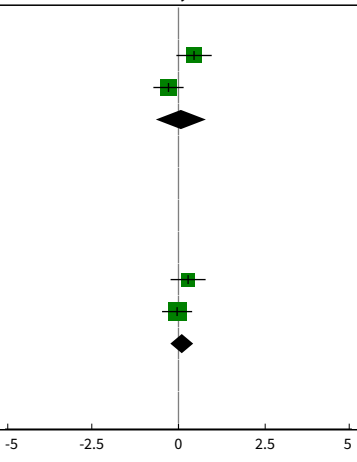
Analysis 1.24. Comparison 1 Comparison: HRQoL outcomes, all physical activity vs control, Outcome 24 POMS total mood disturbance (follow-up values).

Study or subgroup	Physical activity N	Physical activity Mean(SD)	Control N	Control Mean(SD)	Std. Mean Difference Random, 95% CI	Weight	Std. Mean Difference Random, 95% CI
1.24.1 End of intervention							
Pinto 2003	12	10.8 (28.1)	6	27.2 (19.5)		21.91%	-0.6[-1.61,0.4]
Cantarero-Villanueva 2013	32	17175 (4279)	29	20390 (6113)		38.51%	-0.61[-1.12,-0.09]
Pinto 2005	39	8 (20.7)	43	42.3 (26.2)		39.59%	-1.43[-1.92,-0.94]
Subtotal ***	**83**		**78**			**100%**	**-0.93[-1.55,-0.32]**
Heterogeneity: Tau²=0.19; Chi²=5.81, df=2(P=0.05); I²=65.56%							
Test for overall effect: Z=2.97(P=0)							
1.24.2 Follow-up							
Cantarero-Villanueva 2013	32	17306 (4501)	29	19915 (4966)		100%	-0.54[-1.06,-0.03]
Subtotal ***	**32**		**29**			**100%**	**-0.54[-1.06,-0.03]**
Heterogeneity: Not applicable							
Test for overall effect: Z=2.08(P=0.04)							



Analysis 1.25. Comparison 1 Comparison: HRQoL outcomes, all physical activity vs control, Outcome 25 POMS total mood disturbance (change values).

Study or subgroup	Physical activity N	Physical activity Mean(SD)	Control N	Control Mean(SD)	Std. Mean Difference Random, 95% CI	Weight	Std. Mean Difference Random, 95% CI
1.25.1 End of intervention							
Cantarero-Villanueva 2013	32	1445 (4452)	29	-353 (3323)		48.34%	0.45[-0.06,0.96]
Pinto 2005	39	3.8 (27)	43	11.5 (25.8)		51.66%	-0.29[-0.72,0.15]
Subtotal ***	**71**		**72**			**100%**	**0.07[-0.65,0.79]**
Heterogeneity: Tau²=0.21; Chi²=4.64, df=1(P=0.03); I²=78.46%							
Test for overall effect: Z=0.18(P=0.85)							
1.25.2 Follow-up							
Cantarero-Villanueva 2013	32	1324 (5711)	29	121 (1606)		42.41%	0.28[-0.23,0.78]
Pinto 2005	39	-3.1 (27.9)	43	-2 (26.2)		57.59%	-0.04[-0.47,0.39]
Subtotal ***	**71**		**72**			**100%**	**0.09[-0.23,0.42]**
Heterogeneity: Tau²=0; Chi²=0.87, df=1(P=0.35); I²=0%							
Test for overall effect: Z=0.56(P=0.57)							



Analysis 1.26. Comparison 1 Comparison: HRQoL outcomes, all physical activity vs control, Outcome 26 POMS anger subscale (follow-up values).

Study or subgroup	Physical activity N	Physical activity Mean(SD)	Control N	Control Mean(SD)	Std. Mean Difference Random, 95% CI	Weight	Std. Mean Difference Random, 95% CI
1.26.1 End of intervention							

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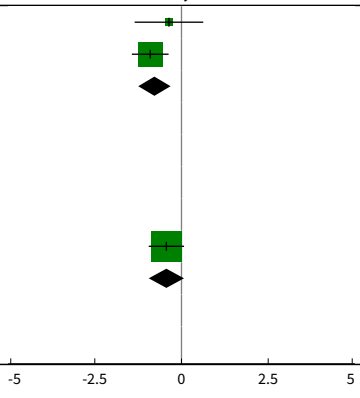
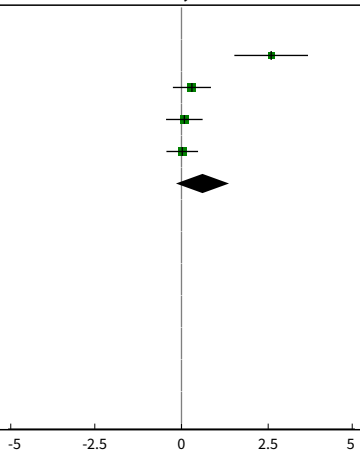
Study or subgroup	Physical activity N	Physical activity Mean(SD)	Control N	Control Mean(SD)	Std. Mean Difference Random, 95% CI	Weight	Std. Mean Difference Random, 95% CI
Pinto 2003	12	3.3 (4.1)	6	4.8 (3.6)		22.24%	-0.36[-1.35,0.63]
Cantarero-Villanueva 2013	32	48.2 (9.4)	29	58.3 (12.6)		77.76%	-0.9[-1.43,-0.37]
Subtotal ***	**44**		**35**			**100%**	**-0.78[-1.25,-0.31]**
Heterogeneity: Tau²=0; Chi²=0.89, df=1(P=0.35); I²=0%							
Test for overall effect: Z=3.28(P=0)							
1.26.2 Follow-up							
Cantarero-Villanueva 2013	32	50 (10.2)	29	54.9 (12.1)		100%	-0.44[-0.94,0.07]
Subtotal ***	**32**		**29**			**100%**	**-0.44[-0.94,0.07]**
Heterogeneity: Not applicable							
Test for overall effect: Z=1.68(P=0.09)							



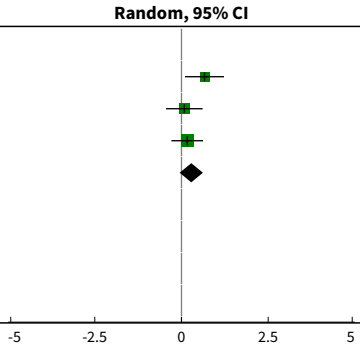
Analysis 1.27. Comparison 1 Comparison: HRQoL outcomes, all physical activity vs control, Outcome 27 Happiness/satisfaction with life (follow-up values).

Study or subgroup	Physical activity N	Physical activity Mean(SD)	Control N	Control Mean(SD)	Std. Mean Difference Random, 95% CI	Weight	Std. Mean Difference Random, 95% CI
1.27.1 End of intervention							
Kaltsatou 2011	14	45.4 (5)	13	33.3 (4)		19.26%	2.59[1.52,3.65]
Courneya 2003	24	65.4 (24.6)	28	58.3 (22)		26.44%	0.3[-0.25,0.85]
Daley 2007	31	12.6 (2.7)	25	12.3 (3.1)		26.71%	0.08[-0.44,0.61]
Cadmus 2009	37	68.6 (22.4)	37	68.1 (22.7)		27.6%	0.02[-0.43,0.48]
Subtotal ***	**106**		**103**			**100%**	**0.61[-0.16,1.37]**
Heterogeneity: Tau²=0.5; Chi²=19.9, df=3(P=0); I²=84.92%							
Test for overall effect: Z=1.55(P=0.12)							
1.27.2 Follow-up							
Subtotal ***	**0**		**0**				**Not estimable**
Heterogeneity: Not applicable							
Test for overall effect: Not applicable							



Analysis 1.28. Comparison 1 Comparison: HRQoL outcomes, all physical activity vs control, Outcome 28 Happiness/satisfaction with life (change values).

Study or subgroup	Physical activity N	Physical activity Mean(SD)	Control N	Control Mean(SD)	Std. Mean Difference Random, 95% CI	Weight	Std. Mean Difference Random, 95% CI
1.28.1 End of intervention							
Courneya 2003	24	17.3 (26.1)	28	0.8 (23)		28.75%	0.66[0.1,1.23]
Daley 2007	31	12.6 (2.7)	25	12.3 (3.1)		31.76%	0.08[-0.44,0.61]
Cadmus 2009	37	3 (18)	37	-0.1 (19.1)		39.49%	0.17[-0.29,0.62]
Subtotal ***	**92**		**90**			**100%**	**0.28[-0.05,0.62]**
Heterogeneity: Tau²=0.02; Chi²=2.58, df=2(P=0.28); I²=22.52%							
Test for overall effect: Z=1.65(P=0.1)							
1.28.2 Follow-up							



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Study or subgroup	Physical activity N	Physical activity Mean(SD)	Control N	Control Mean(SD)	Std. Mean Difference Random, 95% CI	Weight	Std. Mean Difference Random, 95% CI
Subtotal ***	**0**		**0**				**Not estimable**
Heterogeneity: Not applicable							
Test for overall effect: Not applicable							

Favours control -5 -2.5 0 2.5 5 Favours physical activity

Analysis 1.29. Comparison 1 Comparison: HRQoL outcomes, all physical activity vs control, Outcome 29 Overall physical function (follow-up values).

Study or subgroup	Physical activity N	Physical activity Mean(SD)	Control N	Control Mean(SD)	Std. Mean Difference Random, 95% CI	Weight	Std. Mean Difference Random, 95% CI
1.29.1 End of intervention							
Banasik 2011	7	-0.8 (0.9)	7	-0.4 (0.3)		1.59%	-0.48[-1.54,0.59]
Herrero 2006	8	94.1 (7.5)	8	92.5 (6.6)		1.81%	0.21[-0.77,1.2]
Mustian 2004	9	26.9 (4.1)	10	26.5 (4.1)		2.06%	0.09[-0.81,0.99]
Pinto 2003	12	32.3 (4.3)	12	25.3 (8.2)		2.19%	1.03[0.17,1.89]
Milne 2008	29	24 (2.6)	29	15.6 (4.5)		3.05%	2.26[1.59,2.92]
Rogers 2009	20	23.3 (4.5)	18	25.4 (2.3)		3.14%	-0.57[-1.22,0.08]
Cuesta-Vargas 2014	22	42.9 (4.1)	20	32.4 (32.5)		3.35%	0.46[-0.16,1.07]
Basen-Enquist 2006	28	82.5 (12.7)	23	77.4 (11.5)		3.7%	0.41[-0.15,0.97]
Courneya 2003	24	25.3 (2.5)	28	25.3 (2.8)		3.78%	0[-0.55,0.55]
Mehnert 2011	30	89 (9.1)	28	78.1 (21.2)		3.89%	0.66[0.13,1.19]
Littman 2012	30	25.4 (1.7)	27	24.3 (4.4)		3.93%	0.33[-0.19,0.86]
Murtezani 2014	30	22.6 (4.4)	32	19.4 (4.4)		3.99%	0.72[0.2,1.23]
Winters-Stone 2011	36	51.7 (6.2)	25	52.3 (5.9)		4.02%	-0.1[-0.61,0.41]
Do 2015	32	89.4 (8.4)	30	89 (8.7)		4.11%	0.05[-0.45,0.54]
Daley 2007	33	25.6 (2.2)	33	23.6 (5.7)		4.18%	0.46[-0.03,0.95]
Cadmus 2009	37	25.1 (2.7)	37	24 (4.1)		4.41%	0.31[-0.15,0.77]
Schmitz 2005	39	-44.2 (5.6)	40	-48.3 (7.7)		4.47%	0.6[0.15,1.05]
Pinto 2015	39	87.1 (4.4)	37	84.7 (15.9)		4.47%	0.21[-0.25,0.66]
Pinto 2005	39	30.3 (7.9)	43	27.3 (6.8)		4.57%	0.4[-0.04,0.83]
Loh 2014	63	24.9 (2.5)	32	24.2 (2.2)		4.65%	0.3[-0.12,0.73]
Fillion 2008	44	45.1 (10.4)	43	41.8 (9.8)		4.69%	0.33[-0.1,0.75]
Duijits 2012	87	84 (16.9)	89	80.2 (17.1)		5.75%	0.23[-0.07,0.52]
Rogers 2015	105	24.1 (3.5)	108	22.5 (5)		5.96%	0.37[0.1,0.64]
Schmitz 2009	112	50.6 (8.2)	120	49.1 (9.3)		6.07%	0.17[-0.09,0.43]
Vallance 2007	250	25.1 (3)	85	25 (3.3)		6.16%	0.05[-0.2,0.3]
Subtotal ***	**1165**		**964**			**100%**	**0.33[0.18,0.49]**
Heterogeneity: Tau^2=0.08; Chi^2=61.95, df=24(P<0.0001); I^2=61.26%							
Test for overall effect: Z=4.28(P<0.0001)							
1.29.2 Follow-up							
Rogers 2009	19	23.2 (4.5)	17	23.5 (5.7)		5.68%	-0.06[-0.71,0.6]
Daley 2007	31	25.2 (2.8)	31	23.7 (3.9)		9.57%	0.43[-0.07,0.93]
Pinto 2015	39	86.7 (13.4)	37	84.3 (15.3)		11.98%	0.16[-0.29,0.61]
Fillion 2008	44	46.8 (9.2)	43	44.6 (11.1)		13.69%	0.21[-0.21,0.63]
Duijits 2012	79	83.7 (18.4)	84	80.7 (18.8)		25.68%	0.16[-0.15,0.47]
Rogers 2015	105	23.9 (3.9)	108	22.7 (5.1)		33.4%	0.26[-0.01,0.53]
Subtotal ***	**317**		**320**			**100%**	**0.21[0.06,0.37]**
Heterogeneity: Tau^2=0; Chi^2=1.67, df=5(P=0.89); I^2=0%							

Favours control -5 -2.5 0 2.5 5 Favours physical activity

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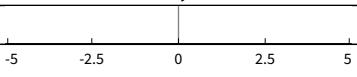
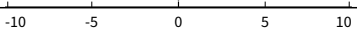
Study or subgroup	Physical activity N	Physical activity Mean(SD)	Control N	Control Mean(SD)	Std. Mean Difference Random, 95% CI	Weight	Std. Mean Difference Random, 95% CI
Test for overall effect: Z=2.7(P=0.01)							



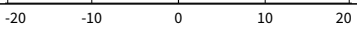
Analysis 1.30. Comparison 1 Comparison: HRQoL outcomes, all physical activity vs control, Outcome 30 Overall physical function (change values).

Study or subgroup	Physical activity N	Physical activity Mean(SD)	Control N	Control Mean(SD)	Std. Mean Difference Random, 95% CI	Weight	Std. Mean Difference Random, 95% CI
1.30.1 End of intervention							
Herrero 2006	8	6.7 (5)	8	-1.7 (6.9)		5.22%	1.32[0.21,2.43]
Mustian 2004	9	1.9 (2.6)	10	-0.2 (1.6)		5.91%	0.93[-0.03,1.89]
Murtezani 2014	30	4.4 (1.5)	32	-1.3 (1.2)		6.13%	4.23[3.31,5.15]
Naumann 2012	11	1.9 (3.3)	10	0.8 (3.4)		6.4%	0.32[-0.55,1.18]
Rogers 2009	20	2.3 (5.1)	18	2.6 (6)		7.57%	-0.05[-0.69,0.58]
Courneya 2003	24	1.9 (2)	28	-0.2 (2.2)		7.87%	0.98[0.4,1.56]
Cormie 2014	43	3.5 (5.2)	19	-0.5 (5.7)		7.99%	0.74[0.19,1.3]
Mehnert 2011	30	4 (10.8)	28	-2.1 (16.7)		8.16%	0.43[-0.09,0.95]
Cadmus 2009	37	0.1 (6)	37	-0.5 (7.4)		8.48%	0.09[-0.37,0.54]
Schmitz 2005	39	1.2 (4.2)	40	1.5 (6.8)		8.55%	-0.05[-0.49,0.39]
Schmitz 2009	58	6.6 (17.1)	62	4.1 (17.3)		8.91%	0.14[-0.21,0.5]
Vallance 2007	247	1 (3.3)	85	0.2 (2.1)		9.31%	0.26[0.02,0.51]
Saarto 2012	263	1.9 (13.7)	237	3.4 (13.4)		9.5%	-0.11[-0.29,0.06]
Subtotal ***	**819**		**614**			**100%**	**0.6[0.23,0.97]**
Heterogeneity: Tau^2=0.37; Chi^2=106.29, df=12(P<0.0001); I^2=88.71%							
Test for overall effect: Z=3.15(P=0)							
1.30.2 Follow-up							
Rogers 2009	19	1.8 (5.4)	17	0.9 (4.6)		100%	0.17[-0.48,0.83]
Subtotal ***	**19**		**17**			**100%**	**0.17[-0.48,0.83]**
Heterogeneity: Not applicable							
Test for overall effect: Z=0.52(P=0.6)							



Analysis 1.31. Comparison 1 Comparison: HRQoL outcomes, all physical activity vs control, Outcome 31 FACT Physical well-being (follow-up values).

Study or subgroup	Physical activity N	Physical activity Mean(SD)	Control N	Control Mean(SD)	Mean Difference Random, 95% CI	Weight	Mean Difference Random, 95% CI
1.31.1 End of intervention							
Rogers 2009	20	23.3 (4.5)	18	25.4 (2.3)		7.67%	-2.1[-4.34,0.14]
Murtezani 2014	30	22.6 (4.4)	32	19.4 (4.4)		7.77%	3.2[1.01,5.39]
Daley 2007	33	25.6 (2.2)	33	23.6 (5.7)		8.01%	2[-0.08,4.08]
Milne 2008	29	24 (2.6)	29	15.6 (4.5)		8.41%	8.4[6.51,10.29]
Littman 2012	30	25.4 (1.7)	27	24.3 (4.4)		8.67%	1.1[-0.67,2.87]
Cadmus 2009	37	25.1 (2.7)	37	24 (4.1)		9.06%	1.1[-0.48,2.68]
Courneya 2003	24	25.3 (2.5)	28	25.3 (2.8)		9.34%	0[-1.44,1.44]
Rogers 2015	105	24.1 (3.5)	108	22.5 (5)		9.88%	1.6[0.44,2.76]



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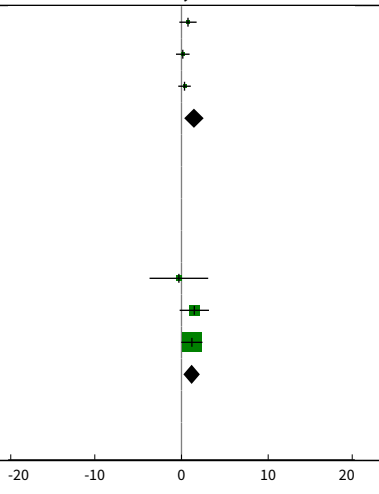
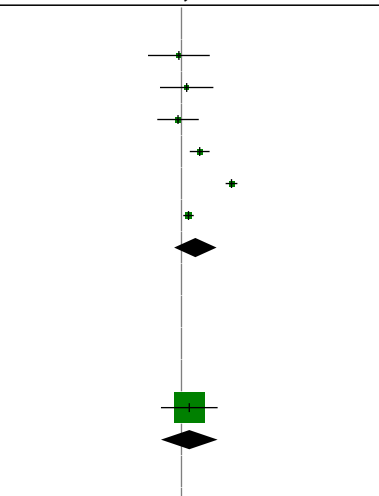
Study or subgroup	Physical activity N	Physical activity Mean(SD)	Control N	Control Mean(SD)	Mean Difference Random, 95% CI	Weight	Mean Difference Random, 95% CI
Loh 2014	63	24.9 (2.5)	32	24.2 (2.2)		10.16%	0.75[-0.25,1.75]
Vallance 2007	250	25.1 (3)	85	25 (3.3)		10.48%	0.15[-0.63,0.93]
Banasik 2011	7	0.8 (0.9)	7	0.4 (0.3)		10.56%	0.35[-0.37,1.07]
Subtotal ***	**628**		**436**			**100%**	**1.44[0.31,2.56]**
Heterogeneity: Tau²=2.97; Chi²=81.45, df=10(P<0.0001); I²=87.72%							
Test for overall effect: Z=2.51(P=0.01)							
1.31.2 Follow-up							
Rogers 2009	19	23.2 (4.5)	17	23.5 (5.7)		7.86%	-0.3[-3.68,3.08]
Daley 2007	31	25.2 (2.8)	31	23.7 (3.9)		31.45%	1.48[-0.21,3.17]
Rogers 2015	105	23.9 (3.9)	108	22.7 (5.1)		60.69%	1.2[-0.02,2.42]
Subtotal ***	**155**		**156**			**100%**	**1.17[0.22,2.12]**
Heterogeneity: Tau²=0; Chi²=0.86, df=2(P=0.65); I²=0%							
Test for overall effect: Z=2.42(P=0.02)							



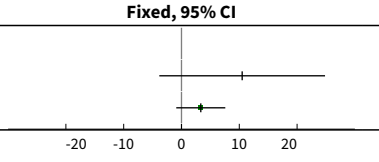
Analysis 1.32. Comparison 1 Comparison: HRQoL outcomes, all physical activity vs control, Outcome 32 FACT Physical well-being (change values).

Study or subgroup	Physical activity N	Physical activity Mean(SD)	Control N	Control Mean(SD)	Mean Difference Random, 95% CI	Weight	Mean Difference Random, 95% CI
1.32.1 End of intervention							
Rogers 2009	20	2.3 (5.1)	18	2.6 (6)		13.55%	-0.3[-3.86,3.26]
Cadmus 2009	37	0.1 (6)	37	-0.5 (7.4)		14.61%	0.6[-2.48,3.68]
Naumann 2012	11	1.9 (0)	10	2.3 (3.9)		16.08%	-0.4[-2.79,1.99]
Courneya 2003	24	1.9 (2)	28	-0.2 (2.2)		18.24%	2.1[0.96,3.24]
Murtezani 2014	30	4.4 (1.5)	32	-1.3 (1.2)		18.73%	5.77[5.09,6.45]
Vallance 2007	247	1 (3.3)	85	0.2 (2.1)		18.78%	0.81[0.21,1.41]
Subtotal ***	**369**		**210**			**100%**	**1.6[-0.85,4.05]**
Heterogeneity: Tau²=8.22; Chi²=128.58, df=5(P<0.0001); I²=96.11%							
Test for overall effect: Z=1.28(P=0.2)							
1.32.2 Follow-up							
Rogers 2009	19	1.8 (5.4)	17	0.9 (4.6)		100%	0.9[-2.37,4.17]
Subtotal ***	**19**		**17**			**100%**	**0.9[-2.37,4.17]**
Heterogeneity: Not applicable							
Test for overall effect: Z=0.54(P=0.59)							



Analysis 1.33. Comparison 1 Comparison: HRQoL outcomes, all physical activity vs control, Outcome 33 MOS SF Physical composite (follow-up values).

Study or subgroup	Physical activity N	Physical activity Mean(SD)	Control N	Control Mean(SD)	Mean Difference Fixed, 95% CI	Weight	Mean Difference Fixed, 95% CI
1.33.1 End of intervention							
Cuesta-Vargas 2014	22	42.9 (4.1)	20	32.4 (32.5)		1.34%	10.5[-3.84,24.84]
Fillion 2008	44	45.1 (10.4)	43	41.8 (9.8)		15.27%	3.34[-0.9,7.58]



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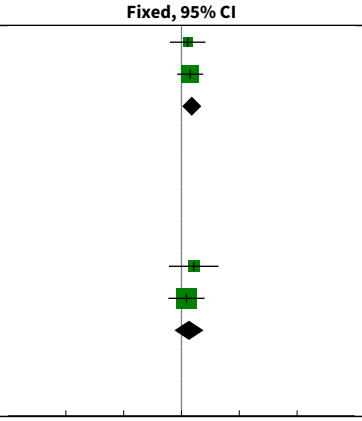
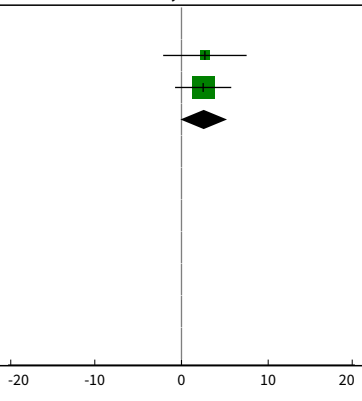
Study or subgroup	Physical activity N	Physical activity Mean(SD)	Control N	Control Mean(SD)	Mean Difference Fixed, 95% CI	Weight	Mean Difference Fixed, 95% CI
Pinto 2015	39	52 (6.7)	37	50.9 (6.9)		29.11%	1.07[-2,4.14]
Schmitz 2009	112	50.6 (8.2)	120	49.1 (9.3)		54.29%	1.5[-0.75,3.75]
Subtotal ***	**217**		**220**			**100%**	**1.78[0.12,3.43]**
Heterogeneity: Tau²=0; Chi²=2.21, df=3(P=0.53); I²=0%							
Test for overall effect: Z=2.1(P=0.04)							
1.33.2 Follow-up							
Fillion 2008	44	46.8 (9.2)	43	44.6 (11.1)		34.66%	2.12[-2.17,6.41]
Pinto 2015	39	51.5 (7.1)	37	50.6 (6.8)		65.34%	0.86[-2.26,3.98]
Subtotal ***	**83**		**80**			**100%**	**1.3[-1.23,3.82]**
Heterogeneity: Tau²=0; Chi²=0.22, df=1(P=0.64); I²=0%							
Test for overall effect: Z=1.01(P=0.31)							



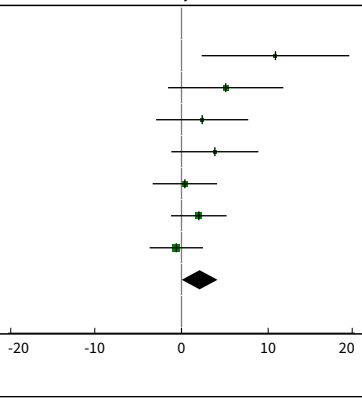
Analysis 1.34. Comparison 1 Comparison: HRQoL outcomes, all physical activity vs control, Outcome 34 MOS SF Physical composite (change values).

Study or subgroup	Physical activity N	Physical activity Mean(SD)	Control N	Control Mean(SD)	Mean Difference Fixed, 95% CI	Weight	Mean Difference Fixed, 95% CI
1.34.1 End of intervention							
Schmitz 2009	112	6.1 (17.9)	120	3.4 (19.5)		31.18%	2.7[-2.11,7.51]
Cormie 2014	43	3.2 (6)	19	0.7 (6)		68.82%	2.5[-0.74,5.74]
Subtotal ***	**155**		**139**			**100%**	**2.56[-0.13,5.25]**
Heterogeneity: Tau²=0; Chi²=0, df=1(P=0.95); I²=0%							
Test for overall effect: Z=1.87(P=0.06)							
1.34.2 Follow-up							
Subtotal ***	**0**		**0**				**Not estimable**
Heterogeneity: Not applicable							
Test for overall effect: Not applicable							



Analysis 1.35. Comparison 1 Comparison: HRQoL outcomes, all physical activity vs control, Outcome 35 MOS SF Physical function (follow-up values).

Study or subgroup	Physical activity N	Physical activity Mean(SD)	Control N	Control Mean(SD)	Mean Difference Random, 95% CI	Weight	Mean Difference Random, 95% CI
1.35.1 End of intervention							
Mehnert 2011	30	89 (9.1)	28	78.1 (21.2)		5.2%	10.84[2.33,19.35]
Basen-Enquist 2006	28	82.5 (12.7)	23	77.4 (11.5)		7.96%	5.1[-1.55,11.75]
Pinto 2015	39	87.1 (4.4)	37	84.7 (15.9)		11.37%	2.39[-2.92,7.7]
Duijits 2012	87	84 (16.9)	89	80.2 (17.1)		12.36%	3.85[-1.17,8.87]
Mustian 2004	9	26.9 (4.1)	10	26.5 (4.1)		18.48%	0.39[-3.32,4.1]
Cadmus 2009	37	50 (6.4)	37	48 (7.6)		21.85%	2[-1.2,5.2]
Winters-Stone 2011	36	51.7 (6.2)	25	52.3 (5.9)		22.78%	-0.6[-3.67,2.47]
Subtotal ***	**266**		**249**			**100%**	**2.09[0.03,4.15]**
Heterogeneity: Tau²=2.4; Chi²=8.87, df=6(P=0.18); I²=32.32%							



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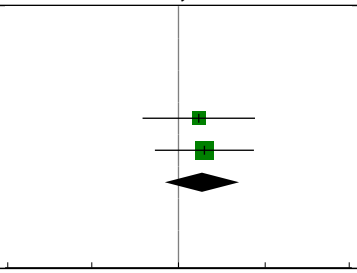
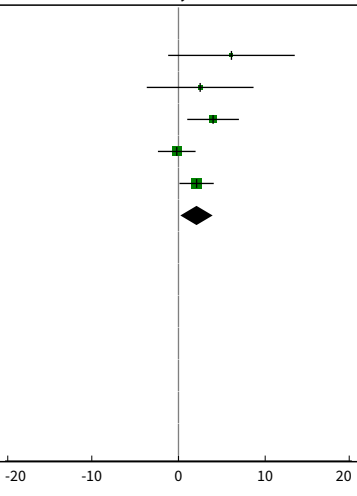
Study or subgroup	Physical activity N	Physical activity Mean(SD)	Control N	Control Mean(SD)	Mean Difference Random, 95% CI	Weight	Mean Difference Random, 95% CI
Test for overall effect: Z=1.99(P=0.05)							
1.35.2 Follow-up							
Pinto 2015	39	86.7 (13.4)	37	84.3 (15.3)		43.68%	2.34[-4.14,8.82]
Duijits 2012	79	83.7 (18.4)	84	80.7 (18.8)		56.32%	2.99[-2.72,8.7]
Subtotal ***	**118**		**121**			**100%**	**2.71[-1.58,6.99]**
Heterogeneity: Tau²=0; Chi²=0.02, df=1(P=0.88); I²=0%							
Test for overall effect: Z=1.24(P=0.22)							



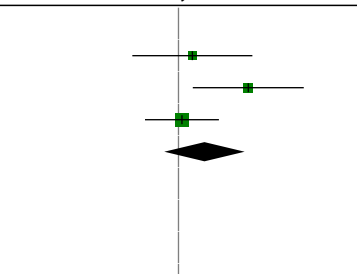
Analysis 1.36. Comparison 1 Comparison: HRQoL outcomes, all physical activity vs control, Outcome 36 MOS SF Physical function (change values).

Study or subgroup	Physical activity N	Physical activity Mean(SD)	Control N	Control Mean(SD)	Mean Difference Random, 95% CI	Weight	Mean Difference Random, 95% CI
1.36.1 End of intervention							
Mehnert 2011	30	4 (10.8)	28	-2.1 (16.7)		5.8%	6.11[-1.19,13.41]
Schmitz 2009	58	6.6 (17.1)	62	4.1 (17.3)		7.8%	2.5[-3.66,8.66]
Cormie 2014	43	3.5 (5.2)	19	-0.5 (5.7)		22.48%	3.99[1.01,6.97]
Cadmus 2009	37	-0.2 (5.1)	37	0 (4.4)		30.77%	-0.2[-2.37,1.97]
Mustian 2004	9	1.9 (2.6)	10	-0.2 (1.6)		33.14%	2.09[0.11,4.07]
Subtotal ***	**177**		**156**			**100%**	**2.08[0.21,3.94]**
Heterogeneity: Tau²=1.71; Chi²=6.81, df=4(P=0.15); I²=41.27%							
Test for overall effect: Z=2.19(P=0.03)							
1.36.2 Follow-up							
Subtotal ***	**0**		**0**				**Not estimable**
Heterogeneity: Not applicable							
Test for overall effect: Not applicable							



Analysis 1.37. Comparison 1 Comparison: HRQoL outcomes, all physical activity vs control, Outcome 37 EORTC QLQ-C30 Physical function (follow-up values).

Study or subgroup	Physical activity N	Physical activity Mean(SD)	Control N	Control Mean(SD)	Mean Difference Random, 95% CI	Weight	Mean Difference Random, 95% CI
1.37.1 End of intervention							
Herrero 2006	8	94.1 (7.5)	8	92.5 (6.6)		27.06%	1.6[-5.32,8.52]
Mehnert 2011	30	94 (9.3)	27	86 (14.5)		29.67%	8.05[1.65,14.45]
Do 2015	32	89.4 (8.4)	30	89 (8.7)		43.27%	0.4[-3.86,4.66]
Subtotal ***	**70**		**65**			**100%**	**2.99[-1.64,7.63]**
Heterogeneity: Tau²=8.21; Chi²=3.89, df=2(P=0.14); I²=48.54%							
Test for overall effect: Z=1.27(P=0.21)							
1.37.2 Follow-up							
Subtotal ***	**0**		**0**				**Not estimable**
Heterogeneity: Not applicable							



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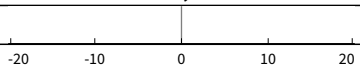
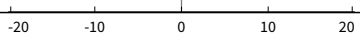
Study or subgroup	Physical activity N	Physical activity Mean(SD)	Control N	Control Mean(SD)	Mean Difference Random, 95% CI	Weight	Mean Difference Random, 95% CI
Test for overall effect: Not applicable							



Analysis 1.38. Comparison 1 Comparison: HRQoL outcomes, all physical activity vs control, Outcome 38 EORTC QLQ-C30 Physical function (change values).

Study or subgroup	Physical activity N	Physical activity Mean(SD)	Control N	Control Mean(SD)	Mean Difference Random, 95% CI	Weight	Mean Difference Random, 95% CI
1.38.1 End of intervention							
Mehnert 2011	30	5.3 (10.9)	27	1.5 (13)		29.74%	3.81[-2.46,10.08]
Herrero 2006	8	6.7 (5)	8	-1.7 (6.9)		30.74%	8.4[2.5,14.3]
Saarto 2012	263	1.9 (13.7)	237	3.4 (13.4)		39.52%	-1.5[-3.87,0.87]
Subtotal ***	**301**		**272**			**100%**	**3.12[-3.24,9.49]**
Heterogeneity: Tau²=25.22; Chi²=10.65, df=2(P=0); I²=81.22%							
Test for overall effect: Z=0.96(P=0.34)							
1.38.2 Follow-up							
Subtotal ***	**0**		**0**				**Not estimable**
Heterogeneity: Not applicable							
Test for overall effect: Not applicable							



Analysis 1.39. Comparison 1 Comparison: HRQoL outcomes, all physical activity vs control, Outcome 39 Body Esteem Scale - Physical condition (follow-up values).

Study or subgroup	Physical activity N	Physical activity Mean(SD)	Control N	Control Mean(SD)	Mean Difference Random, 95% CI	Weight	Mean Difference Random, 95% CI
1.39.1 End of intervention							
Pinto 2003	12	32.3 (4.3)	12	25.3 (8.2)		36.45%	7[1.76,12.24]
Pinto 2005	39	30.3 (7.9)	43	27.3 (6.8)		63.55%	2.93[-0.26,6.12]
Subtotal ***	**51**		**55**			**100%**	**4.41[0.57,8.25]**
Heterogeneity: Tau²=3.38; Chi²=1.69, df=1(P=0.19); I²=40.84%							
Test for overall effect: Z=2.25(P=0.02)							
1.39.2 Follow-up							
Subtotal ***	**0**		**0**				**Not estimable**
Heterogeneity: Not applicable							
Test for overall effect: Not applicable							

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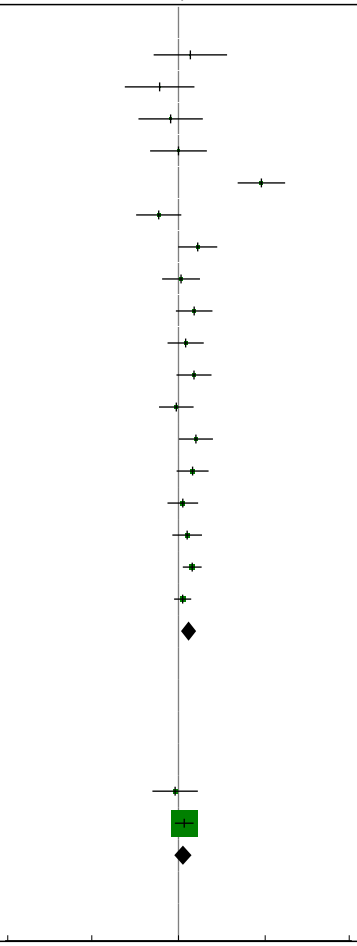
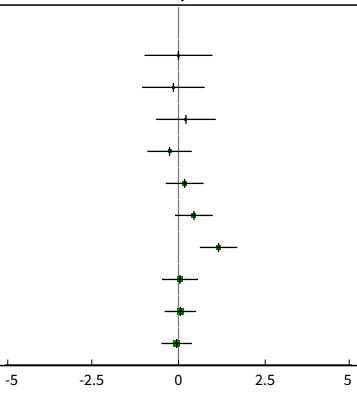
Analysis 1.40. Comparison 1 Comparison: HRQoL outcomes, all physical activity vs control, Outcome 40 Overall role function (follow-up values).

Study or subgroup	Physical activity N	Physical activity Mean(SD)	Control N	Control Mean(SD)	Std. Mean Difference Random, 95% CI	Weight	Std. Mean Difference Random, 95% CI
1.40.1 End of intervention							
Banasik 2011	7	3.5 (0.6)	7	3.2 (0.6)		2.88%	0.34[-0.72,1.4]
Herrero 2006	8	97.6 (5.9)	8	100 (0)		3.09%	-0.54[-1.55,0.46]
Mustian 2004	9	2.4 (1.5)	9	2.8 (1.5)		3.41%	-0.23[-1.15,0.7]
Loudon 2014	12	-1.3 (0.3)	11	-1.3 (0.4)		3.96%	0[-0.82,0.82]
Milne 2008	29	22.2 (3)	29	12.5 (4.8)		4.76%	2.39[1.71,3.08]
Rogers 2009	20	21.4 (4.8)	18	23.8 (3.2)		4.98%	-0.57[-1.22,0.08]
Basen-Enquist 2006	28	86.1 (22.2)	23	73 (24.5)		5.6%	0.55[-0.01,1.12]
Courneya 2003	24	23.4 (4)	28	23.1 (4)		5.74%	0.07[-0.47,0.62]
Mehnert 2011	30	90 (20.3)	27	79.6 (25)		5.88%	0.45[-0.07,0.98]
Littman 2012	30	22.6 (3.9)	27	21.7 (4.7)		5.92%	0.21[-0.31,0.73]
Murtezani 2014	30	24.2 (2.8)	32	23 (2.5)		6.05%	0.45[-0.06,0.95]
Do 2015	32	78.1 (19.5)	30	79.2 (14.6)		6.1%	-0.06[-0.56,0.44]
Daley 2007	33	22.9 (4.5)	33	20.3 (5.6)		6.16%	0.5[0.01,0.99]
Cadmus 2009	37	23.1 (4.7)	37	20.6 (7.2)		6.39%	0.41[-0.05,0.87]
Schmitz 2005	39	-49.2 (6.5)	40	-50 (6.2)		6.55%	0.12[-0.32,0.57]
Loh 2014	63	23.4 (4.3)	32	22.2 (5)		6.66%	0.25[-0.18,0.68]
Rogers 2015	105	22.3 (4.5)	108	20.3 (5.5)		7.86%	0.4[0.12,0.67]
Vallance 2007	250	23.2 (4)	85	22.7 (4.6)		8.03%	0.12[-0.13,0.37]
Subtotal ***	**786**		**584**			**100%**	**0.29[0.07,0.51]**
Heterogeneity: Tau^2=0.14; Chi^2=55.4, df=17(P<0.0001); I^2=69.31%							
Test for overall effect: Z=2.61(P=0.01)							
1.40.2 Follow-up							
Rogers 2009	19	21.9 (4.7)	17	22.4 (5.4)		14.45%	-0.1[-0.75,0.56]
Rogers 2015	105	21.4 (5.1)	108	20.5 (5.7)		85.55%	0.17[-0.1,0.43]
Subtotal ***	**124**		**125**			**100%**	**0.13[-0.12,0.38]**
Heterogeneity: Tau^2=0; Chi^2=0.53, df=1(P=0.47); I^2=0%							
Test for overall effect: Z=1.01(P=0.31)							



Analysis 1.41. Comparison 1 Comparison: HRQoL outcomes, all physical activity vs control, Outcome 41 Overall role function (change values).

Study or subgroup	Physical activity N	Physical activity Mean(SD)	Control N	Control Mean(SD)	Std. Mean Difference Random, 95% CI	Weight	Std. Mean Difference Random, 95% CI
1.41.1 End of intervention							
Herrero 2006	8	2.1 (13.9)	8	2.1 (5.9)		3.21%	0[-0.98,0.98]
Mustian 2004	9	0.6 (1.6)	10	0.8 (1.6)		3.69%	-0.15[-1.05,0.76]
Naumann 2012	11	1.5 (4.4)	10	0.5 (4.5)		3.99%	0.22[-0.64,1.08]
Rogers 2009	20	0.4 (3.3)	18	1.4 (4.3)		6.22%	-0.26[-0.9,0.38]
Courneya 2003	24	0.9 (2.8)	28	0.4 (2.7)		7.65%	0.18[-0.37,0.73]
Cormie 2014	43	4.9 (7.1)	19	1.7 (7.1)		7.66%	0.45[-0.1,0.99]
Murtezani 2014	30	1.7 (0.7)	32	0.9 (0.6)		7.75%	1.16[0.62,1.7]
Mehnert 2011	30	6.7 (23.8)	27	5.6 (27)		8.13%	0.04[-0.48,0.56]
Cadmus 2009	37	-0.3 (3.7)	37	-0.5 (3.4)		9.44%	0.06[-0.4,0.51]
Schmitz 2005	39	1.2 (4.2)	40	1.5 (6.8)		9.77%	-0.05[-0.49,0.39]



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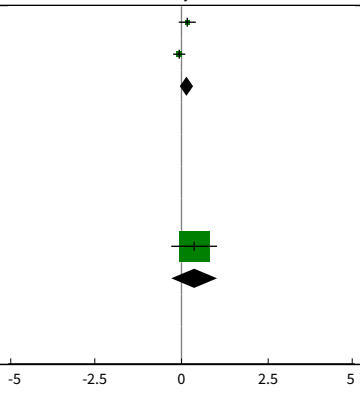
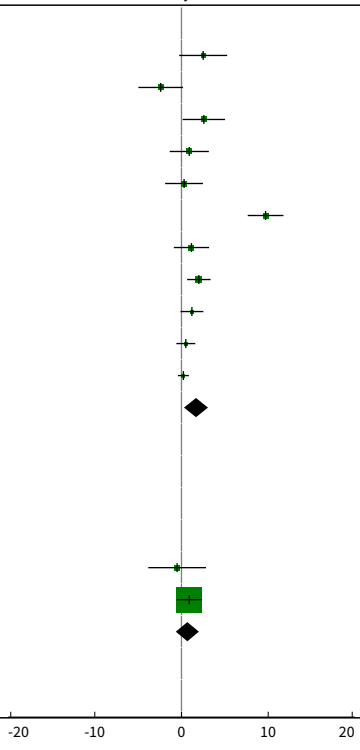
Study or subgroup	Physical activity N	Physical activity Mean(SD)	Control N	Control Mean(SD)	Std. Mean Difference Random, 95% CI	Weight	Std. Mean Difference Random, 95% CI
Vallance 2007	250	0.6 (4.1)	85	-0 (2.7)		15.18%	0.17[-0.08,0.41]
Saarto 2012	263	2.4 (21.5)	237	3.8 (21.6)		17.32%	-0.06[-0.24,0.11]
Subtotal ***	**764**		**551**			**100%**	**0.14[-0.05,0.33]**
Heterogeneity: Tau²=0.05; Chi²=21.96, df=11(P=0.02); I²=49.91%							
Test for overall effect: Z=1.46(P=0.15)							
1.41.2 Follow-up							
Rogers 2009	19	1.1 (3)	17	-0.2 (4)		100%	0.37[-0.29,1.03]
Subtotal ***	**19**		**17**			**100%**	**0.37[-0.29,1.03]**
Heterogeneity: Not applicable							
Test for overall effect: Z=1.09(P=0.28)							



Analysis 1.42. Comparison 1 Comparison: HRQoL outcomes, all physical activity vs control, Outcome 42 FACT Functional well-being (follow-up values).

Study or subgroup	Physical activity N	Physical activity Mean(SD)	Control N	Control Mean(SD)	Mean Difference Random, 95% CI	Weight	Mean Difference Random, 95% CI
1.42.1 End of intervention							
Cadmus 2009	37	23.1 (4.7)	37	20.6 (7.2)		7.66%	2.5[-0.27,5.27]
Rogers 2009	20	21.4 (4.8)	18	23.8 (3.2)		8%	-2.4[-4.97,0.17]
Daley 2007	33	22.9 (4.5)	33	20.3 (5.6)		8.21%	2.58[0.13,5.03]
Littman 2012	30	22.6 (3.9)	27	21.7 (4.7)		8.54%	0.9[-1.36,3.16]
Courneya 2003	24	23.4 (4)	28	23.1 (4)		8.67%	0.3[-1.88,2.48]
Milne 2008	29	22.2 (3)	29	12.5 (4.8)		8.87%	9.7[7.64,11.76]
Loh 2014	63	23.4 (4.3)	32	22.2 (5)		8.92%	1.15[-0.88,3.18]
Rogers 2015	105	22.3 (4.5)	108	20.3 (5.5)		9.99%	2[0.65,3.35]
Murtezani 2014	30	24.2 (2.8)	32	23 (2.5)		10.03%	1.2[-0.12,2.52]
Vallance 2007	250	23.2 (4)	85	22.7 (4.6)		10.33%	0.5[-0.59,1.59]
Banasik 2011	7	3.5 (0.6)	7	3.2 (0.6)		10.79%	0.22[-0.41,0.85]
Subtotal ***	**628**		**436**			**100%**	**1.67[0.29,3.06]**
Heterogeneity: Tau²=4.52; Chi²=87.26, df=10(P<0.0001); I²=88.54%							
Test for overall effect: Z=2.37(P=0.02)							
1.42.2 Follow-up							
Rogers 2009	19	21.9 (4.7)	17	22.4 (5.4)		16.01%	-0.5[-3.82,2.82]
Rogers 2015	105	21.4 (5.1)	108	20.5 (5.7)		83.99%	0.9[-0.55,2.35]
Subtotal ***	**124**		**125**			**100%**	**0.68[-0.65,2.01]**
Heterogeneity: Tau²=0; Chi²=0.57, df=1(P=0.45); I²=0%							
Test for overall effect: Z=1(P=0.32)							



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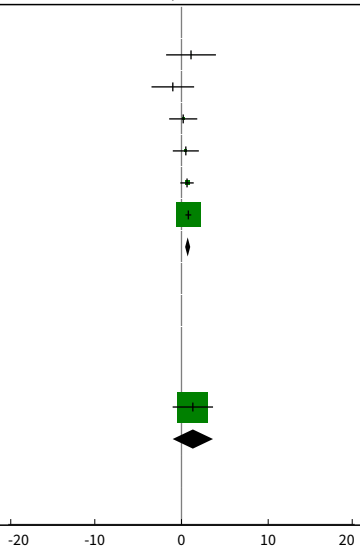
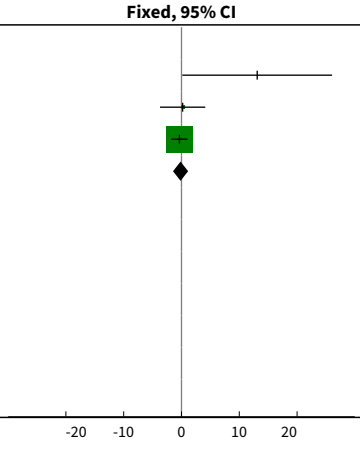
Analysis 1.43. Comparison 1 Comparison: HRQoL outcomes, all physical activity vs control, Outcome 43 FACT Functional well-being (change values).

Study or subgroup	Physical activity N	Physical activity Mean(SD)	Control N	Control Mean(SD)	Mean Difference Fixed, 95% CI	Weight	Mean Difference Fixed, 95% CI
1.43.1 End of intervention							
Naumann 2012	11	1.9 (3.3)	10	0.8 (3.4)		1.05%	1.1[-1.77,3.97]
Rogers 2009	20	0.4 (3.3)	18	1.4 (4.3)		1.43%	-1[-3.46,1.46]
Cadmus 2009	37	-0.3 (3.7)	37	-0.5 (3.4)		3.29%	0.2[-1.42,1.82]
Courneya 2003	24	0.9 (2.8)	28	0.4 (2.7)		3.83%	0.5[-1,2]
Vallance 2007	250	0.6 (4.1)	85	-0 (2.7)		14.55%	0.64[-0.13,1.41]
Murtezani 2014	30	1.7 (0.7)	32	0.9 (0.6)		75.86%	0.79[0.45,1.13]
Subtotal ***	**372**		**210**			**100%**	**0.72[0.42,1.01]**
Heterogeneity: Tau^2=0; Chi^2=2.63, df=5(P=0.76); I^2=0%							
Test for overall effect: Z=4.77(P<0.0001)							
1.43.2 Follow-up							
Rogers 2009	19	1.1 (3)	17	-0.2 (4)		100%	1.31[-1.02,3.64]
Subtotal ***	**19**		**17**			**100%**	**1.31[-1.02,3.64]**
Heterogeneity: Not applicable							
Test for overall effect: Z=1.1(P=0.27)							



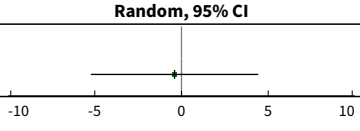
Analysis 1.44. Comparison 1 Comparison: HRQoL outcomes, all physical activity vs control, Outcome 44 MOS SF Physical role (follow-up values).

Study or subgroup	Physical activity N	Physical activity Mean(SD)	Control N	Control Mean(SD)	Mean Difference Fixed, 95% CI	Weight	Mean Difference Fixed, 95% CI
1.44.1 End of intervention							
Basen-Enquist 2006	28	86.1 (22.2)	23	73 (24.5)		1.02%	13.1[0.14,26.06]
Cadmus 2009	37	49.7 (9.3)	37	49.5 (7.8)		11.24%	0.2[-3.71,4.11]
Mustian 2004	9	2.4 (1.5)	9	2.8 (1.5)		87.74%	-0.36[-1.76,1.04]
Subtotal ***	**74**		**69**			**100%**	**-0.16[-1.47,1.15]**
Heterogeneity: Tau^2=0; Chi^2=4.13, df=2(P=0.13); I^2=51.63%							
Test for overall effect: Z=0.24(P=0.81)							
1.44.2 Follow-up							
Subtotal ***	**0**		**0**				**Not estimable**
Heterogeneity: Not applicable							
Test for overall effect: Not applicable							



Analysis 1.45. Comparison 1 Comparison: HRQoL outcomes, all physical activity vs control, Outcome 45 MOS SF Physical role (change values).

Study or subgroup	Physical activity N	Physical activity Mean(SD)	Control N	Control Mean(SD)	Mean Difference Random, 95% CI	Weight	Mean Difference Random, 95% CI
1.45.1 End of intervention							
Cadmus 2009	37	1.5 (11.9)	37	1.9 (9.1)		14.32%	-0.4[-5.23,4.43]



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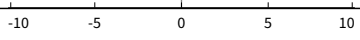
Study or subgroup	Physical activity N	Physical activity Mean(SD)	Control N	Control Mean(SD)	Mean Difference Random, 95% CI	Weight	Mean Difference Random, 95% CI
Cormie 2014	43	4.9 (7.1)	19	1.7 (7.1)		20.9%	3.2[-0.63,7.03]
Mustian 2004	9	0.6 (1.6)	10	0.8 (1.6)		64.78%	-0.24[-1.65,1.17]
Subtotal ***	**89**		**66**			**100%**	**0.46[-1.52,2.43]**
Heterogeneity: Tau²=1.05; Chi²=2.77, df=2(P=0.25); I²=27.87%							
Test for overall effect: Z=0.45(P=0.65)							
1.45.2 Follow-up							
Subtotal ***	**0**		**0**				**Not estimable**
Heterogeneity: Not applicable							
Test for overall effect: Not applicable							

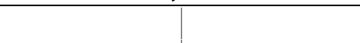


Analysis 1.46. Comparison 1 Comparison: HRQoL outcomes, all physical activity vs control, Outcome 46 EORTC QLQ-C30 Role function (follow-up values).

Study or subgroup	Physical activity N	Physical activity Mean(SD)	Control N	Control Mean(SD)	Mean Difference Random, 95% CI	Weight	Mean Difference Random, 95% CI
1.46.1 End of intervention							
Mehnert 2011	30	90 (20.3)	27	79.6 (25)		19.25%	10.37[-1.55,22.29]
Do 2015	32	78.1 (19.5)	30	79.2 (14.6)		29.39%	-1.1[-9.64,7.44]
Herrero 2006	8	97.6 (5.9)	8	100 (0)		51.36%	-2.4[-6.49,1.69]
Subtotal ***	**70**		**65**			**100%**	**0.44[-5.78,6.66]**
Heterogeneity: Tau²=15.23; Chi²=3.94, df=2(P=0.14); I²=49.27%							
Test for overall effect: Z=0.14(P=0.89)							
1.46.2 Follow-up							
Subtotal ***	**0**		**0**				**Not estimable**
Heterogeneity: Not applicable							
Test for overall effect: Not applicable							

Analysis 1.47. Comparison 1 Comparison: HRQoL outcomes, all physical activity vs control, Outcome 47 EORTC QLQ-C30 Role function (change values).

Study or subgroup	Physical activity N	Physical activity Mean(SD)	Control N	Control Mean(SD)	Mean Difference Fixed, 95% CI	Weight	Mean Difference Fixed, 95% CI
1.47.1 End of intervention							
Mehnert 2011	30	6.7 (23.8)	27	5.6 (27)		6.69%	1.11[-12.18,14.4]
Herrero 2006	8	2.1 (13.9)	8	2.1 (5.9)		10.79%	0[-10.46,10.46]
Saarto 2012	263	2.4 (21.5)	237	3.8 (21.6)		82.51%	-1.4[-5.18,2.38]
Subtotal ***	**301**		**272**			**100%**	**-1.08[-4.52,2.36]**
Heterogeneity: Tau²=0; Chi²=0.17, df=2(P=0.92); I²=0%							
Test for overall effect: Z=0.62(P=0.54)							
1.47.2 Follow-up							
Subtotal ***	**0**		**0**				**Not estimable**
Heterogeneity: Not applicable							



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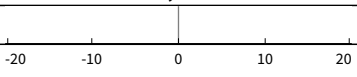
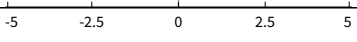
Study or subgroup	Physical activity N	Physical activity Mean(SD)	Control N	Control Mean(SD)	Mean Difference Fixed, 95% CI	Weight	Mean Difference Fixed, 95% CI
Test for overall effect: Not applicable							



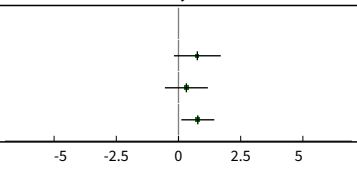
Analysis 1.48. Comparison 1 Comparison: HRQoL outcomes, all physical activity vs control, Outcome 48 Overall social well-being/function (follow-up values).

Study or subgroup	Physical activity N	Physical activity Mean(SD)	Control N	Control Mean(SD)	Std. Mean Difference Random, 95% CI	Weight	Std. Mean Difference Random, 95% CI
1.48.1 End of intervention							
Banasik 2011	7	2.8 (0.7)	7	3.2 (0.8)		1.1%	-0.45[-1.51,0.62]
Herrero 2006	8	87.5 (19.4)	8	91.7 (23.6)		1.28%	-0.18[-1.17,0.8]
Mustian 2004	9	8.6 (1.9)	10	9 (1.8)		1.51%	-0.19[-1.09,0.71]
Rogers 2014	20	7.3 (4.9)	22	3.1 (3.2)		2.88%	1.01[0.36,1.65]
Rogers 2009	20	22.6 (4.1)	18	21.8 (5.7)		2.95%	0.16[-0.48,0.8]
Basen-Enquist 2006	28	84.6 (16.9)	23	84.9 (19.2)		3.88%	-0.02[-0.57,0.54]
Courneya 2003	24	21.1 (3.5)	28	20.7 (3.6)		3.95%	0.11[-0.43,0.66]
Littman 2012	30	22.1 (5)	27	20.9 (6)		4.3%	0.22[-0.31,0.74]
Milne 2008	29	20.7 (4)	29	19.4 (3.9)		4.35%	0.32[-0.19,0.84]
Mehnert 2011	30	85.4 (20.9)	28	79.9 (22.7)		4.37%	0.25[-0.27,0.76]
Murtezani 2014	30	20.2 (2.8)	32	18.3 (2.7)		4.42%	0.68[0.17,1.2]
Daley 2007	33	23.3 (4.8)	33	20.4 (6.8)		4.82%	0.49[-0,0.98]
Cadmus 2009	37	22.3 (4.9)	37	20.6 (7.2)		5.44%	0.27[-0.18,0.73]
Loh 2014	63	21.5 (4.9)	32	19.6 (4.9)		6.12%	0.38[-0.05,0.81]
Schmitz 2009	59	14.9 (5.2)	62	14.1 (5.8)		8.41%	0.14[-0.21,0.5]
Kiecolt-Glaser 2014	96	95.2 (10.8)	90	93.8 (9.3)		11.91%	0.14[-0.15,0.43]
Rogers 2015	105	21 (5.7)	108	20.7 (5.8)		13.25%	0.05[-0.22,0.32]
Vallance 2007	250	22.9 (5)	85	23 (5.1)		15.07%	-0[-0.25,0.24]
Subtotal ***	**878**		**679**			**100%**	**0.19[0.08,0.3]**
Heterogeneity: Tau^2=0.01; Chi^2=19.03, df=17(P=0.33); I^2=10.67%							
Test for overall effect: Z=3.27(P=0)							
1.48.2 Follow-up							
Rogers 2015	105	21 (5.9)	108	20.5 (5.4)		100%	0.09[-0.18,0.36]
Subtotal ***	**105**		**108**			**100%**	**0.09[-0.18,0.36]**
Heterogeneity: Not applicable							
Test for overall effect: Z=0.64(P=0.52)							



Analysis 1.49. Comparison 1 Comparison: HRQoL outcomes, all physical activity vs control, Outcome 49 Overall social well-being/function (change values).

Study or subgroup	Physical activity N	Physical activity Mean(SD)	Control N	Control Mean(SD)	Std. Mean Difference Random, 95% CI	Weight	Std. Mean Difference Random, 95% CI
1.49.1 End of intervention							
Mustian 2004	9	1.5 (1.5)	10	0.4 (1.2)		6.04%	0.76[-0.18,1.7]
Naumann 2012	11	0.9 (3.3)	10	-0.2 (3.3)		6.47%	0.32[-0.54,1.18]
Rogers 2009	20	0.9 (2.6)	18	-1.2 (2.7)		7.67%	0.78[0.11,1.44]



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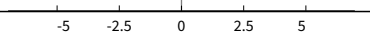
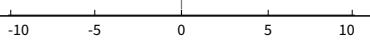
Study or subgroup	Physical activity N	Physical activity Mean(SD)	Control N	Control Mean(SD)	Std. Mean Difference Random, 95% CI	Weight	Std. Mean Difference Random, 95% CI
Rogers 2014	20	2.1 (3.2)	22	-0.8 (3.5)		7.85%	0.85[0.21,1.48]
Murtezani 2014	30	2.1 (0.8)	32	0.5 (0.9)		8.09%	1.8[1.21,2.4]
Courneya 2003	24	0.6 (2.4)	28	-0.5 (3.3)		8.37%	0.37[-0.18,0.92]
Cormie 2014	43	3.5 (8.5)	19	2.5 (8.3)		8.43%	0.12[-0.42,0.66]
Mehnert 2011	30	7.3 (22.3)	28	3.1 (24.3)		8.58%	0.18[-0.34,0.69]
Cadmus 2009	37	0.6 (4.6)	37	-1 (3.2)		8.9%	0.4[-0.06,0.86]
Schmitz 2009	59	4.4 (33.8)	62	0.7 (34)		9.47%	0.11[-0.25,0.47]
Vallance 2007	250	0.2 (4.8)	85	-4.1 (3.3)		9.93%	0.97[0.71,1.23]
Saarto 2012	263	5 (21.1)	237	8.8 (20.8)		10.21%	-0.18[-0.36,-0.01]
Subtotal ***	**796**		**588**			**100%**	**0.52[0.16,0.87]**
Heterogeneity: Tau²=0.31; Chi²=86.83, df=11(P<0.0001); I²=87.33%							
Test for overall effect: Z=2.86(P=0)							
1.49.2 Follow-up							
Rogers 2009	19	-0 (4.3)	17	-3.9 (6.6)		100%	0.69[0.01,1.36]
Subtotal ***	**19**		**17**			**100%**	**0.69[0.01,1.36]**
Heterogeneity: Not applicable							
Test for overall effect: Z=1.99(P=0.05)							



Analysis 1.50. Comparison 1 Comparison: HRQoL outcomes, all physical activity vs control, Outcome 50 FACT Social well-being (follow-up values).

Study or subgroup	Physical activity N	Physical activity Mean(SD)	Control N	Control Mean(SD)	Mean Difference Random, 95% CI	Weight	Mean Difference Random, 95% CI
1.50.1 End of intervention							
Rogers 2009	20	22.6 (4.1)	18	21.8 (5.7)		3.72%	0.8[-2.39,3.99]
Littman 2012	30	22.1 (5)	27	20.9 (6)		4.42%	1.2[-1.68,4.08]
Daley 2007	33	23.3 (4.8)	33	20.4 (6.8)		4.55%	2.9[0.06,5.74]
Cadmus 2009	37	22.3 (4.9)	37	20.6 (7.2)		4.63%	1.7[-1.11,4.51]
Loh 2014	63	21.5 (4.9)	32	19.6 (4.9)		7.46%	1.87[-0.21,3.95]
Milne 2008	29	20.7 (4)	29	19.4 (3.9)		7.72%	1.3[-0.73,3.33]
Courneya 2003	24	21.1 (3.5)	28	20.7 (3.6)		8.31%	0.4[-1.53,2.33]
Rogers 2015	105	21 (5.7)	108	20.7 (5.8)		11.22%	0.3[-1.24,1.84]
Murtezani 2014	30	20.2 (2.8)	32	18.3 (2.7)		12.92%	1.9[0.53,3.27]
Vallance 2007	250	22.9 (5)	85	23 (5.1)		14.41%	-0.02[-1.26,1.22]
Banasik 2011	7	2.8 (0.7)	7	3.2 (0.8)		20.63%	-0.36[-1.15,0.43]
Subtotal ***	**628**		**436**			**100%**	**0.77[0.11,1.43]**
Heterogeneity: Tau²=0.38; Chi²=15.28, df=10(P=0.12); I²=34.57%							
Test for overall effect: Z=2.29(P=0.02)							
1.50.2 Follow-up							
Rogers 2015	105	21 (5.9)	108	20.5 (5.4)		100%	0.5[-1.02,2.02]
Subtotal ***	**105**		**108**			**100%**	**0.5[-1.02,2.02]**
Heterogeneity: Not applicable							
Test for overall effect: Z=0.64(P=0.52)							



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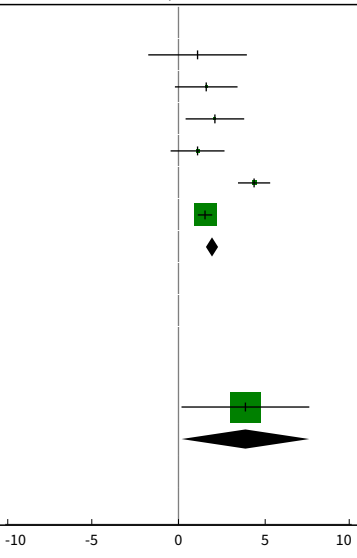
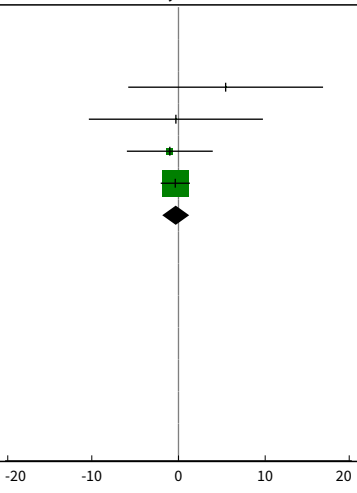
Analysis 1.51. Comparison 1 Comparison: HRQoL outcomes, all physical activity vs control, Outcome 51 FACT Social well-being (change values).

Study or subgroup	Physical activity N	Physical activity Mean(SD)	Control N	Control Mean(SD)	Mean Difference Fixed, 95% CI	Weight	Mean Difference Fixed, 95% CI
1.51.1 End of intervention							
Naumann 2012	11	0.9 (3.3)	10	-0.2 (3.3)		1.52%	1.1[-1.74,3.94]
Cadmus 2009	37	0.6 (4.6)	37	-1 (3.2)		3.77%	1.6[-0.21,3.41]
Rogers 2009	20	0.9 (2.6)	18	-1.2 (2.7)		4.31%	2.1[0.41,3.79]
Courneya 2003	24	0.6 (2.4)	28	-0.5 (3.3)		5.09%	1.1[-0.45,2.65]
Vallance 2007	250	0.2 (4.8)	85	-4.1 (3.3)		14.27%	4.36[3.43,5.29]
Murtezani 2014	30	2.1 (0.8)	32	0.5 (0.9)		71.04%	1.53[1.11,1.95]
Subtotal ***	**372**		**210**			**100%**	**1.93[1.58,2.28]**
Heterogeneity: Tau^2=0; Chi^2=31.48, df=5(P<0.0001); I^2=84.12%							
Test for overall effect: Z=10.81(P<0.0001)							
1.51.2 Follow-up							
Rogers 2009	19	-0 (4.3)	17	-3.9 (6.6)		100%	3.86[0.17,7.55]
Subtotal ***	**19**		**17**			**100%**	**3.86[0.17,7.55]**
Heterogeneity: Not applicable							
Test for overall effect: Z=2.05(P=0.04)							



Analysis 1.52. Comparison 1 Comparison: HRQoL outcomes, all physical activity vs control, Outcome 52 MOS SF Social functioning (follow-up values).

Study or subgroup	Physical activity N	Physical activity Mean(SD)	Control N	Control Mean(SD)	Mean Difference Fixed, 95% CI	Weight	Mean Difference Fixed, 95% CI
1.52.1 End of intervention							
Baruth 2013	20	87.2 (0)	12	78.4 (0)			Not estimable
Mehnert 2011	30	85.4 (20.9)	28	79.9 (22.7)		1.91%	5.44[-5.79,16.67]
Basen-Enquist 2006	28	84.6 (16.9)	23	84.9 (19.2)		2.4%	-0.3[-10.34,9.74]
Cadmus 2009	37	49.5 (12)	37	50.5 (9.6)		9.84%	-1[-5.95,3.95]
Mustian 2004	9	8.6 (1.9)	10	9 (1.8)		85.85%	-0.37[-2.05,1.31]
Subtotal ***	**124**		**110**			**100%**	**-0.32[-1.87,1.23]**
Heterogeneity: Tau^2=0; Chi^2=1.09, df=3(P=0.78); I^2=0%							
Test for overall effect: Z=0.4(P=0.69)							
1.52.2 Follow-up							
Subtotal ***	**0**		**0**				**Not estimable**
Heterogeneity: Not applicable							
Test for overall effect: Not applicable							



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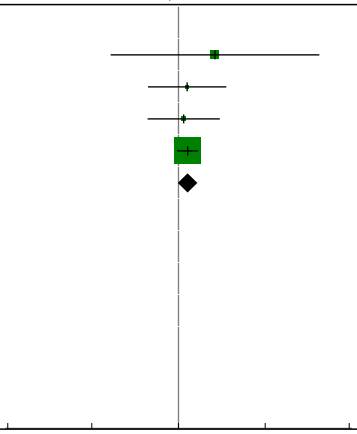
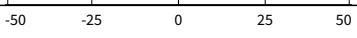
Analysis 1.53. Comparison 1 Comparison: HRQoL outcomes, all physical activity vs control, Outcome 53 MOS SF Social functioning (change values).

Study or subgroup	Physical activity N	Physical activity Mean(SD)	Control N	Control Mean(SD)	Mean Difference Fixed, 95% CI	Weight	Mean Difference Fixed, 95% CI
1.53.1 End of intervention							
Mehnert 2011	30	7.3 (22.3)	28	3.1 (24.3)		0.88%	4.21[-7.83,16.25]
Cormie 2014	43	3.5 (8.5)	19	2.5 (8.3)		6.24%	1[-3.51,5.51]
Cadmus 2009	37	0.7 (11)	37	0.1 (6.8)		7.32%	0.6[-3.57,4.77]
Mustian 2004	9	1.5 (1.5)	10	0.4 (1.2)		85.56%	1.06[-0.16,2.28]
Subtotal ***	**119**		**94**			**100%**	**1.05[-0.08,2.18]**
Heterogeneity: Tau^2=0; Chi^2=0.31, df=3(P=0.96); I^2=0%							
Test for overall effect: Z=1.83(P=0.07)							
1.53.2 Follow-up							
Subtotal ***	**0**		**0**				**Not estimable**
Heterogeneity: Not applicable							
Test for overall effect: Not applicable							



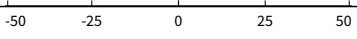
Analysis 1.54. Comparison 1 Comparison: HRQoL outcomes, all physical activity vs control, Outcome 54 EORTC QLQ-C30 Social function (follow-up values).

Study or subgroup	Physical activity N	Physical activity Mean(SD)	Control N	Control Mean(SD)	Mean Difference Random, 95% CI	Weight	Mean Difference Random, 95% CI
1.54.1 End of intervention							
Herrero 2006	8	87.5 (19.4)	8	91.7 (23.6)		41.3%	-4.2[-25.37,16.97]
Mehnert 2011	30	85.6 (23.1)	27	69.8 (28.1)		58.7%	15.81[2.37,29.25]
Subtotal ***	**38**		**35**			**100%**	**7.55[-11.77,26.86]**
Heterogeneity: Tau^2=118.36; Chi^2=2.45, df=1(P=0.12); I^2=59.12%							
Test for overall effect: Z=0.77(P=0.44)							
1.54.2 Follow-up							
Subtotal ***	**0**		**0**				**Not estimable**
Heterogeneity: Not applicable							
Test for overall effect: Not applicable							



Analysis 1.55. Comparison 1 Comparison: HRQoL outcomes, all physical activity vs control, Outcome 55 EORTC QLQ-C30 Social function (change values).

Study or subgroup	Physical activity N	Physical activity Mean(SD)	Control N	Control Mean(SD)	Mean Difference Random, 95% CI	Weight	Mean Difference Random, 95% CI
1.55.1 End of intervention							
Herrero 2006	8	0 (15.4)	8	-4.2 (18.4)		22.12%	4.2[-12.43,20.83]
Mehnert 2011	30	12.8 (24.9)	27	1.2 (27.8)		27.19%	11.55[-2.22,25.32]
Saarto 2012	263	5 (21.1)	237	8.8 (20.8)		50.69%	-3.8[-7.48,-0.12]
Subtotal ***	**301**		**272**			**100%**	**2.14[-8.02,12.3]**
Heterogeneity: Tau^2=49.46; Chi^2=5.1, df=2(P=0.08); I^2=60.82%							



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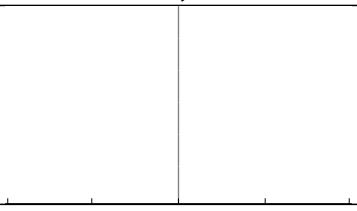
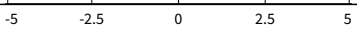
Study or subgroup	Physical activity N	Physical activity Mean(SD)	Control N	Control Mean(SD)	Mean Difference Random, 95% CI	Weight	Mean Difference Random, 95% CI
Test for overall effect: Z=0.41(P=0.68)							
1.55.2 Follow-up							
Subtotal ***	**0**		**0**				**Not estimable**
Heterogeneity: Not applicable							
Test for overall effect: Not applicable							



Analysis 1.56. Comparison 1 Comparison: HRQoL outcomes, all physical activity vs control, Outcome 56 Overall cognitive function (follow-up values).

Study or subgroup	Physical activity N	Physical activity Mean(SD)	Control N	Control Mean(SD)	Std. Mean Difference Random, 95% CI	Weight	Std. Mean Difference Random, 95% CI
1.56.1 End of intervention							
Pinto 2003	12	-4.3 (2.5)	6	-7.2 (2.1)		7.48%	1.14[0.07,2.2]
Herrero 2006	8	91.7 (12.6)	8	89.6 (12.4)		8.81%	0.16[-0.82,1.14]
Rogers 2009	19	-124.5 (30.8)	18	-135.5 (19.5)		19.97%	0.42[-0.24,1.07]
Mehnert 2011	30	81.1 (16.8)	27	78.4 (24.4)		31.37%	0.13[-0.39,0.65]
Cantarero-Villanueva 2013	32	-37.9 (8.5)	29	-43 (10)		32.37%	0.55[0.03,1.06]
Subtotal ***	**101**		**88**			**100%**	**0.4[0.11,0.69]**
Heterogeneity: Tau^2=0; Chi^2=3.41, df=4(P=0.49); I^2=0%							
Test for overall effect: Z=2.68(P=0.01)							
1.56.2 Follow-up							
Rogers 2009	19	-126.4 (31.8)	17	-129.2 (31.5)		37.69%	0.09[-0.57,0.74]
Cantarero-Villanueva 2013	32	-37.7 (7.3)	29	-42 (11.3)		62.31%	0.45[-0.06,0.96]
Subtotal ***	**51**		**46**			**100%**	**0.31[-0.09,0.71]**
Heterogeneity: Tau^2=0; Chi^2=0.73, df=1(P=0.39); I^2=0%							
Test for overall effect: Z=1.52(P=0.13)							



Analysis 1.57. Comparison 1 Comparison: HRQoL outcomes, all physical activity vs control, Outcome 57 Overall cognitive function (change values).

Study or subgroup	Physical activity N	Physical activity Mean(SD)	Control N	Control Mean(SD)	Std. Mean Difference Random, 95% CI	Weight	Std. Mean Difference Random, 95% CI
1.57.1 End of intervention							
Herrero 2006	8	6.2 (19.8)	8	8.3 (14.8)		6.27%	-0.11[-1.09,0.87]
Rogers 2009	20	4.2 (16.8)	18	-4.7 (25.9)		12.72%	0.4[-0.24,1.05]
Mehnert 2011	30	1.7 (22.4)	27	6.2 (24.6)		17.39%	-0.19[-0.71,0.33]
Cantarero-Villanueva 2013	32	2.2 (7.6)	29	-0.2 (5.5)		18.09%	0.35[-0.16,0.86]
Saarto 2012	263	-1 (18.2)	237	2.2 (18.5)		45.52%	-0.17[-0.35,0]
Subtotal ***	**353**		**319**			**100%**	**-0[-0.27,0.26]**
Heterogeneity: Tau^2=0.03; Chi^2=6.17, df=4(P=0.19); I^2=35.2%							
Test for overall effect: Z=0.04(P=0.97)							

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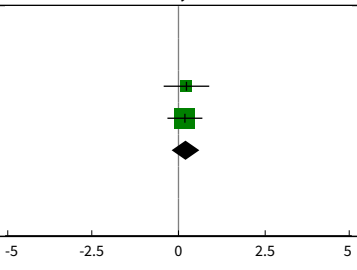
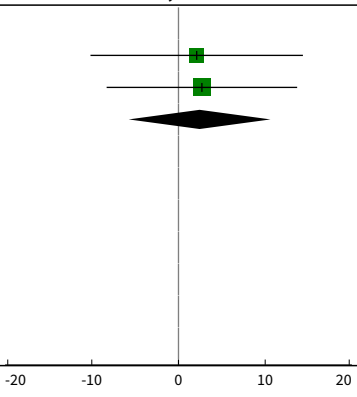
Study or subgroup	Physical activity N	Physical activity Mean(SD)	Control N	Control Mean(SD)	Std. Mean Difference Random, 95% CI	Weight	Std. Mean Difference Random, 95% CI
1.57.2 Follow-up							
Rogers 2009	19	5.4 (16.3)	17	0.7 (23.6)		37.03%	0.23[-0.43,0.89]
Cantarero-Villanueva 2013	32	2.4 (10.2)	29	0.8 (5)		62.97%	0.19[-0.32,0.69]
Subtotal ***	**51**		**46**			**100%**	**0.2[-0.2,0.6]**
Heterogeneity: Tau²=0; Chi²=0.01, df=1(P=0.92); I²=0%							
Test for overall effect: Z=0.99(P=0.32)							



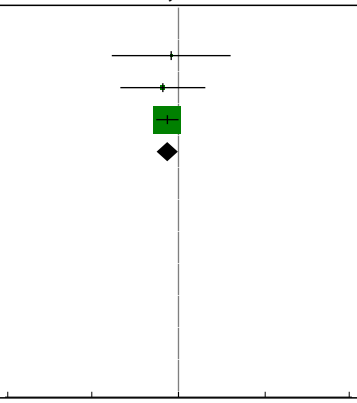
Analysis 1.58. Comparison 1 Comparison: HRQoL outcomes, all physical activity vs control, Outcome 58 EORTC QLQ-C30 Cognitive function (follow-up values).

Study or subgroup	Physical activity N	Physical activity Mean(SD)	Control N	Control Mean(SD)	Mean Difference Fixed, 95% CI	Weight	Mean Difference Fixed, 95% CI
1.58.1 End of intervention							
Herrero 2006	8	91.7 (12.6)	8	89.6 (12.4)		44.58%	2.1[-10.15,14.35]
Mehnert 2011	30	81.1 (16.8)	27	78.4 (24.4)		55.42%	2.7[-8.29,13.69]
Subtotal ***	**38**		**35**			**100%**	**2.43[-5.75,10.61]**
Heterogeneity: Tau²=0; Chi²=0.01, df=1(P=0.94); I²=0%							
Test for overall effect: Z=0.58(P=0.56)							
1.58.2 Follow-up							
Subtotal ***	**0**		**0**				**Not estimable**
Heterogeneity: Not applicable							
Test for overall effect: Not applicable							



Analysis 1.59. Comparison 1 Comparison: HRQoL outcomes, all physical activity vs control, Outcome 59 EORTC QLQ-C30 Cognitive function (change values).

Study or subgroup	Physical activity N	Physical activity Mean(SD)	Control N	Control Mean(SD)	Mean Difference Fixed, 95% CI	Weight	Mean Difference Fixed, 95% CI
1.59.1 End of intervention							
Herrero 2006	8	6.2 (19.8)	8	8.3 (14.8)		3.2%	-2.1[-19.23,15.03]
Mehnert 2011	30	1.7 (22.4)	27	6.2 (24.6)		6.25%	-4.51[-16.76,7.74]
Saarto 2012	263	-1 (18.2)	237	2.2 (18.5)		90.55%	-3.2[-6.42,0.02]
Subtotal ***	**301**		**272**			**100%**	**-3.25[-6.31,-0.18]**
Heterogeneity: Tau²=0; Chi²=0.06, df=2(P=0.97); I²=0%							
Test for overall effect: Z=2.08(P=0.04)							
1.59.2 Follow-up							
Subtotal ***	**0**		**0**				**Not estimable**
Heterogeneity: Not applicable							
Test for overall effect: Not applicable							



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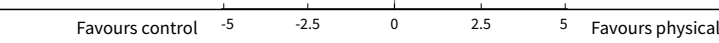
Analysis 1.60. Comparison 1 Comparison: HRQoL outcomes, all physical activity vs control, Outcome 60 POMS confusion subscale (follow-up values).

Study or subgroup	Physical activity N	Physical activity Mean(SD)	Control N	Control Mean(SD)	Std. Mean Difference Fixed, 95% CI	Weight	Std. Mean Difference Fixed, 95% CI
1.60.1 End of intervention							
Pinto 2003	12	4.3 (2.5)	6	7.2 (2.1)		18.76%	-1.14[-2.2,-0.07]
Cantarero-Villanueva 2013	32	37.9 (8.5)	29	43 (10)		81.24%	-0.55[-1.06,-0.03]
Subtotal ***	**44**		**35**			**100%**	**-0.66[-1.12,-0.19]**
Heterogeneity: Tau²=0; Chi²=0.96, df=1(P=0.33); I²=0%							
Test for overall effect: Z=2.78(P=0.01)							
1.60.2 Follow-up							
Cantarero-Villanueva 2013	32	37.8 (7.3)	29	42 (11.3)		100%	-0.45[-0.96,0.06]
Subtotal ***	**32**		**29**			**100%**	**-0.45[-0.96,0.06]**
Heterogeneity: Not applicable							
Test for overall effect: Z=1.72(P=0.09)							

Analysis 1.61. Comparison 1 Comparison: HRQoL outcomes, all physical activity vs control, Outcome 61 Overall general health (follow-up values).

Study or subgroup	Physical activity N	Physical activity Mean(SD)	Control N	Control Mean(SD)	Std. Mean Difference Random, 95% CI	Weight	Std. Mean Difference Random, 95% CI
1.61.1 End of intervention							
Herrero 2006	8	81.3 (10.7)	8	62.5 (16.1)		4.71%	1.3[0.19,2.41]
Mustian 2004	9	18.6 (4.8)	9	19.3 (1.9)		6.23%	-0.18[-1.11,0.74]
Rogers 2009	20	3.5 (0.9)	18	3.8 (0.5)		10.15%	-0.4[-1.04,0.25]
Basen-Enquist 2006	28	77.4 (11.6)	23	67.1 (13.4)		11.5%	0.81[0.24,1.39]
Ergun 2013	40	71.6 (19.9)	20	67.9 (16.7)		12.33%	0.19[-0.35,0.73]
Mehnert 2011	30	74.4 (11.8)	28	70 (20.8)		12.81%	0.26[-0.26,0.77]
Do 2015	32	87.3 (13.7)	30	82.4 (19.9)		13.21%	0.28[-0.22,0.79]
Cadmus 2009	37	50 (8.8)	37	51.7 (8.4)		14.32%	-0.2[-0.65,0.26]
Schmitz 2005	39	53.8 (5.3)	40	53.2 (6)		14.73%	0.1[-0.34,0.55]
Subtotal ***	**243**		**213**			**100%**	**0.18[-0.08,0.45]**
Heterogeneity: Tau²=0.08; Chi²=15.19, df=8(P=0.06); I²=47.33%							
Test for overall effect: Z=1.35(P=0.18)							
1.61.2 Follow-up							
Rogers 2009	19	3.5 (0.9)	17	3.7 (0.9)		100%	-0.22[-0.87,0.44]
Subtotal ***	**19**		**17**			**100%**	**-0.22[-0.87,0.44]**
Heterogeneity: Not applicable							
Test for overall effect: Z=0.65(P=0.52)							



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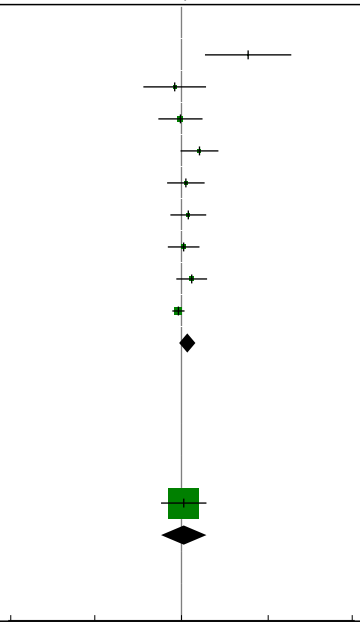
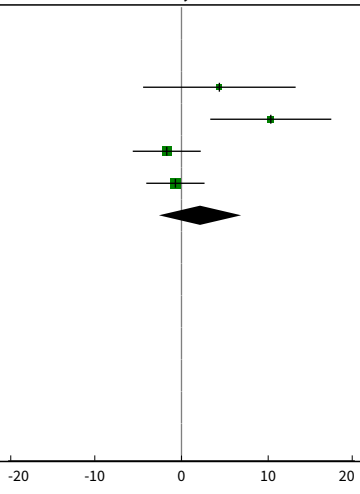
Analysis 1.62. Comparison 1 Comparison: HRQoL outcomes, all physical activity vs control, Outcome 62 Overall general health (change values).

Study or subgroup	Physical activity N	Physical activity Mean(SD)	Control N	Control Mean(SD)	Std. Mean Difference Random, 95% CI	Weight	Std. Mean Difference Random, 95% CI
1.62.1 End of intervention							
Herrero 2006	8	17.7 (8.3)	8	-10.4 (17.7)		3.12%	1.92[0.68,3.17]
Mustian 2004	9	0.2 (1.9)	10	0.7 (2.5)		5.35%	-0.2[-1.1,0.71]
Rogers 2009	20	0.2 (0.6)	18	0.2 (0.7)		8.91%	-0.03[-0.67,0.61]
Ergun 2013	40	5.4 (21.5)	20	-6.7 (25.9)		10.81%	0.52[-0.03,1.06]
Cormie 2014	43	3.7 (7)	19	2.8 (7.1)		10.93%	0.13[-0.41,0.67]
Mehnert 2011	30	6.6 (13.7)	28	3.2 (19.7)		11.51%	0.2[-0.32,0.71]
Cadmus 2009	37	0.2 (4.4)	37	-0.1 (5.1)		13.13%	0.06[-0.39,0.52]
Schmitz 2005	39	0.7 (4.8)	40	-0.6 (3.9)		13.48%	0.29[-0.15,0.74]
Saarto 2012	263	4.2 (16.2)	237	5.6 (15.4)		22.76%	-0.09[-0.26,0.09]
Subtotal ***	**489**		**417**			**100%**	**0.17[-0.07,0.4]**
Heterogeneity: Tau²=0.05; Chi²=15.82, df=8(P=0.05); I²=49.43%							
Test for overall effect: Z=1.4(P=0.16)							
1.62.2 Follow-up							
Rogers 2009	19	0.2 (0.6)	17	0.1 (0.6)		100%	0.07[-0.59,0.72]
Subtotal ***	**19**		**17**			**100%**	**0.07[-0.59,0.72]**
Heterogeneity: Not applicable							
Test for overall effect: Z=0.2(P=0.85)							



Analysis 1.63. Comparison 1 Comparison: HRQoL outcomes, all physical activity vs control, Outcome 63 MOS SF General health (follow-up values).

Study or subgroup	Physical activity N	Physical activity Mean(SD)	Control N	Control Mean(SD)	Mean Difference Random, 95% CI	Weight	Mean Difference Random, 95% CI
1.63.1 End of intervention							
Baruth 2013	20	68.1 (0)	12	61.6 (0)			Not estimable
Mehnert 2011	30	74.4 (11.8)	28	70 (20.8)		16.54%	4.37[-4.43,13.17]
Basen-Enquist 2006	28	77.4 (11.6)	23	67.1 (13.4)		20.95%	10.3[3.32,17.28]
Cadmus 2009	37	50 (8.8)	37	51.7 (8.4)		30.37%	-1.7[-5.62,2.22]
Mustian 2004	9	18.6 (4.8)	9	19.3 (1.9)		32.14%	-0.7[-4.06,2.66]
Subtotal ***	**124**		**109**			**100%**	**2.14[-2.61,6.88]**
Heterogeneity: Tau²=15.3; Chi²=10.02, df=3(P=0.02); I²=70.05%							
Test for overall effect: Z=0.88(P=0.38)							
1.63.2 Follow-up							
Subtotal ***	**0**		**0**				**Not estimable**
Heterogeneity: Not applicable							
Test for overall effect: Not applicable							



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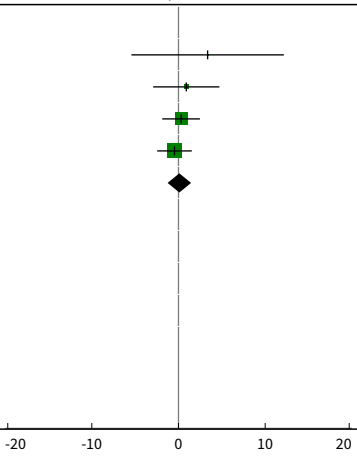
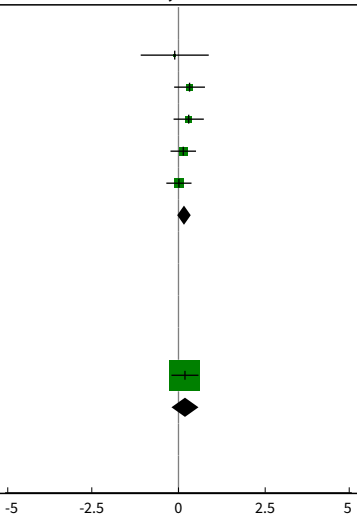
Analysis 1.64. Comparison 1 Comparison: HRQoL outcomes, all physical activity vs control, Outcome 64 MOS SF General health (change values).

Study or subgroup	Physical activity N	Physical activity Mean(SD)	Control N	Control Mean(SD)	Mean Difference Fixed, 95% CI	Weight	Mean Difference Fixed, 95% CI
1.64.1 End of intervention							
Mehnert 2011	30	6.6 (13.7)	28	3.2 (19.7)		2.37%	3.36[-5.43,12.15]
Cormie 2014	43	3.7 (7)	19	2.8 (7.1)		12.58%	0.9[-2.92,4.72]
Cadmus 2009	37	0.2 (4.4)	37	-0.1 (5.1)		38.92%	0.3[-1.87,2.47]
Mustian 2004	9	0.2 (1.9)	10	0.7 (2.5)		46.13%	-0.46[-2.45,1.53]
Subtotal ***	**119**		**94**			**100%**	**0.1[-1.26,1.45]**
Heterogeneity: Tau^2=0; Chi^2=1.03, df=3(P=0.79); I^2=0%							
Test for overall effect: Z=0.14(P=0.89)							
1.64.2 Follow-up							
Subtotal ***	**0**		**0**				**Not estimable**
Heterogeneity: Not applicable							
Test for overall effect: Not applicable							



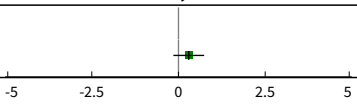
Analysis 1.65. Comparison 1 Comparison: HRQoL outcomes, all physical activity vs control, Outcome 65 Overall sexual function (follow-up values).

Study or subgroup	Physical activity N	Physical activity Mean(SD)	Control N	Control Mean(SD)	Std. Mean Difference Fixed, 95% CI	Weight	Std. Mean Difference Fixed, 95% CI
1.65.1 End of intervention							
Pinto 2005	12	42.8 (9.2)	6	43.7 (6.1)		3.94%	-0.11[-1.09,0.87]
Schmitz 2005	39	-51 (7.5)	40	-53.5 (8)		19.23%	0.32[-0.12,0.76]
Pinto 2003	39	42.5 (9.2)	43	40.1 (6.3)		19.96%	0.29[-0.14,0.73]
Schmitz 2009	57	-27.3 (5.3)	57	-28.1 (6.2)		28.06%	0.14[-0.23,0.51]
Duijits 2012	53	0.6 (0.8)	65	0.6 (0.8)		28.81%	0.01[-0.35,0.38]
Subtotal ***	**200**		**211**			**100%**	**0.16[-0.04,0.35]**
Heterogeneity: Tau^2=0; Chi^2=1.8, df=4(P=0.77); I^2=0%							
Test for overall effect: Z=1.59(P=0.11)							
1.65.2 Follow-up							
Duijits 2012	48	0.6 (0.7)	54	0.4 (0.7)		100%	0.19[-0.2,0.58]
Subtotal ***	**48**		**54**			**100%**	**0.19[-0.2,0.58]**
Heterogeneity: Not applicable							
Test for overall effect: Z=0.94(P=0.35)							



Analysis 1.66. Comparison 1 Comparison: HRQoL outcomes, all physical activity vs control, Outcome 66 Overall sexual function (change values).

Study or subgroup	Physical activity N	Physical activity Mean(SD)	Control N	Control Mean(SD)	Std. Mean Difference Random, 95% CI	Weight	Std. Mean Difference Random, 95% CI
1.66.1 End of intervention							
Schmitz 2005	39	1.7 (4.8)	40	0.2 (5.2)		24.77%	0.3[-0.15,0.74]



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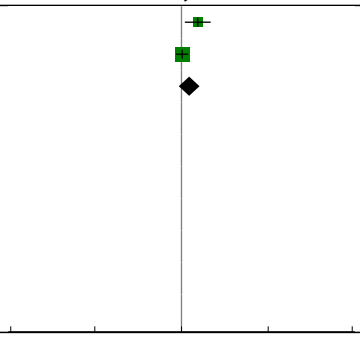
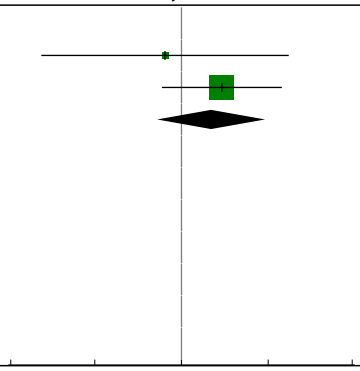
Study or subgroup	Physical activity N	Physical activity Mean(SD)	Control N	Control Mean(SD)	Std. Mean Difference Random, 95% CI	Weight	Std. Mean Difference Random, 95% CI
Schmitz 2009	57	7.2 (14.6)	57	-0.2 (16.7)		29.51%	0.47[0.1,0.84]
Saarto 2012	263	4.3 (25.4)	237	3.8 (24.4)		45.72%	0.02[-0.16,0.2]
Subtotal ***	**359**		**334**			**100%**	**0.22[-0.08,0.52]**
Heterogeneity: Tau²=0.04; Chi²=5.22, df=2(P=0.07); I²=61.69%							
Test for overall effect: Z=1.45(P=0.15)							
1.66.2 Follow-up							
Subtotal ***	**0**		**0**				**Not estimable**
Heterogeneity: Not applicable							
Test for overall effect: Not applicable							



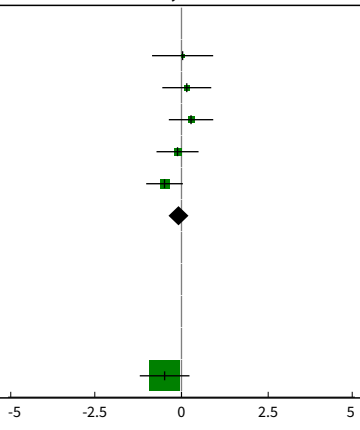
Analysis 1.67. Comparison 1 Comparison: HRQoL outcomes, all physical activity vs control, Outcome 67 Body Esteem Scale - sexual attractiveness (follow-up values).

Study or subgroup	Physical activity N	Physical activity Mean(SD)	Control N	Control Mean(SD)	Mean Difference Fixed, 95% CI	Weight	Mean Difference Fixed, 95% CI
1.67.1 End of intervention							
Pinto 2005	12	42.8 (9.2)	6	43.7 (6.1)		19.01%	-0.95[-8.09,6.19]
Pinto 2003	39	42.5 (9.2)	43	40.1 (6.3)		80.99%	2.33[-1.13,5.79]
Subtotal ***	**51**		**49**			**100%**	**1.71[-1.41,4.82]**
Heterogeneity: Tau²=0; Chi²=0.66, df=1(P=0.42); I²=0%							
Test for overall effect: Z=1.07(P=0.28)							
1.67.2 Follow-up							
Subtotal ***	**0**		**0**				**Not estimable**
Heterogeneity: Not applicable							
Test for overall effect: Not applicable							



Analysis 1.68. Comparison 1 Comparison: HRQoL outcomes, all physical activity vs control, Outcome 68 Overall sleep (follow-up values).

Study or subgroup	Physical activity N	Physical activity Mean(SD)	Control N	Control Mean(SD)	Std. Mean Difference Fixed, 95% CI	Weight	Std. Mean Difference Fixed, 95% CI
1.68.1 End of intervention							
Rogers 2013	11	6.3 (2.7)	9	6.2 (3.2)		10.7%	0.03[-0.85,0.91]
Bower 2011	16	8.1 (2.5)	15	7.7 (2.6)		16.68%	0.15[-0.55,0.86]
Rogers 2009	20	6.7 (4.2)	18	5.5 (4)		20.26%	0.28[-0.36,0.92]
Rogers 2014	20	6.7 (3.7)	22	7.1 (3.2)		22.6%	-0.11[-0.72,0.49]
Mehnert 2011	30	23.8 (27)	27	38.3 (31.6)		29.76%	-0.49[-1.02,0.04]
Subtotal ***	**97**		**91**			**100%**	**-0.09[-0.37,0.2]**
Heterogeneity: Tau²=0; Chi²=3.98, df=4(P=0.41); I²=0%							
Test for overall effect: Z=0.59(P=0.56)							
1.68.2 Follow-up							
Bower 2011	16	7.6 (2.7)	15	9.1 (3.3)		100%	-0.49[-1.2,0.23]



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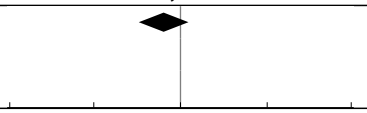
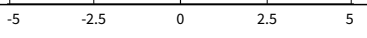
Study or subgroup	Physical activity N	Physical activity Mean(SD)	Control N	Control Mean(SD)	Std. Mean Difference Fixed, 95% CI	Weight	Std. Mean Difference Fixed, 95% CI
Subtotal ***	**16**		**15**			**100%**	**-0.49[-1.2,0.23]**
Heterogeneity: Not applicable							
Test for overall effect: Z=1.33(P=0.18)							



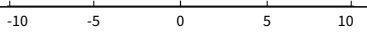
Analysis 1.69. Comparison 1 Comparison: HRQoL outcomes, all physical activity vs control, Outcome 69 Overall sleep (change values).

Study or subgroup	Physical activity N	Physical activity Mean(SD)	Control N	Control Mean(SD)	Std. Mean Difference Random, 95% CI	Weight	Std. Mean Difference Random, 95% CI
1.69.1 End of intervention							
Rogers 2009	20	0.5 (2.1)	18	0.3 (4.7)		28.01%	0.05[-0.59,0.68]
Rogers 2014	20	-1.3 (3.2)	22	-2.2 (4.4)		30.76%	0.23[-0.38,0.84]
Mehnert 2011	29	-5.4 (29.9)	27	-9.9 (33.3)		41.24%	0.14[-0.38,0.67]
Subtotal ***	**69**		**67**			**100%**	**0.14[-0.2,0.48]**
Heterogeneity: Tau^2=0; Chi^2=0.16, df=2(P=0.92); I^2=0%							
Test for overall effect: Z=0.82(P=0.41)							
1.69.2 Follow-up							
Subtotal ***	**0**		**0**				**Not estimable**
Heterogeneity: Not applicable							
Test for overall effect: Not applicable							



Analysis 1.70. Comparison 1 Comparison: HRQoL outcomes, all physical activity vs control, Outcome 70 PSQI Global sleep score (follow-up values).

Study or subgroup	Physical activity N	Physical activity Mean(SD)	Control N	Control Mean(SD)	Mean Difference Fixed, 95% CI	Weight	Mean Difference Fixed, 95% CI
1.70.1 End of intervention							
Rogers 2013	11	6.3 (2.7)	9	6.2 (3.2)		4.26%	0.1[-2.53,2.73]
Rogers 2009	20	6.7 (4.2)	18	5.5 (4)		4.36%	1.15[-1.45,3.75]
Rogers 2014	20	6.7 (3.7)	22	7.1 (3.2)		6.67%	-0.4[-2.5,1.7]
Bower 2011	16	8.1 (2.5)	15	7.7 (2.6)		9.11%	0.4[-1.4,2.2]
Kiecolt-Glaser 2014	96	6.3 (2.2)	90	7 (2.2)		75.6%	-0.7[-1.32,-0.08]
Subtotal ***	**163**		**154**			**100%**	**-0.47[-1.01,0.08]**
Heterogeneity: Tau^2=0; Chi^2=3.1, df=4(P=0.54); I^2=0%							
Test for overall effect: Z=1.68(P=0.09)							
1.70.2 Follow-up							
Bower 2011	16	7.6 (2.7)	15	9.1 (3.3)		100%	-1.5[-3.63,0.63]
Subtotal ***	**16**		**15**			**100%**	**-1.5[-3.63,0.63]**
Heterogeneity: Not applicable							
Test for overall effect: Z=1.38(P=0.17)							



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Analysis 1.71. Comparison 1 Comparison: HRQoL outcomes, all physical activity vs control, Outcome 71 PSQI Global sleep score (change values).

Study or subgroup	Physical activity N	Physical activity Mean(SD)	Control N	Control Mean(SD)	Mean Difference Fixed, 95% CI	Weight	Mean Difference Fixed, 95% CI
1.71.1 End of intervention							
Rogers 2009	20	0.5 (2.1)	18	0.3 (4.7)		49.02%	0.17[-2.19,2.53]
Rogers 2014	20	-1.3 (3.2)	22	-2.2 (4.4)		50.98%	0.9[-1.41,3.21]
Subtotal ***	**40**		**40**			**100%**	**0.54[-1.11,2.19]**
Heterogeneity: Tau²=0; Chi²=0.19, df=1(P=0.66); I²=0%							
Test for overall effect: Z=0.64(P=0.52)							
1.71.2 Follow-up							
Subtotal ***	**0**		**0**				**Not estimable**
Heterogeneity: Not applicable							
Test for overall effect: Not applicable							

Analysis 1.72. Comparison 1 Comparison: HRQoL outcomes, all physical activity vs control, Outcome 72 PSQI sleep quality (follow-up values).

Study or subgroup	Physical activity N	Physical activity Mean(SD)	Control N	Control Mean(SD)	Mean Difference Random, 95% CI	Weight	Mean Difference Random, 95% CI
1.72.1 End of intervention							
Rogers 2009	20	1.3 (0.9)	18	1.2 (0.8)		44.19%	0.08[-0.45,0.61]
Rogers 2014	20	0.7 (0.6)	22	1.2 (0.6)		55.81%	-0.5[-0.86,-0.14]
Subtotal ***	**40**		**40**			**100%**	**-0.24[-0.81,0.32]**
Heterogeneity: Tau²=0.11; Chi²=3.12, df=1(P=0.08); I²=67.96%							
Test for overall effect: Z=0.85(P=0.4)							
1.72.2 Follow-up							
Subtotal ***	**0**		**0**				**Not estimable**
Heterogeneity: Not applicable							
Test for overall effect: Not applicable							

Analysis 1.73. Comparison 1 Comparison: HRQoL outcomes, all physical activity vs control, Outcome 73 PSQI sleep efficiency (follow-up values).

Study or subgroup	Physical activity N	Physical activity Mean(SD)	Control N	Control Mean(SD)	Mean Difference Fixed, 95% CI	Weight	Mean Difference Fixed, 95% CI
1.73.1 End of intervention							
Rogers 2013	11	0.8 (1)	9	0.7 (0.9)		21.28%	0.1[-0.73,0.93]
Rogers 2009	20	1.1 (1.4)	18	0.6 (0.9)		29.03%	0.44[-0.27,1.15]
Rogers 2014	20	0.6 (0.8)	22	0.6 (1)		49.7%	0[-0.55,0.55]
Subtotal ***	**51**		**49**			**100%**	**0.15[-0.24,0.53]**
Heterogeneity: Tau²=0; Chi²=0.94, df=2(P=0.63); I²=0%							
Test for overall effect: Z=0.76(P=0.45)							

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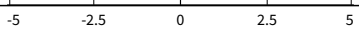
Study or subgroup	Physical activity N	Physical activity Mean(SD)	Control N	Control Mean(SD)	Mean Difference Fixed, 95% CI	Weight	Mean Difference Fixed, 95% CI
1.73.2 Follow-up							
Subtotal ***	**0**		**0**				**Not estimable**
Heterogeneity: Not applicable							
Test for overall effect: Not applicable							

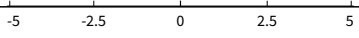
Analysis 1.74. Comparison 1 Comparison: HRQoL outcomes, all physical activity vs control, Outcome 74 PSQI sleep latency (follow-up values).

Study or subgroup	Physical activity N	Physical activity Mean(SD)	Control N	Control Mean(SD)	Mean Difference Fixed, 95% CI	Weight	Mean Difference Fixed, 95% CI
1.74.1 End of intervention							
Rogers 2013	11	1.3 (0.6)	9	1.3 (1)		22.47%	0[-0.74,0.74]
Rogers 2009	20	1.1 (0.9)	18	0.8 (1.1)		32.8%	0.32[-0.3,0.94]
Rogers 2014	20	1.2 (1)	22	1 (0.7)		44.73%	0.2[-0.33,0.73]
Subtotal ***	**51**		**49**			**100%**	**0.19[-0.16,0.55]**
Heterogeneity: Tau^2=0; Chi^2=0.42, df=2(P=0.81); I^2=0%							
Test for overall effect: Z=1.08(P=0.28)							
1.74.2 Follow-up							
Subtotal ***	**0**		**0**				**Not estimable**
Heterogeneity: Not applicable							
Test for overall effect: Not applicable							



Analysis 1.75. Comparison 1 Comparison: HRQoL outcomes, all physical activity vs control, Outcome 75 PSQI sleep duration (follow-up values).

Study or subgroup	Physical activity N	Physical activity Mean(SD)	Control N	Control Mean(SD)	Mean Difference Fixed, 95% CI	Weight	Mean Difference Fixed, 95% CI
1.75.1 End of intervention							
Rogers 2013	20	1.3 (0.9)	18	1.1 (0.6)		48.42%	0.24[-0.26,0.74]
Rogers 2014	20	1.1 (0.8)	22	1.2 (0.8)		51.58%	-0.1[-0.58,0.38]
Subtotal ***	**40**		**40**			**100%**	**0.06[-0.28,0.41]**
Heterogeneity: Tau^2=0; Chi^2=0.92, df=1(P=0.34); I^2=0%							
Test for overall effect: Z=0.36(P=0.72)							
1.75.2 Follow-up							
Subtotal ***	**0**		**0**				**Not estimable**
Heterogeneity: Not applicable							
Test for overall effect: Not applicable							



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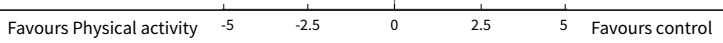
Analysis 1.76. Comparison 1 Comparison: HRQoL outcomes, all physical activity vs control, Outcome 76 PSQI daytime dysfunction (follow-up values).

Study or subgroup	Physical activity N	Physical activity Mean(SD)	Control N	Control Mean(SD)	Mean Difference Random, 95% CI	Weight	Mean Difference Random, 95% CI
1.76.1 End of intervention							
Rogers 2013	11	0.6 (0.5)	9	0.9 (0.9)		24.75%	-0.3[-0.96,0.36]
Rogers 2009	20	1.2 (0.9)	18	0.8 (0.5)		35.73%	0.32[-0.13,0.77]
Rogers 2014	20	0.7 (0.6)	22	1 (0.7)		39.52%	-0.3[-0.69,0.09]
Subtotal ***	**51**		**49**			**100%**	**-0.08[-0.51,0.35]**
Heterogeneity: Tau²=0.08; Chi²=4.64, df=2(P=0.1); I²=56.9%							
Test for overall effect: Z=0.36(P=0.72)							
1.76.2 Follow-up							
Subtotal ***	**0**		**0**				**Not estimable**
Heterogeneity: Not applicable							
Test for overall effect: Not applicable							

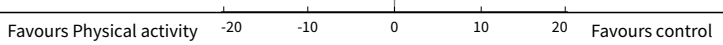


Analysis 1.77. Comparison 1 Comparison: HRQoL outcomes, all physical activity vs control, Outcome 77 PSQI medication use (follow-up values).

Study or subgroup	Physical activity N	Physical activity Mean(SD)	Control N	Control Mean(SD)	Std. Mean Difference Random, 95% CI	Weight	Std. Mean Difference Random, 95% CI
1.77.1 End of intervention							
Rogers 2009	20	0.8 (1.2)	18	1 (1.1)		47.35%	-0.21[-0.85,0.43]
Rogers 2014	20	0.8 (1.3)	22	0.7 (1.2)		52.65%	0.08[-0.53,0.68]
Subtotal ***	**40**		**40**			**100%**	**-0.06[-0.5,0.38]**
Heterogeneity: Tau²=0; Chi²=0.42, df=1(P=0.52); I²=0%							
Test for overall effect: Z=0.26(P=0.79)							
1.77.2 Follow-up							
Subtotal ***	**0**		**0**				**Not estimable**
Heterogeneity: Not applicable							
Test for overall effect: Not applicable							

Analysis 1.78. Comparison 1 Comparison: HRQoL outcomes, all physical activity vs control, Outcome 78 Accelerator-derived sleep efficiency (follow-up values).

Study or subgroup	Physical activity N	Physical activity Mean(SD)	Control N	Control Mean(SD)	Mean Difference Fixed, 95% CI	Weight	Mean Difference Fixed, 95% CI
1.78.1 End of intervention							
Rogers 2013	11	79.5 (8.3)	9	83.2 (10.5)		14.98%	-3.7[-12.13,4.73]
Rogers 2014	20	82.9 (5.7)	22	84.9 (6)		85.02%	-2[-5.54,1.54]
Subtotal ***	**31**		**31**			**100%**	**-2.25[-5.52,1.01]**
Heterogeneity: Tau²=0; Chi²=0.13, df=1(P=0.72); I²=0%							
Test for overall effect: Z=1.35(P=0.18)							



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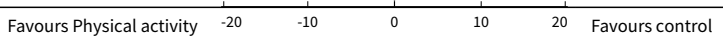
Study or subgroup	Physical activity N	Physical activity Mean(SD)	Control N	Control Mean(SD)	Mean Difference Fixed, 95% CI	Weight	Mean Difference Fixed, 95% CI
1.78.2 Follow-up							
Subtotal ***	**0**		**0**				**Not estimable**
Heterogeneity: Not applicable							
Test for overall effect: Not applicable							



Analysis 1.79. Comparison 1 Comparison: HRQoL outcomes, all physical activity vs control, Outcome 79 Accelerator-derived sleep latency (follow-up values).

Study or subgroup	Physical activity N	Physical activity Mean(SD)	Control N	Control Mean(SD)	Mean Difference Fixed, 95% CI	Weight	Mean Difference Fixed, 95% CI
1.79.1 End of intervention							
Rogers 2013	11	7.1 (3.8)	9	9.8 (5.2)		45.11%	-2.7[-6.77,1.37]
Rogers 2014	20	7.4 (5.6)	22	8.9 (6.6)		54.89%	-1.5[-5.19,2.19]
Subtotal ***	**31**		**31**			**100%**	**-2.04[-4.78,0.69]**
Heterogeneity: Tau²=0; Chi²=0.18, df=1(P=0.67); I²=0%							
Test for overall effect: Z=1.46(P=0.14)							
1.79.2 Follow-up							
Subtotal ***	**0**		**0**				**Not estimable**
Heterogeneity: Not applicable							
Test for overall effect: Not applicable							

Comparison 2. Comparison: anxiety, all physical activity vs control

Outcome or subgroup title	No. of studies	No. of participants	Statistical method	Effect size
1 Overall anxiety (follow-up values)	7		Std. Mean Difference (IV, Random, 95% CI)	Subtotals only
1.1 End of intervention	7	326	Std. Mean Difference (IV, Random, 95% CI)	-0.57 [-0.95, -0.19]
1.2 Follow-up	1	61	Std. Mean Difference (IV, Random, 95% CI)	-0.47 [-0.98, 0.04]
2 Overall anxiety (change values)	4		Std. Mean Difference (IV, Fixed, 95% CI)	Subtotals only
2.1 End of intervention	4	235	Std. Mean Difference (IV, Fixed, 95% CI)	-0.37 [-0.63, -0.12]
2.2 Follow-up	1	61	Std. Mean Difference (IV, Fixed, 95% CI)	-0.30 [-0.81, 0.20]
3 POMS tension - anxiety (follow-up values)	2		Std. Mean Difference (IV, Fixed, 95% CI)	Subtotals only
3.1 End of intervention	2	79	Std. Mean Difference (IV, Fixed, 95% CI)	-0.66 [-1.12, -0.20]

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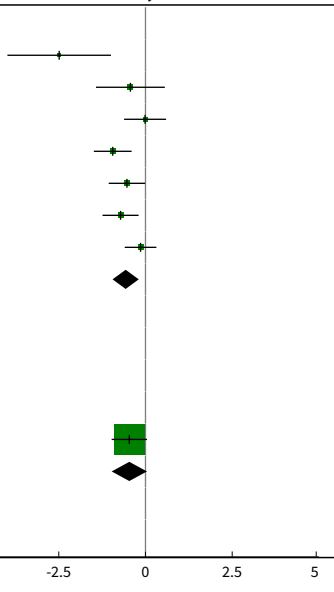
Outcome or subgroup title	No. of studies	No. of participants	Statistical method	Effect size
3.2 Follow-up	1	61	Std. Mean Difference (IV, Fixed, 95% CI)	-0.47 [-0.98, 0.04]
4 State Trait Anxiety Inventory (follow-up values)	2		Std. Mean Difference (IV, Random, 95% CI)	Subtotals only
4.1 End of intervention	2	89	Std. Mean Difference (IV, Random, 95% CI)	-1.20 [-3.49, 1.09]
4.2 Follow-up	0	0	Std. Mean Difference (IV, Random, 95% CI)	0.0 [0.0, 0.0]
5 Cohen's Perceived Stress Scale	2		Mean Difference (IV, Fixed, 95% CI)	Subtotals only
5.1 End of intervention	2	105	Mean Difference (IV, Fixed, 95% CI)	-1.25 [-3.99, 1.50]
5.2 Follow-up	0	0	Mean Difference (IV, Fixed, 95% CI)	0.0 [0.0, 0.0]

Analysis 2.1. Comparison 2 Comparison: anxiety, all physical activity vs control, Outcome 1 Overall anxiety (follow-up values).

Study or subgroup	Physical activity N	Physical activity Mean(SD)	Control N	Control Mean(SD)	Std. Mean Difference Random, 95% CI	Weight	Std. Mean Difference Random, 95% CI
2.1.1 End of intervention							
Segar 1998	10	28.5 (3)	5	39.5 (6)		5.13%	-2.49[-3.98,-1]
Pinto 2003	12	7.6 (7.3)	6	10.5 (3.7)		9.27%	-0.43[-1.43,0.56]
Rogers 2014	20	45.6 (8.9)	22	45.7 (8)		15.51%	-0.01[-0.62,0.59]
Milne 2008	29	15.3 (6.2)	29	21 (5.7)		16.79%	-0.94[-1.49,-0.4]
Mehnert 2011	30	4.8 (3.5)	28	7.1 (5)		17.22%	-0.54[-1.06,-0.01]
Cantarero-Villanueva 2013	32	42.5 (8.6)	29	49.9 (11.7)		17.33%	-0.72[-1.24,-0.2]
Cadmus 2009	37	32.1 (12.3)	37	34.1 (15.4)		18.74%	-0.14[-0.6,0.31]
Subtotal ***	**170**		**156**			**100%**	**-0.57[-0.95,-0.19]**
Heterogeneity: Tau^2=0.14; Chi^2=14.94, df=6(P=0.02); I^2=59.85%							
Test for overall effect: Z=2.97(P=0)							
2.1.2 Follow-up							
Cantarero-Villanueva 2013	32	44 (9.5)	29	48.8 (11.2)		100%	-0.47[-0.98,0.04]
Subtotal ***	**32**		**29**			**100%**	**-0.47[-0.98,0.04]**
Heterogeneity: Not applicable							
Test for overall effect: Z=1.79(P=0.07)							



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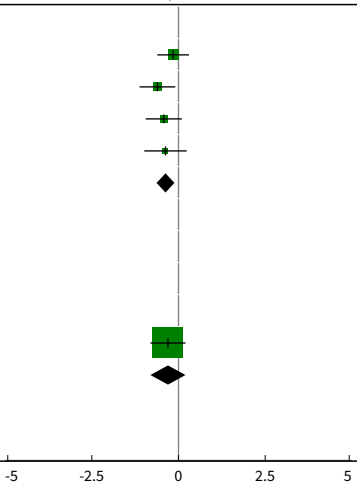
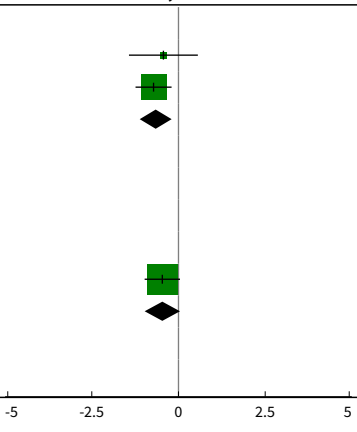
Analysis 2.2. Comparison 2 Comparison: anxiety, all physical activity vs control, Outcome 2 Overall anxiety (change values).

Study or subgroup	Physical activity N	Physical activity Mean(SD)	Control N	Control Mean(SD)	Std. Mean Difference Fixed, 95% CI	Weight	Std. Mean Difference Fixed, 95% CI
2.2.1 End of intervention							
Cadmus 2009	37	-0.7 (9.2)	37	0.5 (5.8)		32.15%	-0.15[-0.61,0.3]
Cantarero-Villanueva 2013	32	-4.2 (9.8)	29	0.8 (5.5)		25.28%	-0.61[-1.12,-0.09]
Mehnert 2011	30	-1.7 (3.7)	28	0.2 (4.9)		24.65%	-0.42[-0.95,0.1]
Rogers 2014	20	-4 (6.5)	22	-1.8 (5)		17.92%	-0.37[-0.99,0.24]
Subtotal ***	**119**		**116**			**100%**	**-0.37[-0.63,-0.12]**
Heterogeneity: Tau^2=0; Chi^2=1.71, df=3(P=0.63); I^2=0%							
Test for overall effect: Z=2.84(P=0)							
2.2.2 Follow-up							
Cantarero-Villanueva 2013	32	-3.4 (13.5)	29	-0.3 (3.6)		100%	-0.3[-0.81,0.2]
Subtotal ***	**32**		**29**			**100%**	**-0.3[-0.81,0.2]**
Heterogeneity: Not applicable							
Test for overall effect: Z=1.18(P=0.24)							



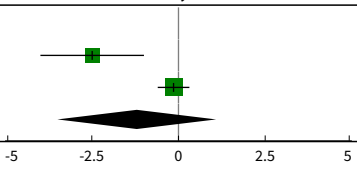
Analysis 2.3. Comparison 2 Comparison: anxiety, all physical activity vs control, Outcome 3 POMS tension - anxiety (follow-up values).

Study or subgroup	Physical activity N	Physical activity Mean(SD)	Control N	Control Mean(SD)	Std. Mean Difference Fixed, 95% CI	Weight	Std. Mean Difference Fixed, 95% CI
2.3.1 End of intervention							
Pinto 2003	12	7.6 (7.3)	6	10.5 (3.7)		21.49%	-0.43[-1.43,0.56]
Cantarero-Villanueva 2013	32	42.5 (8.6)	29	49.9 (11.7)		78.51%	-0.72[-1.24,-0.2]
Subtotal ***	**44**		**35**			**100%**	**-0.66[-1.12,-0.2]**
Heterogeneity: Tau^2=0; Chi^2=0.25, df=1(P=0.62); I^2=0%							
Test for overall effect: Z=2.8(P=0.01)							
2.3.2 Follow-up							
Cantarero-Villanueva 2013	32	44 (9.5)	29	48.8 (11.2)		100%	-0.47[-0.98,0.04]
Subtotal ***	**32**		**29**			**100%**	**-0.47[-0.98,0.04]**
Heterogeneity: Not applicable							
Test for overall effect: Z=1.79(P=0.07)							



Analysis 2.4. Comparison 2 Comparison: anxiety, all physical activity vs control, Outcome 4 State Trait Anxiety Inventory (follow-up values).

Study or subgroup	Physical activity N	Physical activity Mean(SD)	Control N	Control Mean(SD)	Std. Mean Difference Random, 95% CI	Weight	Std. Mean Difference Random, 95% CI
2.4.1 End of intervention							
Segar 1998	10	28.5 (3)	5	39.5 (6)		45.23%	-2.49[-3.98,-1]
Cadmus 2009	37	32.1 (12.3)	37	34.1 (15.4)		54.77%	-0.14[-0.6,0.31]
Subtotal ***	**47**		**42**			**100%**	**-1.2[-3.49,1.09]**



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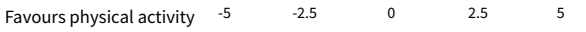
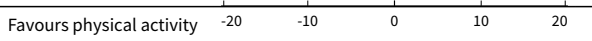
Study or subgroup	Physical activity N	Physical activity Mean(SD)	Control N	Control Mean(SD)	Std. Mean Difference Random, 95% CI	Weight	Std. Mean Difference Random, 95% CI
Heterogeneity: Tau²=2.44; Chi²=8.68, df=1(P=0); I²=88.48%							
Test for overall effect: Z=1.03(P=0.3)							
2.4.2 Follow-up							
Subtotal ***	**0**		**0**				**Not estimable**
Heterogeneity: Not applicable							
Test for overall effect: Not applicable							



Analysis 2.5. Comparison 2 Comparison: anxiety, all physical activity vs control, Outcome 5 Cohen's Perceived Stress Scale.

Study or subgroup	Physical activity N	Physical activity Mean(SD)	Control N	Control Mean(SD)	Mean Difference Fixed, 95% CI	Weight	Mean Difference Fixed, 95% CI
2.5.1 End of intervention							
Bower 2011	16	23.5 (7.3)	15	25.4 (5.9)		34.61%	-1.9[-6.56,2.76]
Cadmus 2009	37	12.9 (6.2)	37	13.8 (8.5)		65.39%	-0.9[-4.29,2.49]
Subtotal ***	**53**		**52**			**100%**	**-1.25[-3.99,1.5]**
Heterogeneity: Tau²=0; Chi²=0.12, df=1(P=0.73); I²=0%							
Test for overall effect: Z=0.89(P=0.37)							
2.5.2 Follow-up							
Subtotal ***	**0**		**0**				**Not estimable**
Heterogeneity: Not applicable							
Test for overall effect: Not applicable							



Comparison 3. Comparison: depression, all physical activity vs control

Outcome or subgroup title	No. of studies	No. of participants	Statistical method	Effect size
1 Overall depression (follow-up values)	12		Std. Mean Difference (IV, Random, 95% CI)	Subtotals only
1.1 End of intervention	12	657	Std. Mean Difference (IV, Random, 95% CI)	-0.34 [-0.62, -0.05]
1.2 Follow-up	4	340	Std. Mean Difference (IV, Random, 95% CI)	-0.28 [-0.51, -0.05]
2 Overall depression (change values)	7		Std. Mean Difference (IV, Random, 95% CI)	Subtotals only
2.1 End of intervention	7	816	Std. Mean Difference (IV, Random, 95% CI)	-0.34 [-0.63, -0.05]
2.2 Follow-up	1	61	Std. Mean Difference (IV, Random, 95% CI)	-0.46 [-0.97, 0.05]

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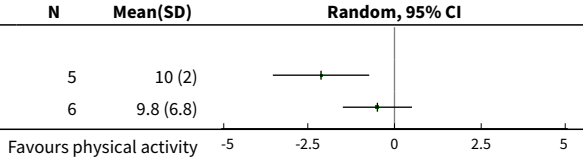
Outcome or subgroup title	No. of studies	No. of participants	Statistical method	Effect size
3 Beck Depression Inventory-II (follow-up values)	5		Mean Difference (IV, Random, 95% CI)	Subtotals only
3.1 End of intervention	5	198	Mean Difference (IV, Random, 95% CI)	-3.25 [-5.94, -0.56]
3.2 Follow-up	2	93	Mean Difference (IV, Random, 95% CI)	-2.35 [-5.31, 0.60]
4 Beck Depression Inventory-II (change values)	3		Mean Difference (IV, Random, 95% CI)	Subtotals only
4.1 End of intervention	3	581	Mean Difference (IV, Random, 95% CI)	-1.84 [-5.33, 1.65]
4.2 Follow-up	0	0	Mean Difference (IV, Random, 95% CI)	0.0 [0.0, 0.0]
5 CES-Depression scale (follow-up values)	3		Mean Difference (IV, Fixed, 95% CI)	Subtotals only
5.1 End of intervention	3	280	Mean Difference (IV, Fixed, 95% CI)	-1.36 [-3.39, 0.67]
5.2 Follow-up	1	186	Mean Difference (IV, Fixed, 95% CI)	-1.90 [-4.32, 0.52]
6 POMS depression subscale (follow-up values)	2		Mean Difference (IV, Random, 95% CI)	Subtotals only
6.1 End of intervention	2	79	Mean Difference (IV, Random, 95% CI)	-6.39 [-10.66, -2.12]
6.2 Follow-up	1	61	Mean Difference (IV, Random, 95% CI)	-6.65 [-11.97, -1.33]
7 POMS tension subscale (follow-up values)	2		Mean Difference (IV, Random, 95% CI)	Subtotals only
7.1 End of intervention	2	79	Mean Difference (IV, Random, 95% CI)	-5.14 [-9.55, -0.73]
7.2 Follow-up	1	61	Mean Difference (IV, Random, 95% CI)	-4.87 [-10.09, 0.35]

Analysis 3.1. Comparison 3 Comparison: depression, all physical activity vs control, Outcome 1 Overall depression (follow-up values).

Study or subgroup	Physical activity N	Physical activity Mean(SD)	Control N	Control Mean(SD)	Std. Mean Difference Random, 95% CI	Weight	Std. Mean Difference Random, 95% CI
3.1.1 End of intervention							
Segar 1998	10	5.5 (2)	5	10 (2)		3.25%	-2.12[-3.51,-0.73]
Pinto 2003	12	6.2 (7.2)	6	9.8 (6.8)		5.23%	-0.49[-1.49,0.5]



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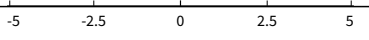
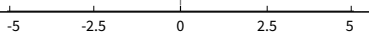
Study or subgroup	Physical activity N	Physical activity Mean(SD)	Control N	Control Mean(SD)	Std. Mean Difference Random, 95% CI	Weight	Std. Mean Difference Random, 95% CI
Payne 2008	10	12.7 (8.7)	10	11.4 (7.9)		6.11%	0.15[-0.73,1.03]
Kaltsatou 2011	13	16.5 (1.7)	13	22.3 (7.7)		6.57%	-1[-1.83,-0.18]
Bower 2011	16	7.7 (5.8)	15	11.6 (7.1)		7.53%	-0.59[-1.31,0.13]
Rogers 2014	20	44.2 (8.6)	22	25.1 (44.2)		8.64%	0.58[-0.04,1.19]
Ergun 2013	40	6.9 (6.8)	20	5.2 (5.2)		9.59%	0.27[-0.27,0.81]
Mehnert 2011	30	2.7 (3)	28	4.6 (4.4)		9.78%	-0.51[-1.04,0.01]
Cantarero-Villanueva 2013	32	45.6 (9.7)	29	53.7 (11.6)		9.81%	-0.75[-1.28,-0.23]
Daley 2007	33	6 (6.5)	33	10.3 (7.2)		10.14%	-0.63[-1.12,-0.13]
Cadmus 2009	37	9.6 (9.3)	37	10.8 (10.1)		10.63%	-0.12[-0.58,0.33]
Kiecolt-Glaser 2014	96	8.1 (8.6)	90	9.2 (8.2)		12.73%	-0.13[-0.42,0.16]
Subtotal ***	**349**		**308**			**100%**	**-0.34[-0.62,-0.05]**
Heterogeneity: Tau^2=0.14; Chi^2=30.12, df=11(P=0); I^2=63.48%							
Test for overall effect: Z=2.32(P=0.02)							
3.1.2 Follow-up							
Bower 2011	16	9.9 (8)	15	10.5 (7.9)		10.4%	-0.07[-0.78,0.63]
Cantarero-Villanueva 2013	32	46 (9)	29	52.7 (11.8)		18.73%	-0.63[-1.14,-0.11]
Daley 2007	31	6.5 (7)	31	9.6 (7)		19.54%	-0.43[-0.93,0.07]
Kiecolt-Glaser 2014	96	8.5 (8.6)	90	9.7 (8.3)		51.33%	-0.14[-0.43,0.15]
Subtotal ***	**175**		**165**			**100%**	**-0.28[-0.51,-0.05]**
Heterogeneity: Tau^2=0.01; Chi^2=3.3, df=3(P=0.35); I^2=9.11%							
Test for overall effect: Z=2.38(P=0.02)							



Analysis 3.2. Comparison 3 Comparison: depression, all physical activity vs control, Outcome 2 Overall depression (change values).

Study or subgroup	Physical activity N	Physical activity Mean(SD)	Control N	Control Mean(SD)	Std. Mean Difference Random, 95% CI	Weight	Std. Mean Difference Random, 95% CI
3.2.1 End of intervention							
Naumann 2012	11	-3.6 (4.3)	10	2 (4.6)		6.86%	-1.21[-2.16,-0.26]
Rogers 2014	20	-1.7 (6.9)	22	1.1 (4.2)		11.92%	-0.49[-1.1,0.13]
Ergun 2013	40	1.2 (6.2)	20	2.4 (8)		13.66%	-0.16[-0.7,0.37]
Mehnert 2011	30	2.7 (3)	28	4.6 (4.4)		13.99%	-0.51[-1.04,0.01]
Cantarero-Villanueva 2013	32	-2.9 (7.8)	29	1.5 (7.4)		14.26%	-0.57[-1.09,-0.06]
Cadmus 2009	37	0.3 (6.4)	37	1.7 (6.3)		15.72%	-0.22[-0.68,0.24]
Saarto 2012	263	-0.3 (3.3)	237	-0.5 (3.4)		23.59%	0.06[-0.12,0.24]
Subtotal ***	**433**		**383**			**100%**	**-0.34[-0.63,-0.05]**
Heterogeneity: Tau^2=0.08; Chi^2=15.81, df=6(P=0.01); I^2=62.05%							
Test for overall effect: Z=2.28(P=0.02)							
3.2.2 Follow-up							
Cantarero-Villanueva 2013	32	-2.5 (7.8)	29	0.4 (4.1)		100%	-0.46[-0.97,0.05]
Subtotal ***	**32**		**29**			**100%**	**-0.46[-0.97,0.05]**
Heterogeneity: Not applicable							
Test for overall effect: Z=1.77(P=0.08)							



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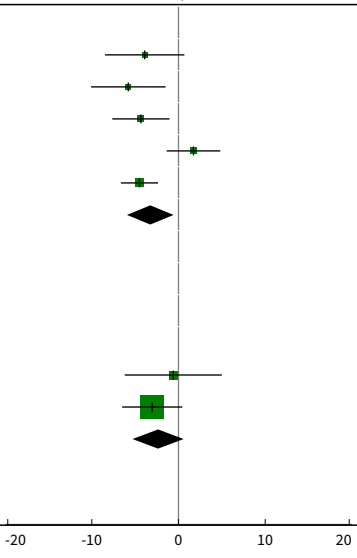
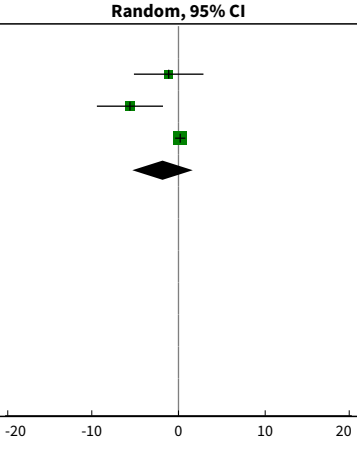
Analysis 3.3. Comparison 3 Comparison: depression, all physical activity vs control, Outcome 3 Beck Depression Inventory-II (follow-up values).

Study or subgroup	Physical activity N	Physical activity Mean(SD)	Control N	Control Mean(SD)	Mean Difference Random, 95% CI	Weight	Mean Difference Random, 95% CI
3.3.1 End of intervention							
Bower 2011	16	7.7 (5.8)	15	11.6 (7.1)		15.99%	-3.9[-8.48,0.68]
Kaltsatou 2011	13	16.5 (1.7)	13	22.3 (7.7)		16.93%	-5.79[-10.09,-1.49]
Daley 2007	33	6 (6.5)	33	10.3 (7.2)		20.59%	-4.33[-7.63,-1.03]
Ergun 2013	40	6.9 (6.8)	20	5.2 (5.2)		21.41%	1.73[-1.36,4.82]
Segar 1998	10	5.5 (2)	5	10 (2)		25.07%	-4.5[-6.65,-2.35]
Subtotal ***	**112**		**86**			**100%**	**-3.25[-5.94,-0.56]**
Heterogeneity: Tau^2=6.31; Chi^2=13.11, df=4(P=0.01); I^2=69.5%							
Test for overall effect: Z=2.37(P=0.02)							
3.3.2 Follow-up							
Bower 2011	16	9.9 (8)	15	10.5 (7.9)		27.78%	-0.6[-6.2,5]
Daley 2007	31	6.5 (7)	31	9.6 (7)		72.22%	-3.03[-6.5,0.44]
Subtotal ***	**47**		**46**			**100%**	**-2.35[-5.31,0.6]**
Heterogeneity: Tau^2=0; Chi^2=0.52, df=1(P=0.47); I^2=0%							
Test for overall effect: Z=1.56(P=0.12)							



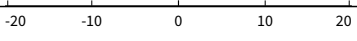
Analysis 3.4. Comparison 3 Comparison: depression, all physical activity vs control, Outcome 4 Beck Depression Inventory-II (change values).

Study or subgroup	Physical activity N	Physical activity Mean(SD)	Control N	Control Mean(SD)	Mean Difference Random, 95% CI	Weight	Mean Difference Random, 95% CI
3.4.1 End of intervention							
Ergun 2013	40	1.2 (6.2)	20	2.4 (8)		27.8%	-1.13[-5.14,2.88]
Naumann 2012	11	-3.6 (4.3)	10	2 (4.6)		28.81%	-5.6[-9.41,-1.79]
Saarto 2012	263	-0.3 (3.3)	237	-0.5 (3.4)		43.39%	0.2[-0.39,0.79]
Subtotal ***	**314**		**267**			**100%**	**-1.84[-5.33,1.65]**
Heterogeneity: Tau^2=7.21; Chi^2=9.02, df=2(P=0.01); I^2=77.83%							
Test for overall effect: Z=1.03(P=0.3)							
3.4.2 Follow-up							
Subtotal ***	**0**		**0**				**Not estimable**
Heterogeneity: Not applicable							
Test for overall effect: Not applicable							



Analysis 3.5. Comparison 3 Comparison: depression, all physical activity vs control, Outcome 5 CES-Depression scale (follow-up values).

Study or subgroup	Physical activity N	Physical activity Mean(SD)	Control N	Control Mean(SD)	Mean Difference Fixed, 95% CI	Weight	Mean Difference Fixed, 95% CI
3.5.1 End of intervention							
Payne 2008	10	12.7 (8.7)	10	11.4 (7.9)		7.81%	1.3[-5.98,8.58]



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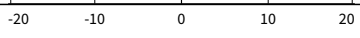
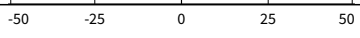
Study or subgroup	Physical activity N	Physical activity Mean(SD)	Control N	Control Mean(SD)	Mean Difference Fixed, 95% CI	Weight	Mean Difference Fixed, 95% CI
Cadmus 2009	37	9.6 (9.3)	37	10.8 (10.1)		21.16%	-1.2[-5.62,3.22]
Kiecolt-Glaser 2014	96	8.1 (8.6)	90	9.8 (8.2)		71.04%	-1.7[-4.11,0.71]
Subtotal ***	**143**		**137**			**100%**	**-1.36[-3.39,0.67]**
Heterogeneity: Tau²=0; Chi²=0.59, df=2(P=0.74); I²=0%							
Test for overall effect: Z=1.31(P=0.19)							
3.5.2 Follow-up							
Kiecolt-Glaser 2014	96	8.5 (8.6)	90	10.4 (8.3)		100%	-1.9[-4.32,0.52]
Subtotal ***	**96**		**90**			**100%**	**-1.9[-4.32,0.52]**
Heterogeneity: Not applicable							
Test for overall effect: Z=1.54(P=0.12)							



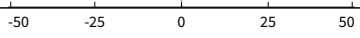
Analysis 3.6. Comparison 3 Comparison: depression, all physical activity vs control, Outcome 6 POMS depression subscale (follow-up values).

Study or subgroup	Physical activity N	Physical activity Mean(SD)	Control N	Control Mean(SD)	Mean Difference Random, 95% CI	Weight	Mean Difference Random, 95% CI
3.6.1 End of intervention							
Pinto 2003	12	6.2 (7.2)	6	9.8 (6.8)		38.84%	-3.66[-10.46,3.14]
Cantarero-Villanueva 2013	32	45.6 (9.7)	29	53.7 (11.6)		61.16%	-8.13[-13.52,-2.74]
Subtotal ***	**44**		**35**			**100%**	**-6.39[-10.66,-2.12]**
Heterogeneity: Tau²=0.19; Chi²=1.02, df=1(P=0.31); I²=1.93%							
Test for overall effect: Z=2.93(P=0)							
3.6.2 Follow-up							
Cantarero-Villanueva 2013	32	46 (9)	29	52.7 (11.8)		100%	-6.65[-11.97,-1.33]
Subtotal ***	**32**		**29**			**100%**	**-6.65[-11.97,-1.33]**
Heterogeneity: Not applicable							
Test for overall effect: Z=2.45(P=0.01)							



Analysis 3.7. Comparison 3 Comparison: depression, all physical activity vs control, Outcome 7 POMS tension subscale (follow-up values).

Study or subgroup	Physical activity N	Physical activity Mean(SD)	Control N	Control Mean(SD)	Mean Difference Random, 95% CI	Weight	Mean Difference Random, 95% CI
3.7.1 End of intervention							
Cantarero-Villanueva 2013	32	42.5 (8.6)	29	49.9 (11.7)		49.32%	-7.42[-12.61,-2.23]
Pinto 2003	12	7.6 (7.3)	6	10.5 (3.7)		50.68%	-2.92[-8,2.16]
Subtotal ***	**44**		**35**			**100%**	**-5.14[-9.55,-0.73]**
Heterogeneity: Tau²=3.26; Chi²=1.48, df=1(P=0.22); I²=32.24%							
Test for overall effect: Z=2.28(P=0.02)							
3.7.2 Follow-up							
Cantarero-Villanueva 2013	32	44 (9.5)	29	48.8 (11.2)		100%	-4.87[-10.09,0.35]
Subtotal ***	**32**		**29**			**100%**	**-4.87[-10.09,0.35]**



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Study or subgroup	Physical activity N	Mean(SD)	Control N	Mean(SD)	Mean Difference Random, 95% CI	Weight	Mean Difference Random, 95% CI
Heterogeneity: Not applicable							
Test for overall effect: Z=1.83(P=0.07)							

Favours physical activity -50 -25 0 25 50 Favours control

Comparison 4. Comparison: fatigue and vigour, all physical activity vs control

Outcome or subgroup title	No. of studies	No. of participants	Statistical method	Effect size
1 Overall fatigue (follow-up values)	26		Std. Mean Difference (IV, Random, 95% CI)	Subtotals only
1.1 End of intervention	26	2020	Std. Mean Difference (IV, Random, 95% CI)	-0.32 [-0.47, -0.18]
1.2 Follow-up	7	536	Std. Mean Difference (IV, Random, 95% CI)	-0.43 [-0.60, -0.26]
2 Overall fatigue (change values)	13		Std. Mean Difference (IV, Random, 95% CI)	Subtotals only
2.1 End of intervention	13	1289	Std. Mean Difference (IV, Random, 95% CI)	-0.30 [-0.61, 0.00]
2.2 Follow-up	4	178	Std. Mean Difference (IV, Random, 95% CI)	-0.47 [-0.84, -0.11]
3 FACT-Fatigue (follow-up values)	7		Mean Difference (IV, Fixed, 95% CI)	Subtotals only
3.1 End of intervention	7	952	Mean Difference (IV, Fixed, 95% CI)	1.14 [-0.06, 2.35]
3.2 Follow-up	2	112	Mean Difference (IV, Fixed, 95% CI)	1.49 [-1.95, 4.93]
4 FACT-Fatigue (change values)	4		Mean Difference (IV, Random, 95% CI)	Subtotals only
4.1 End of intervention	4	925	Mean Difference (IV, Random, 95% CI)	-0.54 [-3.23, 2.14]
4.2 Follow-up	1	36	Mean Difference (IV, Random, 95% CI)	1.28 [-4.11, 6.67]
5 EORTC QLQ-C30 Fatigue scale (follow-up values)	2		Mean Difference (IV, Fixed, 95% CI)	Subtotals only
5.1 End of intervention	2	119	Mean Difference (IV, Fixed, 95% CI)	-6.83 [-13.08, -0.58]
5.2 Follow-up	0	0	Mean Difference (IV, Fixed, 95% CI)	0.0 [0.0, 0.0]
6 EORTC QLQ-C30 Fatigue scale (change values)	2		Mean Difference (IV, Random, 95% CI)	Subtotals only

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Outcome or subgroup title	No. of studies	No. of participants	Statistical method	Effect size
6.1 End of intervention	2	73	Mean Difference (IV, Random, 95% CI)	-2.81 [-14.98, 9.36]
6.2 Follow-up	0	0	Mean Difference (IV, Random, 95% CI)	0.0 [0.0, 0.0]
7 Multidimensional Fatigue Symptom Inventory (follow-up values)	5		Mean Difference (IV, Random, 95% CI)	Subtotals only
7.1 End of intervention	5	366	Mean Difference (IV, Random, 95% CI)	-0.53 [-1.35, 0.29]
7.2 Follow-up	3	304	Mean Difference (IV, Random, 95% CI)	-2.04 [-4.30, 0.23]
8 Multidimensional Fatigue Symptom Inventory - interference (follow-up values)	2		Mean Difference (IV, Random, 95% CI)	Subtotals only
8.1 End of intervention	2	62	Mean Difference (IV, Random, 95% CI)	-0.37 [-1.34, 0.60]
8.2 Follow-up	0	0	Mean Difference (IV, Random, 95% CI)	0.0 [0.0, 0.0]
9 Revised Piper Fatigue Scale total fatigue (follow-up values)	4		Mean Difference (IV, Random, 95% CI)	Subtotals only
9.1 End of intervention	4	187	Mean Difference (IV, Random, 95% CI)	-1.18 [-2.38, 0.02]
9.2 Follow-up	2	120	Mean Difference (IV, Random, 95% CI)	-1.15 [-1.86, -0.43]
10 Revised Piper Fatigue Scale total fatigue (change values)	4		Mean Difference (IV, Random, 95% CI)	Subtotals only
10.1 End of intervention	4	166	Mean Difference (IV, Random, 95% CI)	-1.96 [-2.93, 1.00]
10.2 Follow-up	2	120	Mean Difference (IV, Random, 95% CI)	-1.14 [-1.78, -0.49]
11 Revised Piper Fatigue Scale behavioural/severity (follow-up values)	3		Mean Difference (IV, Random, 95% CI)	Subtotals only
11.1 End of intervention	3	121	Mean Difference (IV, Random, 95% CI)	-1.24 [-2.49, 0.01]
11.2 Follow-up	1	61	Mean Difference (IV, Random, 95% CI)	-1.41 [-2.57, -0.25]

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Outcome or subgroup title	No. of studies	No. of participants	Statistical method	Effect size
12 Revised Piper Fatigue Scale affective/meaning (follow-up values)	3		Mean Difference (IV, Fixed, 95% CI)	Subtotals only
12.1 End of intervention	3	121	Mean Difference (IV, Fixed, 95% CI)	-2.11 [-3.03, -1.20]
12.2 Follow-up	1	61	Mean Difference (IV, Fixed, 95% CI)	-2.05 [-3.21, -0.89]
13 Revised Piper Fatigue Scale sensory (follow-up values)	3		Mean Difference (IV, Random, 95% CI)	Subtotals only
13.1 End of intervention	3	121	Mean Difference (IV, Random, 95% CI)	-0.44 [-3.11, 2.22]
13.2 Follow-up	1	61	Mean Difference (IV, Random, 95% CI)	-1.60 [-2.65, -0.55]
14 Revised Piper Fatigue Scale cognitive/mood (follow-up values)	3		Mean Difference (IV, Random, 95% CI)	Subtotals only
14.1 End of intervention	3	121	Mean Difference (IV, Random, 95% CI)	-0.72 [-2.31, 0.87]
14.2 Follow-up	1	61	Mean Difference (IV, Random, 95% CI)	-1.40 [-2.50, -0.30]
15 Schwartz Cancer Fatigue Scale (follow-up values)	2		Mean Difference (IV, Random, 95% CI)	Subtotals only
15.1 End of intervention	2	125	Mean Difference (IV, Random, 95% CI)	-2.01 [-9.25, 5.23]
15.2 Follow-up	0	0	Mean Difference (IV, Random, 95% CI)	0.0 [0.0, 0.0]
16 POMS fatigue scale (follow-up values)	2		Std. Mean Difference (IV, Fixed, 95% CI)	Subtotals only
16.1 End of intervention	2	79	Std. Mean Difference (IV, Fixed, 95% CI)	-0.54 [1.00, -0.08]
16.2 Follow-up	1	61	Std. Mean Difference (IV, Fixed, 95% CI)	-0.57 [-1.08, -0.05]
17 Visual analogue scale fatigue (follow-up and change values)	4		Std. Mean Difference (IV, Fixed, 95% CI)	Subtotals only
17.1 End of intervention	4	148	Std. Mean Difference (IV, Fixed, 95% CI)	-0.51 [-0.88, -0.14]
17.2 Follow-up	1	22	Std. Mean Difference (IV, Fixed, 95% CI)	0.0 [0.0, 0.0]

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Outcome or subgroup title	No. of studies	No. of participants	Statistical method	Effect size
18 Overall vigour/vitality (follow-up values)	10		Std. Mean Difference (IV, Random, 95% CI)	Subtotals only
18.1 End of intervention	10	762	Std. Mean Difference (IV, Random, 95% CI)	0.36 [0.21, 0.50]
18.2 Follow-up	4	454	Std. Mean Difference (IV, Random, 95% CI)	0.26 [0.04, 0.48]
19 Overall vigour/vitality (change values)	6		Std. Mean Difference (IV, Random, 95% CI)	Subtotals only
19.1 End of intervention	6	359	Std. Mean Difference (IV, Random, 95% CI)	0.23 [0.00, 0.45]
19.2 Follow-up	2	233	Std. Mean Difference (IV, Random, 95% CI)	0.20 [-0.06, 0.46]
20 MOS SF vitality (follow-up values)	6		Mean Difference (IV, Fixed, 95% CI)	Subtotals only
20.1 End of intervention	6	514	Mean Difference (IV, Fixed, 95% CI)	3.08 [0.84, 5.31]
20.2 Follow-up	2	306	Mean Difference (IV, Fixed, 95% CI)	5.09 [0.99, 9.19]
21 MOS SF vitality (change values)	4		Mean Difference (IV, Fixed, 95% CI)	Subtotals only
21.1 End of intervention	4	212	Mean Difference (IV, Fixed, 95% CI)	1.36 [-0.52, 3.25]
21.2 Follow-up	0	0	Mean Difference (IV, Fixed, 95% CI)	0.0 [0.0, 0.0]
22 POMS vigour scale (follow-up values)	4		Std. Mean Difference (IV, Random, 95% CI)	Subtotals only
22.1 End of intervention	4	248	Std. Mean Difference (IV, Random, 95% CI)	0.46 [0.13, 0.79]
22.2 Follow-up	2	148	Std. Mean Difference (IV, Random, 95% CI)	0.21 [-0.34, 0.77]
23 POMS vigour scale (change values)	2		Std. Mean Difference (IV, Random, 95% CI)	Subtotals only
23.1 End of intervention	2	147	Std. Mean Difference (IV, Random, 95% CI)	0.25 [-0.45, 0.95]
23.2 Follow-up	2	233	Std. Mean Difference (IV, Random, 95% CI)	0.20 [-0.06, 0.46]

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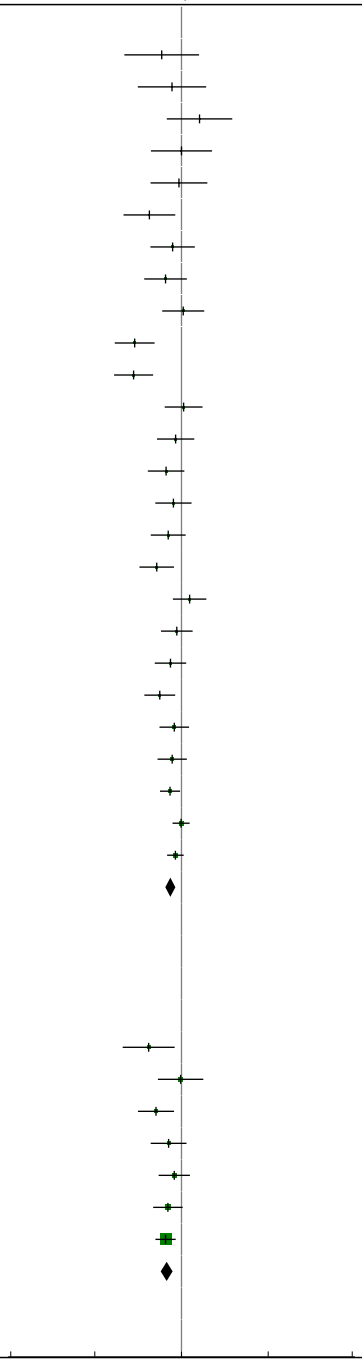
Analysis 4.1. Comparison 4 Comparison: fatigue and vigour, all physical activity vs control, Outcome 1 Overall fatigue (follow-up values).

Study or subgroup	Physical activity N	Physical activity Mean(SD)	Control N	Control Mean(SD)	Std. Mean Difference Random, 95% CI	Weight	Std. Mean Difference Random, 95% CI
4.1.1 End of intervention							
Banasik 2011	7	1 (0.9)	7	1.6 (1)		1.49%	-0.57[-1.65,0.51]
Pinto 2003	12	7.2 (6.4)	6	9 (6.4)		1.72%	-0.27[-1.26,0.71]
Payne 2008	9	4.7 (2.6)	9	3.5 (1.7)		1.84%	0.52[-0.42,1.46]
Rogers 2013	11	4.2 (1.8)	9	4.2 (1.6)		2.04%	0[-0.88,0.88]
Loudon 2014	12	1.9 (2.2)	11	2.1 (2.5)		2.27%	-0.07[-0.89,0.75]
Bower 2011	16	3.4 (1.8)	15	4.9 (1.3)		2.59%	-0.93[-1.67,-0.18]
Rogers 2009	20	-12.4 (10.4)	18	-10.1 (6.6)		3.16%	-0.26[-0.9,0.38]
Cuesta-Vargas 2014	22	4 (1.8)	20	5.2 (3.2)		3.32%	-0.46[-1.07,0.15]
Rogers 2014	20	4.1 (2.1)	22	4 (1.8)		3.38%	0.05[-0.56,0.66]
Milne 2008	29	11.9 (3.2)	29	17.4 (4.7)		3.59%	-1.35[-1.92,-0.78]
Cantarero-Villanueva 2013	32	3.8 (1.8)	29	6.2 (1.7)		3.67%	-1.38[-1.94,-0.82]
Courneya 2003	24	-8.3 (7.9)	28	-8.8 (8.1)		3.8%	0.06[-0.48,0.61]
Ergun 2013	40	2.9 (2.2)	20	3.3 (1.8)		3.85%	-0.17[-0.71,0.37]
Mehnert 2011	30	28.5 (25.6)	27	39.9 (25.1)		3.94%	-0.44[-0.97,0.08]
Littman 2012	30	-45 (5.3)	27	-43.1 (10.3)		3.98%	-0.23[-0.75,0.29]
Do 2015	32	16.8 (13.3)	30	22.3 (15.1)		4.13%	-0.38[-0.89,0.12]
Daley 2007	33	2.1 (1.8)	33	3.4 (1.9)		4.16%	-0.71[-1.21,-0.21]
Winters-Stone 2011	36	45 (5.3)	31	43.1 (10.3)		4.3%	0.23[-0.25,0.72]
Cadmus 2009	37	-51.9 (9)	37	-50.6 (10)		4.52%	-0.14[-0.59,0.32]
Pinto 2015	39	-43.8 (7.8)	37	-41.2 (8.5)		4.55%	-0.32[-0.77,0.14]
Pinto 2005	39	27.1 (21.4)	43	42.3 (26.2)		4.63%	-0.63[-1.07,-0.18]
Loh 2014	63	-41.9 (6.5)	32	-40.4 (9.1)		4.79%	-0.21[-0.63,0.22]
Fillion 2008	44	2.7 (0.7)	43	2.9 (0.8)		4.83%	-0.27[-0.69,0.15]
Kiecolt-Glaser 2014	96	6.3 (19.6)	90	12.7 (19)		6.16%	-0.33[-0.62,-0.04]
Vallance 2007	250	-42.7 (8.4)	85	-42.6 (8.7)		6.61%	-0.01[-0.26,0.23]
Short 2014	195	-41.5 (9.3)	104	-39.8 (10.4)		6.69%	-0.17[-0.41,0.06]
Subtotal ***	**1178**		**842**			**100%**	**-0.32[-0.47,-0.18]**
Heterogeneity: Tau^2=0.07; Chi^2=53.85, df=25(P=0); I^2=53.58%							
Test for overall effect: Z=4.34(P<0.0001)							
4.1.2 Follow-up							
Bower 2011	16	2.8 (2.3)	15	4.7 (1.5)		5.28%	-0.95[-1.69,-0.2]
Rogers 2009	19	-13.8 (11.7)	17	-13.5 (11.3)		6.91%	-0.03[-0.68,0.63]
Cantarero-Villanueva 2013	32	4 (2.1)	29	5.5 (1.8)		10.92%	-0.74[-1.26,-0.21]
Daley 2007	28	2.4 (2)	31	3.2 (2.2)		11.12%	-0.37[-0.89,0.14]
Pinto 2015	39	-42.2 (7.8)	37	-40.4 (9.3)		14.53%	-0.21[-0.66,0.24]
Fillion 2008	44	2.4 (0.8)	43	2.8 (0.9)		16.41%	-0.39[-0.82,0.03]
Kiecolt-Glaser 2014	96	5.8 (19.6)	90	14.7 (19)		34.82%	-0.46[-0.75,-0.17]
Subtotal ***	**274**		**262**			**100%**	**-0.43[-0.6,-0.26]**
Heterogeneity: Tau^2=0; Chi^2=5.67, df=6(P=0.46); I^2=0%							
Test for overall effect: Z=4.88(P<0.0001)							



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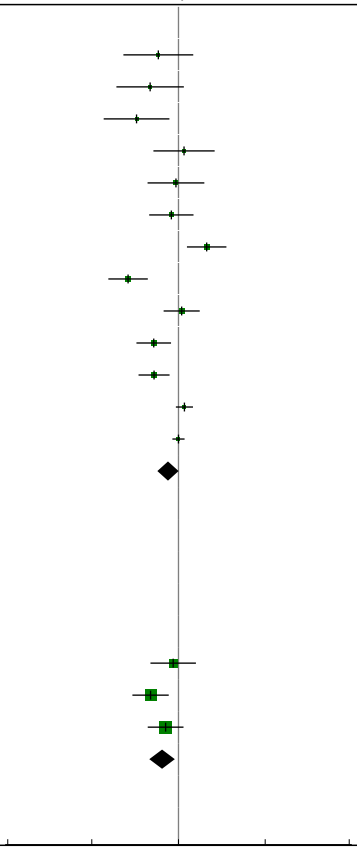
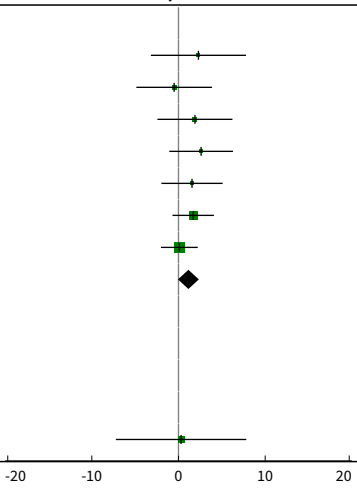
Analysis 4.2. Comparison 4 Comparison: fatigue and vigour, all physical activity vs control, Outcome 2 Overall fatigue (change values).

Study or subgroup	Physical activity N	Physical activity Mean(SD)	Control N	Control Mean(SD)	Std. Mean Difference Random, 95% CI	Weight	Std. Mean Difference Random, 95% CI
4.2.1 End of intervention							
Herrero 2006	8	-4.2 (19.6)	8	6.4 (14.5)		5.1%	-0.58[-1.59,0.43]
Payne 2008	9	-0.9 (2)	9	0.5 (1.4)		5.3%	-0.82[-1.79,0.15]
Naumann 2012	11	-3.6 (4.4)	10	2 (4.6)		5.45%	-1.21[-2.16,-0.26]
Rogers 2013	11	4.2 (2)	9	3.9 (1.5)		5.85%	0.16[-0.72,1.04]
Loudon 2014	12	1.9 (2.2)	11	2.1 (2.5)		6.28%	-0.07[-0.89,0.75]
Rogers 2009	20	1.9 (9.6)	18	4.2 (12.3)		7.62%	-0.21[-0.84,0.43]
Courneya 2003	24	9.3 (10.2)	28	2 (7.5)		8.17%	0.81[0.24,1.38]
Cantarero-Villanueva 2013	32	-2 (1.8)	29	0.3 (1.4)		8.17%	-1.45[-2.02,-0.88]
Mehnert 2011	30	-0.7 (20.7)	27	-2.9 (25.3)		8.57%	0.09[-0.43,0.61]
Daley 2007	33	2.1 (1.8)	33	3.4 (1.9)		8.75%	-0.71[-1.21,-0.21]
Pinto 2005	39	-14.9 (23.5)	43	1.8 (23.5)		9.16%	-0.7[-1.15,-0.26]
Vallance 2007	250	2.5 (8.2)	85	1.2 (6.6)		10.6%	0.17[-0.08,0.42]
Saarto 2012	263	-2.4 (9.1)	237	-2.4 (8.6)		10.97%	0[-0.18,0.18]
Subtotal ***	**742**		**547**			**100%**	**-0.3[-0.61,0]**
Heterogeneity: Tau^2=0.21; Chi^2=59.54, df=12(P<0.0001); I^2=79.85%							
Test for overall effect: Z=1.94(P=0.05)							
4.2.2 Follow-up							
Pinto 2005	8	3 (0)	14	4.6 (0)			Not estimable
Rogers 2009	19	-0.1 (7.8)	17	1.2 (8.6)		25.83%	-0.15[-0.81,0.5]
Cantarero-Villanueva 2013	32	-1.8 (2)	29	-0.4 (1.2)		36.66%	-0.81[-1.33,-0.28]
Daley 2007	28	2.4 (2)	31	3.2 (2.2)		37.51%	-0.37[-0.89,0.14]
Subtotal ***	**87**		**91**			**100%**	**-0.47[-0.84,-0.11]**
Heterogeneity: Tau^2=0.02; Chi^2=2.61, df=2(P=0.27); I^2=23.32%							
Test for overall effect: Z=2.52(P=0.01)							



Analysis 4.3. Comparison 4 Comparison: fatigue and vigour, all physical activity vs control, Outcome 3 FACT-Fatigue (follow-up values).

Study or subgroup	Physical activity N	Physical activity Mean(SD)	Control N	Control Mean(SD)	Mean Difference Fixed, 95% CI	Weight	Mean Difference Fixed, 95% CI
4.3.1 End of intervention							
Rogers 2009	20	12.4 (10.4)	18	10.1 (6.6)		4.81%	2.3[-3.18,7.78]
Courneya 2003	24	8.3 (7.9)	28	8.8 (8.1)		7.62%	-0.5[-4.86,3.86]
Littman 2012	30	45 (5.3)	27	43.1 (10.3)		7.74%	1.9[-2.42,6.22]
Pinto 2015	39	43.8 (7.8)	37	41.2 (8.5)		10.73%	2.61[-1.06,6.28]
Loh 2014	63	41.9 (6.5)	32	40.4 (9.1)		11.6%	1.56[-1.97,5.09]
Short 2014	195	41.5 (9.3)	104	39.8 (10.4)		25.38%	1.7[-0.69,4.09]
Vallance 2007	250	42.7 (8.4)	85	42.6 (8.7)		32.11%	0.1[-2.02,2.22]
Subtotal ***	**621**		**331**			**100%**	**1.14[-0.06,2.35]**
Heterogeneity: Tau^2=0; Chi^2=2.64, df=6(P=0.85); I^2=0%							
Test for overall effect: Z=1.86(P=0.06)							
4.3.2 Follow-up							
Rogers 2009	19	13.8 (11.7)	17	13.5 (11.3)		20.93%	0.3[-7.22,7.82]



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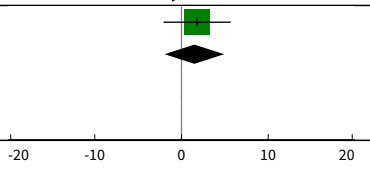
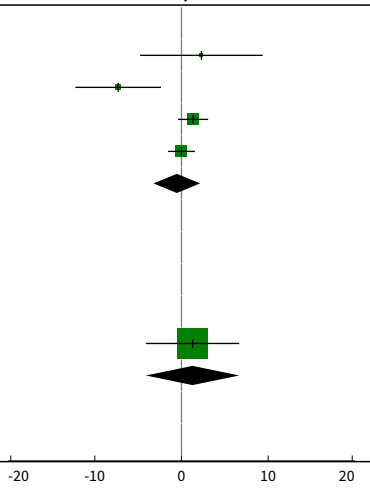
Study or subgroup	Physical activity N	Physical activity Mean(SD)	Control N	Control Mean(SD)	Mean Difference Fixed, 95% CI	Weight	Mean Difference Fixed, 95% CI
Pinto 2015	39	42.2 (7.8)	37	40.4 (9.3)		79.07%	1.8[-2.07,5.67]
Subtotal ***	**58**		**54**			**100%**	**1.49[-1.95,4.93]**
Heterogeneity: Tau^2=0; Chi^2=0.12, df=1(P=0.73); I^2=0%							
Test for overall effect: Z=0.85(P=0.4)							



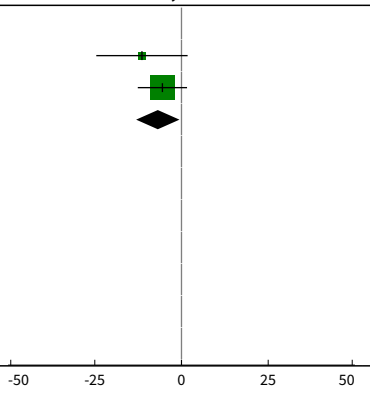
Analysis 4.4. Comparison 4 Comparison: fatigue and vigour, all physical activity vs control, Outcome 4 FACT-Fatigue (change values).

Study or subgroup	Physical activity N	Physical activity Mean(SD)	Control N	Control Mean(SD)	Mean Difference Random, 95% CI	Weight	Mean Difference Random, 95% CI
4.4.1 End of intervention							
Rogers 2009	20	-1.9 (9.6)	18	-4.2 (12.3)		10.71%	2.3[-4.77,9.37]
Courneya 2003	24	-9.3 (10.2)	28	-2 (7.5)		17.29%	-7.3[-12.24,-2.36]
Vallance 2007	250	2.5 (8.2)	85	1.2 (6.6)		35.46%	1.34[-0.39,3.07]
Saarto 2012	263	2.4 (9.1)	237	2.4 (8.6)		36.54%	0[-1.55,1.55]
Subtotal ***	**557**		**368**			**100%**	**-0.54[-3.23,2.14]**
Heterogeneity: Tau^2=4.51; Chi^2=10.93, df=3(P=0.01); I^2=72.55%							
Test for overall effect: Z=0.39(P=0.69)							
4.4.2 Follow-up							
Rogers 2009	19	0.1 (7.8)	17	-1.2 (8.6)		100%	1.28[-4.11,6.67]
Subtotal ***	**19**		**17**			**100%**	**1.28[-4.11,6.67]**
Heterogeneity: Not applicable							
Test for overall effect: Z=0.47(P=0.64)							



Analysis 4.5. Comparison 4 Comparison: fatigue and vigour, all physical activity vs control, Outcome 5 EORTC QLQ-C30 Fatigue scale (follow-up values).

Study or subgroup	Physical activity N	Physical activity Mean(SD)	Control N	Control Mean(SD)	Mean Difference Fixed, 95% CI	Weight	Mean Difference Fixed, 95% CI
4.5.1 End of intervention							
Mehnert 2011	30	28.5 (25.6)	27	39.9 (25.1)		22.54%	-11.4[-24.57,1.77]
Do 2015	32	16.8 (13.3)	30	22.3 (15.1)		77.46%	-5.5[-12.6,1.6]
Subtotal ***	**62**		**57**			**100%**	**-6.83[-13.08,-0.58]**
Heterogeneity: Tau^2=0; Chi^2=0.6, df=1(P=0.44); I^2=0%							
Test for overall effect: Z=2.14(P=0.03)							
4.5.2 Follow-up							
Subtotal ***	**0**		**0**				**Not estimable**
Heterogeneity: Not applicable							
Test for overall effect: Not applicable							



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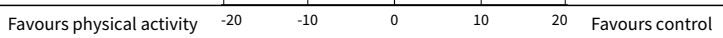
Analysis 4.6. Comparison 4 Comparison: fatigue and vigour, all physical activity vs control, Outcome 6 EORTC QLQ-C30 Fatigue scale (change values).

Study or subgroup	Physical activity N	Physical activity Mean(SD)	Control N	Control Mean(SD)	Mean Difference Random, 95% CI	Weight	Mean Difference Random, 95% CI
4.6.1 End of intervention							
Herrero 2006	8	-4.2 (19.6)	8	6.4 (14.5)		38.83%	-10.6[-27.49,6.29]
Mehnert 2011	30	-0.7 (20.7)	27	-2.9 (25.3)		61.17%	2.14[-9.95,14.23]
Subtotal ***	**38**		**35**			**100%**	**-2.81[-14.98,9.36]**
Heterogeneity: Tau²=24.99; Chi²=1.44, df=1(P=0.23); I²=30.79%							
Test for overall effect: Z=0.45(P=0.65)							
4.6.2 Follow-up							
Subtotal ***	**0**		**0**				**Not estimable**
Heterogeneity: Not applicable							
Test for overall effect: Not applicable							

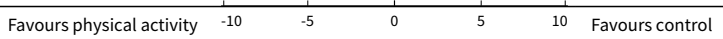
Analysis 4.7. Comparison 4 Comparison: fatigue and vigour, all physical activity vs control, Outcome 7 Multidimensional Fatigue Symptom Inventory (follow-up values).

Study or subgroup	Physical activity N	Physical activity Mean(SD)	Control N	Control Mean(SD)	Mean Difference Random, 95% CI	Weight	Mean Difference Random, 95% CI
4.7.1 End of intervention							
Kiecolt-Glaser 2014	96	6.3 (19.6)	90	12.7 (19)		2.06%	-6.4[-11.94,-0.86]
Rogers 2013	11	4.2 (1.8)	9	4.2 (1.6)		16.98%	0[-1.49,1.49]
Rogers 2014	20	4.1 (2.1)	22	4 (1.8)		21.39%	0.1[-1.09,1.29]
Bower 2011	16	3.4 (1.8)	15	4.9 (1.3)		22.86%	-1.5[-2.6,-0.4]
Fillion 2008	44	2.7 (0.7)	43	2.9 (0.8)		36.7%	-0.21[-0.54,0.12]
Subtotal ***	**187**		**179**			**100%**	**-0.53[-1.35,0.29]**
Heterogeneity: Tau²=0.45; Chi²=10.1, df=4(P=0.04); I²=60.4%							
Test for overall effect: Z=1.27(P=0.2)							
4.7.2 Follow-up							
Kiecolt-Glaser 2014	96	5.8 (19.6)	90	14.7 (19)		12.36%	-8.9[-14.44,-3.36]
Bower 2011	16	2.8 (2.3)	15	4.7 (1.5)		40.64%	-1.9[-3.26,-0.54]
Fillion 2008	44	2.4 (0.8)	43	2.8 (0.9)		46.99%	-0.35[-0.72,0.02]
Subtotal ***	**156**		**148**			**100%**	**-2.04[-4.3,0.23]**
Heterogeneity: Tau²=2.81; Chi²=13.52, df=2(P=0); I²=85.21%							
Test for overall effect: Z=1.76(P=0.08)							



Analysis 4.8. Comparison 4 Comparison: fatigue and vigour, all physical activity vs control, Outcome 8 Multidimensional Fatigue Symptom Inventory - interference (follow-up values).

Study or subgroup	Physical activity N	Physical activity Mean(SD)	Control N	Control Mean(SD)	Mean Difference Random, 95% CI	Weight	Mean Difference Random, 95% CI
4.8.1 End of intervention							
Rogers 2013	11	2.6 (1.5)	9	2.4 (1.1)		42.86%	0.2[-0.94,1.34]



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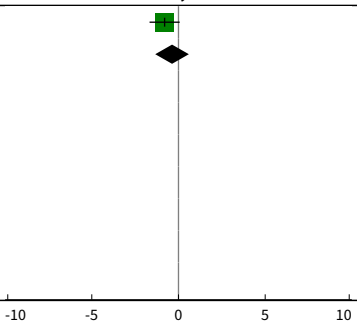
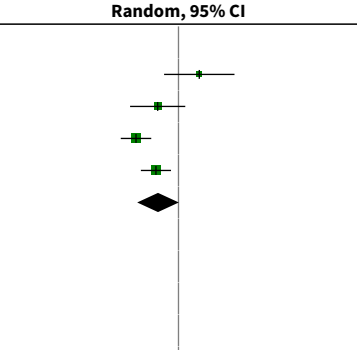
Study or subgroup	Physical activity N	Physical activity Mean(SD)	Control N	Control Mean(SD)	Mean Difference Random, 95% CI	Weight	Mean Difference Random, 95% CI
Rogers 2014	20	1.8 (0.8)	22	2.6 (1.9)		57.14%	-0.8[-1.67,0.07]
Subtotal ***	**31**		**31**			**100%**	**-0.37[-1.34,0.6]**
Heterogeneity: Tau²=0.23; Chi²=1.87, df=1(P=0.17); I²=46.49%							
Test for overall effect: Z=0.75(P=0.45)							
4.8.2 Follow-up							
Subtotal ***	**0**		**0**				**Not estimable**
Heterogeneity: Not applicable							
Test for overall effect: Not applicable							



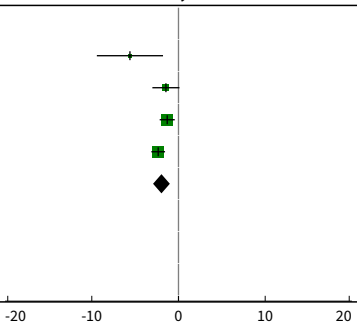
Analysis 4.9. Comparison 4 Comparison: fatigue and vigour, all physical activity vs control, Outcome 9 Revised Piper Fatigue Scale total fatigue (follow-up values).

Study or subgroup	Physical activity N	Physical activity Mean(SD)	Control N	Control Mean(SD)	Mean Difference Random, 95% CI	Weight	Mean Difference Random, 95% CI
4.9.1 End of intervention							
Payne 2008	9	4.7 (2.6)	9	3.5 (1.7)		17.71%	1.2[-0.83,3.23]
Cuesta-Vargas 2014	22	4 (1.8)	20	5.2 (3.2)		22%	-1.2[-2.79,0.39]
Cantarero-Villanueva 2013	32	3.8 (1.8)	29	6.2 (1.7)		30.09%	-2.45[-3.33,-1.57]
Daley 2007	33	2.1 (1.8)	33	3.4 (1.9)		30.2%	-1.3[-2.17,-0.43]
Subtotal ***	**96**		**91**			**100%**	**-1.18[-2.38,0.02]**
Heterogeneity: Tau²=1.05; Chi²=11.59, df=3(P=0.01); I²=74.11%							
Test for overall effect: Z=1.93(P=0.05)							
4.9.2 Follow-up							
Daley 2007	28	2.4 (2)	31	3.2 (2.2)		46.32%	-0.78[-1.83,0.27]
Cantarero-Villanueva 2013	32	4 (2.1)	29	5.5 (1.8)		53.68%	-1.46[-2.44,-0.48]
Subtotal ***	**60**		**60**			**100%**	**-1.15[-1.86,-0.43]**
Heterogeneity: Tau²=0; Chi²=0.86, df=1(P=0.35); I²=0%							
Test for overall effect: Z=3.13(P=0)							



Analysis 4.10. Comparison 4 Comparison: fatigue and vigour, all physical activity vs control, Outcome 10 Revised Piper Fatigue Scale total fatigue (change values).

Study or subgroup	Physical activity N	Physical activity Mean(SD)	Control N	Control Mean(SD)	Mean Difference Random, 95% CI	Weight	Mean Difference Random, 95% CI
4.10.1 End of intervention							
Naumann 2012	11	-3.6 (4.4)	10	2 (4.6)		5.7%	-5.6[-9.42,-1.78]
Payne 2008	9	-0.9 (2)	9	0.5 (1.4)		21.66%	-1.45[-3.01,0.11]
Daley 2007	33	2.1 (1.8)	33	3.4 (1.9)		35.4%	-1.3[-2.17,-0.43]
Cantarero-Villanueva 2013	32	-2 (1.8)	29	0.3 (1.4)		37.24%	-2.34[-3.13,-1.55]
Subtotal ***	**85**		**81**			**100%**	**-1.96[-2.93,-1]**
Heterogeneity: Tau²=0.49; Chi²=6.96, df=3(P=0.07); I²=56.87%							
Test for overall effect: Z=3.98(P<0.0001)							



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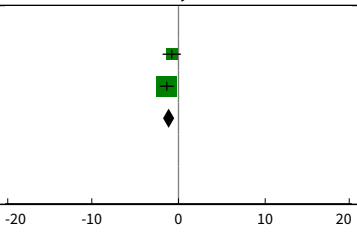
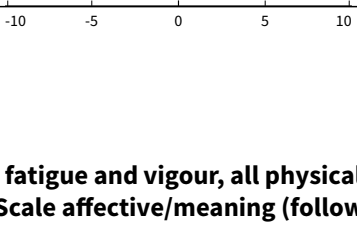
Study or subgroup	Physical activity N	Physical activity Mean(SD)	Control N	Control Mean(SD)	Mean Difference Random, 95% CI	Weight	Mean Difference Random, 95% CI
4.10.2 Follow-up							
Daley 2007	28	2.4 (2)	31	3.2 (2.2)		37.22%	-0.78[-1.83,0.27]
Cantarero-Villanueva 2013	32	-1.8 (2)	29	-0.4 (1.2)		62.78%	-1.35[-2.16,-0.54]
Subtotal ***	**60**		**60**			**100%**	**-1.14[-1.78,-0.49]**
Heterogeneity: Tau²=0; Chi²=0.71, df=1(P=0.4); I²=0%							
Test for overall effect: Z=3.47(P=0)							



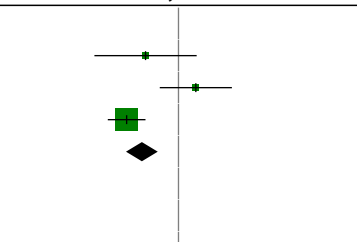
Analysis 4.11. Comparison 4 Comparison: fatigue and vigour, all physical activity vs control, Outcome 11 Revised Piper Fatigue Scale behavioural/severity (follow-up values).

Study or subgroup	Physical activity N	Physical activity Mean(SD)	Control N	Control Mean(SD)	Mean Difference Random, 95% CI	Weight	Mean Difference Random, 95% CI
4.11.1 End of intervention							
Payne 2008	9	3.4 (3.2)	9	2.9 (1.8)		17.87%	0.5[-1.9,2.9]
Cantarero-Villanueva 2013	32	3.8 (2)	29	6.1 (1.8)		40.03%	-2.27[-3.22,-1.32]
Cuesta-Vargas 2014	22	3.7 (0.9)	20	4.7 (1.7)		42.1%	-1[-1.84,-0.16]
Subtotal ***	**63**		**58**			**100%**	**-1.24[-2.49,0.01]**
Heterogeneity: Tau²=0.79; Chi²=6.52, df=2(P=0.04); I²=69.35%							
Test for overall effect: Z=1.94(P=0.05)							
4.11.2 Follow-up							
Cantarero-Villanueva 2013	32	4 (2.2)	29	5.5 (2.4)		100%	-1.41[-2.57,-0.25]
Subtotal ***	**32**		**29**			**100%**	**-1.41[-2.57,-0.25]**
Heterogeneity: Not applicable							
Test for overall effect: Z=2.39(P=0.02)							



Analysis 4.12. Comparison 4 Comparison: fatigue and vigour, all physical activity vs control, Outcome 12 Revised Piper Fatigue Scale affective/meaning (follow-up values).

Study or subgroup	Physical activity N	Physical activity Mean(SD)	Control N	Control Mean(SD)	Mean Difference Fixed, 95% CI	Weight	Mean Difference Fixed, 95% CI
4.12.1 End of intervention							
Cuesta-Vargas 2014	22	4.2 (6.3)	20	6.1 (3)		9.64%	-1.9[-4.85,1.05]
Payne 2008	9	5.8 (2.2)	9	4.8 (2.3)		19.39%	1[-1.08,3.08]
Cantarero-Villanueva 2013	32	3.8 (2.3)	29	6.8 (2)		70.97%	-2.99[-4.08,-1.9]
Subtotal ***	**63**		**58**			**100%**	**-2.11[-3.03,-1.2]**
Heterogeneity: Tau²=0; Chi²=11.13, df=2(P=0); I²=82.03%							
Test for overall effect: Z=4.52(P<0.0001)							
4.12.2 Follow-up							
Cantarero-Villanueva 2013	32	4.4 (2.4)	29	6.5 (2.2)		100%	-2.05[-3.21,-0.89]
Subtotal ***	**32**		**29**			**100%**	**-2.05[-3.21,-0.89]**
Heterogeneity: Not applicable							
Test for overall effect: Z=3.47(P=0)							



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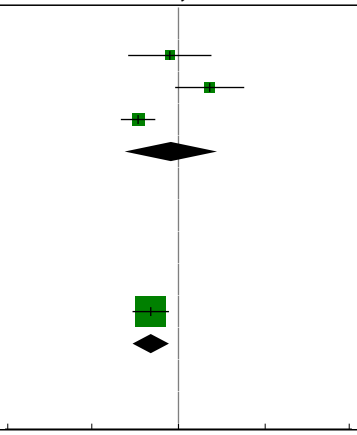
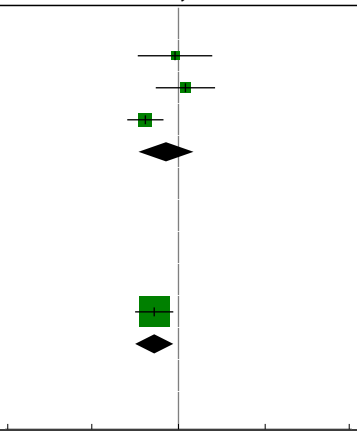
Analysis 4.13. Comparison 4 Comparison: fatigue and vigour, all physical activity vs control, Outcome 13 Revised Piper Fatigue Scale sensory (follow-up values).

Study or subgroup	Physical activity N	Physical activity Mean(SD)	Control N	Control Mean(SD)	Mean Difference Random, 95% CI	Weight	Mean Difference Random, 95% CI
4.13.1 End of intervention							
Cuesta-Vargas 2014	22	4.8 (5.2)	20	5.3 (2.4)		29.98%	-0.5[-2.9,1.9]
Payne 2008	9	5.9 (2.3)	9	4.1 (2)		32.45%	1.8[-0.19,3.79]
Cantarero-Villanueva 2013	32	3.9 (1.9)	29	6.3 (2.1)		37.57%	-2.33[-3.32,-1.34]
Subtotal ***	**63**		**58**			**100%**	**-0.44[-3.11,2.22]**
Heterogeneity: Tau^2=4.66; Chi^2=13.83, df=2(P=0); I^2=85.54%							
Test for overall effect: Z=0.32(P=0.75)							
4.13.2 Follow-up							
Cantarero-Villanueva 2013	32	4.1 (2.3)	29	5.7 (1.9)		100%	-1.6[-2.65,-0.55]
Subtotal ***	**32**		**29**			**100%**	**-1.6[-2.65,-0.55]**
Heterogeneity: Not applicable							
Test for overall effect: Z=2.99(P=0)							



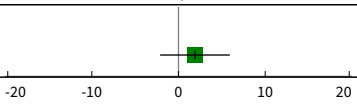
Analysis 4.14. Comparison 4 Comparison: fatigue and vigour, all physical activity vs control, Outcome 14 Revised Piper Fatigue Scale cognitive/mood (follow-up values).

Study or subgroup	Physical activity N	Physical activity Mean(SD)	Control N	Control Mean(SD)	Mean Difference Random, 95% CI	Weight	Mean Difference Random, 95% CI
4.14.1 End of intervention							
Cuesta-Vargas 2014	22	5.1 (4.5)	20	5.3 (2.4)		26.34%	-0.2[-2.35,1.95]
Payne 2008	9	2.9 (1.8)	9	2.5 (1.9)		31.98%	0.4[-1.31,2.11]
Cantarero-Villanueva 2013	32	3.8 (1.9)	29	5.7 (2.3)		41.68%	-1.91[-2.95,-0.87]
Subtotal ***	**63**		**58**			**100%**	**-0.72[-2.31,0.87]**
Heterogeneity: Tau^2=1.29; Chi^2=5.94, df=2(P=0.05); I^2=66.33%							
Test for overall effect: Z=0.89(P=0.37)							
4.14.2 Follow-up							
Cantarero-Villanueva 2013	32	3.7 (2)	29	5.1 (2.4)		100%	-1.4[-2.5,-0.3]
Subtotal ***	**32**		**29**			**100%**	**-1.4[-2.5,-0.3]**
Heterogeneity: Tau^2=0; Chi^2=0, df=0(P<0.0001); I^2=100%							
Test for overall effect: Z=2.49(P=0.01)							



Analysis 4.15. Comparison 4 Comparison: fatigue and vigour, all physical activity vs control, Outcome 15 Schwartz Cancer Fatigue Scale (follow-up values).

Study or subgroup	Physical activity N	Physical activity Mean(SD)	Control N	Control Mean(SD)	Mean Difference Random, 95% CI	Weight	Mean Difference Random, 95% CI
4.15.1 End of intervention							
Winters-Stone 2011	36	45 (5.3)	31	43.1 (10.3)		47.18%	1.9[-2.12,5.92]



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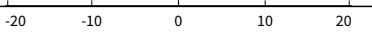
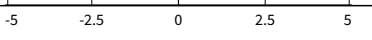
Study or subgroup	Physical activity N	Physical activity Mean(SD)	Control N	Control Mean(SD)	Mean Difference Random, 95% CI	Weight	Mean Difference Random, 95% CI
Milne 2008	29	11.9 (3.2)	29	17.4 (4.7)		52.82%	-5.5[-7.57,-3.43]
Subtotal ***	**65**		**60**			**100%**	**-2.01[-9.25,5.23]**
Heterogeneity: Tau²=24.72; Chi²=10.3, df=1(P=0); I²=90.29%							
Test for overall effect: Z=0.54(P=0.59)							
4.15.2 Follow-up							
Subtotal ***	**0**		**0**				**Not estimable**
Heterogeneity: Not applicable							
Test for overall effect: Not applicable							



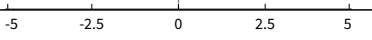
Analysis 4.16. Comparison 4 Comparison: fatigue and vigour, all physical activity vs control, Outcome 16 POMS fatigue scale (follow-up values).

Study or subgroup	Physical activity N	Physical activity Mean(SD)	Control N	Control Mean(SD)	Std. Mean Difference Fixed, 95% CI	Weight	Std. Mean Difference Fixed, 95% CI
4.16.1 End of intervention							
Pinto 2003	12	7.2 (6.4)	6	9 (6.4)		21.45%	-0.27[-1.26,0.71]
Cantarero-Villanueva 2013	32	47.8 (8.1)	29	53.3 (9.8)		78.55%	-0.61[-1.13,-0.1]
Subtotal ***	**44**		**35**			**100%**	**-0.54[-1,-0.08]**
Heterogeneity: Tau²=0; Chi²=0.35, df=1(P=0.55); I²=0%							
Test for overall effect: Z=2.31(P=0.02)							
4.16.2 Follow-up							
Cantarero-Villanueva 2013	32	47.4 (10.6)	29	53.3 (9.8)		100%	-0.57[-1.08,-0.05]
Subtotal ***	**32**		**29**			**100%**	**-0.57[-1.08,-0.05]**
Heterogeneity: Not applicable							
Test for overall effect: Z=2.17(P=0.03)							



Analysis 4.17. Comparison 4 Comparison: fatigue and vigour, all physical activity vs control, Outcome 17 Visual analogue scale fatigue (follow-up and change values).

Study or subgroup	Physical activity N	Physical activity Mean(SD)	Control N	Control Mean(SD)	Std. Mean Difference Fixed, 95% CI	Weight	Std. Mean Difference Fixed, 95% CI
4.17.1 End of intervention							
Carson 2009	12	2.9 (0)	17	4.3 (0)			Not estimable
Banasik 2011	7	1 (0.9)	7	1.6 (1)		11.62%	-0.57[-1.65,0.51]
Loudon 2014	12	1.9 (2.2)	11	2.1 (2.5)		20.12%	-0.07[-0.89,0.75]
Pinto 2005	39	27.1 (21.4)	43	42.3 (26.2)		68.25%	-0.63[-1.07,-0.18]
Subtotal ***	**70**		**78**			**100%**	**-0.51[-0.88,-0.14]**
Heterogeneity: Tau²=0; Chi²=1.37, df=2(P=0.5); I²=0%							
Test for overall effect: Z=2.71(P=0.01)							
4.17.2 Follow-up							
Pinto 2005	8	3 (0)	14	4.6 (0)			Not estimable
Subtotal ***	**8**		**14**				**Not estimable**



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Study or subgroup	Physical activity N	Physical activity Mean(SD)	Control N	Control Mean(SD)	Std. Mean Difference Fixed, 95% CI	Weight	Std. Mean Difference Fixed, 95% CI
Heterogeneity: Not applicable							
Test for overall effect: Not applicable							

Favours physical activity -5 -2.5 0 2.5 5 Favours control

Analysis 4.18. Comparison 4 Comparison: fatigue and vigour, all physical activity vs control, Outcome 18 Overall vigour/vitality (follow-up values).

Study or subgroup	Physical activity N	Physical activity Mean(SD)	Control N	Control Mean(SD)	Std. Mean Difference Random, 95% CI	Weight	Std. Mean Difference Random, 95% CI
4.18.1 End of intervention							
Pinto 2003	12	17.8 (6.4)	6	14.2 (7.3)		2.14%	0.51[-0.49,1.51]
Mustian 2004	9	15.2 (5.4)	10	15.2 (4.7)		2.62%	0[-0.9,0.9]
Basen-Enquist 2006	28	60.9 (11.6)	23	58.1 (12)		6.95%	0.23[-0.32,0.79]
Mehnert 2011	30	64.2 (17.1)	28	56.1 (19.6)		7.83%	0.44[-0.09,0.96]
Cantarero-Villanueva 2013	32	51.6 (7.2)	29	50.5 (7.6)		8.4%	0.16[-0.35,0.66]
Cadmus 2009	37	51.9 (9)	37	50.6 (10)		10.23%	0.14[-0.32,0.59]
Pinto 2005	39	20.6 (5.7)	43	15.8 (5.4)		10.35%	0.85[0.4,1.31]
Fillion 2008	44	2.4 (0.7)	43	2.1 (0.9)		11.87%	0.34[-0.09,0.76]
Duijits 2012	37	65.2 (16.8)	89	59.7 (16.4)		14.31%	0.33[-0.06,0.72]
Kiecolt-Glaser 2014	96	58.7 (18.6)	90	52.3 (16.1)		25.31%	0.37[0.08,0.66]
Subtotal ***	**364**		**398**			**100%**	**0.36[0.21,0.5]**
Heterogeneity: Tau^2=0; Chi^2=7.11, df=9(P=0.63); I^2=0%							
Test for overall effect: Z=4.78(P<0.0001)							
4.18.2 Follow-up							
Cantarero-Villanueva 2013	32	50.3 (9.4)	29	51.1 (8.2)		16.41%	-0.09[-0.59,0.41]
Fillion 2008	44	2.6 (0.7)	43	2.2 (0.9)		21.48%	0.48[0.05,0.91]
Duijits 2012	36	61.2 (18.5)	84	59 (18)		24.63%	0.12[-0.27,0.51]
Kiecolt-Glaser 2014	96	58.1 (18.6)	90	51.6 (16.1)		37.47%	0.37[0.08,0.66]
Subtotal ***	**208**		**246**			**100%**	**0.26[0.04,0.48]**
Heterogeneity: Tau^2=0.01; Chi^2=3.93, df=3(P=0.27); I^2=23.63%							
Test for overall effect: Z=2.27(P=0.02)							

Favours control -5 -2.5 0 2.5 5 Favours physical activity

Analysis 4.19. Comparison 4 Comparison: fatigue and vigour, all physical activity vs control, Outcome 19 Overall vigour/vitality (change values).

Study or subgroup	Physical activity N	Physical activity Mean(SD)	Control N	Control Mean(SD)	Std. Mean Difference Random, 95% CI	Weight	Std. Mean Difference Random, 95% CI
4.19.1 End of intervention							
Mustian 2004	9	2 (4)	9	0.4 (2.1)		5.48%	0.48[-0.46,1.42]
Cormie 2014	43	3.4 (8.4)	19	1 (8.1)		15.49%	0.29[-0.26,0.83]
Mehnert 2011	30	6.9 (16.7)	28	4 (19)		16.96%	0.16[-0.36,0.68]
Cantarero-Villanueva 2013	32	-1.9 (17.3)	29	-0.4 (5.7)		17.75%	-0.12[-0.62,0.39]
Cadmus 2009	37	1.6 (6.6)	37	1.2 (7.1)		21.14%	0.06[-0.4,0.51]
Pinto 2005	43	2.5 (6.8)	43	-1.3 (6)		23.17%	0.6[0.16,1.03]
Subtotal ***	**194**		**165**			**100%**	**0.23[0,0.45]**

Favours control -5 -2.5 0 2.5 5 Favours physical activity

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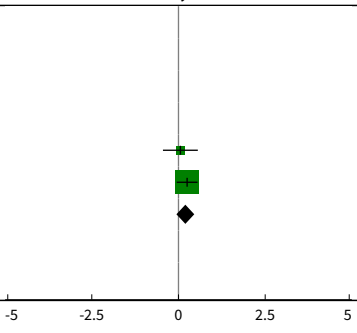
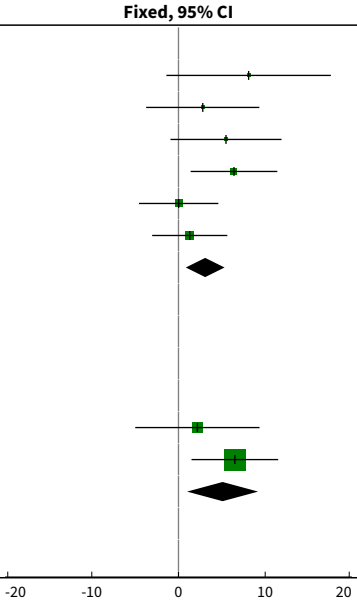
Study or subgroup	Physical activity N	Physical activity Mean(SD)	Control N	Control Mean(SD)	Std. Mean Difference Random, 95% CI	Weight	Std. Mean Difference Random, 95% CI
Heterogeneity: Tau²=0.01; Chi²=5.53, df=5(P=0.35); I²=9.63%							
Test for overall effect: Z=1.99(P=0.05)							
4.19.2 Follow-up							
Cantarero-Villanueva 2013	32	0.6 (8.2)	29	0.2 (3.6)		26.28%	0.05[-0.45,0.56]
Pinto 2005	86	1.1 (6.8)	86	-0.6 (6.3)		73.72%	0.25[-0.05,0.55]
Subtotal ***	**118**		**115**			**100%**	**0.2[-0.06,0.46]**
Heterogeneity: Tau²=0; Chi²=0.42, df=1(P=0.52); I²=0%							
Test for overall effect: Z=1.5(P=0.13)							



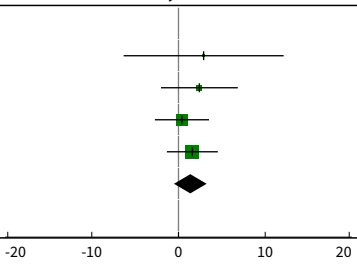
Analysis 4.20. Comparison 4 Comparison: fatigue and vigour, all physical activity vs control, Outcome 20 MOS SF vitality (follow-up values).

Study or subgroup	Physical activity N	Physical activity Mean(SD)	Control N	Control Mean(SD)	Mean Difference Fixed, 95% CI	Weight	Mean Difference Fixed, 95% CI
4.20.1 End of intervention							
Mehnert 2011	30	64.2 (17.1)	28	56.1 (19.6)		5.56%	8.09[-1.39,17.57]
Basen-Enquist 2006	28	60.9 (11.6)	23	58.1 (12)		11.74%	2.8[-3.73,9.33]
Duijits 2012	37	65.2 (16.8)	89	59.7 (16.4)		12.19%	5.48[-0.92,11.88]
Kiecolt-Glaser 2014	96	58.7 (18.6)	90	52.3 (16.1)		20.02%	6.4[1.4,11.4]
Mustian 2004	9	15.2 (5.4)	10	15.2 (4.7)		23.88%	0.02[-4.56,4.6]
Cadmus 2009	37	51.9 (9)	37	50.6 (10)		26.61%	1.3[-3.03,5.63]
Subtotal ***	**237**		**277**			**100%**	**3.08[0.84,5.31]**
Heterogeneity: Tau²=0; Chi²=5.68, df=5(P=0.34); I²=11.96%							
Test for overall effect: Z=2.7(P=0.01)							
4.20.2 Follow-up							
Duijits 2012	36	61.2 (18.5)	84	59 (18)		32.71%	2.18[-4.99,9.35]
Kiecolt-Glaser 2014	96	58.1 (18.6)	90	51.6 (16.1)		67.29%	6.5[1.5,11.5]
Subtotal ***	**132**		**174**			**100%**	**5.09[0.99,9.19]**
Heterogeneity: Tau²=0; Chi²=0.94, df=1(P=0.33); I²=0%							
Test for overall effect: Z=2.43(P=0.02)							



Analysis 4.21. Comparison 4 Comparison: fatigue and vigour, all physical activity vs control, Outcome 21 MOS SF vitality (change values).

Study or subgroup	Physical activity N	Physical activity Mean(SD)	Control N	Control Mean(SD)	Mean Difference Fixed, 95% CI	Weight	Mean Difference Fixed, 95% CI
4.21.1 End of intervention							
Mehnert 2011	30	6.9 (16.7)	28	4 (19)		4.18%	2.9[-6.33,12.13]
Cormie 2014	43	3.4 (8.4)	19	1 (8.1)		18.12%	2.41[-2.02,6.84]
Cadmus 2009	37	1.6 (6.6)	37	1.2 (7.1)		36.46%	0.4[-2.72,3.52]
Mustian 2004	9	2 (4)	9	0.4 (2.1)		41.25%	1.6[-1.34,4.54]
Subtotal ***	**119**		**93**			**100%**	**1.36[-0.52,3.25]**
Heterogeneity: Tau²=0; Chi²=0.71, df=3(P=0.87); I²=0%							



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Study or subgroup	Physical activity N	Physical activity Mean(SD)	Control N	Control Mean(SD)	Mean Difference Fixed, 95% CI	Weight	Mean Difference Fixed, 95% CI
Test for overall effect: Z=1.42(P=0.16)							
4.21.2 Follow-up							
Subtotal ***	**0**		**0**				**Not estimable**
Heterogeneity: Not applicable							
Test for overall effect: Not applicable							

Analysis 4.22. Comparison 4 Comparison: fatigue and vigour, all physical activity vs control, Outcome 22 POMS vigour scale (follow-up values).

Study or subgroup	Physical activity N	Physical activity Mean(SD)	Control N	Control Mean(SD)	Std. Mean Difference Random, 95% CI	Weight	Std. Mean Difference Random, 95% CI
4.22.1 End of intervention							
Pinto 2003	12	17.8 (6.4)	6	14.2 (7.3)		9.52%	0.51[-0.49,1.51]
Cantarero-Villanueva 2013	32	51.6 (7.2)	29	50.5 (7.6)		26.96%	0.16[-0.35,0.66]
Pinto 2005	39	20.6 (5.7)	43	15.8 (5.4)		30.54%	0.85[0.4,1.31]
Fillion 2008	44	2.4 (0.7)	43	2.1 (0.9)		32.99%	0.34[-0.09,0.76]
Subtotal ***	**127**		**121**			**100%**	**0.46[0.13,0.79]**
Heterogeneity: Tau^2=0.04; Chi^2=4.63, df=3(P=0.2); I^2=35.26%							
Test for overall effect: Z=2.74(P=0.01)							
4.22.2 Follow-up							
Cantarero-Villanueva 2013	32	50.3 (9.4)	29	51.1 (8.2)		47.16%	-0.09[-0.59,0.41]
Fillion 2008	44	2.6 (0.7)	43	2.2 (0.9)		52.84%	0.48[0.05,0.91]
Subtotal ***	**76**		**72**			**100%**	**0.21[-0.34,0.77]**
Heterogeneity: Tau^2=0.11; Chi^2=2.87, df=1(P=0.09); I^2=65.11%							
Test for overall effect: Z=0.75(P=0.45)							

Analysis 4.23. Comparison 4 Comparison: fatigue and vigour, all physical activity vs control, Outcome 23 POMS vigour scale (change values).

Study or subgroup	Physical activity N	Physical activity Mean(SD)	Control N	Control Mean(SD)	Std. Mean Difference Random, 95% CI	Weight	Std. Mean Difference Random, 95% CI
4.23.1 End of intervention							
Cantarero-Villanueva 2013	32	-1.9 (17.3)	29	-0.4 (5.7)		48.32%	-0.12[-0.62,0.39]
Pinto 2005	43	2.5 (6.8)	43	-1.3 (6)		51.68%	0.6[0.16,1.03]
Subtotal ***	**75**		**72**			**100%**	**0.25[-0.45,0.95]**
Heterogeneity: Tau^2=0.2; Chi^2=4.46, df=1(P=0.03); I^2=77.58%							
Test for overall effect: Z=0.71(P=0.48)							
4.23.2 Follow-up							
Cantarero-Villanueva 2013	32	0.6 (8.2)	29	0.2 (3.6)		26.28%	0.05[-0.45,0.56]
Pinto 2005	86	1.1 (6.8)	86	-0.6 (6.3)		73.72%	0.25[-0.05,0.55]
Subtotal ***	**118**		**115**			**100%**	**0.2[-0.06,0.46]**
Heterogeneity: Tau^2=0; Chi^2=0.42, df=1(P=0.52); I^2=0%							

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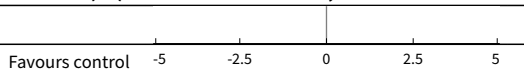
Study or subgroup	Physical activity N	Mean(SD)	Control N	Mean(SD)	Std. Mean Difference Random, 95% CI	Weight	Std. Mean Difference Random, 95% CI
Test for overall effect: Z=1.5(P=0.13)							



Comparison 5. Comparison: pain/disability, all physical activity vs control

Outcome or subgroup title	No. of studies	No. of participants	Statistical method	Effect size
1 Overall pain/disability (follow-up values)	9		Std. Mean Difference (IV, Random, 95% CI)	Subtotals only
1.1 End of intervention	9	535	Std. Mean Difference (IV, Random, 95% CI)	0.08 [-0.09, 0.25]
1.2 Follow-up	1	162	Std. Mean Difference (IV, Random, 95% CI)	0.19 [-0.12, 0.50]
2 Overall pain/disability (change values)	6		Std. Mean Difference (IV, Random, 95% CI)	Subtotals only
2.1 End of intervention	5	296	Std. Mean Difference (IV, Random, 95% CI)	-0.08 [-0.33, 0.16]
2.2 Follow-up	1	36	Std. Mean Difference (IV, Random, 95% CI)	0.22 [-0.43, 0.88]
3 Brief Pain Inventory severity score (change values)	2		Mean Difference (IV, Random, 95% CI)	Subtotals only
3.1 End of intervention	2	145	Mean Difference (IV, Random, 95% CI)	-0.84 [-1.92, 0.23]
3.2 Follow-up	0	0	Mean Difference (IV, Random, 95% CI)	0.0 [0.0, 0.0]
4 Brief Pain Inventory interference score (change values)	2		Mean Difference (IV, Random, 95% CI)	Subtotals only
4.1 End of intervention	2	145	Mean Difference (IV, Random, 95% CI)	-1.08 [-1.91, -0.24]
4.2 Follow-up	0	0	Mean Difference (IV, Random, 95% CI)	0.0 [0.0, 0.0]
5 DASH (follow-up and change values)	3		Mean Difference (IV, Fixed, 95% CI)	Subtotals only
5.1 End of intervention	3	179	Mean Difference (IV, Fixed, 95% CI)	-4.00 [-9.08, -2.91]
5.2 Follow-up	0	0	Mean Difference (IV, Fixed, 95% CI)	0.0 [0.0, 0.0]
6 EORTC QLQ-C30 Pain scale (follow-up and change values)	2		Mean Difference (IV, Fixed, 95% CI)	Subtotals only
6.1 End of intervention	2	119	Mean Difference (IV, Fixed, 95% CI)	-1.04 [-9.83, 7.75]

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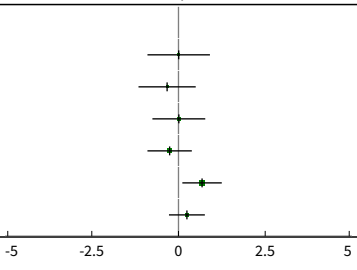
Outcome or subgroup title	No. of studies	No. of participants	Statistical method	Effect size
6.2 Follow-up	0	0	Mean Difference (IV, Fixed, 95% CI)	0.0 [0.0, 0.0]
7 MOS SF Pain (follow-up values)	5		Mean Difference (IV, Random, 95% CI)	Subtotals only
7.1 End of intervention	5	378	Mean Difference (IV, Random, 95% CI)	1.25 [-1.40, 3.90]
7.2 Follow-up	1	162	Mean Difference (IV, Random, 95% CI)	4.45 [-2.80, 11.70]
8 MOS SF Pain (change values)	4		Mean Difference (IV, Fixed, 95% CI)	Subtotals only
8.1 End of intervention	4	213	Mean Difference (IV, Fixed, 95% CI)	0.07 [-1.04, 1.17]
8.2 Follow-up	0	0	Mean Difference (IV, Fixed, 95% CI)	0.0 [0.0, 0.0]
9 WOMAC joint pain (follow-up and change values)	2		Mean Difference (IV, Random, 95% CI)	Subtotals only
9.1 End of intervention	2	121	Mean Difference (IV, Random, 95% CI)	-2.36 [-7.55, 2.82]
9.2 Follow-up	0	0	Mean Difference (IV, Random, 95% CI)	0.0 [0.0, 0.0]
10 WOMAC physical dysfunction (follow-up and change values)	2		Mean Difference (IV, Random, 95% CI)	Subtotals only
10.1 End of intervention	2	121	Mean Difference (IV, Random, 95% CI)	-6.15 [-16.21, 3.92]
10.2 Follow-up	0	0	Mean Difference (IV, Random, 95% CI)	0.0 [0.0, 0.0]
11 WOMAC total score (follow-up and change values)	2		Mean Difference (IV, Random, 95% CI)	Subtotals only
11.1 End of intervention	2	121	Mean Difference (IV, Random, 95% CI)	-6.49 [-13.57, 0.58]
11.2 Follow-up	0	0	Mean Difference (IV, Random, 95% CI)	0.0 [0.0, 0.0]

Analysis 5.1. Comparison 5 Comparison: pain/disability, all physical activity vs control, Outcome 1 Overall pain/disability (follow-up values).

Study or subgroup	Physical activity N	Physical activity Mean(SD)	Control N	Control Mean(SD)	Std. Mean Difference Random, 95% CI	Weight	Std. Mean Difference Random, 95% CI
5.1.1 End of intervention							
Mustian 2004	9	9.1 (1.4)	10	9.1 (1.7)		3.63%	0.01[-0.89,0.91]
Loudon 2014	12	0.8 (1.5)	11	1.4 (2.2)		4.33%	-0.33[-1.15,0.5]
Portela 2008	25	-20.6 (20.2)	9	-20.8 (15.5)		5.07%	0.01[-0.75,0.77]
Rogers 2009	20	-3 (3)	18	-2.3 (2.8)		7.19%	-0.26[-0.89,0.38]
Basen-Enquist 2006	28	79.7 (10.6)	23	72.1 (11.5)		9.11%	0.68[0.11,1.25]
Mehnert 2011	30	79.4 (23.1)	28	73.5 (24.8)		11.01%	0.24[-0.27,0.76]



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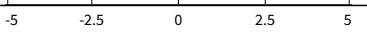
Study or subgroup	Physical activity N	Physical activity Mean(SD)	Control N	Control Mean(SD)	Std. Mean Difference Random, 95% CI	Weight	Std. Mean Difference Random, 95% CI
Do 2015	32	21.1 (24.6)	30	16.5 (26.7)		11.81%	0.18[-0.32,0.68]
Cadmus 2009	37	50.3 (9.1)	37	50.8 (9)		14.16%	-0.05[-0.51,0.4]
Duijits 2012	87	79.3 (23.6)	89	78.8 (23.8)		33.7%	0.02[-0.28,0.32]
Subtotal ***	**280**		**255**			**100%**	**0.08[-0.09,0.25]**
Heterogeneity: Tau²=0; Chi²=7.35, df=8(P=0.5); I²=0%							
Test for overall effect: Z=0.88(P=0.38)							
5.1.2 Follow-up							
Duijits 2012	79	79.1 (23.4)	83	74.6 (23.7)		100%	0.19[-0.12,0.5]
Subtotal ***	**79**		**83**			**100%**	**0.19[-0.12,0.5]**
Heterogeneity: Not applicable							
Test for overall effect: Z=1.19(P=0.23)							

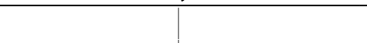


Analysis 5.2. Comparison 5 Comparison: pain/disability, all physical activity vs control, Outcome 2 Overall pain/disability (change values).

Study or subgroup	Physical activity N	Physical activity Mean(SD)	Control N	Control Mean(SD)	Std. Mean Difference Random, 95% CI	Weight	Std. Mean Difference Random, 95% CI
5.2.1 End of intervention							
Mustian 2004	9	-0.2 (1.3)	10	0 (1.4)		6.96%	-0.15[-1.06,0.75]
Cormie 2014	43	3.4 (6.5)	19	2 (6.2)		18.71%	0.22[-0.33,0.76]
Mehnert 2011	30	-2.4 (25)	28	-7.6 (25.2)		20.45%	0.21[-0.31,0.72]
Cadmus 2009	37	-2.2 (11.3)	37	-0.1 (7)		25.72%	-0.22[-0.68,0.24]
Irwin 2015	45	-6 (19)	38	0.7 (18.6)		28.16%	-0.35[-0.79,0.08]
Subtotal ***	**164**		**132**			**100%**	**-0.08[-0.33,0.16]**
Heterogeneity: Tau²=0; Chi²=4.22, df=4(P=0.38); I²=5.19%							
Test for overall effect: Z=0.69(P=0.49)							
5.2.2 Follow-up							
Rogers 2009	19	-0.8 (1.4)	17	-1.8 (6.2)		100%	0.22[-0.43,0.88]
Subtotal ***	**19**		**17**			**100%**	**0.22[-0.43,0.88]**
Heterogeneity: Not applicable							
Test for overall effect: Z=0.67(P=0.5)							

Analysis 5.3. Comparison 5 Comparison: pain/disability, all physical activity vs control, Outcome 3 Brief Pain Inventory severity score (change values).

Study or subgroup	Physical activity N	Physical activity Mean(SD)	Control N	Control Mean(SD)	Mean Difference Random, 95% CI	Weight	Mean Difference Random, 95% CI
5.3.1 End of intervention							
Irwin 2015	45	-1.1 (1.7)	38	0.3 (1.5)		49.52%	-1.4[-2.08,-0.72]
Cormie 2014	43	-0.3 (1.1)	19	0 (1.3)		50.48%	-0.3[-0.95,0.35]
Subtotal ***	**88**		**57**			**100%**	**-0.84[-1.92,0.23]**
Heterogeneity: Tau²=0.49; Chi²=5.21, df=1(P=0.02); I²=80.79%							
Test for overall effect: Z=1.54(P=0.12)							



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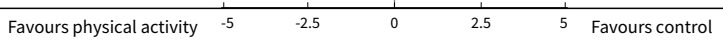
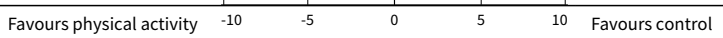
Study or subgroup	Physical activity N	Physical activity Mean(SD)	Control N	Control Mean(SD)	Mean Difference Random, 95% CI	Weight	Mean Difference Random, 95% CI
5.3.2 Follow-up							
Subtotal ***	**0**		**0**				**Not estimable**
Heterogeneity: Not applicable							
Test for overall effect: Not applicable							



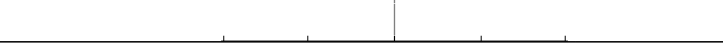
Analysis 5.4. Comparison 5 Comparison: pain/disability, all physical activity vs control, Outcome 4 Brief Pain Inventory interference score (change values).

Study or subgroup	Physical activity N	Physical activity Mean(SD)	Control N	Control Mean(SD)	Mean Difference Random, 95% CI	Weight	Mean Difference Random, 95% CI
5.4.1 End of intervention							
Cormie 2014	43	-0.5 (1.3)	19	0.1 (1.5)		49.87%	-0.65[-1.41,0.11]
Irwin 2015	45	-1.1 (1.7)	38	0.4 (1.8)		50.13%	-1.5[-2.26,-0.74]
Subtotal ***	**88**		**57**			**100%**	**-1.08[-1.91,-0.24]**
Heterogeneity: Tau^2=0.21; Chi^2=2.4, df=1(P=0.12); I^2=58.4%							
Test for overall effect: Z=2.53(P=0.01)							
5.4.2 Follow-up							
Subtotal ***	**0**		**0**				**Not estimable**
Heterogeneity: Not applicable							
Test for overall effect: Not applicable							



Analysis 5.5. Comparison 5 Comparison: pain/disability, all physical activity vs control, Outcome 5 DASH (follow-up and change values).

Study or subgroup	Physical activity N	Physical activity Mean(SD)	Control N	Control Mean(SD)	Mean Difference Fixed, 95% CI	Weight	Mean Difference Fixed, 95% CI
5.5.1 End of intervention							
Portela 2008	25	20.6 (20.2)	9	20.8 (15.5)		5.75%	-0.2[-13.05,12.65]
Irwin 2015	45	-6.7 (11)	38	1.3 (11)		42.37%	-8[-12.73,-3.27]
Cormie 2014	43	-4.4 (8)	19	0.6 (7.9)		51.88%	-5[-9.28,-0.72]
Subtotal ***	**113**		**66**			**100%**	**-6[-9.08,-2.91]**
Heterogeneity: Tau^2=0; Chi^2=1.68, df=2(P=0.43); I^2=0%							
Test for overall effect: Z=3.81(P=0)							
5.5.2 Follow-up							
Subtotal ***	**0**		**0**				**Not estimable**
Heterogeneity: Not applicable							
Test for overall effect: Not applicable							



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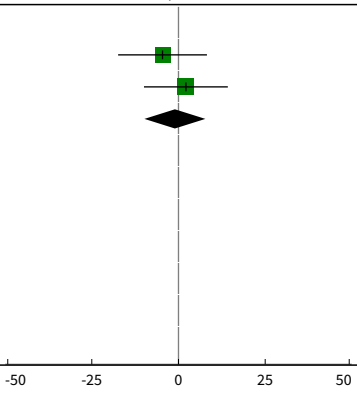
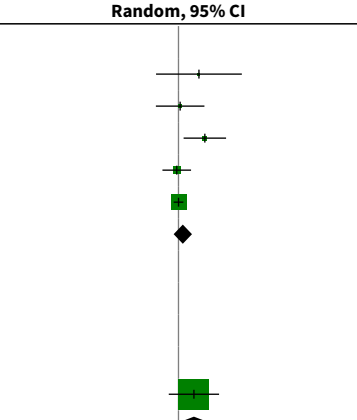
Analysis 5.6. Comparison 5 Comparison: pain/disability, all physical activity vs control, Outcome 6 EORTC QLQ-C30 Pain scale (follow-up and change values).

Study or subgroup	Physical activity N	Physical activity Mean(SD)	Control N	Control Mean(SD)	Mean Difference Fixed, 95% CI	Weight	Mean Difference Fixed, 95% CI
5.6.1 End of intervention							
Do 2015	32	-21.1 (24.6)	30	-16.5 (26.7)		47.12%	-4.6[-17.4,8.2]
Mehnert 2011	30	-0.7 (20.7)	27	-2.9 (25.3)		52.88%	2.14[-9.95,14.23]
Subtotal ***	**62**		**57**			**100%**	**-1.04[-9.83,7.75]**
Heterogeneity: Tau²=0; Chi²=0.56, df=1(P=0.45); I²=0%							
Test for overall effect: Z=0.23(P=0.82)							
5.6.2 Follow-up							
Subtotal ***	**0**		**0**				**Not estimable**
Heterogeneity: Not applicable							
Test for overall effect: Not applicable							



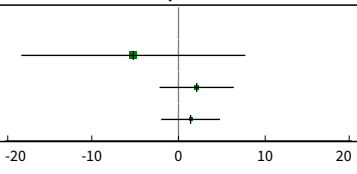
Analysis 5.7. Comparison 5 Comparison: pain/disability, all physical activity vs control, Outcome 7 MOS SF Pain (follow-up values).

Study or subgroup	Physical activity N	Physical activity Mean(SD)	Control N	Control Mean(SD)	Mean Difference Random, 95% CI	Weight	Mean Difference Random, 95% CI
5.7.1 End of intervention							
Mehnert 2011	30	79.4 (23.1)	28	73.5 (24.8)		4.23%	5.9[-6.47,18.27]
Duijits 2012	87	79.3 (23.6)	89	78.8 (23.8)		11.32%	0.48[-6.52,7.48]
Basen-Enquist 2006	28	79.7 (10.6)	23	72.1 (11.5)		13.91%	7.6[1.48,13.72]
Cadmus 2009	37	50.3 (9.1)	37	50.8 (9)		23.42%	-0.5[-4.62,3.62]
Mustian 2004	9	9.1 (1.4)	10	9.1 (1.7)		47.12%	0.01[-1.38,1.4]
Subtotal ***	**191**		**187**			**100%**	**1.25[-1.4,3.9]**
Heterogeneity: Tau²=3.37; Chi²=6.55, df=4(P=0.16); I²=38.96%							
Test for overall effect: Z=0.92(P=0.36)							
5.7.2 Follow-up							
Duijits 2012	79	79.1 (23.4)	83	74.6 (23.7)		100%	4.45[-2.8,11.7]
Subtotal ***	**79**		**83**			**100%**	**4.45[-2.8,11.7]**
Heterogeneity: Not applicable							
Test for overall effect: Z=1.2(P=0.23)							



Analysis 5.8. Comparison 5 Comparison: pain/disability, all physical activity vs control, Outcome 8 MOS SF Pain (change values).

Study or subgroup	Physical activity N	Physical activity Mean(SD)	Control N	Control Mean(SD)	Mean Difference Fixed, 95% CI	Weight	Mean Difference Fixed, 95% CI
5.8.1 End of intervention							
Mehnert 2011	30	2.4 (25)	28	7.6 (25.2)		0.73%	-5.21[-18.13,7.71]
Cadmus 2009	37	2.2 (11.3)	37	0.1 (7)		6.64%	2.1[-2.18,6.38]
Cormie 2014	43	3.4 (6.5)	19	2 (6.2)		10.55%	1.4[-2,4.8]



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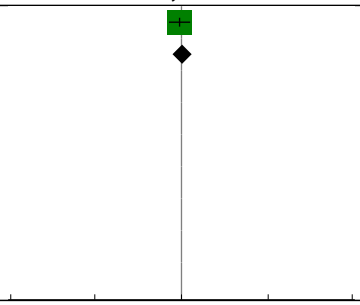
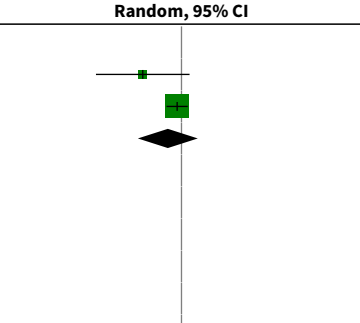
Study or subgroup	Physical activity N	Physical activity Mean(SD)	Control N	Control Mean(SD)	Mean Difference Fixed, 95% CI	Weight	Mean Difference Fixed, 95% CI
Mustian 2004	9	-0.2 (1.3)	10	0 (1.4)		82.07%	-0.22[-1.44,1]
Subtotal ***	**119**		**94**			**100%**	**0.07[-1.04,1.17]**
Heterogeneity: Tau^2=0; Chi^2=2.31, df=3(P=0.51); I^2=0%							
Test for overall effect: Z=0.12(P=0.9)							
5.8.2 Follow-up							
Subtotal ***	**0**		**0**				**Not estimable**
Heterogeneity: Not applicable							
Test for overall effect: Not applicable							



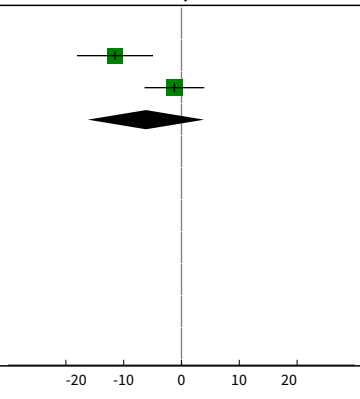
Analysis 5.9. Comparison 5 Comparison: pain/disability, all physical activity vs control, Outcome 9 WOMAC joint pain (follow-up and change values).

Study or subgroup	Physical activity N	Physical activity Mean(SD)	Control N	Control Mean(SD)	Mean Difference Random, 95% CI	Weight	Mean Difference Random, 95% CI
5.9.1 End of intervention							
Irwin 2015	45	-6 (19)	38	0.7 (18.6)		27.14%	-6.7[-14.8,1.4]
Rogers 2009	20	2.3 (2.8)	18	3 (3)		72.86%	-0.75[-2.58,1.08]
Subtotal ***	**65**		**56**			**100%**	**-2.36[-7.55,2.82]**
Heterogeneity: Tau^2=8.73; Chi^2=1.97, df=1(P=0.16); I^2=49.34%							
Test for overall effect: Z=0.89(P=0.37)							
5.9.2 Follow-up							
Subtotal ***	**0**		**0**				**Not estimable**
Heterogeneity: Not applicable							
Test for overall effect: Not applicable							



Analysis 5.10. Comparison 5 Comparison: pain/disability, all physical activity vs control, Outcome 10 WOMAC physical dysfunction (follow-up and change values).

Study or subgroup	Physical activity N	Physical activity Mean(SD)	Control N	Control Mean(SD)	Mean Difference Random, 95% CI	Weight	Mean Difference Random, 95% CI
5.10.1 End of intervention							
Irwin 2015	45	-10.4 (15.3)	38	1.1 (15.2)		47.93%	-11.5[-18.09,-4.91]
Rogers 2009	20	6 (8.2)	18	7.3 (8.1)		52.07%	-1.22[-6.38,3.94]
Subtotal ***	**65**		**56**			**100%**	**-6.15[-16.21,3.92]**
Heterogeneity: Tau^2=43.73; Chi^2=5.8, df=1(P=0.02); I^2=82.75%							
Test for overall effect: Z=1.2(P=0.23)							
5.10.2 Follow-up							
Subtotal ***	**0**		**0**				**Not estimable**
Heterogeneity: Not applicable							
Test for overall effect: Not applicable							



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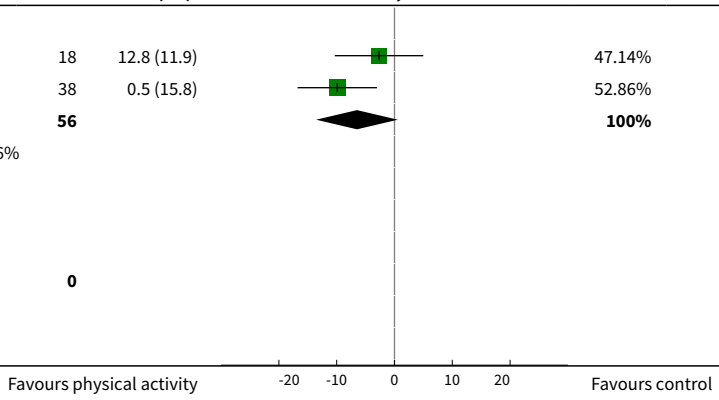
Analysis 5.11. Comparison 5 Comparison: pain/disability, all physical activity vs control, Outcome 11 WOMAC total score (follow-up and change values).

Study or subgroup	Physical activity N	Physical activity Mean(SD)	Control N	Control Mean(SD)	Mean Difference Random, 95% CI	Weight	Mean Difference Random, 95% CI
5.11.1 End of intervention							
Rogers 2009	20	10.1 (12.2)	18	12.8 (11.9)		47.14%	-2.67[-10.33,4.99]
Irwin 2015	45	-9.4 (16)	38	0.5 (15.8)		52.86%	-9.9[-16.76,-3.04]
Subtotal ***	**65**		**56**			**100%**	**-6.49[-13.57,0.58]**
Heterogeneity: Tau²=12.38; Chi²=1.9, df=1(P=0.17); I²=47.36%							
Test for overall effect: Z=1.8(P=0.07)							
5.11.2 Follow-up							
Subtotal ***	**0**		**0**				**Not estimable**
Heterogeneity: Not applicable							
Test for overall effect: Not applicable							



Comparison 6. Comparison: self-esteem, all physical activity vs control

Outcome or subgroup title	No. of studies	No. of participants	Statistical method	Effect size
1 Overall self-esteem/body image (follow-up values)	12		Std. Mean Difference (IV, Random, 95% CI)	Subtotals only
1.1 End of intervention	12	667	Std. Mean Difference (IV, Random, 95% CI)	0.27 [0.05, 0.48]
1.2 Follow-up	1	61	Std. Mean Difference (IV, Random, 95% CI)	0.57 [0.05, 1.08]
2 Overall self-esteem/body image (change values)	9		Std. Mean Difference (IV, Random, 95% CI)	Subtotals only
2.1 End of intervention	9	992	Std. Mean Difference (IV, Random, 95% CI)	0.23 [-0.11, 0.58]
2.2 Follow-up	1	62	Std. Mean Difference (IV, Random, 95% CI)	0.46 [-0.05, 0.96]
3 Body Esteem Scale - weight concern (follow-up values)	2		Mean Difference (IV, Random, 95% CI)	Subtotals only
3.1 End of intervention	2	100	Mean Difference (IV, Random, 95% CI)	4.22 [-1.01, 9.45]
3.2 Follow-up	0	0	Mean Difference (IV, Random, 95% CI)	0.0 [0.0, 0.0]
4 Physical self-perception profile - attractiveness of body (follow-up values)	2		Mean Difference (IV, Fixed, 95% CI)	Subtotals only

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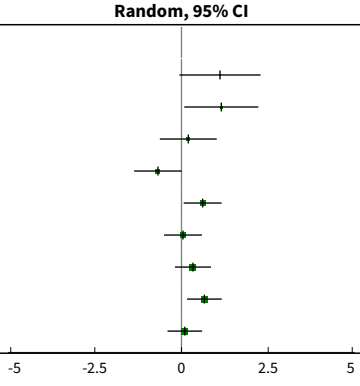
Outcome or subgroup title	No. of studies	No. of participants	Statistical method	Effect size
4.1 End of intervention	2	107	Mean Difference (IV, Fixed, 95% CI)	0.46 [0.13, 0.79]
4.2 Follow-up	1	61	Mean Difference (IV, Fixed, 95% CI)	0.29 [0.04, 0.54]
5 Physical self-perception profile - attractiveness of body (change values)	2		Mean Difference (IV, Fixed, 95% CI)	Subtotals only
5.1 End of intervention	2	108	Mean Difference (IV, Fixed, 95% CI)	0.26 [-0.07, 0.59]
5.2 Follow-up	1	62	Mean Difference (IV, Fixed, 95% CI)	0.26 [-0.02, 0.54]
6 Rosenberg Self-Esteem Scale (follow-up values)	4		Mean Difference (IV, Random, 95% CI)	Subtotals only
6.1 End of intervention	4	183	Mean Difference (IV, Random, 95% CI)	0.24 [-1.79, 2.26]
6.2 Follow-up	0	0	Mean Difference (IV, Random, 95% CI)	0.0 [0.0, 0.0]
7 Rosenberg Self-Esteem Scale (change values)	4		Mean Difference (IV, Fixed, 95% CI)	Subtotals only
7.1 End of intervention	4	189	Mean Difference (IV, Fixed, 95% CI)	2.78 [1.98, 3.58]
7.2 Follow-up	0	0	Mean Difference (IV, Fixed, 95% CI)	0.0 [0.0, 0.0]
8 EORTC QLQ-C30 Body image (follow-up and change values)	2		Mean Difference (IV, Fixed, 95% CI)	Subtotals only
8.1 End of intervention	2	562	Mean Difference (IV, Fixed, 95% CI)	-0.85 [-4.38, 2.68]
8.2 Follow-up	0	0	Mean Difference (IV, Fixed, 95% CI)	0.0 [0.0, 0.0]

Analysis 6.1. Comparison 6 Comparison: self-esteem, all physical activity vs control, Outcome 1 Overall self-esteem/body image (follow-up values).

Study or subgroup	Physical activity N	Physical activity Mean(SD)	Control N	Control Mean(SD)	Std. Mean Difference Random, 95% CI	Weight	Std. Mean Difference Random, 95% CI
6.1.1 End of intervention							
Segar 1998	10	33 (1.8)	5	30.5 (2.7)		2.87%	1.11[-0.06,2.28]
Pinto 2003	12	32.3 (4.3)	6	25.3 (8.2)		3.35%	1.15[0.08,2.22]
Loudon 2014	12	-1.4 (0.3)	11	-1.6 (0.9)		5.12%	0.2[-0.62,1.02]
Musanti 2012	30	23.8 (3.5)	12	26.3 (3.9)		6.63%	-0.68[-1.37,0.01]
Mehnert 2011	27	-5.5 (1.7)	27	-6.8 (2.6)		8.85%	0.61[0.06,1.16]
Courneya 2003	24	34.8 (4.7)	28	34.6 (4.4)		8.88%	0.04[-0.5,0.59]
Milne 2008	29	-17.9 (6.8)	29	-20.1 (6.3)		9.4%	0.33[-0.19,0.85]
Daley 2007	33	2 (0.8)	32	1.6 (0.5)		9.78%	0.66[0.16,1.16]
Do 2015	32	37.9 (18.9)	30	36.1 (18.3)		9.82%	0.1[-0.4,0.59]



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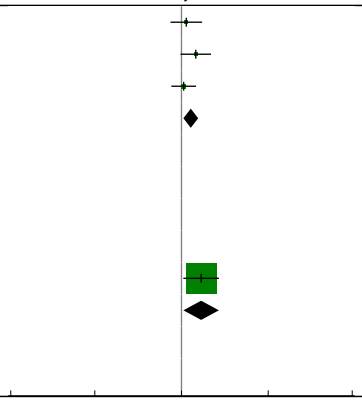
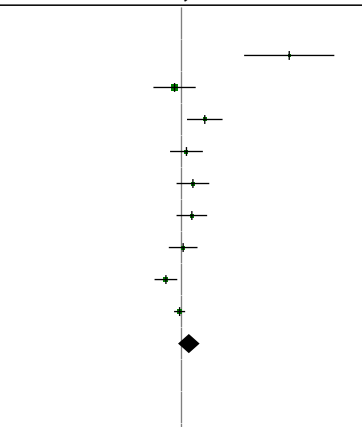
Study or subgroup	Physical activity N	Physical activity Mean(SD)	Control N	Control Mean(SD)	Std. Mean Difference Random, 95% CI	Weight	Std. Mean Difference Random, 95% CI
Cadmus 2009	37	34.2 (5.5)	37	33.4 (5.9)		10.76%	0.14[-0.32,0.6]
Pinto 2005	39	30.3 (7.8)	43	27.2 (6.8)		11.18%	0.41[-0.03,0.85]
Schmitz 2009	59	-70.4 (16.3)	63	-71.5 (18)		13.35%	0.06[-0.29,0.42]
Subtotal ***	**344**		**323**			**100%**	**0.27[0.05,0.48]**
Heterogeneity: Tau²=0.06; Chi²=18.93, df=11(P=0.06); I²=41.9%							
Test for overall effect: Z=2.46(P=0.01)							
6.1.2 Follow-up							
Daley 2007	30	2.2 (0.5)	31	1.9 (0.5)		100%	0.57[0.05,1.08]
Subtotal ***	**30**		**31**			**100%**	**0.57[0.05,1.08]**
Heterogeneity: Not applicable							
Test for overall effect: Z=2.17(P=0.03)							



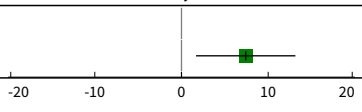
Analysis 6.2. Comparison 6 Comparison: self-esteem, all physical activity vs control, Outcome 2 Overall self-esteem/body image (change values).

Study or subgroup	Physical activity N	Physical activity Mean(SD)	Control N	Control Mean(SD)	Std. Mean Difference Random, 95% CI	Weight	Std. Mean Difference Random, 95% CI
6.2.1 End of intervention							
Mustian 2004	11	3 (1)	10	-1.5 (1.5)		4.17%	3.42[1.99,4.86]
Musanti 2012	30	-0.4 (4.5)	12	0.6 (3.9)		9.73%	-0.22[-0.89,0.45]
Courneya 2003	24	2.6 (3.7)	28	-0.1 (3.5)		10.93%	0.74[0.18,1.3]
Mehnert 2011	30	0.7 (2.1)	27	0.4 (2.1)		11.44%	0.16[-0.36,0.68]
Milne 2008	29	1.5 (3.7)	29	0.1 (3.9)		11.46%	0.36[-0.16,0.88]
Daley 2007	33	1.8 (0.7)	33	1.6 (0.7)		11.85%	0.33[-0.16,0.82]
Cadmus 2009	37	0.4 (4.4)	37	0.2 (2.9)		12.2%	0.05[-0.4,0.51]
Schmitz 2009	59	-12 (15.5)	63	-4.1 (16.2)		13.27%	-0.49[-0.86,-0.13]
Saarto 2012	263	10.7 (21.5)	237	12 (22)		14.95%	-0.06[-0.24,0.12]
Subtotal ***	**516**		**476**			**100%**	**0.23[-0.11,0.58]**
Heterogeneity: Tau²=0.2; Chi²=40.55, df=8(P<0.0001); I²=80.27%							
Test for overall effect: Z=1.33(P=0.18)							
6.2.2 Follow-up							
Daley 2007	31	2 (0.6)	31	1.8 (0.6)		100%	0.46[-0.05,0.96]
Subtotal ***	**31**		**31**			**100%**	**0.46[-0.05,0.96]**
Heterogeneity: Not applicable							
Test for overall effect: Z=1.78(P=0.08)							



Analysis 6.3. Comparison 6 Comparison: self-esteem, all physical activity vs control, Outcome 3 Body Esteem Scale - weight concern (follow-up values).

Study or subgroup	Physical activity N	Physical activity Mean(SD)	Control N	Control Mean(SD)	Mean Difference Random, 95% CI	Weight	Mean Difference Random, 95% CI
6.3.1 End of intervention							
Pinto 2003	12	30.9 (8.2)	6	23.5 (4.2)		41.19%	7.41[1.68,13.14]



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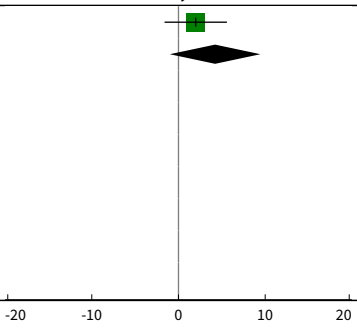
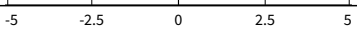
Study or subgroup	Physical activity N	Physical activity Mean(SD)	Control N	Control Mean(SD)	Mean Difference Random, 95% CI	Weight	Mean Difference Random, 95% CI
Pinto 2005	39	27 (9)	43	25 (7.4)		58.81%	1.99[-1.61,5.59]
Subtotal ***	**51**		**49**			**100%**	**4.22[-1.01,9.45]**
Heterogeneity: Tau²=8.73; Chi²=2.47, df=1(P=0.12); I²=59.46%							
Test for overall effect: Z=1.58(P=0.11)							
6.3.2 Follow-up							
Subtotal ***	**0**		**0**				**Not estimable**
Heterogeneity: Not applicable							
Test for overall effect: Not applicable							



Analysis 6.4. Comparison 6 Comparison: self-esteem, all physical activity vs control, Outcome 4 Physical self-perception profile - attractiveness of body (follow-up values).

Study or subgroup	Physical activity N	Physical activity Mean(SD)	Control N	Control Mean(SD)	Mean Difference Fixed, 95% CI	Weight	Mean Difference Fixed, 95% CI
6.4.1 End of intervention							
Musanti 2012	30	14.6 (4.2)	12	14.3 (3.3)		1.89%	0.33[-2.06,2.72]
Daley 2007	33	2 (0.8)	32	1.6 (0.5)		98.11%	0.46[0.13,0.79]
Subtotal ***	**63**		**44**			**100%**	**0.46[0.13,0.79]**
Heterogeneity: Tau²=0; Chi²=0.01, df=1(P=0.92); I²=0%							
Test for overall effect: Z=2.73(P=0.01)							
6.4.2 Follow-up							
Daley 2007	30	2.2 (0.5)	31	1.9 (0.5)		100%	0.29[0.04,0.54]
Subtotal ***	**30**		**31**			**100%**	**0.29[0.04,0.54]**
Heterogeneity: Not applicable							
Test for overall effect: Z=2.24(P=0.03)							



Analysis 6.5. Comparison 6 Comparison: self-esteem, all physical activity vs control, Outcome 5 Physical self-perception profile - attractiveness of body (change values).

Study or subgroup	Physical activity N	Physical activity Mean(SD)	Control N	Control Mean(SD)	Mean Difference Fixed, 95% CI	Weight	Mean Difference Fixed, 95% CI
6.5.1 End of intervention							
Musanti 2012	30	2.1 (3.2)	12	0.8 (2.6)		3.06%	1.28[-0.59,3.15]
Daley 2007	33	1.8 (0.7)	33	1.6 (0.7)		96.94%	0.23[-0.1,0.56]
Subtotal ***	**63**		**45**			**100%**	**0.26[-0.07,0.59]**
Heterogeneity: Tau²=0; Chi²=1.17, df=1(P=0.28); I²=14.54%							
Test for overall effect: Z=1.57(P=0.12)							
6.5.2 Follow-up							
Daley 2007	31	2 (0.6)	31	1.8 (0.6)		100%	0.26[-0.02,0.54]
Subtotal ***	**31**		**31**			**100%**	**0.26[-0.02,0.54]**
Heterogeneity: Not applicable							
Test for overall effect: Z=1.83(P=0.07)							

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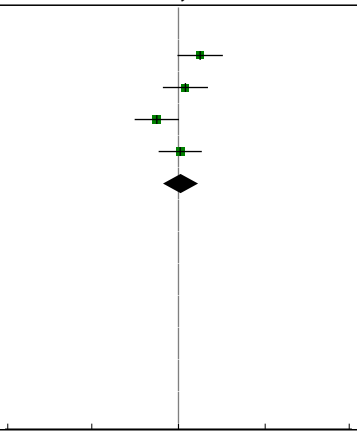
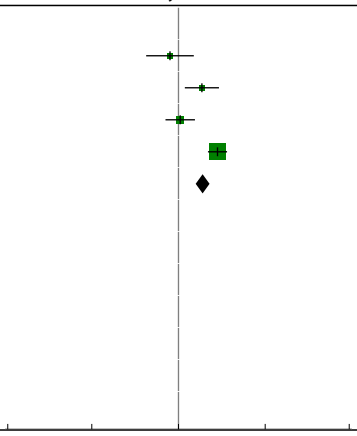
Analysis 6.6. Comparison 6 Comparison: self-esteem, all physical activity vs control, Outcome 6 Rosenberg Self-Esteem Scale (follow-up values).

Study or subgroup	Physical activity N	Physical activity Mean(SD)	Control N	Control Mean(SD)	Mean Difference Random, 95% CI	Weight	Mean Difference Random, 95% CI
6.6.1 End of intervention							
Segar 1998	10	33 (1.8)	5	30.5 (2.7)		24.59%	2.5[-0.12,5.12]
Cadmus 2009	37	34.2 (5.5)	37	33.4 (5.9)		24.73%	0.8[-1.8,3.4]
Musanti 2012	30	23.8 (3.5)	12	26.3 (3.9)		25.08%	-2.5[-5.05,0.05]
Courneya 2003	24	34.8 (4.7)	28	34.6 (4.4)		25.6%	0.2[-2.29,2.69]
Subtotal ***	**101**		**82**			**100%**	**0.24[-1.79,2.26]**
Heterogeneity: Tau²=2.55; Chi²=7.47, df=3(P=0.06); I²=59.83%							
Test for overall effect: Z=0.23(P=0.82)							
6.6.2 Follow-up							
Subtotal ***	**0**		**0**				**Not estimable**
Heterogeneity: Not applicable							
Test for overall effect: Not applicable							



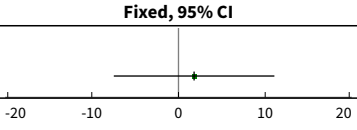
Analysis 6.7. Comparison 6 Comparison: self-esteem, all physical activity vs control, Outcome 7 Rosenberg Self-Esteem Scale (change values).

Study or subgroup	Physical activity N	Physical activity Mean(SD)	Control N	Control Mean(SD)	Mean Difference Fixed, 95% CI	Weight	Mean Difference Fixed, 95% CI
6.7.1 End of intervention							
Musanti 2012	30	-0.4 (4.5)	12	0.6 (3.9)		8.49%	-0.98[-3.73,1.77]
Courneya 2003	24	2.6 (3.7)	28	-0.1 (3.5)		16.54%	2.7[0.73,4.67]
Cadmus 2009	37	0.4 (4.4)	37	0.2 (2.9)		22.21%	0.2[-1.5,1.9]
Mustian 2004	11	3 (1)	10	-1.5 (1.5)		52.77%	4.5[3.4,5.6]
Subtotal ***	**102**		**87**			**100%**	**2.78[1.98,3.58]**
Heterogeneity: Tau²=0; Chi²=25.44, df=3(P<0.0001); I²=88.21%							
Test for overall effect: Z=6.81(P<0.0001)							
6.7.2 Follow-up							
Subtotal ***	**0**		**0**				**Not estimable**
Heterogeneity: Not applicable							
Test for overall effect: Not applicable							



Analysis 6.8. Comparison 6 Comparison: self-esteem, all physical activity vs control, Outcome 8 EORTC QLQ-C30 Body image (follow-up and change values).

Study or subgroup	Physical activity N	Physical activity Mean(SD)	Control N	Control Mean(SD)	Mean Difference Fixed, 95% CI	Weight	Mean Difference Fixed, 95% CI
6.8.1 End of intervention							
Do 2015	32	37.9 (18.9)	30	36.1 (18.3)		14.54%	1.8[-7.46,11.06]



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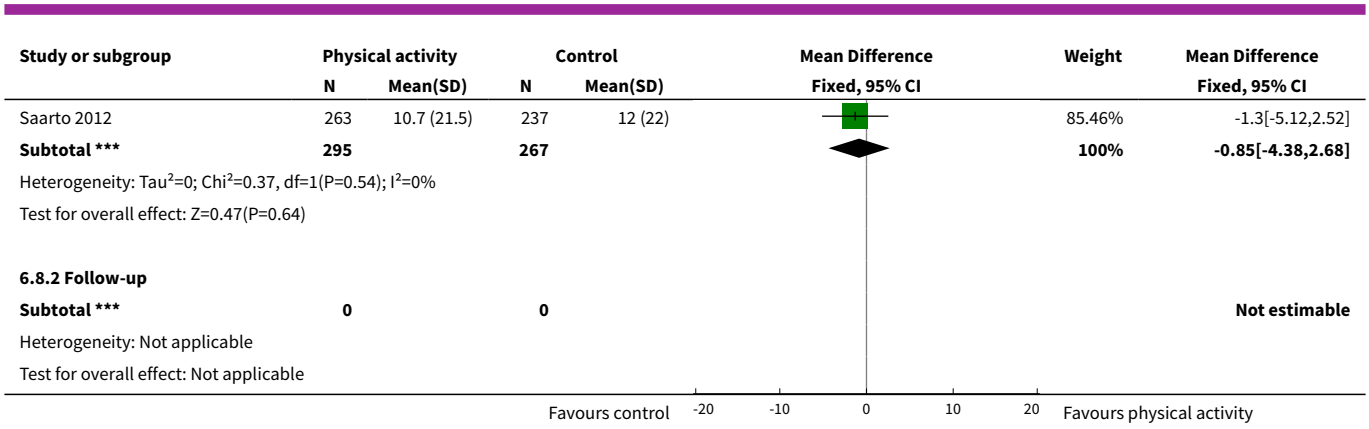

Comparison 7. Comparison: cardiorespiratory fitness, all physical activity vs control

Outcome or subgroup title	No. of studies	No. of participants	Statistical method	Effect size
1 Overall cardiorespiratory fitness (follow-up values)	23		Std. Mean Difference (IV, Random, 95% CI)	Subtotals only
1.1 End of intervention	23	1265	Std. Mean Difference (IV, Random, 95% CI)	0.44 [0.30, 0.58]
1.2 Follow-up	3	362	Std. Mean Difference (IV, Random, 95% CI)	0.36 [0.03, 0.69]
2 Overall cardiorespiratory fitness (change values)	10		Std. Mean Difference (IV, Random, 95% CI)	Subtotals only
2.1 End of intervention	9	863	Std. Mean Difference (IV, Random, 95% CI)	0.83 [0.40, 1.27]
2.2 Follow-up	2	115	Std. Mean Difference (IV, Random, 95% CI)	0.42 [0.05, 0.79]
3 Directly assessed VO_2max/peak (follow-up values)	4		Mean Difference (IV, Fixed, 95% CI)	Subtotals only
3.1 End of intervention	4	199	Mean Difference (IV, Fixed, 95% CI)	1.89 [0.65, 3.13]
3.2 Follow-up	0	0	Mean Difference (IV, Fixed, 95% CI)	0.0 [0.0, 0.0]
4 Directly assessed VO_2max/peak (change values)	3		Std. Mean Difference (IV, Random, 95% CI)	Subtotals only
4.1 End of intervention	3	166	Std. Mean Difference (IV, Random, 95% CI)	1.31 [0.66, 1.96]
4.2 Follow-up	0	0	Std. Mean Difference (IV, Random, 95% CI)	0.0 [0.0, 0.0]

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Outcome or subgroup title	No. of studies	No. of participants	Statistical method	Effect size
5 Directly assessed VO_2max/peak - treadmill (follow-up and change values)	2		Std. Mean Difference (IV, Random, 95% CI)	Subtotals only
5.1 End of intervention	2	116	Std. Mean Difference (IV, Random, 95% CI)	1.04 [-0.49, 2.58]
5.2 Follow-up	0	0	Std. Mean Difference (IV, Random, 95% CI)	0.0 [0.0, 0.0]
6 Directly assessed VO_2max/peak - cycle ergometer (follow-up values)	3		Mean Difference (IV, Random, 95% CI)	Subtotals only
6.1 End of intervention	3	116	Mean Difference (IV, Random, 95% CI)	1.99 [0.39, 3.59]
6.2 Follow-up	0	0	Mean Difference (IV, Random, 95% CI)	0.0 [0.0, 0.0]
7 Peak Power Output - cycle ergometer test (follow-up values)	2		Mean Difference (IV, Fixed, 95% CI)	Subtotals only
7.1 End of intervention	2	66	Mean Difference (IV, Fixed, 95% CI)	18.92 [9.64, 28.20]
7.2 Follow-up	0	0	Mean Difference (IV, Fixed, 95% CI)	0.0 [0.0, 0.0]
8 Peak Respiratory Exchange Ratio - cycle ergometer test (follow-up values)	2		Mean Difference (IV, Fixed, 95% CI)	Subtotals only
8.1 End of intervention	2	66	Mean Difference (IV, Fixed, 95% CI)	-0.01 [-0.04, 0.03]
8.2 Follow-up	0	0	Mean Difference (IV, Fixed, 95% CI)	0.0 [0.0, 0.0]
9 Peak Heart Rate - cycle ergometer test (follow-up values)	2		Mean Difference (IV, Fixed, 95% CI)	Subtotals only
9.1 End of intervention	2	66	Mean Difference (IV, Fixed, 95% CI)	2.02 [-5.65, 9.68]
9.2 Follow-up	0	0	Mean Difference (IV, Fixed, 95% CI)	0.0 [0.0, 0.0]
10 Ebbeling single-stage treadmill test (follow-up and change values)	2		Mean Difference (IV, Random, 95% CI)	Subtotals only
10.1 End of intervention	2	189	Mean Difference (IV, Random, 95% CI)	1.30 [-0.16, 2.75]
10.2 Follow-up	2	149	Mean Difference (IV, Random, 95% CI)	1.77 [-1.23, 4.77]

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Outcome or subgroup title	No. of studies	No. of participants	Statistical method	Effect size
11 Modified Bruce treadmill test (follow-up and change values)	3		Mean Difference (IV, Random, 95% CI)	Subtotals only
11.1 End of intervention	3	92	Mean Difference (IV, Random, 95% CI)	3.57 [0.95, 6.19]
11.2 Follow-up	0	0	Mean Difference (IV, Random, 95% CI)	0.0 [0.0, 0.0]
12 Naughton submaximal treadmill test (follow-up and change values)	4		Mean Difference (IV, Random, 95% CI)	Subtotals only
12.1 End of intervention	4	315	Mean Difference (IV, Random, 95% CI)	2.02 [-0.33, 4.37]
12.2 Follow-up	2	249	Mean Difference (IV, Random, 95% CI)	1.91 [0.57, 3.26]
13 Cardiorespiratory fitness walk tests (follow-up values)	7		Std. Mean Difference (IV, Random, 95% CI)	Subtotals only
13.1 End of intervention	7	314	Std. Mean Difference (IV, Random, 95% CI)	0.62 [0.33, 0.91]
13.2 Follow-up	0	0	Std. Mean Difference (IV, Random, 95% CI)	0.0 [0.0, 0.0]
14 Cardiorespiratory fitness walk tests (change values)	3		Std. Mean Difference (IV, Random, 95% CI)	Subtotals only
14.1 End of intervention	3	592	Std. Mean Difference (IV, Random, 95% CI)	0.72 [-0.05, 1.49]
14.2 Follow-up	1	79	Std. Mean Difference (IV, Random, 95% CI)	0.54 [0.09, 0.99]
15 6-Minute walk test (follow-up and change values)	5		Mean Difference (IV, Random, 95% CI)	Subtotals only
15.1 End of intervention	5	159	Mean Difference (IV, Random, 95% CI)	54.74 [33.25, 76.22]
15.2 Follow-up	0	0	Mean Difference (IV, Random, 95% CI)	0.0 [0.0, 0.0]
16 12-Minute walk test (follow-up values)	2		Mean Difference (IV, Random, 95% CI)	Subtotals only
16.1 End of intervention	2	96	Mean Difference (IV, Random, 95% CI)	94.56 [-24.25, 213.37]
16.2 Follow-up	0	0	Mean Difference (IV, Random, 95% CI)	0.0 [0.0, 0.0]

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Outcome or subgroup title	No. of studies	No. of participants	Statistical method	Effect size
17 2-Kilometer walk test (follow-up and change values)	2		Mean Difference (IV, Random, 95% CI)	Subtotals only
17.1 End of intervention	2	526	Mean Difference (IV, Random, 95% CI)	-0.11 [-0.46, 0.25]
17.2 Follow-up	0	0	Mean Difference (IV, Random, 95% CI)	0.0 [0.0, 0.0]
18 Resting Heart Rate (follow-up values)	2		Mean Difference (IV, Fixed, 95% CI)	Subtotals only
18.1 End of intervention	2	82	Mean Difference (IV, Fixed, 95% CI)	-4.47 [-7.94, -1.00]
18.2 Follow-up	0	0	Mean Difference (IV, Fixed, 95% CI)	0.0 [0.0, 0.0]
19 Resting Heart Rate (change values)	2		Std. Mean Difference (IV, Random, 95% CI)	Subtotals only
19.1 End of intervention	2	86	Std. Mean Difference (IV, Random, 95% CI)	-1.05 [-2.22, 0.11]
19.2 Follow-up	0	0	Std. Mean Difference (IV, Random, 95% CI)	0.0 [0.0, 0.0]
20 Resting Systolic Blood Pressure (follow-up values)	4		Mean Difference (IV, Random, 95% CI)	Subtotals only
20.1 End of intervention	4	134	Mean Difference (IV, Random, 95% CI)	-0.83 [-3.72, 2.05]
20.2 Follow-up	1	26	Mean Difference (IV, Random, 95% CI)	5.20 [-5.35, 15.75]
21 Resting Systolic Blood Pressure (change values)	3		Mean Difference (IV, Random, 95% CI)	Subtotals only
21.1 End of intervention	3	143	Mean Difference (IV, Random, 95% CI)	-1.12 [-7.74, 5.50]
21.2 Follow-up	1	26	Mean Difference (IV, Random, 95% CI)	-2.70 [-5.94, 0.54]
22 Resting Diastolic Blood Pressure (follow-up values)	3		Mean Difference (IV, Random, 95% CI)	Subtotals only
22.1 End of intervention	3	106	Mean Difference (IV, Random, 95% CI)	0.66 [-2.89, 4.21]
22.2 Follow-up	1	26	Mean Difference (IV, Random, 95% CI)	2.10 [-3.78, 7.98]
23 Resting Diastolic Blood Pressure (change values)	3	170	Mean Difference (IV, Random, 95% CI)	-0.04 [-1.82, 1.73]

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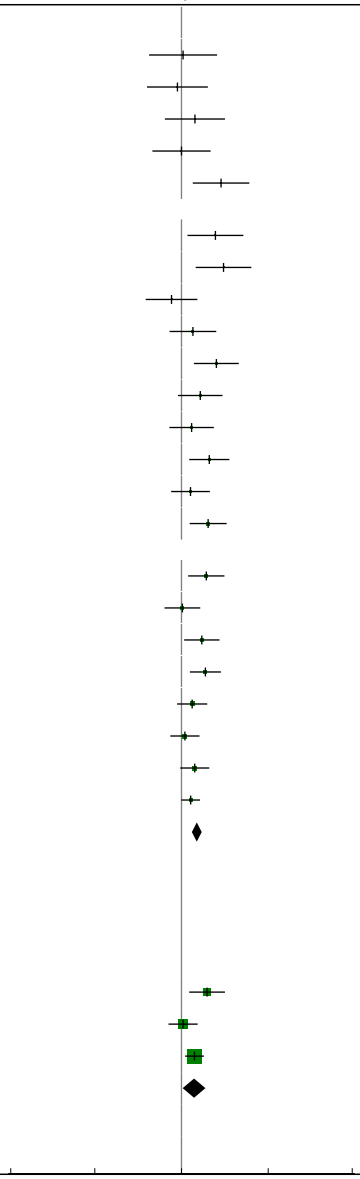
Outcome or subgroup title	No. of studies	No. of participants	Statistical method	Effect size
23.1 End of intervention	3	144	Mean Difference (IV, Random, 95% CI)	0.53 [-1.61, 2.68]
23.2 Follow-up	1	26	Mean Difference (IV, Random, 95% CI)	-1.30 [-3.85, 1.25]

Analysis 7.1. Comparison 7 Comparison: cardiorespiratory fitness, all physical activity vs control, Outcome 1 Overall cardiorespiratory fitness (follow-up values).

Study or subgroup	Physical activity N	Physical activity Mean(SD)	Control N	Control Mean(SD)	Std. Mean Difference Random, 95% CI	Weight	Std. Mean Difference Random, 95% CI
7.1.1 End of intervention							
Herrero 2006	8	25.9 (4.5)	8	25.7 (3.7)		1.87%	0.05[-0.93,1.03]
Cerulli 2014	10	31.3 (5)	10	32.3 (10.1)		2.27%	-0.12[-0.99,0.76]
Mustian 2004	11	636.1 (50.6)	10	610.3 (75.9)		2.32%	0.39[-0.48,1.25]
Rogers 2013	12	23.9 (6.2)	10	23.9 (3.8)		2.44%	0[-0.84,0.84]
Portela 2008	25	3007 (410.8)	9	2416.1 (718.6)		2.57%	1.14[0.33,1.96]
Kaltsatou 2011	14	483.3 (86)	13	403.1 (71.9)		2.62%	0.98[0.17,1.78]
Rahnama 2010	14	20.7 (5.7)	15	13.9 (5.2)		2.64%	1.21[0.41,2.01]
Nikander 2007	14	-17.6 (1.3)	14	-17.2 (1.4)		2.98%	-0.29[-1.03,0.46]
Musanti 2012	30	24.6 (4.9)	12	23 (4.3)		3.5%	0.33[-0.34,1]
Rogers 2014	20	30.9 (6.3)	22	25.1 (5)		3.73%	1.01[0.36,1.65]
Kim 2015	20	424.8 (55.8)	19	394.4 (54)		3.78%	0.54[-0.1,1.18]
Rogers 2009	20	29.5 (6.6)	18	27.6 (6.1)		3.78%	0.29[-0.35,0.93]
Courneya 2003	24	21.3 (3.7)	26	18.2 (3.9)		4.39%	0.8[0.22,1.38]
Mehnert 2011	27	26.9 (4.4)	23	25.7 (4.7)		4.62%	0.26[-0.3,0.82]
Basen-Enquist 2006	35	1643 (122.5)	25	1546 (127.5)		4.94%	0.77[0.24,1.3]
Do 2015	30	31.7 (12.4)	30	24.5 (6.6)		5.06%	0.72[0.19,1.24]
Milne 2008	29	1.5 (0.3)	29	1.5 (0.4)		5.17%	0.03[-0.49,0.54]
Murtezani 2014	30	875.1 (86.7)	32	823.5 (87.1)		5.25%	0.59[0.08,1.1]
Pinto 2005	39	-16.3 (2.1)	43	-17.8 (2.2)		6.2%	0.69[0.24,1.14]
Irwin 2015	45	24.6 (5.5)	38	23 (4.7)		6.41%	0.31[-0.13,0.74]
Fillion 2008	44	27 (4.4)	43	26.5 (5.8)		6.66%	0.1[-0.32,0.52]
Daley 2007	33	35 (4.4)	69	33.1 (5.3)		6.71%	0.38[-0.04,0.8]
Rogers 2015	105	23.6 (4.8)	108	22.7 (0.3)		10.11%	0.27[-0,0.54]
Subtotal ***	**639**		**626**			**100%**	**0.44[0.3,0.58]**
Heterogeneity: Tau^2=0.03; Chi^2=31.26, df=22(P=0.09); I^2=29.61%							
Test for overall effect: Z=6.06(P<0.0001)							
7.1.2 Follow-up							
Daley 2007	31	33.8 (4.8)	31	30.5 (4)		24.72%	0.74[0.22,1.25]
Fillion 2008	44	28.1 (4.7)	43	27.9 (5.7)		31.07%	0.05[-0.37,0.47]
Rogers 2015	105	23.7 (5.2)	108	21.8 (4.9)		44.21%	0.37[0.1,0.65]
Subtotal ***	**180**		**182**			**100%**	**0.36[0.03,0.69]**
Heterogeneity: Tau^2=0.04; Chi^2=4.22, df=2(P=0.12); I^2=52.56%							
Test for overall effect: Z=2.16(P=0.03)							



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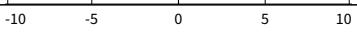
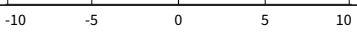
Analysis 7.2. Comparison 7 Comparison: cardiorespiratory fitness, all physical activity vs control, Outcome 2 Overall cardiorespiratory fitness (change values).

Study or subgroup	Physical activity N	Physical activity Mean(SD)	Control N	Control Mean(SD)	Std. Mean Difference Random, 95% CI	Weight	Std. Mean Difference Random, 95% CI
7.2.1 End of intervention							
Nieman 1995	6	60.8 (8.4)	6	12 (17.8)		3.75%	3.24[1.29,5.18]
Naumann 2012	11	3.1 (2.9)	10	-0.1 (3.1)		9.16%	1.03[0.1,1.95]
Dolan 2016	23	12.2 (10.2)	10	-6 (7.2)		9.47%	1.88[0.99,2.77]
Musanti 2012	30	1 (3.1)	12	0.9 (3.4)		11.44%	0.03[-0.64,0.7]
Courneya 2003	24	2.7 (2.6)	26	-0.6 (1.7)		11.78%	1.49[0.86,2.12]
Rogers 2014	20	2.8 (4.9)	22	1.1 (4.2)		11.99%	0.37[-0.24,0.98]
Irwin 2015	45	1.5 (2.1)	38	-0.4 (2.7)		13.49%	0.79[0.34,1.24]
Pinto 2005	39	1.4 (2.4)	43	-0.2 (2.5)		13.52%	0.65[0.2,1.09]
Saarto 2012	262	0.9 (1.2)	236	0.7 (1)		15.39%	0.16[-0.02,0.33]
Subtotal ***	**460**		**403**			**100%**	**0.83[0.4,1.27]**
Heterogeneity: Tau²=0.31; Chi²=44.63, df=8(P<0.0001); I²=82.07%							
Test for overall effect: Z=3.79(P=0)							
7.2.2 Follow-up							
Rogers 2009	19	3.6 (22.3)	17	0.9 (0)		31.98%	0.16[-0.49,0.82]
Pinto 2005	39	1.7 (2.7)	40	0.3 (2.4)		68.02%	0.54[0.09,0.99]
Subtotal ***	**58**		**57**			**100%**	**0.42[0.05,0.79]**
Heterogeneity: Tau²=0; Chi²=0.88, df=1(P=0.35); I²=0%							
Test for overall effect: Z=2.23(P=0.03)							



Analysis 7.3. Comparison 7 Comparison: cardiorespiratory fitness, all physical activity vs control, Outcome 3 Directly assessed VO_2max/peak (follow-up values).

Study or subgroup	Physical activity N	Physical activity Mean(SD)	Control N	Control Mean(SD)	Mean Difference Fixed, 95% CI	Weight	Mean Difference Fixed, 95% CI
7.3.1 End of intervention							
Herrero 2006	8	25.9 (4.5)	8	25.7 (3.7)		9.45%	0.2[-3.84,4.24]
Mehnert 2011	27	26.9 (4.4)	23	25.7 (4.7)		23.89%	1.2[-1.34,3.74]
Irwin 2015	45	24.6 (5.5)	38	23 (4.7)		31.97%	1.6[-0.59,3.79]
Courneya 2003	24	21.3 (3.7)	26	18.2 (3.9)		34.69%	3.1[0.99,5.21]
Subtotal ***	**104**		**95**			**100%**	**1.89[0.65,3.13]**
Heterogeneity: Tau²=0; Chi²=2.29, df=3(P=0.51); I²=0%							
Test for overall effect: Z=2.99(P=0)							
7.3.2 Follow-up							
Subtotal ***	**0**		**0**				**Not estimable**
Heterogeneity: Not applicable							
Test for overall effect: Not applicable							



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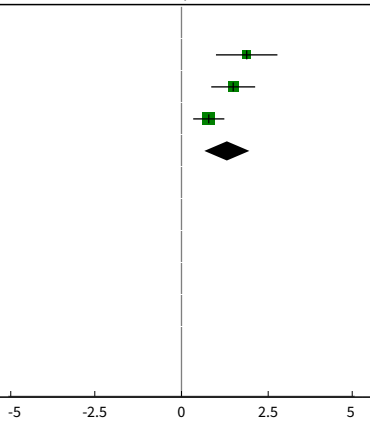
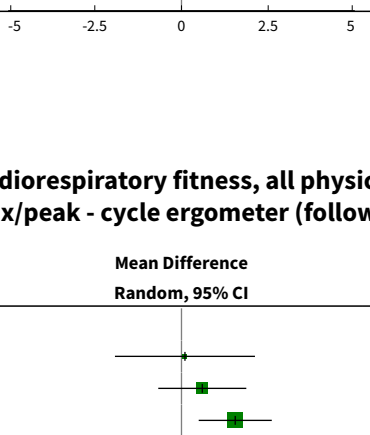
Analysis 7.4. Comparison 7 Comparison: cardiorespiratory fitness, all physical activity vs control, Outcome 4 Directly assessed VO_2max/peak (change values).

Study or subgroup	Physical activity N	Physical activity Mean(SD)	Control N	Control Mean(SD)	Std. Mean Difference Random, 95% CI	Weight	Std. Mean Difference Random, 95% CI
7.4.1 End of intervention							
Dolan 2016	23	12.2 (10.2)	10	-6 (7.2)		25.87%	1.88[0.99,2.77]
Courneya 2003	24	2.7 (2.6)	26	-0.6 (1.7)		33.85%	1.49[0.86,2.12]
Irwin 2015	45	1.5 (2.1)	38	-0.4 (2.7)		40.28%	0.79[0.34,1.24]
Subtotal ***	**92**		**74**			**100%**	**1.31[0.66,1.96]**
Heterogeneity: Tau²=0.22; Chi²=6.24, df=2(P=0.04); I²=67.97%							
Test for overall effect: Z=3.95(P<0.0001)							
7.4.2 Follow-up							
Subtotal ***	**0**		**0**				**Not estimable**
Heterogeneity: Not applicable							
Test for overall effect: Not applicable							



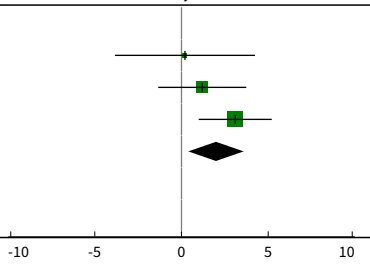
Analysis 7.5. Comparison 7 Comparison: cardiorespiratory fitness, all physical activity vs control, Outcome 5 Directly assessed VO_2max/peak - treadmill (follow-up and change values).

Study or subgroup	Physical activity N	Physical activity Mean(SD)	Control N	Control Mean(SD)	Std. Mean Difference Random, 95% CI	Weight	Std. Mean Difference Random, 95% CI
7.5.1 End of intervention							
Dolan 2016	23	12.2 (10.2)	10	-6 (7.2)		46.86%	1.88[0.99,2.77]
Irwin 2015	45	24.6 (5.5)	38	23 (4.7)		53.14%	0.31[-0.13,0.74]
Subtotal ***	**68**		**48**			**100%**	**1.04[-0.49,2.58]**
Heterogeneity: Tau²=1.11; Chi²=9.76, df=1(P=0); I²=89.75%							
Test for overall effect: Z=1.33(P=0.18)							
7.5.2 Follow-up							
Subtotal ***	**0**		**0**				**Not estimable**
Heterogeneity: Not applicable							
Test for overall effect: Not applicable							



Analysis 7.6. Comparison 7 Comparison: cardiorespiratory fitness, all physical activity vs control, Outcome 6 Directly assessed VO_2max/peak - cycle ergometer (follow-up values).

Study or subgroup	Physical activity N	Physical activity Mean(SD)	Control N	Control Mean(SD)	Mean Difference Random, 95% CI	Weight	Mean Difference Random, 95% CI
7.6.1 End of intervention							
Herrero 2006	8	25.9 (4.5)	8	25.7 (3.7)		14.99%	0.2[-3.84,4.24]
Mehnert 2011	27	26.9 (4.4)	23	25.7 (4.7)		35.59%	1.2[-1.34,3.74]
Courneya 2003	24	21.3 (3.7)	26	18.2 (3.9)		49.42%	3.1[0.99,5.21]
Subtotal ***	**59**		**57**			**100%**	**1.99[0.39,3.59]**
Heterogeneity: Tau²=0.19; Chi²=2.19, df=2(P=0.33); I²=8.72%							
Test for overall effect: Z=2.44(P=0.01)							



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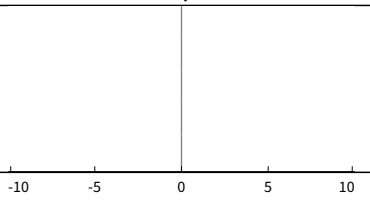
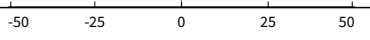
Study or subgroup	Physical activity N	Physical activity Mean(SD)	Control N	Control Mean(SD)	Mean Difference Random, 95% CI	Weight	Mean Difference Random, 95% CI
7.6.2 Follow-up							
Subtotal ***	**0**		**0**				**Not estimable**
Heterogeneity: Not applicable							
Test for overall effect: Not applicable							



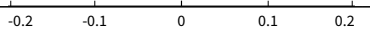
Analysis 7.7. Comparison 7 Comparison: cardiorespiratory fitness, all physical activity vs control, Outcome 7 Peak Power Output - cycle ergometer test (follow-up values).

Study or subgroup	Physical activity N	Physical activity Mean(SD)	Control N	Control Mean(SD)	Mean Difference Fixed, 95% CI	Weight	Mean Difference Fixed, 95% CI
7.7.1 End of intervention							
Herrero 2006	8	110 (16)	8	94 (12)		44.85%	16[2.14,29.86]
Courneya 2003	24	113.6 (23.6)	26	92.3 (21.3)		55.15%	21.3[8.8,33.8]
Subtotal ***	**32**		**34**			**100%**	**18.92[9.64,28.2]**
Heterogeneity: Tau^2=0; Chi^2=0.31, df=1(P=0.58); I^2=0%							
Test for overall effect: Z=4(P<0.0001)							
7.7.2 Follow-up							
Subtotal ***	**0**		**0**				**Not estimable**
Heterogeneity: Not applicable							
Test for overall effect: Not applicable							



Analysis 7.8. Comparison 7 Comparison: cardiorespiratory fitness, all physical activity vs control, Outcome 8 Peak Respiratory Exchange Ratio - cycle ergometer test (follow-up values).

Study or subgroup	Physical activity N	Physical activity Mean(SD)	Control N	Control Mean(SD)	Mean Difference Fixed, 95% CI	Weight	Mean Difference Fixed, 95% CI
7.8.1 End of intervention							
Herrero 2006	8	1.1 (0.1)	8	1.1 (0.1)		20.08%	0.01[-0.07,0.09]
Courneya 2003	24	1.1 (0.1)	26	1.1 (0.1)		79.92%	-0.01[-0.05,0.03]
Subtotal ***	**32**		**34**			**100%**	**-0.01[-0.04,0.03]**
Heterogeneity: Tau^2=0; Chi^2=0.2, df=1(P=0.65); I^2=0%							
Test for overall effect: Z=0.34(P=0.74)							
7.8.2 Follow-up							
Subtotal ***	**0**		**0**				**Not estimable**
Heterogeneity: Not applicable							
Test for overall effect: Not applicable							



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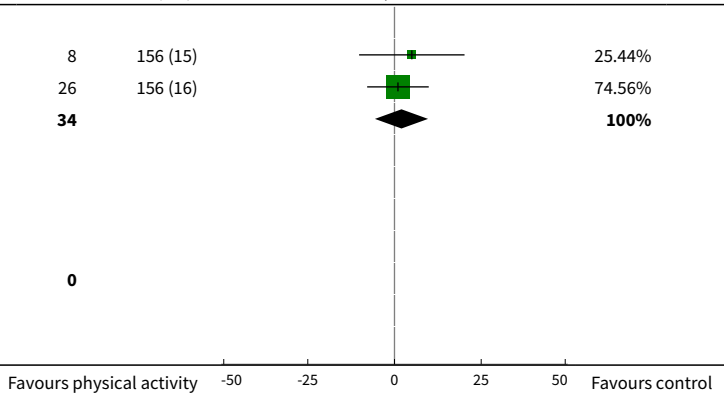
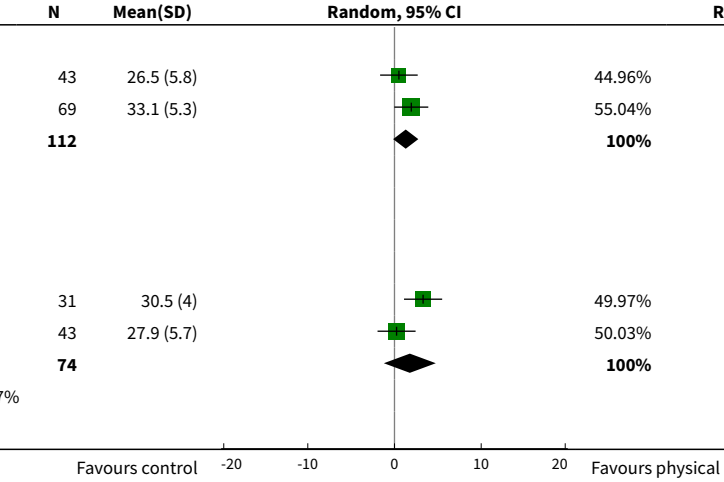
Analysis 7.9. Comparison 7 Comparison: cardiorespiratory fitness, all physical activity vs control, Outcome 9 Peak Heart Rate - cycle ergometer test (follow-up values).

Study or subgroup	Physical activity N	Physical activity Mean(SD)	Control N	Control Mean(SD)	Mean Difference Fixed, 95% CI	Weight	Mean Difference Fixed, 95% CI
7.9.1 End of intervention							
Herrero 2006	8	161 (16)	8	156 (15)		25.44%	5[-10.2,20.2]
Courneya 2003	24	157 (16)	26	156 (16)		74.56%	1[-7.88,9.88]
Subtotal ***	**32**		**34**			**100%**	**2.02[-5.65,9.68]**
Heterogeneity: Tau²=0; Chi²=0.2, df=1(P=0.66); I²=0%							
Test for overall effect: Z=0.52(P=0.61)							
7.9.2 Follow-up							
Subtotal ***	**0**		**0**				**Not estimable**
Heterogeneity: Not applicable							
Test for overall effect: Not applicable							



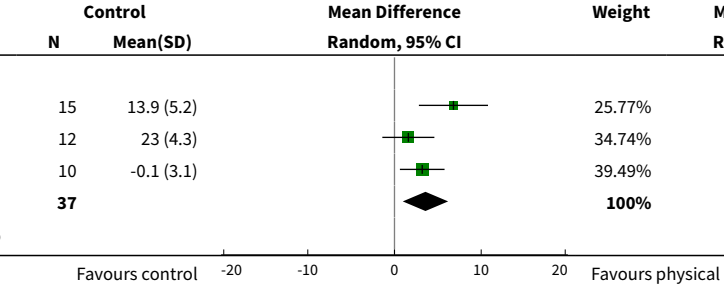
Analysis 7.10. Comparison 7 Comparison: cardiorespiratory fitness, all physical activity vs control, Outcome 10 Ebbeling single-stage treadmill test (follow-up and change values).

Study or subgroup	Physical activity N	Physical activity Mean(SD)	Control N	Control Mean(SD)	Mean Difference Random, 95% CI	Weight	Mean Difference Random, 95% CI
7.10.1 End of intervention							
Fillion 2008	44	27 (4.4)	43	26.5 (5.8)		44.96%	0.51[-1.66,2.68]
Daley 2007	33	35 (4.4)	69	33.1 (5.3)		55.04%	1.94[-0.02,3.9]
Subtotal ***	**77**		**112**			**100%**	**1.3[-0.16,2.75]**
Heterogeneity: Tau²=0; Chi²=0.92, df=1(P=0.34); I²=0%							
Test for overall effect: Z=1.75(P=0.08)							
7.10.2 Follow-up							
Daley 2007	31	33.8 (4.8)	31	30.5 (4)		49.97%	3.3[1.1,5.5]
Fillion 2008	44	28.1 (4.7)	43	27.9 (5.7)		50.03%	0.24[-1.95,2.43]
Subtotal ***	**75**		**74**			**100%**	**1.77[-1.23,4.77]**
Heterogeneity: Tau²=3.43; Chi²=3.73, df=1(P=0.05); I²=73.17%							
Test for overall effect: Z=1.16(P=0.25)							



Analysis 7.11. Comparison 7 Comparison: cardiorespiratory fitness, all physical activity vs control, Outcome 11 Modified Bruce treadmill test (follow-up and change values).

Study or subgroup	Physical activity N	Physical activity Mean(SD)	Control N	Control Mean(SD)	Mean Difference Random, 95% CI	Weight	Mean Difference Random, 95% CI
7.11.1 End of intervention							
Rahnama 2010	14	20.7 (5.7)	15	13.9 (5.2)		25.77%	6.8[2.81,10.79]
Musanti 2012	30	24.6 (4.9)	12	23 (4.3)		34.74%	1.6[-1.4,4.6]
Naumann 2012	11	3.1 (2.9)	10	-0.1 (3.1)		39.49%	3.2[0.63,5.77]
Subtotal ***	**55**		**37**			**100%**	**3.57[0.95,6.19]**
Heterogeneity: Tau²=2.8; Chi²=4.2, df=2(P=0.12); I²=52.37%							



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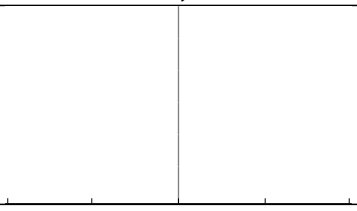
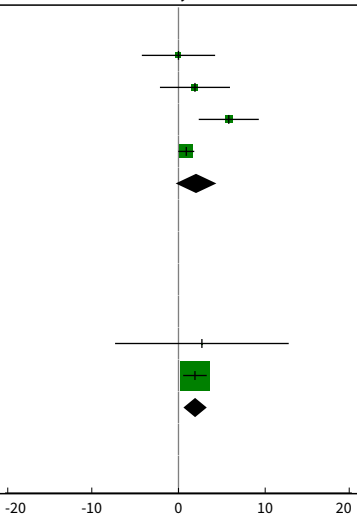
Study or subgroup	Physical activity N	Physical activity Mean(SD)	Control N	Control Mean(SD)	Mean Difference Random, 95% CI	Weight	Mean Difference Random, 95% CI
Test for overall effect: Z=2.67(P=0.01)							
7.11.2 Follow-up							
Subtotal ***	**0**		**0**				**Not estimable**
Heterogeneity: Not applicable							
Test for overall effect: Not applicable							



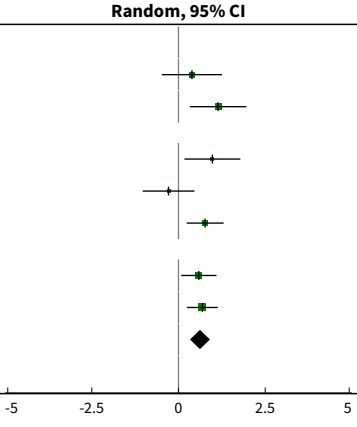
Analysis 7.12. Comparison 7 Comparison: cardiorespiratory fitness, all physical activity vs control, Outcome 12 Naughton submaximal treadmill test (follow-up and change values).

Study or subgroup	Physical activity N	Physical activity Mean(SD)	Control N	Control Mean(SD)	Mean Difference Random, 95% CI	Weight	Mean Difference Random, 95% CI
7.12.1 End of intervention							
Rogers 2013	12	23.9 (6.2)	10	23.9 (3.8)		18.04%	0[-4.23,4.23]
Rogers 2009	20	29.5 (6.6)	18	27.6 (6.1)		19%	1.9[-2.14,5.94]
Rogers 2014	20	30.9 (6.3)	22	25.1 (5)		22.32%	5.8[2.34,9.26]
Rogers 2015	105	23.6 (4.8)	108	22.7 (0.3)		40.64%	0.9[-0.02,1.82]
Subtotal ***	**157**		**158**			**100%**	**2.02[-0.33,4.37]**
Heterogeneity: Tau^2=3.31; Chi^2=7.61, df=3(P=0.05); I^2=60.6%							
Test for overall effect: Z=1.69(P=0.09)							
7.12.2 Follow-up							
Rogers 2009	19	3.6 (22.3)	17	0.9 (0)		1.81%	2.7[-7.31,12.71]
Rogers 2015	105	23.7 (5.2)	108	21.8 (4.9)		98.19%	1.9[0.54,3.26]
Subtotal ***	**124**		**125**			**100%**	**1.91[0.57,3.26]**
Heterogeneity: Tau^2=0; Chi^2=0.02, df=1(P=0.88); I^2=0%							
Test for overall effect: Z=2.79(P=0.01)							



Analysis 7.13. Comparison 7 Comparison: cardiorespiratory fitness, all physical activity vs control, Outcome 13 Cardiorespiratory fitness walk tests (follow-up values).

Study or subgroup	Physical activity N	Physical activity Mean(SD)	Control N	Control Mean(SD)	Std. Mean Difference Random, 95% CI	Weight	Std. Mean Difference Random, 95% CI
7.13.1 End of intervention							
Mustian 2004	11	636.1 (50.6)	10	610.3 (75.9)		9.02%	0.39[-0.48,1.25]
Portela 2008	25	3007 (410.8)	9	2416.1 (718.6)		9.95%	1.14[0.33,1.96]
Kaltsatou 2011	14	483.3 (86)	13	403.1 (71.9)		10.12%	0.98[0.17,1.78]
Nikander 2007	14	-17.6 (1.3)	14	-17.2 (1.4)		11.42%	-0.29[-1.03,0.46]
Basen-Enquist 2006	35	1643 (122.5)	25	1546 (127.5)		18.15%	0.77[0.24,1.3]
Murtezani 2014	30	875.1 (86.7)	32	823.5 (87.1)		19.15%	0.59[0.08,1.1]
Pinto 2005	39	-16.3 (2.1)	43	-17.8 (2.2)		22.19%	0.69[0.24,1.14]
Subtotal ***	**168**		**146**			**100%**	**0.62[0.33,0.91]**
Heterogeneity: Tau^2=0.05; Chi^2=8.71, df=6(P=0.19); I^2=31.09%							



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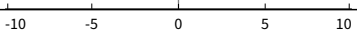
Study or subgroup	Physical activity N	Physical activity Mean(SD)	Control N	Control Mean(SD)	Std. Mean Difference Random, 95% CI	Weight	Std. Mean Difference Random, 95% CI
Test for overall effect: Z=4.2(P<0.0001)							
7.13.2 Follow-up							
Subtotal ***	**0**		**0**				**Not estimable**
Heterogeneity: Not applicable							
Test for overall effect: Not applicable							

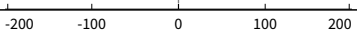
Analysis 7.14. Comparison 7 Comparison: cardiorespiratory fitness, all physical activity vs control, Outcome 14 Cardiorespiratory fitness walk tests (change values).

Study or subgroup	Physical activity N	Physical activity Mean(SD)	Control N	Control Mean(SD)	Std. Mean Difference Random, 95% CI	Weight	Std. Mean Difference Random, 95% CI
7.14.1 End of intervention							
Nieman 1995	6	60.8 (8.4)	6	12 (17.8)		11.73%	3.24[1.29,5.18]
Pinto 2005	39	1.4 (2.4)	43	-0.2 (2.5)		41.37%	0.65[0.2,1.09]
Saarto 2012	262	0.9 (1.2)	236	0.7 (1)		46.9%	0.16[-0.02,0.33]
Subtotal ***	**307**		**285**			**100%**	**0.72[-0.05,1.49]**
Heterogeneity: Tau^2=0.32; Chi^2=13.2, df=2(P=0); I^2=84.84%							
Test for overall effect: Z=1.84(P=0.07)							
7.14.2 Follow-up							
Pinto 2005	39	1.7 (2.7)	40	0.3 (2.4)		100%	0.54[0.09,0.99]
Subtotal ***	**39**		**40**			**100%**	**0.54[0.09,0.99]**
Heterogeneity: Not applicable							
Test for overall effect: Z=2.37(P=0.02)							



Analysis 7.15. Comparison 7 Comparison: cardiorespiratory fitness, all physical activity vs control, Outcome 15 6-Minute walk test (follow-up and change values).

Study or subgroup	Physical activity N	Physical activity Mean(SD)	Control N	Control Mean(SD)	Mean Difference Random, 95% CI	Weight	Mean Difference Random, 95% CI
7.15.1 End of intervention							
Kaltsatou 2011	14	483.3 (86)	13	403.1 (71.9)		9.68%	80.25[20.62,139.88]
Mustian 2004	11	636.1 (50.6)	10	610.3 (75.9)		10.68%	25.8[-29.94,81.54]
Kim 2015	20	424.8 (55.8)	19	394.4 (54)		19.22%	30.4[-4.06,64.86]
Basen-Enquist 2006	35	500.8 (37.3)	25	421.2 (38.9)		28.86%	79.6[59.97,99.23]
Nieman 1995	6	60.8 (8.4)	6	12 (17.8)		31.56%	48.8[33.05,64.55]
Subtotal ***	**86**		**73**			**100%**	**54.74[33.25,76.22]**
Heterogeneity: Tau^2=316.15; Chi^2=10.21, df=4(P=0.04); I^2=60.83%							
Test for overall effect: Z=4.99(P<0.0001)							
7.15.2 Follow-up							
Subtotal ***	**0**		**0**				**Not estimable**
Heterogeneity: Not applicable							
Test for overall effect: Not applicable							



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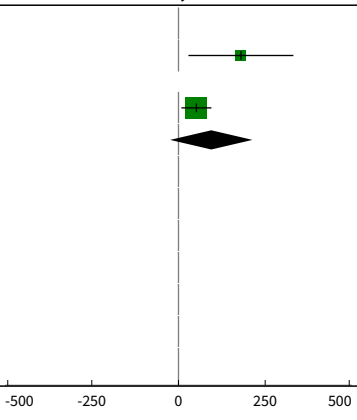
Analysis 7.16. Comparison 7 Comparison: cardiorespiratory fitness, all physical activity vs control, Outcome 16 12-Minute walk test (follow-up values).

Study or subgroup	Physical activity N	Physical activity Mean(SD)	Control N	Control Mean(SD)	Mean Difference Random, 95% CI	Weight	Mean Difference Random, 95% CI
7.16.1 End of intervention							
Portela 2008	25	916.5 (125.2)	9	736.4 (219)		33.43%	180.09[28.81,331.37]
Murtezani 2014	30	875.1 (86.7)	32	823.5 (87.1)		66.57%	51.6[8.32,94.88]
Subtotal ***	**55**		**41**			**100%**	**94.56[-24.25,213.37]**
Heterogeneity: Tau²=5032.24; Chi²=2.56, df=1(P=0.11); I²=60.96%							
Test for overall effect: Z=1.56(P=0.12)							
7.16.2 Follow-up							
Subtotal ***	**0**		**0**				**Not estimable**
Heterogeneity: Not applicable							
Test for overall effect: Not applicable							



Analysis 7.17. Comparison 7 Comparison: cardiorespiratory fitness, all physical activity vs control, Outcome 17 2-Kilometer walk test (follow-up and change values).

Study or subgroup	Physical activity N	Physical activity Mean(SD)	Control N	Control Mean(SD)	Mean Difference Random, 95% CI	Weight	Mean Difference Random, 95% CI
7.17.1 End of intervention							
Nikander 2007	14	17.6 (1.3)	14	17.2 (1.4)		11.32%	0.4[-0.6,1.4]
Saarto 2012	262	-0.9 (1.2)	236	-0.7 (1)		88.68%	-0.17[-0.36,0.02]
Subtotal ***	**276**		**250**			**100%**	**-0.11[-0.46,0.25]**
Heterogeneity: Tau²=0.03; Chi²=1.2, df=1(P=0.27); I²=16.87%							
Test for overall effect: Z=0.58(P=0.56)							
7.17.2 Follow-up							
Subtotal ***	**0**		**0**				**Not estimable**
Heterogeneity: Not applicable							
Test for overall effect: Not applicable							

Analysis 7.18. Comparison 7 Comparison: cardiorespiratory fitness, all physical activity vs control, Outcome 18 Resting Heart Rate (follow-up values).

Study or subgroup	Physical activity N	Physical activity Mean(SD)	Control N	Control Mean(SD)	Mean Difference Fixed, 95% CI	Weight	Mean Difference Fixed, 95% CI
7.18.1 End of intervention							
Courneya 2003	25	81.1 (8.2)	28	83.3 (14.1)		32.01%	-2.2[-8.33,3.93]
Rahnama 2010	14	83.9 (5.6)	15	89.5 (5.9)		67.99%	-5.54[-9.75,-1.33]
Subtotal ***	**39**		**43**			**100%**	**-4.47[-7.94,-1]**
Heterogeneity: Tau²=0; Chi²=0.77, df=1(P=0.38); I²=0%							
Test for overall effect: Z=2.53(P=0.01)							

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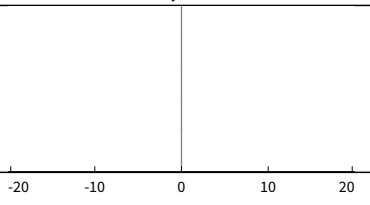
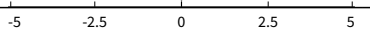
Study or subgroup	Physical activity N	Physical activity Mean(SD)	Control N	Control Mean(SD)	Mean Difference Fixed, 95% CI	Weight	Mean Difference Fixed, 95% CI
7.18.2 Follow-up							
Subtotal ***	**0**		**0**				**Not estimable**
Heterogeneity: Not applicable							
Test for overall effect: Not applicable							



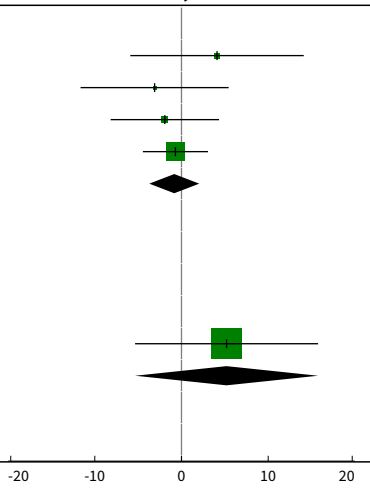
Analysis 7.19. Comparison 7 Comparison: cardiorespiratory fitness, all physical activity vs control, Outcome 19 Resting Heart Rate (change values).

Study or subgroup	Physical activity N	Physical activity Mean(SD)	Control N	Control Mean(SD)	Std. Mean Difference Random, 95% CI	Weight	Std. Mean Difference Random, 95% CI
7.19.1 End of intervention							
Dolan 2016	23	-9.4 (5.5)	10	4.9 (12.6)		45.95%	-1.7[-2.56,-0.84]
Courneya 2003	25	-4.4 (11)	28	1.1 (10.4)		54.05%	-0.51[-1.06,0.04]
Subtotal ***	**48**		**38**			**100%**	**-1.05[-2.22,0.11]**
Heterogeneity: Tau^2=0.57; Chi^2=5.22, df=1(P=0.02); I^2=80.85%							
Test for overall effect: Z=1.78(P=0.08)							
7.19.2 Follow-up							
Subtotal ***	**0**		**0**				**Not estimable**
Heterogeneity: Not applicable							
Test for overall effect: Not applicable							



Analysis 7.20. Comparison 7 Comparison: cardiorespiratory fitness, all physical activity vs control, Outcome 20 Resting Systolic Blood Pressure (follow-up values).

Study or subgroup	Physical activity N	Physical activity Mean(SD)	Control N	Control Mean(SD)	Mean Difference Random, 95% CI	Weight	Mean Difference Random, 95% CI
7.20.1 End of intervention							
Guinan 2013	16	118.5 (16.5)	10	114.4 (9.5)		8.32%	4.1[-5.9,14.1]
Courneya 2003	24	131.6 (13.1)	28	134.7 (18.2)		11.41%	-3.1[-11.64,5.44]
Kaltsatou 2011	14	125 (9)	13	126.9 (7.5)		21.29%	-1.92[-8.17,4.33]
Rahnama 2010	14	123.6 (3.8)	15	124.3 (6.3)		58.99%	-0.7[-4.46,3.06]
Subtotal ***	**68**		**66**			**100%**	**-0.83[-3.72,2.05]**
Heterogeneity: Tau^2=0; Chi^2=1.33, df=3(P=0.72); I^2=0%							
Test for overall effect: Z=0.57(P=0.57)							
7.20.2 Follow-up							
Guinan 2013	16	117 (14.2)	10	111.8 (12.8)		100%	5.2[-5.35,15.75]
Subtotal ***	**16**		**10**			**100%**	**5.2[-5.35,15.75]**
Heterogeneity: Not applicable							
Test for overall effect: Z=0.97(P=0.33)							



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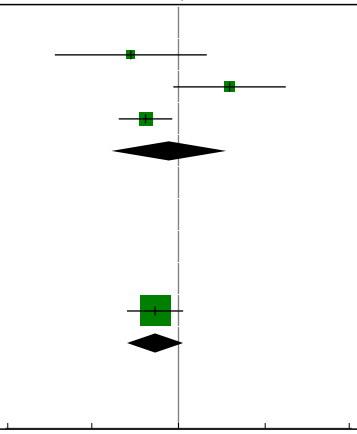
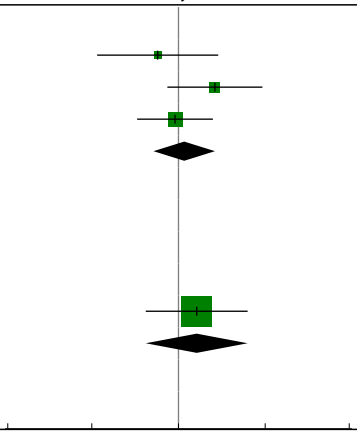
Analysis 7.21. Comparison 7 Comparison: cardiorespiratory fitness, all physical activity vs control, Outcome 21 Resting Systolic Blood Pressure (change values).

Study or subgroup	Physical activity N	Physical activity Mean(SD)	Control N	Control Mean(SD)	Mean Difference Random, 95% CI	Weight	Mean Difference Random, 95% CI
7.21.1 End of intervention							
Courneya 2003	24	-5.4 (15.6)	28	0.1 (16.6)		25.62%	-5.5[-14.26,3.26]
Cadmus 2009	35	0.7 (13.3)	30	-5.2 (13.3)		32.15%	5.89[-0.6,12.38]
Guinan 2013	16	-6.1 (4.3)	10	-2.3 (3.6)		42.23%	-3.8[-6.89,-0.71]
Subtotal ***	**75**		**68**			**100%**	**-1.12[-7.74,5.5]**
Heterogeneity: Tau²=24.52; Chi²=7.54, df=2(P=0.02); I²=73.49%							
Test for overall effect: Z=0.33(P=0.74)							
7.21.2 Follow-up							
Guinan 2013	16	-7.6 (3.9)	10	-4.9 (4.2)		100%	-2.7[-5.94,0.54]
Subtotal ***	**16**		**10**			**100%**	**-2.7[-5.94,0.54]**
Heterogeneity: Not applicable							
Test for overall effect: Z=1.64(P=0.1)							



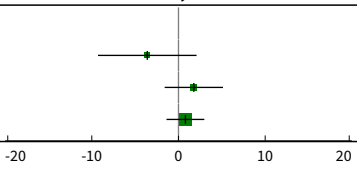
Analysis 7.22. Comparison 7 Comparison: cardiorespiratory fitness, all physical activity vs control, Outcome 22 Resting Diastolic Blood Pressure (follow-up values).

Study or subgroup	Intervention N	Intervention Mean(SD)	Control N	Control Mean(SD)	Mean Difference Random, 95% CI	Weight	Mean Difference Random, 95% CI
7.22.1 End of intervention							
Kaltsatou 2011	14	78.8 (11.1)	13	81.2 (7.1)		21.95%	-2.4[-9.38,4.58]
Guinan 2013	16	78.8 (9.7)	10	74.6 (4.4)		32.59%	4.2[-1.28,9.68]
Courneya 2003	25	85 (8.9)	28	85.4 (7.1)		45.46%	-0.4[-4.77,3.97]
Subtotal ***	**55**		**51**			**100%**	**0.66[-2.89,4.21]**
Heterogeneity: Tau²=2.24; Chi²=2.57, df=2(P=0.28); I²=22.1%							
Test for overall effect: Z=0.36(P=0.72)							
7.22.2 Follow-up							
Guinan 2013	16	76.1 (7.8)	10	74 (7.2)		100%	2.1[-3.78,7.98]
Subtotal ***	**16**		**10**			**100%**	**2.1[-3.78,7.98]**
Heterogeneity: Not applicable							
Test for overall effect: Z=0.7(P=0.48)							



Analysis 7.23. Comparison 7 Comparison: cardiorespiratory fitness, all physical activity vs control, Outcome 23 Resting Diastolic Blood Pressure (change values).

Study or subgroup	Intervention N	Intervention Mean(SD)	Control N	Control Mean(SD)	Mean Difference Random, 95% CI	Weight	Mean Difference Random, 95% CI
7.23.1 End of intervention							
Courneya 2003	25	-4.1 (11)	28	-0.5 (10)		8.79%	-3.6[-9.28,2.08]
Cadmus 2009	35	0.8 (6.9)	30	-1 (6.9)		21.27%	1.77[-1.59,5.13]
Guinan 2013	16	0.4 (2.4)	10	-0.4 (2.9)		38.34%	0.8[-1.38,2.98]



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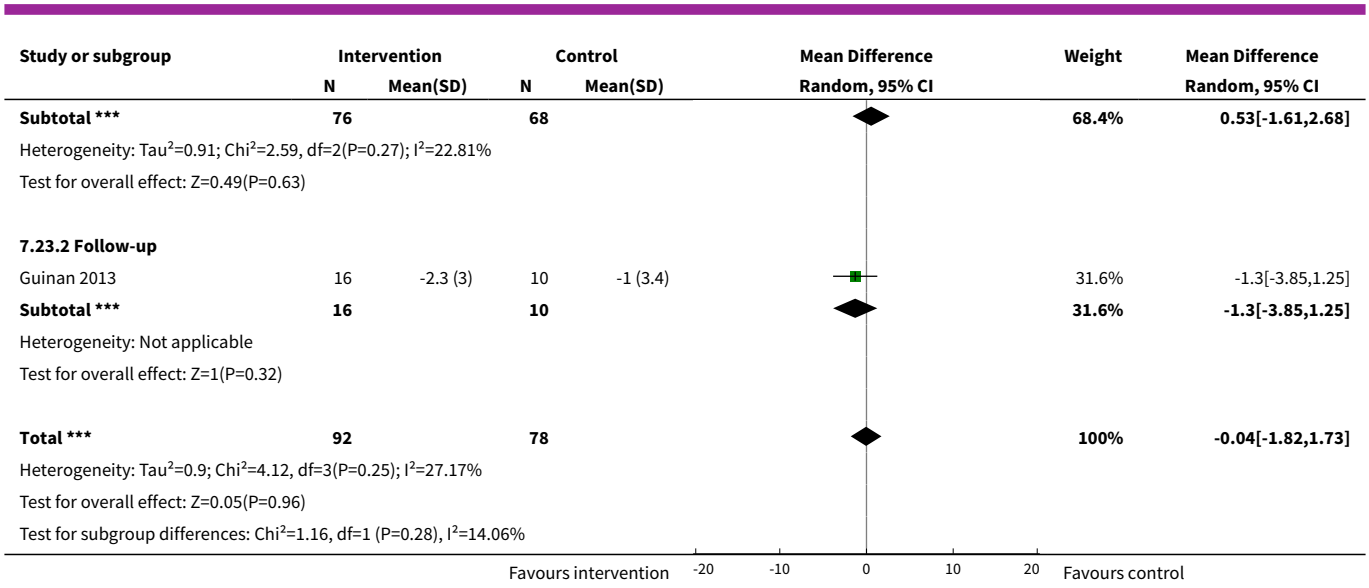

Comparison 8. Comparison: physical activity, all physical activity vs control

Outcome or subgroup title	No. of studies	No. of participants	Statistical method	Effect size
1 Overall self-reported physical activity (follow-up values)	17		Std. Mean Difference (IV, Random, 95% CI)	Subtotals only
1.1 End of intervention	17	2012	Std. Mean Difference (IV, Random, 95% CI)	0.52 [0.33, 0.71]
1.2 Follow-up	4	683	Std. Mean Difference (IV, Random, 95% CI)	0.44 [0.17, 0.72]
2 Overall self-reported physical activity (change values)	9		Std. Mean Difference (IV, Random, 95% CI)	Subtotals only
2.1 End of intervention	8	1274	Std. Mean Difference (IV, Random, 95% CI)	0.57 [0.25, 0.90]
2.2 Follow-up	4	521	Std. Mean Difference (IV, Random, 95% CI)	0.51 [0.08, 0.93]
3 Self-reported total physical activity (follow-up values)	9		Std. Mean Difference (IV, Random, 95% CI)	Subtotals only
3.1 End of intervention	9	881	Std. Mean Difference (IV, Random, 95% CI)	0.57 [0.28, 0.86]
3.2 Follow-up	1	26	Std. Mean Difference (IV, Random, 95% CI)	0.37 [-0.43, 1.16]
4 Self-reported total physical activity (change values)	5		Std. Mean Difference (IV, Random, 95% CI)	Subtotals only

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Outcome or subgroup title	No. of studies	No. of participants	Statistical method	Effect size
4.1 End of intervention	5	332	Std. Mean Difference (IV, Random, 95% CI)	0.80 [0.30, 1.31]
4.2 Follow-up	2	108	Std. Mean Difference (IV, Random, 95% CI)	0.73 [-0.36, 1.83]
5 Self-reported moderate physical activity (follow-up values)	4		Std. Mean Difference (IV, Random, 95% CI)	Subtotals only
5.1 End of intervention	4	249	Std. Mean Difference (IV, Random, 95% CI)	0.77 [0.47, 1.07]
5.2 Follow-up	1	26	Std. Mean Difference (IV, Random, 95% CI)	0.10 [-0.69, 0.89]
6 Self-reported moderate physical activity (change values)	2		Std. Mean Difference (IV, Random, 95% CI)	Subtotals only
6.1 End of intervention	2	93	Std. Mean Difference (IV, Random, 95% CI)	1.19 [0.27, 2.11]
6.2 Follow-up	1	26	Std. Mean Difference (IV, Random, 95% CI)	1.20 [0.33, 2.06]
7 Self-reported moderate-vigorous physical activity (follow-up values)	6		Std. Mean Difference (IV, Random, 95% CI)	Subtotals only
7.1 End of intervention	6	1025	Std. Mean Difference (IV, Random, 95% CI)	0.42 [0.12, 0.72]
7.2 Follow-up	3	657	Std. Mean Difference (IV, Random, 95% CI)	0.46 [0.13, 0.78]
8 Self-reported moderate-vigorous physical activity (change values)	4		Std. Mean Difference (IV, Random, 95% CI)	Subtotals only
8.1 End of intervention	2	875	Std. Mean Difference (IV, Random, 95% CI)	0.15 [-0.14, 0.44]
8.2 Follow-up	3	495	Std. Mean Difference (IV, Random, 95% CI)	0.30 [0.00, 0.59]
9 Self-reported vigorous physical activity (follow-up values)	3		Std. Mean Difference (IV, Random, 95% CI)	Subtotals only
9.1 End of intervention	3	182	Std. Mean Difference (IV, Random, 95% CI)	0.74 [0.43, 1.04]
9.2 Follow-up	1	26	Std. Mean Difference (IV, Random, 95% CI)	0.19 [-0.61, 0.98]

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Outcome or subgroup title	No. of studies	No. of participants	Statistical method	Effect size
10 Self-reported vigorous physical activity (change values)	2		Std. Mean Difference (IV, Random, 95% CI)	Subtotals only
10.1 End of intervention	2	108	Std. Mean Difference (IV, Random, 95% CI)	1.72 [0.78, 2.66]
10.2 Follow-up	2	108	Std. Mean Difference (IV, Random, 95% CI)	-0.13 [-0.92, 0.66]
11 Self-reported walking (follow-up values)	2		Std. Mean Difference (IV, Random, 95% CI)	Subtotals only
11.1 End of intervention	2	374	Std. Mean Difference (IV, Random, 95% CI)	0.40 [-0.06, 0.86]
11.2 Follow-up	1	338	Std. Mean Difference (IV, Random, 95% CI)	0.09 [-0.15, 0.34]
12 Self-reported walking (change values)	2		Std. Mean Difference (IV, Random, 95% CI)	Subtotals only
12.1 End of intervention	2	374	Std. Mean Difference (IV, Random, 95% CI)	0.50 [0.23, 0.77]
12.2 Follow-up	1	338	Std. Mean Difference (IV, Random, 95% CI)	0.23 [-0.02, 0.47]
13 7-Day PAR self-reported moderate physical activity (follow-up values)	2		Mean Difference (IV, Fixed, 95% CI)	Subtotals only
13.1 End of intervention	2	149	Mean Difference (IV, Fixed, 95% CI)	110.44 [72.50, 148.38]
13.2 Follow-up	0	0	Mean Difference (IV, Fixed, 95% CI)	0.0 [0.0, 0.0]
14 7-day PAR self-reported moderate-vigorous physical activity (follow-up values)	2		Mean Difference (IV, Random, 95% CI)	Subtotals only
14.1 End of intervention	2	128	Mean Difference (IV, Random, 95% CI)	52.86 [29.04, 76.67]
14.2 Follow-up	1	67	Mean Difference (IV, Random, 95% CI)	41.2 [11.81, 70.59]
15 Godin LSI self-reported moderate-vigorous physical activity (follow-up values)	5		Mean Difference (IV, Random, 95% CI)	Subtotals only
15.1 End of intervention	5	936	Mean Difference (IV, Random, 95% CI)	39.42 [-1.51, 80.34]
15.2 Follow-up	2	590	Mean Difference (IV, Random, 95% CI)	55.07 [17.16, 92.99]

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Outcome or subgroup title	No. of studies	No. of participants	Statistical method	Effect size
16 Meeting recommended physical activity guidelines (follow-up values)	6		Odds Ratio (M-H, Random, 95% CI)	Subtotals only
16.1 End of intervention	6	819	Odds Ratio (M-H, Random, 95% CI)	8.44 [2.41, 29.56]
16.2 Follow-up	2	280	Odds Ratio (M-H, Random, 95% CI)	3.11 [1.50, 6.46]
17 Overall objective physical activity (follow-up values)	10		Std. Mean Difference (IV, Random, 95% CI)	Subtotals only
17.1 End of intervention	10	1248	Std. Mean Difference (IV, Random, 95% CI)	0.43 [0.19, 0.66]
17.2 Follow-up	3	305	Std. Mean Difference (IV, Random, 95% CI)	0.22 [-0.21, 0.66]
18 Overall objective physical activity (change values)	6		Std. Mean Difference (IV, Random, 95% CI)	Subtotals only
18.1 End of intervention	5	508	Std. Mean Difference (IV, Random, 95% CI)	0.71 [0.14, 1.29]
18.2 Follow-up	2	61	Std. Mean Difference (IV, Random, 95% CI)	0.23 [1.00, 1.46]
19 Objective moderate-vigorous physical activity (follow-up values)	5		Std. Mean Difference (IV, Random, 95% CI)	Subtotals only
19.1 End of intervention	5	390	Std. Mean Difference (IV, Random, 95% CI)	1.49 [0.47, 2.51]
19.2 Follow-up	2	280	Std. Mean Difference (IV, Random, 95% CI)	0.36 [-0.08, 0.79]
20 Objective moderate-vigorous physical activity (change values)	3		Std. Mean Difference (IV, Random, 95% CI)	Subtotals only
20.1 End of intervention	2	78	Std. Mean Difference (IV, Random, 95% CI)	0.92 [0.45, 1.40]
20.2 Follow-up	1	36	Std. Mean Difference (IV, Random, 95% CI)	0.84 [0.15, 1.52]
21 Objective vigorous physical activity (follow-up values)	2		Std. Mean Difference (IV, Random, 95% CI)	Subtotals only
21.1 End of intervention	2	63	Std. Mean Difference (IV, Random, 95% CI)	0.46 [-0.05, 0.97]
21.2 Follow-up	1	25	Std. Mean Difference (IV, Random, 95% CI)	-0.16 [-0.97, 0.66]

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Outcome or subgroup title	No. of studies	No. of participants	Statistical method	Effect size
22 Accelerometer counts (follow-up values)	2		Std. Mean Difference (IV, Random, 95% CI)	Subtotals only
22.1 End of intervention	2	74	Std. Mean Difference (IV, Random, 95% CI)	0.90 [0.08, 1.72]
22.2 Follow-up	0	0	Std. Mean Difference (IV, Random, 95% CI)	0.0 [0.0, 0.0]
23 Pedometer/accelerometer steps/d (follow-up values)	5		Std. Mean Difference (IV, Random, 95% CI)	Subtotals only
23.1 End of intervention	5	809	Std. Mean Difference (IV, Random, 95% CI)	0.22 [-0.08, 0.53]
23.2 Follow-up	0	0	Std. Mean Difference (IV, Random, 95% CI)	0.0 [0.0, 0.0]
24 Pedometer/accelerometer steps/d (change values)	3		Std. Mean Difference (IV, Random, 95% CI)	Subtotals only
24.1 End of intervention	3	441	Std. Mean Difference (IV, Random, 95% CI)	0.45 [-0.18, 1.09]
24.2 Follow-up	0	0	Std. Mean Difference (IV, Random, 95% CI)	0.0 [0.0, 0.0]
25 Overall sedentary behaviour (follow-up values)	4		Std. Mean Difference (IV, Random, 95% CI)	Subtotals only
25.1 End of intervention	4	402	Std. Mean Difference (IV, Random, 95% CI)	-1.01 [-2.28, 0.26]
25.2 Follow-up	1	25	Std. Mean Difference (IV, Random, 95% CI)	0.58 [-0.26, 1.41]
26 Objective sedentary behaviour (follow-up values)	3		Std. Mean Difference (IV, Random, 95% CI)	Subtotals only
26.1 End of intervention	3	103	Std. Mean Difference (IV, Random, 95% CI)	-1.45 [-3.68, 0.78]
26.2 Follow-up	1	25	Std. Mean Difference (IV, Random, 95% CI)	0.58 [-0.26, 1.41]
27 Objective sedentary behaviour (change values)	3		Std. Mean Difference (IV, Random, 95% CI)	Subtotals only
27.1 End of intervention	3	103	Std. Mean Difference (IV, Random, 95% CI)	-0.01 [-0.63, 0.60]
27.2 Follow-up	1	25	Std. Mean Difference (IV, Random, 95% CI)	0.88 [0.02, 1.74]

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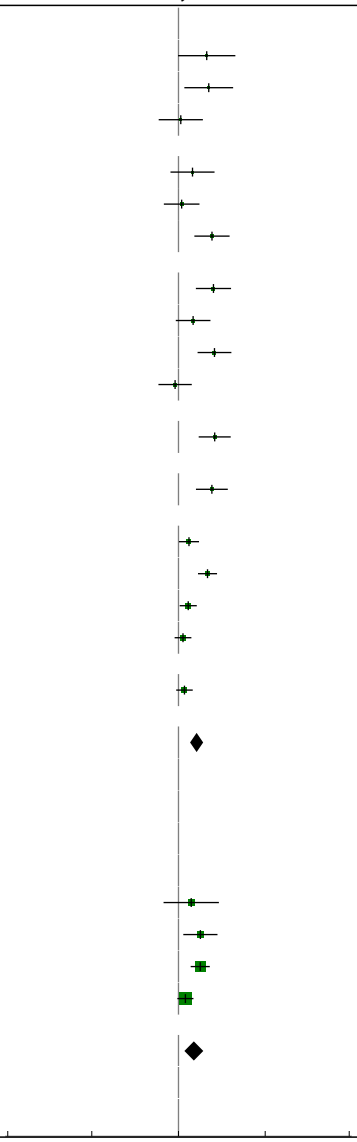
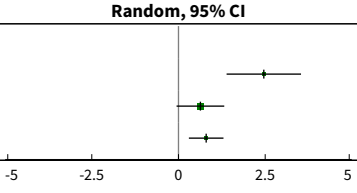
Analysis 8.1. Comparison 8 Comparison: physical activity, all physical activity vs control, Outcome 1 Overall self-reported physical activity (follow-up values).

Study or subgroup	Physical activity N	Physical activity Mean(SD)	Control N	Control Mean(SD)	Std. Mean Difference Random, 95% CI	Weight	Std. Mean Difference Random, 95% CI
8.1.1 End of intervention							
Guinan 2013	16	38.7 (26.9)	10	19.9 (11.3)		3.31%	0.81[-0.01,1.64]
Matthews 2007	22	54.2 (34.1)	14	27.2 (22.7)		4.01%	0.87[0.17,1.58]
Rogers 2009	20	121.4 (73.2)	18	114.3 (131.5)		4.46%	0.07[-0.57,0.7]
Kim 2015	20	17.6 (16)	19	11.8 (11.6)		4.47%	0.4[-0.23,1.04]
Basen-Enquist 2006	35	428 (254.4)	25	404 (265)		5.42%	0.09[-0.42,0.61]
Cadmus 2009	34	161.7 (114.7)	33	55.6 (101.9)		5.47%	0.97[0.46,1.47]
Pinto 2015	36	70.3 (65.9)	32	16.5 (31.9)		5.48%	1.01[0.5,1.52]
Littman 2012	32	19.2 (19.1)	31	12.1 (13.6)		5.54%	0.42[-0.08,0.92]
Hatchett 2013	38	3.5 (2.2)	36	1.4 (1.7)		5.65%	1.04[0.55,1.53]
Winters-Stone 2011	36	430.8 (281.4)	31	461.7 (346.4)		5.71%	-0.1[-0.58,0.38]
Irwin 2015	45	222.1 (118.6)	38	103.6 (104.6)		5.88%	1.04[0.58,1.51]
Pinto 2005	39	202.4 (161.7)	43	78.4 (86)		5.9%	0.96[0.5,1.42]
Kiecolt-Glaser 2014	96	11.2 (7.6)	90	9.1 (6.1)		7.47%	0.3[0.01,0.59]
Rogers 2015	110	169 (119)	112	74 (107)		7.6%	0.84[0.56,1.11]
Vallance 2007	253	207.6 (169)	85	163 (121)		7.84%	0.28[0.03,0.53]
Schmitz 2009	131	3348.8 (9019.4)	133	2339.8 (6213.7)		7.88%	0.13[-0.11,0.37]
Short 2014	195	217.9 (222.9)	104	180.3 (206.9)		7.91%	0.17[-0.07,0.41]
Subtotal ***	**1158**		**854**			**100%**	**0.52[0.33,0.71]**
Heterogeneity: Tau²=0.1; Chi²=58.12, df=16(P<0.0001); I²=72.47%							
Test for overall effect: Z=5.43(P<0.0001)							
8.1.2 Follow-up							
Guinan 2013	16	31.2 (21.1)	10	24.3 (11.9)		9.53%	0.37[-0.43,1.16]
Pinto 2015	36	54.6 (81.6)	31	13.4 (35.2)		19.2%	0.63[0.14,1.12]
Rogers 2015	105	137 (137)	108	63 (95)		33.77%	0.63[0.35,0.9]
Vallance 2007	281	177.3 (190.8)	96	142 (126)		37.5%	0.2[-0.03,0.43]
Subtotal ***	**438**		**245**			**100%**	**0.44[0.17,0.72]**
Heterogeneity: Tau²=0.04; Chi²=6.33, df=3(P=0.1); I²=52.63%							
Test for overall effect: Z=3.18(P=0)							



Analysis 8.2. Comparison 8 Comparison: physical activity, all physical activity vs control, Outcome 2 Overall self-reported physical activity (change values).

Study or subgroup	Physical activity N	Physical activity Mean(SD)	Control N	Control Mean(SD)	Std. Mean Difference Random, 95% CI	Weight	Std. Mean Difference Random, 95% CI
8.2.1 End of intervention							
Guinan 2013	16	15.6 (11.4)	10	-8.3 (4.2)		5.92%	2.46[1.39,3.53]
Matthews 2007	22	21.5 (30.6)	14	5 (13.8)		9.67%	0.63[-0.06,1.32]
Cadmus 2009	34	129 (117.9)	33	44.3 (89.4)		12.23%	0.8[0.3,1.3]



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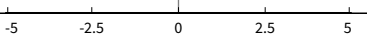
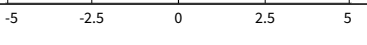
Study or subgroup	Physical activity N	Physical activity Mean(SD)	Control N	Control Mean(SD)	Std. Mean Difference Random, 95% CI	Weight	Std. Mean Difference Random, 95% CI
Irwin 2015	45	159 (136)	38	49 (86)		12.85%	0.94[0.48,1.4]
Pinto 2005	39	84.7 (189.2)	43	-18.3 (200.7)		13.07%	0.52[0.08,0.96]
Schmitz 2009	48	2.8 (16.8)	57	-0.8 (16.6)		13.88%	0.21[-0.17,0.6]
Vallance 2007	281	82 (168.7)	96	30 (167.8)		15.89%	0.31[0.08,0.54]
Saarto 2012	262	3.5 (18.3)	236	3.3 (21.5)		16.48%	0.01[-0.17,0.19]
Subtotal ***	**747**		**527**			**100%**	**0.57[0.25,0.9]**
Heterogeneity: Tau²=0.16; Chi²=39.44, df=7(P<0.0001); I²=82.25%							
Test for overall effect: Z=3.5(P=0)							
8.2.2 Follow-up							
Guinan 2013	16	8 (8.8)	10	-3.9 (7.8)		14.86%	1.37[0.48,2.25]
Rogers 2009	19	78.7 (119.2)	17	-21.4 (113.9)		19.96%	0.84[0.15,1.52]
Pinto 2005	39	72.4 (208.6)	43	21.9 (203.9)		28.73%	0.24[-0.19,0.68]
Vallance 2007	281	54.7 (254.5)	96	9 (251.7)		36.45%	0.18[-0.05,0.41]
Subtotal ***	**355**		**166**			**100%**	**0.51[0.08,0.93]**
Heterogeneity: Tau²=0.12; Chi²=9.01, df=3(P=0.03); I²=66.71%							
Test for overall effect: Z=2.31(P=0.02)							



Analysis 8.3. Comparison 8 Comparison: physical activity, all physical activity vs control, Outcome 3 Self-reported total physical activity (follow-up values).

Study or subgroup	Physical activity N	Physical activity Mean(SD)	Control N	Control Mean(SD)	Std. Mean Difference Random, 95% CI	Weight	Std. Mean Difference Random, 95% CI
8.3.1 End of intervention							
Guinan 2013	16	38.7 (26.9)	10	19.9 (11.3)		7.03%	0.81[-0.01,1.64]
Matthews 2007	22	54.2 (34.1)	14	27.2 (22.7)		8.32%	0.87[0.17,1.58]
Littman 2012	32	19.2 (19.1)	31	12.1 (13.6)		10.94%	0.42[-0.08,0.92]
Hatchett 2013	38	3.5 (2.2)	36	1.4 (1.7)		11.11%	1.04[0.55,1.53]
Winters-Stone 2011	36	430.8 (281.4)	31	461.7 (346.4)		11.21%	-0.1[-0.58,0.38]
Irwin 2015	45	222.1 (118.6)	38	103.6 (104.6)		11.48%	1.04[0.58,1.51]
Pinto 2005	39	202.4 (161.7)	43	78.4 (86)		11.51%	0.96[0.5,1.42]
Kiecolt-Glaser 2014	96	11.2 (7.6)	90	9.1 (6.1)		13.9%	0.3[0.01,0.59]
Schmitz 2009	131	3348.8 (9019.4)	133	2339.8 (6213.7)		14.5%	0.13[-0.11,0.37]
Subtotal ***	**455**		**426**			**100%**	**0.57[0.28,0.86]**
Heterogeneity: Tau²=0.14; Chi²=31.6, df=8(P=0); I²=74.69%							
Test for overall effect: Z=3.84(P=0)							
8.3.2 Follow-up							
Guinan 2013	16	31.2 (21.1)	10	24.3 (11.9)		100%	0.37[-0.43,1.16]
Subtotal ***	**16**		**10**			**100%**	**0.37[-0.43,1.16]**
Heterogeneity: Not applicable							
Test for overall effect: Z=0.9(P=0.37)							



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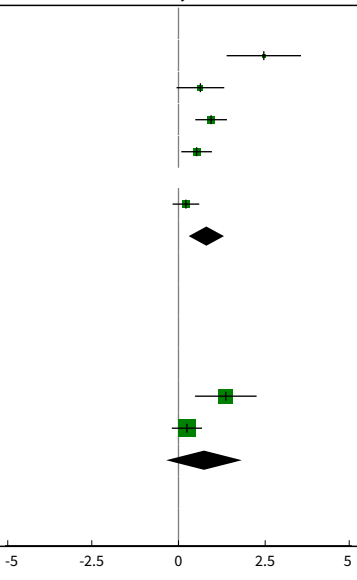
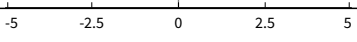
Analysis 8.4. Comparison 8 Comparison: physical activity, all physical activity vs control, Outcome 4 Self-reported total physical activity (change values).

Study or subgroup	Physical activity N	Physical activity Mean(SD)	Control N	Control Mean(SD)	Std. Mean Difference Random, 95% CI	Weight	Std. Mean Difference Random, 95% CI
8.4.1 End of intervention							
Guinan 2013	16	15.6 (11.4)	10	-8.3 (4.2)		12.38%	2.46[1.39,3.53]
Matthews 2007	22	21.5 (30.6)	14	5 (13.8)		18.34%	0.63[-0.06,1.32]
Irwin 2015	45	159 (136)	38	49 (86)		22.59%	0.94[0.48,1.4]
Pinto 2005	39	84.7 (189.2)	43	-18.3 (200.7)		22.86%	0.52[0.08,0.96]
Schmitz 2009	48	2.8 (16.8)	57	-0.8 (16.6)		23.83%	0.21[-0.17,0.6]
Subtotal ***	**170**		**162**			**100%**	**0.8[0.3,1.31]**
Heterogeneity: Tau²=0.24; Chi²=17.65, df=4(P=0); I²=77.34%							
Test for overall effect: Z=3.1(P=0)							
8.4.2 Follow-up							
Guinan 2013	16	8 (8.8)	10	-3.9 (7.8)		43.83%	1.37[0.48,2.25]
Pinto 2005	39	72.4 (208.6)	43	21.9 (203.9)		56.17%	0.24[-0.19,0.68]
Subtotal ***	**55**		**53**			**100%**	**0.73[-0.36,1.83]**
Heterogeneity: Tau²=0.5; Chi²=4.96, df=1(P=0.03); I²=79.85%							
Test for overall effect: Z=1.32(P=0.19)							



Analysis 8.5. Comparison 8 Comparison: physical activity, all physical activity vs control, Outcome 5 Self-reported moderate physical activity (follow-up values).

Study or subgroup	Physical activity N	Physical activity Mean(SD)	Control N	Control Mean(SD)	Std. Mean Difference Random, 95% CI	Weight	Std. Mean Difference Random, 95% CI
8.5.1 End of intervention							
Guinan 2013	16	16.1 (19.3)	10	14.8 (10.4)		12.85%	0.08[-0.71,0.87]
Cadmus 2009	34	161.7 (114.7)	33	55.6 (101.9)		26.57%	0.97[0.46,1.47]
Hatchett 2013	38	1.1 (1.1)	36	0.4 (0.8)		29.56%	0.74[0.27,1.22]
Pinto 2005	39	192.6 (156.8)	43	77.2 (86.4)		31.02%	0.92[0.46,1.37]
Subtotal ***	**127**		**122**			**100%**	**0.77[0.47,1.07]**
Heterogeneity: Tau²=0.02; Chi²=3.92, df=3(P=0.27); I²=23.42%							
Test for overall effect: Z=5(P<0.0001)							
8.5.2 Follow-up							
Guinan 2013	16	16.7 (17.1)	10	15 (13.9)		100%	0.1[-0.69,0.89]
Subtotal ***	**16**		**10**			**100%**	**0.1[-0.69,0.89]**
Heterogeneity: Not applicable							
Test for overall effect: Z=0.26(P=0.8)							



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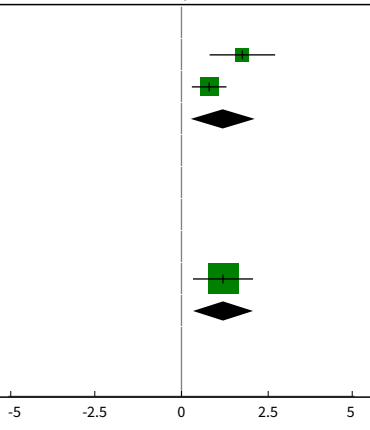
Analysis 8.6. Comparison 8 Comparison: physical activity, all physical activity vs control, Outcome 6 Self-reported moderate physical activity (change values).

Study or subgroup	Physical activity N	Physical activity Mean(SD)	Control N	Control Mean(SD)	Std. Mean Difference Random, 95% CI	Weight	Std. Mean Difference Random, 95% CI
8.6.1 End of intervention							
Guinan 2013	16	1.4 (3.4)	10	-6.5 (5.6)		40.86%	1.76[0.81,2.7]
Cadmus 2009	34	129 (117.9)	33	44.3 (89.4)		59.14%	0.8[0.3,1.3]
Subtotal ***	**50**		**43**			**100%**	**1.19[0.27,2.11]**
Heterogeneity: Tau²=0.31; Chi²=3.08, df=1(P=0.08); I²=67.58%							
Test for overall effect: Z=2.53(P=0.01)							
8.6.2 Follow-up							
Guinan 2013	16	2 (4.1)	10	-6.3 (9.6)		100%	1.2[0.33,2.06]
Subtotal ***	**16**		**10**			**100%**	**1.2[0.33,2.06]**
Heterogeneity: Not applicable							
Test for overall effect: Z=2.71(P=0.01)							



Analysis 8.7. Comparison 8 Comparison: physical activity, all physical activity vs control, Outcome 7 Self-reported moderate-vigorous physical activity (follow-up values).

Study or subgroup	Physical activity N	Physical activity Mean(SD)	Control N	Control Mean(SD)	Std. Mean Difference Random, 95% CI	Weight	Std. Mean Difference Random, 95% CI
8.7.1 End of intervention							
Rogers 2009	20	121.4 (73.2)	18	114.3 (131.5)		11.5%	0.07[-0.57,0.7]
Basen-Enquist 2006	35	428 (254.4)	25	404 (265)		14%	0.09[-0.42,0.61]
Pinto 2015	36	70.3 (65.9)	32	16.5 (31.9)		14.13%	1.01[0.5,1.52]
Rogers 2015	110	169 (119)	112	74 (107)		19.64%	0.84[0.56,1.11]
Vallance 2007	253	207.6 (169)	85	163 (121)		20.27%	0.28[0.03,0.53]
Short 2014	195	217.9 (222.9)	104	180.3 (206.9)		20.45%	0.17[-0.07,0.41]
Subtotal ***	**649**		**376**			**100%**	**0.42[0.12,0.72]**
Heterogeneity: Tau²=0.1; Chi²=22.1, df=5(P=0); I²=77.37%							
Test for overall effect: Z=2.72(P=0.01)							
8.7.2 Follow-up							
Pinto 2015	36	54.6 (81.6)	31	13.4 (35.2)		23.16%	0.63[0.14,1.12]
Rogers 2015	105	137 (137)	108	63 (95)		36.87%	0.63[0.35,0.9]
Vallance 2007	281	177.3 (190.8)	96	142 (126)		39.97%	0.2[-0.03,0.43]
Subtotal ***	**422**		**235**			**100%**	**0.46[0.13,0.78]**
Heterogeneity: Tau²=0.05; Chi²=6.32, df=2(P=0.04); I²=68.38%							
Test for overall effect: Z=2.78(P=0.01)							

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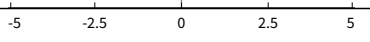
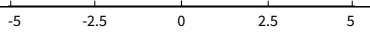
Analysis 8.8. Comparison 8 Comparison: physical activity, all physical activity vs control, Outcome 8 Self-reported moderate-vigorous physical activity (change values).

Study or subgroup	Physical activity N	Physical activity Mean(SD)	Control N	Control Mean(SD)	Std. Mean Difference Random, 95% CI	Weight	Std. Mean Difference Random, 95% CI
8.8.1 End of intervention							
Vallance 2007	281	82 (168.7)	96	30 (167.8)		46.59%	0.31[0.08,0.54]
Saarto 2012	262	3.5 (18.3)	236	3.3 (21.5)		53.41%	0.01[-0.17,0.19]
Subtotal ***	**543**		**332**			**100%**	**0.15[-0.14,0.44]**
Heterogeneity: Tau²=0.03; Chi²=4.01, df=1(P=0.05); I²=75.05%							
Test for overall effect: Z=1(P=0.32)							
8.8.2 Follow-up							
Rogers 2009	19	78.7 (119.2)	17	-21.4 (113.9)		15.12%	0.84[0.15,1.52]
Pinto 2005	39	72.4 (208.6)	43	21.9 (203.9)		29.65%	0.24[-0.19,0.68]
Vallance 2007	281	54.7 (254.5)	96	9 (251.7)		55.24%	0.18[-0.05,0.41]
Subtotal ***	**339**		**156**			**100%**	**0.3[0,0.59]**
Heterogeneity: Tau²=0.03; Chi²=3.18, df=2(P=0.2); I²=37.12%							
Test for overall effect: Z=1.98(P=0.05)							



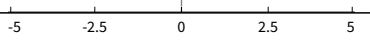
Analysis 8.9. Comparison 8 Comparison: physical activity, all physical activity vs control, Outcome 9 Self-reported vigorous physical activity (follow-up values).

Study or subgroup	Physical activity N	Physical activity Mean(SD)	Control N	Control Mean(SD)	Std. Mean Difference Random, 95% CI	Weight	Std. Mean Difference Random, 95% CI
8.9.1 End of intervention							
Guinan 2013	16	17.2 (20.9)	10	0 (0)		12.89%	1.01[0.16,1.85]
Hatchett 2013	38	2.4 (1.8)	36	1 (1.2)		39.92%	0.9[0.42,1.38]
Pinto 2005	39	9.9 (22.6)	43	1.2 (7)		47.19%	0.52[0.08,0.96]
Subtotal ***	**93**		**89**			**100%**	**0.74[0.43,1.04]**
Heterogeneity: Tau²=0; Chi²=1.74, df=2(P=0.42); I²=0%							
Test for overall effect: Z=4.76(P<0.0001)							
8.9.2 Follow-up							
Guinan 2013	16	7.3 (14.8)	10	4.5 (14.2)		100%	0.19[-0.61,0.98]
Subtotal ***	**16**		**10**			**100%**	**0.19[-0.61,0.98]**
Heterogeneity: Not applicable							
Test for overall effect: Z=0.46(P=0.65)							



Analysis 8.10. Comparison 8 Comparison: physical activity, all physical activity vs control, Outcome 10 Self-reported vigorous physical activity (change values).

Study or subgroup	Physical activity N	Physical activity Mean(SD)	Control N	Control Mean(SD)	Std. Mean Difference Random, 95% CI	Weight	Std. Mean Difference Random, 95% CI
8.10.1 End of intervention							
Pinto 2005	39	0 (0)	43	0 (0)			Not estimable



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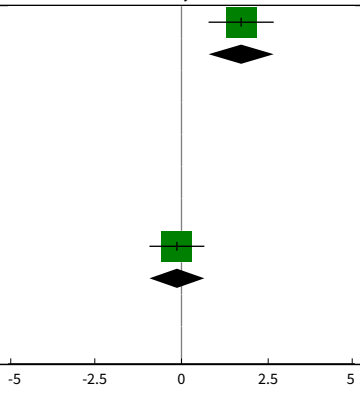
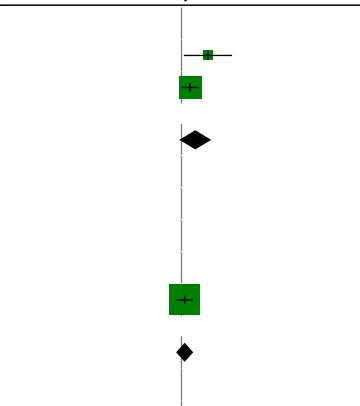
Study or subgroup	Physical activity N	Physical activity Mean(SD)	Control N	Control Mean(SD)	Std. Mean Difference Random, 95% CI	Weight	Std. Mean Difference Random, 95% CI
Guinan 2013	16	13.2 (9.4)	10	0 (0)		100%	1.72[0.78,2.66]
Subtotal ***	**55**		**53**			**100%**	**1.72[0.78,2.66]**
Heterogeneity: Not applicable							
Test for overall effect: Z=3.59(P=0)							
8.10.2 Follow-up							
Pinto 2005	39	0 (0)	43	0 (0)			Not estimable
Guinan 2013	16	3.4 (9)	10	4.5 (6.3)		100%	-0.13[-0.92,0.66]
Subtotal ***	**55**		**53**			**100%**	**-0.13[-0.92,0.66]**
Heterogeneity: Not applicable							
Test for overall effect: Z=0.33(P=0.74)							



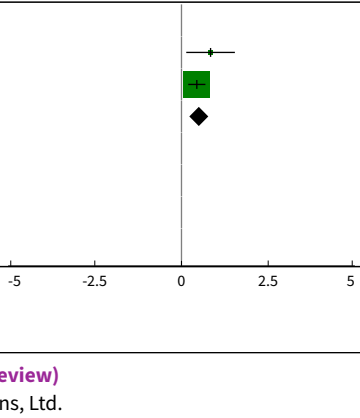
Analysis 8.11. Comparison 8 Comparison: physical activity, all physical activity vs control, Outcome 11 Self-reported walking (follow-up values).

Study or subgroup	Physical activity N	Physical activity Mean(SD)	Control N	Control Mean(SD)	Std. Mean Difference Random, 95% CI	Weight	Std. Mean Difference Random, 95% CI
8.11.1 End of intervention							
Matthews 2007	22	16.8 (15.3)	14	6.6 (8.3)		29.35%	0.76[0.07,1.46]
Vallance 2007	253	145.5 (194.1)	85	102 (105)		70.65%	0.25[0,0.49]
Subtotal ***	**275**		**99**			**100%**	**0.4[-0.06,0.86]**
Heterogeneity: Tau²=0.06; Chi²=1.88, df=1(P=0.17); I²=46.83%							
Test for overall effect: Z=1.69(P=0.09)							
8.11.2 Follow-up							
Vallance 2007	253	105.7 (128.2)	85	94 (124)		100%	0.09[-0.15,0.34]
Subtotal ***	**253**		**85**			**100%**	**0.09[-0.15,0.34]**
Heterogeneity: Not applicable							
Test for overall effect: Z=0.73(P=0.46)							



Analysis 8.12. Comparison 8 Comparison: physical activity, all physical activity vs control, Outcome 12 Self-reported walking (change values).

Study or subgroup	Physical activity N	Physical activity Mean(SD)	Control N	Control Mean(SD)	Std. Mean Difference Random, 95% CI	Weight	Std. Mean Difference Random, 95% CI
8.12.1 End of intervention							
Matthews 2007	22	11.9 (14.4)	14	1.7 (5.9)		14.48%	0.84[0.14,1.54]
Vallance 2007	253	74.7 (169.2)	85	0 (166.9)		85.52%	0.44[0.19,0.69]
Subtotal ***	**275**		**99**			**100%**	**0.5[0.23,0.77]**
Heterogeneity: Tau²=0.01; Chi²=1.09, df=1(P=0.3); I²=8.61%							
Test for overall effect: Z=3.58(P=0)							
8.12.2 Follow-up							



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Study or subgroup	Physical activity N	Physical activity Mean(SD)	Control N	Control Mean(SD)	Std. Mean Difference Random, 95% CI	Weight	Std. Mean Difference Random, 95% CI
Vallance 2007	253	35.4 (180.8)	85	-6 (180.8)		100%	0.23[-0.02,0.47]
Subtotal ***	**253**		**85**			**100%**	**0.23[-0.02,0.47]**
Heterogeneity: Not applicable							
Test for overall effect: Z=1.82(P=0.07)							

Favours control -5 -2.5 0 2.5 5 Favours physical activity

Analysis 8.13. Comparison 8 Comparison: physical activity, all physical activity vs control, Outcome 13 7-Day PAR self-reported moderate physical activity (follow-up values).

Study or subgroup	Physical activity N	Physical activity Mean(SD)	Control N	Control Mean(SD)	Mean Difference Fixed, 95% CI	Weight	Mean Difference Fixed, 95% CI
8.13.1 End of intervention							
Pinto 2005	39	192.6 (156.8)	43	77.2 (86.4)		46.59%	115.42[59.84,171]
Cadmus 2009	34	161.7 (114.7)	33	55.6 (101.9)		53.41%	106.1[54.19,158.01]
Subtotal ***	**73**		**76**			**100%**	**110.44[72.5,148.38]**
Heterogeneity: Tau²=0; Chi²=0.06, df=1(P=0.81); I²=0%							
Test for overall effect: Z=5.71(P<0.0001)							
8.13.2 Follow-up							
Subtotal ***	**0**		**0**				**Not estimable**
Heterogeneity: Not applicable							
Test for overall effect: Not applicable							

Favours control -200 -100 0 100 200 Favours physical activity

Analysis 8.14. Comparison 8 Comparison: physical activity, all physical activity vs control, Outcome 14 7-day PAR self-reported moderate-vigorous physical activity (follow-up values).

Study or subgroup	Physical activity N	Physical activity Mean(SD)	Control N	Control Mean(SD)	Mean Difference Random, 95% CI	Weight	Mean Difference Random, 95% CI
8.14.1 End of intervention							
Basen-Enquist 2006	35	428 (254.4)	25	404 (265)		3.17%	24[-109.77,157.77]
Pinto 2015	36	70.3 (65.9)	32	16.5 (31.9)		96.83%	53.8[29.6,78]
Subtotal ***	**71**		**57**			**100%**	**52.86[29.04,76.67]**
Heterogeneity: Tau²=0; Chi²=0.18, df=1(P=0.67); I²=0%							
Test for overall effect: Z=4.35(P<0.0001)							
8.14.2 Follow-up							
Pinto 2015	36	54.6 (81.6)	31	13.4 (35.2)		100%	41.2[11.81,70.59]
Subtotal ***	**36**		**31**			**100%**	**41.2[11.81,70.59]**
Heterogeneity: Not applicable							
Test for overall effect: Z=2.75(P=0.01)							

Favours control -200 -100 0 100 200 Favours physical activity

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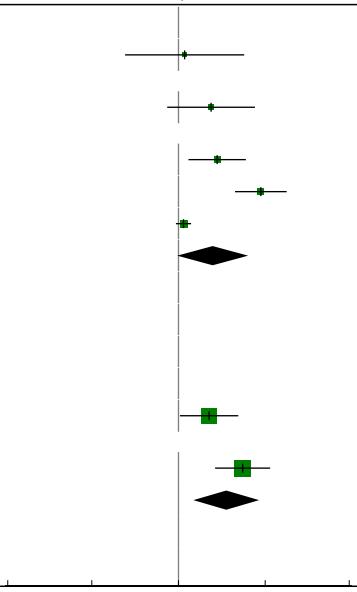
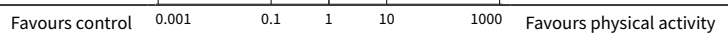
Analysis 8.15. Comparison 8 Comparison: physical activity, all physical activity vs control, Outcome 15 Godin LSI self-reported moderate-vigorous physical activity (follow-up values).

Study or subgroup	Physical activity N	Physical activity Mean(SD)	Control N	Control Mean(SD)	Mean Difference Random, 95% CI	Weight	Mean Difference Random, 95% CI
8.15.1 End of intervention							
Rogers 2009	20	121.4 (73.2)	18	114.3 (131.5)		14.56%	7.1[-61.6,75.8]
Short 2014	195	217.9 (222.9)	104	180.3 (206.9)		17.93%	37.6[-13,88.2]
Vallance 2007	253	207.6 (169)	85	163 (121)		21.26%	44.6[11.5,77.7]
Rogers 2015	110	169 (119)	112	74 (107)		21.84%	95[65.21,124.79]
Kim 2015	20	17.6 (16)	19	11.8 (11.6)		24.42%	5.8[-2.95,14.55]
Subtotal ***	**598**		**338**			**100%**	**39.42[-1.51,80.34]**
Heterogeneity: Tau^2=1765.96; Chi^2=35.84, df=4(P<0.0001); I^2=88.84%							
Test for overall effect: Z=1.89(P=0.06)							
8.15.2 Follow-up							
Vallance 2007	281	177.3 (190.8)	96	142 (126)		48.91%	35.3[1.64,68.96]
Rogers 2015	105	137 (137)	108	63 (95)		51.09%	74[42.26,105.74]
Subtotal ***	**386**		**204**			**100%**	**55.07[17.16,92.99]**
Heterogeneity: Tau^2=470.22; Chi^2=2.69, df=1(P=0.1); I^2=62.79%							
Test for overall effect: Z=2.85(P=0)							



Analysis 8.16. Comparison 8 Comparison: physical activity, all physical activity vs control, Outcome 16 Meeting recommended physical activity guidelines (follow-up values).

Study or subgroup	Physical activity n/N	Control n/N	Odds Ratio M-H, Random, 95% CI	Weight	Odds Ratio M-H, Random, 95% CI
8.16.1 End of intervention					
Pinto 2005	15/43	0/41		10.12%	45.14[2.59,785.26]
Pinto 2015	15/36	2/32		15.93%	10.71[2.21,51.88]
Irwin 2015	32/45	2/38		16.01%	44.31[9.28,211.49]
Cadmus 2009	22/36	3/33		17.02%	15.71[4.02,61.4]
Rogers 2015	58/106	24/110		20.34%	4.33[2.39,7.83]
Short 2014	61/195	33/104		20.58%	0.98[0.59,1.63]
Subtotal (95% CI)	**461**	**358**		**100%**	**8.44[2.41,29.56]**
Total events: 203 (Physical activity), 64 (Control)					
Heterogeneity: Tau^2=1.92; Chi^2=43.87, df=5(P<0.0001); I^2=88.6%					
Test for overall effect: Z=3.34(P=0)					
8.16.2 Follow-up					
Pinto 2015	9/36	5/31		28.97%	1.73[0.51,5.86]
Rogers 2015	48/105	19/108		71.03%	3.94[2.11,7.38]
Subtotal (95% CI)	**141**	**139**		**100%**	**3.11[1.5,6.46]**
Total events: 57 (Physical activity), 24 (Control)					
Heterogeneity: Tau^2=0.09; Chi^2=1.38, df=1(P=0.24); I^2=27.7%					
Test for overall effect: Z=3.04(P=0)					



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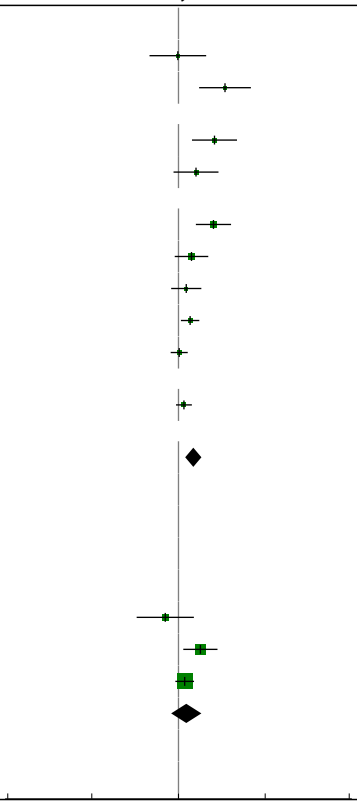
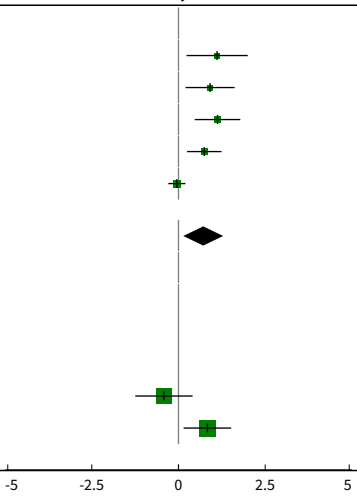
Analysis 8.17. Comparison 8 Comparison: physical activity, all physical activity vs control, Outcome 17 Overall objective physical activity (follow-up values).

Study or subgroup	Physical activity N	Physical activity Mean(SD)	Control N	Control Mean(SD)	Std. Mean Difference Random, 95% CI	Weight	Std. Mean Difference Random, 95% CI
8.17.1 End of intervention							
Guinan 2013	16	30.7 (15.6)	9	31 (15.6)		5.55%	-0.02[-0.84,0.8]
Matthews 2007	22	330.8 (114.7)	14	198.5 (55.4)		6.25%	1.34[0.6,2.09]
Rogers 2014	20	294 (175)	22	154 (75)		7.39%	1.04[0.39,1.69]
Rogers 2009	20	252191 (91893)	18	210917 (64078)		7.4%	0.51[-0.14,1.15]
Pinto 2015	36	70.3 (65.9)	32	16.5 (31.9)		9.5%	1.01[0.5,1.52]
Cadmus 2009	33	6738 (2958)	34	5537 (3352)		9.9%	0.38[-0.11,0.86]
Pinto 2005	39	37.5 (14.3)	43	33.6 (19.4)		10.77%	0.22[-0.21,0.66]
Rogers 2015	110	246 (153)	112	197 (138)		14.06%	0.34[0.07,0.6]
Vallance 2007	253	8110.5 (4133.9)	85	8028 (3457)		14.43%	0.02[-0.23,0.27]
Short 2014	219	9363.1 (7922.8)	111	8301.2 (3373.4)		14.74%	0.16[-0.07,0.39]
Subtotal ***	**768**		**480**			**100%**	**0.43[0.19,0.66]**
Heterogeneity: Tau²=0.08; Chi²=27.65, df=9(P=0); I²=67.45%							
Test for overall effect: Z=3.58(P=0)							
8.17.2 Follow-up							
Guinan 2013	16	38.4 (25.9)	9	53.4 (53.9)		18.89%	-0.38[-1.21,0.44]
Pinto 2015	36	54.6 (81.6)	31	13.4 (35.2)		33.42%	0.63[0.14,1.12]
Rogers 2015	105	216 (131)	108	192 (136)		47.69%	0.18[-0.09,0.45]
Subtotal ***	**157**		**148**			**100%**	**0.22[-0.21,0.66]**
Heterogeneity: Tau²=0.08; Chi²=4.8, df=2(P=0.09); I²=58.32%							
Test for overall effect: Z=1.01(P=0.31)							



Analysis 8.18. Comparison 8 Comparison: physical activity, all physical activity vs control, Outcome 18 Overall objective physical activity (change values).

Study or subgroup	Physical activity N	Physical activity Mean(SD)	Control N	Control Mean(SD)	Std. Mean Difference Random, 95% CI	Weight	Std. Mean Difference Random, 95% CI
8.18.1 End of intervention							
Guinan 2013	16	-1.1 (6.2)	9	-7.9 (5.3)		16.02%	1.11[0.23,2]
Matthews 2007	22	72.2 (114.6)	14	-16.8 (51.5)		18.54%	0.91[0.2,1.62]
Rogers 2014	20	114 (109)	22	10 (70)		19.28%	1.13[0.47,1.78]
Cadmus 2009	33	1621 (2108)	34	-60 (2341)		21.59%	0.75[0.25,1.24]
Vallance 2007	253	-150 (5173.3)	85	91 (5155.4)		24.57%	-0.05[-0.29,0.2]
Subtotal ***	**344**		**164**			**100%**	**0.71[0.14,1.29]**
Heterogeneity: Tau²=0.33; Chi²=22.94, df=4(P=0); I²=82.56%							
Test for overall effect: Z=2.43(P=0.02)							
8.18.2 Follow-up							
Guinan 2013	16	6.8 (11)	9	14.5 (26.2)		48.24%	-0.42[-1.25,0.41]
Rogers 2009	19	46082 (95608.9)	17	-15569 (28716.9)		51.76%	0.83[0.15,1.52]



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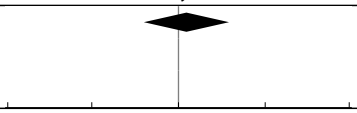
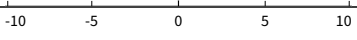
Study or subgroup	Physical activity N	Physical activity Mean(SD)	Control N	Control Mean(SD)	Std. Mean Difference Random, 95% CI	Weight	Std. Mean Difference Random, 95% CI
Subtotal ***	**35**		**26**			**100%**	**0.23[-1,1.46]**
Heterogeneity: Tau²=0.64; Chi²=5.24, df=1(P=0.02); I²=80.92%							
Test for overall effect: Z=0.37(P=0.72)							



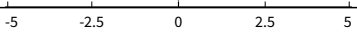
Analysis 8.19. Comparison 8 Comparison: physical activity, all physical activity vs control, Outcome 19 Objective moderate-vigorous physical activity (follow-up values).

Study or subgroup	Physical activity N	Physical activity Mean(SD)	Control N	Control Mean(SD)	Std. Mean Difference Random, 95% CI	Weight	Std. Mean Difference Random, 95% CI
8.19.1 End of intervention							
Rogers 2013	12	198.4 (111.7)	10	0 (0)			Not estimable
Matthews 2007	22	12.4 (1)	14	8 (1)		19.96%	4.3[3.05,5.55]
Rogers 2014	20	294 (175)	22	154 (75)		25.52%	1.04[0.39,1.69]
Pinto 2015	36	70.3 (65.9)	32	16.5 (31.9)		26.59%	1.01[0.5,1.52]
Rogers 2015	110	246 (153)	112	197 (138)		27.93%	0.34[0.07,0.6]
Subtotal ***	**200**		**190**			**100%**	**1.49[0.47,2.51]**
Heterogeneity: Tau²=0.95; Chi²=41.6, df=3(P<0.0001); I²=92.79%							
Test for overall effect: Z=2.85(P=0)							
8.19.2 Follow-up							
Pinto 2015	36	54.6 (81.6)	31	13.4 (35.2)		39.17%	0.63[0.14,1.12]
Rogers 2015	105	216 (131)	108	192 (136)		60.83%	0.18[-0.09,0.45]
Subtotal ***	**141**		**139**			**100%**	**0.36[-0.08,0.79]**
Heterogeneity: Tau²=0.06; Chi²=2.5, df=1(P=0.11); I²=59.93%							
Test for overall effect: Z=1.61(P=0.11)							



Analysis 8.20. Comparison 8 Comparison: physical activity, all physical activity vs control, Outcome 20 Objective moderate-vigorous physical activity (change values).

Study or subgroup	Physical activity N	Physical activity Mean(SD)	Control N	Control Mean(SD)	Std. Mean Difference Random, 95% CI	Weight	Std. Mean Difference Random, 95% CI
8.20.1 End of intervention							
Matthews 2007	22	1.8 (4.4)	14	-0.9 (2.5)		47.39%	0.7[0.01,1.39]
Rogers 2014	20	114 (109)	22	10 (70)		52.61%	1.13[0.47,1.78]
Subtotal ***	**42**		**36**			**100%**	**0.92[0.45,1.4]**
Heterogeneity: Tau²=0; Chi²=0.78, df=1(P=0.38); I²=0%							
Test for overall effect: Z=3.8(P=0)							
8.20.2 Follow-up							
Rogers 2009	19	78.7 (119.2)	17	-21.4 (113.9)		100%	0.84[0.15,1.52]
Subtotal ***	**19**		**17**			**100%**	**0.84[0.15,1.52]**
Heterogeneity: Not applicable							
Test for overall effect: Z=2.4(P=0.02)							



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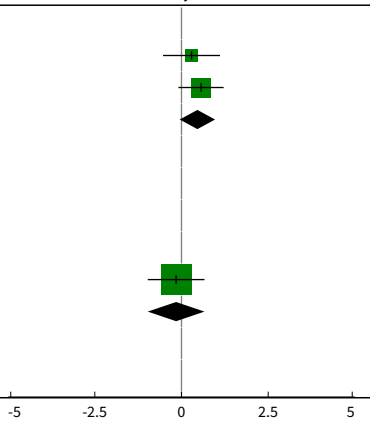
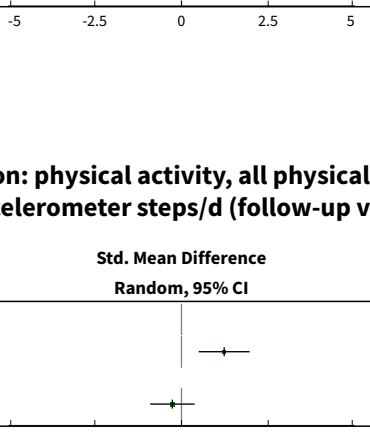
Analysis 8.21. Comparison 8 Comparison: physical activity, all physical activity vs control, Outcome 21 Objective vigorous physical activity (follow-up values).

Study or subgroup	Physical activity N	Physical activity Mean(SD)	Control N	Control Mean(SD)	Std. Mean Difference Random, 95% CI	Weight	Std. Mean Difference Random, 95% CI
8.21.1 End of intervention							
Guinan 2013	16	15.7 (15.7)	9	11.2 (13.5)		38.56%	0.29[-0.53,1.11]
Rogers 2009	20	1.8 (4.3)	18	0 (0)		61.44%	0.56[-0.09,1.21]
Subtotal ***	**36**		**27**			**100%**	**0.46[-0.05,0.97]**
Heterogeneity: Tau²=0; Chi²=0.26, df=1(P=0.61); I²=0%							
Test for overall effect: Z=1.76(P=0.08)							
8.21.2 Follow-up							
Guinan 2013	16	15.8 (22.2)	9	19.8 (29.4)		100%	-0.16[-0.97,0.66]
Subtotal ***	**16**		**9**			**100%**	**-0.16[-0.97,0.66]**
Heterogeneity: Not applicable							
Test for overall effect: Z=0.37(P=0.71)							



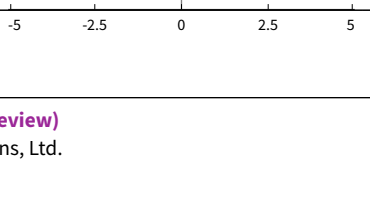
Analysis 8.22. Comparison 8 Comparison: physical activity, all physical activity vs control, Outcome 22 Accelerometer counts (follow-up values).

Study or subgroup	Physical activity N	Physical activity Mean(SD)	Control N	Control Mean(SD)	Std. Mean Difference Random, 95% CI	Weight	Std. Mean Difference Random, 95% CI
8.22.1 End of intervention							
Matthews 2007	22	330.8 (114.7)	14	198.5 (55.4)		47.45%	1.34[0.6,2.09]
Rogers 2009	20	252191 (91893)	18	210917 (64078)		52.55%	0.51[-0.14,1.15]
Subtotal ***	**42**		**32**			**100%**	**0.9[0.08,1.72]**
Heterogeneity: Tau²=0.22; Chi²=2.75, df=1(P=0.1); I²=63.64%							
Test for overall effect: Z=2.16(P=0.03)							
8.22.2 Follow-up							
Subtotal ***	**0**		**0**				**Not estimable**
Heterogeneity: Not applicable							
Test for overall effect: Not applicable							



Analysis 8.23. Comparison 8 Comparison: physical activity, all physical activity vs control, Outcome 23 Pedometer/accelerometer steps/d (follow-up values).

Study or subgroup	Physical activity N	Physical activity Mean(SD)	Control N	Control Mean(SD)	Std. Mean Difference Random, 95% CI	Weight	Std. Mean Difference Random, 95% CI
8.23.1 End of intervention							
Matthews 2007	22	8561.8 (2887.3)	14	5379.9 (1798.1)		11.39%	1.23[0.5,1.97]
Rogers 2009	20	7301 (2266)	18	8388 (5361)		13.58%	-0.26[-0.9,0.38]



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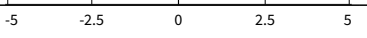
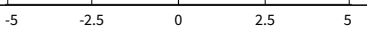
Study or subgroup	Physical activity N	Physical activity Mean(SD)	Control N	Control Mean(SD)	Std. Mean Difference Random, 95% CI	Weight	Std. Mean Difference Random, 95% CI
Cadmus 2009	33	6738 (2958)	34	5537 (3352)		18.33%	0.38[-0.11,0.86]
Vallance 2007	253	8110.5 (4133.9)	85	8028 (3457)		28%	0.02[-0.23,0.27]
Short 2014	219	9363.1 (7922.8)	111	8301.2 (3373.4)		28.7%	0.16[-0.07,0.39]
Subtotal ***	**547**		**262**			**100%**	**0.22[-0.08,0.53]**
Heterogeneity: Tau²=0.07; Chi²=11.83, df=4(P=0.02); I²=66.18%							
Test for overall effect: Z=1.45(P=0.15)							
8.23.2 Follow-up							
Subtotal ***	**0**		**0**				**Not estimable**
Heterogeneity: Not applicable							
Test for overall effect: Not applicable							



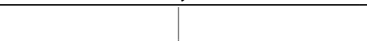
Analysis 8.24. Comparison 8 Comparison: physical activity, all physical activity vs control, Outcome 24 Pedometer/accelerometer steps/d (change values).

Study or subgroup	Physical activity N	Physical activity Mean(SD)	Control N	Control Mean(SD)	Std. Mean Difference Random, 95% CI	Weight	Std. Mean Difference Random, 95% CI
8.24.1 End of intervention							
Matthews 2007	22	1152.5 (2408.8)	14	-559.1 (1326.5)		27.67%	0.81[0.11,1.51]
Cadmus 2009	33	1621 (2108)	34	-60 (2341)		33.17%	0.75[0.25,1.24]
Vallance 2007	253	-150 (5173.3)	85	91 (5155.4)		39.15%	-0.05[-0.29,0.2]
Subtotal ***	**308**		**133**			**100%**	**0.45[-0.18,1.09]**
Heterogeneity: Tau²=0.25; Chi²=11.38, df=2(P=0); I²=82.42%							
Test for overall effect: Z=1.4(P=0.16)							
8.24.2 Follow-up							
Subtotal ***	**0**		**0**				**Not estimable**
Heterogeneity: Not applicable							
Test for overall effect: Not applicable							



Analysis 8.25. Comparison 8 Comparison: physical activity, all physical activity vs control, Outcome 25 Overall sedentary behaviour (follow-up values).

Study or subgroup	Physical activity N	Physical activity Mean(SD)	Control N	Control Mean(SD)	Std. Mean Difference Random, 95% CI	Weight	Std. Mean Difference Random, 95% CI
8.25.1 End of intervention							
Matthews 2007	22	72.3 (1.5)	14	79.5 (1.8)		21.78%	-4.34[-5.6,-3.09]
Guinan 2013	16	446 (127)	9	385.8 (107.9)		24.78%	0.48[-0.35,1.31]
Rogers 2014	20	7141.4 (536.2)	22	7549.2 (628.4)		25.98%	-0.68[-1.31,-0.06]
Short 2014	195	481.7 (225.7)	104	486.5 (211.1)		27.46%	-0.02[-0.26,0.22]



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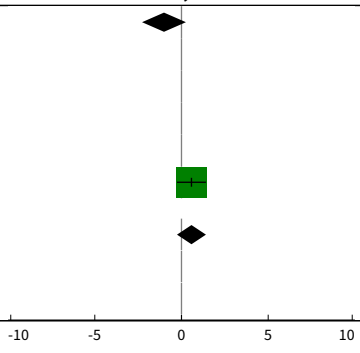
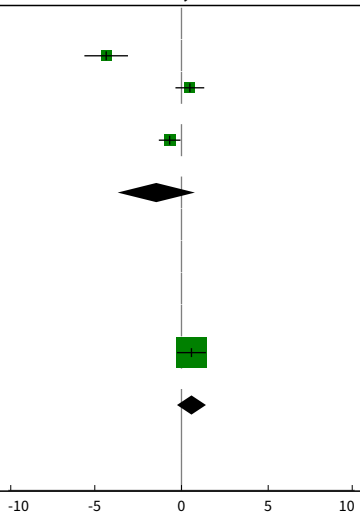
Study or subgroup	Physical activity N	Physical activity Mean(SD)	Control N	Control Mean(SD)	Std. Mean Difference Random, 95% CI	Weight	Std. Mean Difference Random, 95% CI
Subtotal ***	**253**		**149**			**100%**	**-1.01[-2.28,0.26]**
Heterogeneity: Tau²=1.5; Chi²=48.79, df=3(P<0.0001); I²=93.85%							
Test for overall effect: Z=1.56(P=0.12)							
8.25.2 Follow-up							
Guinan 2013	16	438 (121.6)	9	359.5 (149.3)		100%	0.58[-0.26,1.41]
Subtotal ***	**16**		**9**			**100%**	**0.58[-0.26,1.41]**
Heterogeneity: Not applicable							
Test for overall effect: Z=1.35(P=0.18)							



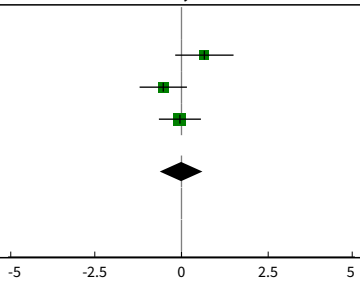
Analysis 8.26. Comparison 8 Comparison: physical activity, all physical activity vs control, Outcome 26 Objective sedentary behaviour (follow-up values).

Study or subgroup	Physical activity N	Physical activity Mean(SD)	Control N	Control Mean(SD)	Std. Mean Difference Random, 95% CI	Weight	Std. Mean Difference Random, 95% CI
8.26.1 End of intervention							
Matthews 2007	22	72.3 (1.5)	14	79.5 (1.8)		31.82%	-4.34[-5.6,-3.09]
Guinan 2013	16	446 (127)	9	385.8 (107.9)		33.74%	0.48[-0.35,1.31]
Rogers 2014	20	7141.4 (536.2)	22	7549.2 (628.4)		34.44%	-0.68[-1.31,-0.06]
Subtotal ***	**58**		**45**			**100%**	**-1.45[-3.68,0.78]**
Heterogeneity: Tau²=3.65; Chi²=39.84, df=2(P<0.0001); I²=94.98%							
Test for overall effect: Z=1.28(P=0.2)							
8.26.2 Follow-up							
Guinan 2013	16	438 (121.6)	9	359.5 (149.3)		100%	0.58[-0.26,1.41]
Subtotal ***	**16**		**9**			**100%**	**0.58[-0.26,1.41]**
Heterogeneity: Not applicable							
Test for overall effect: Z=1.35(P=0.18)							



Analysis 8.27. Comparison 8 Comparison: physical activity, all physical activity vs control, Outcome 27 Objective sedentary behaviour (change values).

Study or subgroup	Physical activity N	Physical activity Mean(SD)	Control N	Control Mean(SD)	Std. Mean Difference Random, 95% CI	Weight	Std. Mean Difference Random, 95% CI
8.27.1 End of intervention							
Guinan 2013	16	18.5 (52.2)	9	-19.8 (62.8)		28.13%	0.66[-0.18,1.5]
Matthews 2007	22	-1.3 (7.3)	14	2.3 (5.6)		34.26%	-0.53[-1.21,0.16]
Rogers 2014	20	-84.4 (788.2)	22	-55.2 (435.3)		37.61%	-0.05[-0.65,0.56]
Subtotal ***	**58**		**45**			**100%**	**-0.01[-0.63,0.6]**
Heterogeneity: Tau²=0.17; Chi²=4.6, df=2(P=0.1); I²=56.57%							
Test for overall effect: Z=0.04(P=0.97)							



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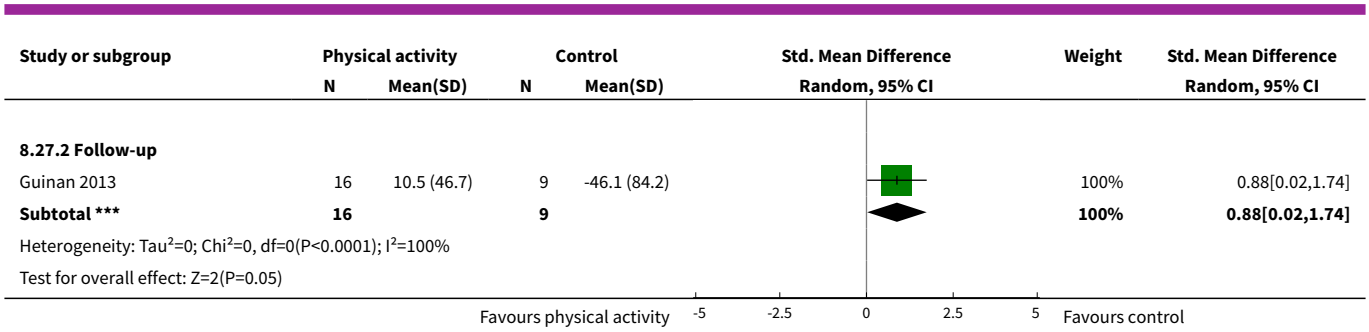

Comparison 9. Comparison: anthropometric outcomes, all physical activity vs control

Outcome or subgroup title	No. of studies	No. of participants	Statistical method	Effect size
1 Mass (follow-up values)	16		Mean Difference (IV, Fixed, 95% CI)	Subtotals only
1.1 End of intervention	16	1210	Mean Difference (IV, Fixed, 95% CI)	0.00 [-0.57, 0.58]
1.2 Follow-up	1	49	Mean Difference (IV, Fixed, 95% CI)	5.02 [-5.17, 15.21]
2 Mass (change values)	11		Mean Difference (IV, Random, 95% CI)	Subtotals only
2.1 End of intervention	11	1047	Mean Difference (IV, Random, 95% CI)	-0.50 [-0.98, -0.01]
2.2 Follow-up	0	0	Mean Difference (IV, Random, 95% CI)	0.0 [0.0, 0.0]
3 BMI (follow-up values)	17		Mean Difference (IV, Fixed, 95% CI)	Subtotals only
3.1 End of intervention	17	1481	Mean Difference (IV, Fixed, 95% CI)	0.01 [-0.19, 0.22]
3.2 Follow-up	0	0	Mean Difference (IV, Fixed, 95% CI)	0.0 [0.0, 0.0]
4 BMI (change values)	8		Mean Difference (IV, Random, 95% CI)	Subtotals only
4.1 End of intervention	8	485	Mean Difference (IV, Random, 95% CI)	-0.22 [-0.45, 0.01]
4.2 Follow-up	0	0	Mean Difference (IV, Random, 95% CI)	0.0 [0.0, 0.0]
5 Overall body fat (follow-up values)	18		Std. Mean Difference (IV, Random, 95% CI)	Subtotals only
5.1 End of intervention	18	1162	Std. Mean Difference (IV, Random, 95% CI)	-0.18 [-0.34, -0.03]
5.2 Follow-up	1	49	Std. Mean Difference (IV, Random, 95% CI)	0.08 [-0.48, 0.64]
6 Overall body fat (change values)	9		Std. Mean Difference (IV, Random, 95% CI)	Subtotals only
6.1 End of intervention	9	499	Std. Mean Difference (IV, Random, 95% CI)	-0.62 [-1.19, -0.06]

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Outcome or subgroup title	No. of studies	No. of participants	Statistical method	Effect size
6.2 Follow-up	0	0	Std. Mean Difference (IV, Random, 95% CI)	0.0 [0.0, 0.0]
7 Percentage body fat - DEXA (follow-up values)	6		Mean Difference (IV, Random, 95% CI)	Subtotals only
7.1 End of intervention	6	580	Mean Difference (IV, Random, 95% CI)	-0.66 [-1.70, 0.37]
7.2 Follow-up	1	49	Mean Difference (IV, Random, 95% CI)	0.52 [-3.18, 4.22]
8 Percentage body fat - DEXA (change values)	3		Mean Difference (IV, Random, 95% CI)	Subtotals only
8.1 End of intervention	3	228	Mean Difference (IV, Random, 95% CI)	-1.32 [-1.66, -0.99]
8.2 Follow-up	0	0	Mean Difference (IV, Random, 95% CI)	0.0 [0.0, 0.0]
9 Percentage body fat - BIA (follow-up values)	7		Mean Difference (IV, Fixed, 95% CI)	Subtotals only
9.1 End of intervention	7	331	Mean Difference (IV, Fixed, 95% CI)	-1.47 [-2.84, -0.10]
9.2 Follow-up	0	0	Mean Difference (IV, Fixed, 95% CI)	0.0 [0.0, 0.0]
10 Percentage body fat - BIA (change values)	4		Mean Difference (IV, Fixed, 95% CI)	Subtotals only
10.1 End of intervention	4	185	Mean Difference (IV, Fixed, 95% CI)	-0.70 [-1.26, -0.13]
10.2 Follow-up	0	0	Mean Difference (IV, Fixed, 95% CI)	0.0 [0.0, 0.0]
11 Percentage body fat - SKF (follow-up values)	3		Mean Difference (IV, Random, 95% CI)	Subtotals only
11.1 End of intervention	3	165	Mean Difference (IV, Random, 95% CI)	-0.73 [-2.41, 0.96]
11.2 Follow-up	0	0	Mean Difference (IV, Random, 95% CI)	0.0 [0.0, 0.0]
12 Fat mass (follow-up values)	5		Mean Difference (IV, Fixed, 95% CI)	Subtotals only
12.1 End of intervention	5	460	Mean Difference (IV, Fixed, 95% CI)	-0.70 [-1.40, -0.00]
12.2 Follow-up	0	0	Mean Difference (IV, Fixed, 95% CI)	0.0 [0.0, 0.0]
13 Fat mass (change values)	4		Mean Difference (IV, Random, 95% CI)	Subtotals only
13.1 End of intervention	4	768	Mean Difference (IV, Random, 95% CI)	-0.46 [-1.08, 0.15]
13.2 Follow-up	0	0	Mean Difference (IV, Random, 95% CI)	0.0 [0.0, 0.0]
14 Fat mass - DEXA (follow-up values)	3		Mean Difference (IV, Fixed, 95% CI)	Subtotals only

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Outcome or subgroup title	No. of studies	No. of participants	Statistical method	Effect size
14.1 End of intervention	3	408	Mean Difference (IV, Fixed, 95% CI)	-0.68 [-1.39, 0.03]
14.2 Follow-up	0	0	Mean Difference (IV, Fixed, 95% CI)	0.0 [0.0, 0.0]
15 Fat mass - DEXA (change values)	2		Mean Difference (IV, Random, 95% CI)	Subtotals only
15.1 End of intervention	2	207	Mean Difference (IV, Random, 95% CI)	-0.74 [-0.93, -0.56]
15.2 Follow-up	0	0	Mean Difference (IV, Random, 95% CI)	0.0 [0.0, 0.0]
16 Lean mass (follow-up values)	8		Std. Mean Difference (IV, Fixed, 95% CI)	Subtotals only
16.1 End of intervention	8	612	Std. Mean Difference (IV, Fixed, 95% CI)	0.05 [-0.11, 0.21]
16.2 Follow-up	1	49	Std. Mean Difference (IV, Fixed, 95% CI)	0.33 [-0.24, 0.89]
17 Lean mass (change values)	5		Std. Mean Difference (IV, Random, 95% CI)	Subtotals only
17.1 End of intervention	5	760	Std. Mean Difference (IV, Random, 95% CI)	0.80 [-0.13, 1.72]
17.2 Follow-up	0	0	Std. Mean Difference (IV, Random, 95% CI)	0.0 [0.0, 0.0]
18 Lean mass - DEXA (follow-up values)	5		Mean Difference (IV, Fixed, 95% CI)	Subtotals only
18.1 End of intervention	5	541	Mean Difference (IV, Fixed, 95% CI)	0.43 [-0.54, 1.40]
18.2 Follow-up	1	49	Mean Difference (IV, Fixed, 95% CI)	2.41 [-1.62, 6.44]
19 Lean mass - DEXA (change values)	2		Mean Difference (IV, Random, 95% CI)	Subtotals only
19.1 End of intervention	2	207	Mean Difference (IV, Random, 95% CI)	0.73 [0.17, 1.29]
19.2 Follow-up	0	0	Mean Difference (IV, Random, 95% CI)	0.0 [0.0, 0.0]
20 Waist-to-hip ratio (follow-up values)	5		Mean Difference (IV, Random, 95% CI)	Subtotals only
20.1 End of intervention	5	213	Mean Difference (IV, Random, 95% CI)	-0.03 [-0.06, 0.01]
20.2 Follow-up	0	0	Mean Difference (IV, Random, 95% CI)	0.0 [0.0, 0.0]
21 Waist-to-hip ratio (change values)	3		Mean Difference (IV, Fixed, 95% CI)	Subtotals only
21.1 End of intervention	2	124	Mean Difference (IV, Fixed, 95% CI)	0.0 [-0.01, 0.01]

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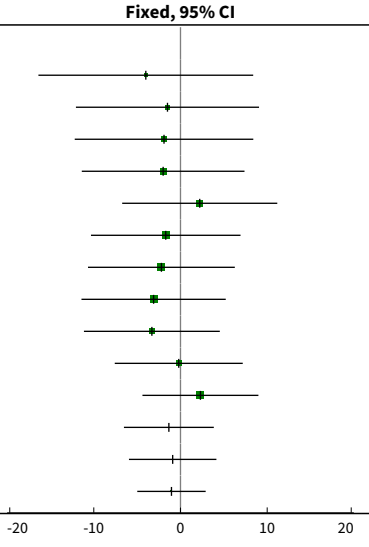
Outcome or subgroup title	No. of studies	No. of participants	Statistical method	Effect size
21.2 Follow-up	1	36	Mean Difference (IV, Fixed, 95% CI)	0.04 [-0.14, 0.22]
22 Waist circumference (follow-up values)	6		Mean Difference (IV, Fixed, 95% CI)	Subtotals only
22.1 End of intervention	6	330	Mean Difference (IV, Fixed, 95% CI)	-0.50 [-3.18, 2.18]
22.2 Follow-up	1	26	Mean Difference (IV, Fixed, 95% CI)	1.40 [-8.29, 11.09]
23 Waist circumference (change values)	5		Mean Difference (IV, Random, 95% CI)	Subtotals only
23.1 End of intervention	5	285	Mean Difference (IV, Random, 95% CI)	-1.71 [-2.56, -0.86]
23.2 Follow-up	1	26	Mean Difference (IV, Random, 95% CI)	-0.90 [-2.61, 0.81]
24 Hip circumference (follow-up values)	4		Mean Difference (IV, Fixed, 95% CI)	Subtotals only
24.1 End of intervention	4	249	Mean Difference (IV, Fixed, 95% CI)	-0.97 [-3.96, 2.01]
24.2 Follow-up	0	0	Mean Difference (IV, Fixed, 95% CI)	0.0 [0.0, 0.0]
25 Hip circumference (change values)	2		Mean Difference (IV, Random, 95% CI)	Subtotals only
25.1 End of intervention	2	115	Mean Difference (IV, Random, 95% CI)	-2.37 [-3.31, -1.44]
25.2 Follow-up	0	0	Mean Difference (IV, Random, 95% CI)	0.0 [0.0, 0.0]

Analysis 9.1. Comparison 9 Comparison: anthropometric outcomes, all physical activity vs control, Outcome 1 Mass (follow-up values).

Study or subgroup	Physical activity N	Physical activity Mean(SD)	Control N	Control Mean(SD)	Mean Difference Fixed, 95% CI	Weight	Mean Difference Fixed, 95% CI
9.1.1 End of intervention							
Matthews 2007	22	74.9 (15.2)	14	78.9 (20.3)		0.22%	-4[-16.39,8.39]
Mustian 2004	11	67.1 (10.4)	10	68.6 (13.8)		0.3%	-1.5[-12.06,9.06]
Courneya 2003	24	78.2 (20.5)	26	80.1 (16.2)		0.31%	-1.9[-12.2,8.4]
Nikander 2007	14	73.5 (13.3)	14	75.5 (12)		0.38%	-2[-11.38,7.38]
Cadmus 2009	36	80.7 (16.9)	33	78.5 (20.6)		0.42%	2.22[-6.72,11.16]
Herrero 2006	8	65.6 (8.7)	8	67.3 (8.9)		0.45%	-1.7[-10.32,6.92]
Rahnama 2010	14	69.4 (13.5)	15	71.6 (9.2)		0.46%	-2.2[-10.67,6.27]
DeNysschen 2011	30	69.3 (14.2)	34	72.4 (19.6)		0.48%	-3.1[-11.42,5.22]
Ligibel 2008	40	80 (17.5)	42	83.3 (18.7)		0.54%	-3.3[-11.14,4.54]
Littman 2012	28	81.1 (13.6)	27	81.3 (14.3)		0.61%	-0.2[-7.58,7.18]
Winters-Stone 2011	36	76.5 (15.6)	31	74.2 (12.3)		0.75%	2.3[-4.39,8.99]
Daley 2007	33	74.3 (12.5)	69	75.6 (12.5)		1.24%	-1.34[-6.52,3.84]
Murtezani 2014	30	71.7 (9.5)	32	72.6 (10.8)		1.31%	-0.9[-5.94,4.14]
Schmitz 2009	131	76.2 (15.7)	133	77.2 (17)		2.14%	-1.04[-4.98,2.9]



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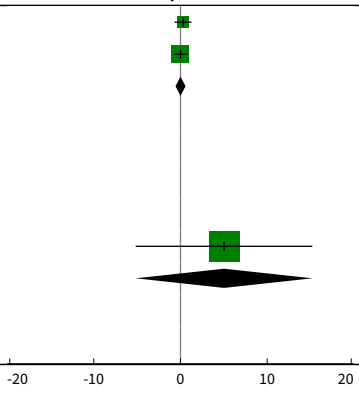
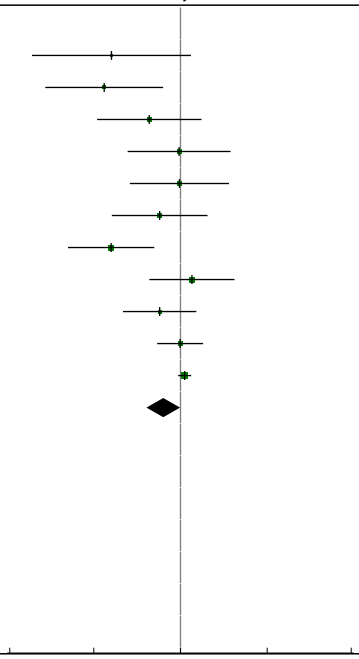
Study or subgroup	Physical activity N	Physical activity Mean(SD)	Control N	Control Mean(SD)	Mean Difference Fixed, 95% CI	Weight	Mean Difference Fixed, 95% CI
Schmitz 2005	39	69.5 (2.2)	40	69.2 (2.2)		35.06%	0.3[-0.67,1.27]
Kiecolt-Glaser 2014	96	75.2 (2.8)	90	75.2 (2.6)		55.32%	0[-0.78,0.78]
Subtotal ***	**592**		**618**			**100%**	**0[-0.57,0.58]**
Heterogeneity: Tau²=0; Chi²=4.11, df=15(P=1); I²=0%							
Test for overall effect: Z=0.01(P=0.99)							
9.1.2 Follow-up							
Cadmus 2009	26	81.6 (19)	23	76.6 (17.4)		100%	5.02[-5.17,15.21]
Subtotal ***	**26**		**23**			**100%**	**5.02[-5.17,15.21]**
Heterogeneity: Not applicable							
Test for overall effect: Z=0.97(P=0.33)							



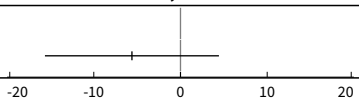
Analysis 9.2. Comparison 9 Comparison: anthropometric outcomes, all physical activity vs control, Outcome 2 Mass (change values).

Study or subgroup	Physical activity N	Physical activity Mean(SD)	Control N	Control Mean(SD)	Mean Difference Random, 95% CI	Weight	Mean Difference Random, 95% CI
9.2.1 End of intervention							
Dolan 2016	23	-0.5 (5)	10	1.4 (1.6)		3.67%	-1.99[-4.28,0.3]
Irwin 2015	45	-2.1 (4.3)	38	0.1 (3.6)		5.8%	-2.2[-3.9,-0.5]
Mustian 2004	9	-0.3 (1.9)	10	0.6 (1.4)		6.85%	-0.9[-2.4,0.6]
Ligibel 2008	22	0 (2.3)	14	0 (2.2)		6.97%	-0.04[-1.52,1.44]
Matthews 2007	22	0 (2.1)	14	0 (2.2)		7.32%	-0.03[-1.46,1.4]
Schmitz 2009	65	-1 (3.7)	65	-0.4 (4.3)		7.66%	-0.6[-1.98,0.78]
Murtezani 2014	30	-2.3 (2.4)	32	-0.3 (2.6)		8.65%	-2[-3.24,-0.76]
Naumann 2012	11	0.5 (1.3)	10	0.1 (1.5)		8.79%	0.33[-0.9,1.56]
Courneya 2003	24	0.1 (2)	26	0.7 (1.8)		10.27%	-0.6[-1.66,0.46]
Saarto 2012	262	0.7 (3.7)	236	0.7 (3.8)		14.59%	-0.01[-0.67,0.65]
Schmitz 2005	39	0.3 (0.4)	40	0.2 (0.4)		19.45%	0.12[-0.07,0.31]
Subtotal ***	**552**		**495**			**100%**	**-0.5[-0.98,-0.01]**
Heterogeneity: Tau²=0.31; Chi²=24.45, df=10(P=0.01); I²=59.1%							
Test for overall effect: Z=2.01(P=0.04)							
9.2.2 Follow-up							
Subtotal ***	**0**		**0**				**Not estimable**
Heterogeneity: Not applicable							
Test for overall effect: Not applicable							



Analysis 9.3. Comparison 9 Comparison: anthropometric outcomes, all physical activity vs control, Outcome 3 BMI (follow-up values).

Study or subgroup	Physical activity N	Physical activity Mean(SD)	Control N	Control Mean(SD)	Mean Difference Fixed, 95% CI	Weight	Mean Difference Fixed, 95% CI
9.3.1 End of intervention							
Portela 2008	25	29.1 (5.5)	9	34.7 (15)		0.04%	-5.6[-15.63,4.43]



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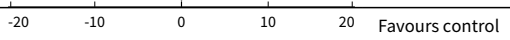
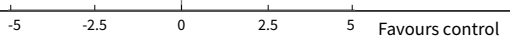
Study or subgroup	Physical activity N	Physical activity Mean(SD)	Control N	Control Mean(SD)	Mean Difference Fixed, 95% CI	Weight	Mean Difference Fixed, 95% CI
Rogers 2013	12	33.6 (7)	10	30.6 (7.3)		0.12%	3[-3,9]
Rogers 2009	20	30.6 (7.6)	18	30.4 (8.3)		0.16%	0.2[-4.88,5.28]
Mustian 2004	11	23.9 (4.2)	10	26.7 (5.6)		0.23%	-2.8[-7.05,1.45]
Nikander 2007	14	26.9 (5.6)	14	27.7 (4.9)		0.28%	-0.8[-4.7,3.1]
Courneya 2003	24	29.4 (7.4)	26	29.3 (6)		0.3%	0.1[-3.65,3.85]
Rogers 2014	20	29.6 (5)	22	32.2 (6.7)		0.33%	-2.6[-6.16,0.96]
Rahnama 2010	14	27.7 (4.8)	15	28 (4.6)		0.36%	-0.3[-3.71,3.11]
Cadmus 2009	36	30.5 (6)	33	29.9 (7.6)		0.4%	0.55[-2.7,3.8]
Ligibel 2008	40	30.3 (6.3)	42	31.5 (6.8)		0.52%	-1.2[-4.04,1.64]
Littman 2012	28	27.7 (5)	27	29 (5.6)		0.53%	-1.35[-4.17,1.47]
Pinto 2005	39	27.7 (5)	43	29 (5.6)		0.8%	-1.35[-3.65,0.95]
Murtezani 2014	30	25.1 (2.9)	32	25.8 (3.5)		1.67%	-0.7[-2.29,0.89]
Schmitz 2009	131	28.5 (5.6)	133	28.9 (6.3)		2.07%	-0.48[-1.91,0.95]
Vallance 2007	253	27 (5.2)	85	27.2 (5.2)		2.62%	-0.19[-1.46,1.08]
Schmitz 2005	39	26 (0.7)	40	25.8 (0.7)		40.1%	0.2[-0.12,0.52]
Kiecolt-Glaser 2014	96	27.8 (1.1)	90	27.8 (1)		49.47%	0[-0.29,0.29]
Subtotal ***	**832**		**649**			**100%**	**0.01[-0.19,0.22]**
Heterogeneity: Tau²=0; Chi²=11.79, df=16(P=0.76); I²=0%							
Test for overall effect: Z=0.14(P=0.89)							
9.3.2 Follow-up							
Subtotal ***	**0**		**0**				**Not estimable**
Heterogeneity: Not applicable							
Test for overall effect: Not applicable							



Analysis 9.4. Comparison 9 Comparison: anthropometric outcomes, all physical activity vs control, Outcome 4 BMI (change values).

Study or subgroup	Physical activity N	Physical activity Mean(SD)	Control N	Control Mean(SD)	Mean Difference Random, 95% CI	Weight	Mean Difference Random, 95% CI
9.4.1 End of intervention							
Schmitz 2009	65	-1 (3.7)	65	-0.4 (4.3)		2.52%	-0.6[-1.98,0.78]
Mustian 2004	9	-0.4 (0.8)	10	0.3 (0.6)		8.83%	-0.71[-1.33,-0.09]
Rogers 2014	20	-0.2 (0.9)	22	-0.3 (1.1)		9.07%	0.1[-0.51,0.71]
Naumann 2012	11	0.1 (0.5)	10	-0.1 (0.6)		12.29%	0.2[-0.26,0.66]
Courneya 2003	24	0 (0.7)	26	0.3 (0.7)		14.3%	-0.3[-0.69,0.09]
Murtezani 2014	30	-0.8 (0.7)	32	-0.1 (0.8)		14.74%	-0.66[-1.03,-0.29]
Ligibel 2008	40	0 (0.9)	42	0.2 (0.8)		14.87%	-0.2[-0.57,0.17]
Schmitz 2005	39	0.1 (0.2)	40	0.1 (0.2)		23.39%	-0.01[-0.08,0.06]
Subtotal ***	**238**		**247**			**100%**	**-0.22[-0.45,0.01]**
Heterogeneity: Tau²=0.06; Chi²=19.97, df=7(P=0.01); I²=64.95%							
Test for overall effect: Z=1.83(P=0.07)							
9.4.2 Follow-up							
Subtotal ***	**0**		**0**				**Not estimable**
Heterogeneity: Not applicable							
Test for overall effect: Not applicable							



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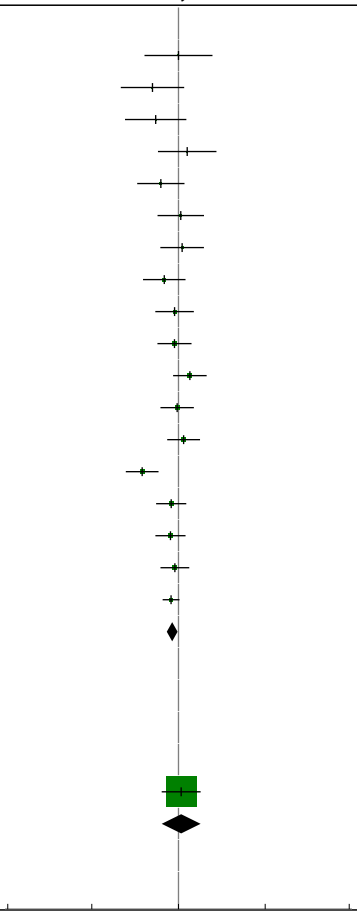
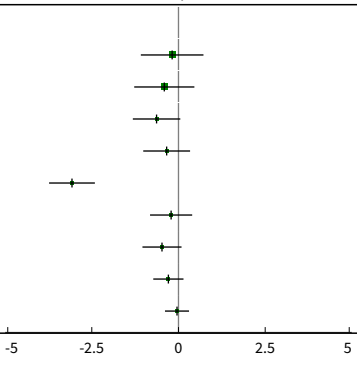
Analysis 9.5. Comparison 9 Comparison: anthropometric outcomes, all physical activity vs control, Outcome 5 Overall body fat (follow-up values).

Study or subgroup	Physical activity N	Physical activity Mean(SD)	Control N	Control Mean(SD)	Std. Mean Difference Random, 95% CI	Weight	Std. Mean Difference Random, 95% CI
9.5.1 End of intervention							
Herrero 2006	8	22 (5)	8	22 (4)		2.2%	0[-0.98,0.98]
Cerulli 2014	10	26.7 (5.3)	10	30.6 (4.4)		2.48%	-0.75[-1.66,0.16]
Mustian 2004	11	38.5 (4.5)	10	41.7 (4.9)		2.63%	-0.66[-1.54,0.23]
Rogers 2013	10	44.2 (6.7)	12	42.3 (7.7)		2.84%	0.25[-0.59,1.09]
Matthews 2007	22	39.7 (6.3)	14	43.1 (6.9)		4%	-0.51[-1.19,0.17]
Musanti 2012	30	34.1 (6.6)	12	33.7 (5.7)		4.11%	0.07[-0.6,0.74]
Rogers 2009	20	44.3 (7.4)	19	43.5 (7.5)		4.52%	0.11[-0.52,0.73]
Rogers 2014	20	38.6 (6.4)	22	41.5 (7.4)		4.69%	-0.41[-1.02,0.2]
Courneya 2003	24	131.9 (46.4)	26	137.1 (44.4)		5.39%	-0.11[-0.67,0.44]
DeNysschen 2011	30	36.9 (8.4)	34	38 (10.2)		6.33%	-0.12[-0.61,0.38]
Winters-Stone 2011	36	40.5 (6.2)	31	38.5 (5.8)		6.46%	0.33[-0.16,0.81]
Saarto 2012	37	39.9 (7.5)	30	40.2 (8)		6.5%	-0.04[-0.52,0.44]
Cadmus 2009	36	40.5 (6.6)	33	39.6 (6)		6.64%	0.15[-0.33,0.62]
Schmitz 2005	39	40.9 (1.3)	40	42.3 (1.3)		6.66%	-1.05[-1.52,-0.58]
Pinto 2005	39	37.5 (4.8)	43	38.6 (4.8)		7.34%	-0.21[-0.64,0.22]
Ligibel 2008	40	42.9 (7.4)	42	44.7 (8)		7.35%	-0.23[-0.67,0.2]
Daley 2007	33	39.4 (4.7)	69	40.1 (7.4)		7.73%	-0.1[-0.52,0.31]
Schmitz 2009	130	38.5 (5.9)	132	39.7 (5.9)		12.11%	-0.21[-0.46,0.03]
Subtotal ***	**575**		**587**			**100%**	**-0.18[-0.34,-0.03]**
Heterogeneity: Tau^2=0.04; Chi^2=26.29, df=17(P=0.07); I^2=35.33%							
Test for overall effect: Z=2.29(P=0.02)							
9.5.2 Follow-up							
Cadmus 2009	26	40 (7.1)	23	39.5 (6.1)		100%	0.08[-0.48,0.64]
Subtotal ***	**26**		**23**			**100%**	**0.08[-0.48,0.64]**
Heterogeneity: Not applicable							
Test for overall effect: Z=0.27(P=0.79)							



Analysis 9.6. Comparison 9 Comparison: anthropometric outcomes, all physical activity vs control, Outcome 6 Overall body fat (change values).

Study or subgroup	Physical activity N	Physical activity Mean(SD)	Control N	Control Mean(SD)	Std. Mean Difference Random, 95% CI	Weight	Std. Mean Difference Random, 95% CI
9.6.1 End of intervention							
Mustian 2004	9	-0.2 (2.9)	10	0.3 (1.6)		9.78%	-0.18[-1.09,0.72]
Naumann 2012	11	-0.3 (2.4)	10	0.8 (2.8)		9.97%	-0.41[-1.28,0.46]
Musanti 2012	30	-0.2 (2.8)	12	1.4 (1.6)		10.93%	-0.63[-1.32,0.05]
Matthews 2007	22	-0.2 (1.6)	14	0.4 (1.9)		10.98%	-0.34[-1.02,0.33]
Schmitz 2005	39	-1.1 (0.5)	40	0.2 (0.4)		11.05%	-3.07[-3.73,-2.41]
Rogers 2014	20	-1.1 (2.2)	22	-0.6 (2.4)		11.31%	-0.21[-0.82,0.39]
Courneya 2003	24	-4.9 (15.7)	26	5.1 (24.4)		11.52%	-0.48[-1.04,0.09]
Ligibel 2008	40	-0.2 (1.7)	42	0.3 (1.7)		12.07%	-0.29[-0.73,0.14]
Schmitz 2009	65	-0.3 (5.7)	63	-0.1 (3.3)		12.39%	-0.04[-0.39,0.3]



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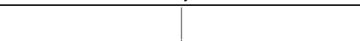
Study or subgroup	Physical activity N	Physical activity Mean(SD)	Control N	Control Mean(SD)	Std. Mean Difference Random, 95% CI	Weight	Std. Mean Difference Random, 95% CI
Subtotal ***	**260**		**239**			**100%**	**-0.62[-1.19,-0.06]**
Heterogeneity: Tau²=0.65; Chi²=67.55, df=8(P<0.0001); I²=88.16%							
Test for overall effect: Z=2.15(P=0.03)							
9.6.2 Follow-up							
Subtotal ***	**0**		**0**				**Not estimable**
Heterogeneity: Not applicable							
Test for overall effect: Not applicable							

Analysis 9.7. Comparison 9 Comparison: anthropometric outcomes, all physical activity vs control, Outcome 7 Percentage body fat - DEXA (follow-up values).

Study or subgroup	Physical activity N	Physical activity Mean(SD)	Control N	Control Mean(SD)	Mean Difference Random, 95% CI	Weight	Mean Difference Random, 95% CI
9.7.1 End of intervention							
Rogers 2009	20	44.3 (7.4)	19	43.5 (7.5)		4.44%	0.8[-3.88,5.48]
DeNysschen 2011	30	36.9 (8.4)	34	38 (10.2)		4.66%	-1.1[-5.66,3.46]
Cadmus 2009	36	40.5 (6.6)	33	39.6 (6)		9.87%	0.94[-2.01,3.89]
Winters-Stone 2011	36	40.5 (6.2)	31	38.5 (5.8)		10.31%	2[-0.88,4.88]
Schmitz 2009	130	38.5 (5.9)	132	39.7 (5.9)		25.96%	-1.27[-2.7,0.16]
Schmitz 2005	39	40.9 (1.3)	40	42.3 (1.3)		44.77%	-1.38[-1.96,-0.8]
Subtotal ***	**291**		**289**			**100%**	**-0.66[-1.7,0.37]**
Heterogeneity: Tau²=0.53; Chi²=7.84, df=5(P=0.17); I²=36.21%							
Test for overall effect: Z=1.26(P=0.21)							
9.7.2 Follow-up							
Cadmus 2009	26	40 (7.1)	23	39.5 (6.1)		100%	0.52[-3.18,4.22]
Subtotal ***	**26**		**23**			**100%**	**0.52[-3.18,4.22]**
Heterogeneity: Not applicable							
Test for overall effect: Z=0.28(P=0.78)							



Analysis 9.8. Comparison 9 Comparison: anthropometric outcomes, all physical activity vs control, Outcome 8 Percentage body fat - DEXA (change values).

Study or subgroup	Physical activity N	Physical activity Mean(SD)	Control N	Control Mean(SD)	Mean Difference Random, 95% CI	Weight	Mean Difference Random, 95% CI
9.8.1 End of intervention							
Naumann 2012	11	-0.3 (2.4)	10	0.8 (2.8)		2.21%	-1.1[-3.32,1.12]
Schmitz 2009	65	-0.3 (5.7)	63	-0.1 (3.3)		4.16%	-0.2[-1.81,1.41]
Schmitz 2005	39	-1.1 (0.5)	40	0.2 (0.4)		93.63%	-1.38[-1.58,-1.18]
Subtotal ***	**115**		**113**			**100%**	**-1.32[-1.66,-0.99]**
Heterogeneity: Tau²=0.02; Chi²=2.09, df=2(P=0.35); I²=4.42%							
Test for overall effect: Z=7.79(P<0.0001)							
9.8.2 Follow-up							

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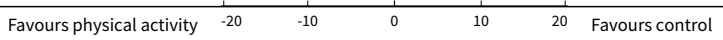
Study or subgroup	Physical activity N	Physical activity Mean(SD)	Control N	Control Mean(SD)	Mean Difference Random, 95% CI	Weight	Mean Difference Random, 95% CI
Subtotal ***	**0**		**0**				**Not estimable**
Heterogeneity: Not applicable							
Test for overall effect: Not applicable							

Analysis 9.9. Comparison 9 Comparison: anthropometric outcomes, all physical activity vs control, Outcome 9 Percentage body fat - BIA (follow-up values).

Study or subgroup	Physical activity N	Physical activity Mean(SD)	Control N	Control Mean(SD)	Mean Difference Fixed, 95% CI	Weight	Mean Difference Fixed, 95% CI
9.9.1 End of intervention							
Rogers 2013	10	44.2 (6.7)	12	42.3 (7.7)		5.21%	1.9[-4.12,7.92]
Cerulli 2014	10	26.7 (5.3)	10	30.6 (4.4)		10.26%	-3.83[-8.12,0.46]
Rogers 2014	20	38.6 (6.4)	22	41.5 (7.4)		10.82%	-2.9[-7.07,1.27]
Mustian 2004	11	38.5 (4.5)	10	41.7 (4.9)		11.67%	-3.2[-7.22,0.82]
Musanti 2012	30	34.1 (6.6)	12	33.7 (5.7)		11.76%	0.43[-3.58,4.44]
Ligibel 2008	40	42.9 (7.4)	42	44.7 (8)		16.98%	-1.8[-5.13,1.53]
Daley 2007	33	39.4 (4.7)	69	40.1 (7.4)		33.31%	-0.7[-3.08,1.68]
Subtotal ***	**154**		**177**			**100%**	**-1.47[-2.84,-0.1]**
Heterogeneity: Tau^2=0; Chi^2=4.83, df=6(P=0.57); I^2=0%							
Test for overall effect: Z=2.1(P=0.04)							
9.9.2 Follow-up							
Subtotal ***	**0**		**0**				**Not estimable**
Heterogeneity: Not applicable							
Test for overall effect: Not applicable							



Analysis 9.10. Comparison 9 Comparison: anthropometric outcomes, all physical activity vs control, Outcome 10 Percentage body fat - BIA (change values).

Study or subgroup	Physical activity N	Physical activity Mean(SD)	Control N	Control Mean(SD)	Mean Difference Fixed, 95% CI	Weight	Mean Difference Fixed, 95% CI
9.10.1 End of intervention							
Mustian 2004	9	-0.2 (2.9)	10	0.3 (1.6)		7%	-0.44[-2.58,1.7]
Rogers 2014	20	-1.1 (2.2)	22	-0.6 (2.4)		16.49%	-0.5[-1.89,0.89]
Musanti 2012	30	-0.2 (2.8)	12	1.4 (1.6)		17.59%	-1.64[-2.99,-0.29]
Ligibel 2008	40	-0.2 (1.7)	42	0.3 (1.7)		58.91%	-0.5[-1.24,0.24]
Subtotal ***	**99**		**86**			**100%**	**-0.7[-1.26,-0.13]**
Heterogeneity: Tau^2=0; Chi^2=2.29, df=3(P=0.51); I^2=0%							
Test for overall effect: Z=2.42(P=0.02)							
9.10.2 Follow-up							
Subtotal ***	**0**		**0**				**Not estimable**
Heterogeneity: Not applicable							
Test for overall effect: Not applicable							

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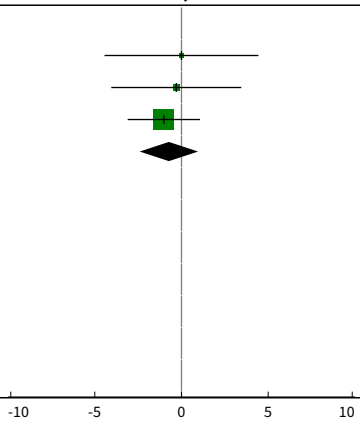
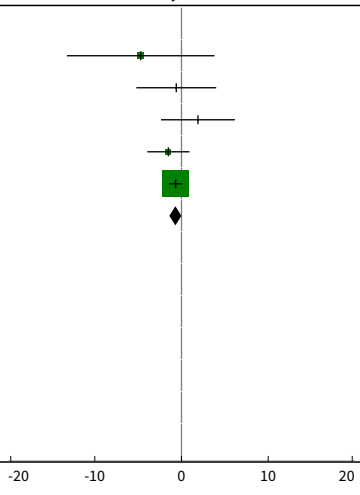
Analysis 9.11. Comparison 9 Comparison: anthropometric outcomes, all physical activity vs control, Outcome 11 Percentage body fat - SKF (follow-up values).

Study or subgroup	Physical activity N	Physical activity Mean(SD)	Control N	Control Mean(SD)	Mean Difference Random, 95% CI	Weight	Mean Difference Random, 95% CI
9.11.1 End of intervention							
Herrero 2006	8	22 (5)	8	22 (4)		14.42%	0[-4.44,4.44]
Saarto 2012	37	39.9 (7.5)	30	40.2 (8)		20.23%	-0.3[-4.05,3.45]
Pinto 2005	39	37.5 (4.8)	43	38.6 (4.8)		65.35%	-1.02[-3.1,1.06]
Subtotal ***	**84**		**81**			**100%**	**-0.73[-2.41,0.96]**
Heterogeneity: Tau²=0; Chi²=0.23, df=2(P=0.89); I²=0%							
Test for overall effect: Z=0.85(P=0.4)							
9.11.2 Follow-up							
Subtotal ***	**0**		**0**				**Not estimable**
Heterogeneity: Not applicable							
Test for overall effect: Not applicable							



Analysis 9.12. Comparison 9 Comparison: anthropometric outcomes, all physical activity vs control, Outcome 12 Fat mass (follow-up values).

Study or subgroup	Physical activity N	Physical activity Mean(SD)	Control N	Control Mean(SD)	Mean Difference Fixed, 95% CI	Weight	Mean Difference Fixed, 95% CI
9.12.1 End of intervention							
Matthews 2007	22	30.2 (9.2)	14	34.9 (14.5)		0.68%	-4.7[-13.21,3.81]
Herrero 2006	8	14.7 (4.8)	8	15.3 (4.6)		2.31%	-0.6[-5.21,4.01]
Winters-Stone 2011	36	30.9 (9.7)	31	29 (8.1)		2.7%	1.9[-2.36,6.16]
Schmitz 2009	129	29.6 (9.6)	133	31.1 (10.5)		8.24%	-1.51[-3.95,0.93]
Schmitz 2005	39	28.3 (1.7)	40	29 (1.7)		86.08%	-0.68[-1.43,0.07]
Subtotal ***	**234**		**226**			**100%**	**-0.7[-1.4,-0]**
Heterogeneity: Tau²=0; Chi²=2.71, df=4(P=0.61); I²=0%							
Test for overall effect: Z=1.97(P=0.05)							
9.12.2 Follow-up							
Subtotal ***	**0**		**0**				**Not estimable**
Heterogeneity: Not applicable							
Test for overall effect: Not applicable							



Analysis 9.13. Comparison 9 Comparison: anthropometric outcomes, all physical activity vs control, Outcome 13 Fat mass (change values).

Study or subgroup	Physical activity N	Physical activity Mean(SD)	Control N	Control Mean(SD)	Mean Difference Random, 95% CI	Weight	Mean Difference Random, 95% CI
9.13.1 End of intervention							
Schmitz 2009	65	-1.2 (8)	63	0.6 (8.1)		4.41%	-1.8[-4.59,0.99]

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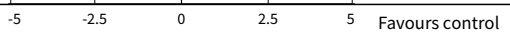
Study or subgroup	Physical activity N	Physical activity Mean(SD)	Control N	Control Mean(SD)	Mean Difference Random, 95% CI	Weight	Mean Difference Random, 95% CI
Matthews 2007	22	-0.1 (1.9)	14	0.4 (2.5)		12.42%	-0.48[-1.98,1.02]
Saarto 2012	262	0.7 (2.8)	263	0.7 (2.9)		37.1%	0.05[-0.43,0.53]
Schmitz 2005	39	-0.5 (0.4)	40	0.2 (0.4)		46.08%	-0.74[-0.93,-0.55]
Subtotal ***	**388**		**380**			**100%**	**-0.46[-1.08,0.15]**
Heterogeneity: Tau²=0.2; Chi²=9.58, df=3(P=0.02); I²=68.67%							
Test for overall effect: Z=1.47(P=0.14)							
9.13.2 Follow-up							
Subtotal ***	**0**		**0**				**Not estimable**
Heterogeneity: Not applicable							
Test for overall effect: Not applicable							



Analysis 9.14. Comparison 9 Comparison: anthropometric outcomes, all physical activity vs control, Outcome 14 Fat mass - DEXA (follow-up values).

Study or subgroup	Physical activity N	Physical activity Mean(SD)	Control N	Control Mean(SD)	Mean Difference Fixed, 95% CI	Weight	Mean Difference Fixed, 95% CI
9.14.1 End of intervention							
Winters-Stone 2011	36	30.9 (9.7)	31	29 (8.1)		2.78%	1.9[-2.36,6.16]
Schmitz 2009	129	29.6 (9.6)	133	31.1 (10.5)		8.5%	-1.51[-3.95,0.93]
Schmitz 2005	39	28.3 (1.7)	40	29 (1.7)		88.73%	-0.68[-1.43,0.07]
Subtotal ***	**204**		**204**			**100%**	**-0.68[-1.39,0.03]**
Heterogeneity: Tau²=0; Chi²=1.85, df=2(P=0.4); I²=0%							
Test for overall effect: Z=1.87(P=0.06)							
9.14.2 Follow-up							
Subtotal ***	**0**		**0**				**Not estimable**
Heterogeneity: Not applicable							
Test for overall effect: Not applicable							

Analysis 9.15. Comparison 9 Comparison: anthropometric outcomes, all physical activity vs control, Outcome 15 Fat mass - DEXA (change values).

Study or subgroup	Physical activity N	Physical activity Mean(SD)	Control N	Control Mean(SD)	Mean Difference Random, 95% CI	Weight	Mean Difference Random, 95% CI
9.15.1 End of intervention							
Schmitz 2009	65	-1.2 (8)	63	0.6 (8.1)		0.46%	-1.8[-4.59,0.99]
Schmitz 2005	39	-0.5 (0.4)	40	0.2 (0.4)		99.54%	-0.74[-0.93,-0.55]
Subtotal ***	**104**		**103**			**100%**	**-0.74[-0.93,-0.56]**
Heterogeneity: Tau²=0; Chi²=0.55, df=1(P=0.46); I²=0%							
Test for overall effect: Z=7.72(P<0.0001)							
9.15.2 Follow-up							
Subtotal ***	**0**		**0**				**Not estimable**
Heterogeneity: Not applicable							

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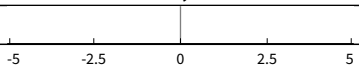
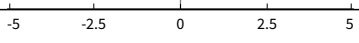
Study or subgroup	Physical activity N	Physical activity Mean(SD)	Control N	Control Mean(SD)	Mean Difference Random, 95% CI	Weight	Mean Difference Random, 95% CI
Test for overall effect: Not applicable							



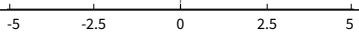
Analysis 9.16. Comparison 9 Comparison: anthropometric outcomes, all physical activity vs control, Outcome 16 Lean mass (follow-up values).

Study or subgroup	Physical activity N	Physical activity Mean(SD)	Control N	Control Mean(SD)	Std. Mean Difference Fixed, 95% CI	Weight	Std. Mean Difference Fixed, 95% CI
9.16.1 End of intervention							
Herrero 2006	8	28 (2.7)	8	28.3 (2.9)		2.63%	-0.1[-1.08,0.88]
Mustian 2004	9	40.2 (7.6)	10	39.1 (5.5)		3.11%	0.16[-0.74,1.06]
Matthews 2007	22	44.8 (7.7)	14	44 (7.6)		5.63%	0.1[-0.57,0.77]
DeNysschen 2011	30	39.5 (5.2)	34	40.7 (6.1)		10.44%	-0.21[-0.7,0.28]
Winters-Stone 2011	36	44 (6.7)	31	45.2 (6)		10.93%	-0.19[-0.67,0.3]
Cadmus 2009	36	44.4 (6.6)	33	42.7 (7.2)		11.26%	0.24[-0.23,0.71]
Schmitz 2005	39	38.8 (0.8)	40	37.7 (4.9)		12.85%	0.31[-0.13,0.76]
Schmitz 2009	130	47.7 (7.5)	132	47.3 (7.6)		43.15%	0.05[-0.19,0.29]
Subtotal ***	**310**		**302**			**100%**	**0.05[-0.11,0.21]**
Heterogeneity: Tau^2=0; Chi^2=4.12, df=7(P=0.77); I^2=0%							
Test for overall effect: Z=0.66(P=0.51)							
9.16.2 Follow-up							
Cadmus 2009	26	44.6 (7.7)	23	42.2 (6.7)		100%	0.33[-0.24,0.89]
Subtotal ***	**26**		**23**			**100%**	**0.33[-0.24,0.89]**
Heterogeneity: Not applicable							
Test for overall effect: Z=1.14(P=0.26)							



Analysis 9.17. Comparison 9 Comparison: anthropometric outcomes, all physical activity vs control, Outcome 17 Lean mass (change values).

Study or subgroup	Physical activity N	Physical activity Mean(SD)	Control N	Control Mean(SD)	Std. Mean Difference Random, 95% CI	Weight	Std. Mean Difference Random, 95% CI
9.17.1 End of intervention							
Mustian 2004	9	-0 (3.1)	10	0.4 (1.4)		18.14%	-0.16[-1.06,0.74]
Schmitz 2005	39	0.9 (0.2)	40	0 (0.2)		19.24%	3.7[2.96,4.44]
Matthews 2007	22	0.2 (1.4)	14	-0.3 (1.1)		19.62%	0.39[-0.29,1.06]
Schmitz 2009	65	-1 (3.4)	63	-1.1 (3.6)		21.26%	0.03[-0.32,0.37]
Saarto 2012	262	0.4 (1.8)	236	0.1 (1.6)		21.74%	0.14[-0.04,0.32]
Subtotal ***	**397**		**363**			**100%**	**0.8[-0.13,1.72]**
Heterogeneity: Tau^2=1.02; Chi^2=87.93, df=4(P<0.0001); I^2=95.45%							
Test for overall effect: Z=1.68(P=0.09)							
9.17.2 Follow-up							
Subtotal ***	**0**		**0**				**Not estimable**
Heterogeneity: Not applicable							
Test for overall effect: Not applicable							



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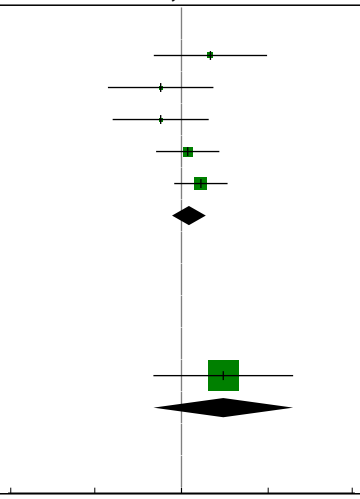
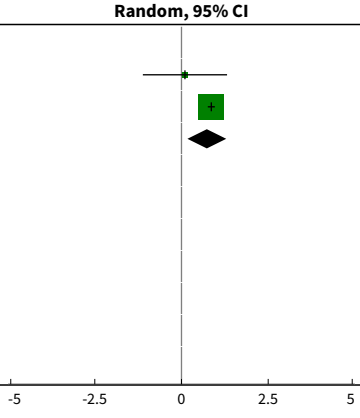
Analysis 9.18. Comparison 9 Comparison: anthropometric outcomes, all physical activity vs control, Outcome 18 Lean mass - DEXA (follow-up values).

Study or subgroup	Physical activity N	Physical activity Mean(SD)	Control N	Control Mean(SD)	Mean Difference Fixed, 95% CI	Weight	Mean Difference Fixed, 95% CI
9.18.1 End of intervention							
Cadmus 2009	36	44.4 (6.6)	33	42.7 (7.2)		8.88%	1.67[-1.6,4.94]
Winters-Stone 2011	36	44 (6.7)	31	45.2 (6)		10.24%	-1.2[-4.24,1.84]
DeNysschen 2011	30	39.5 (5.2)	34	40.7 (6.1)		12.35%	-1.2[-3.97,1.57]
Schmitz 2009	130	47.7 (7.5)	132	47.3 (7.6)		28.48%	0.36[-1.46,2.18]
Schmitz 2005	39	38.8 (0.8)	40	37.7 (4.9)		40.06%	1.12[-0.42,2.66]
Subtotal ***	**271**		**270**			**100%**	**0.43[-0.54,1.4]**
Heterogeneity: Tau^2=0; Chi^2=3.77, df=4(P=0.44); I^2=0%							
Test for overall effect: Z=0.86(P=0.39)							
9.18.2 Follow-up							
Cadmus 2009	26	44.6 (7.7)	23	42.2 (6.7)		100%	2.41[-1.62,6.44]
Subtotal ***	**26**		**23**			**100%**	**2.41[-1.62,6.44]**
Heterogeneity: Not applicable							
Test for overall effect: Z=1.17(P=0.24)							



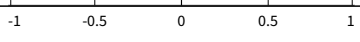
Analysis 9.19. Comparison 9 Comparison: anthropometric outcomes, all physical activity vs control, Outcome 19 Lean mass - DEXA (change values).

Study or subgroup	Physical activity N	Physical activity Mean(SD)	Control N	Control Mean(SD)	Mean Difference Random, 95% CI	Weight	Mean Difference Random, 95% CI
9.19.1 End of intervention							
Schmitz 2009	65	-1 (3.4)	63	-1.1 (3.6)		17.03%	0.1[-1.11,1.31]
Schmitz 2005	39	0.9 (0.2)	40	0 (0.2)		82.97%	0.86[0.76,0.96]
Subtotal ***	**104**		**103**			**100%**	**0.73[0.17,1.29]**
Heterogeneity: Tau^2=0.1; Chi^2=1.5, df=1(P=0.22); I^2=33.13%							
Test for overall effect: Z=2.56(P=0.01)							
9.19.2 Follow-up							
Subtotal ***	**0**		**0**				**Not estimable**
Heterogeneity: Not applicable							
Test for overall effect: Not applicable							



Analysis 9.20. Comparison 9 Comparison: anthropometric outcomes, all physical activity vs control, Outcome 20 Waist-to-hip ratio (follow-up values).

Study or subgroup	Physical activity N	Physical activity Mean(SD)	Control N	Control Mean(SD)	Mean Difference Random, 95% CI	Weight	Mean Difference Random, 95% CI
9.20.1 End of intervention							
Rahnama 2010	14	1 (0.7)	15	0.9 (0.7)		0.49%	0.04[-0.47,0.55]



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Study or subgroup	Physical activity N	Physical activity Mean(SD)	Control N	Control Mean(SD)	Mean Difference Random, 95% CI	Weight	Mean Difference Random, 95% CI
Rogers 2014	20	0.8 (0.1)	22	0.9 (0.1)		18.98%	-0.1[-0.16,-0.04]
Ligibel 2008	40	0.8 (0.1)	42	0.8 (0.1)		25.84%	0[-0.04,0.04]
Rogers 2009	20	0.8 (0.1)	18	0.8 (0.1)		26.58%	0[-0.04,0.04]
Rogers 2013	12	0.8 (0)	10	0.8 (0.1)		28.12%	-0.03[-0.07,0.01]
Subtotal ***	**106**		**107**			**100%**	**-0.03[-0.06,0.01]**
Heterogeneity: Tau²=0; Chi²=8.65, df=4(P=0.07); I²=53.76%							
Test for overall effect: Z=1.49(P=0.14)							
9.20.2 Follow-up							
Subtotal ***	**0**		**0**				**Not estimable**
Heterogeneity: Not applicable							
Test for overall effect: Not applicable							

Analysis 9.21. Comparison 9 Comparison: anthropometric outcomes, all physical activity vs control, Outcome 21 Waist-to-hip ratio (change values).

Study or subgroup	Physical activity N	Physical activity Mean(SD)	Control N	Control Mean(SD)	Mean Difference Fixed, 95% CI	Weight	Mean Difference Fixed, 95% CI
9.21.1 End of intervention							
Rogers 2014	20	0 (0)	22	0 (0.1)		11.91%	0[-0.04,0.04]
Ligibel 2008	40	0 (0)	42	0 (0)		88.09%	0[-0.02,0.02]
Subtotal ***	**60**		**64**			**100%**	**0[-0.01,0.01]**
Heterogeneity: Tau²=0; Chi²=0, df=1(P=1); I²=0%							
Test for overall effect: Not applicable							
9.21.2 Follow-up							
Rogers 2009	19	0 (0.4)	17	-0 (0.1)		100%	0.04[-0.14,0.22]
Subtotal ***	**19**		**17**			**100%**	**0.04[-0.14,0.22]**
Heterogeneity: Not applicable							
Test for overall effect: Z=0.45(P=0.65)							

Analysis 9.22. Comparison 9 Comparison: anthropometric outcomes, all physical activity vs control, Outcome 22 Waist circumference (follow-up values).

Study or subgroup	Physical activity N	Physical activity Mean(SD)	Control N	Control Mean(SD)	Mean Difference Fixed, 95% CI	Weight	Mean Difference Fixed, 95% CI
9.22.1 End of intervention							
Rahnama 2010	14	96.4 (12.9)	15	99.8 (13.5)		7.78%	-3.4[-13.01,6.21]
Guinan 2013	16	85.6 (12.5)	10	84.8 (10.8)		8.72%	0.8[-8.27,9.87]
Cadmus 2009	36	89.8 (12.6)	33	88.6 (15.5)		15.99%	1.17[-5.53,7.87]
Ligibel 2008	40	89.2 (14.7)	42	92.5 (13.5)		19.19%	-3.3[-9.42,2.82]
Schmitz 2005	33	94.6 (12.6)	36	94.5 (12.6)		20.27%	0.14[-5.81,6.09]
Littman 2012	28	93.1 (8.5)	27	92.7 (10.5)		28.05%	0.4[-4.66,5.46]
Subtotal ***	**167**		**163**			**100%**	**-0.5[-3.18,2.18]**
Heterogeneity: Tau²=0; Chi²=1.64, df=5(P=0.9); I²=0%							

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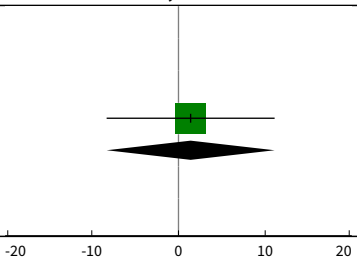
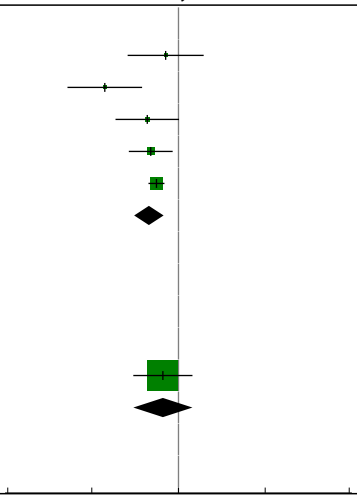
Study or subgroup	Physical activity N	Physical activity Mean(SD)	Control N	Control Mean(SD)	Mean Difference Fixed, 95% CI	Weight	Mean Difference Fixed, 95% CI
Test for overall effect: Z=0.37(P=0.71)							
9.22.2 Follow-up							
Guinan 2013	16	86.2 (12.2)	10	84.8 (12.3)		100%	1.4[-8.29,11.09]
Subtotal ***	**16**		**10**			**100%**	**1.4[-8.29,11.09]**
Heterogeneity: Not applicable							
Test for overall effect: Z=0.28(P=0.78)							



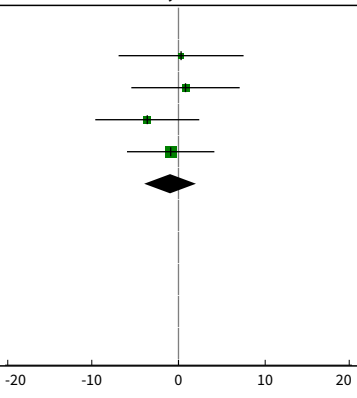
Analysis 9.23. Comparison 9 Comparison: anthropometric outcomes, all physical activity vs control, Outcome 23 Waist circumference (change values).

Study or subgroup	Physical activity N	Physical activity Mean(SD)	Control N	Control Mean(SD)	Mean Difference Random, 95% CI	Weight	Mean Difference Random, 95% CI
9.23.1 End of intervention							
Cadmus 2009	35	-1.5 (4.5)	30	-0.7 (4.5)		11.27%	-0.74[-2.93,1.45]
Dolan 2016	23	-2.3 (2.7)	10	2 (3)		11.59%	-4.25[-6.4,-2.1]
Ligibel 2008	40	-1.5 (4.6)	42	0.3 (3.8)		14.58%	-1.8[-3.63,0.03]
Guinan 2013	16	-1.8 (1.7)	10	-0.2 (1.5)		22.61%	-1.6[-2.86,-0.34]
Schmitz 2005	39	0.1 (1.1)	40	1.4 (1)		39.95%	-1.27[-1.73,-0.81]
Subtotal ***	**153**		**132**			**100%**	**-1.71[-2.56,-0.86]**
Heterogeneity: Tau^2=0.41; Chi^2=7.67, df=4(P=0.1); I^2=47.82%							
Test for overall effect: Z=3.94(P<0.0001)							
9.23.2 Follow-up							
Guinan 2013	16	-1.2 (2.3)	10	-0.3 (2.1)		100%	-0.9[-2.61,0.81]
Subtotal ***	**16**		**10**			**100%**	**-0.9[-2.61,0.81]**
Heterogeneity: Not applicable							
Test for overall effect: Z=1.03(P=0.3)							



Analysis 9.24. Comparison 9 Comparison: anthropometric outcomes, all physical activity vs control, Outcome 24 Hip circumference (follow-up values).

Study or subgroup	Physical activity N	Physical activity Mean(SD)	Control N	Control Mean(SD)	Mean Difference Fixed, 95% CI	Weight	Mean Difference Fixed, 95% CI
9.24.1 End of intervention							
Rahnama 2010	14	101.7 (9.4)	15	101.4 (10.4)		17.18%	0.3[-6.91,7.51]
Cadmus 2009	37	111.9 (12.6)	38	111.1 (15)		22.86%	0.81[-5.44,7.06]
Ligibel 2008	40	109.7 (13.2)	42	113.3 (14.5)		24.81%	-3.6[-9.6,2.4]
Littman 2012	32	113 (10.1)	31	113.9 (10.3)		35.14%	-0.9[-5.94,4.14]
Subtotal ***	**123**		**126**			**100%**	**-0.97[-3.96,2.01]**
Heterogeneity: Tau^2=0; Chi^2=1.17, df=3(P=0.76); I^2=0%							
Test for overall effect: Z=0.64(P=0.52)							
9.24.2 Follow-up							
Subtotal ***	**0**		**0**				**Not estimable**



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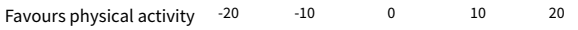
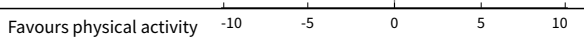
Study or subgroup	Physical activity N	Physical activity Mean(SD)	Control N	Control Mean(SD)	Mean Difference Fixed, 95% CI	Weight	Mean Difference Fixed, 95% CI
Heterogeneity: Not applicable							
Test for overall effect: Not applicable							



Analysis 9.25. Comparison 9 Comparison: anthropometric outcomes, all physical activity vs control, Outcome 25 Hip circumference (change values).

Study or subgroup	Physical activity N	Physical activity Mean(SD)	Control N	Control Mean(SD)	Mean Difference Random, 95% CI	Weight	Mean Difference Random, 95% CI
9.25.1 End of intervention							
Ligibel 2008	40	-2.3 (3.3)	42	-0.5 (3.3)		41.11%	-1.8[-3.23,-0.37]
Dolan 2016	23	-2 (2.2)	10	0.8 (1.2)		58.89%	-2.77[-3.95,-1.59]
Subtotal ***	**63**		**52**			**100%**	**-2.37[-3.31,-1.44]**
Heterogeneity: Tau^2=0.02; Chi^2=1.05, df=1(P=0.31); I^2=4.8%							
Test for overall effect: Z=4.97(P<0.0001)							
9.25.2 Follow-up							
Subtotal ***	**0**		**0**				**Not estimable**
Heterogeneity: Not applicable							
Test for overall effect: Not applicable							



Comparison 10. Comparison: muscular strength, all physical activity vs control

Outcome or subgroup title	No. of studies	No. of participants	Statistical method	Effect size
1 Lower body strength (follow-up values)	10		Std. Mean Difference (IV, Random, 95% CI)	Subtotals only
1.1 End of intervention	10	637	Std. Mean Difference (IV, Random, 95% CI)	0.44 [0.09, 0.78]
1.2 Follow-up	0	0	Std. Mean Difference (IV, Random, 95% CI)	0.0 [0.0, 0.0]
2 Lower body strength (change values)	9		Std. Mean Difference (IV, Random, 95% CI)	Subtotals only
2.1 End of intervention	8	720	Std. Mean Difference (IV, Random, 95% CI)	0.72 [0.38, 1.07]
2.2 Follow-up	1	36	Std. Mean Difference (IV, Random, 95% CI)	0.78 [0.10, 1.46]
3 Leg press (follow-up values)	5		Std. Mean Difference (IV, Random, 95% CI)	Subtotals only
3.1 End of intervention	5	422	Std. Mean Difference (IV, Random, 95% CI)	0.79 [0.35, 1.22]
3.2 Follow-up	0	0	Std. Mean Difference (IV, Random, 95% CI)	0.0 [0.0, 0.0]

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Outcome or subgroup title	No. of studies	No. of participants	Statistical method	Effect size
4 Leg press (change values)	5		Std. Mean Difference (IV, Random, 95% CI)	Subtotals only
4.1 End of intervention	5	393	Std. Mean Difference (IV, Random, 95% CI)	0.94 [0.68, 1.20]
4.2 Follow-up	0	0	Std. Mean Difference (IV, Random, 95% CI)	0.0 [0.0, 0.0]
5 Back & leg strength (follow-up values)	2		Mean Difference (IV, Fixed, 95% CI)	Subtotals only
5.1 End of intervention	2	58	Mean Difference (IV, Fixed, 95% CI)	7.90 [-2.31, 18.11]
5.2 Follow-up	0	0	Mean Difference (IV, Fixed, 95% CI)	0.0 [0.0, 0.0]
6 Leg extension (follow-up values)	4		Std. Mean Difference (IV, Random, 95% CI)	Subtotals only
6.1 End of intervention	4	177	Std. Mean Difference (IV, Random, 95% CI)	-0.01 [-0.34, 0.32]
6.2 Follow-up	0	0	Std. Mean Difference (IV, Random, 95% CI)	0.0 [0.0, 0.0]
7 Leg extension (change values)	4		Std. Mean Difference (IV, Random, 95% CI)	Subtotals only
7.1 End of intervention	4	389	Std. Mean Difference (IV, Random, 95% CI)	0.57 [0.03, 1.12]
7.2 Follow-up	0	0	Std. Mean Difference (IV, Random, 95% CI)	0.0 [0.0, 0.0]
8 Hip extension (follow-up values)	2		Std. Mean Difference (IV, Random, 95% CI)	Subtotals only
8.1 End of intervention	2	285	Std. Mean Difference (IV, Random, 95% CI)	0.14 [-0.45, 0.72]
8.2 Follow-up	0	0	Std. Mean Difference (IV, Random, 95% CI)	0.0 [0.0, 0.0]
9 Hip flexion (follow-up values)	2		Std. Mean Difference (IV, Random, 95% CI)	Subtotals only
9.1 End of intervention	2	285	Std. Mean Difference (IV, Random, 95% CI)	0.04 [-0.76, 0.83]
9.2 Follow-up	0	0	Std. Mean Difference (IV, Random, 95% CI)	0.0 [0.0, 0.0]
10 Leg flexion (follow-up values)	2		Std. Mean Difference (IV, Random, 95% CI)	Subtotals only
10.1 End of intervention	2	243	Std. Mean Difference (IV, Random, 95% CI)	0.86 [-0.05, 1.76]
10.2 Follow-up	0	0	Std. Mean Difference (IV, Random, 95% CI)	0.0 [0.0, 0.0]
11 Upper body strength (follow-up values)	13		Std. Mean Difference (IV, Random, 95% CI)	Subtotals only
11.1 End of intervention	13	768	Std. Mean Difference (IV, Random, 95% CI)	0.42 [0.08, 0.76]

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Outcome or subgroup title	No. of studies	No. of participants	Statistical method	Effect size
11.2 Follow-up	0	0	Std. Mean Difference (IV, Random, 95% CI)	0.0 [0.0, 0.0]
12 Upper body strength (change values)	9		Std. Mean Difference (IV, Random, 95% CI)	Subtotals only
12.1 End of intervention	8	832	Std. Mean Difference (IV, Random, 95% CI)	0.72 [0.30, 1.14]
12.2 Follow-up	1	36	Std. Mean Difference (IV, Random, 95% CI)	0.76 [0.08, 1.44]
13 Chest press (follow-up values)	5		Std. Mean Difference (IV, Random, 95% CI)	Subtotals only
13.1 End of intervention	5	444	Std. Mean Difference (IV, Random, 95% CI)	0.51 [-0.15, 1.17]
13.2 Follow-up	0	0	Std. Mean Difference (IV, Random, 95% CI)	0.0 [0.0, 0.0]
14 Chest press (change values)	4		Std. Mean Difference (IV, Random, 95% CI)	Subtotals only
14.1 End of intervention	4	381	Std. Mean Difference (IV, Random, 95% CI)	1.13 [0.46, 1.80]
14.2 Follow-up	0	0	Std. Mean Difference (IV, Random, 95% CI)	0.0 [0.0, 0.0]
15 Grip strength (follow-up)	7		Mean Difference (IV, Random, 95% CI)	Subtotals only
15.1 End of intervention	7	320	Mean Difference (IV, Random, 95% CI)	2.37 [0.20, 4.55]
15.2 Follow-up	0	0	Mean Difference (IV, Random, 95% CI)	0.0 [0.0, 0.0]
16 Grip strength (change values)	3		Std. Mean Difference (IV, Random, 95% CI)	Subtotals only
16.1 End of intervention	2	145	Std. Mean Difference (IV, Random, 95% CI)	0.24 [-0.09, 0.58]
16.2 Follow-up	1	36	Std. Mean Difference (IV, Random, 95% CI)	0.76 [0.08, 1.44]
17 Grip strength right hand (follow-up)	5		Mean Difference (IV, Random, 95% CI)	Subtotals only
17.1 End of intervention	5	232	Mean Difference (IV, Random, 95% CI)	2.30 [-0.56, 5.16]
17.2 Follow-up	0	0	Mean Difference (IV, Random, 95% CI)	0.0 [0.0, 0.0]
18 Grip strength left hand (follow-up)	4		Mean Difference (IV, Random, 95% CI)	Subtotals only
18.1 End of intervention	4	198	Mean Difference (IV, Random, 95% CI)	2.12 [-1.05, 5.30]
18.2 Follow-up	0	0	Mean Difference (IV, Random, 95% CI)	0.0 [0.0, 0.0]
19 Elbow flexion (follow-up values)	3		Std. Mean Difference (IV, Fixed, 95% CI)	Subtotals only

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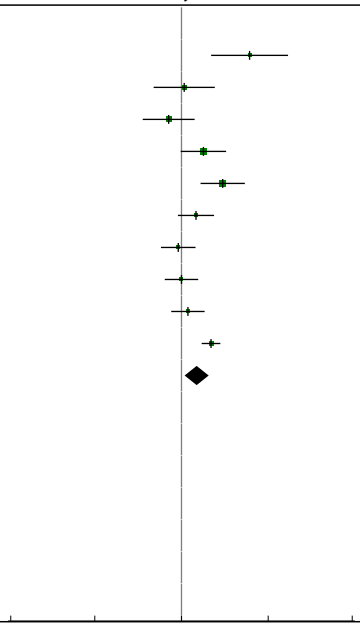
Outcome or subgroup title	No. of studies	No. of participants	Statistical method	Effect size
19.1 End of intervention	3	148	Std. Mean Difference (IV, Fixed, 95% CI)	-0.08 [-0.41, 0.24]
19.2 Follow-up	0	0	Std. Mean Difference (IV, Fixed, 95% CI)	0.0 [0.0, 0.0]

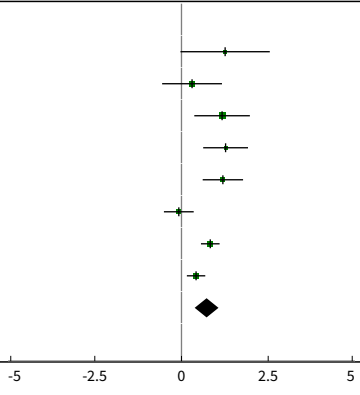
Analysis 10.1. Comparison 10 Comparison: muscular strength, all physical activity vs control, Outcome 1 Lower body strength (follow-up values).

Study or subgroup	Physical activity N	Physical activity Mean(SD)	Control N	Control Mean(SD)	Std. Mean Difference Random, 95% CI	Weight	Std. Mean Difference Random, 95% CI
10.1.1 End of intervention							
Cerulli 2014	10	114.9 (17.1)	10	79.1 (17.8)		5.87%	1.96[0.85,3.07]
Rogers 2013	11	68.4 (15.5)	9	67.1 (16.2)		7.53%	0.08[-0.8,0.96]
Nikander 2007	14	1305 (177)	14	1393 (275)		8.71%	-0.37[-1.12,0.38]
Rogers 2009	20	80.3 (27)	18	64.9 (19.7)		9.62%	0.63[-0.02,1.29]
Schmitz 2005	23	296.6 (48.9)	22	238.9 (46.4)		9.78%	1.19[0.55,1.83]
Milne 2008	29	66.2 (10.2)	29	61.7 (11)		11%	0.42[-0.1,0.94]
Do 2015	32	13 (1.6)	30	13.2 (1.6)		11.23%	-0.09[-0.59,0.41]
Saarto 2012	37	136 (23)	30	136 (29)		11.41%	0[-0.48,0.48]
Winters-Stone 2011	36	201.3 (57.4)	31	191 (51.7)		11.41%	0.19[-0.3,0.67]
Schmitz 2009	113	223.4 (59.6)	119	175.1 (53.5)		13.43%	0.85[0.58,1.12]
Subtotal ***	**325**		**312**			**100%**	**0.44[0.09,0.78]**
Heterogeneity: Tau²=0.22; Chi²=35.25, df=9(P<0.0001); I²=74.46%							
Test for overall effect: Z=2.47(P=0.01)							
10.1.2 Follow-up							
Subtotal ***	**0**		**0**				**Not estimable**
Heterogeneity: Not applicable							
Test for overall effect: Not applicable							



Analysis 10.2. Comparison 10 Comparison: muscular strength, all physical activity vs control, Outcome 2 Lower body strength (change values).

Study or subgroup	Physical activity N	Physical activity Mean(SD)	Control N	Control Mean(SD)	Std. Mean Difference Random, 95% CI	Weight	Std. Mean Difference Random, 95% CI
10.2.1 End of intervention							
Nieman 1995	6	28.9 (13.7)	6	3.5 (22.5)		5.27%	1.26[-0.03,2.55]
Naumann 2012	11	7.7 (12.6)	10	3.5 (13.9)		8.9%	0.3[-0.56,1.17]
Dolan 2016	23	11.8 (8.9)	10	0.3 (11.1)		9.65%	1.17[0.37,1.97]
Schmitz 2005	23	81.8 (48.9)	22	20.3 (46)		11.81%	1.27[0.63,1.92]
Cormie 2014	43	37.6 (25.5)	19	6.7 (25.7)		12.82%	1.19[0.61,1.78]
Do 2015	32	0.9 (0.7)	60	1 (0.6)		15.41%	-0.08[-0.51,0.35]
Schmitz 2009	113	33.2 (33.9)	119	7.9 (26.6)		18.05%	0.83[0.56,1.1]
Waltman 2010	110	4.4 (11.5)	113	0.2 (8.4)		18.09%	0.42[0.15,0.69]
Subtotal ***	**361**		**359**			**100%**	**0.72[0.38,1.07]**
Heterogeneity: Tau²=0.15; Chi²=25.57, df=7(P=0); I²=72.63%							



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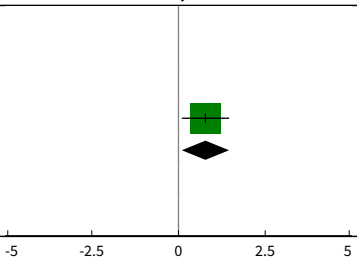
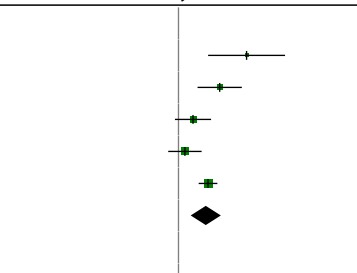
Study or subgroup	Physical activity N	Physical activity Mean(SD)	Control N	Control Mean(SD)	Std. Mean Difference Random, 95% CI	Weight	Std. Mean Difference Random, 95% CI
Test for overall effect: Z=4.13(P<0.0001)							
10.2.2 Follow-up							
Rogers 2009	19	11.9 (13.2)	17	0.7 (15)		100%	0.78[0.1,1.46]
Subtotal ***	**19**		**17**			**100%**	**0.78[0.1,1.46]**
Heterogeneity: Not applicable							
Test for overall effect: Z=2.23(P=0.03)							



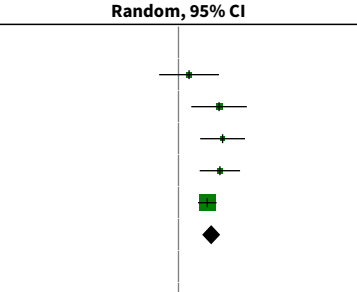
Analysis 10.3. Comparison 10 Comparison: muscular strength, all physical activity vs control, Outcome 3 Leg press (follow-up values).

Study or subgroup	Physical activity N	Physical activity Mean(SD)	Control N	Control Mean(SD)	Std. Mean Difference Random, 95% CI	Weight	Std. Mean Difference Random, 95% CI
10.3.1 End of intervention							
Cerulli 2014	10	114.9 (17.1)	10	79.1 (17.8)		10.26%	1.96[0.85,3.07]
Schmitz 2005	23	296.6 (48.9)	22	238.9 (46.4)		18.5%	1.19[0.55,1.83]
Milne 2008	29	66.2 (10.2)	29	61.7 (11)		21.35%	0.42[-0.1,0.94]
Winters-Stone 2011	36	201.3 (57.4)	31	191 (51.7)		22.35%	0.19[-0.3,0.67]
Schmitz 2009	113	223.4 (59.6)	119	175.1 (53.5)		27.53%	0.85[0.58,1.12]
Subtotal ***	**211**		**211**			**100%**	**0.79[0.35,1.22]**
Heterogeneity: Tau^2=0.16; Chi^2=13.79, df=4(P=0.01); I^2=70.99%							
Test for overall effect: Z=3.54(P=0)							
10.3.2 Follow-up							
Subtotal ***	**0**		**0**				**Not estimable**
Heterogeneity: Not applicable							
Test for overall effect: Not applicable							



Analysis 10.4. Comparison 10 Comparison: muscular strength, all physical activity vs control, Outcome 4 Leg press (change values).

Study or subgroup	Physical activity N	Physical activity Mean(SD)	Control N	Control Mean(SD)	Std. Mean Difference Random, 95% CI	Weight	Std. Mean Difference Random, 95% CI
10.4.1 End of intervention							
Naumann 2012	11	7.7 (12.6)	10	3.5 (13.9)		8.37%	0.3[-0.56,1.17]
Dolan 2016	23	11.8 (8.9)	10	0.3 (11.1)		9.59%	1.17[0.37,1.97]
Schmitz 2005	23	81.8 (48.9)	22	20.3 (46)		14.1%	1.27[0.63,1.92]
Cormie 2014	43	37.6 (25.5)	19	6.7 (25.7)		16.89%	1.19[0.61,1.78]
Schmitz 2009	113	33.2 (33.9)	119	7.9 (26.6)		51.05%	0.83[0.56,1.1]
Subtotal ***	**213**		**180**			**100%**	**0.94[0.68,1.2]**
Heterogeneity: Tau^2=0.02; Chi^2=4.75, df=4(P=0.31); I^2=15.8%							
Test for overall effect: Z=7.12(P<0.0001)							
10.4.2 Follow-up							
Subtotal ***	**0**		**0**				**Not estimable**



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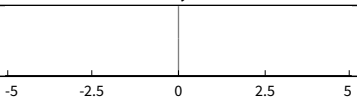
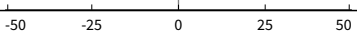
Study or subgroup	Physical activity N	Physical activity Mean(SD)	Control N	Control Mean(SD)	Std. Mean Difference Random, 95% CI	Weight	Std. Mean Difference Random, 95% CI
Heterogeneity: Not applicable							
Test for overall effect: Not applicable							



Analysis 10.5. Comparison 10 Comparison: muscular strength, all physical activity vs control, Outcome 5 Back & leg strength (follow-up values).

Study or subgroup	Physical activity N	Physical activity Mean(SD)	Control N	Control Mean(SD)	Mean Difference Fixed, 95% CI	Weight	Mean Difference Fixed, 95% CI
10.5.1 End of intervention							
Rogers 2009	20	80.3 (27)	18	64.9 (19.7)		46.78%	15.4[0.47,30.33]
Rogers 2013	11	68.4 (15.5)	9	67.1 (16.2)		53.22%	1.3[-12.7,15.3]
Subtotal ***	**31**		**27**			**100%**	**7.9[-2.31,18.11]**
Heterogeneity: Tau^2=0; Chi^2=1.82, df=1(P=0.18); I^2=45.17%							
Test for overall effect: Z=1.52(P=0.13)							
10.5.2 Follow-up							
Subtotal ***	**0**		**0**				**Not estimable**
Heterogeneity: Not applicable							
Test for overall effect: Not applicable							



Analysis 10.6. Comparison 10 Comparison: muscular strength, all physical activity vs control, Outcome 6 Leg extension (follow-up values).

Study or subgroup	Physical activity N	Physical activity Mean(SD)	Control N	Control Mean(SD)	Std. Mean Difference Random, 95% CI	Weight	Std. Mean Difference Random, 95% CI
10.6.1 End of intervention							
Cerulli 2014	10	51.8 (9.2)	10	44.3 (10.8)		11.95%	0.72[-0.19,1.63]
Nikander 2007	14	1305 (177)	14	1393 (275)		17.17%	-0.37[-1.12,0.38]
Do 2015	32	13 (1.6)	30	13.2 (1.6)		34.47%	-0.09[-0.59,0.41]
Saarto 2012	37	136 (23)	30	136 (29)		36.42%	0[-0.48,0.48]
Subtotal ***	**93**		**84**			**100%**	**-0.01[-0.34,0.32]**
Heterogeneity: Tau^2=0.02; Chi^2=3.47, df=3(P=0.32); I^2=13.65%							
Test for overall effect: Z=0.06(P=0.96)							
10.6.2 Follow-up							
Subtotal ***	**0**		**0**				**Not estimable**
Heterogeneity: Not applicable							
Test for overall effect: Not applicable							

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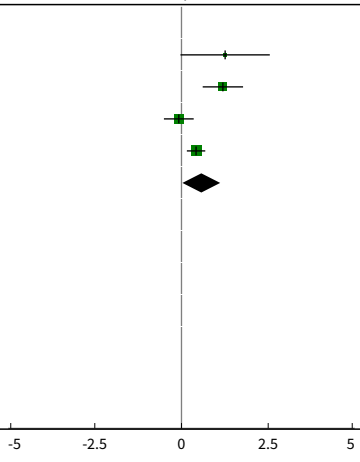
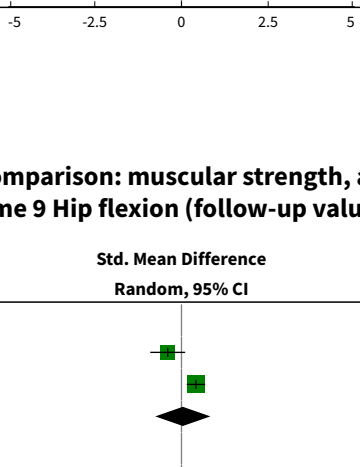
Analysis 10.7. Comparison 10 Comparison: muscular strength, all physical activity vs control, Outcome 7 Leg extension (change values).

Study or subgroup	Physical activity N	Physical activity Mean(SD)	Control N	Control Mean(SD)	Std. Mean Difference Random, 95% CI	Weight	Std. Mean Difference Random, 95% CI
10.7.1 End of intervention							
Nieman 1995	6	28.9 (13.7)	6	3.5 (22.5)		11.95%	1.26[-0.03,2.55]
Cormie 2014	43	37.6 (25.5)	19	6.7 (25.7)		25.5%	1.19[0.61,1.78]
Do 2015	32	0.9 (0.7)	60	1 (0.6)		29.41%	-0.08[-0.51,0.35]
Waltman 2010	110	4.4 (11.5)	113	0.2 (8.4)		33.14%	0.42[0.15,0.69]
Subtotal ***	**191**		**198**			**100%**	**0.57[0.03,1.12]**
Heterogeneity: Tau²=0.21; Chi²=13.57, df=3(P=0); I²=77.9%							
Test for overall effect: Z=2.06(P=0.04)							
10.7.2 Follow-up							
Subtotal ***	**0**		**0**				**Not estimable**
Heterogeneity: Not applicable							
Test for overall effect: Not applicable							



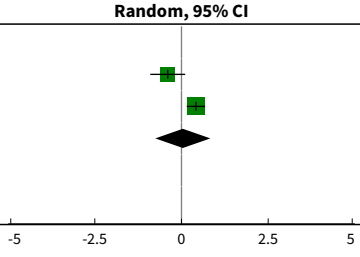
Analysis 10.8. Comparison 10 Comparison: muscular strength, all physical activity vs control, Outcome 8 Hip extension (follow-up values).

Study or subgroup	Physical activity N	Physical activity Mean(SD)	Control N	Control Mean(SD)	Std. Mean Difference Random, 95% CI	Weight	Std. Mean Difference Random, 95% CI
10.8.1 End of intervention							
Do 2015	32	14.2 (2.4)	30	14.7 (2.5)		43.54%	-0.2[-0.7,0.3]
Waltman 2010	110	7.9 (20.6)	113	1.3 (11.2)		56.46%	0.4[0.13,0.66]
Subtotal ***	**142**		**143**			**100%**	**0.14[-0.45,0.72]**
Heterogeneity: Tau²=0.14; Chi²=4.33, df=1(P=0.04); I²=76.93%							
Test for overall effect: Z=0.46(P=0.65)							
10.8.2 Follow-up							
Subtotal ***	**0**		**0**				**Not estimable**
Heterogeneity: Not applicable							
Test for overall effect: Not applicable							



Analysis 10.9. Comparison 10 Comparison: muscular strength, all physical activity vs control, Outcome 9 Hip flexion (follow-up values).

Study or subgroup	Physical activity N	Physical activity Mean(SD)	Control N	Control Mean(SD)	Std. Mean Difference Random, 95% CI	Weight	Std. Mean Difference Random, 95% CI
10.9.1 End of intervention							
Do 2015	32	13.1 (2.1)	30	13.9 (2.2)		46.4%	-0.4[-0.9,0.11]
Waltman 2010	110	2.9 (7.6)	113	-0.9 (10.4)		53.6%	0.42[0.15,0.68]
Subtotal ***	**142**		**143**			**100%**	**0.04[-0.76,0.83]**
Heterogeneity: Tau²=0.29; Chi²=7.85, df=1(P=0.01); I²=87.25%							
Test for overall effect: Z=0.1(P=0.92)							



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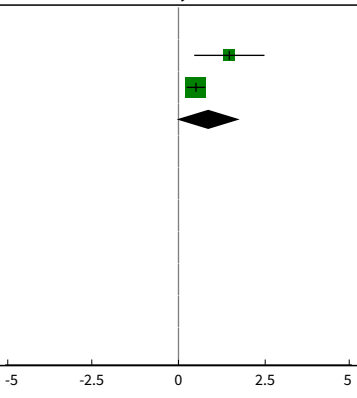
Study or subgroup	Physical activity N	Physical activity Mean(SD)	Control N	Control Mean(SD)	Std. Mean Difference Random, 95% CI	Weight	Std. Mean Difference Random, 95% CI
10.9.2 Follow-up							
Subtotal ***	**0**		**0**				**Not estimable**
Heterogeneity: Not applicable							
Test for overall effect: Not applicable							

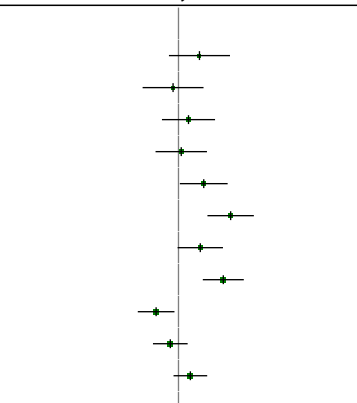
Analysis 10.10. Comparison 10 Comparison: muscular strength, all physical activity vs control, Outcome 10 Leg flexion (follow-up values).

Study or subgroup	Physical activity N	Physical activity Mean(SD)	Control N	Control Mean(SD)	Std. Mean Difference Random, 95% CI	Weight	Std. Mean Difference Random, 95% CI
10.10.1 End of intervention							
Cerulli 2014	10	52.6 (11.4)	10	36.8 (9.1)		36.58%	1.47[0.45,2.48]
Waltman 2010	110	3.9 (10.1)	113	-0 (4.2)		63.42%	0.5[0.24,0.77]
Subtotal ***	**120**		**123**			**100%**	**0.86[-0.05,1.76]**
Heterogeneity: Tau^2=0.32; Chi^2=3.24, df=1(P=0.07); I^2=69.17%							
Test for overall effect: Z=1.85(P=0.06)							
10.10.2 Follow-up							
Subtotal ***	**0**		**0**				**Not estimable**
Heterogeneity: Not applicable							
Test for overall effect: Not applicable							



Analysis 10.11. Comparison 10 Comparison: muscular strength, all physical activity vs control, Outcome 11 Upper body strength (follow-up values).

Study or subgroup	Physical activity N	Physical activity Mean(SD)	Control N	Control Mean(SD)	Std. Mean Difference Random, 95% CI	Weight	Std. Mean Difference Random, 95% CI
10.11.1 End of intervention							
Mustian 2004	11	29.6 (3.3)	10	26.7 (5.7)		6.15%	0.6[-0.28,1.49]
Cerulli 2014	10	16.1 (5.4)	10	17.2 (8.1)		6.16%	-0.16[-1.03,0.72]
Portela 2008	25	39.3 (12.3)	9	35.6 (13.1)		6.83%	0.29[-0.48,1.05]
Nikander 2007	14	131 (20)	14	129 (28)		6.98%	0.08[-0.66,0.82]
Musanti 2012	30	52.1 (21)	12	36.8 (20)		7.3%	0.73[0.04,1.42]
Schmitz 2005	23	83 (13.4)	22	63 (12.7)		7.43%	1.5[0.84,2.17]
Rogers 2009	20	27.9 (5)	18	24.3 (6.2)		7.52%	0.63[-0.03,1.28]
Kaltsatou 2011	28	59.6 (8.5)	26	47.6 (9.8)		7.92%	1.29[0.7,1.88]
Milne 2008	29	7.6 (2.9)	29	9.4 (2.6)		8.31%	-0.64[-1.17,-0.12]
Do 2015	32	9.7 (1.7)	30	10.1 (1.7)		8.49%	-0.24[-0.74,0.26]
Saarto 2012	37	32.7 (5.3)	30	30.8 (5.7)		8.58%	0.34[-0.14,0.83]
Winters-Stone 2011	36	63.3 (15.3)	31	61.1 (16.8)		8.61%	0.14[-0.34,0.62]
Schmitz 2009	113	52.9 (15.3)	119	40.9 (11.8)		9.74%	0.88[0.61,1.15]
Subtotal ***	**408**		**360**			**100%**	**0.42[0.08,0.76]**
Heterogeneity: Tau^2=0.29; Chi^2=56.32, df=12(P<0.0001); I^2=78.69%							
Test for overall effect: Z=2.41(P=0.02)							



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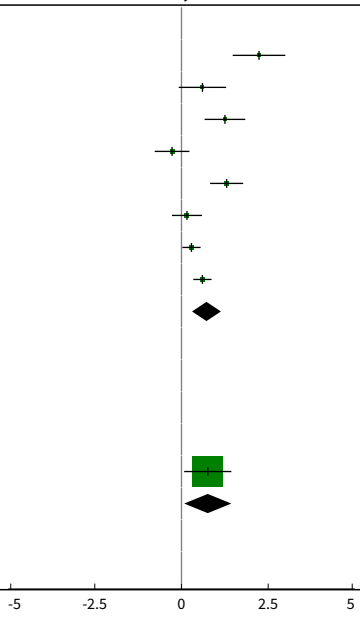
Study or subgroup	Physical activity N	Physical activity Mean(SD)	Control N	Control Mean(SD)	Std. Mean Difference Random, 95% CI	Weight	Std. Mean Difference Random, 95% CI
10.11.2 Follow-up							
Subtotal ***	**0**		**0**				**Not estimable**
Heterogeneity: Not applicable							
Test for overall effect: Not applicable							

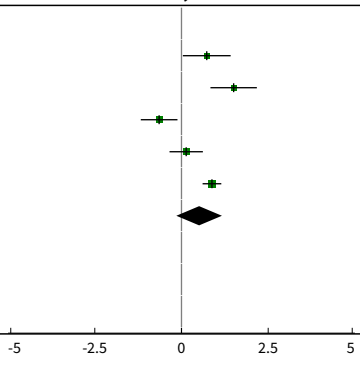
Analysis 10.12. Comparison 10 Comparison: muscular strength, all physical activity vs control, Outcome 12 Upper body strength (change values).

Study or subgroup	Physical activity N	Physical activity Mean(SD)	Control N	Control Mean(SD)	Std. Mean Difference Random, 95% CI	Weight	Std. Mean Difference Random, 95% CI
10.12.1 End of intervention							
Schmitz 2005	23	32.3 (11.5)	22	6.9 (10.8)		10.15%	2.24[1.48,2.99]
Musanti 2012	30	7.7 (10.6)	12	0.8 (12.7)		10.84%	0.6[-0.08,1.29]
Cormie 2014	43	5.7 (3.7)	19	1 (3.8)		11.75%	1.25[0.67,1.84]
Do 2015	32	0.3 (0.5)	30	0.6 (1.2)		12.53%	-0.27[-0.77,0.23]
Mustian 2004	45	4.5 (4.7)	38	-0.8 (3.2)		12.75%	1.3[0.82,1.78]
Irwin 2015	45	0.4 (1.9)	38	0.1 (1.9)		13.14%	0.16[-0.27,0.59]
Waltman 2010	110	1.9 (4.9)	113	0.8 (2.9)		14.42%	0.29[0.02,0.55]
Schmitz 2009	113	33.2 (40.8)	119	7.6 (43.7)		14.42%	0.6[0.34,0.87]
Subtotal ***	**441**		**391**			**100%**	**0.72[0.3,1.14]**
Heterogeneity: Tau^2=0.3; Chi^2=51.53, df=7(P<0.0001); I^2=86.41%							
Test for overall effect: Z=3.39(P=0)							
10.12.2 Follow-up							
Rogers 2009	19	1.5 (2.3)	17	-0.3 (2.4)		100%	0.76[0.08,1.44]
Subtotal ***	**19**		**17**			**100%**	**0.76[0.08,1.44]**
Heterogeneity: Not applicable							
Test for overall effect: Z=2.18(P=0.03)							



Analysis 10.13. Comparison 10 Comparison: muscular strength, all physical activity vs control, Outcome 13 Chest press (follow-up values).

Study or subgroup	Physical activity N	Physical activity Mean(SD)	Control N	Control Mean(SD)	Std. Mean Difference Random, 95% CI	Weight	Std. Mean Difference Random, 95% CI
10.13.1 End of intervention							
Musanti 2012	30	52.1 (21)	12	36.8 (20)		18.43%	0.73[0.04,1.42]
Schmitz 2005	23	83 (13.4)	22	63 (12.7)		18.65%	1.5[0.84,2.17]
Milne 2008	29	7.6 (2.9)	29	9.4 (2.6)		20.1%	-0.64[-1.17,-0.12]
Winters-Stone 2011	36	63.3 (15.3)	31	61.1 (16.8)		20.57%	0.14[-0.34,0.62]
Schmitz 2009	113	52.9 (15.3)	119	40.9 (11.8)		22.24%	0.88[0.61,1.15]
Subtotal ***	**231**		**213**			**100%**	**0.51[-0.15,1.17]**
Heterogeneity: Tau^2=0.49; Chi^2=36.09, df=4(P<0.0001); I^2=88.92%							
Test for overall effect: Z=1.52(P=0.13)							



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Study or subgroup	Physical activity N	Physical activity Mean(SD)	Control N	Control Mean(SD)	Std. Mean Difference Random, 95% CI	Weight	Std. Mean Difference Random, 95% CI
10.13.2 Follow-up							
Subtotal ***	**0**		**0**				**Not estimable**
Heterogeneity: Not applicable							
Test for overall effect: Not applicable							

Favours control -5 -2.5 0 2.5 5 Favours physical activity

Analysis 10.14. Comparison 10 Comparison: muscular strength, all physical activity vs control, Outcome 14 Chest press (change values).

Study or subgroup	Physical activity N	Physical activity Mean(SD)	Control N	Control Mean(SD)	Std. Mean Difference Random, 95% CI	Weight	Std. Mean Difference Random, 95% CI
10.14.1 End of intervention							
Schmitz 2005	23	32.3 (11.5)	22	6.9 (10.8)		22.13%	2.24[1.48,2.99]
Musanti 2012	30	7.7 (10.6)	12	0.8 (12.7)		23.39%	0.6[-0.08,1.29]
Cormie 2014	43	5.7 (3.7)	19	1 (3.8)		24.99%	1.25[0.67,1.84]
Schmitz 2009	113	33.2 (40.8)	119	7.6 (43.7)		29.49%	0.6[0.34,0.87]
Subtotal ***	**209**		**172**			**100%**	**1.13[0.46,1.8]**
Heterogeneity: Tau^2=0.38; Chi^2=18.46, df=3(P=0); I^2=83.75%							
Test for overall effect: Z=3.3(P=0)							
10.14.2 Follow-up							
Subtotal ***	**0**		**0**				**Not estimable**
Heterogeneity: Not applicable							
Test for overall effect: Not applicable							

Favours control -5 -2.5 0 2.5 5 Favours physical activity

Analysis 10.15. Comparison 10 Comparison: muscular strength, all physical activity vs control, Outcome 15 Grip strength (follow-up).

Study or subgroup	Physical activity N	Physical activity Mean(SD)	Control N	Control Mean(SD)	Mean Difference Random, 95% CI	Weight	Mean Difference Random, 95% CI
10.15.1 End of intervention							
Portela 2008	25	39.3 (12.3)	9	35.6 (13.1)		4.04%	3.66[-6.16,13.48]
Mustian 2004	11	29.6 (3.9)	10	26.7 (6.6)		11.08%	2.9[-1.8,7.6]
Rogers 2009	20	29.2 (5.2)	18	25.4 (5.9)		14.26%	3.8[0.25,7.35]
Saarto 2012	37	32.7 (5.3)	30	30.8 (5.7)		17.13%	1.9[-0.76,4.56]
Winters-Stone 2011	36	25.3 (5.2)	31	24.6 (5.7)		17.26%	0.7[-1.92,3.32]
Kim 2015	20	21.9 (4.2)	19	22.9 (3.7)		17.72%	-1[-3.48,1.48]
Kaltsatou 2011	28	27.5 (3.9)	26	21.6 (4.5)		18.51%	5.9[3.66,8.14]
Subtotal ***	**177**		**143**			**100%**	**2.37[0.2,4.55]**
Heterogeneity: Tau^2=5.34; Chi^2=19.03, df=6(P=0); I^2=68.46%							
Test for overall effect: Z=2.14(P=0.03)							
10.15.2 Follow-up							
Subtotal ***	**0**		**0**				**Not estimable**
Heterogeneity: Not applicable							
Test for overall effect: Not applicable							

Favours control -20 -10 0 10 20 Favours physical activity

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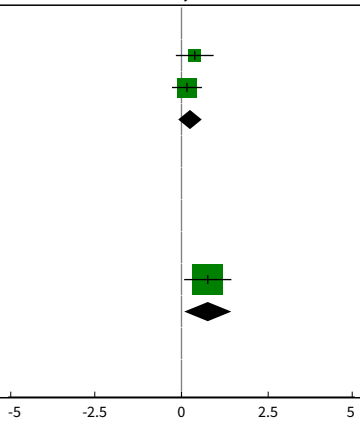
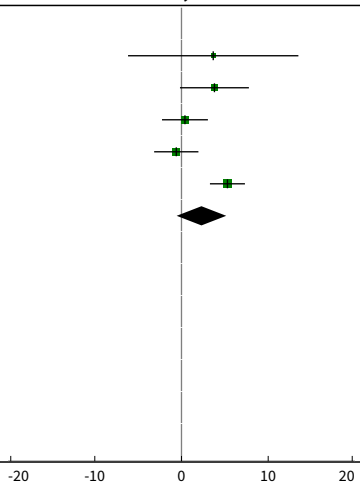
Analysis 10.16. Comparison 10 Comparison: muscular strength, all physical activity vs control, Outcome 16 Grip strength (change values).

Study or subgroup	Physical activity N	Physical activity Mean(SD)	Control N	Control Mean(SD)	Std. Mean Difference Random, 95% CI	Weight	Std. Mean Difference Random, 95% CI
10.16.1 End of intervention							
Cormie 2014	43	1.8 (3.7)	19	0.4 (3.5)		38.7%	0.38[-0.16,0.93]
Irwin 2015	45	0.4 (1.9)	38	0.1 (1.9)		61.3%	0.16[-0.27,0.59]
Subtotal ***	**88**		**57**			**100%**	**0.24[-0.09,0.58]**
Heterogeneity: Tau²=0; Chi²=0.4, df=1(P=0.53); I²=0%							
Test for overall effect: Z=1.42(P=0.16)							
10.16.2 Follow-up							
Rogers 2009	19	1.5 (2.3)	17	-0.3 (2.4)		100%	0.76[0.08,1.44]
Subtotal ***	**19**		**17**			**100%**	**0.76[0.08,1.44]**
Heterogeneity: Not applicable							
Test for overall effect: Z=2.18(P=0.03)							



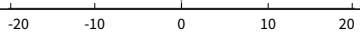
Analysis 10.17. Comparison 10 Comparison: muscular strength, all physical activity vs control, Outcome 17 Grip strength right hand (follow-up).

Study or subgroup	Physical activity N	Physical activity Mean(SD)	Control N	Control Mean(SD)	Mean Difference Random, 95% CI	Weight	Mean Difference Random, 95% CI
10.17.1 End of intervention							
Portela 2008	25	39.3 (12.3)	9	35.6 (13.1)		6.61%	3.66[-6.16,13.48]
Rogers 2009	20	29.2 (6.6)	18	25.4 (5.9)		19.03%	3.8[-0.17,7.77]
Winters-Stone 2011	36	25.7 (5.3)	31	25.3 (5.7)		23.92%	0.4[-2.25,3.05]
Kim 2015	20	22.7 (4.3)	19	23.3 (3.9)		24.27%	-0.6[-3.15,1.95]
Kaltsatou 2011	28	27 (3.4)	26	21.7 (4.1)		26.17%	5.3[3.28,7.32]
Subtotal ***	**129**		**103**			**100%**	**2.3[-0.56,5.16]**
Heterogeneity: Tau²=7.08; Chi²=15.95, df=4(P=0); I²=74.92%							
Test for overall effect: Z=1.58(P=0.11)							
10.17.2 Follow-up							
Subtotal ***	**0**		**0**				**Not estimable**
Heterogeneity: Not applicable							
Test for overall effect: Not applicable							



Analysis 10.18. Comparison 10 Comparison: muscular strength, all physical activity vs control, Outcome 18 Grip strength left hand (follow-up).

Study or subgroup	Physical activity N	Physical activity Mean(SD)	Control N	Control Mean(SD)	Mean Difference Random, 95% CI	Weight	Mean Difference Random, 95% CI
10.18.1 End of intervention							
Rogers 2009	20	26.5 (4.6)	18	23.1 (6.4)		22.19%	3.4[-0.18,6.98]



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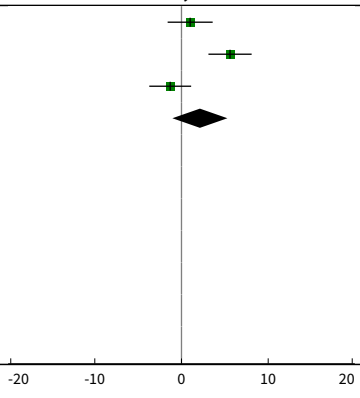
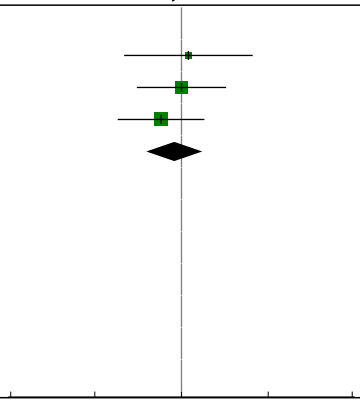
Study or subgroup	Physical activity N	Physical activity Mean(SD)	Control N	Control Mean(SD)	Mean Difference Random, 95% CI	Weight	Mean Difference Random, 95% CI
Winters-Stone 2011	36	24.8 (5.2)	31	23.8 (5.6)		25.61%	1[-1.6,3.6]
Kaltsatou 2011	28	27.1 (4.4)	26	21.5 (4.9)		25.97%	5.6[3.11,8.09]
Kim 2015	20	21.1 (4.2)	19	22.4 (3.5)		26.22%	-1.3[-3.71,1.11]
Subtotal ***	**104**		**94**			**100%**	**2.12[-1.05,5.3]**
Heterogeneity: Tau²=8.48; Chi²=16.36, df=3(P=0); I²=81.66%							
Test for overall effect: Z=1.31(P=0.19)							
10.18.2 Follow-up							
Subtotal ***	**0**		**0**				**Not estimable**
Heterogeneity: Not applicable							
Test for overall effect: Not applicable							



Analysis 10.19. Comparison 10 Comparison: muscular strength, all physical activity vs control, Outcome 19 Elbow flexion (follow-up values).

Study or subgroup	Physical activity N	Physical activity Mean(SD)	Control N	Control Mean(SD)	Std. Mean Difference Fixed, 95% CI	Weight	Std. Mean Difference Fixed, 95% CI
10.19.1 End of intervention							
Nikander 2007	14	131 (20)	14	129 (28)		18.97%	0.08[-0.66,0.82]
Milne 2008	29	16.8 (3.7)	29	16.8 (4.2)		39.33%	0[-0.51,0.51]
Do 2015	32	9.7 (1.7)	30	10.1 (1.7)		41.69%	-0.24[-0.74,0.26]
Subtotal ***	**75**		**73**			**100%**	**-0.08[-0.41,0.24]**
Heterogeneity: Tau²=0; Chi²=0.64, df=2(P=0.72); I²=0%							
Test for overall effect: Z=0.51(P=0.61)							
10.19.2 Follow-up							
Subtotal ***	**0**		**0**				**Not estimable**
Heterogeneity: Not applicable							
Test for overall effect: Not applicable							



Comparison 11. Comparison: bone health, all physical activity vs control

Outcome or subgroup title	No. of studies	No. of participants	Statistical method	Effect size
1 Bone mineral content (follow-up and change values)	2		Std. Mean Difference (IV, Random, 95% CI)	Subtotals only
1.1 End of intervention	2	525	Std. Mean Difference (IV, Random, 95% CI)	0.04 [-0.20, 0.27]
1.2 Follow-up	0	0	Std. Mean Difference (IV, Random, 95% CI)	0.0 [0.0, 0.0]
2 Bone mineral density - femoral neck (follow-up and change values)	4		Std. Mean Difference (IV, Random, 95% CI)	Subtotals only

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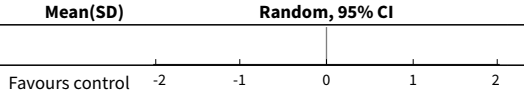
Outcome or subgroup title	No. of studies	No. of participants	Statistical method	Effect size
2.1 End of intervention	4	786	Std. Mean Difference (IV, Random, 95% CI)	0.21 [-0.13, 0.55]
2.2 Follow-up	0	0	Std. Mean Difference (IV, Random, 95% CI)	0.0 [0.0, 0.0]
3 Bone mineral density - lumbar spine (follow-up and change values)	4		Std. Mean Difference (IV, Random, 95% CI)	Subtotals only
3.1 End of intervention	4	786	Std. Mean Difference (IV, Random, 95% CI)	0.22 [-0.09, 0.53]
3.2 Follow-up	0	0	Std. Mean Difference (IV, Random, 95% CI)	0.0 [0.0, 0.0]
4 Bone mineral density - total hip (follow-up and change values)	3		Std. Mean Difference (IV, Random, 95% CI)	Subtotals only
4.1 End of intervention	3	329	Std. Mean Difference (IV, Random, 95% CI)	0.58 [-0.02, 1.18]
4.2 Follow-up	0	0	Std. Mean Difference (IV, Random, 95% CI)	0.0 [0.0, 0.0]
5 Bone formation - alkaline phosphatase (follow-up and change values)	2		Std. Mean Difference (IV, Random, 95% CI)	Subtotals only
5.1 End of intervention	2	239	Std. Mean Difference (IV, Random, 95% CI)	-0.25 [-1.81, 1.31]
5.2 Follow-up	0	0	Std. Mean Difference (IV, Random, 95% CI)	0.0 [0.0, 0.0]
6 Bone resorption - serum NTx (follow-up and change values)	3		Std. Mean Difference (IV, Random, 95% CI)	Subtotals only
6.1 End of intervention	3	278	Std. Mean Difference (IV, Random, 95% CI)	0.38 [-1.58, 2.34]
6.2 Follow-up	0	0	Std. Mean Difference (IV, Random, 95% CI)	0.0 [0.0, 0.0]

Analysis 11.1. Comparison 11 Comparison: bone health, all physical activity vs control, Outcome 1 Bone mineral content (follow-up and change values).

Study or subgroup	Physical activity N	Physical activity Mean(SD)	Control N	Control Mean(SD)	Std. Mean Difference Random, 95% CI	Weight	Std. Mean Difference Random, 95% CI
11.1.1 End of intervention							



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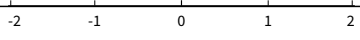
Study or subgroup	Physical activity N	Physical activity Mean(SD)	Control N	Control Mean(SD)	Std. Mean Difference Random, 95% CI	Weight	Std. Mean Difference Random, 95% CI
Cadmus 2009	36	2216 (383)	32	2120 (308)		20.89%	0.27[-0.21,0.75]
Saarto 2012	239	-45.3 (74.5)	218	-43.5 (73.3)		79.11%	-0.02[-0.21,0.16]
Subtotal ***	**275**		**250**			**100%**	**0.04[-0.2,0.27]**
Heterogeneity: Tau²=0.01; Chi²=1.28, df=1(P=0.26); I²=21.7%							
Test for overall effect: Z=0.31(P=0.75)							
11.1.2 Follow-up							
Subtotal ***	**0**		**0**				**Not estimable**
Heterogeneity: Not applicable							
Test for overall effect: Not applicable							



Analysis 11.2. Comparison 11 Comparison: bone health, all physical activity vs control, Outcome 2 Bone mineral density - femoral neck (follow-up and change values).

Study or subgroup	Physical activity N	Physical activity Mean(SD)	Control N	Control Mean(SD)	Std. Mean Difference Random, 95% CI	Weight	Std. Mean Difference Random, 95% CI
11.2.1 End of intervention							
Kim 2015	20	0.8 (0.1)	19	0.8 (0.1)		16.08%	-0.37[-1,0.27]
Winters-Stone 2011	36	0.7 (0.1)	31	0.7 (0.1)		21.11%	0.11[-0.37,0.59]
Waltman 2010	110	0.9 (0.5)	113	0.6 (0.4)		29.76%	0.63[0.36,0.9]
Saarto 2012	239	-0 (0)	218	-0 (0)		33.05%	0.18[-0,0.37]
Subtotal ***	**405**		**381**			**100%**	**0.21[-0.13,0.55]**
Heterogeneity: Tau²=0.08; Chi²=11.96, df=3(P=0.01); I²=74.92%							
Test for overall effect: Z=1.21(P=0.22)							
11.2.2 Follow-up							
Subtotal ***	**0**		**0**				**Not estimable**
Heterogeneity: Not applicable							
Test for overall effect: Not applicable							

Analysis 11.3. Comparison 11 Comparison: bone health, all physical activity vs control, Outcome 3 Bone mineral density - lumbar spine (follow-up and change values).

Study or subgroup	Physical activity N	Physical activity Mean(SD)	Control N	Control Mean(SD)	Std. Mean Difference Random, 95% CI	Weight	Std. Mean Difference Random, 95% CI
11.3.1 End of intervention							
Kim 2015	20	1 (0.1)	19	1 (0.1)		14.92%	-0.26[-0.89,0.37]
Winters-Stone 2011	36	1 (0.2)	31	1 (0.1)		20.08%	0.3[-0.19,0.78]
Waltman 2010	110	3.1 (0.4)	113	2.9 (0.4)		30.42%	0.55[0.28,0.81]
Saarto 2012	239	-0 (0)	218	-0 (0)		34.58%	0.09[-0.09,0.27]
Subtotal ***	**405**		**381**			**100%**	**0.22[-0.09,0.53]**
Heterogeneity: Tau²=0.06; Chi²=9.95, df=3(P=0.02); I²=69.85%							
Test for overall effect: Z=1.38(P=0.17)							
11.3.2 Follow-up							

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Study or subgroup	Physical activity N	Physical activity Mean(SD)	Control N	Control Mean(SD)	Std. Mean Difference Random, 95% CI	Weight	Std. Mean Difference Random, 95% CI
Subtotal ***	**0**		**0**				**Not estimable**
Heterogeneity: Not applicable							
Test for overall effect: Not applicable							

Favours control -2 -1 0 1 2 Favours physical activity

Analysis 11.4. Comparison 11 Comparison: bone health, all physical activity vs control, Outcome 4 Bone mineral density - total hip (follow-up and change values).

Study or subgroup	Physical activity N	Physical activity Mean(SD)	Control N	Control Mean(SD)	Std. Mean Difference Random, 95% CI	Weight	Std. Mean Difference Random, 95% CI
11.4.1 End of intervention							
Kim 2015	20	0.9 (0.1)	19	0.8 (0.1)		28.61%	0.4[-0.23,1.04]
Winters-Stone 2011	36	0.9 (0.1)	31	0.8 (0.1)		33.04%	0.19[-0.29,0.67]
Waltman 2010	110	2.2 (0.3)	113	1.8 (0.4)		38.35%	1.05[0.77,1.33]
Subtotal ***	**166**		**163**			**100%**	**0.58[-0.02,1.18]**
Heterogeneity: Tau^2=0.23; Chi^2=10.71, df=2(P=0); I^2=81.32%							
Test for overall effect: Z=1.88(P=0.06)							
11.4.2 Follow-up							
Subtotal ***	**0**		**0**				**Not estimable**
Heterogeneity: Not applicable							
Test for overall effect: Not applicable							

Favours control -20 -10 0 10 20 Favours physical activity

Analysis 11.5. Comparison 11 Comparison: bone health, all physical activity vs control, Outcome 5 Bone formation - alkaline phosphatase (follow-up and change values).

Study or subgroup	Physical activity N	Physical activity Mean(SD)	Control N	Control Mean(SD)	Std. Mean Difference Random, 95% CI	Weight	Std. Mean Difference Random, 95% CI
11.5.1 End of intervention							
Mustian 2004	7	10.2 (2.9)	9	8.1 (3.3)		45.13%	0.63[-0.39,1.65]
Waltman 2010	110	-11.1 (2.3)	113	-8.7 (2.6)		54.87%	-0.97[-1.25,-0.7]
Subtotal ***	**117**		**122**			**100%**	**-0.25[-1.81,1.31]**
Heterogeneity: Tau^2=1.14; Chi^2=8.85, df=1(P=0); I^2=88.71%							
Test for overall effect: Z=0.31(P=0.75)							
11.5.2 Follow-up							
Subtotal ***	**0**		**0**				**Not estimable**
Heterogeneity: Not applicable							
Test for overall effect: Not applicable							

Favours control -5 -2.5 0 2.5 5 Favours physical activity

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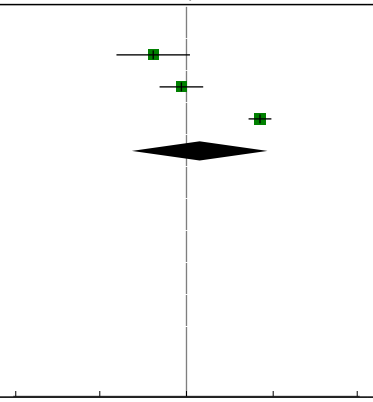
Analysis 11.6. Comparison 11 Comparison: bone health, all physical activity vs control, Outcome 6 Bone resorption - serum NTx (follow-up and change values).

Study or subgroup	Physical activity N	Physical activity Mean(SD)	Control N	Control Mean(SD)	Std. Mean Difference Random, 95% CI	Weight	Std. Mean Difference Random, 95% CI
11.6.1 End of intervention							
Mustian 2004	7	11.1 (7.7)	9	18.8 (7.5)		31.69%	-0.96[-2.02,0.1]
Kim 2015	20	52.3 (17.8)	19	55.7 (26.9)		33.72%	-0.15[-0.78,0.48]
Waltman 2010	110	-16.7 (3.3)	113	-23.2 (2.8)		34.59%	2.12[1.79,2.45]
Subtotal ***	**137**		**141**			**100%**	**0.38[-1.58,2.34]**
Heterogeneity: Tau²=2.85; Chi²=60.53, df=2(P<0.0001); I²=96.7%							
Test for overall effect: Z=0.38(P=0.7)							
11.6.2 Follow-up							
Subtotal ***	**0**		**0**				**Not estimable**
Heterogeneity: Not applicable							
Test for overall effect: Not applicable							



Comparison 12. Subanalysis: outcomes by menopausal status

Outcome or subgroup title	No. of studies	No. of participants	Statistical method	Effect size
1 Overall HRQoL (follow-up values)	9		Std. Mean Difference (IV, Random, 95% CI)	Subtotals only
1.1 Postmenopausal only	3	186	Std. Mean Difference (IV, Random, 95% CI)	0.24 [-0.05, 0.54]
1.2 Not postmenopausal only	6	818	Std. Mean Difference (IV, Random, 95% CI)	0.55 [0.11, 0.98]
2 Overall HRQoL (change values)	7		Std. Mean Difference (IV, Random, 95% CI)	Subtotals only
2.1 Postmenopausal only	3	186	Std. Mean Difference (IV, Random, 95% CI)	0.49 [0.19, 0.79]
2.2 Not postmenopausal only	4	952	Std. Mean Difference (IV, Random, 95% CI)	0.13 [-0.11, 0.38]
3 Overall emotional function/mental health (follow-up values)	11		Std. Mean Difference (IV, Random, 95% CI)	Subtotals only
3.1 Postmenopausal only	2	126	Std. Mean Difference (IV, Random, 95% CI)	0.21 [-0.14, 0.56]
3.2 Not postmenopausal only	9	990	Std. Mean Difference (IV, Random, 95% CI)	0.25 [0.06, 0.44]
4 Overall emotional function/mental health (change values)	7		Std. Mean Difference (IV, Random, 95% CI)	Subtotals only

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Outcome or subgroup title	No. of studies	No. of participants	Statistical method	Effect size
4.1 Postmenopausal only	2	126	Std. Mean Difference (IV, Random, 95% CI)	0.37 [0.01, 0.72]
4.2 Not postmenopausal only	5	1013	Std. Mean Difference (IV, Random, 95% CI)	0.08 [-0.17, 0.33]
5 Overall physical function (follow-up values)	11		Std. Mean Difference (IV, Random, 95% CI)	Subtotals only
5.1 Postmenopausal only	3	187	Std. Mean Difference (IV, Random, 95% CI)	0.09 [-0.20, 0.38]
5.2 Not postmenopausal only	8	929	Std. Mean Difference (IV, Random, 95% CI)	0.50 [0.10, 0.90]
6 Overall physical function (change values)	6		Std. Mean Difference (IV, Random, 95% CI)	Subtotals only
6.1 Postmenopausal only	2	126	Std. Mean Difference (IV, Random, 95% CI)	0.52 [-0.36, 1.39]
6.2 Not postmenopausal only	4	949	Std. Mean Difference (IV, Random, 95% CI)	0.03 [-0.20, 0.25]
7 Overall role function (follow-up values)	8		Std. Mean Difference (IV, Random, 95% CI)	Subtotals only
7.1 Postmenopausal only	2	126	Std. Mean Difference (IV, Random, 95% CI)	0.27 [-0.08, 0.62]
7.2 Not postmenopausal only	6	818	Std. Mean Difference (IV, Random, 95% CI)	0.42 [-0.07, 0.90]
8 Overall role function (change values)	6		Std. Mean Difference (IV, Random, 95% CI)	Subtotals only
8.1 Postmenopausal only	2	126	Std. Mean Difference (IV, Random, 95% CI)	0.11 [-0.24, 0.46]
8.2 Not postmenopausal only	4	952	Std. Mean Difference (IV, Random, 95% CI)	-0.00 [-0.14, 0.13]
9 Overall social well-being/function (follow-up values)	8		Std. Mean Difference (IV, Random, 95% CI)	Subtotals only
9.1 Postmenopausal only	3	168	Std. Mean Difference (IV, Random, 95% CI)	0.43 [-0.06, 0.91]
9.2 Not postmenopausal only	5	867	Std. Mean Difference (IV, Random, 95% CI)	0.09 [-0.05, 0.24]
10 Overall social well-being/function (change values)	6		Std. Mean Difference (IV, Random, 95% CI)	Subtotals only

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Outcome or subgroup title	No. of studies	No. of participants	Statistical method	Effect size
10.1 Postmenopausal only	3	168	Std. Mean Difference (IV, Random, 95% CI)	0.50 [0.19, 0.80]
10.2 Not postmenopausal only	3	873	Std. Mean Difference (IV, Random, 95% CI)	0.50 [-0.39, 1.40]
11 Overall cognitive function (follow-up values)	3		Std. Mean Difference (IV, Random, 95% CI)	Subtotals only
11.1 Postmenopausal only	0	0	Std. Mean Difference (IV, Random, 95% CI)	0.0 [0.0, 0.0]
11.2 Not postmenopausal only	3	116	Std. Mean Difference (IV, Random, 95% CI)	0.58 [0.20, 0.95]
12 Overall cognitive function (change values)	3		Std. Mean Difference (IV, Random, 95% CI)	Subtotals only
12.1 Postmenopausal only	0	0	Std. Mean Difference (IV, Random, 95% CI)	0.0 [0.0, 0.0]
12.2 Not postmenopausal only	3	599	Std. Mean Difference (IV, Random, 95% CI)	0.12 [-0.31, 0.55]
13 Overall general health (follow-up values)	4		Std. Mean Difference (IV, Random, 95% CI)	Subtotals only
13.1 Postmenopausal only	2	134	Std. Mean Difference (IV, Random, 95% CI)	-0.03 [-0.41, 0.35]
13.2 Not postmenopausal only	2	117	Std. Mean Difference (IV, Random, 95% CI)	-0.09 [-0.57, 0.39]
14 Overall general health (change values)	5		Std. Mean Difference (IV, Random, 95% CI)	Subtotals only
14.1 Postmenopausal only	2	134	Std. Mean Difference (IV, Random, 95% CI)	0.27 [-0.18, 0.71]
14.2 Not postmenopausal only	3	617	Std. Mean Difference (IV, Random, 95% CI)	-0.01 [-0.22, 0.21]
15 Overall sexual function (follow-up values)	2		Std. Mean Difference (IV, Fixed, 95% CI)	Subtotals only
15.1 Postmenopausal only	0	0	Std. Mean Difference (IV, Fixed, 95% CI)	0.0 [0.0, 0.0]
15.2 Not postmenopausal only	2	161	Std. Mean Difference (IV, Fixed, 95% CI)	0.31 [-0.00, 0.62]
16 Overall sexual function (change values)	2		Std. Mean Difference (IV, Random, 95% CI)	Subtotals only

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Outcome or subgroup title	No. of studies	No. of participants	Statistical method	Effect size
16.1 Postmenopausal only	0	0	Std. Mean Difference (IV, Random, 95% CI)	0.0 [0.0, 0.0]
16.2 Not postmenopausal only	2	579	Std. Mean Difference (IV, Random, 95% CI)	0.08 [-0.14, 0.30]
17 Overall sleep (follow-up values)	4		Std. Mean Difference (IV, Fixed, 95% CI)	Subtotals only
17.1 Postmenopausal only	1	42	Std. Mean Difference (IV, Fixed, 95% CI)	-0.11 [-0.72, 0.49]
17.2 Not postmenopausal only	3	89	Std. Mean Difference (IV, Fixed, 95% CI)	0.18 [-0.24, 0.60]
18 Overall sleep (change values)	2		Std. Mean Difference (IV, Random, 95% CI)	Subtotals only
18.1 Postmenopausal only	1	42	Std. Mean Difference (IV, Random, 95% CI)	0.23 [-0.38, 0.84]
18.2 Not postmenopausal only	1	38	Std. Mean Difference (IV, Random, 95% CI)	0.05 [-0.59, 0.68]
19 Overall anxiety (follow-up values)	4		Std. Mean Difference (IV, Random, 95% CI)	Subtotals only
19.1 Postmenopausal only	2	116	Std. Mean Difference (IV, Random, 95% CI)	-0.09 [-0.46, 0.27]
19.2 Not postmenopausal only	2	79	Std. Mean Difference (IV, Random, 95% CI)	-0.66 [-1.12, -0.20]
20 Overall anxiety (change values)	3		Std. Mean Difference (IV, Fixed, 95% CI)	Subtotals only
20.1 Postmenopausal only	2	116	Std. Mean Difference (IV, Fixed, 95% CI)	-0.23 [-0.60, 0.13]
20.2 Not postmenopausal only	1	61	Std. Mean Difference (IV, Fixed, 95% CI)	-0.61 [-1.12, -0.09]
21 Overall self-esteem/body image (follow-up values)	4		Std. Mean Difference (IV, Random, 95% CI)	Subtotals only
21.1 Postmenopausal only	2	126	Std. Mean Difference (IV, Random, 95% CI)	0.10 [-0.25, 0.45]
21.2 Not postmenopausal only	2	76	Std. Mean Difference (IV, Random, 95% CI)	0.60 [-0.15, 1.35]
22 Overall self-esteem/body image (change values)	4		Std. Mean Difference (IV, Random, 95% CI)	Subtotals only

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Outcome or subgroup title	No. of studies	No. of participants	Statistical method	Effect size
22.1 Postmenopausal only	2	126	Std. Mean Difference (IV, Random, 95% CI)	0.38 [-0.30, 1.05]
22.2 Not postmenopausal only	2	558	Std. Mean Difference (IV, Random, 95% CI)	0.08 [-0.31, 0.47]
23 Overall depression (follow-up values)	8		Std. Mean Difference (IV, Random, 95% CI)	Subtotals only
23.1 Postmenopausal only	4	196	Std. Mean Difference (IV, Random, 95% CI)	0.18 [-0.13, 0.48]
23.2 Not postmenopausal only	4	296	Std. Mean Difference (IV, Random, 95% CI)	-0.42 [-0.77, -0.06]
24 Overall depression (change values)	5		Std. Mean Difference (IV, Random, 95% CI)	Subtotals only
24.1 Postmenopausal only	3	176	Std. Mean Difference (IV, Random, 95% CI)	-0.27 [-0.57, 0.04]
24.2 Not postmenopausal only	2	561	Std. Mean Difference (IV, Random, 95% CI)	-0.21 [-0.82, 0.40]
25 Overall fatigue (follow-up values)	15		Std. Mean Difference (IV, Random, 95% CI)	Subtotals only
25.1 Postmenopausal only	6	313	Std. Mean Difference (IV, Random, 95% CI)	0.04 [-0.19, 0.26]
25.2 Not postmenopausal only	9	834	Std. Mean Difference (IV, Random, 95% CI)	-0.53 [-0.87, -0.18]
26 Overall fatigue (change values)	7		Std. Mean Difference (IV, Random, 95% CI)	Subtotals only
26.1 Postmenopausal only	2	70	Std. Mean Difference (IV, Random, 95% CI)	0.05 [-1.55, 1.64]
26.2 Not postmenopausal only	5	954	Std. Mean Difference (IV, Random, 95% CI)	-0.24 [-0.69, 0.20]
27 Overall pain/disability (follow-up values)	2		Std. Mean Difference (IV, Random, 95% CI)	Subtotals only
27.1 Postmenopausal only	1	74	Std. Mean Difference (IV, Random, 95% CI)	-0.05 [-0.51, 0.40]
27.2 Not postmenopausal only	1	38	Std. Mean Difference (IV, Random, 95% CI)	-0.26 [-0.89, 0.38]
28 Overall pain/disability (change values)	3		Std. Mean Difference (IV, Random, 95% CI)	Subtotals only

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Outcome or subgroup title	No. of studies	No. of participants	Statistical method	Effect size
28.1 Postmenopausal only	2	157	Std. Mean Difference (IV, Random, 95% CI)	-0.29 [-0.61, 0.02]
28.2 Not postmenopausal only	1	36	Std. Mean Difference (IV, Random, 95% CI)	0.22 [-0.43, 0.88]
29 Overall cardiorespiratory fitness (follow-up values)	9		Std. Mean Difference (IV, Random, 95% CI)	Subtotals only
29.1 Postmenopausal only	4	214	Std. Mean Difference (IV, Random, 95% CI)	0.61 [0.30, 0.92]
29.2 Not postmenopausal only	5	418	Std. Mean Difference (IV, Random, 95% CI)	0.19 [-0.01, 0.38]
30 Overall cardiorespiratory fitness (change values)	5		Std. Mean Difference (IV, Random, 95% CI)	Subtotals only
30.1 Postmenopausal only	4	208	Std. Mean Difference (IV, Random, 95% CI)	1.07 [0.48, 1.67]
30.2 Not postmenopausal only	1	498	Std. Mean Difference (IV, Random, 95% CI)	0.16 [-0.02, 0.33]
31 Overall self-reported physical activity (follow-up values)	10		Std. Mean Difference (IV, Random, 95% CI)	Subtotals only
31.1 Postmenopausal only	5	292	Std. Mean Difference (IV, Random, 95% CI)	0.63 [0.17, 1.10]
31.2 Not postmenopausal only	5	810	Std. Mean Difference (IV, Random, 95% CI)	0.45 [0.16, 0.75]
32 Overall self-reported physical activity (change values)	6		Std. Mean Difference (IV, Random, 95% CI)	Subtotals only
32.1 Postmenopausal only	3	186	Std. Mean Difference (IV, Random, 95% CI)	0.83 [0.53, 1.13]
32.2 Not postmenopausal only	3	901	Std. Mean Difference (IV, Random, 95% CI)	0.57 [-0.02, 1.16]
33 Overall objective physical activity (follow-up values)	8		Std. Mean Difference (IV, Random, 95% CI)	Subtotals only
33.1 Postmenopausal only	3	145	Std. Mean Difference (IV, Random, 95% CI)	0.87 [0.27, 1.46]
33.2 Not postmenopausal only	5	645	Std. Mean Difference (IV, Random, 95% CI)	0.19 [-0.03, 0.42]
34 Overall objective physical activity (change values)	5		Std. Mean Difference (IV, Random, 95% CI)	Subtotals only

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Outcome or subgroup title	No. of studies	No. of participants	Statistical method	Effect size
34.1 Postmenopausal only	3	145	Std. Mean Difference (IV, Random, 95% CI)	0.89 [0.54, 1.24]
34.2 Not postmenopausal only	2	363	Std. Mean Difference (IV, Random, 95% CI)	0.45 [-0.67, 1.58]
35 Mass (follow-up values)	8		Mean Difference (IV, Fixed, 95% CI)	Subtotals only
35.1 Postmenopausal only	4	222	Mean Difference (IV, Fixed, 95% CI)	0.69 [-3.74, 5.13]
35.2 Not postmenopausal only	4	411	Mean Difference (IV, Fixed, 95% CI)	0.08 [-0.52, 0.68]
36 Mass (change values)	7		Mean Difference (IV, Random, 95% CI)	Subtotals only
36.1 Postmenopausal only	4	202	Mean Difference (IV, Random, 95% CI)	-0.99 [-1.96, -0.02]
36.2 Not postmenopausal only	3	613	Mean Difference (IV, Random, 95% CI)	0.11 [-0.07, 0.29]
37 BMI (follow-up values)	9		Mean Difference (IV, Fixed, 95% CI)	Subtotals only
37.1 Postmenopausal only	3	161	Mean Difference (IV, Fixed, 95% CI)	-0.60 [-2.62, 1.42]
37.2 Not postmenopausal only	6	745	Mean Difference (IV, Fixed, 95% CI)	0.08 [-0.13, 0.29]
38 BMI (change values)	4		Mean Difference (IV, Random, 95% CI)	Subtotals only
38.1 Postmenopausal only	2	92	Mean Difference (IV, Random, 95% CI)	-0.17 [-0.54, 0.20]
38.2 Not postmenopausal only	2	161	Mean Difference (IV, Random, 95% CI)	-0.02 [-0.09, 0.05]
39 Overall body fat (follow-up values)	11		Std. Mean Difference (IV, Random, 95% CI)	Subtotals only
39.1 Postmenopausal only	5	264	Std. Mean Difference (IV, Random, 95% CI)	-0.06 [-0.36, 0.25]
39.2 Not postmenopausal only	6	353	Std. Mean Difference (IV, Random, 95% CI)	-0.22 [-0.59, 0.15]
40 Overall body fat (change values)	5		Std. Mean Difference (IV, Random, 95% CI)	Subtotals only
40.1 Postmenopausal only	3	128	Std. Mean Difference (IV, Random, 95% CI)	-0.35 [-0.70, 0.00]
40.2 Not postmenopausal only	2	161	Std. Mean Difference (IV, Random, 95% CI)	-1.67 [-4.39, 1.05]
41 Lower body strength (follow-up values)	6		Std. Mean Difference (IV, Random, 95% CI)	Subtotals only

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Outcome or subgroup title	No. of studies	No. of participants	Statistical method	Effect size
41.1 Postmenopausal only	1	67	Std. Mean Difference (IV, Random, 95% CI)	0.19 [-0.30, 0.67]
41.2 Not postmenopausal only	5	228	Std. Mean Difference (IV, Random, 95% CI)	0.46 [0.04, 0.88]
42 Lower body strength (change values)	3		Std. Mean Difference (IV, Random, 95% CI)	Subtotals only
42.1 Postmenopausal only	2	256	Std. Mean Difference (IV, Random, 95% CI)	0.70 [-0.01, 1.41]
42.2 Not postmenopausal only	1	45	Std. Mean Difference (IV, Random, 95% CI)	1.27 [0.63, 1.92]
43 Upper body strength (follow-up values)	5		Std. Mean Difference (IV, Random, 95% CI)	Subtotals only
43.1 Postmenopausal only	1	67	Std. Mean Difference (IV, Random, 95% CI)	0.14 [-0.34, 0.62]
43.2 Not postmenopausal only	4	208	Std. Mean Difference (IV, Random, 95% CI)	0.44 [-0.40, 1.28]
44 Upper body strength (change values)	4		Std. Mean Difference (IV, Random, 95% CI)	Subtotals only
44.1 Postmenopausal only	2	306	Std. Mean Difference (IV, Random, 95% CI)	0.25 [0.03, 0.48]
44.2 Not postmenopausal only	2	81	Std. Mean Difference (IV, Random, 95% CI)	1.49 [0.04, 2.93]
45 Bone mineral density - femoral neck (follow-up and change values)	4		Std. Mean Difference (IV, Random, 95% CI)	Subtotals only
45.1 Postmenopausal only	3	329	Std. Mean Difference (IV, Random, 95% CI)	0.18 [-0.39, 0.75]
45.2 Not postmenopausal only	1	457	Std. Mean Difference (IV, Random, 95% CI)	0.18 [-0.00, 0.37]
46 Bone mineral density - lumbar spine (follow-up and change values)	4		Std. Mean Difference (IV, Random, 95% CI)	Subtotals only
46.1 Postmenopausal only	3	329	Std. Mean Difference (IV, Random, 95% CI)	0.27 [-0.16, 0.70]
46.2 Not postmenopausal only	1	457	Std. Mean Difference (IV, Random, 95% CI)	0.09 [-0.09, 0.27]

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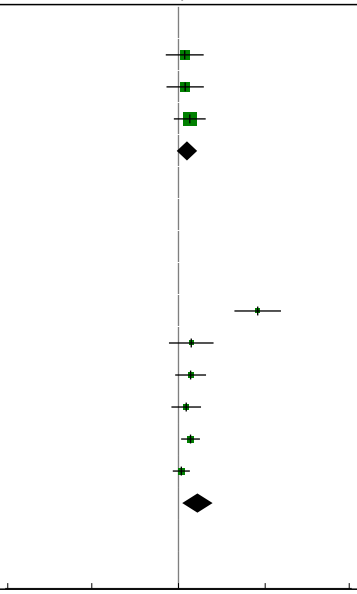
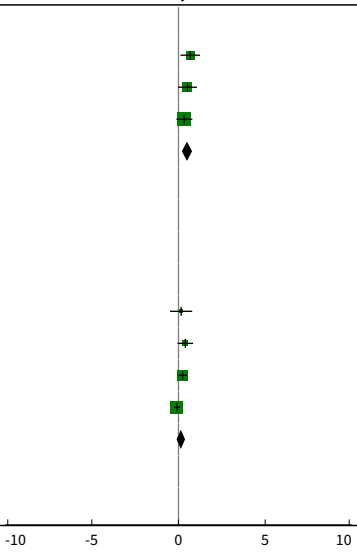
Analysis 12.1. Comparison 12 Subanalysis: outcomes by menopausal status, Outcome 1 Overall HRQoL (follow-up values).

Study or subgroup	Physical activity N	Physical activity Mean(SD)	Control N	Control Mean(SD)	Std. Mean Difference Random, 95% CI	Weight	Std. Mean Difference Random, 95% CI
12.1.1 Postmenopausal only							
Courneya 2003	24	91.3 (11)	28	89.3 (10.9)		28.99%	0.18[-0.37,0.73]
Ergun 2013	40	71.6 (19.9)	20	67.9 (16.7)		29.91%	0.19[-0.35,0.73]
Cadmus 2009	37	91.2 (12.6)	37	86.2 (17.4)		41.1%	0.33[-0.13,0.78]
Subtotal ***	**101**		**85**			**100%**	**0.24[-0.05,0.54]**
Heterogeneity: Tau^2=0; Chi^2=0.21, df=2(P=0.9); I^2=0%							
Test for overall effect: Z=1.62(P=0.1)							
12.1.2 Not postmenopausal only							
Milne 2008	29	86.4 (8.3)	29	64.1 (10.8)		13.79%	2.28[1.61,2.96]
Rogers 2009	20	92 (11.4)	18	87.4 (13.1)		14.17%	0.37[-0.27,1.01]
Schmitz 2005	39	-44.2 (8.7)	40	-47.4 (9.4)		16.86%	0.35[-0.09,0.79]
Loh 2014	63	112.4 (14.1)	32	109.3 (13.3)		17.09%	0.22[-0.2,0.65]
Rogers 2015	105	88.1 (12.4)	108	83.2 (15.5)		18.92%	0.35[0.08,0.62]
Vallance 2007	250	91.5 (11.8)	85	90.6 (13)		19.16%	0.08[-0.16,0.33]
Subtotal ***	**506**		**312**			**100%**	**0.55[0.11,0.98]**
Heterogeneity: Tau^2=0.24; Chi^2=36.76, df=5(P<0.0001); I^2=86.4%							
Test for overall effect: Z=2.44(P=0.01)							



Analysis 12.2. Comparison 12 Subanalysis: outcomes by menopausal status, Outcome 2 Overall HRQoL (change values).

Study or subgroup	Physical activity N	Physical activity Mean(SD)	Control N	Control Mean(SD)	Std. Mean Difference Random, 95% CI	Weight	Std. Mean Difference Random, 95% CI
12.2.1 Postmenopausal only							
Courneya 2003	24	5.7 (7.4)	28	0.6 (7.4)		28.1%	0.68[0.12,1.24]
Ergun 2013	40	5.4 (21.5)	20	-6.7 (25.9)		29.83%	0.52[-0.03,1.06]
Cadmus 2009	37	0.6 (7.5)	37	-2.4 (9.8)		42.07%	0.34[-0.12,0.8]
Subtotal ***	**101**		**85**			**100%**	**0.49[0.19,0.79]**
Heterogeneity: Tau^2=0; Chi^2=0.85, df=2(P=0.65); I^2=0%							
Test for overall effect: Z=3.22(P=0)							
12.2.2 Not postmenopausal only							
Rogers 2009	20	4.5 (8.4)	18	2.9 (12)		11.29%	0.15[-0.49,0.79]
Schmitz 2005	39	2.3 (4.5)	40	0.6 (4)		18.5%	0.4[-0.05,0.84]
Vallance 2007	250	2.3 (11.1)	85	-0.2 (6.4)		32.05%	0.24[-0,0.49]
Saarto 2012	263	4.2 (16.2)	237	5.6 (15.4)		38.15%	-0.09[-0.26,0.09]
Subtotal ***	**572**		**380**			**100%**	**0.13[-0.11,0.38]**
Heterogeneity: Tau^2=0.03; Chi^2=7.11, df=3(P=0.07); I^2=57.8%							
Test for overall effect: Z=1.07(P=0.28)							



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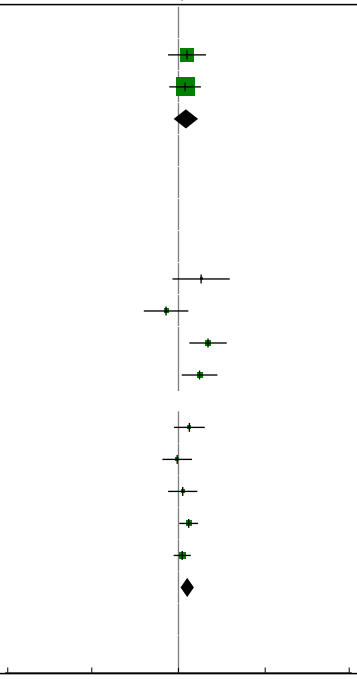
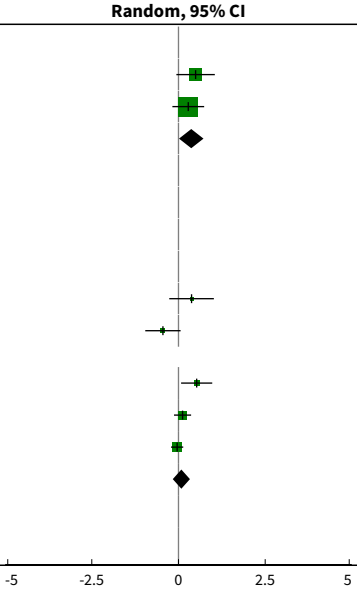
Analysis 12.3. Comparison 12 Subanalysis: outcomes by menopausal status, Outcome 3 Overall emotional function/mental health (follow-up values).

Study or subgroup	Physical activity N	Physical activity Mean(SD)	Control N	Control Mean(SD)	Std. Mean Difference Random, 95% CI	Weight	Std. Mean Difference Random, 95% CI
12.3.1 Postmenopausal only							
Courneya 2003	24	21.5 (3.4)	28	20.7 (3)		41.04%	0.25[-0.3,0.79]
Cadmus 2009	37	20.5 (3)	37	19.8 (4.2)		58.96%	0.19[-0.27,0.65]
Subtotal ***	**61**		**65**			**100%**	**0.21[-0.14,0.56]**
Heterogeneity: Tau²=0; Chi²=0.02, df=1(P=0.88); I²=0%							
Test for overall effect: Z=1.19(P=0.23)							
12.3.2 Not postmenopausal only							
Pinto 2003	12	-10.8 (28.1)	12	-27.2 (19.5)		4.52%	0.65[-0.17,1.48]
Rogers 2009	20	20 (3.1)	18	21.1 (2.9)		6.72%	-0.36[-1,0.28]
Milne 2008	29	19.6 (2.4)	29	16.7 (4.1)		8.65%	0.85[0.31,1.39]
Cantarero-Villanueva 2013	32	-17175 (4279)	29	-20390 (6113)		9.2%	0.61[0.09,1.12]
Schmitz 2005	39	-45.6 (8.2)	40	-48.2 (8.2)		11.08%	0.31[-0.13,0.76]
Loh 2014	63	19.9 (2.8)	32	20 (3.2)		11.64%	-0.04[-0.46,0.39]
Fillion 2008	44	48.5 (7.9)	43	47.5 (9.1)		11.79%	0.12[-0.3,0.54]
Rogers 2015	105	20.6 (2.9)	108	19.7 (3.2)		17.65%	0.29[0.02,0.56]
Vallance 2007	250	20.3 (3.3)	85	19.9 (3.4)		18.76%	0.11[-0.14,0.35]
Subtotal ***	**594**		**396**			**100%**	**0.25[0.06,0.44]**
Heterogeneity: Tau²=0.04; Chi²=14.46, df=8(P=0.07); I²=44.66%							
Test for overall effect: Z=2.57(P=0.01)							



Analysis 12.4. Comparison 12 Subanalysis: outcomes by menopausal status, Outcome 4 Overall emotional function/mental health (change values).

Study or subgroup	Physical activity N	Physical activity Mean(SD)	Control N	Control Mean(SD)	Std. Mean Difference Random, 95% CI	Weight	Std. Mean Difference Random, 95% CI
12.4.1 Postmenopausal only							
Courneya 2003	24	2.3 (3.1)	28	0.8 (2.9)		40.6%	0.49[-0.06,1.05]
Cadmus 2009	37	0.3 (2.2)	37	-0.5 (3.3)		59.4%	0.28[-0.18,0.74]
Subtotal ***	**61**		**65**			**100%**	**0.37[0.01,0.72]**
Heterogeneity: Tau²=0; Chi²=0.33, df=1(P=0.56); I²=0%							
Test for overall effect: Z=2.04(P=0.04)							
12.4.2 Not postmenopausal only							
Rogers 2009	20	0.9 (2.5)	18	-0.1 (2.7)		10.6%	0.38[-0.27,1.02]
Cantarero-Villanueva 2013	32	-1445 (4452)	29	353 (3323)		14.44%	-0.45[-0.96,0.06]
Schmitz 2005	39	2.5 (4.4)	40	0.3 (3.9)		16.7%	0.52[0.08,0.97]
Vallance 2007	250	0.5 (3.5)	85	0.1 (2.5)		27.08%	0.12[-0.13,0.36]
Saarto 2012	263	1.2 (17.8)	237	1.9 (18.5)		31.18%	-0.04[-0.21,0.14]
Subtotal ***	**604**		**409**			**100%**	**0.08[-0.17,0.33]**
Heterogeneity: Tau²=0.04; Chi²=10.22, df=4(P=0.04); I²=60.85%							
Test for overall effect: Z=0.65(P=0.51)							



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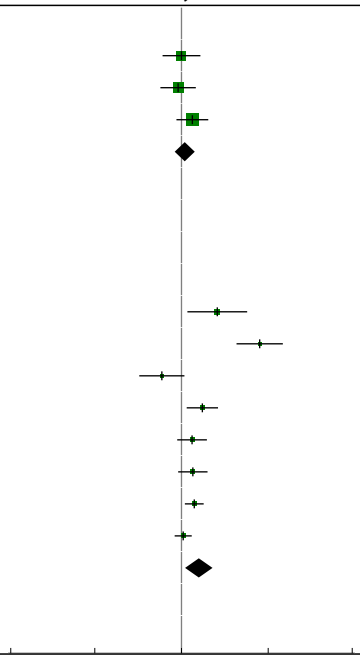
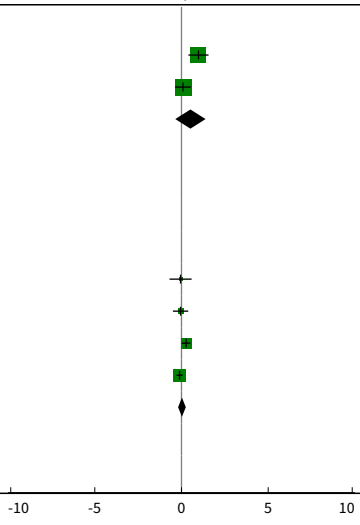
Analysis 12.5. Comparison 12 Subanalysis: outcomes by menopausal status, Outcome 5 Overall physical function (follow-up values).

Study or subgroup	Physical activity N	Physical activity Mean(SD)	Control N	Control Mean(SD)	Std. Mean Difference Random, 95% CI	Weight	Std. Mean Difference Random, 95% CI
12.5.1 Postmenopausal only							
Courneya 2003	24	25.3 (2.5)	28	25.3 (2.8)		28.14%	0[-0.55,0.55]
Winters-Stone 2011	36	51.7 (6.2)	25	52.3 (5.9)		32.09%	-0.1[-0.61,0.41]
Cadmus 2009	37	25.1 (2.7)	37	24 (4.1)		39.77%	0.31[-0.15,0.77]
Subtotal ***	**97**		**90**			**100%**	**0.09[-0.2,0.38]**
Heterogeneity: Tau²=0; Chi²=1.53, df=2(P=0.46); I²=0%							
Test for overall effect: Z=0.63(P=0.53)							
12.5.2 Not postmenopausal only							
Pinto 2003	12	32.3 (4.3)	12	25.3 (8.2)		9.01%	1.03[0.17,1.89]
Milne 2008	29	24 (2.6)	29	15.6 (4.5)		10.86%	2.26[1.59,2.92]
Rogers 2009	20	23.3 (4.5)	18	25.4 (2.3)		11.03%	-0.57[-1.22,0.08]
Schmitz 2005	39	-44.2 (5.6)	40	-48.3 (7.7)		13.05%	0.6[0.15,1.05]
Loh 2014	63	24.9 (2.5)	32	24.2 (2.2)		13.28%	0.3[-0.12,0.73]
Fillion 2008	44	45.1 (10.4)	43	41.8 (9.8)		13.32%	0.33[-0.1,0.75]
Rogers 2015	105	24.1 (3.5)	108	22.5 (5)		14.64%	0.37[0.1,0.64]
Vallance 2007	250	25.1 (3)	85	25 (3.3)		14.81%	0.05[-0.2,0.3]
Subtotal ***	**562**		**367**			**100%**	**0.5[0.1,0.9]**
Heterogeneity: Tau²=0.26; Chi²=48.26, df=7(P<0.0001); I²=85.5%							
Test for overall effect: Z=2.47(P=0.01)							



Analysis 12.6. Comparison 12 Subanalysis: outcomes by menopausal status, Outcome 6 Overall physical function (change values).

Study or subgroup	Physical activity N	Physical activity Mean(SD)	Control N	Control Mean(SD)	Std. Mean Difference Random, 95% CI	Weight	Std. Mean Difference Random, 95% CI
12.6.1 Postmenopausal only							
Courneya 2003	24	1.9 (2)	28	-0.2 (2.2)		47.91%	0.98[0.4,1.56]
Cadmus 2009	37	0.1 (6)	37	-0.5 (7.4)		52.09%	0.09[-0.37,0.54]
Subtotal ***	**61**		**65**			**100%**	**0.52[-0.36,1.39]**
Heterogeneity: Tau²=0.33; Chi²=5.63, df=1(P=0.02); I²=82.23%							
Test for overall effect: Z=1.16(P=0.25)							
12.6.2 Not postmenopausal only							
Rogers 2009	20	2.3 (5.1)	18	2.6 (6)		10%	-0.05[-0.69,0.58]
Schmitz 2005	39	1.2 (4.2)	40	1.5 (6.8)		17.34%	-0.05[-0.49,0.39]
Vallance 2007	247	1 (3.3)	85	0.2 (2.1)		32.37%	0.26[0.02,0.51]
Saarto 2012	263	1.9 (13.7)	237	3.4 (13.4)		40.29%	-0.11[-0.29,0.06]
Subtotal ***	**569**		**380**			**100%**	**0.03[-0.2,0.25]**
Heterogeneity: Tau²=0.02; Chi²=6.01, df=3(P=0.11); I²=50.09%							
Test for overall effect: Z=0.23(P=0.81)							



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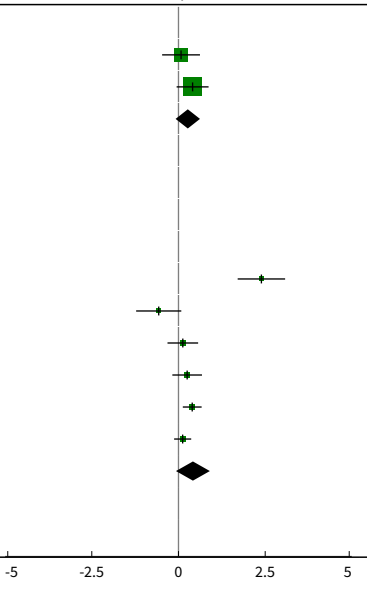
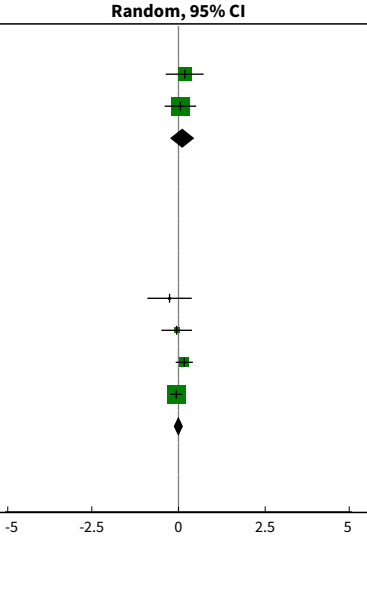
Analysis 12.7. Comparison 12 Subanalysis: outcomes by menopausal status, Outcome 7 Overall role function (follow-up values).

Study or subgroup	Physical activity N	Physical activity Mean(SD)	Control N	Control Mean(SD)	Std. Mean Difference Random, 95% CI	Weight	Std. Mean Difference Random, 95% CI
12.7.1 Postmenopausal only							
Courneya 2003	24	23.4 (4)	28	23.1 (4)		41.63%	0.07[-0.47,0.62]
Cadmus 2009	37	23.1 (4.7)	37	20.6 (7.2)		58.37%	0.41[-0.05,0.87]
Subtotal ***	**61**		**65**			**100%**	**0.27[-0.08,0.62]**
Heterogeneity: Tau^2=0; Chi^2=0.84, df=1(P=0.36); I^2=0%							
Test for overall effect: Z=1.49(P=0.14)							
12.7.2 Not postmenopausal only							
Milne 2008	29	22.2 (3)	29	12.5 (4.8)		14.19%	2.39[1.71,3.08]
Rogers 2009	20	21.4 (4.8)	18	23.8 (3.2)		14.57%	-0.57[-1.22,0.08]
Schmitz 2005	39	-49.2 (6.5)	40	-50 (6.2)		16.93%	0.12[-0.32,0.57]
Loh 2014	63	23.4 (4.3)	32	22.2 (5)		17.08%	0.25[-0.18,0.68]
Rogers 2015	105	22.3 (4.5)	108	20.3 (5.5)		18.52%	0.4[0.12,0.67]
Vallance 2007	250	23.2 (4)	85	22.7 (4.6)		18.71%	0.12[-0.13,0.37]
Subtotal ***	**506**		**312**			**100%**	**0.42[-0.07,0.9]**
Heterogeneity: Tau^2=0.32; Chi^2=45.91, df=5(P<0.0001); I^2=89.11%							
Test for overall effect: Z=1.67(P=0.1)							



Analysis 12.8. Comparison 12 Subanalysis: outcomes by menopausal status, Outcome 8 Overall role function (change values).

Study or subgroup	Physical activity N	Physical activity Mean(SD)	Control N	Control Mean(SD)	Std. Mean Difference Random, 95% CI	Weight	Std. Mean Difference Random, 95% CI
12.8.1 Postmenopausal only							
Courneya 2003	24	0.9 (2.8)	28	0.4 (2.7)		41.03%	0.18[-0.37,0.73]
Cadmus 2009	37	-0.3 (3.7)	37	-0.5 (3.4)		58.97%	0.06[-0.4,0.51]
Subtotal ***	**61**		**65**			**100%**	**0.11[-0.24,0.46]**
Heterogeneity: Tau^2=0; Chi^2=0.12, df=1(P=0.73); I^2=0%							
Test for overall effect: Z=0.6(P=0.55)							
12.8.2 Not postmenopausal only							
Rogers 2009	20	0.4 (3.3)	18	1.4 (4.3)		4.33%	-0.26[-0.9,0.38]
Schmitz 2005	39	1.2 (4.2)	40	1.5 (6.8)		9.1%	-0.05[-0.49,0.39]
Vallance 2007	250	0.6 (4.1)	85	-0 (2.7)		29.16%	0.17[-0.08,0.41]
Saarto 2012	263	2.4 (21.5)	237	3.8 (21.6)		57.42%	-0.06[-0.24,0.11]
Subtotal ***	**572**		**380**			**100%**	**-0[-0.14,0.13]**
Heterogeneity: Tau^2=0; Chi^2=2.96, df=3(P=0.4); I^2=0%							
Test for overall effect: Z=0.07(P=0.95)							



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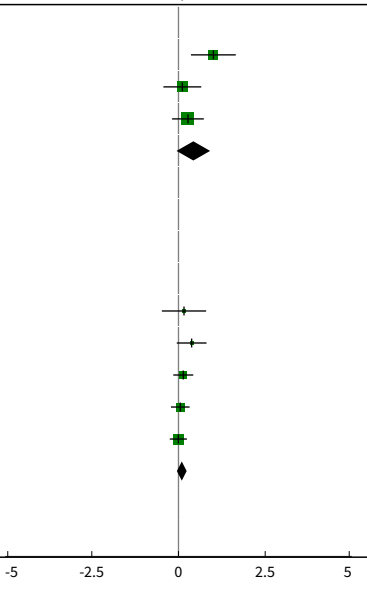
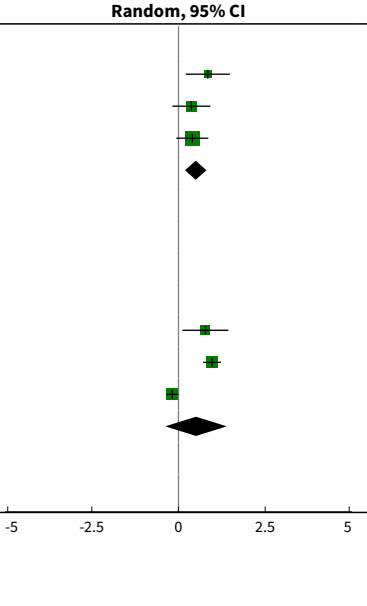
Analysis 12.9. Comparison 12 Subanalysis: outcomes by menopausal status, Outcome 9 Overall social well-being/function (follow-up values).

Study or subgroup	Physical activity N	Physical activity Mean(SD)	Control N	Control Mean(SD)	Std. Mean Difference Random, 95% CI	Weight	Std. Mean Difference Random, 95% CI
12.9.1 Postmenopausal only							
Rogers 2014	20	7.3 (4.9)	22	3.1 (3.2)		28.51%	1.01[0.36,1.65]
Courneya 2003	24	21.1 (3.5)	28	20.7 (3.6)		33.36%	0.11[-0.43,0.66]
Cadmus 2009	37	22.3 (4.9)	37	20.6 (7.2)		38.13%	0.27[-0.18,0.73]
Subtotal ***	**81**		**87**			**100%**	**0.43[-0.06,0.91]**
Heterogeneity: Tau²=0.11; Chi²=4.74, df=2(P=0.09); I²=57.84%							
Test for overall effect: Z=1.73(P=0.08)							
12.9.2 Not postmenopausal only							
Rogers 2009	20	22.6 (4.1)	18	21.8 (5.7)		4.88%	0.16[-0.48,0.8]
Loh 2014	63	21.5 (4.9)	32	19.6 (4.9)		10.8%	0.38[-0.05,0.81]
Kiecolt-Glaser 2014	96	95.2 (10.8)	90	93.8 (9.3)		23.97%	0.14[-0.15,0.43]
Rogers 2015	105	21 (5.7)	108	20.7 (5.8)		27.53%	0.05[-0.22,0.32]
Vallance 2007	250	22.9 (5)	85	23 (5.1)		32.82%	-0[-0.25,0.24]
Subtotal ***	**534**		**333**			**100%**	**0.09[-0.05,0.24]**
Heterogeneity: Tau²=0; Chi²=2.54, df=4(P=0.64); I²=0%							
Test for overall effect: Z=1.32(P=0.19)							



Analysis 12.10. Comparison 12 Subanalysis: outcomes by menopausal status, Outcome 10 Overall social well-being/function (change values).

Study or subgroup	Physical activity N	Physical activity Mean(SD)	Control N	Control Mean(SD)	Std. Mean Difference Random, 95% CI	Weight	Std. Mean Difference Random, 95% CI
12.10.1 Postmenopausal only							
Rogers 2014	20	2.1 (3.2)	22	-0.8 (3.5)		23.64%	0.85[0.21,1.48]
Courneya 2003	24	0.6 (2.4)	28	-0.5 (3.3)		31.45%	0.37[-0.18,0.92]
Cadmus 2009	37	0.6 (4.6)	37	-1 (3.2)		44.91%	0.4[-0.06,0.86]
Subtotal ***	**81**		**87**			**100%**	**0.5[0.19,0.8]**
Heterogeneity: Tau²=0; Chi²=1.54, df=2(P=0.46); I²=0%							
Test for overall effect: Z=3.15(P=0)							
12.10.2 Not postmenopausal only							
Rogers 2009	20	0.9 (2.6)	18	-1.2 (2.7)		29.89%	0.78[0.11,1.44]
Vallance 2007	250	0.2 (4.8)	85	-4.1 (3.3)		34.78%	0.97[0.71,1.23]
Saarto 2012	263	5 (21.1)	237	8.8 (20.8)		35.33%	-0.18[-0.36,-0.01]
Subtotal ***	**533**		**340**			**100%**	**0.5[-0.39,1.4]**
Heterogeneity: Tau²=0.58; Chi²=55.25, df=2(P<0.0001); I²=96.38%							
Test for overall effect: Z=1.11(P=0.27)							



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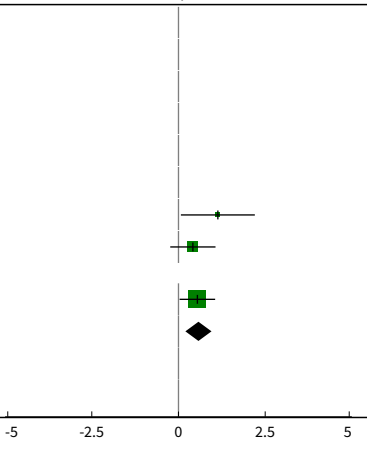
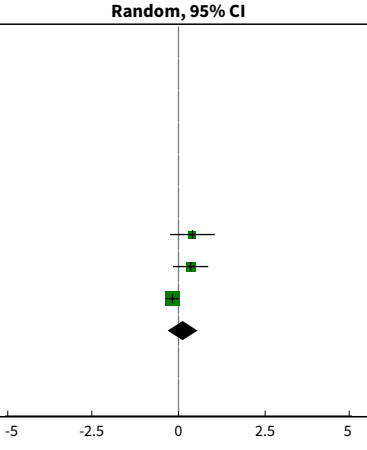
Analysis 12.11. Comparison 12 Subanalysis: outcomes by menopausal status, Outcome 11 Overall cognitive function (follow-up values).

Study or subgroup	Physical activity N	Physical activity Mean(SD)	Control N	Control Mean(SD)	Std. Mean Difference Random, 95% CI	Weight	Std. Mean Difference Random, 95% CI
12.11.1 Postmenopausal only							
Subtotal ***	**0**		**0**				**Not estimable**
Heterogeneity: Not applicable							
Test for overall effect: Not applicable							
12.11.2 Not postmenopausal only							
Pinto 2003	12	-4.3 (2.5)	6	-7.2 (2.1)		12.5%	1.14[0.07,2.2]
Rogers 2009	19	-124.5 (30.8)	18	-135.5 (19.5)		33.38%	0.42[-0.24,1.07]
Cantarero-Villanueva 2013	32	-37.9 (8.5)	29	-43 (10)		54.12%	0.55[0.03,1.06]
Subtotal ***	**63**		**53**			**100%**	**0.58[0.2,0.95]**
Heterogeneity: Tau^2=0; Chi^2=1.31, df=2(P=0.52); I^2=0%							
Test for overall effect: Z=2.99(P=0)							



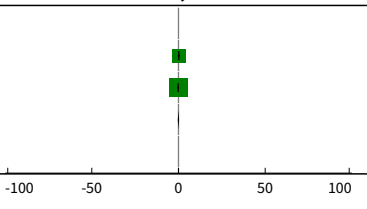
Analysis 12.12. Comparison 12 Subanalysis: outcomes by menopausal status, Outcome 12 Overall cognitive function (change values).

Study or subgroup	Physical activity N	Physical activity Mean(SD)	Control N	Control Mean(SD)	Std. Mean Difference Random, 95% CI	Weight	Std. Mean Difference Random, 95% CI
12.12.1 Postmenopausal only							
Subtotal ***	**0**		**0**				**Not estimable**
Heterogeneity: Not applicable							
Test for overall effect: Not applicable							
12.12.2 Not postmenopausal only							
Rogers 2009	20	4.2 (16.8)	18	-4.7 (25.9)		23.68%	0.4[-0.24,1.05]
Cantarero-Villanueva 2013	32	2.2 (7.6)	29	-0.2 (5.5)		29.7%	0.35[-0.16,0.86]
Saarto 2012	263	-1 (18.2)	237	2.2 (18.5)		46.62%	-0.17[-0.35,0]
Subtotal ***	**315**		**284**			**100%**	**0.12[-0.31,0.55]**
Heterogeneity: Tau^2=0.1; Chi^2=6.03, df=2(P=0.05); I^2=66.84%							
Test for overall effect: Z=0.54(P=0.59)							



Analysis 12.13. Comparison 12 Subanalysis: outcomes by menopausal status, Outcome 13 Overall general health (follow-up values).

Study or subgroup	Physical activity N	Physical activity Mean(SD)	Control N	Control Mean(SD)	Std. Mean Difference Random, 95% CI	Weight	Std. Mean Difference Random, 95% CI
12.13.1 Postmenopausal only							
Ergun 2013	40	71.6 (19.9)	20	67.9 (16.7)		43.03%	0.19[-0.35,0.73]
Cadmus 2009	37	50 (8.8)	37	51.7 (8.4)		56.97%	-0.2[-0.65,0.26]
Subtotal ***	**77**		**57**			**100%**	**-0.03[-0.41,0.35]**
Heterogeneity: Tau^2=0.01; Chi^2=1.16, df=1(P=0.28); I^2=13.97%							



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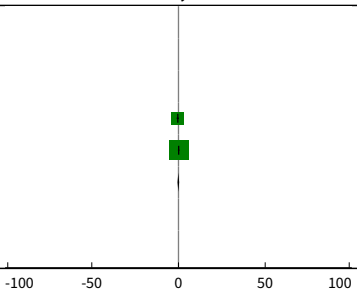
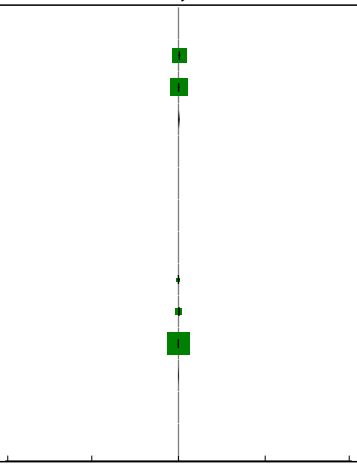
Study or subgroup	Physical activity N	Physical activity Mean(SD)	Control N	Control Mean(SD)	Std. Mean Difference Random, 95% CI	Weight	Std. Mean Difference Random, 95% CI
Test for overall effect: Z=0.15(P=0.88)							
12.13.2 Not postmenopausal only							
Rogers 2009	20	3.5 (0.9)	18	3.8 (0.5)		38.68%	-0.4[-1.04,0.25]
Schmitz 2005	39	53.8 (5.3)	40	53.2 (6)		61.32%	0.1[-0.34,0.55]
Subtotal ***	**59**		**58**			**100%**	**-0.09[-0.57,0.39]**
Heterogeneity: Tau²=0.05; Chi²=1.59, df=1(P=0.21); I²=37.2%							
Test for overall effect: Z=0.37(P=0.71)							



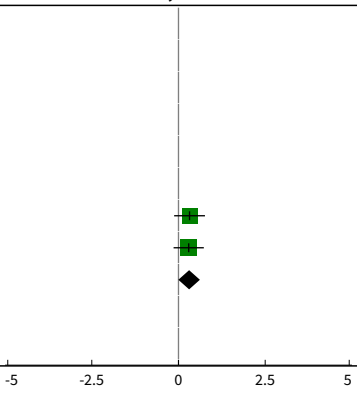
Analysis 12.14. Comparison 12 Subanalysis: outcomes by menopausal status, Outcome 14 Overall general health (change values).

Study or subgroup	Physical activity N	Physical activity Mean(SD)	Control N	Control Mean(SD)	Std. Mean Difference Random, 95% CI	Weight	Std. Mean Difference Random, 95% CI
12.14.1 Postmenopausal only							
Ergun 2013	40	5.4 (21.5)	20	-6.7 (25.9)		44.41%	0.52[-0.03,1.06]
Cadmus 2009	37	0.2 (4.4)	37	-0.1 (5.1)		55.59%	0.06[-0.39,0.52]
Subtotal ***	**77**		**57**			**100%**	**0.27[-0.18,0.71]**
Heterogeneity: Tau²=0.04; Chi²=1.59, df=1(P=0.21); I²=37%							
Test for overall effect: Z=1.17(P=0.24)							
12.14.2 Not postmenopausal only							
Rogers 2009	20	0.2 (0.6)	18	0.2 (0.7)		10.62%	-0.03[-0.67,0.61]
Schmitz 2005	39	0.7 (4.8)	40	-0.6 (3.9)		20.11%	0.29[-0.15,0.74]
Saarto 2012	263	4.2 (16.2)	237	5.6 (15.4)		69.27%	-0.09[-0.26,0.09]
Subtotal ***	**322**		**295**			**100%**	**-0.01[-0.22,0.21]**
Heterogeneity: Tau²=0.01; Chi²=2.48, df=2(P=0.29); I²=19.25%							
Test for overall effect: Z=0.05(P=0.96)							



Analysis 12.15. Comparison 12 Subanalysis: outcomes by menopausal status, Outcome 15 Overall sexual function (follow-up values).

Study or subgroup	Physical activity N	Physical activity Mean(SD)	Control N	Control Mean(SD)	Std. Mean Difference Fixed, 95% CI	Weight	Std. Mean Difference Fixed, 95% CI
12.15.1 Postmenopausal only							
Subtotal ***	**0**		**0**				**Not estimable**
Heterogeneity: Not applicable							
Test for overall effect: Not applicable							
12.15.2 Not postmenopausal only							
Schmitz 2005	39	-51 (7.5)	40	-53.5 (8)		49.07%	0.32[-0.12,0.76]
Pinto 2003	39	42.5 (9.2)	43	40.1 (6.3)		50.93%	0.29[-0.14,0.73]
Subtotal ***	**78**		**83**			**100%**	**0.31[-0,0.62]**
Heterogeneity: Tau²=0; Chi²=0.01, df=1(P=0.94); I²=0%							
Test for overall effect: Z=1.93(P=0.05)							



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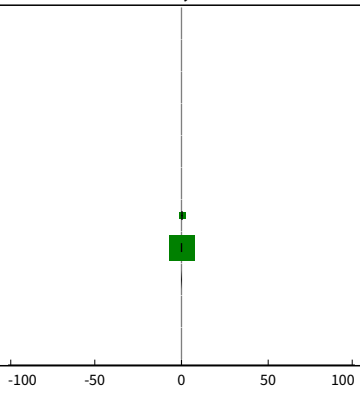
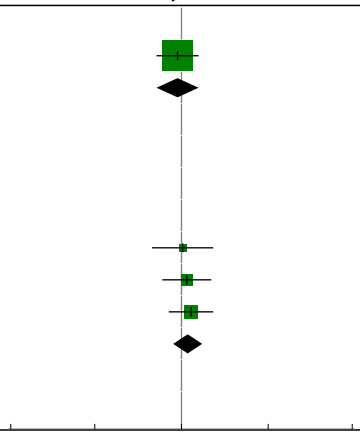
Analysis 12.16. Comparison 12 Subanalysis: outcomes by menopausal status, Outcome 16 Overall sexual function (change values).

Study or subgroup	Physical activity N	Physical activity Mean(SD)	Control N	Control Mean(SD)	Std. Mean Difference Random, 95% CI	Weight	Std. Mean Difference Random, 95% CI
12.16.1 Postmenopausal only							
Subtotal ***	**0**		**0**				**Not estimable**
Heterogeneity: Not applicable							
Test for overall effect: Not applicable							
12.16.2 Not postmenopausal only							
Schmitz 2005	39	1.7 (4.8)	40	0.2 (5.2)		21.77%	0.3[-0.15,0.74]
Saarto 2012	263	4.3 (25.4)	237	3.8 (24.4)		78.23%	0.02[-0.16,0.2]
Subtotal ***	**302**		**277**			**100%**	**0.08[-0.14,0.3]**
Heterogeneity: Tau^2=0.01; Chi^2=1.29, df=1(P=0.26); I^2=22.57%							
Test for overall effect: Z=0.7(P=0.48)							



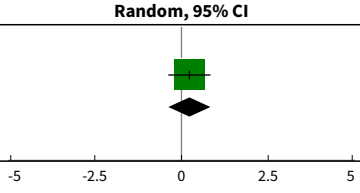
Analysis 12.17. Comparison 12 Subanalysis: outcomes by menopausal status, Outcome 17 Overall sleep (follow-up values).

Study or subgroup	Physical activity N	Physical activity Mean(SD)	Control N	Control Mean(SD)	Std. Mean Difference Fixed, 95% CI	Weight	Std. Mean Difference Fixed, 95% CI
12.17.1 Postmenopausal only							
Rogers 2014	20	6.7 (3.7)	22	7.1 (3.2)		100%	-0.11[-0.72,0.49]
Subtotal ***	**20**		**22**			**100%**	**-0.11[-0.72,0.49]**
Heterogeneity: Not applicable							
Test for overall effect: Z=0.37(P=0.71)							
12.17.2 Not postmenopausal only							
Rogers 2013	11	6.3 (2.7)	9	6.2 (3.2)		22.46%	0.03[-0.85,0.91]
Bower 2011	16	8.1 (2.5)	15	7.7 (2.6)		35.01%	0.15[-0.55,0.86]
Rogers 2009	20	6.7 (4.2)	18	5.5 (4)		42.54%	0.28[-0.36,0.92]
Subtotal ***	**47**		**42**			**100%**	**0.18[-0.24,0.6]**
Heterogeneity: Tau^2=0; Chi^2=0.2, df=2(P=0.91); I^2=0%							
Test for overall effect: Z=0.84(P=0.4)							



Analysis 12.18. Comparison 12 Subanalysis: outcomes by menopausal status, Outcome 18 Overall sleep (change values).

Study or subgroup	Physical activity N	Physical activity Mean(SD)	Control N	Control Mean(SD)	Std. Mean Difference Random, 95% CI	Weight	Std. Mean Difference Random, 95% CI
12.18.1 Postmenopausal only							
Rogers 2014	20	-1.3 (3.2)	22	-2.2 (4.4)		100%	0.23[-0.38,0.84]
Subtotal ***	**20**		**22**			**100%**	**0.23[-0.38,0.84]**
Heterogeneity: Tau^2=0; Chi^2=0, df=0(P<0.0001); I^2=100%							



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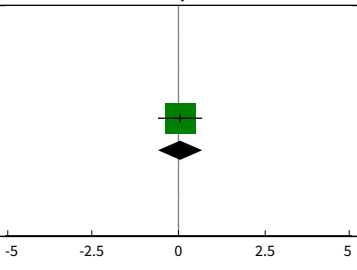
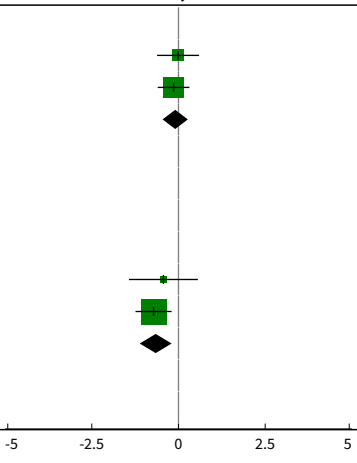
Study or subgroup	Physical activity N	Physical activity Mean(SD)	Control N	Control Mean(SD)	Std. Mean Difference Random, 95% CI	Weight	Std. Mean Difference Random, 95% CI
Test for overall effect: Z=0.73(P=0.46)							
12.18.2 Not postmenopausal only							
Rogers 2009	20	0.5 (2.1)	18	0.3 (4.7)		100%	0.05[-0.59,0.68]
Subtotal ***	**20**		**18**			**100%**	**0.05[-0.59,0.68]**
Heterogeneity: Not applicable							
Test for overall effect: Z=0.14(P=0.89)							



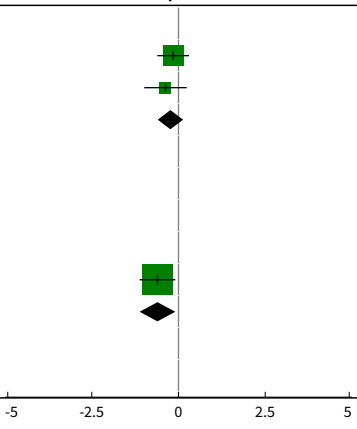
Analysis 12.19. Comparison 12 Subanalysis: outcomes by menopausal status, Outcome 19 Overall anxiety (follow-up values).

Study or subgroup	Physical activity N	Physical activity Mean(SD)	Control N	Control Mean(SD)	Std. Mean Difference Random, 95% CI	Weight	Std. Mean Difference Random, 95% CI
12.19.1 Postmenopausal only							
Rogers 2014	20	45.6 (8.9)	22	45.7 (8)		36.22%	-0.01[-0.62,0.59]
Cadmus 2009	37	32.1 (12.3)	37	34.1 (15.4)		63.78%	-0.14[-0.6,0.31]
Subtotal ***	**57**		**59**			**100%**	**-0.09[-0.46,0.27]**
Heterogeneity: Tau^2=0; Chi^2=0.11, df=1(P=0.74); I^2=0%							
Test for overall effect: Z=0.51(P=0.61)							
12.19.2 Not postmenopausal only							
Pinto 2003	12	7.6 (7.3)	6	10.5 (3.7)		21.49%	-0.43[-1.43,0.56]
Cantarero-Villanueva 2013	32	42.5 (8.6)	29	49.9 (11.7)		78.51%	-0.72[-1.24,-0.2]
Subtotal ***	**44**		**35**			**100%**	**-0.66[-1.12,-0.2]**
Heterogeneity: Tau^2=0; Chi^2=0.25, df=1(P=0.62); I^2=0%							
Test for overall effect: Z=2.8(P=0.01)							



Analysis 12.20. Comparison 12 Subanalysis: outcomes by menopausal status, Outcome 20 Overall anxiety (change values).

Study or subgroup	Physical activity N	Physical activity Mean(SD)	Control N	Control Mean(SD)	Std. Mean Difference Fixed, 95% CI	Weight	Std. Mean Difference Fixed, 95% CI
12.20.1 Postmenopausal only							
Cadmus 2009	37	-0.7 (9.2)	37	0.5 (5.8)		64.21%	-0.15[-0.61,0.3]
Rogers 2014	20	-4 (6.5)	22	-1.8 (5)		35.79%	-0.37[-0.99,0.24]
Subtotal ***	**57**		**59**			**100%**	**-0.23[-0.6,0.13]**
Heterogeneity: Tau^2=0; Chi^2=0.32, df=1(P=0.57); I^2=0%							
Test for overall effect: Z=1.25(P=0.21)							
12.20.2 Not postmenopausal only							
Cantarero-Villanueva 2013	32	-4.2 (9.8)	29	0.8 (5.5)		100%	-0.61[-1.12,-0.09]
Subtotal ***	**32**		**29**			**100%**	**-0.61[-1.12,-0.09]**
Heterogeneity: Not applicable							
Test for overall effect: Z=2.31(P=0.02)							



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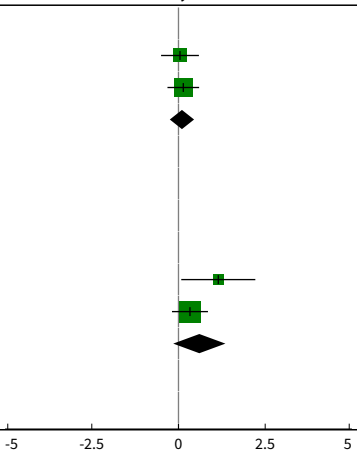
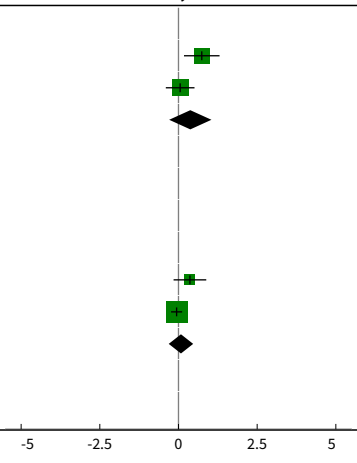
Analysis 12.21. Comparison 12 Subanalysis: outcomes by menopausal status, Outcome 21 Overall self-esteem/body image (follow-up values).

Study or subgroup	Physical activity N	Physical activity Mean(SD)	Control N	Control Mean(SD)	Std. Mean Difference Random, 95% CI	Weight	Std. Mean Difference Random, 95% CI
12.21.1 Postmenopausal only							
Courneya 2003	24	34.8 (4.7)	28	34.6 (4.4)		41.18%	0.04[-0.5,0.59]
Cadmus 2009	37	34.2 (5.5)	37	33.4 (5.9)		58.82%	0.14[-0.32,0.6]
Subtotal ***	**61**		**65**			**100%**	**0.1[-0.25,0.45]**
Heterogeneity: Tau²=0; Chi²=0.07, df=1(P=0.79); I²=0%							
Test for overall effect: Z=0.56(P=0.58)							
12.21.2 Not postmenopausal only							
Pinto 2003	12	32.3 (4.3)	6	25.3 (8.2)		33%	1.15[0.08,2.22]
Milne 2008	29	-17.9 (6.8)	29	-20.1 (6.3)		67%	0.33[-0.19,0.85]
Subtotal ***	**41**		**35**			**100%**	**0.6[-0.15,1.35]**
Heterogeneity: Tau²=0.15; Chi²=1.82, df=1(P=0.18); I²=45.02%							
Test for overall effect: Z=1.56(P=0.12)							



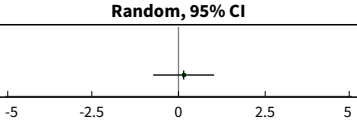
Analysis 12.22. Comparison 12 Subanalysis: outcomes by menopausal status, Outcome 22 Overall self-esteem/body image (change values).

Study or subgroup	Physical activity N	Physical activity Mean(SD)	Control N	Control Mean(SD)	Std. Mean Difference Random, 95% CI	Weight	Std. Mean Difference Random, 95% CI
12.22.1 Postmenopausal only							
Courneya 2003	24	2.6 (3.7)	28	-0.1 (3.5)		46.93%	0.74[0.18,1.3]
Cadmus 2009	37	0.4 (4.4)	37	0.2 (2.9)		53.07%	0.05[-0.4,0.51]
Subtotal ***	**61**		**65**			**100%**	**0.38[-0.3,1.05]**
Heterogeneity: Tau²=0.17; Chi²=3.44, df=1(P=0.06); I²=70.94%							
Test for overall effect: Z=1.1(P=0.27)							
12.22.2 Not postmenopausal only							
Milne 2008	29	1.5 (3.7)	29	0.1 (3.9)		32.63%	0.36[-0.16,0.88]
Saarto 2012	263	10.7 (21.5)	237	12 (22)		67.37%	-0.06[-0.24,0.12]
Subtotal ***	**292**		**266**			**100%**	**0.08[-0.31,0.47]**
Heterogeneity: Tau²=0.05; Chi²=2.29, df=1(P=0.13); I²=56.3%							
Test for overall effect: Z=0.39(P=0.69)							



Analysis 12.23. Comparison 12 Subanalysis: outcomes by menopausal status, Outcome 23 Overall depression (follow-up values).

Study or subgroup	Physical activity N	Physical activity Mean(SD)	Control N	Control Mean(SD)	Std. Mean Difference Random, 95% CI	Weight	Std. Mean Difference Random, 95% CI
12.23.1 Postmenopausal only							
Payne 2008	10	12.7 (8.7)	10	11.4 (7.9)		11.62%	0.15[-0.73,1.03]



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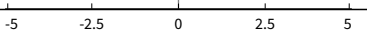
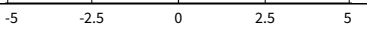
Study or subgroup	Physical activity N	Physical activity Mean(SD)	Control N	Control Mean(SD)	Std. Mean Difference Random, 95% CI	Weight	Std. Mean Difference Random, 95% CI
Rogers 2014	20	44.2 (8.6)	22	25.1 (44.2)		22.21%	0.58[-0.04,1.19]
Ergun 2013	40	6.9 (6.8)	20	5.2 (5.2)		28.4%	0.27[-0.27,0.81]
Cadmus 2009	37	9.6 (9.3)	37	10.8 (10.1)		37.77%	-0.12[-0.58,0.33]
Subtotal ***	**107**		**89**			**100%**	**0.18[-0.13,0.48]**
Heterogeneity: Tau²=0.01; Chi²=3.36, df=3(P=0.34); I²=10.78%							
Test for overall effect: Z=1.12(P=0.26)							
12.23.2 Not postmenopausal only							
Pinto 2003	12	6.2 (7.2)	6	9.8 (6.8)		10.64%	-0.49[-1.49,0.5]
Bower 2011	16	7.7 (5.8)	15	11.6 (7.1)		17.62%	-0.59[-1.31,0.13]
Cantarero-Villanueva 2013	32	45.6 (9.7)	29	53.7 (11.6)		26.91%	-0.75[-1.28,-0.23]
Kiecolt-Glaser 2014	96	8.1 (8.6)	90	9.2 (8.2)		44.83%	-0.13[-0.42,0.16]
Subtotal ***	**156**		**140**			**100%**	**-0.42[-0.77,-0.06]**
Heterogeneity: Tau²=0.05; Chi²=4.99, df=3(P=0.17); I²=39.82%							
Test for overall effect: Z=2.3(P=0.02)							



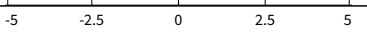
Analysis 12.24. Comparison 12 Subanalysis: outcomes by menopausal status, Outcome 24 Overall depression (change values).

Study or subgroup	Physical activity N	Physical activity Mean(SD)	Control N	Control Mean(SD)	Std. Mean Difference Random, 95% CI	Weight	Std. Mean Difference Random, 95% CI
12.24.1 Postmenopausal only							
Rogers 2014	20	-1.7 (6.9)	22	1.1 (4.2)		24.26%	-0.49[-1.1,0.13]
Ergun 2013	40	1.2 (6.2)	20	2.4 (8)		31.78%	-0.16[-0.7,0.37]
Cadmus 2009	37	0.3 (6.4)	37	1.7 (6.3)		43.96%	-0.22[-0.68,0.24]
Subtotal ***	**97**		**79**			**100%**	**-0.27[-0.57,0.04]**
Heterogeneity: Tau²=0; Chi²=0.68, df=2(P=0.71); I²=0%							
Test for overall effect: Z=1.72(P=0.09)							
12.24.2 Not postmenopausal only							
Cantarero-Villanueva 2013	32	-2.9 (7.8)	29	1.5 (7.4)		42.42%	-0.57[-1.09,-0.06]
Saarto 2012	263	-0.3 (3.3)	237	-0.5 (3.4)		57.58%	0.06[-0.12,0.24]
Subtotal ***	**295**		**266**			**100%**	**-0.21[-0.82,0.4]**
Heterogeneity: Tau²=0.16; Chi²=5.22, df=1(P=0.02); I²=80.83%							
Test for overall effect: Z=0.67(P=0.5)							



Analysis 12.25. Comparison 12 Subanalysis: outcomes by menopausal status, Outcome 25 Overall fatigue (follow-up values).

Study or subgroup	Physical activity N	Physical activity Mean(SD)	Control N	Control Mean(SD)	Std. Mean Difference Random, 95% CI	Weight	Std. Mean Difference Random, 95% CI
12.25.1 Postmenopausal only							
Payne 2008	9	4.7 (2.6)	9	3.5 (1.7)		5.68%	0.52[-0.42,1.46]
Rogers 2014	20	4.1 (2.1)	22	4 (1.8)		13.78%	0.05[-0.56,0.66]
Courneya 2003	24	-8.3 (7.9)	28	-8.8 (8.1)		17%	0.06[-0.48,0.61]



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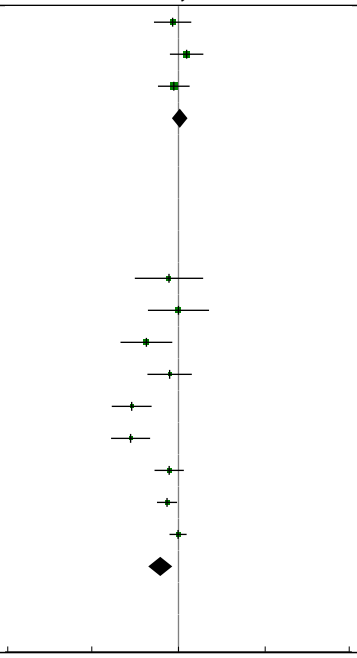
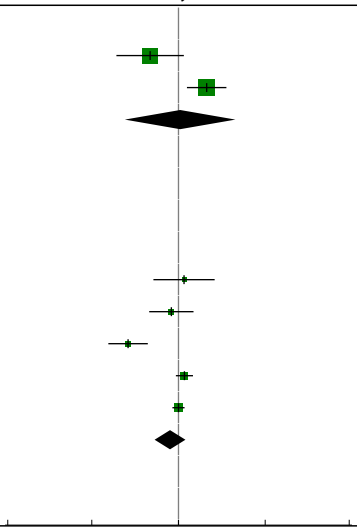
Study or subgroup	Physical activity N	Physical activity Mean(SD)	Control N	Control Mean(SD)	Std. Mean Difference Random, 95% CI	Weight	Std. Mean Difference Random, 95% CI
Ergun 2013	40	2.9 (2.2)	20	3.3 (1.8)		17.49%	-0.17[-0.71,0.37]
Winters-Stone 2011	36	45 (5.3)	31	43.1 (10.3)		21.76%	0.23[-0.25,0.72]
Cadmus 2009	37	-51.9 (9)	37	-50.6 (10)		24.29%	-0.14[-0.59,0.32]
Subtotal ***	**166**		**147**			**100%**	**0.04[-0.19,0.26]**
Heterogeneity: Tau^2=0; Chi^2=2.77, df=5(P=0.73); I^2=0%							
Test for overall effect: Z=0.31(P=0.76)							
12.25.2 Not postmenopausal only							
Pinto 2003	12	7.2 (6.4)	6	9 (6.4)		7.02%	-0.27[-1.26,0.71]
Rogers 2013	11	4.2 (1.8)	9	4.2 (1.6)		7.92%	0[-0.88,0.88]
Bower 2011	16	3.4 (1.8)	15	4.9 (1.3)		9.26%	-0.93[-1.67,-0.18]
Rogers 2009	20	-12.4 (10.4)	18	-10.1 (6.6)		10.46%	-0.26[-0.9,0.38]
Milne 2008	29	11.9 (3.2)	29	17.4 (4.7)		11.24%	-1.35[-1.92,-0.78]
Cantarero-Villanueva 2013	32	3.8 (1.8)	29	6.2 (1.7)		11.38%	-1.38[-1.94,-0.82]
Fillion 2008	44	2.7 (0.7)	43	2.9 (0.8)		13.1%	-0.27[-0.69,0.15]
Kiecolt-Glaser 2014	96	6.3 (19.6)	90	12.7 (19)		14.6%	-0.33[-0.62,-0.04]
Vallance 2007	250	-42.7 (8.4)	85	-42.6 (8.7)		15.03%	-0.01[-0.26,0.23]
Subtotal ***	**510**		**324**			**100%**	**-0.53[-0.87,-0.18]**
Heterogeneity: Tau^2=0.19; Chi^2=34.94, df=8(P<0.0001); I^2=77.1%							
Test for overall effect: Z=2.98(P=0)							



Analysis 12.26. Comparison 12 Subanalysis: outcomes by menopausal status, Outcome 26 Overall fatigue (change values).

Study or subgroup	Physical activity N	Physical activity Mean(SD)	Control N	Control Mean(SD)	Std. Mean Difference Random, 95% CI	Weight	Std. Mean Difference Random, 95% CI
12.26.1 Postmenopausal only							
Payne 2008	9	-0.9 (2)	9	0.5 (1.4)		46.96%	-0.82[-1.79,0.15]
Courneya 2003	24	9.3 (10.2)	28	2 (7.5)		53.04%	0.81[0.24,1.38]
Subtotal ***	**33**		**37**			**100%**	**0.05[-1.55,1.64]**
Heterogeneity: Tau^2=1.16; Chi^2=8.05, df=1(P=0); I^2=87.58%							
Test for overall effect: Z=0.06(P=0.95)							
12.26.2 Not postmenopausal only							
Rogers 2013	11	4.2 (2)	9	3.9 (1.5)		13.08%	0.16[-0.72,1.04]
Rogers 2009	20	1.9 (9.6)	18	4.2 (12.3)		17.34%	-0.21[-0.84,0.43]
Cantarero-Villanueva 2013	32	-2 (1.8)	29	0.3 (1.4)		18.73%	-1.45[-2.02,-0.88]
Vallance 2007	250	2.5 (8.2)	85	1.2 (6.6)		24.94%	0.17[-0.08,0.42]
Saarto 2012	263	-2.4 (9.1)	237	-2.4 (8.6)		25.91%	0[-0.18,0.18]
Subtotal ***	**576**		**378**			**100%**	**-0.24[-0.69,0.2]**
Heterogeneity: Tau^2=0.19; Chi^2=27.19, df=4(P<0.0001); I^2=85.29%							
Test for overall effect: Z=1.08(P=0.28)							



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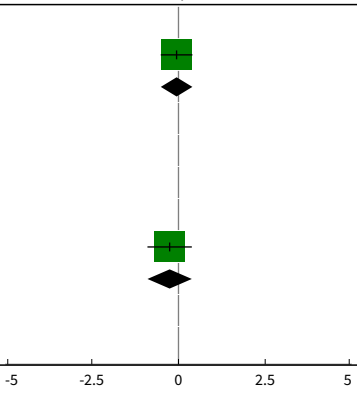
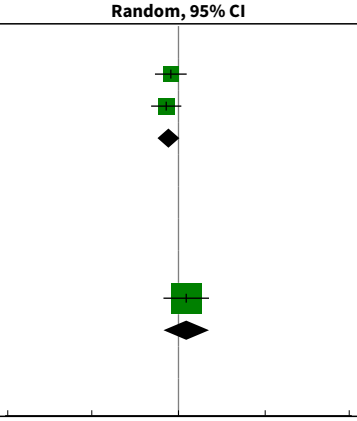
Analysis 12.27. Comparison 12 Subanalysis: outcomes by menopausal status, Outcome 27 Overall pain/disability (follow-up values).

Study or subgroup	Physical activity N	Physical activity Mean(SD)	Control N	Control Mean(SD)	Std. Mean Difference Random, 95% CI	Weight	Std. Mean Difference Random, 95% CI
12.27.1 Postmenopausal only							
Cadmus 2009	37	50.3 (9.1)	37	50.8 (9)		100%	-0.05[-0.51,0.4]
Subtotal ***	**37**		**37**			**100%**	**-0.05[-0.51,0.4]**
Heterogeneity: Not applicable							
Test for overall effect: Z=0.24(P=0.81)							
12.27.2 Not postmenopausal only							
Rogers 2009	20	-3 (3)	18	-2.3 (2.8)		100%	-0.26[-0.89,0.38]
Subtotal ***	**20**		**18**			**100%**	**-0.26[-0.89,0.38]**
Heterogeneity: Not applicable							
Test for overall effect: Z=0.78(P=0.43)							



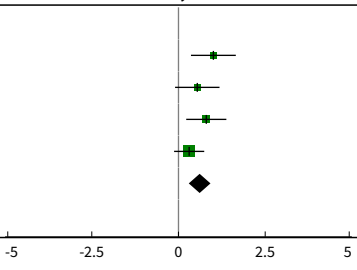
Analysis 12.28. Comparison 12 Subanalysis: outcomes by menopausal status, Outcome 28 Overall pain/disability (change values).

Study or subgroup	Physical activity N	Physical activity Mean(SD)	Control N	Control Mean(SD)	Std. Mean Difference Random, 95% CI	Weight	Std. Mean Difference Random, 95% CI
12.28.1 Postmenopausal only							
Cadmus 2009	37	-2.2 (11.3)	37	-0.1 (7)		47.55%	-0.22[-0.68,0.24]
Irwin 2015	45	-6 (19)	38	0.7 (18.6)		52.45%	-0.35[-0.79,0.08]
Subtotal ***	**82**		**75**			**100%**	**-0.29[-0.61,0.02]**
Heterogeneity: Tau^2=0; Chi^2=0.17, df=1(P=0.68); I^2=0%							
Test for overall effect: Z=1.81(P=0.07)							
12.28.2 Not postmenopausal only							
Rogers 2009	19	-0.8 (1.4)	17	-1.8 (6.2)		100%	0.22[-0.43,0.88]
Subtotal ***	**19**		**17**			**100%**	**0.22[-0.43,0.88]**
Heterogeneity: Not applicable							
Test for overall effect: Z=0.67(P=0.5)							



Analysis 12.29. Comparison 12 Subanalysis: outcomes by menopausal status, Outcome 29 Overall cardiorespiratory fitness (follow-up values).

Study or subgroup	Physical activity N	Physical activity Mean(SD)	Control N	Control Mean(SD)	Std. Mean Difference Random, 95% CI	Weight	Std. Mean Difference Random, 95% CI
12.29.1 Postmenopausal only							
Rogers 2014	20	30.9 (6.3)	22	25.1 (5)		19.73%	1.01[0.36,1.65]
Kim 2015	20	424.8 (55.8)	19	394.4 (54)		20.03%	0.54[-0.1,1.18]
Courneya 2003	24	21.3 (3.7)	26	18.2 (3.9)		23.69%	0.8[0.22,1.38]
Irwin 2015	45	24.6 (5.5)	38	23 (4.7)		36.55%	0.31[-0.13,0.74]
Subtotal ***	**109**		**105**			**100%**	**0.61[0.3,0.92]**
Heterogeneity: Tau^2=0.02; Chi^2=3.75, df=3(P=0.29); I^2=20.02%							



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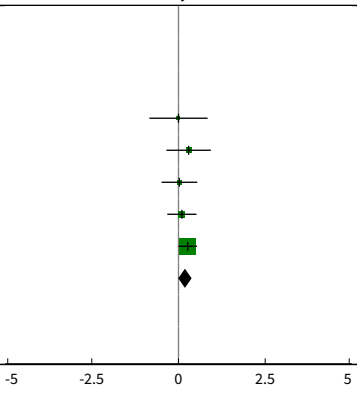
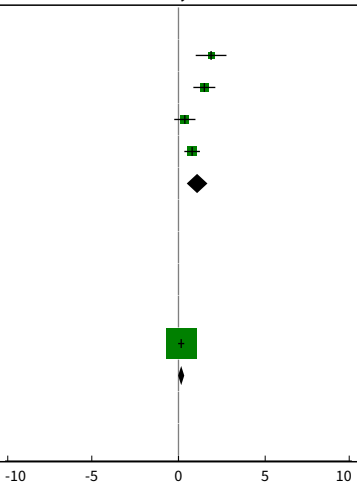
Study or subgroup	Physical activity N	Physical activity Mean(SD)	Control N	Control Mean(SD)	Std. Mean Difference Random, 95% CI	Weight	Std. Mean Difference Random, 95% CI
Test for overall effect: Z=3.81(P=0)							
12.29.2 Not postmenopausal only							
Rogers 2013	12	23.9 (6.2)	10	23.9 (3.8)		5.25%	0[-0.84,0.84]
Rogers 2009	20	29.5 (6.6)	18	27.6 (6.1)		9.02%	0.29[-0.35,0.93]
Milne 2008	29	1.5 (0.3)	29	1.5 (0.4)		13.97%	0.03[-0.49,0.54]
Fillion 2008	44	27 (4.4)	43	26.5 (5.8)		20.92%	0.1[-0.32,0.52]
Rogers 2015	105	23.6 (4.8)	108	22.7 (0.3)		50.83%	0.27[-0,0.54]
Subtotal ***	**210**		**208**			**100%**	**0.19[-0.01,0.38]**
Heterogeneity: Tau^2=0; Chi^2=1.16, df=4(P=0.88); I^2=0%							
Test for overall effect: Z=1.89(P=0.06)							



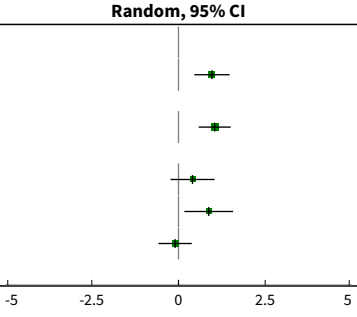
Analysis 12.30. Comparison 12 Subanalysis: outcomes by menopausal status, Outcome 30 Overall cardiorespiratory fitness (change values).

Study or subgroup	Physical activity N	Physical activity Mean(SD)	Control N	Control Mean(SD)	Std. Mean Difference Random, 95% CI	Weight	Std. Mean Difference Random, 95% CI
12.30.1 Postmenopausal only							
Dolan 2016	23	12.2 (10.2)	10	-6 (7.2)		19.81%	1.88[0.99,2.77]
Courneya 2003	24	2.7 (2.6)	26	-0.6 (1.7)		25.19%	1.49[0.86,2.12]
Rogers 2014	20	2.8 (4.9)	22	1.1 (4.2)		25.68%	0.37[-0.24,0.98]
Irwin 2015	45	1.5 (2.1)	38	-0.4 (2.7)		29.32%	0.79[0.34,1.24]
Subtotal ***	**112**		**96**			**100%**	**1.07[0.48,1.67]**
Heterogeneity: Tau^2=0.26; Chi^2=11.04, df=3(P=0.01); I^2=72.83%							
Test for overall effect: Z=3.52(P=0)							
12.30.2 Not postmenopausal only							
Saarto 2012	262	0.9 (1.2)	236	0.7 (1)		100%	0.16[-0.02,0.33]
Subtotal ***	**262**		**236**			**100%**	**0.16[-0.02,0.33]**
Heterogeneity: Not applicable							
Test for overall effect: Z=1.74(P=0.08)							



Analysis 12.31. Comparison 12 Subanalysis: outcomes by menopausal status, Outcome 31 Overall self-reported physical activity (follow-up values).

Study or subgroup	Physical activity N	Physical activity Mean(SD)	Control N	Control Mean(SD)	Std. Mean Difference Random, 95% CI	Weight	Std. Mean Difference Random, 95% CI
12.31.1 Postmenopausal only							
Cadmus 2009	34	161.7 (114.7)	33	55.6 (101.9)		21%	0.97[0.46,1.47]
Irwin 2015	45	222.1 (118.6)	38	103.6 (104.6)		21.96%	1.04[0.58,1.51]
Kim 2015	20	17.6 (16)	19	11.8 (11.6)		18.4%	0.4[-0.23,1.04]
Matthews 2007	22	54.2 (34.1)	14	27.2 (22.7)		17.08%	0.87[0.17,1.58]
Winters-Stone 2011	36	430.8 (281.4)	31	461.7 (346.4)		21.56%	-0.1[-0.58,0.38]



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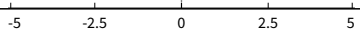
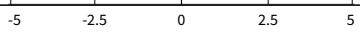
Study or subgroup	Physical activity N	Physical activity Mean(SD)	Control N	Control Mean(SD)	Std. Mean Difference Random, 95% CI	Weight	Std. Mean Difference Random, 95% CI
Subtotal ***	**157**		**135**			**100%**	**0.63[0.17,1.1]**
Heterogeneity: Tau²=0.2; Chi²=14.52, df=4(P=0.01); I²=72.46%							
Test for overall effect: Z=2.67(P=0.01)							
12.31.2 Not postmenopausal only							
Guinan 2013	16	38.7 (26.9)	10	19.9 (11.3)		9.23%	0.81[-0.01,1.64]
Kiecolt-Glaser 2014	96	11.2 (7.6)	90	9.1 (6.1)		25.12%	0.3[0.01,0.59]
Rogers 2009	20	121.4 (73.2)	18	114.3 (131.5)		13.04%	0.07[-0.57,0.7]
Rogers 2015	110	169 (119)	112	74 (107)		25.73%	0.84[0.56,1.11]
Vallance 2007	253	207.6 (169)	85	163 (121)		26.88%	0.28[0.03,0.53]
Subtotal ***	**495**		**315**			**100%**	**0.45[0.16,0.75]**
Heterogeneity: Tau²=0.07; Chi²=12.58, df=4(P=0.01); I²=68.19%							
Test for overall effect: Z=2.99(P=0)							



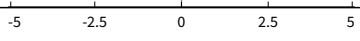
Analysis 12.32. Comparison 12 Subanalysis: outcomes by menopausal status, Outcome 32 Overall self-reported physical activity (change values).

Study or subgroup	Physical activity N	Physical activity Mean(SD)	Control N	Control Mean(SD)	Std. Mean Difference Random, 95% CI	Weight	Std. Mean Difference Random, 95% CI
12.32.1 Postmenopausal only							
Cadmus 2009	34	129 (117.9)	33	44.3 (89.4)		36.73%	0.8[0.3,1.3]
Irwin 2015	45	159 (136)	38	49 (86)		43.95%	0.94[0.48,1.4]
Matthews 2007	22	21.5 (30.6)	14	5 (13.8)		19.32%	0.63[-0.06,1.32]
Subtotal ***	**101**		**85**			**100%**	**0.83[0.53,1.13]**
Heterogeneity: Tau²=0; Chi²=0.56, df=2(P=0.76); I²=0%							
Test for overall effect: Z=5.37(P<0.0001)							
12.32.2 Not postmenopausal only							
Guinan 2013	16	15.6 (11.4)	10	-8.3 (4.2)		17.81%	2.46[1.39,3.53]
Saarto 2012	262	3.5 (18.3)	236	3.3 (21.5)		41.66%	0.01[-0.17,0.19]
Vallance 2007	281	82 (168.7)	96	30 (167.8)		40.53%	0.31[0.08,0.54]
Subtotal ***	**559**		**342**			**100%**	**0.57[-0.02,1.16]**
Heterogeneity: Tau²=0.21; Chi²=22, df=2(P<0.0001); I²=90.91%							
Test for overall effect: Z=1.88(P=0.06)							



Analysis 12.33. Comparison 12 Subanalysis: outcomes by menopausal status, Outcome 33 Overall objective physical activity (follow-up values).

Study or subgroup	Physical activity N	Physical activity Mean(SD)	Control N	Control Mean(SD)	Std. Mean Difference Random, 95% CI	Weight	Std. Mean Difference Random, 95% CI
12.33.1 Postmenopausal only							
Matthews 2007	22	330.8 (114.7)	14	198.5 (55.4)		28.69%	1.34[0.6,2.09]
Rogers 2014	20	294 (175)	22	154 (75)		32.28%	1.04[0.39,1.69]



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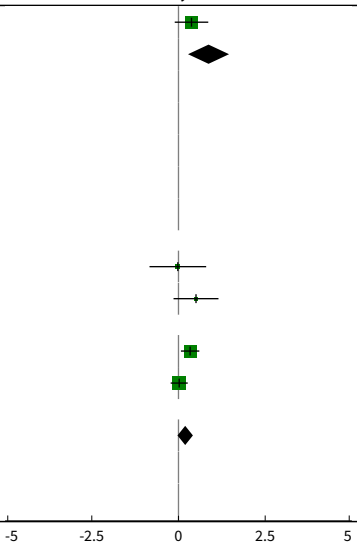
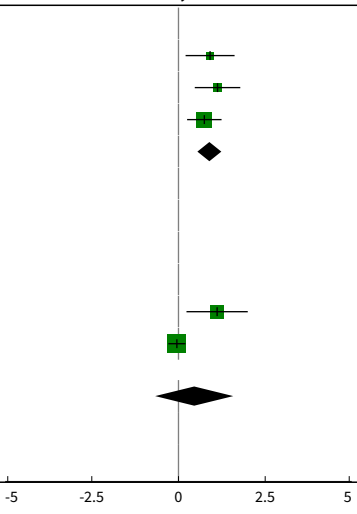
Study or subgroup	Physical activity N	Physical activity Mean(SD)	Control N	Control Mean(SD)	Std. Mean Difference Random, 95% CI	Weight	Std. Mean Difference Random, 95% CI
Cadmus 2009	33	6738 (2958)	34	5537 (3352)		39.03%	0.38[-0.11,0.86]
Subtotal ***	**75**		**70**			**100%**	**0.87[0.27,1.46]**
Heterogeneity: Tau²=0.17; Chi²=5.47, df=2(P=0.06); I²=63.45%							
Test for overall effect: Z=2.87(P=0)							
12.33.2 Not postmenopausal only							
Rogers 2013	12	198.4 (111.7)	10	0 (0)			Not estimable
Guinan 2013	16	30.7 (15.6)	9	31 (15.6)		6.86%	-0.02[-0.84,0.8]
Rogers 2009	20	252191 (91893)	18	210917 (64078)		10.43%	0.51[-0.14,1.15]
Rogers 2015	110	246 (153)	112	197 (138)		39.66%	0.34[0.07,0.6]
Vallance 2007	253	8110.5 (4133.9)	85	8028 (3457)		43.05%	0.02[-0.23,0.27]
Subtotal ***	**411**		**234**			**100%**	**0.19[-0.03,0.42]**
Heterogeneity: Tau²=0.01; Chi²=4.13, df=3(P=0.25); I²=27.35%							
Test for overall effect: Z=1.7(P=0.09)							



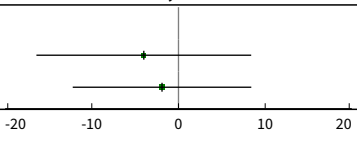
Analysis 12.34. Comparison 12 Subanalysis: outcomes by menopausal status, Outcome 34 Overall objective physical activity (change values).

Study or subgroup	Physical activity N	Physical activity Mean(SD)	Control N	Control Mean(SD)	Std. Mean Difference Random, 95% CI	Weight	Std. Mean Difference Random, 95% CI
12.34.1 Postmenopausal only							
Matthews 2007	22	72.2 (114.6)	14	-16.8 (51.5)		23.91%	0.91[0.2,1.62]
Rogers 2014	20	114 (109)	22	10 (70)		27.69%	1.13[0.47,1.78]
Cadmus 2009	33	1621 (2108)	34	-60 (2341)		48.41%	0.75[0.25,1.24]
Subtotal ***	**75**		**70**			**100%**	**0.89[0.54,1.24]**
Heterogeneity: Tau²=0; Chi²=0.83, df=2(P=0.66); I²=0%							
Test for overall effect: Z=5.05(P<0.0001)							
12.34.2 Not postmenopausal only							
Guinan 2013	16	-1.1 (6.2)	9	-7.9 (5.3)		43.05%	1.11[0.23,2]
Vallance 2007	253	-150 (5173.3)	85	91 (5155.4)		56.95%	-0.05[-0.29,0.2]
Subtotal ***	**269**		**94**			**100%**	**0.45[-0.67,1.58]**
Heterogeneity: Tau²=0.56; Chi²=6.16, df=1(P=0.01); I²=83.76%							
Test for overall effect: Z=0.79(P=0.43)							



Analysis 12.35. Comparison 12 Subanalysis: outcomes by menopausal status, Outcome 35 Mass (follow-up values).

Study or subgroup	Physical activity N	Physical activity Mean(SD)	Control N	Control Mean(SD)	Mean Difference Fixed, 95% CI	Weight	Mean Difference Fixed, 95% CI
12.35.1 Postmenopausal only							
Matthews 2007	22	74.9 (15.2)	14	78.9 (20.3)		12.83%	-4[-16.39,8.39]
Courneya 2003	24	78.2 (20.5)	26	80.1 (16.2)		18.56%	-1.9[-12.2,8.4]



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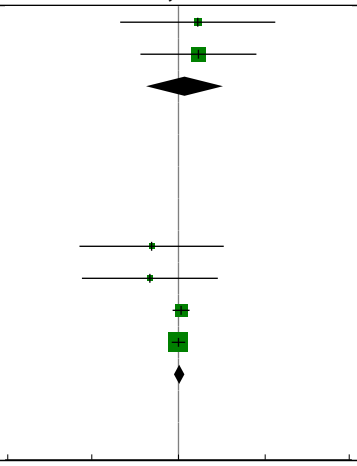
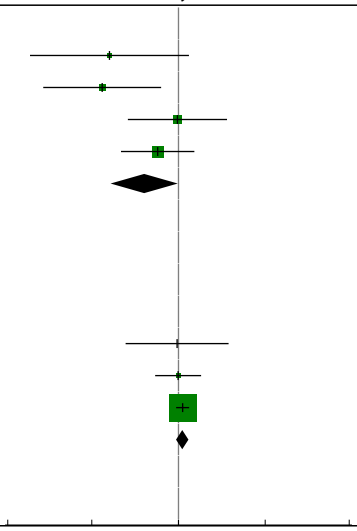
Study or subgroup	Physical activity N	Physical activity Mean(SD)	Control N	Control Mean(SD)	Mean Difference Fixed, 95% CI	Weight	Mean Difference Fixed, 95% CI
Cadmus 2009	36	80.7 (16.9)	33	78.5 (20.6)		24.6%	2.22[-6.72,11.16]
Winters-Stone 2011	36	76.5 (15.6)	31	74.2 (12.3)		44.01%	2.3[-4.39,8.99]
Subtotal ***	**118**		**104**			**100%**	**0.69[-3.74,5.13]**
Heterogeneity: Tau²=0; Chi²=1.13, df=3(P=0.77); I²=0%							
Test for overall effect: Z=0.31(P=0.76)							
12.35.2 Not postmenopausal only							
DeNysschen 2011	30	69.3 (14.2)	34	72.4 (19.6)		0.53%	-3.1[-11.42,5.22]
Ligibel 2008	40	80 (17.5)	42	83.3 (18.7)		0.59%	-3.3[-11.14,4.54]
Schmitz 2005	39	69.5 (2.2)	40	69.2 (2.2)		38.36%	0.3[-0.67,1.27]
Kiecolt-Glaser 2014	96	75.2 (2.8)	90	75.2 (2.6)		60.52%	0[-0.78,0.78]
Subtotal ***	**205**		**206**			**100%**	**0.08[-0.52,0.68]**
Heterogeneity: Tau²=0; Chi²=1.51, df=3(P=0.68); I²=0%							
Test for overall effect: Z=0.26(P=0.8)							



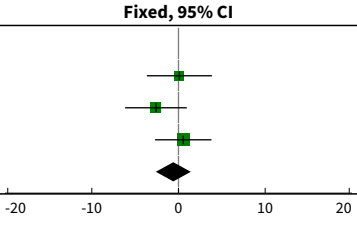
Analysis 12.36. Comparison 12 Subanalysis: outcomes by menopausal status, Outcome 36 Mass (change values).

Study or subgroup	Physical activity N	Physical activity Mean(SD)	Control N	Control Mean(SD)	Mean Difference Random, 95% CI	Weight	Mean Difference Random, 95% CI
12.36.1 Postmenopausal only							
Dolan 2016	23	-0.5 (5)	10	1.4 (1.6)		14.09%	-1.99[-4.28,0.3]
Irwin 2015	45	-2.1 (4.3)	38	0.1 (3.6)		21.8%	-2.2[-3.9,-0.5]
Matthews 2007	22	0 (2.1)	14	0 (2.2)		27.12%	-0.03[-1.46,1.4]
Courneya 2003	24	0.1 (2)	26	0.7 (1.8)		36.98%	-0.6[-1.66,0.46]
Subtotal ***	**114**		**88**			**100%**	**-0.99[-1.96,-0.02]**
Heterogeneity: Tau²=0.37; Chi²=4.85, df=3(P=0.18); I²=38.1%							
Test for overall effect: Z=2(P=0.05)							
12.36.2 Not postmenopausal only							
Ligibel 2008	22	0 (2.3)	14	0 (2.2)		1.46%	-0.04[-1.52,1.44]
Saarto 2012	262	0.7 (3.7)	236	0.7 (3.8)		7.31%	-0.01[-0.67,0.65]
Schmitz 2005	39	0.3 (0.4)	40	0.2 (0.4)		91.23%	0.12[-0.07,0.31]
Subtotal ***	**323**		**290**			**100%**	**0.11[-0.07,0.29]**
Heterogeneity: Tau²=0; Chi²=0.18, df=2(P=0.92); I²=0%							
Test for overall effect: Z=1.18(P=0.24)							



Analysis 12.37. Comparison 12 Subanalysis: outcomes by menopausal status, Outcome 37 BMI (follow-up values).

Study or subgroup	Physical activity N	Physical activity Mean(SD)	Control N	Control Mean(SD)	Mean Difference Fixed, 95% CI	Weight	Mean Difference Fixed, 95% CI
12.37.1 Postmenopausal only							
Courneya 2003	24	29.4 (7.4)	26	29.3 (6)		28.99%	0.1[-3.65,3.85]
Rogers 2014	20	29.6 (5)	22	32.2 (6.7)		32.3%	-2.6[-6.16,0.96]
Cadmus 2009	36	30.5 (6)	33	29.9 (7.6)		38.71%	0.55[-2.7,3.8]
Subtotal ***	**80**		**81**			**100%**	**-0.6[-2.62,1.42]**



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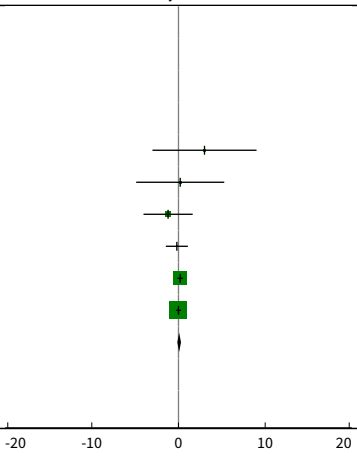
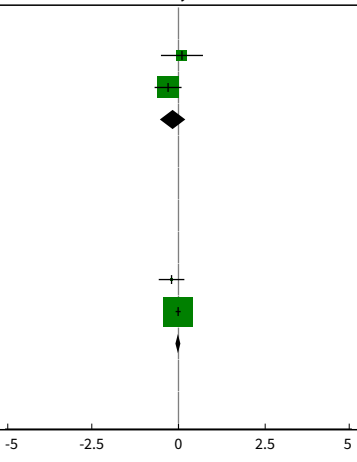
Study or subgroup	Physical activity N	Physical activity Mean(SD)	Control N	Control Mean(SD)	Mean Difference Fixed, 95% CI	Weight	Mean Difference Fixed, 95% CI
Heterogeneity: Tau²=0; Chi²=1.83, df=2(P=0.4); I²=0%							
Test for overall effect: Z=0.58(P=0.56)							
12.37.2 Not postmenopausal only							
Rogers 2013	12	33.6 (7)	10	30.6 (7.3)		0.13%	3[-3,9]
Rogers 2009	20	30.6 (7.6)	18	30.4 (8.3)		0.18%	0.2[-4.88,5.28]
Ligibel 2008	40	30.3 (6.3)	42	31.5 (6.8)		0.56%	-1.2[-4.04,1.64]
Vallance 2007	253	27 (5.2)	85	27.2 (5.2)		2.81%	-0.19[-1.46,1.08]
Schmitz 2005	39	26 (0.7)	40	25.8 (0.7)		43.12%	0.2[-0.12,0.52]
Kiecolt-Glaser 2014	96	27.8 (1.1)	90	27.8 (1)		53.2%	0[-0.29,0.29]
Subtotal ***	**460**		**285**			**100%**	**0.08[-0.13,0.29]**
Heterogeneity: Tau²=0; Chi²=2.68, df=5(P=0.75); I²=0%							
Test for overall effect: Z=0.72(P=0.47)							



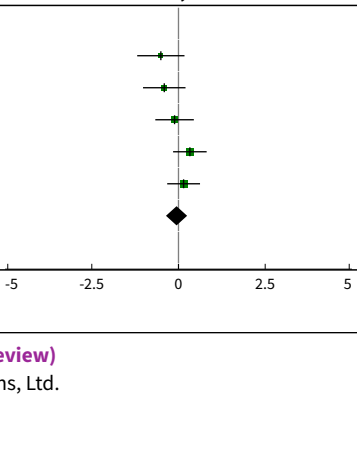
Analysis 12.38. Comparison 12 Subanalysis: outcomes by menopausal status, Outcome 38 BMI (change values).

Study or subgroup	Physical activity N	Physical activity Mean(SD)	Control N	Control Mean(SD)	Mean Difference Random, 95% CI	Weight	Mean Difference Random, 95% CI
12.38.1 Postmenopausal only							
Rogers 2014	20	-0.2 (0.9)	22	-0.3 (1.1)		32.43%	0.1[-0.51,0.71]
Courneya 2003	24	0 (0.7)	26	0.3 (0.7)		67.57%	-0.3[-0.69,0.09]
Subtotal ***	**44**		**48**			**100%**	**-0.17[-0.54,0.2]**
Heterogeneity: Tau²=0.01; Chi²=1.19, df=1(P=0.28); I²=15.77%							
Test for overall effect: Z=0.91(P=0.36)							
12.38.2 Not postmenopausal only							
Ligibel 2008	40	0 (0.9)	42	0.2 (0.8)		3.75%	-0.2[-0.57,0.17]
Schmitz 2005	39	0.1 (0.2)	40	0.1 (0.2)		96.25%	-0.01[-0.08,0.06]
Subtotal ***	**79**		**82**			**100%**	**-0.02[-0.09,0.05]**
Heterogeneity: Tau²=0; Chi²=0.98, df=1(P=0.32); I²=0%							
Test for overall effect: Z=0.47(P=0.64)							



Analysis 12.39. Comparison 12 Subanalysis: outcomes by menopausal status, Outcome 39 Overall body fat (follow-up values).

Study or subgroup	Physical activity N	Physical activity Mean(SD)	Control N	Control Mean(SD)	Std. Mean Difference Random, 95% CI	Weight	Std. Mean Difference Random, 95% CI
12.39.1 Postmenopausal only							
Matthews 2007	22	39.7 (6.3)	14	43.1 (6.9)		14.9%	-0.51[-1.19,0.17]
Rogers 2014	20	38.6 (6.4)	22	41.5 (7.4)		17.38%	-0.41[-1.02,0.2]
Courneya 2003	24	131.9 (46.4)	26	137.1 (44.4)		19.86%	-0.11[-0.67,0.44]
Winters-Stone 2011	36	40.5 (6.2)	31	38.5 (5.8)		23.62%	0.33[-0.16,0.81]
Cadmus 2009	36	40.5 (6.6)	33	39.6 (6)		24.24%	0.15[-0.33,0.62]
Subtotal ***	**138**		**126**			**100%**	**-0.06[-0.36,0.25]**
Heterogeneity: Tau²=0.04; Chi²=6.11, df=4(P=0.19); I²=34.55%							



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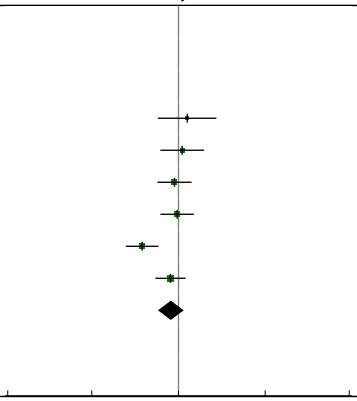
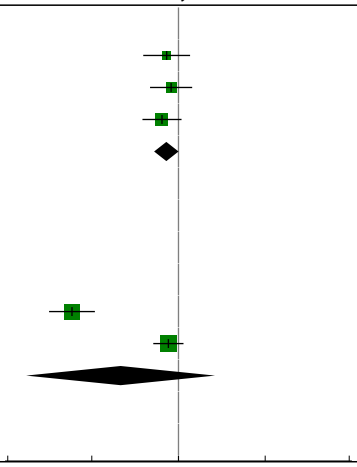
Study or subgroup	Physical activity N	Physical activity Mean(SD)	Control N	Control Mean(SD)	Std. Mean Difference Random, 95% CI	Weight	Std. Mean Difference Random, 95% CI
Test for overall effect: Z=0.36(P=0.72)							
12.39.2 Not postmenopausal only							
Rogers 2013	10	44.2 (6.7)	12	42.3 (7.7)		11.17%	0.25[-0.59,1.09]
Rogers 2009	20	44.3 (7.4)	19	43.5 (7.5)		14.99%	0.11[-0.52,0.73]
DeNysschen 2011	30	36.9 (8.4)	34	38 (10.2)		17.96%	-0.12[-0.61,0.38]
Saarto 2012	37	39.9 (7.5)	30	40.2 (8)		18.19%	-0.04[-0.52,0.44]
Schmitz 2005	39	40.9 (1.3)	40	42.3 (1.3)		18.41%	-1.05[-1.52,-0.58]
Ligibel 2008	40	42.9 (7.4)	42	44.7 (8)		19.28%	-0.23[-0.67,0.2]
Subtotal ***	**176**		**177**			**100%**	**-0.22[-0.59,0.15]**
Heterogeneity: Tau²=0.14; Chi²=14.56, df=5(P=0.01); I²=65.66%							
Test for overall effect: Z=1.16(P=0.24)							



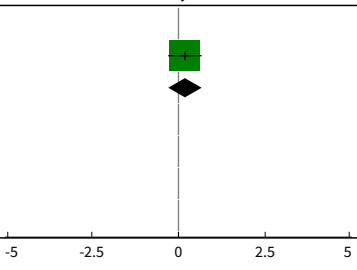
Analysis 12.40. Comparison 12 Subanalysis: outcomes by menopausal status, Outcome 40 Overall body fat (change values).

Study or subgroup	Physical activity N	Physical activity Mean(SD)	Control N	Control Mean(SD)	Std. Mean Difference Random, 95% CI	Weight	Std. Mean Difference Random, 95% CI
12.40.1 Postmenopausal only							
Matthews 2007	22	-0.2 (1.6)	14	0.4 (1.9)		27.23%	-0.34[-1.02,0.33]
Rogers 2014	20	-1.1 (2.2)	22	-0.6 (2.4)		33.64%	-0.21[-0.82,0.39]
Courneya 2003	24	-4.9 (15.7)	26	5.1 (24.4)		39.13%	-0.48[-1.04,0.09]
Subtotal ***	**66**		**62**			**100%**	**-0.35[-0.7,0]**
Heterogeneity: Tau²=0; Chi²=0.39, df=2(P=0.82); I²=0%							
Test for overall effect: Z=1.95(P=0.05)							
12.40.2 Not postmenopausal only							
Schmitz 2005	39	-1.1 (0.5)	40	0.2 (0.4)		49.59%	-3.07[-3.73,-2.41]
Ligibel 2008	40	-0.2 (1.7)	42	0.3 (1.7)		50.41%	-0.29[-0.73,0.14]
Subtotal ***	**79**		**82**			**100%**	**-1.67[-4.39,1.05]**
Heterogeneity: Tau²=3.78; Chi²=47.46, df=1(P<0.0001); I²=97.89%							
Test for overall effect: Z=1.2(P=0.23)							



Analysis 12.41. Comparison 12 Subanalysis: outcomes by menopausal status, Outcome 41 Lower body strength (follow-up values).

Study or subgroup	Physical activity N	Physical activity Mean(SD)	Control N	Control Mean(SD)	Std. Mean Difference Random, 95% CI	Weight	Std. Mean Difference Random, 95% CI
12.41.1 Postmenopausal only							
Winters-Stone 2011	36	201.3 (57.4)	31	191 (51.7)		100%	0.19[-0.3,0.67]
Subtotal ***	**36**		**31**			**100%**	**0.19[-0.3,0.67]**
Heterogeneity: Not applicable							
Test for overall effect: Z=0.76(P=0.45)							
12.41.2 Not postmenopausal only							



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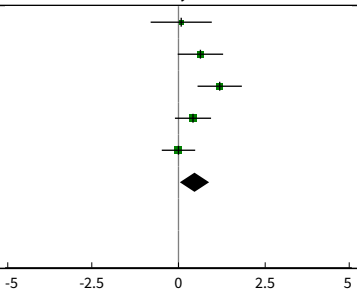
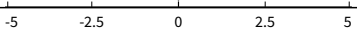
Study or subgroup	Physical activity N	Physical activity Mean(SD)	Control N	Control Mean(SD)	Std. Mean Difference Random, 95% CI	Weight	Std. Mean Difference Random, 95% CI
Rogers 2013	11	68.4 (15.5)	9	67.1 (16.2)		13.94%	0.08[-0.8,0.96]
Rogers 2009	20	80.3 (27)	18	64.9 (19.7)		19.16%	0.63[-0.02,1.29]
Schmitz 2005	23	296.6 (48.9)	22	238.9 (46.4)		19.59%	1.19[0.55,1.83]
Milne 2008	29	66.2 (10.2)	29	61.7 (11)		23.04%	0.42[-0.1,0.94]
Saarto 2012	37	136 (23)	30	136 (29)		24.27%	0[-0.48,0.48]
Subtotal ***	**120**		**108**			**100%**	**0.46[0.04,0.88]**
Heterogeneity: Tau²=0.13; Chi²=9.46, df=4(P=0.05); I²=57.74%							
Test for overall effect: Z=2.14(P=0.03)							



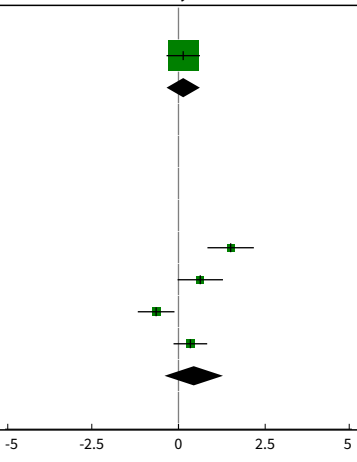
Analysis 12.42. Comparison 12 Subanalysis: outcomes by menopausal status, Outcome 42 Lower body strength (change values).

Study or subgroup	Physical activity N	Physical activity Mean(SD)	Control N	Control Mean(SD)	Std. Mean Difference Random, 95% CI	Weight	Std. Mean Difference Random, 95% CI
12.42.1 Postmenopausal only							
Dolan 2016	23	11.8 (8.9)	10	0.3 (11.1)		36.79%	1.17[0.37,1.97]
Waltman 2010	110	4.4 (11.5)	113	0.2 (8.4)		63.21%	0.42[0.15,0.69]
Subtotal ***	**133**		**123**			**100%**	**0.7[-0.01,1.41]**
Heterogeneity: Tau²=0.19; Chi²=3.04, df=1(P=0.08); I²=67.07%							
Test for overall effect: Z=1.92(P=0.05)							
12.42.2 Not postmenopausal only							
Schmitz 2005	23	81.8 (48.9)	22	20.3 (46)		100%	1.27[0.63,1.92]
Subtotal ***	**23**		**22**			**100%**	**1.27[0.63,1.92]**
Heterogeneity: Not applicable							
Test for overall effect: Z=3.86(P=0)							



Analysis 12.43. Comparison 12 Subanalysis: outcomes by menopausal status, Outcome 43 Upper body strength (follow-up values).

Study or subgroup	Physical activity N	Physical activity Mean(SD)	Control N	Control Mean(SD)	Std. Mean Difference Random, 95% CI	Weight	Std. Mean Difference Random, 95% CI
12.43.1 Postmenopausal only							
Winters-Stone 2011	36	63.3 (15.3)	31	61.1 (16.8)		100%	0.14[-0.34,0.62]
Subtotal ***	**36**		**31**			**100%**	**0.14[-0.34,0.62]**
Heterogeneity: Not applicable							
Test for overall effect: Z=0.55(P=0.58)							
12.43.2 Not postmenopausal only							
Schmitz 2005	23	83 (13.4)	22	63 (12.7)		24.13%	1.5[0.84,2.17]
Rogers 2009	20	27.9 (5)	18	24.3 (6.2)		24.29%	0.63[-0.03,1.28]
Milne 2008	29	7.6 (2.9)	29	9.4 (2.6)		25.58%	-0.64[-1.17,-0.12]
Saarto 2012	37	32.7 (5.3)	30	30.8 (5.7)		26%	0.34[-0.14,0.83]
Subtotal ***	**109**		**99**			**100%**	**0.44[-0.4,1.28]**
Heterogeneity: Tau²=0.65; Chi²=25.69, df=3(P<0.0001); I²=88.32%							



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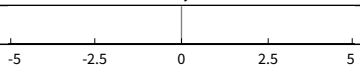
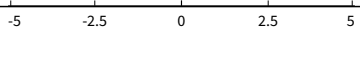
Study or subgroup	Physical activity N	Physical activity Mean(SD)	Control N	Control Mean(SD)	Std. Mean Difference Random, 95% CI	Weight	Std. Mean Difference Random, 95% CI
Test for overall effect: Z=1.02(P=0.31)							



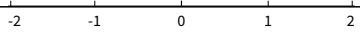
Analysis 12.44. Comparison 12 Subanalysis: outcomes by menopausal status, Outcome 44 Upper body strength (change values).

Study or subgroup	Physical activity N	Physical activity Mean(SD)	Control N	Control Mean(SD)	Std. Mean Difference Random, 95% CI	Weight	Std. Mean Difference Random, 95% CI
12.44.1 Postmenopausal only							
Irwin 2015	45	0.4 (1.9)	38	0.1 (1.9)		27.13%	0.16[-0.27,0.59]
Waltman 2010	110	1.9 (4.9)	113	0.8 (2.9)		72.87%	0.29[0.02,0.55]
Subtotal ***	**155**		**151**			**100%**	**0.25[0.03,0.48]**
Heterogeneity: Tau^2=0; Chi^2=0.25, df=1(P=0.62); I^2=0%							
Test for overall effect: Z=2.19(P=0.03)							
12.44.2 Not postmenopausal only							
Schmitz 2005	23	32.3 (11.5)	22	6.9 (10.8)		49.33%	2.24[1.48,2.99]
Rogers 2009	19	1.5 (2.3)	17	-0.3 (2.4)		50.67%	0.76[0.08,1.44]
Subtotal ***	**42**		**39**			**100%**	**1.49[0.04,2.93]**
Heterogeneity: Tau^2=0.96; Chi^2=8.08, df=1(P=0); I^2=87.62%							
Test for overall effect: Z=2.01(P=0.04)							



Analysis 12.45. Comparison 12 Subanalysis: outcomes by menopausal status, Outcome 45 Bone mineral density - femoral neck (follow-up and change values).

Study or subgroup	Physical activity N	Physical activity Mean(SD)	Control N	Control Mean(SD)	Std. Mean Difference Random, 95% CI	Weight	Std. Mean Difference Random, 95% CI
12.45.1 Postmenopausal only							
Kim 2015	20	0.8 (0.1)	19	0.8 (0.1)		28.05%	-0.37[-1,0.27]
Winters-Stone 2011	36	0.7 (0.1)	31	0.7 (0.1)		32.86%	0.11[-0.37,0.59]
Waltman 2010	110	0.9 (0.5)	113	0.6 (0.4)		39.09%	0.63[0.36,0.9]
Subtotal ***	**166**		**163**			**100%**	**0.18[-0.39,0.75]**
Heterogeneity: Tau^2=0.2; Chi^2=9.77, df=2(P=0.01); I^2=79.54%							
Test for overall effect: Z=0.61(P=0.54)							
12.45.2 Not postmenopausal only							
Saarto 2012	239	-0 (0)	218	-0 (0)		100%	0.18[-0,0.37]
Subtotal ***	**239**		**218**			**100%**	**0.18[-0,0.37]**
Heterogeneity: Not applicable							
Test for overall effect: Z=1.93(P=0.05)							



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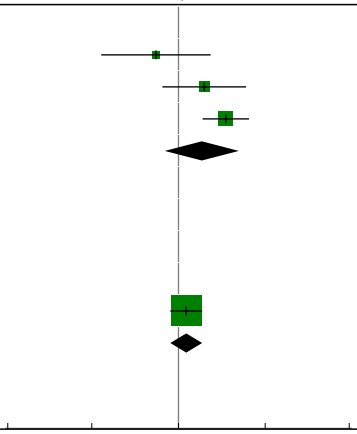
Analysis 12.46. Comparison 12 Subanalysis: outcomes by menopausal status, Outcome 46 Bone mineral density - lumbar spine (follow-up and change values).

Study or subgroup	Physical activity N	Physical activity Mean(SD)	Control N	Control Mean(SD)	Std. Mean Difference Random, 95% CI	Weight	Std. Mean Difference Random, 95% CI
12.46.1 Postmenopausal only							
Kim 2015	20	1 (0.1)	19	1 (0.1)		24.58%	-0.26[-0.89,0.37]
Winters-Stone 2011	36	1 (0.2)	31	1 (0.1)		31.58%	0.3[-0.19,0.78]
Waltman 2010	110	3.1 (0.4)	113	2.9 (0.4)		43.84%	0.55[0.28,0.81]
Subtotal ***	**166**		**163**			**100%**	**0.27[-0.16,0.7]**
Heterogeneity: Tau²=0.09; Chi²=5.52, df=2(P=0.06); I²=63.75%							
Test for overall effect: Z=1.23(P=0.22)							
12.46.2 Not postmenopausal only							
Saarto 2012	239	-0 (0)	218	-0 (0)		100%	0.09[-0.09,0.27]
Subtotal ***	**239**		**218**			**100%**	**0.09[-0.09,0.27]**
Heterogeneity: Not applicable							
Test for overall effect: Z=0.95(P=0.34)							



Comparison 13. Subanalysis: outcomes by mode of physical activity intervention

Outcome or subgroup title	No. of studies	No. of participants	Statistical method	Effect size
1 Overall HRQoL (follow-up values)	22		Std. Mean Difference (IV, Random, 95% CI)	Subtotals only
1.1 Aerobic exercise interventions	12	971	Std. Mean Difference (IV, Random, 95% CI)	0.41 [0.19, 0.63]
1.2 Resistance exercise interventions	1	79	Std. Mean Difference (IV, Random, 95% CI)	0.35 [-0.09, 0.79]
1.3 Combined aerobic and resistance exercise	7	589	Std. Mean Difference (IV, Random, 95% CI)	0.63 [0.08, 1.19]
1.4 Yoga, Tai Chi, and Pilates interventions	3	184	Std. Mean Difference (IV, Random, 95% CI)	0.11 [-0.22, 0.45]
2 Overall HRQoL (change values)	14		Std. Mean Difference (IV, Random, 95% CI)	Subtotals only
2.1 Aerobic exercise interventions	9	1280	Std. Mean Difference (IV, Random, 95% CI)	0.68 [0.22, 1.15]
2.2 Resistance exercise interventions	1	79	Std. Mean Difference (IV, Random, 95% CI)	0.40 [-0.05, 0.84]
2.3 Combined aerobic and resistance exercise	4	139	Std. Mean Difference (IV, Random, 95% CI)	0.69 [0.01, 1.38]
2.4 Yoga, Tai Chi, and Pilates interventions	1	21	Std. Mean Difference (IV, Random, 95% CI)	2.88 [1.59, 4.17]

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Outcome or subgroup title	No. of studies	No. of participants	Statistical method	Effect size
3 Overall emotional function/mental health (follow-up values)	26		Std. Mean Difference (IV, Random, 95% CI)	Subtotals only
3.1 Aerobic exercise interventions	14	1415	Std. Mean Difference (IV, Random, 95% CI)	0.15 [0.04, 0.25]
3.2 Resistance exercise interventions	2	311	Std. Mean Difference (IV, Random, 95% CI)	0.08 [-0.28, 0.44]
3.3 Combined aerobic and resistance exercise	6	263	Std. Mean Difference (IV, Random, 95% CI)	0.72 [0.47, 0.97]
3.4 Yoga, Tai Chi, and Pilates interventions	4	113	Std. Mean Difference (IV, Random, 95% CI)	-0.03 [-0.40, 0.34]
4 Overall emotional function/mental health (change values)	15		Std. Mean Difference (IV, Random, 95% CI)	Subtotals only
4.1 Aerobic exercise	7	701	Std. Mean Difference (IV, Random, 95% CI)	0.44 [0.06, 0.82]
4.2 Resistance exercise	3	261	Std. Mean Difference (IV, Random, 95% CI)	0.22 [-0.09, 0.54]
4.3 Combined aerobic and resistance exercise	4	598	Std. Mean Difference (IV, Random, 95% CI)	-0.01 [-0.38, 0.36]
4.4 Yoga, Tai Chi, and Pilates	1	19	Std. Mean Difference (IV, Random, 95% CI)	1.06 [0.08, 2.03]
5 Overall physical function (follow-up values)	25		Std. Mean Difference (IV, Random, 95% CI)	Subtotals only
5.1 Aerobic exercise	14	1465	Std. Mean Difference (IV, Random, 95% CI)	0.28 [0.15, 0.41]
5.2 Resistance exercise	3	372	Std. Mean Difference (IV, Random, 95% CI)	0.23 [-0.11, 0.57]
5.3 Combined aerobic and resistance exercise	5	202	Std. Mean Difference (IV, Random, 95% CI)	0.80 [-0.04, 1.64]
5.4 Yoga, Tai Chi, and Pilates	3	90	Std. Mean Difference (IV, Random, 95% CI)	0.16 [-0.26, 0.57]
6 Overall physical function (change values)	13		Std. Mean Difference (IV, Random, 95% CI)	Subtotals only
6.1 Aerobic exercise	7	1116	Std. Mean Difference (IV, Random, 95% CI)	0.72 [0.14, 1.30]
6.2 Resistance exercise	3	261	Std. Mean Difference (IV, Random, 95% CI)	0.24 [-0.17, 0.65]

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Outcome or subgroup title	No. of studies	No. of participants	Statistical method	Effect size
6.3 Combined aerobic and resistance exercise	2	37	Std. Mean Difference (IV, Random, 95% CI)	0.75 [-0.22, 1.73]
6.4 Yoga, Tai Chi, and Pilates	1	19	Std. Mean Difference (IV, Random, 95% CI)	0.93 [-0.03, 1.89]
7 Overall role function (follow-up values)	18		Std. Mean Difference (IV, Random, 95% CI)	Subtotals only
7.1 Aerobic exercise	10	1043	Std. Mean Difference (IV, Random, 95% CI)	0.28 [0.12, 0.44]
7.2 Resistance exercise	1	79	Std. Mean Difference (IV, Random, 95% CI)	0.12 [-0.32, 0.57]
7.3 Combined aerobic and resistance exercise	3	136	Std. Mean Difference (IV, Random, 95% CI)	0.61 [-1.15, 2.37]
7.4 Yoga, Tai Chi, and Pilates	4	112	Std. Mean Difference (IV, Random, 95% CI)	0.11 [-0.26, 0.48]
8 Overall role function (change values)	12		Std. Mean Difference (IV, Random, 95% CI)	Subtotals only
8.1 Aerobic exercise	7	1118	Std. Mean Difference (IV, Random, 95% CI)	0.16 [-0.10, 0.43]
8.2 Resistance exercise	2	141	Std. Mean Difference (IV, Random, 95% CI)	0.17 [-0.32, 0.65]
8.3 Combined aerobic and resistance exercise	2	37	Std. Mean Difference (IV, Random, 95% CI)	0.12 [-0.52, 0.77]
8.4 Yoga, Tai Chi, and Pilates	1	19	Std. Mean Difference (IV, Random, 95% CI)	-0.15 [-1.05, 0.76]
9 Overall social well-being/function (follow-up values)	18		Std. Mean Difference (IV, Random, 95% CI)	Subtotals only
9.1 Aerobic exercise	10	1044	Std. Mean Difference (IV, Random, 95% CI)	0.18 [0.04, 0.31]
9.2 Resistance exercise	1	121	Std. Mean Difference (IV, Random, 95% CI)	0.14 [-0.21, 0.50]
9.3 Combined aerobic and resistance exercise	3	116	Std. Mean Difference (IV, Random, 95% CI)	0.45 [-0.16, 1.05]
9.4 Yoga, Tai Chi, and Pilates	4	276	Std. Mean Difference (IV, Random, 95% CI)	0.10 [-0.13, 0.34]
10 Overall social well-being/function (change values)	12		Std. Mean Difference (IV, Random, 95% CI)	Subtotals only

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Outcome or subgroup title	No. of studies	No. of participants	Statistical method	Effect size
10.1 Aerobic exercise	7	1119	Std. Mean Difference (IV, Random, 95% CI)	0.60 [0.07, 1.13]
10.2 Resistance exercise	2	183	Std. Mean Difference (IV, Random, 95% CI)	0.11 [-0.19, 0.41]
10.3 Combined aerobic and resistance exercise	2	63	Std. Mean Difference (IV, Random, 95% CI)	0.66 [0.15, 1.17]
10.4 Yoga, Tai Chi, and Pilates	1	19	Std. Mean Difference (IV, Random, 95% CI)	0.76 [-0.18, 1.70]
11 Overall cognitive function (follow-up values)	5		Std. Mean Difference (IV, Random, 95% CI)	Subtotals only
11.1 Aerobic exercise	2	94	Std. Mean Difference (IV, Random, 95% CI)	0.24 [-0.17, 0.65]
11.2 Resistance exercise	0	0	Std. Mean Difference (IV, Random, 95% CI)	0.0 [0.0, 0.0]
11.3 Combined aerobic and resistance exercise	3	95	Std. Mean Difference (IV, Random, 95% CI)	0.57 [0.15, 0.98]
11.4 Yoga, Tai Chi, and Pilates	0	0	Std. Mean Difference (IV, Random, 95% CI)	0.0 [0.0, 0.0]
12 Overall cognitive function (change values)	5		Std. Mean Difference (IV, Random, 95% CI)	Subtotals only
12.1 Aerobic exercise	2	95	Std. Mean Difference (IV, Random, 95% CI)	0.08 [-0.50, 0.65]
12.2 Resistance exercise	0	0	Std. Mean Difference (IV, Random, 95% CI)	0.0 [0.0, 0.0]
12.3 Combined aerobic and resistance exercise	3	577	Std. Mean Difference (IV, Random, 95% CI)	-0.01 [-0.38, 0.35]
12.4 Yoga, Tai Chi, and Pilates	0	0	Std. Mean Difference (IV, Random, 95% CI)	0.0 [0.0, 0.0]
13 Overall general health (follow-up values)	10		Std. Mean Difference (IV, Random, 95% CI)	Subtotals only
13.1 Aerobic exercise	6	293	Std. Mean Difference (IV, Random, 95% CI)	0.11 [-0.29, 0.51]
13.2 Resistance exercise	1	79	Std. Mean Difference (IV, Random, 95% CI)	0.10 [-0.34, 0.55]
13.3 Combined aerobic and resistance exercise	3	118	Std. Mean Difference (IV, Random, 95% CI)	0.46 [0.00, 0.91]

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Outcome or subgroup title	No. of studies	No. of participants	Statistical method	Effect size
13.4 Yoga, Tai Chi, and Pilates	1	18	Std. Mean Difference (IV, Random, 95% CI)	-0.18 [-1.11, 0.74]
14 Overall general health (change values)	9		Std. Mean Difference (IV, Fixed, 95% CI)	Subtotals only
14.1 Aerobic exercise	5	710	Std. Mean Difference (IV, Fixed, 95% CI)	-0.02 [-0.17, 0.13]
14.2 Resistance exercise	2	141	Std. Mean Difference (IV, Fixed, 95% CI)	0.23 [-0.12, 0.57]
14.3 Combined aerobic and resistance exercise	2	76	Std. Mean Difference (IV, Fixed, 95% CI)	0.66 [0.17, 1.16]
14.4 Yoga, Tai Chi, and Pilates	1	19	Std. Mean Difference (IV, Fixed, 95% CI)	-0.20 [-1.10, 0.71]
15 Overall sexual function (follow-up values)	5		Std. Mean Difference (IV, Fixed, 95% CI)	Subtotals only
15.1 Aerobic exercise	2	136	Std. Mean Difference (IV, Fixed, 95% CI)	-0.00 [-0.34, 0.34]
15.2 Resistance exercise	2	193	Std. Mean Difference (IV, Fixed, 95% CI)	0.21 [-0.07, 0.49]
15.3 Combined aerobic and resistance exercise	1	82	Std. Mean Difference (IV, Fixed, 95% CI)	0.29 [-0.14, 0.73]
15.4 Yoga, Tai Chi, and Pilates	0	0	Std. Mean Difference (IV, Fixed, 95% CI)	0.0 [0.0, 0.0]
16 Overall sexual function (change values)	3		Mean Difference (IV, Random, 95% CI)	Subtotals only
16.1 Aerobic exercise	1	500	Mean Difference (IV, Random, 95% CI)	0.5 [-3.86, 4.86]
16.2 Resistance exercise	2	193	Mean Difference (IV, Random, 95% CI)	3.83 [-1.83, 9.48]
16.3 Combined aerobic and resistance exercise	0	0	Mean Difference (IV, Random, 95% CI)	0.0 [0.0, 0.0]
16.4 Yoga, Tai Chi, and Pilates	0	0	Mean Difference (IV, Random, 95% CI)	0.0 [0.0, 0.0]
17 Overall sleep (follow-up values)	5		Std. Mean Difference (IV, Fixed, 95% CI)	Subtotals only
17.1 Aerobic exercise	2	95	Std. Mean Difference (IV, Fixed, 95% CI)	-0.18 [-0.59, 0.23]

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Outcome or subgroup title	No. of studies	No. of participants	Statistical method	Effect size
17.2 Resistance exercise	0	0	Std. Mean Difference (IV, Fixed, 95% CI)	0.0 [0.0, 0.0]
17.3 Combined aerobic and resistance exercise	2	62	Std. Mean Difference (IV, Fixed, 95% CI)	-0.07 [-0.57, 0.43]
17.4 Yoga, Tai Chi, and Pilates	1	31	Std. Mean Difference (IV, Fixed, 95% CI)	0.15 [-0.55, 0.86]
18 Overall sleep (change values)	3		Std. Mean Difference (IV, Random, 95% CI)	Subtotals only
18.1 Aerobic exercise	2	94	Std. Mean Difference (IV, Random, 95% CI)	0.10 [-0.30, 0.51]
18.2 Resistance exercise	0	0	Std. Mean Difference (IV, Random, 95% CI)	0.0 [0.0, 0.0]
18.3 Combined aerobic and resistance exercise	1	42	Std. Mean Difference (IV, Random, 95% CI)	0.23 [-0.38, 0.84]
18.4 Yoga, Tai Chi, and Pilates	0	0	Std. Mean Difference (IV, Random, 95% CI)	0.0 [0.0, 0.0]
19 Overall anxiety (follow-up values)	7		Std. Mean Difference (IV, Random, 95% CI)	Subtotals only
19.1 Aerobic exercise	4	205	Std. Mean Difference (IV, Random, 95% CI)	-0.76 [-1.37, -0.14]
19.2 Resistance exercise	0	0	Std. Mean Difference (IV, Random, 95% CI)	0.0 [0.0, 0.0]
19.3 Combined aerobic and resistance exercise	3	121	Std. Mean Difference (IV, Random, 95% CI)	-0.40 [-0.87, 0.07]
19.4 Yoga, Tai Chi, and Pilates	0	0	Std. Mean Difference (IV, Random, 95% CI)	0.0 [0.0, 0.0]
20 Overall anxiety (change values)	4		Std. Mean Difference (IV, Fixed, 95% CI)	Subtotals only
20.1 Aerobic exercise	2	132	Std. Mean Difference (IV, Fixed, 95% CI)	-0.27 [-0.61, 0.07]
20.2 Resistance exercise	0	0	Std. Mean Difference (IV, Fixed, 95% CI)	0.0 [0.0, 0.0]
20.3 Combined aerobic and resistance exercise	2	103	Std. Mean Difference (IV, Fixed, 95% CI)	-0.51 [-0.90, -0.12]
20.4 Yoga, Tai Chi, and Pilates	0	0	Std. Mean Difference (IV, Fixed, 95% CI)	0.0 [0.0, 0.0]

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Outcome or subgroup title	No. of studies	No. of participants	Statistical method	Effect size
21 Overall depression (follow-up values)	12		Std. Mean Difference (IV, Random, 95% CI)	Subtotals only
21.1 Aerobic exercise	6	273	Std. Mean Difference (IV, Random, 95% CI)	-0.32 [-0.78, 0.14]
21.2 Resistance exercise	0	0	Std. Mean Difference (IV, Random, 95% CI)	0.0 [0.0, 0.0]
21.3 Combined aerobic and resistance exercise	5	187	Std. Mean Difference (IV, Random, 95% CI)	-0.33 [-0.90, 0.24]
21.4 Yoga, Tai Chi, and Pilates	2	217	Std. Mean Difference (IV, Random, 95% CI)	-0.23 [-0.61, 0.14]
22 Overall depression (change values)	7		Std. Mean Difference (IV, Random, 95% CI)	Subtotals only
22.1 Aerobic exercise	4	672	Std. Mean Difference (IV, Random, 95% CI)	-0.18 [-0.48, 0.11]
22.2 Resistance exercise	0	0	Std. Mean Difference (IV, Random, 95% CI)	0.0 [0.0, 0.0]
22.3 Combined aerobic and resistance exercise	4	164	Std. Mean Difference (IV, Random, 95% CI)	-0.47 [-0.92, -0.02]
22.4 Yoga, Tai Chi, and Pilates	0	0	Std. Mean Difference (IV, Random, 95% CI)	0.0 [0.0, 0.0]
23 Overall fatigue (follow-up values)	25		Std. Mean Difference (IV, Random, 95% CI)	Subtotals only
23.1 Aerobic exercise	11	925	Std. Mean Difference (IV, Random, 95% CI)	-0.24 [-0.41, -0.07]
23.2 Resistance exercise	1	67	Std. Mean Difference (IV, Random, 95% CI)	0.23 [-0.25, 0.72]
23.3 Combined aerobic and resistance exercise	9	642	Std. Mean Difference (IV, Random, 95% CI)	-0.48 [-0.83, -0.13]
23.4 Yoga, Tai Chi, and Pilates	5	311	Std. Mean Difference (IV, Random, 95% CI)	-0.36 [-0.58, -0.13]
24 Overall fatigue (change values)	12		Std. Mean Difference (IV, Random, 95% CI)	Subtotals only
24.1 Aerobic exercise	7	1130	Std. Mean Difference (IV, Random, 95% CI)	-0.08 [-0.38, 0.23]
24.2 Resistance exercise	0	0	Std. Mean Difference (IV, Random, 95% CI)	0.0 [0.0, 0.0]

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Outcome or subgroup title	No. of studies	No. of participants	Statistical method	Effect size
24.3 Combined aerobic and resistance exercise	4	118	Std. Mean Difference (IV, Random, 95% CI)	-0.81 [-1.57, -0.05]
24.4 Yoga, Tai Chi, and Pilates	1	23	Std. Mean Difference (IV, Random, 95% CI)	-0.07 [-0.89, 0.75]
25 Overall pain/disability (follow-up values)	9		Std. Mean Difference (IV, Random, 95% CI)	Subtotals only
25.1 Aerobic exercise	5	397	Std. Mean Difference (IV, Random, 95% CI)	0.11 [-0.15, 0.37]
25.2 Resistance exercise	0	0	Std. Mean Difference (IV, Random, 95% CI)	0.0 [0.0, 0.0]
25.3 Combined aerobic and resistance exercise	2	96	Std. Mean Difference (IV, Random, 95% CI)	0.13 [-0.29, 0.54]
25.4 Yoga, Tai Chi, and Pilates	2	42	Std. Mean Difference (IV, Random, 95% CI)	-0.18 [-0.78, 0.43]
26 Overall pain/disability (change values)	5		Std. Mean Difference (IV, Random, 95% CI)	Subtotals only
26.1 Aerobic exercise	2	132	Std. Mean Difference (IV, Random, 95% CI)	-0.03 [-0.44, 0.39]
26.2 Resistance exercise	1	62	Std. Mean Difference (IV, Random, 95% CI)	0.22 [-0.33, 0.76]
26.3 Combined aerobic and resistance exercise	1	83	Std. Mean Difference (IV, Random, 95% CI)	-0.35 [-0.79, 0.08]
26.4 Yoga, Tai Chi, and Pilates	1	19	Std. Mean Difference (IV, Random, 95% CI)	-0.15 [-1.06, 0.75]
27 Overall self-esteem/body image (follow-up values)	12		Std. Mean Difference (IV, Random, 95% CI)	Subtotals only
27.1 Aerobic exercise	7	364	Std. Mean Difference (IV, Random, 95% CI)	0.29 [-0.07, 0.64]
27.2 Resistance exercise	2	143	Std. Mean Difference (IV, Random, 95% CI)	0.06 [-0.27, 0.39]
27.3 Combined aerobic and resistance exercise	4	161	Std. Mean Difference (IV, Random, 95% CI)	0.14 [-0.46, 0.74]
27.4 Yoga, Tai Chi, and Pilates	1	23	Std. Mean Difference (IV, Random, 95% CI)	0.20 [-0.62, 1.02]
28 Overall self-esteem/body image (change values)	9		Std. Mean Difference (IV, Random, 95% CI)	Subtotals only

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Outcome or subgroup title	No. of studies	No. of participants	Statistical method	Effect size
28.1 Aerobic exercise	6	771	Std. Mean Difference (IV, Random, 95% CI)	0.14 [-0.12, 0.39]
28.2 Resistance exercise	2	143	Std. Mean Difference (IV, Random, 95% CI)	-0.29 [-0.88, 0.30]
28.3 Combined aerobic and resistance exercise	2	81	Std. Mean Difference (IV, Random, 95% CI)	0.10 [-0.54, 0.75]
28.4 Yoga, Tai Chi, and Pilates	1	21	Std. Mean Difference (IV, Random, 95% CI)	3.42 [1.99, 4.86]
29 Overall cardiorespiratory fitness (follow-up values)	23		Std. Mean Difference (IV, Random, 95% CI)	Subtotals only
29.1 Aerobic exercise	12	814	Std. Mean Difference (IV, Random, 95% CI)	0.37 [0.21, 0.54]
29.2 Resistance exercise	1	21	Std. Mean Difference (IV, Random, 95% CI)	0.27 [-0.60, 1.14]
29.3 Combined aerobic and resistance exercise	11	433	Std. Mean Difference (IV, Random, 95% CI)	0.56 [0.30, 0.81]
29.4 Yoga, Tai Chi, and Pilates	1	21	Std. Mean Difference (IV, Random, 95% CI)	0.39 [-0.48, 1.25]
30 Overall cardiorespiratory fitness (change values)	9		Std. Mean Difference (IV, Random, 95% CI)	Subtotals only
30.1 Aerobic exercise	5	685	Std. Mean Difference (IV, Random, 95% CI)	0.79 [0.17, 1.42]
30.2 Resistance exercise	1	21	Std. Mean Difference (IV, Random, 95% CI)	-0.04 [-0.91, 0.82]
30.3 Combined aerobic and resistance exercise	5	181	Std. Mean Difference (IV, Random, 95% CI)	0.75 [0.18, 1.31]
30.4 Yoga, Tai Chi, and Pilates	0	0	Std. Mean Difference (IV, Random, 95% CI)	0.0 [0.0, 0.0]
31 Overall self-reported physical activity (follow-up values)	17		Std. Mean Difference (IV, Random, 95% CI)	Subtotals only
31.1 Aerobic exercise	10	1011	Std. Mean Difference (IV, Random, 95% CI)	0.69 [0.44, 0.94]
31.2 Resistance exercise	2	331	Std. Mean Difference (IV, Random, 95% CI)	0.08 [-0.13, 0.30]
31.3 Combined aerobic and resistance exercise	3	421	Std. Mean Difference (IV, Random, 95% CI)	0.53 [-0.05, 1.10]

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Outcome or subgroup title	No. of studies	No. of participants	Statistical method	Effect size
31.4 Yoga, Tai Chi, and Pilates	2	249	Std. Mean Difference (IV, Random, 95% CI)	0.33 [0.08, 0.58]
32 Overall self-reported physical activity (change values)	8		Std. Mean Difference (IV, Random, 95% CI)	Subtotals only
32.1 Aerobic exercise	6	1086	Std. Mean Difference (IV, Random, 95% CI)	0.59 [0.20, 0.97]
32.2 Resistance exercise	1	105	Std. Mean Difference (IV, Random, 95% CI)	0.21 [-0.17, 0.60]
32.3 Combined aerobic and resistance exercise	1	83	Std. Mean Difference (IV, Random, 95% CI)	0.94 [0.48, 1.40]
32.4 Yoga, Tai Chi, and Pilates	0	0	Std. Mean Difference (IV, Random, 95% CI)	0.0 [0.0, 0.0]
33 Overall objective physical activity (follow-up values)	11		Std. Mean Difference (IV, Random, 95% CI)	Subtotals only
33.1 Aerobic exercise	8	876	Std. Mean Difference (IV, Random, 95% CI)	0.43 [0.15, 0.70]
33.2 Resistance exercise	0	0	Std. Mean Difference (IV, Random, 95% CI)	0.0 [0.0, 0.0]
33.3 Combined aerobic and resistance exercise	3	394	Std. Mean Difference (IV, Random, 95% CI)	0.54 [-0.31, 1.40]
33.4 Yoga, Tai Chi, and Pilates	0	0	Std. Mean Difference (IV, Random, 95% CI)	0.0 [0.0, 0.0]
34 Overall objective physical activity (change values)	5		Std. Mean Difference (IV, Random, 95% CI)	Subtotals only
34.1 Aerobic exercise	4	466	Std. Mean Difference (IV, Random, 95% CI)	0.61 [-0.01, 1.23]
34.2 Resistance exercise	0	0	Std. Mean Difference (IV, Random, 95% CI)	0.0 [0.0, 0.0]
34.3 Combined aerobic and resistance exercise	1	42	Std. Mean Difference (IV, Random, 95% CI)	1.13 [0.47, 1.78]
34.4 Yoga, Tai Chi, and Pilates	0	0	Std. Mean Difference (IV, Random, 95% CI)	0.0 [0.0, 0.0]
35 Mass (follow-up values)	16		Mean Difference (IV, Fixed, 95% CI)	Subtotals only
35.1 Aerobic exercise	7	411	Mean Difference (IV, Fixed, 95% CI)	-1.29 [-4.06, 1.47]
35.2 Resistance exercise	3	410	Mean Difference (IV, Fixed, 95% CI)	0.26 [-0.67, 1.20]

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Outcome or subgroup title	No. of studies	No. of participants	Statistical method	Effect size
35.3 Combined aerobic and resistance exercise	3	127	Mean Difference (IV, Fixed, 95% CI)	-2.46 [-7.24, 2.33]
35.4 Yoga, Tai Chi, and Pilates	3	262	Mean Difference (IV, Fixed, 95% CI)	-0.01 [-0.78, 0.76]
36 Mass (change values)	11		Mean Difference (IV, Random, 95% CI)	Subtotals only
36.1 Aerobic exercise	5	679	Mean Difference (IV, Random, 95% CI)	-0.74 [-1.58, 0.09]
36.2 Resistance exercise	2	209	Mean Difference (IV, Random, 95% CI)	0.10 [-0.15, 0.34]
36.3 Combined aerobic and resistance exercise	3	140	Mean Difference (IV, Random, 95% CI)	-0.55 [-1.99, 0.90]
36.4 Yoga, Tai Chi, and Pilates	1	19	Mean Difference (IV, Random, 95% CI)	-0.90 [-2.40, 0.60]
37 BMI (follow-up values)	17		Mean Difference (IV, Fixed, 95% CI)	Subtotals only
37.1 Aerobic exercise	6	639	Mean Difference (IV, Fixed, 95% CI)	-0.41 [-1.26, 0.43]
37.2 Resistance exercise	2	343	Mean Difference (IV, Fixed, 95% CI)	0.17 [-0.15, 0.48]
37.3 Combined aerobic and resistance exercise	6	237	Mean Difference (IV, Fixed, 95% CI)	-1.03 [-2.63, 0.56]
37.4 Yoga, Tai Chi, and Pilates	3	262	Mean Difference (IV, Fixed, 95% CI)	-0.03 [-0.32, 0.26]
38 BMI (change values)	8		Mean Difference (IV, Random, 95% CI)	Subtotals only
38.1 Aerobic exercise	2	112	Mean Difference (IV, Random, 95% CI)	-0.48 [-0.84, -0.13]
38.2 Resistance exercise	2	209	Mean Difference (IV, Random, 95% CI)	-0.01 [-0.08, 0.06]
38.3 Combined aerobic and resistance exercise	3	145	Mean Difference (IV, Random, 95% CI)	-0.02 [-0.28, 0.24]
38.4 Yoga, Tai Chi, and Pilates	1	19	Mean Difference (IV, Random, 95% CI)	-0.71 [-1.33, -0.09]
39 Overall body fat (follow-up values)	18		Std. Mean Difference (IV, Random, 95% CI)	Subtotals only
39.1 Aerobic exercise	10	551	Std. Mean Difference (IV, Random, 95% CI)	-0.11 [-0.28, 0.06]
39.2 Resistance exercise	4	429	Std. Mean Difference (IV, Random, 95% CI)	-0.26 [-0.81, 0.28]

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Outcome or subgroup title	No. of studies	No. of participants	Statistical method	Effect size
39.3 Combined aerobic and resistance exercise	5	185	Std. Mean Difference (IV, Random, 95% CI)	-0.13 [-0.42, 0.16]
39.4 Yoga, Tai Chi, and Pilates	1	21	Std. Mean Difference (IV, Random, 95% CI)	-0.66 [-1.54, 0.23]
40 Overall body fat (change values)	9		Std. Mean Difference (IV, Random, 95% CI)	Subtotals only
40.1 Aerobic exercise	3	108	Std. Mean Difference (IV, Random, 95% CI)	-0.43 [-0.82, -0.05]
40.2 Resistance exercise	3	228	Std. Mean Difference (IV, Random, 95% CI)	-1.38 [-3.39, 0.63]
40.3 Combined aerobic and resistance exercise	4	168	Std. Mean Difference (IV, Random, 95% CI)	-0.30 [-0.61, 0.00]
40.4 Yoga, Tai Chi, and Pilates	1	19	Std. Mean Difference (IV, Random, 95% CI)	-0.18 [-1.09, 0.72]
41 Lower body strength (follow-up values)	10		Std. Mean Difference (IV, Random, 95% CI)	Subtotals only
41.1 Aerobic exercise	3	125	Std. Mean Difference (IV, Random, 95% CI)	0.75 [-0.20, 1.69]
41.2 Resistance exercise	3	344	Std. Mean Difference (IV, Random, 95% CI)	0.72 [0.22, 1.23]
41.3 Combined aerobic and resistance exercise	4	168	Std. Mean Difference (IV, Random, 95% CI)	0.05 [-0.28, 0.38]
41.4 Yoga, Tai Chi, and Pilates	0	0	Std. Mean Difference (IV, Random, 95% CI)	0.0 [0.0, 0.0]
42 Lower body strength (change values)	8		Std. Mean Difference (IV, Random, 95% CI)	Subtotals only
42.1 Aerobic exercise	1	33	Std. Mean Difference (IV, Random, 95% CI)	1.17 [0.37, 1.97]
42.2 Resistance exercise	4	562	Std. Mean Difference (IV, Random, 95% CI)	0.85 [0.48, 1.22]
42.3 Combined aerobic and resistance exercise	3	125	Std. Mean Difference (IV, Random, 95% CI)	0.28 [-0.37, 0.93]
42.4 Yoga, Tai Chi, and Pilates	0	0	Std. Mean Difference (IV, Random, 95% CI)	0.0 [0.0, 0.0]
43 Upper body strength (follow-up values)	13		Std. Mean Difference (IV, Random, 95% CI)	Subtotals only

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Outcome or subgroup title	No. of studies	No. of participants	Statistical method	Effect size
43.1 Aerobic exercise	5	175	Std. Mean Difference (IV, Random, 95% CI)	0.35 [0.05, 0.65]
43.2 Resistance exercise	4	365	Std. Mean Difference (IV, Random, 95% CI)	0.80 [0.28, 1.33]
43.3 Combined aerobic and resistance exercise	5	231	Std. Mean Difference (IV, Random, 95% CI)	0.25 [-0.47, 0.97]
43.4 Yoga, Tai Chi, and Pilates	1	21	Std. Mean Difference (IV, Random, 95% CI)	0.60 [-0.28, 1.49]
44 Upper body strength (change values)	8		Std. Mean Difference (IV, Random, 95% CI)	Subtotals only
44.1 Aerobic exercise	1	22	Std. Mean Difference (IV, Random, 95% CI)	0.36 [-0.48, 1.21]
44.2 Resistance exercise	5	583	Std. Mean Difference (IV, Random, 95% CI)	0.96 [0.43, 1.49]
44.3 Combined aerobic and resistance exercise	3	168	Std. Mean Difference (IV, Random, 95% CI)	0.07 [-0.34, 0.48]
44.4 Yoga, Tai Chi, and Pilates	1	83	Std. Mean Difference (IV, Random, 95% CI)	1.30 [0.82, 1.78]
45 Bone mineral density - femoral neck (follow-up and change values)	4		Std. Mean Difference (IV, Random, 95% CI)	Subtotals only
45.1 Aerobic exercise	1	457	Std. Mean Difference (IV, Random, 95% CI)	0.18 [-0.00, 0.37]
45.2 Resistance exercise	2	290	Std. Mean Difference (IV, Random, 95% CI)	0.41 [-0.09, 0.91]
45.3 Combined aerobic and resistance exercise	1	39	Std. Mean Difference (IV, Random, 95% CI)	-0.37 [-1.00, 0.27]
45.4 Yoga, Tai Chi, and Pilates	0	0	Std. Mean Difference (IV, Random, 95% CI)	0.0 [0.0, 0.0]
46 Bone mineral density - lumbar spine (follow-up and change values)	4		Std. Mean Difference (IV, Random, 95% CI)	Subtotals only
46.1 Aerobic exercise	1	457	Std. Mean Difference (IV, Random, 95% CI)	0.09 [-0.09, 0.27]
46.2 Resistance exercise	2	290	Std. Mean Difference (IV, Random, 95% CI)	0.49 [0.25, 0.72]
46.3 Combined aerobic and resistance exercise	1	39	Std. Mean Difference (IV, Random, 95% CI)	-0.26 [-0.89, 0.37]

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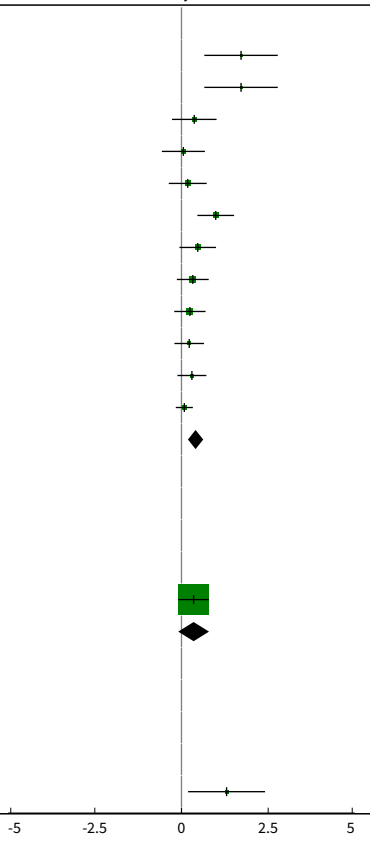
Outcome or subgroup title	No. of studies	No. of participants	Statistical method	Effect size
46.4 Yoga, Tai Chi, and Pilates	0	0	Std. Mean Difference (IV, Random, 95% CI)	0.0 [0.0, 0.0]
47 Bone mineral density - total hip (follow-up and change values)	3		Std. Mean Difference (IV, Random, 95% CI)	Subtotals only
47.1 Aerobic exercise	0	0	Std. Mean Difference (IV, Random, 95% CI)	0.0 [0.0, 0.0]
47.2 Resistance exercise	2	290	Std. Mean Difference (IV, Random, 95% CI)	0.64 [-0.20, 1.48]
47.3 Combined aerobic and resistance exercise	1	39	Std. Mean Difference (IV, Random, 95% CI)	10.34 [7.84, 12.84]
47.4 Yoga, Tai Chi, and Pilates	0	0	Std. Mean Difference (IV, Random, 95% CI)	0.0 [0.0, 0.0]

Analysis 13.1. Comparison 13 Subanalysis: outcomes by mode of physical activity intervention, Outcome 1 Overall HRQoL (follow-up values).

Study or subgroup	Physical activity N	Physical activity Mean(SD)	Control N	Control Mean(SD)	Std. Mean Difference Random, 95% CI	Weight	Std. Mean Difference Random, 95% CI
13.1.1 Aerobic exercise interventions							
Rogers 2015	10	85.2 (4.2)	10	65.9 (14.7)		3.43%	1.72[0.66,2.78]
Cerulli 2014	10	85.2 (4.2)	10	65.9 (14.7)		3.43%	1.72[0.66,2.78]
Rogers 2009	20	92 (11.4)	18	87.4 (13.1)		6.88%	0.37[-0.27,1.01]
Ergun 2013	20	69 (21.2)	20	67.9 (16.7)		7.18%	0.05[-0.57,0.67]
Courneya 2003	24	91.3 (11)	28	89.3 (10.9)		8.22%	0.18[-0.37,0.73]
Murtezani 2014	30	86.5 (7.3)	32	79.1 (7.5)		8.48%	0.99[0.46,1.52]
Mehnert 2011	30	74.7 (21.7)	27	65.4 (16.8)		8.51%	0.47[-0.06,1]
Cadmus 2009	37	91.2 (12.6)	37	86.2 (17.4)		9.66%	0.33[-0.13,0.78]
Pinto 2015	39	117.8 (12.7)	37	114 (18)		9.79%	0.24[-0.21,0.69]
Loh 2014	63	112.4 (14.1)	32	109.3 (13.3)		10.24%	0.22[-0.2,0.65]
Daley 2007	33	90.9 (13.5)	69	86.4 (15.1)		10.42%	0.3[-0.12,0.72]
Vallance 2007	250	91.5 (11.8)	85	90.6 (13)		13.77%	0.08[-0.16,0.33]
Subtotal ***	**566**		**405**			**100%**	**0.41[0.19,0.63]**
Heterogeneity: Tau^2=0.08; Chi^2=24.66, df=11(P=0.01); I^2=55.39%							
Test for overall effect: Z=3.61(P=0)							
13.1.2 Resistance exercise interventions							
Schmitz 2005	39	-44.2 (8.7)	40	-47.4 (9.4)		100%	0.35[-0.09,0.79]
Subtotal ***	**39**		**40**			**100%**	**0.35[-0.09,0.79]**
Heterogeneity: Not applicable							
Test for overall effect: Z=1.54(P=0.12)							
13.1.3 Combined aerobic and resistance exercise							
Herrero 2006	8	81.3 (10.7)	8	62.5 (16.1)		10.33%	1.3[0.19,2.41]



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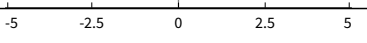
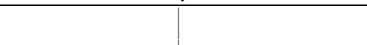
Study or subgroup	Physical activity N	Physical activity Mean(SD)	Control N	Control Mean(SD)	Std. Mean Difference Random, 95% CI	Weight	Std. Mean Difference Random, 95% CI
Portela 2008	25	107.2 (28.5)	9	91.6 (28.5)		13.1%	0.53[-0.24,1.31]
Milne 2008	29	86.4 (8.3)	29	64.1 (10.8)		13.98%	2.28[1.61,2.96]
Ergun 2013	20	74.2 (18.7)	20	67.9 (16.7)		14.37%	0.35[-0.28,0.97]
Do 2015	32	87.3 (13.7)	30	82.4 (19.9)		15.37%	0.28[-0.22,0.79]
Taleghani 2012	40	217.5 (36.3)	40	210.1 (41.5)		15.83%	0.19[-0.25,0.63]
Short 2014	195	106.8 (16.7)	104	108.2 (18.2)		17.01%	-0.08[-0.32,0.16]
Subtotal ***	**349**		**240**			**100%**	**0.63[0.08,1.19]**
Heterogeneity: Tau²=0.46; Chi²=46.88, df=6(P<0.0001); I²=87.2%							
Test for overall effect: Z=2.23(P=0.03)							
13.1.4 Yoga, Tai Chi, and Pilates interventions							
Mustian 2004	11	121.7 (22.7)	10	124.3 (25.9)		15.17%	-0.1[-0.96,0.75]
Loudon 2014	12	-7.4 (1.2)	11	-7.4 (1.4)		16.65%	0.02[-0.8,0.84]
Littman 2012	30	90.3 (11)	110	87.7 (15)		68.18%	0.18[-0.22,0.59]
Subtotal ***	**53**		**131**			**100%**	**0.11[-0.22,0.45]**
Heterogeneity: Tau²=0; Chi²=0.4, df=2(P=0.82); I²=0%							
Test for overall effect: Z=0.66(P=0.51)							



Analysis 13.2. Comparison 13 Subanalysis: outcomes by mode of physical activity intervention, Outcome 2 Overall HRQoL (change values).

Study or subgroup	Physical activity N	Physical activity Mean(SD)	Control N	Control Mean(SD)	Std. Mean Difference Random, 95% CI	Weight	Std. Mean Difference Random, 95% CI
13.2.1 Aerobic exercise interventions							
Murtezani 2014	30	9.2 (2.1)	32	-0.6 (2)		8.22%	4.65[3.67,5.63]
Rogers 2009	20	4.5 (8.4)	18	2.9 (12)		10.41%	0.15[-0.49,0.79]
Courneya 2003	24	5.7 (7.4)	28	0.6 (7.4)		10.89%	0.68[0.12,1.24]
Ergun 2013	40	5.4 (21.5)	20	-6.7 (25.9)		10.99%	0.52[-0.03,1.06]
Mehnert 2011	30	9.7 (21)	27	5.6 (16.5)		11.13%	0.22[-0.31,0.74]
Cadmus 2009	37	0.6 (7.5)	37	-2.4 (9.8)		11.49%	0.34[-0.12,0.8]
Daley 2007	33	10.2 (11.2)	69	3.2 (11.3)		11.69%	0.62[0.2,1.04]
Vallance 2007	250	2.3 (11.1)	85	-0.2 (6.4)		12.48%	0.24[-0,0.49]
Saarto 2012	263	4.2 (16.2)	237	5.6 (15.4)		12.7%	-0.09[-0.26,0.09]
Subtotal ***	**727**		**553**			**100%**	**0.68[0.22,1.15]**
Heterogeneity: Tau²=0.44; Chi²=97.57, df=8(P<0.0001); I²=91.8%							
Test for overall effect: Z=2.88(P=0)							
13.2.2 Resistance exercise interventions							
Schmitz 2005	39	2.3 (4.5)	40	0.6 (4)		100%	0.4[-0.05,0.84]
Subtotal ***	**39**		**40**			**100%**	**0.4[-0.05,0.84]**
Heterogeneity: Not applicable							
Test for overall effect: Z=1.74(P=0.08)							
13.2.3 Combined aerobic and resistance exercise							
Herrero 2006	8	17.7 (8.3)	8	-10.4 (17.7)		16.94%	1.92[0.68,3.17]
Naumann 2012	11	14.5 (10.6)	10	3.1 (11.4)		22.69%	1[0.08,1.92]
Cuesta-Vargas 2014	22	0.3 (0.2)	20	0.3 (0.1)		29.51%	-0.07[-0.67,0.54]
Ergun 2013	40	5.4 (21.5)	20	-6.7 (25.9)		30.86%	0.52[-0.03,1.06]



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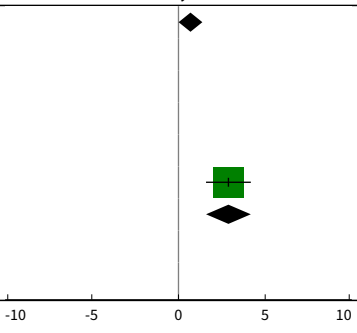
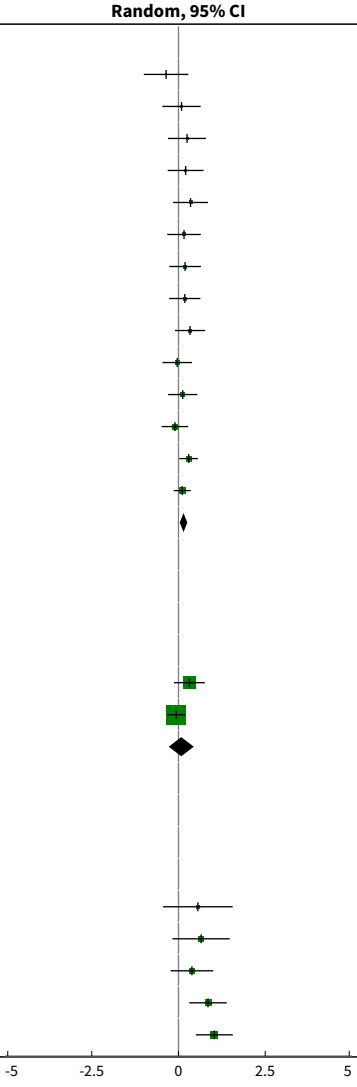
Study or subgroup	Physical activity N	Physical activity Mean(SD)	Control N	Control Mean(SD)	Std. Mean Difference Random, 95% CI	Weight	Std. Mean Difference Random, 95% CI
Subtotal ***	**81**		**58**			**100%**	**0.69[0.01,1.38]**
Heterogeneity: Tau²=0.32; Chi²=9.52, df=3(P=0.02); I²=68.47%							
Test for overall effect: Z=1.98(P=0.05)							
13.2.4 Yoga, Tai Chi, and Pilates interventions							
Mustian 2004	11	15 (5)	10	0 (5)		100%	2.88[1.59,4.17]
Subtotal ***	**11**		**10**			**100%**	**2.88[1.59,4.17]**
Heterogeneity: Not applicable							
Test for overall effect: Z=4.37(P<0.0001)							



Analysis 13.3. Comparison 13 Subanalysis: outcomes by mode of physical activity intervention, Outcome 3 Overall emotional function/mental health (follow-up values).

Study or subgroup	Physical activity N	Physical activity Mean(SD)	Control N	Control Mean(SD)	Std. Mean Difference Random, 95% CI	Weight	Std. Mean Difference Random, 95% CI
13.3.1 Aerobic exercise interventions							
Rogers 2009	20	20 (3.1)	18	21.1 (2.9)		2.88%	-0.36[-1,0.28]
Basen-Enquist 2006	28	78.2 (10.6)	23	77.2 (12)		3.9%	0.09[-0.46,0.64]
Courneya 2003	24	21.5 (3.4)	28	20.7 (3)		3.96%	0.25[-0.3,0.79]
Mehnert 2011	30	77 (35.8)	28	69.1 (40.5)		4.45%	0.21[-0.31,0.72]
Murtezani 2014	30	19.5 (3.3)	32	18.3 (3.5)		4.71%	0.35[-0.15,0.85]
Daley 2007	33	19.1 (4.2)	33	18.5 (3.3)		5.09%	0.16[-0.32,0.64]
Cadmus 2009	37	20.5 (3)	37	19.8 (4.2)		5.69%	0.19[-0.27,0.65]
Pinto 2015	39	54.2 (9.3)	37	52.5 (9.6)		5.85%	0.18[-0.27,0.63]
Pinto 2005	39	-8 (20.7)	43	-16.5 (28.8)		6.23%	0.33[-0.1,0.77]
Loh 2014	63	19.9 (2.8)	32	20 (3.2)		6.56%	-0.04[-0.46,0.39]
Fillion 2008	44	48.5 (7.9)	43	47.5 (9.1)		6.71%	0.12[-0.3,0.54]
Duijits 2012	37	73.9 (34.7)	89	77.5 (34.3)		8.07%	-0.1[-0.49,0.28]
Rogers 2015	105	20.6 (2.9)	108	19.7 (3.2)		16.29%	0.29[0.02,0.56]
Vallance 2007	250	20.3 (3.3)	85	19.9 (3.4)		19.6%	0.11[-0.14,0.35]
Subtotal ***	**779**		**636**			**100%**	**0.15[0.04,0.25]**
Heterogeneity: Tau²=0; Chi²=7.55, df=13(P=0.87); I²=0%							
Test for overall effect: Z=2.61(P=0.01)							
13.3.2 Resistance exercise interventions							
Schmitz 2005	39	-45.6 (8.2)	40	-48.2 (8.2)		38.18%	0.31[-0.13,0.76]
Schmitz 2009	112	53.2 (9.6)	120	53.8 (8.7)		61.82%	-0.07[-0.32,0.19]
Subtotal ***	**151**		**160**			**100%**	**0.08[-0.28,0.44]**
Heterogeneity: Tau²=0.04; Chi²=2.1, df=1(P=0.15); I²=52.36%							
Test for overall effect: Z=0.43(P=0.67)							
13.3.3 Combined aerobic and resistance exercise							
Herrero 2006	8	90.6 (9.3)	8	83.3 (14.8)		6.24%	0.56[-0.45,1.56]
Pinto 2003	12	-10.8 (28.1)	12	-27.2 (19.5)		9.25%	0.65[-0.17,1.48]
Cuesta-Vargas 2014	22	42.9 (19.2)	20	32.3 (33.3)		16.83%	0.39[-0.22,1]
Milne 2008	29	19.6 (2.4)	29	16.7 (4.1)		21.67%	0.85[0.31,1.39]
Do 2015	32	87.4 (8.8)	30	70.4 (21.5)		22.22%	1.03[0.5,1.57]



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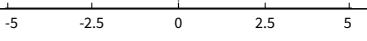
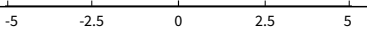
Study or subgroup	Physical activity N	Physical activity Mean(SD)	Control N	Control Mean(SD)	Std. Mean Difference Random, 95% CI	Weight	Std. Mean Difference Random, 95% CI
Cantarero-Villanueva 2013	32	-17175 (4279)	29	-20390 (6113)		23.78%	0.61[0.09,1.12]
Subtotal ***	**135**		**128**			**100%**	**0.72[0.47,0.97]**
Heterogeneity: Tau²=0; Chi²=3.01, df=5(P=0.7); I²=0%							
Test for overall effect: Z=5.62(P<0.0001)							
13.3.4 Yoga, Tai Chi, and Pilates interventions							
Banasik 2011	7	0.5 (0.4)	7	0.4 (0.3)		12.32%	0.25[-0.8,1.3]
Mustian 2004	9	24.8 (2)	10	24.8 (3.2)		16.85%	-0.01[-0.91,0.89]
Loudon 2014	12	-1.6 (0.7)	11	-1.6 (0.5)		20.41%	0.05[-0.77,0.87]
Littman 2012	30	20.3 (4)	27	20.8 (3.1)		50.42%	-0.14[-0.66,0.38]
Subtotal ***	**58**		**55**			**100%**	**-0.03[-0.4,0.34]**
Heterogeneity: Tau²=0; Chi²=0.47, df=3(P=0.93); I²=0%							
Test for overall effect: Z=0.16(P=0.88)							



Analysis 13.4. Comparison 13 Subanalysis: outcomes by mode of physical activity intervention, Outcome 4 Overall emotional function/mental health (change values).

Study or subgroup	Physical activity N	Physical activity Mean(SD)	Control N	Control Mean(SD)	Std. Mean Difference Random, 95% CI	Weight	Std. Mean Difference Random, 95% CI
13.4.1 Aerobic exercise							
Rogers 2009	20	0.9 (2.5)	18	-0.1 (2.7)		12.26%	0.38[-0.27,1.02]
Murtezani 2014	30	2.1 (0.8)	32	0.5 (0.9)		12.89%	1.8[1.21,2.4]
Courneya 2003	24	2.3 (3.1)	28	0.8 (2.9)		13.47%	0.49[-0.06,1.05]
Mehnert 2011	30	2.3 (35.5)	28	3.6 (17.6)		14.01%	-0.04[-0.56,0.47]
Cadmus 2009	37	0.3 (2.2)	37	-0.5 (3.3)		14.8%	0.28[-0.18,0.74]
Pinto 2005	39	-3.8 (27.7)	43	-11.5 (25.8)		15.11%	0.28[-0.15,0.72]
Vallance 2007	250	0.5 (3.5)	85	0.1 (2.5)		17.46%	0.12[-0.13,0.36]
Subtotal ***	**430**		**271**			**100%**	**0.44[0.06,0.82]**
Heterogeneity: Tau²=0.2; Chi²=28.69, df=6(P<0.0001); I²=79.09%							
Test for overall effect: Z=2.28(P=0.02)							
13.4.2 Resistance exercise							
Cormie 2014	43	4.4 (9)	19	2.7 (8.6)		25.03%	0.19[-0.35,0.73]
Schmitz 2005	39	2.5 (4.4)	40	0.3 (3.9)		32.43%	0.52[0.08,0.97]
Schmitz 2009	58	3.3 (23.2)	62	3.1 (17.2)		42.54%	0.01[-0.35,0.37]
Subtotal ***	**140**		**121**			**100%**	**0.22[-0.09,0.54]**
Heterogeneity: Tau²=0.03; Chi²=3.09, df=2(P=0.21); I²=35.27%							
Test for overall effect: Z=1.37(P=0.17)							
13.4.3 Combined aerobic and resistance exercise							
Herrero 2006	8	9.3 (19.6)	8	-2.1 (5.9)		10.49%	0.74[-0.28,1.77]
Naumann 2012	11	1 (2.7)	10	-0.1 (2.7)		13.63%	0.39[-0.48,1.26]
Cantarero-Villanueva 2013	32	-1445 (4452)	29	353 (3323)		26.87%	-0.45[-0.96,0.06]
Saarto 2012	263	1.2 (17.8)	237	1.9 (18.5)		49.01%	-0.04[-0.21,0.14]
Subtotal ***	**314**		**284**			**100%**	**-0.01[-0.38,0.36]**
Heterogeneity: Tau²=0.06; Chi²=5.67, df=3(P=0.13); I²=47.13%							
Test for overall effect: Z=0.04(P=0.97)							



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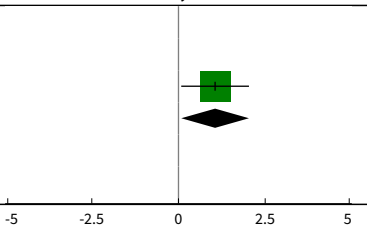
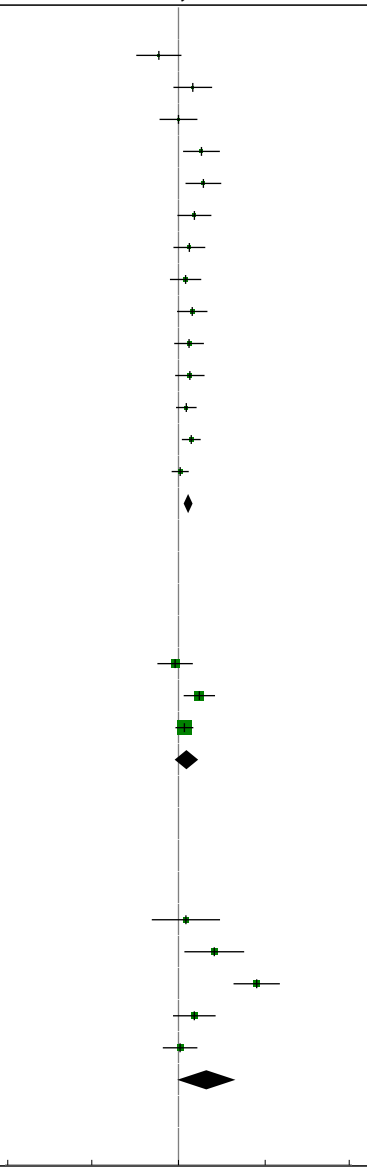
Study or subgroup	Physical activity N	Physical activity Mean(SD)	Control N	Control Mean(SD)	Std. Mean Difference Random, 95% CI	Weight	Std. Mean Difference Random, 95% CI
13.4.4 Yoga, Tai Chi, and Pilates							
Mustian 2004	9	2.4 (2.5)	10	0.1 (1.7)		100%	1.06[0.08,2.03]
Subtotal ***	**9**		**10**			**100%**	**1.06[0.08,2.03]**
Heterogeneity: Not applicable							
Test for overall effect: Z=2.12(P=0.03)							



Analysis 13.5. Comparison 13 Subanalysis: outcomes by mode of physical activity intervention, Outcome 5 Overall physical function (follow-up values).

Study or subgroup	Physical activity N	Physical activity Mean(SD)	Control N	Control Mean(SD)	Std. Mean Difference Random, 95% CI	Weight	Std. Mean Difference Random, 95% CI
13.5.1 Aerobic exercise							
Rogers 2009	20	23.3 (4.5)	18	25.4 (2.3)		3.44%	-0.57[-1.22,0.08]
Basen-Enquist 2006	28	82.5 (12.7)	23	77.4 (11.5)		4.5%	0.41[-0.15,0.97]
Courneya 2003	24	25.3 (2.5)	28	25.3 (2.8)		4.67%	0[-0.55,0.55]
Mehnert 2011	30	89 (9.1)	28	78.1 (21.2)		4.9%	0.66[0.13,1.19]
Murtezani 2014	30	22.6 (4.4)	32	19.4 (4.4)		5.14%	0.72[0.2,1.23]
Daley 2007	33	25.6 (2.2)	33	23.6 (5.7)		5.59%	0.46[-0.03,0.95]
Cadmus 2009	37	25.1 (2.7)	37	24 (4.1)		6.2%	0.31[-0.15,0.77]
Pinto 2015	39	87.1 (4.4)	37	84.7 (15.9)		6.37%	0.21[-0.25,0.66]
Pinto 2005	39	30.3 (7.9)	43	27.3 (6.8)		6.67%	0.4[-0.04,0.83]
Loh 2014	63	24.9 (2.5)	32	24.2 (2.2)		6.92%	0.3[-0.12,0.73]
Fillion 2008	44	45.1 (10.4)	43	41.8 (9.8)		7.03%	0.33[-0.1,0.75]
Duijits 2012	87	84 (16.9)	89	80.2 (17.1)		11.52%	0.23[-0.07,0.52]
Rogers 2015	105	24.1 (3.5)	108	22.5 (5)		12.82%	0.37[0.1,0.64]
Vallance 2007	250	25.1 (3)	85	25 (3.3)		14.24%	0.05[-0.2,0.3]
Subtotal ***	**829**		**636**			**100%**	**0.28[0.15,0.41]**
Heterogeneity: Tau^2=0.01; Chi^2=17.34, df=13(P=0.18); I^2=25.03%							
Test for overall effect: Z=4.24(P<0.0001)							
13.5.2 Resistance exercise							
Winters-Stone 2011	36	51.7 (6.2)	25	52.3 (5.9)		25.59%	-0.1[-0.61,0.41]
Schmitz 2005	39	-44.2 (5.6)	40	-48.3 (7.7)		29.3%	0.6[0.15,1.05]
Schmitz 2009	112	50.6 (8.2)	120	49.1 (9.3)		45.11%	0.17[-0.09,0.43]
Subtotal ***	**187**		**185**			**100%**	**0.23[-0.11,0.57]**
Heterogeneity: Tau^2=0.05; Chi^2=4.37, df=2(P=0.11); I^2=54.27%							
Test for overall effect: Z=1.32(P=0.19)							
13.5.3 Combined aerobic and resistance exercise							
Herrero 2006	8	94.1 (7.5)	8	92.5 (6.6)		17.83%	0.21[-0.77,1.2]
Pinto 2003	12	32.3 (4.3)	12	25.3 (8.2)		18.9%	1.03[0.17,1.89]
Milne 2008	29	24 (2.6)	29	15.6 (4.5)		20.53%	2.26[1.59,2.92]
Cuesta-Vargas 2014	22	42.9 (4.1)	20	32.4 (32.5)		20.95%	0.46[-0.16,1.07]
Do 2015	32	89.4 (8.4)	30	89 (8.7)		21.79%	0.05[-0.45,0.54]
Subtotal ***	**103**		**99**			**100%**	**0.8[-0.04,1.64]**
Heterogeneity: Tau^2=0.78; Chi^2=29.57, df=4(P<0.0001); I^2=86.47%							
Test for overall effect: Z=1.87(P=0.06)							



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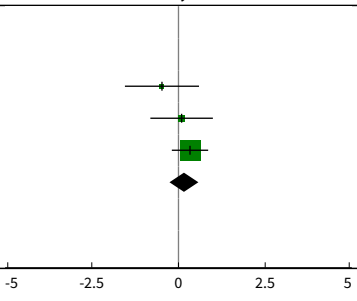
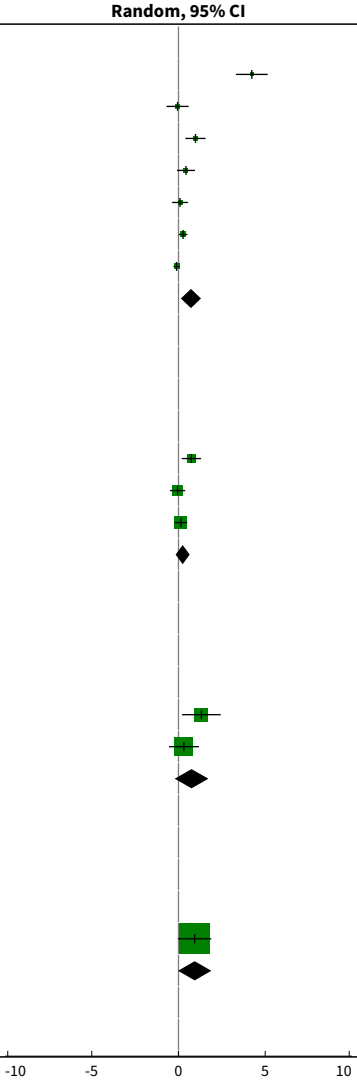
Study or subgroup	Physical activity N	Physical activity Mean(SD)	Control N	Control Mean(SD)	Std. Mean Difference Random, 95% CI	Weight	Std. Mean Difference Random, 95% CI
13.5.4 Yoga, Tai Chi, and Pilates							
Banasik 2011	7	-0.8 (0.9)	7	-0.4 (0.3)		15.23%	-0.48[-1.54,0.59]
Mustian 2004	9	26.9 (4.1)	10	26.5 (4.1)		21.4%	0.09[-0.81,0.99]
Littman 2012	30	25.4 (1.7)	27	24.3 (4.4)		63.36%	0.33[-0.19,0.86]
Subtotal ***	**46**		**44**			**100%**	**0.16[-0.26,0.57]**
Heterogeneity: Tau^2=0; Chi^2=1.8, df=2(P=0.41); I^2=0%							
Test for overall effect: Z=0.74(P=0.46)							



Analysis 13.6. Comparison 13 Subanalysis: outcomes by mode of physical activity intervention, Outcome 6 Overall physical function (change values).

Study or subgroup	Physical activity N	Physical activity Mean(SD)	Control N	Control Mean(SD)	Std. Mean Difference Random, 95% CI	Weight	Std. Mean Difference Random, 95% CI
13.6.1 Aerobic exercise							
Murtezani 2014	30	4.4 (1.5)	32	-1.3 (1.2)		11.58%	4.23[3.31,5.15]
Rogers 2009	20	2.3 (5.1)	18	2.6 (6)		13.59%	-0.05[-0.69,0.58]
Courneya 2003	24	1.9 (2)	28	-0.2 (2.2)		13.98%	0.98[0.4,1.56]
Mehnert 2011	30	4 (10.8)	28	-2.1 (16.7)		14.36%	0.43[-0.09,0.95]
Cadmus 2009	37	0.1 (6)	37	-0.5 (7.4)		14.76%	0.09[-0.37,0.54]
Vallance 2007	247	1 (3.3)	85	0.2 (2.1)		15.76%	0.26[0.02,0.51]
Saarto 2012	263	1.9 (13.7)	237	3.4 (13.4)		15.98%	-0.11[-0.29,0.06]
Subtotal ***	**651**		**465**			**100%**	**0.72[0.14,1.3]**
Heterogeneity: Tau^2=0.55; Chi^2=94.83, df=6(P<0.0001); I^2=93.67%							
Test for overall effect: Z=2.42(P=0.02)							
13.6.2 Resistance exercise							
Cormie 2014	43	3.5 (5.2)	19	-0.5 (5.7)		27.31%	0.74[0.19,1.3]
Schmitz 2005	39	1.2 (4.2)	40	1.5 (6.8)		33.72%	-0.05[-0.49,0.39]
Schmitz 2009	58	6.6 (17.1)	62	4.1 (17.3)		38.97%	0.14[-0.21,0.5]
Subtotal ***	**140**		**121**			**100%**	**0.24[-0.17,0.65]**
Heterogeneity: Tau^2=0.08; Chi^2=4.99, df=2(P=0.08); I^2=59.93%							
Test for overall effect: Z=1.16(P=0.24)							
13.6.3 Combined aerobic and resistance exercise							
Herrero 2006	8	6.7 (5)	8	-1.7 (6.9)		43.62%	1.32[0.21,2.43]
Naumann 2012	11	1.9 (3.3)	10	0.8 (3.4)		56.38%	0.32[-0.55,1.18]
Subtotal ***	**19**		**18**			**100%**	**0.75[-0.22,1.73]**
Heterogeneity: Tau^2=0.24; Chi^2=1.95, df=1(P=0.16); I^2=48.68%							
Test for overall effect: Z=1.51(P=0.13)							
13.6.4 Yoga, Tai Chi, and Pilates							
Mustian 2004	9	1.9 (2.6)	10	-0.2 (1.6)		100%	0.93[-0.03,1.89]
Subtotal ***	**9**		**10**			**100%**	**0.93[-0.03,1.89]**
Heterogeneity: Not applicable							
Test for overall effect: Z=1.9(P=0.06)							



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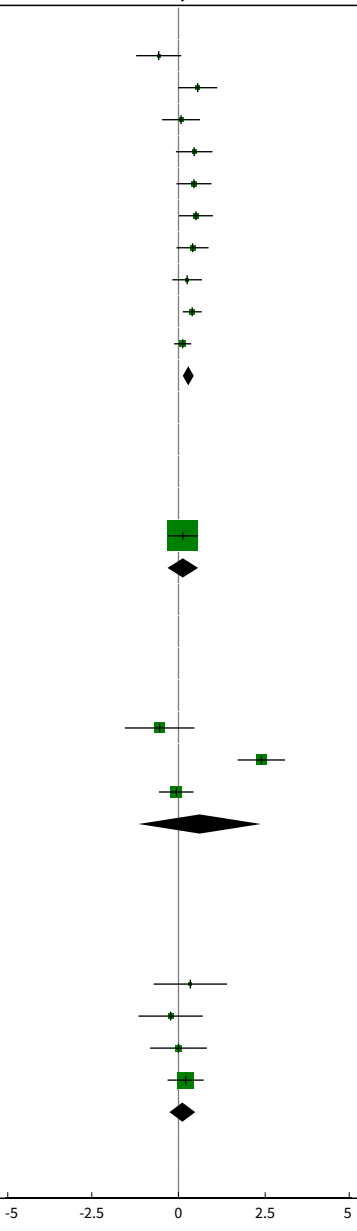
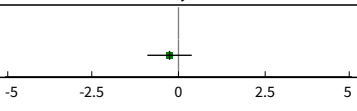
Analysis 13.7. Comparison 13 Subanalysis: outcomes by mode of physical activity intervention, Outcome 7 Overall role function (follow-up values).

Study or subgroup	Physical activity N	Physical activity Mean(SD)	Control N	Control Mean(SD)	Std. Mean Difference Random, 95% CI	Weight	Std. Mean Difference Random, 95% CI
13.7.1 Aerobic exercise							
Rogers 2009	20	21.4 (4.8)	18	23.8 (3.2)		5.15%	-0.57[-1.22,0.08]
Basen-Enquist 2006	28	86.1 (22.2)	23	73 (24.5)		6.6%	0.55[-0.01,1.12]
Courneya 2003	24	23.4 (4)	28	23.1 (4)		6.95%	0.07[-0.47,0.62]
Mehnert 2011	30	90 (20.3)	27	79.6 (25)		7.35%	0.45[-0.07,0.98]
Murtezani 2014	30	24.2 (2.8)	32	23 (2.5)		7.88%	0.45[-0.06,0.95]
Daley 2007	33	22.9 (4.5)	33	20.3 (5.6)		8.25%	0.5[0.01,0.99]
Cadmus 2009	37	23.1 (4.7)	37	20.6 (7.2)		9.1%	0.41[-0.05,0.87]
Loh 2014	63	23.4 (4.3)	32	22.2 (5)		10.21%	0.25[-0.18,0.68]
Rogers 2015	105	22.3 (4.5)	108	20.3 (5.5)		18.3%	0.4[0.12,0.67]
Vallance 2007	250	23.2 (4)	85	22.7 (4.6)		20.21%	0.12[-0.13,0.37]
Subtotal ***	**620**		**423**			**100%**	**0.28[0.12,0.44]**
Heterogeneity: Tau²=0.02; Chi²=12.25, df=9(P=0.2); I²=26.56%							
Test for overall effect: Z=3.49(P=0)							
13.7.2 Resistance exercise							
Schmitz 2005	39	-49.2 (6.5)	40	-50 (6.2)		100%	0.12[-0.32,0.57]
Subtotal ***	**39**		**40**			**100%**	**0.12[-0.32,0.57]**
Heterogeneity: Not applicable							
Test for overall effect: Z=0.55(P=0.58)							
13.7.3 Combined aerobic and resistance exercise							
Herrero 2006	8	97.6 (5.9)	8	100 (0)		31.82%	-0.54[-1.55,0.46]
Milne 2008	29	22.2 (3)	29	12.5 (4.8)		33.68%	2.39[1.71,3.08]
Do 2015	32	78.1 (19.5)	30	79.2 (14.6)		34.5%	-0.06[-0.56,0.44]
Subtotal ***	**69**		**67**			**100%**	**0.61[-1.15,2.37]**
Heterogeneity: Tau²=2.28; Chi²=38.11, df=2(P<0.0001); I²=94.75%							
Test for overall effect: Z=0.68(P=0.5)							
13.7.4 Yoga, Tai Chi, and Pilates							
Banasik 2011	7	3.5 (0.6)	7	3.2 (0.6)		12.35%	0.34[-0.72,1.4]
Mustian 2004	9	2.4 (1.5)	9	2.8 (1.5)		16.08%	-0.23[-1.15,0.7]
Loudon 2014	12	-1.3 (0.3)	11	-1.3 (0.4)		20.67%	0[-0.82,0.82]
Littman 2012	30	22.6 (3.9)	27	21.7 (4.7)		50.9%	0.21[-0.31,0.73]
Subtotal ***	**58**		**54**			**100%**	**0.11[-0.26,0.48]**
Heterogeneity: Tau²=0; Chi²=0.89, df=3(P=0.83); I²=0%							
Test for overall effect: Z=0.59(P=0.56)							



Analysis 13.8. Comparison 13 Subanalysis: outcomes by mode of physical activity intervention, Outcome 8 Overall role function (change values).

Study or subgroup	Physical activity N	Physical activity Mean(SD)	Control N	Control Mean(SD)	Std. Mean Difference Random, 95% CI	Weight	Std. Mean Difference Random, 95% CI
13.8.1 Aerobic exercise							
Rogers 2009	20	0.4 (3.3)	18	1.4 (4.3)		9.83%	-0.26[-0.9,0.38]



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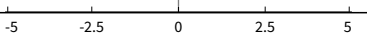
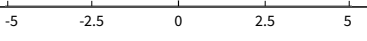
Study or subgroup	Physical activity N	Physical activity Mean(SD)	Control N	Control Mean(SD)	Std. Mean Difference Random, 95% CI	Weight	Std. Mean Difference Random, 95% CI
Courneya 2003	24	0.9 (2.8)	28	0.4 (2.7)		11.67%	0.18[-0.37,0.73]
Murtezani 2014	30	1.7 (0.7)	32	0.9 (0.6)		11.79%	1.16[0.62,1.7]
Mehnert 2011	30	6.7 (23.8)	27	5.6 (27)		12.25%	0.04[-0.48,0.56]
Cadmus 2009	37	-0.3 (3.7)	37	-0.5 (3.4)		13.77%	0.06[-0.4,0.51]
Vallance 2007	250	0.6 (4.1)	85	-0 (2.7)		19.46%	0.17[-0.08,0.41]
Saarto 2012	263	2.4 (21.5)	237	3.8 (21.6)		21.24%	-0.06[-0.24,0.11]
Subtotal ***	**654**		**464**			**100%**	**0.16[-0.1,0.43]**
Heterogeneity: Tau²=0.08; Chi²=19.53, df=6(P=0); I²=69.28%							
Test for overall effect: Z=1.22(P=0.22)							
13.8.2 Resistance exercise							
Cormie 2014	43	4.9 (7.1)	19	1.7 (7.1)		44.56%	0.45[-0.1,0.99]
Schmitz 2005	39	1.2 (4.2)	40	1.5 (6.8)		55.44%	-0.05[-0.49,0.39]
Subtotal ***	**82**		**59**			**100%**	**0.17[-0.32,0.65]**
Heterogeneity: Tau²=0.06; Chi²=1.93, df=1(P=0.16); I²=48.17%							
Test for overall effect: Z=0.68(P=0.49)							
13.8.3 Combined aerobic and resistance exercise							
Herrero 2006	8	2.1 (13.9)	8	2.1 (5.9)		43.47%	0[-0.98,0.98]
Naumann 2012	11	1.5 (4.4)	10	0.5 (4.5)		56.53%	0.22[-0.64,1.08]
Subtotal ***	**19**		**18**			**100%**	**0.12[-0.52,0.77]**
Heterogeneity: Tau²=0; Chi²=0.11, df=1(P=0.75); I²=0%							
Test for overall effect: Z=0.37(P=0.71)							
13.8.4 Yoga, Tai Chi, and Pilates							
Mustian 2004	9	0.6 (1.6)	10	0.8 (1.6)		100%	-0.15[-1.05,0.76]
Subtotal ***	**9**		**10**			**100%**	**-0.15[-1.05,0.76]**
Heterogeneity: Not applicable							
Test for overall effect: Z=0.32(P=0.75)							



Analysis 13.9. Comparison 13 Subanalysis: outcomes by mode of physical activity intervention, Outcome 9 Overall social well-being/function (follow-up values).

Study or subgroup	Physical activity N	Physical activity Mean(SD)	Control N	Control Mean(SD)	Std. Mean Difference Random, 95% CI	Weight	Std. Mean Difference Random, 95% CI
13.9.1 Aerobic exercise							
Rogers 2009	20	22.6 (4.1)	18	21.8 (5.7)		4.4%	0.16[-0.48,0.8]
Basen-Enquist 2006	28	84.6 (16.9)	23	84.9 (19.2)		5.81%	-0.02[-0.57,0.54]
Courneya 2003	24	21.1 (3.5)	28	20.7 (3.6)		5.93%	0.11[-0.43,0.66]
Mehnert 2011	30	85.4 (20.9)	28	79.9 (22.7)		6.57%	0.25[-0.27,0.76]
Murtezani 2014	30	20.2 (2.8)	32	18.3 (2.7)		6.66%	0.68[0.17,1.2]
Daley 2007	33	23.3 (4.8)	33	20.4 (6.8)		7.27%	0.49[-0,0.98]
Cadmus 2009	37	22.3 (4.9)	37	20.6 (7.2)		8.26%	0.27[-0.18,0.73]
Loh 2014	63	21.5 (4.9)	32	19.6 (4.9)		9.32%	0.38[-0.05,0.81]
Rogers 2015	105	21 (5.7)	108	20.7 (5.8)		21.26%	0.05[-0.22,0.32]
Vallance 2007	250	22.9 (5)	85	23 (5.1)		24.52%	-0[-0.25,0.24]
Subtotal ***	**620**		**424**			**100%**	**0.18[0.04,0.31]**
Heterogeneity: Tau²=0; Chi²=9.78, df=9(P=0.37); I²=8.02%							



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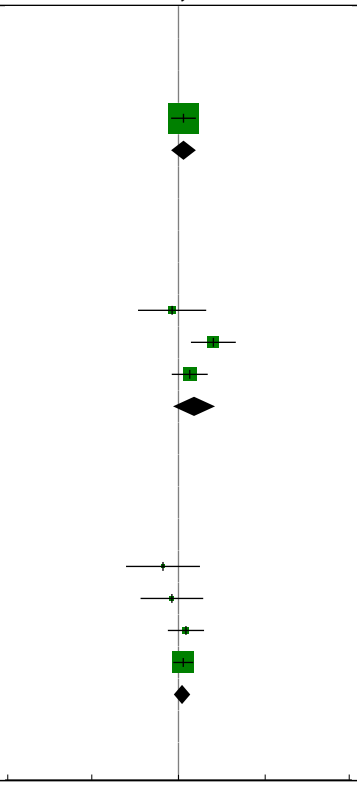
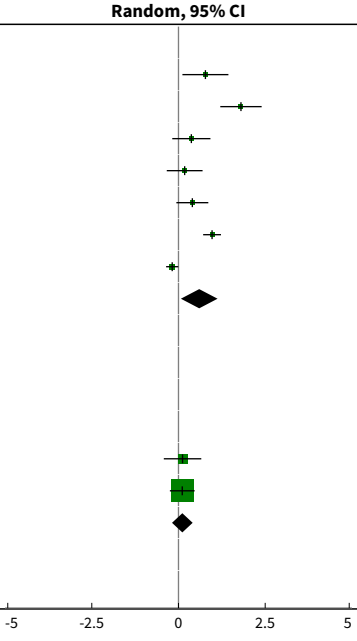
Study or subgroup	Physical activity N	Physical activity Mean(SD)	Control N	Control Mean(SD)	Std. Mean Difference Random, 95% CI	Weight	Std. Mean Difference Random, 95% CI
Test for overall effect: Z=2.56(P=0.01)							
13.9.2 Resistance exercise							
Schmitz 2009	59	14.9 (5.2)	62	14.1 (5.8)		100%	0.14[-0.21,0.5]
Subtotal ***	**59**		**62**			**100%**	**0.14[-0.21,0.5]**
Heterogeneity: Not applicable							
Test for overall effect: Z=0.79(P=0.43)							
13.9.3 Combined aerobic and resistance exercise							
Herrero 2006	8	87.5 (19.4)	8	91.7 (23.6)		23.19%	-0.18[-1.17,0.8]
Rogers 2014	20	7.3 (4.9)	22	3.1 (3.2)		35.43%	1.01[0.36,1.65]
Milne 2008	29	20.7 (4)	29	19.4 (3.9)		41.38%	0.32[-0.19,0.84]
Subtotal ***	**57**		**59**			**100%**	**0.45[-0.16,1.05]**
Heterogeneity: Tau^2=0.16; Chi^2=4.64, df=2(P=0.1); I^2=56.91%							
Test for overall effect: Z=1.45(P=0.15)							
13.9.4 Yoga, Tai Chi, and Pilates							
Banasik 2011	7	2.8 (0.7)	7	3.2 (0.8)		4.93%	-0.45[-1.51,0.62]
Mustian 2004	9	8.6 (1.9)	10	9 (1.8)		6.87%	-0.19[-1.09,0.71]
Littman 2012	30	22.1 (5)	27	20.9 (6)		20.6%	0.22[-0.31,0.74]
Kiecolt-Glaser 2014	96	95.2 (10.8)	90	93.8 (9.3)		67.59%	0.14[-0.15,0.43]
Subtotal ***	**142**		**134**			**100%**	**0.1[-0.13,0.34]**
Heterogeneity: Tau^2=0; Chi^2=1.66, df=3(P=0.65); I^2=0%							
Test for overall effect: Z=0.85(P=0.4)							



Analysis 13.10. Comparison 13 Subanalysis: outcomes by mode of physical activity intervention, Outcome 10 Overall social well-being/function (change values).

Study or subgroup	Physical activity N	Physical activity Mean(SD)	Control N	Control Mean(SD)	Std. Mean Difference Random, 95% CI	Weight	Std. Mean Difference Random, 95% CI
13.10.1 Aerobic exercise							
Rogers 2009	20	0.9 (2.6)	18	-1.2 (2.7)		12.9%	0.78[0.11,1.44]
Murtezani 2014	30	2.1 (0.8)	32	0.5 (0.9)		13.42%	1.8[1.21,2.4]
Courneya 2003	24	0.6 (2.4)	28	-0.5 (3.3)		13.77%	0.37[-0.18,0.92]
Mehnert 2011	30	7.3 (22.3)	28	3.1 (24.3)		14.02%	0.18[-0.34,0.69]
Cadmus 2009	37	0.6 (4.6)	37	-1 (3.2)		14.41%	0.4[-0.06,0.86]
Vallance 2007	250	0.2 (4.8)	85	-4.1 (3.3)		15.58%	0.97[0.71,1.23]
Saarto 2012	263	5 (21.1)	237	8.8 (20.8)		15.89%	-0.18[-0.36,-0.01]
Subtotal ***	**654**		**465**			**100%**	**0.6[0.07,1.13]**
Heterogeneity: Tau^2=0.45; Chi^2=81.52, df=6(P<0.0001); I^2=92.64%							
Test for overall effect: Z=2.21(P=0.03)							
13.10.2 Resistance exercise							
Cormie 2014	43	3.5 (8.5)	19	2.5 (8.3)		30.36%	0.12[-0.42,0.66]
Schmitz 2009	59	4.4 (33.8)	62	0.7 (34)		69.64%	0.11[-0.25,0.47]
Subtotal ***	**102**		**81**			**100%**	**0.11[-0.19,0.41]**
Heterogeneity: Tau^2=0; Chi^2=0, df=1(P=0.98); I^2=0%							
Test for overall effect: Z=0.73(P=0.46)							



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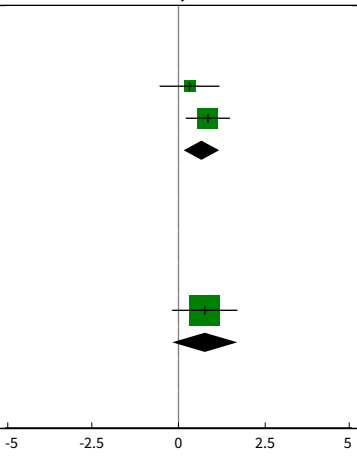
Study or subgroup	Physical activity N	Physical activity Mean(SD)	Control N	Control Mean(SD)	Std. Mean Difference Random, 95% CI	Weight	Std. Mean Difference Random, 95% CI
13.10.3 Combined aerobic and resistance exercise							
Naumann 2012	11	0.9 (3.3)	10	-0.2 (3.3)		35.1%	0.32[-0.54,1.18]
Rogers 2014	20	2.1 (3.2)	22	-0.8 (3.5)		64.9%	0.85[0.21,1.48]
Subtotal ***	**31**		**32**			**100%**	**0.66[0.15,1.17]**
Heterogeneity: Tau²=0; Chi²=0.94, df=1(P=0.33); I²=0%							
Test for overall effect: Z=2.53(P=0.01)							
13.10.4 Yoga, Tai Chi, and Pilates							
Mustian 2004	9	1.5 (1.5)	10	0.4 (1.2)		100%	0.76[-0.18,1.7]
Subtotal ***	**9**		**10**			**100%**	**0.76[-0.18,1.7]**
Heterogeneity: Not applicable							
Test for overall effect: Z=1.58(P=0.11)							



Analysis 13.11. Comparison 13 Subanalysis: outcomes by mode of physical activity intervention, Outcome 11 Overall cognitive function (follow-up values).

Study or subgroup	Physical activity N	Physical activity Mean(SD)	Control N	Control Mean(SD)	Std. Mean Difference Random, 95% CI	Weight	Std. Mean Difference Random, 95% CI
13.11.1 Aerobic exercise							
Rogers 2009	19	-124.5 (30.8)	18	-135.5 (19.5)		38.9%	0.42[-0.24,1.07]
Mehnert 2011	30	81.1 (16.8)	27	78.4 (24.4)		61.1%	0.13[-0.39,0.65]
Subtotal ***	**49**		**45**			**100%**	**0.24[-0.17,0.65]**
Heterogeneity: Tau²=0; Chi²=0.45, df=1(P=0.5); I²=0%							
Test for overall effect: Z=1.16(P=0.25)							
13.11.2 Resistance exercise							
Subtotal ***	**0**		**0**				**Not estimable**
Heterogeneity: Not applicable							
Test for overall effect: Not applicable							
13.11.3 Combined aerobic and resistance exercise							
Pinto 2003	12	-4.3 (2.5)	6	-7.2 (2.1)		15.37%	1.14[0.07,2.2]
Herrero 2006	8	91.7 (12.6)	8	89.6 (12.4)		18.11%	0.16[-0.82,1.14]
Cantarero-Villanueva 2013	32	-37.9 (8.5)	29	-43 (10)		66.53%	0.55[0.03,1.06]
Subtotal ***	**52**		**43**			**100%**	**0.57[0.15,0.98]**
Heterogeneity: Tau²=0; Chi²=1.76, df=2(P=0.41); I²=0%							
Test for overall effect: Z=2.65(P=0.01)							
13.11.4 Yoga, Tai Chi, and Pilates							
Subtotal ***	**0**		**0**				**Not estimable**
Heterogeneity: Not applicable							
Test for overall effect: Not applicable							

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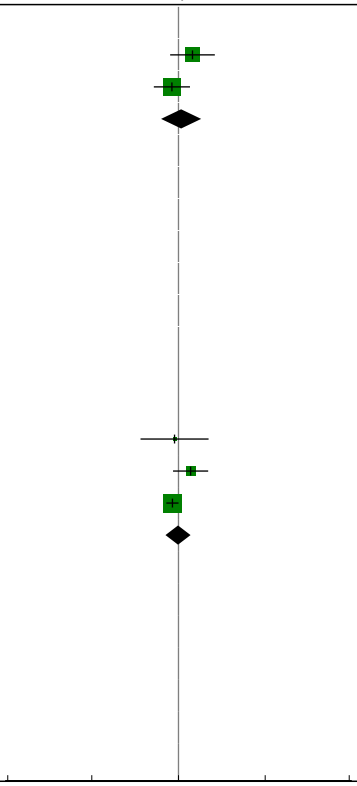
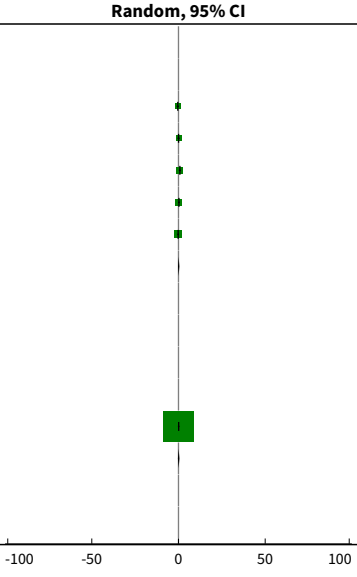
Analysis 13.12. Comparison 13 Subanalysis: outcomes by mode of physical activity intervention, Outcome 12 Overall cognitive function (change values).

Study or subgroup	Physical activity N	Physical activity Mean(SD)	Control N	Control Mean(SD)	Std. Mean Difference Random, 95% CI	Weight	Std. Mean Difference Random, 95% CI
13.12.1 Aerobic exercise							
Rogers 2009	20	4.2 (16.8)	18	-4.7 (25.9)		44.71%	0.4[-0.24,1.05]
Mehnert 2011	30	1.7 (22.4)	27	6.2 (24.6)		55.29%	-0.19[-0.71,0.33]
Subtotal ***	**50**		**45**			**100%**	**0.08[-0.5,0.65]**
Heterogeneity: Tau²=0.09; Chi²=1.97, df=1(P=0.16); I²=49.28%							
Test for overall effect: Z=0.26(P=0.8)							
13.12.2 Resistance exercise							
Subtotal ***	**0**		**0**				**Not estimable**
Heterogeneity: Not applicable							
Test for overall effect: Not applicable							
13.12.3 Combined aerobic and resistance exercise							
Herrero 2006	8	6.2 (19.8)	8	8.3 (14.8)		11.36%	-0.11[-1.09,0.87]
Cantarero-Villanueva 2013	32	2.2 (7.6)	29	-0.2 (5.5)		29.33%	0.35[-0.16,0.86]
Saarto 2012	263	-1 (18.2)	237	2.2 (18.5)		59.31%	-0.17[-0.35,0]
Subtotal ***	**303**		**274**			**100%**	**-0.01[-0.38,0.35]**
Heterogeneity: Tau²=0.05; Chi²=3.67, df=2(P=0.16); I²=45.45%							
Test for overall effect: Z=0.07(P=0.94)							
13.12.4 Yoga, Tai Chi, and Pilates							
Subtotal ***	**0**		**0**				**Not estimable**
Heterogeneity: Not applicable							
Test for overall effect: Not applicable							



Analysis 13.13. Comparison 13 Subanalysis: outcomes by mode of physical activity intervention, Outcome 13 Overall general health (follow-up values).

Study or subgroup	Physical activity N	Physical activity Mean(SD)	Control N	Control Mean(SD)	Std. Mean Difference Random, 95% CI	Weight	Std. Mean Difference Random, 95% CI
13.13.1 Aerobic exercise							
Baruth 2013	20	68.1 (0)	12	61.6 (0)			Not estimable
Rogers 2009	20	3.5 (0.9)	18	3.8 (0.5)		17.74%	-0.4[-1.04,0.25]
Ergun 2013	20	69 (21.2)	20	67.9 (16.7)		18.36%	0.05[-0.57,0.67]
Basen-Enquist 2006	28	77.4 (11.6)	23	67.1 (13.4)		19.57%	0.81[0.24,1.39]
Mehnert 2011	30	74.4 (11.8)	28	70 (20.8)		21.25%	0.26[-0.26,0.77]
Cadmus 2009	37	50 (8.8)	37	51.7 (8.4)		23.08%	-0.2[-0.65,0.26]
Subtotal ***	**155**		**138**			**100%**	**0.11[-0.29,0.51]**
Heterogeneity: Tau²=0.12; Chi²=10.17, df=4(P=0.04); I²=60.68%							
Test for overall effect: Z=0.53(P=0.59)							
13.13.2 Resistance exercise							
Schmitz 2005	39	53.8 (5.3)	40	53.2 (6)		100%	0.1[-0.34,0.55]
Subtotal ***	**39**		**40**			**100%**	**0.1[-0.34,0.55]**
Heterogeneity: Not applicable							
Test for overall effect: Z=0.47(P=0.64)							



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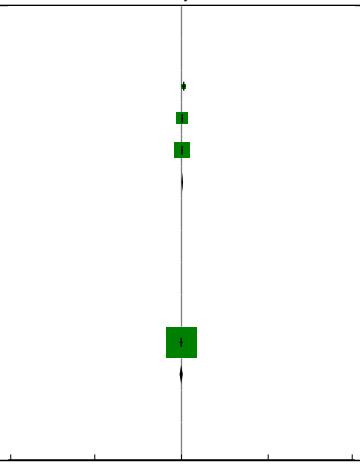
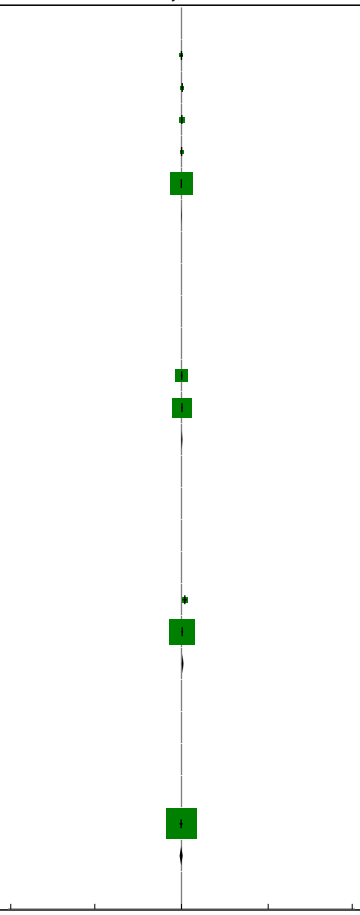
Study or subgroup	Physical activity N	Physical activity Mean(SD)	Control N	Control Mean(SD)	Std. Mean Difference Random, 95% CI	Weight	Std. Mean Difference Random, 95% CI
13.13.3 Combined aerobic and resistance exercise							
Herrero 2006	8	81.3 (10.7)	8	62.5 (16.1)		14.81%	1.3[0.19,2.41]
Ergun 2013	20	74.2 (18.7)	20	67.9 (16.7)		36.64%	0.35[-0.28,0.97]
Do 2015	32	87.3 (13.7)	30	82.4 (19.9)		48.55%	0.28[-0.22,0.79]
Subtotal ***	**60**		**58**			**100%**	**0.46[0,0.91]**
Heterogeneity: Tau^2=0.05; Chi^2=2.76, df=2(P=0.25); I^2=27.41%							
Test for overall effect: Z=1.96(P=0.05)							
13.13.4 Yoga, Tai Chi, and Pilates							
Mustian 2004	9	18.6 (4.8)	9	19.3 (1.9)		100%	-0.18[-1.11,0.74]
Subtotal ***	**9**		**9**			**100%**	**-0.18[-1.11,0.74]**
Heterogeneity: Not applicable							
Test for overall effect: Z=0.39(P=0.7)							



Analysis 13.14. Comparison 13 Subanalysis: outcomes by mode of physical activity intervention, Outcome 14 Overall general health (change values).

Study or subgroup	Physical activity N	Physical activity Mean(SD)	Control N	Control Mean(SD)	Std. Mean Difference Fixed, 95% CI	Weight	Std. Mean Difference Fixed, 95% CI
13.14.1 Aerobic exercise							
Rogers 2009	20	0.2 (0.6)	18	0.2 (0.7)		5.36%	-0.03[-0.67,0.61]
Ergun 2013	20	4.6 (26.5)	20	-6.7 (25.9)		5.52%	0.42[-0.21,1.05]
Mehnert 2011	30	6.6 (13.7)	28	3.2 (19.7)		8.16%	0.2[-0.32,0.71]
Cadmus 2009	37	0.2 (4.4)	37	-0.1 (5.1)		10.47%	0.06[-0.39,0.52]
Saarto 2012	263	4.2 (16.2)	237	5.6 (15.4)		70.49%	-0.09[-0.26,0.09]
Subtotal ***	**370**		**340**			**100%**	**-0.02[-0.17,0.13]**
Heterogeneity: Tau^2=0; Chi^2=3.29, df=4(P=0.51); I^2=0%							
Test for overall effect: Z=0.24(P=0.81)							
13.14.2 Resistance exercise							
Cormie 2014	43	3.7 (7)	19	2.8 (7.1)		40.25%	0.13[-0.41,0.67]
Schmitz 2005	39	0.7 (4.8)	40	-0.6 (3.9)		59.75%	0.29[-0.15,0.74]
Subtotal ***	**82**		**59**			**100%**	**0.23[-0.12,0.57]**
Heterogeneity: Tau^2=0; Chi^2=0.22, df=1(P=0.64); I^2=0%							
Test for overall effect: Z=1.3(P=0.19)							
13.14.3 Combined aerobic and resistance exercise							
Herrero 2006	8	17.7 (8.3)	8	-10.4 (17.7)		15.97%	1.92[0.68,3.17]
Ergun 2013	40	4.6 (26.5)	20	-6.7 (25.9)		84.03%	0.42[-0.12,0.97]
Subtotal ***	**48**		**28**			**100%**	**0.66[0.17,1.16]**
Heterogeneity: Tau^2=0; Chi^2=4.68, df=1(P=0.03); I^2=78.65%							
Test for overall effect: Z=2.61(P=0.01)							
13.14.4 Yoga, Tai Chi, and Pilates							
Mustian 2004	9	0.2 (1.9)	10	0.7 (2.5)		100%	-0.2[-1.1,0.71]
Subtotal ***	**9**		**10**			**100%**	**-0.2[-1.1,0.71]**
Heterogeneity: Not applicable							



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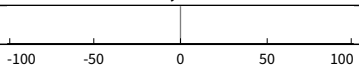
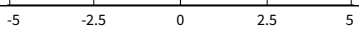
Study or subgroup	Physical activity N	Physical activity Mean(SD)	Control N	Control Mean(SD)	Std. Mean Difference Fixed, 95% CI	Weight	Std. Mean Difference Fixed, 95% CI
Test for overall effect: Z=0.42(P=0.67)							



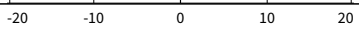
Analysis 13.15. Comparison 13 Subanalysis: outcomes by mode of physical activity intervention, Outcome 15 Overall sexual function (follow-up values).

Study or subgroup	Physical activity N	Physical activity Mean(SD)	Control N	Control Mean(SD)	Std. Mean Difference Fixed, 95% CI	Weight	Std. Mean Difference Fixed, 95% CI
13.15.1 Aerobic exercise							
Pinto 2005	12	42.8 (9.2)	6	43.7 (6.1)		12.03%	-0.11[-1.09,0.87]
Duijits 2012	53	0.6 (0.8)	65	0.6 (0.8)		87.97%	0.01[-0.35,0.38]
Subtotal ***	**65**		**71**			**100%**	**-0[-0.34,0.34]**
Heterogeneity: Tau^2=0; Chi^2=0.05, df=1(P=0.82); I^2=0%							
Test for overall effect: Z=0.01(P=0.99)							
13.15.2 Resistance exercise							
Schmitz 2005	39	-51 (7.5)	40	-53.5 (8)		40.67%	0.32[-0.12,0.76]
Schmitz 2009	57	-27.3 (5.3)	57	-28.1 (6.2)		59.33%	0.14[-0.23,0.51]
Subtotal ***	**96**		**97**			**100%**	**0.21[-0.07,0.49]**
Heterogeneity: Tau^2=0; Chi^2=0.38, df=1(P=0.54); I^2=0%							
Test for overall effect: Z=1.46(P=0.14)							
13.15.3 Combined aerobic and resistance exercise							
Pinto 2003	39	42.5 (9.2)	43	40.1 (6.3)		100%	0.29[-0.14,0.73]
Subtotal ***	**39**		**43**			**100%**	**0.29[-0.14,0.73]**
Heterogeneity: Not applicable							
Test for overall effect: Z=1.32(P=0.19)							
13.15.4 Yoga, Tai Chi, and Pilates							
Subtotal ***	**0**		**0**				**Not estimable**
Heterogeneity: Not applicable							
Test for overall effect: Not applicable							



Analysis 13.16. Comparison 13 Subanalysis: outcomes by mode of physical activity intervention, Outcome 16 Overall sexual function (change values).

Study or subgroup	Physical activity N	Physical activity Mean(SD)	Control N	Control Mean(SD)	Mean Difference Random, 95% CI	Weight	Mean Difference Random, 95% CI
13.16.1 Aerobic exercise							
Saarto 2012	263	4.3 (25.4)	237	3.8 (24.4)		100%	0.5[-3.86,4.86]
Subtotal ***	**263**		**237**			**100%**	**0.5[-3.86,4.86]**
Heterogeneity: Not applicable							
Test for overall effect: Z=0.22(P=0.82)							
13.16.2 Resistance exercise							
Schmitz 2009	57	7.2 (14.6)	57	-0.2 (16.7)		39.42%	7.4[1.64,13.16]



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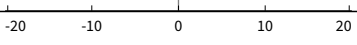
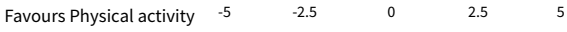
Study or subgroup	Physical activity N	Physical activity Mean(SD)	Control N	Control Mean(SD)	Mean Difference Random, 95% CI	Weight	Mean Difference Random, 95% CI
Schmitz 2005	39	1.7 (4.8)	40	0.2 (5.2)		60.58%	1.5[-0.71,3.71]
Subtotal ***	**96**		**97**			**100%**	**3.83[-1.83,9.48]**
Heterogeneity: Tau²=12.46; Chi²=3.52, df=1(P=0.06); I²=71.56%							
Test for overall effect: Z=1.33(P=0.18)							
13.16.3 Combined aerobic and resistance exercise							
Subtotal ***	**0**		**0**				**Not estimable**
Heterogeneity: Not applicable							
Test for overall effect: Not applicable							
13.16.4 Yoga, Tai Chi, and Pilates							
Subtotal ***	**0**		**0**				**Not estimable**
Heterogeneity: Not applicable							
Test for overall effect: Not applicable							



Analysis 13.17. Comparison 13 Subanalysis: outcomes by mode of physical activity intervention, Outcome 17 Overall sleep (follow-up values).

Study or subgroup	Physical activity N	Physical activity Mean(SD)	Control N	Control Mean(SD)	Std. Mean Difference Fixed, 95% CI	Weight	Std. Mean Difference Fixed, 95% CI
13.17.1 Aerobic exercise							
Rogers 2009	20	6.7 (4.2)	18	5.5 (4)		40.51%	0.28[-0.36,0.92]
Mehnert 2011	30	23.8 (27)	27	38.3 (31.6)		59.49%	-0.49[-1.02,0.04]
Subtotal ***	**50**		**45**			**100%**	**-0.18[-0.59,0.23]**
Heterogeneity: Tau²=0; Chi²=3.26, df=1(P=0.07); I²=69.31%							
Test for overall effect: Z=0.86(P=0.39)							
13.17.2 Resistance exercise							
Subtotal ***	**0**		**0**				**Not estimable**
Heterogeneity: Not applicable							
Test for overall effect: Not applicable							
13.17.3 Combined aerobic and resistance exercise							
Rogers 2013	11	6.3 (2.7)	9	6.2 (3.2)		32.12%	0.03[-0.85,0.91]
Rogers 2014	20	6.7 (3.7)	22	7.1 (3.2)		67.88%	-0.11[-0.72,0.49]
Subtotal ***	**31**		**31**			**100%**	**-0.07[-0.57,0.43]**
Heterogeneity: Tau²=0; Chi²=0.07, df=1(P=0.79); I²=0%							
Test for overall effect: Z=0.26(P=0.79)							
13.17.4 Yoga, Tai Chi, and Pilates							
Bower 2011	16	8.1 (2.5)	15	7.7 (2.6)		100%	0.15[-0.55,0.86]
Subtotal ***	**16**		**15**			**100%**	**0.15[-0.55,0.86]**
Heterogeneity: Not applicable							
Test for overall effect: Z=0.42(P=0.67)							



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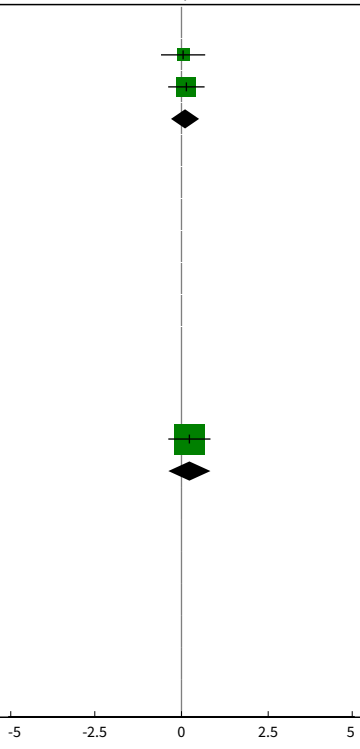
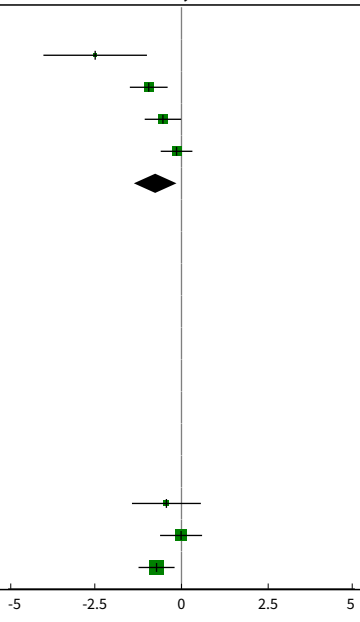
Analysis 13.18. Comparison 13 Subanalysis: outcomes by mode of physical activity intervention, Outcome 18 Overall sleep (change values).

Study or subgroup	Physical activity N	Physical activity Mean(SD)	Control N	Control Mean(SD)	Std. Mean Difference Random, 95% CI	Weight	Std. Mean Difference Random, 95% CI
13.18.1 Aerobic exercise							
Rogers 2009	20	0.5 (2.1)	18	0.3 (4.7)		40.45%	0.05[-0.59,0.68]
Mehnert 2011	29	-5.4 (29.9)	27	-9.9 (33.3)		59.55%	0.14[-0.38,0.67]
Subtotal ***	**49**		**45**			**100%**	**0.1[-0.3,0.51]**
Heterogeneity: Tau²=0; Chi²=0.05, df=1(P=0.82); I²=0%							
Test for overall effect: Z=0.5(P=0.62)							
13.18.2 Resistance exercise							
Subtotal ***	**0**		**0**				**Not estimable**
Heterogeneity: Not applicable							
Test for overall effect: Not applicable							
13.18.3 Combined aerobic and resistance exercise							
Rogers 2014	20	-1.3 (3.2)	22	-2.2 (4.4)		100%	0.23[-0.38,0.84]
Subtotal ***	**20**		**22**			**100%**	**0.23[-0.38,0.84]**
Heterogeneity: Tau²=0; Chi²=0, df=0(P<0.0001); I²=100%							
Test for overall effect: Z=0.73(P=0.46)							
13.18.4 Yoga, Tai Chi, and Pilates							
Subtotal ***	**0**		**0**				**Not estimable**
Heterogeneity: Not applicable							
Test for overall effect: Not applicable							



Analysis 13.19. Comparison 13 Subanalysis: outcomes by mode of physical activity intervention, Outcome 19 Overall anxiety (follow-up values).

Study or subgroup	Physical activity N	Physical activity Mean(SD)	Control N	Control Mean(SD)	Std. Mean Difference Random, 95% CI	Weight	Std. Mean Difference Random, 95% CI
13.19.1 Aerobic exercise							
Segar 1998	10	28.5 (3)	5	39.5 (6)		11.62%	-2.49[-3.98,-1]
Milne 2008	29	15.3 (6.2)	29	21 (5.7)		28.62%	-0.94[-1.49,-0.4]
Mehnert 2011	30	4.8 (3.5)	28	7.1 (5)		29.09%	-0.54[-1.06,-0.01]
Cadmus 2009	37	32.1 (12.3)	37	34.1 (15.4)		30.67%	-0.14[-0.6,0.31]
Subtotal ***	**106**		**99**			**100%**	**-0.76[-1.37,-0.14]**
Heterogeneity: Tau²=0.27; Chi²=11.56, df=3(P=0.01); I²=74.04%							
Test for overall effect: Z=2.42(P=0.02)							
13.19.2 Resistance exercise							
Subtotal ***	**0**		**0**				**Not estimable**
Heterogeneity: Not applicable							
Test for overall effect: Not applicable							
13.19.3 Combined aerobic and resistance exercise							
Pinto 2003	12	7.6 (7.3)	6	10.5 (3.7)		18.25%	-0.43[-1.43,0.56]
Rogers 2014	20	45.6 (8.9)	22	45.7 (8)		37.26%	-0.01[-0.62,0.59]
Cantarero-Villanueva 2013	32	42.5 (8.6)	29	49.9 (11.7)		44.49%	-0.72[-1.24,-0.2]



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Study or subgroup	Physical activity N	Physical activity Mean(SD)	Control N	Control Mean(SD)	Std. Mean Difference Random, 95% CI	Weight	Std. Mean Difference Random, 95% CI
Subtotal ***	**64**		**57**			**100%**	**-0.4[-0.87,0.07]**
Heterogeneity: Tau²=0.06; Chi²=3.02, df=2(P=0.22); I²=33.76%							
Test for overall effect: Z=1.68(P=0.09)							
13.19.4 Yoga, Tai Chi, and Pilates							
Subtotal ***	**0**		**0**				**Not estimable**
Heterogeneity: Not applicable							
Test for overall effect: Not applicable							

Analysis 13.20. Comparison 13 Subanalysis: outcomes by mode of physical activity intervention, Outcome 20 Overall anxiety (change values).

Study or subgroup	Physical activity N	Physical activity Mean(SD)	Control N	Control Mean(SD)	Std. Mean Difference Fixed, 95% CI	Weight	Std. Mean Difference Fixed, 95% CI
13.20.1 Aerobic exercise							
Mehnert 2011	30	-1.7 (3.7)	28	0.2 (4.9)		43.4%	-0.42[-0.95,0.1]
Cadmus 2009	37	-0.7 (9.2)	37	0.5 (5.8)		56.6%	-0.15[-0.61,0.3]
Subtotal ***	**67**		**65**			**100%**	**-0.27[-0.61,0.07]**
Heterogeneity: Tau²=0; Chi²=0.58, df=1(P=0.45); I²=0%							
Test for overall effect: Z=1.55(P=0.12)							
13.20.2 Resistance exercise							
Subtotal ***	**0**		**0**				**Not estimable**
Heterogeneity: Not applicable							
Test for overall effect: Not applicable							
13.20.3 Combined aerobic and resistance exercise							
Rogers 2014	20	-4 (6.5)	22	-1.8 (5)		41.48%	-0.37[-0.99,0.24]
Cantarero-Villanueva 2013	32	-4.2 (9.8)	29	0.8 (5.5)		58.52%	-0.61[-1.12,-0.09]
Subtotal ***	**52**		**51**			**100%**	**-0.51[-0.9,-0.12]**
Heterogeneity: Tau²=0; Chi²=0.32, df=1(P=0.57); I²=0%							
Test for overall effect: Z=2.54(P=0.01)							
13.20.4 Yoga, Tai Chi, and Pilates							
Subtotal ***	**0**		**0**				**Not estimable**
Heterogeneity: Not applicable							
Test for overall effect: Not applicable							

Analysis 13.21. Comparison 13 Subanalysis: outcomes by mode of physical activity intervention, Outcome 21 Overall depression (follow-up values).

Study or subgroup	Physical activity N	Physical activity Mean(SD)	Control N	Control Mean(SD)	Std. Mean Difference Random, 95% CI	Weight	Std. Mean Difference Random, 95% CI
13.21.1 Aerobic exercise							
Segar 1998	10	5.5 (2)	5	10 (2)		7.82%	-2.12[-3.51,-0.73]

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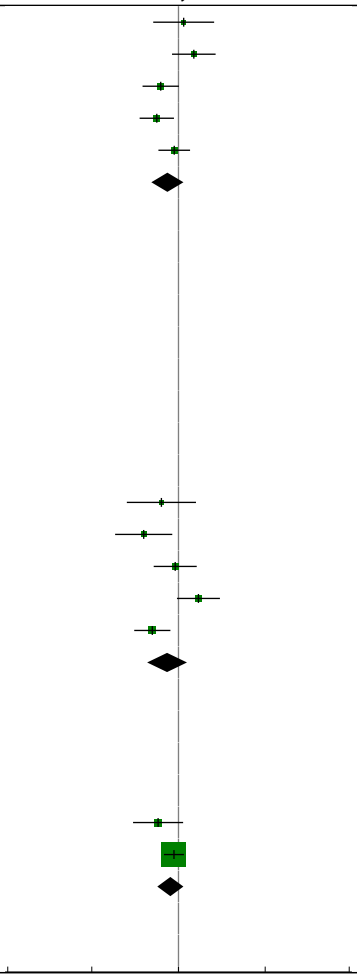
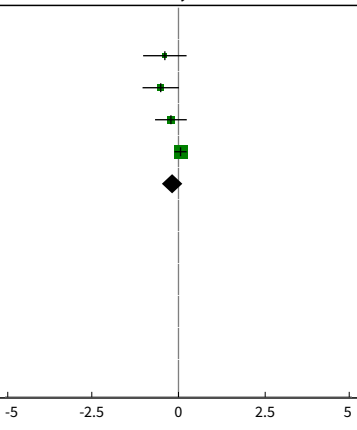
Study or subgroup	Physical activity N	Physical activity Mean(SD)	Control N	Control Mean(SD)	Std. Mean Difference Random, 95% CI	Weight	Std. Mean Difference Random, 95% CI
Payne 2008	10	12.7 (8.7)	10	11.4 (7.9)		13.53%	0.15[-0.73,1.03]
Ergun 2013	20	8.9 (10.5)	20	5.2 (5.2)		17.74%	0.44[-0.19,1.07]
Mehnert 2011	30	2.7 (3)	28	4.6 (4.4)		19.69%	-0.51[-1.04,0.01]
Daley 2007	33	6 (6.5)	33	10.3 (7.2)		20.24%	-0.63[-1.12,-0.13]
Cadmus 2009	37	9.6 (9.3)	37	10.8 (10.1)		20.97%	-0.12[-0.58,0.33]
Subtotal ***	**140**		**133**			**100%**	**-0.32[-0.78,0.14]**
Heterogeneity: Tau²=0.21; Chi²=15.8, df=5(P=0.01); I²=68.36%							
Test for overall effect: Z=1.35(P=0.18)							
13.21.2 Resistance exercise							
Subtotal ***	**0**		**0**				**Not estimable**
Heterogeneity: Not applicable							
Test for overall effect: Not applicable							
13.21.3 Combined aerobic and resistance exercise							
Pinto 2003	12	6.2 (7.2)	6	9.8 (6.8)		15.43%	-0.49[-1.49,0.5]
Kaltsatou 2011	13	16.5 (1.7)	13	22.3 (7.7)		18.1%	-1[-1.83,-0.18]
Ergun 2013	20	4.7 (4.1)	20	5.2 (5.2)		21.58%	-0.09[-0.71,0.53]
Rogers 2014	20	44.2 (8.6)	22	25.1 (44.2)		21.59%	0.58[-0.04,1.19]
Cantarero-Villanueva 2013	32	45.6 (9.7)	29	53.7 (11.6)		23.3%	-0.75[-1.28,-0.23]
Subtotal ***	**97**		**90**			**100%**	**-0.33[-0.9,0.24]**
Heterogeneity: Tau²=0.3; Chi²=13.96, df=4(P=0.01); I²=71.35%							
Test for overall effect: Z=1.12(P=0.26)							
13.21.4 Yoga, Tai Chi, and Pilates							
Bower 2011	16	7.7 (5.8)	15	11.6 (7.1)		22.79%	-0.59[-1.31,0.13]
Kiecolt-Glaser 2014	96	8.1 (8.6)	90	9.2 (8.2)		77.21%	-0.13[-0.42,0.16]
Subtotal ***	**112**		**105**			**100%**	**-0.23[-0.61,0.14]**
Heterogeneity: Tau²=0.03; Chi²=1.33, df=1(P=0.25); I²=24.98%							
Test for overall effect: Z=1.22(P=0.22)							



Analysis 13.22. Comparison 13 Subanalysis: outcomes by mode of physical activity intervention, Outcome 22 Overall depression (change values).

Study or subgroup	Physical activity N	Physical activity Mean(SD)	Control N	Control Mean(SD)	Std. Mean Difference Random, 95% CI	Weight	Std. Mean Difference Random, 95% CI
13.22.1 Aerobic exercise							
Ergun 2013	20	-0.6 (6.7)	20	2.4 (8)		15.36%	-0.39[-1.02,0.23]
Mehnert 2011	30	2.7 (3)	28	4.6 (4.4)		19.4%	-0.51[-1.04,0.01]
Cadmus 2009	37	0.3 (6.4)	37	1.7 (6.3)		22.72%	-0.22[-0.68,0.24]
Saarto 2012	263	-0.3 (3.3)	237	-0.5 (3.4)		42.52%	0.06[-0.12,0.24]
Subtotal ***	**350**		**322**			**100%**	**-0.18[-0.48,0.11]**
Heterogeneity: Tau²=0.05; Chi²=6.16, df=3(P=0.1); I²=51.28%							
Test for overall effect: Z=1.22(P=0.22)							
13.22.2 Resistance exercise							
Subtotal ***	**0**		**0**				**Not estimable**
Heterogeneity: Not applicable							



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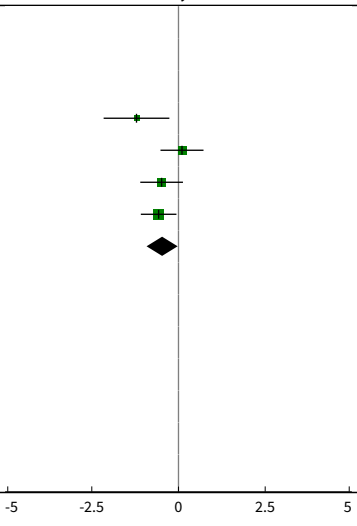
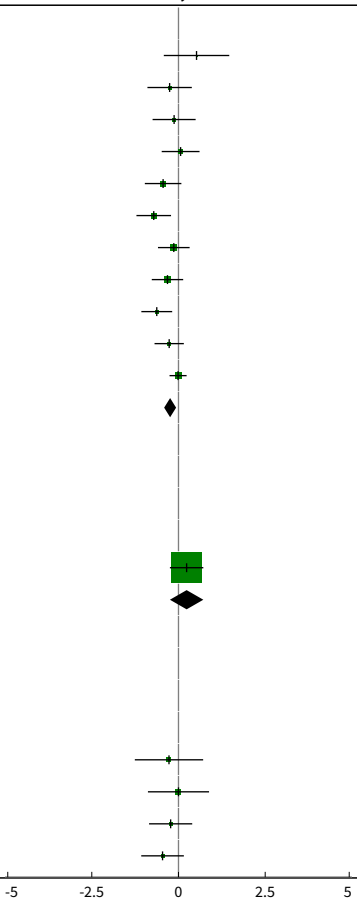
Study or subgroup	Physical activity N	Physical activity Mean(SD)	Control N	Control Mean(SD)	Std. Mean Difference Random, 95% CI	Weight	Std. Mean Difference Random, 95% CI
Test for overall effect: Not applicable							
13.22.3 Combined aerobic and resistance exercise							
Naumann 2012	11	-3.6 (4.3)	10	2 (4.6)		15.75%	-1.21[-2.16,-0.26]
Ergun 2013	20	3.1 (5.2)	20	2.4 (8)		26.35%	0.1[-0.52,0.72]
Rogers 2014	20	-1.7 (6.9)	22	1.1 (4.2)		26.57%	-0.49[-1.1,0.13]
Cantarero-Villanueva 2013	32	-2.9 (7.8)	29	1.5 (7.4)		31.33%	-0.57[-1.09,-0.06]
Subtotal ***	**83**		**81**			**100%**	**-0.47[-0.92,-0.02]**
Heterogeneity: Tau^2=0.1; Chi^2=5.74, df=3(P=0.12); I^2=47.74%							
Test for overall effect: Z=2.07(P=0.04)							
13.22.4 Yoga, Tai Chi, and Pilates							
Subtotal ***	**0**		**0**				**Not estimable**
Heterogeneity: Not applicable							
Test for overall effect: Not applicable							



Analysis 13.23. Comparison 13 Subanalysis: outcomes by mode of physical activity intervention, Outcome 23 Overall fatigue (follow-up values).

Study or subgroup	Physical activity N	Physical activity Mean(SD)	Control N	Control Mean(SD)	Std. Mean Difference Random, 95% CI	Weight	Std. Mean Difference Random, 95% CI
13.23.1 Aerobic exercise							
Payne 2008	9	4.7 (2.6)	9	3.5 (1.7)		3.02%	0.52[-0.42,1.46]
Rogers 2009	20	-12.4 (10.4)	18	-10.1 (6.6)		5.92%	-0.26[-0.9,0.38]
Ergun 2013	20	3 (2.5)	20	3.3 (1.8)		6.22%	-0.13[-0.75,0.49]
Courneya 2003	24	-8.3 (7.9)	28	-8.8 (8.1)		7.62%	0.06[-0.48,0.61]
Mehnert 2011	30	28.5 (25.6)	27	39.9 (25.1)		8.03%	-0.44[-0.97,0.08]
Daley 2007	33	2.1 (1.8)	33	3.4 (1.9)		8.71%	-0.71[-1.21,-0.21]
Cadmus 2009	37	-51.9 (9)	37	-50.6 (10)		9.88%	-0.14[-0.59,0.32]
Pinto 2015	39	-43.8 (7.8)	37	-41.2 (8.5)		9.98%	-0.32[-0.77,0.14]
Pinto 2005	39	27.1 (21.4)	43	42.3 (26.2)		10.24%	-0.63[-1.07,-0.18]
Fillion 2008	44	2.7 (0.7)	43	2.9 (0.8)		10.97%	-0.27[-0.69,0.15]
Vallance 2007	250	-42.7 (8.4)	85	-42.6 (8.7)		19.41%	-0.01[-0.26,0.23]
Subtotal ***	**545**		**380**			**100%**	**-0.24[-0.41,-0.07]**
Heterogeneity: Tau^2=0.02; Chi^2=14.26, df=10(P=0.16); I^2=29.87%							
Test for overall effect: Z=2.74(P=0.01)							
13.23.2 Resistance exercise							
Winters-Stone 2011	36	45 (5.3)	31	43.1 (10.3)		100%	0.23[-0.25,0.72]
Subtotal ***	**36**		**31**			**100%**	**0.23[-0.25,0.72]**
Heterogeneity: Not applicable							
Test for overall effect: Z=0.95(P=0.34)							
13.23.3 Combined aerobic and resistance exercise							
Pinto 2003	12	7.2 (6.4)	6	9 (6.4)		7.24%	-0.27[-1.26,0.71]
Rogers 2013	11	4.2 (1.8)	9	4.2 (1.6)		8.17%	0[-0.88,0.88]
Ergun 2013	20	2.9 (2)	20	3.3 (1.8)		10.99%	-0.23[-0.85,0.4]
Cuesta-Vargas 2014	22	4 (1.8)	20	5.2 (3.2)		11.08%	-0.46[-1.07,0.15]



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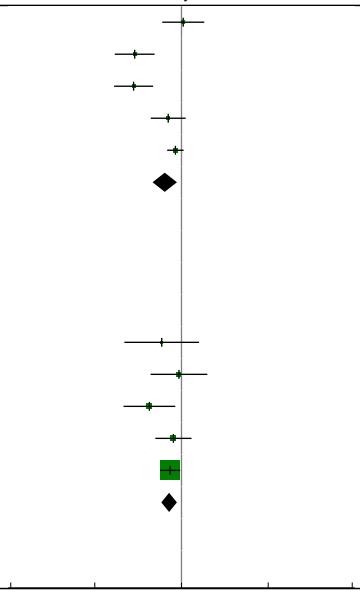
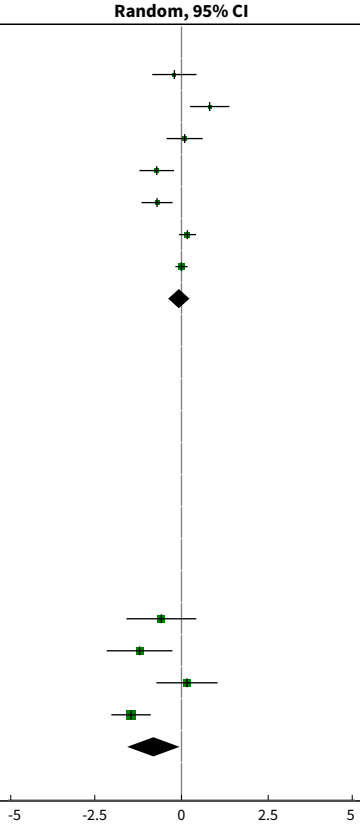
Study or subgroup	Physical activity N	Physical activity Mean(SD)	Control N	Control Mean(SD)	Std. Mean Difference Random, 95% CI	Weight	Std. Mean Difference Random, 95% CI
Rogers 2014	20	4.1 (2.1)	22	4 (1.8)		11.19%	0.05[-0.56,0.66]
Milne 2008	29	11.9 (3.2)	29	17.4 (4.7)		11.58%	-1.35[-1.92,-0.78]
Cantarero-Villanueva 2013	32	3.8 (1.8)	29	6.2 (1.7)		11.72%	-1.38[-1.94,-0.82]
Do 2015	32	16.8 (13.3)	30	22.3 (15.1)		12.48%	-0.38[-0.89,0.12]
Short 2014	195	-41.5 (9.3)	104	-39.8 (10.4)		15.55%	-0.17[-0.41,0.06]
Subtotal ***	**373**		**269**			**100%**	**-0.48[-0.83,-0.13]**
Heterogeneity: Tau^2=0.19; Chi^2=28.92, df=8(P=0); I^2=72.33%							
Test for overall effect: Z=2.69(P=0.01)							
13.23.4 Yoga, Tai Chi, and Pilates							
Banasik 2011	7	1 (0.9)	7	1.6 (1)		4.37%	-0.57[-1.65,0.51]
Loudon 2014	12	1.9 (2.2)	11	2.1 (2.5)		7.56%	-0.07[-0.89,0.75]
Bower 2011	16	3.4 (1.8)	15	4.9 (1.3)		9.09%	-0.93[-1.67,-0.18]
Littman 2012	30	-45 (5.3)	27	-43.1 (10.3)		18.6%	-0.23[-0.75,0.29]
Kiecolt-Glaser 2014	96	6.3 (19.6)	90	12.7 (19)		60.39%	-0.33[-0.62,-0.04]
Subtotal ***	**161**		**150**			**100%**	**-0.36[-0.58,-0.13]**
Heterogeneity: Tau^2=0; Chi^2=3.09, df=4(P=0.54); I^2=0%							
Test for overall effect: Z=3.11(P=0)							



Analysis 13.24. Comparison 13 Subanalysis: outcomes by mode of physical activity intervention, Outcome 24 Overall fatigue (change values).

Study or subgroup	Physical activity N	Physical activity Mean(SD)	Control N	Control Mean(SD)	Std. Mean Difference Random, 95% CI	Weight	Std. Mean Difference Random, 95% CI
13.24.1 Aerobic exercise							
Rogers 2009	20	1.9 (9.6)	18	4.2 (12.3)		10.81%	-0.21[-0.84,0.43]
Courneya 2003	24	9.3 (10.2)	28	2 (7.5)		11.96%	0.81[0.24,1.38]
Mehnert 2011	30	-0.7 (20.7)	27	-2.9 (25.3)		12.82%	0.09[-0.43,0.61]
Daley 2007	33	2.1 (1.8)	33	3.4 (1.9)		13.22%	-0.71[-1.21,-0.21]
Pinto 2005	39	-14.9 (23.5)	43	1.8 (23.5)		14.19%	-0.7[-1.15,-0.26]
Vallance 2007	250	2.5 (8.2)	85	1.2 (6.6)		17.96%	0.17[-0.08,0.42]
Saarto 2012	263	-2.4 (9.1)	237	-2.4 (8.6)		19.04%	0[-0.18,0.18]
Subtotal ***	**659**		**471**			**100%**	**-0.08[-0.38,0.23]**
Heterogeneity: Tau^2=0.12; Chi^2=27.53, df=6(P=0); I^2=78.2%							
Test for overall effect: Z=0.49(P=0.62)							
13.24.2 Resistance exercise							
Subtotal ***	**0**		**0**				**Not estimable**
Heterogeneity: Not applicable							
Test for overall effect: Not applicable							
13.24.3 Combined aerobic and resistance exercise							
Herrero 2006	8	-4.2 (19.6)	8	6.4 (14.5)		22.16%	-0.58[-1.59,0.43]
Naumann 2012	11	-3.6 (4.4)	10	2 (4.6)		23.2%	-1.21[-2.16,-0.26]
Rogers 2013	11	4.2 (2)	9	3.9 (1.5)		24.38%	0.16[-0.72,1.04]
Cantarero-Villanueva 2013	32	-2 (1.8)	29	0.3 (1.4)		30.26%	-1.45[-2.02,-0.88]
Subtotal ***	**62**		**56**			**100%**	**-0.81[-1.57,-0.05]**
Heterogeneity: Tau^2=0.41; Chi^2=9.89, df=3(P=0.02); I^2=69.65%							



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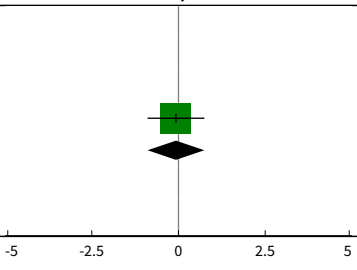
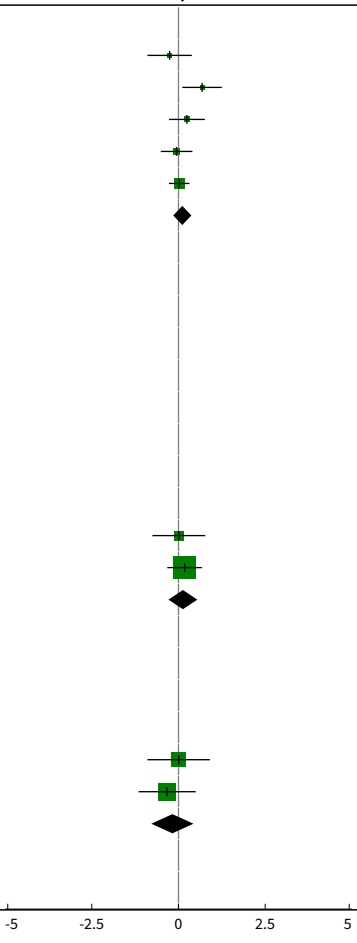
Study or subgroup	Physical activity N	Physical activity Mean(SD)	Control N	Control Mean(SD)	Std. Mean Difference Random, 95% CI	Weight	Std. Mean Difference Random, 95% CI
Test for overall effect: Z=2.1(P=0.04)							
13.24.4 Yoga, Tai Chi, and Pilates							
Loudon 2014	12	1.9 (2.2)	11	2.1 (2.5)		100%	-0.07[-0.89,0.75]
Subtotal ***	**12**		**11**			**100%**	**-0.07[-0.89,0.75]**
Heterogeneity: Not applicable							
Test for overall effect: Z=0.18(P=0.86)							



Analysis 13.25. Comparison 13 Subanalysis: outcomes by mode of physical activity intervention, Outcome 25 Overall pain/disability (follow-up values).

Study or subgroup	Physical activity N	Physical activity Mean(SD)	Control N	Control Mean(SD)	Std. Mean Difference Random, 95% CI	Weight	Std. Mean Difference Random, 95% CI
13.25.1 Aerobic exercise							
Rogers 2009	20	-3 (3)	18	-2.3 (2.8)		12.93%	-0.26[-0.89,0.38]
Basen-Enquist 2006	28	79.7 (10.6)	23	72.1 (11.5)		15.45%	0.68[0.11,1.25]
Mehnert 2011	30	79.4 (23.1)	28	73.5 (24.8)		17.67%	0.24[-0.27,0.76]
Cadmus 2009	37	50.3 (9.1)	37	50.8 (9)		20.89%	-0.05[-0.51,0.4]
Duijits 2012	87	79.3 (23.6)	89	78.8 (23.8)		33.06%	0.02[-0.28,0.32]
Subtotal ***	**202**		**195**			**100%**	**0.11[-0.15,0.37]**
Heterogeneity: Tau^2=0.03; Chi^2=6.19, df=4(P=0.19); I^2=35.4%							
Test for overall effect: Z=0.83(P=0.41)							
13.25.2 Resistance exercise							
Subtotal ***	**0**		**0**				**Not estimable**
Heterogeneity: Not applicable							
Test for overall effect: Not applicable							
13.25.3 Combined aerobic and resistance exercise							
Portela 2008	25	-20.6 (20.2)	9	-20.8 (15.5)		30.03%	0.01[-0.75,0.77]
Do 2015	32	21.1 (24.6)	30	16.5 (26.7)		69.97%	0.18[-0.32,0.68]
Subtotal ***	**57**		**39**			**100%**	**0.13[-0.29,0.54]**
Heterogeneity: Tau^2=0; Chi^2=0.13, df=1(P=0.72); I^2=0%							
Test for overall effect: Z=0.6(P=0.55)							
13.25.4 Yoga, Tai Chi, and Pilates							
Mustian 2004	9	9.1 (1.4)	10	9.1 (1.7)		45.61%	0.01[-0.89,0.91]
Loudon 2014	12	0.8 (1.5)	11	1.4 (2.2)		54.39%	-0.33[-1.15,0.5]
Subtotal ***	**21**		**21**			**100%**	**-0.18[-0.78,0.43]**
Heterogeneity: Tau^2=0; Chi^2=0.29, df=1(P=0.59); I^2=0%							
Test for overall effect: Z=0.57(P=0.57)							



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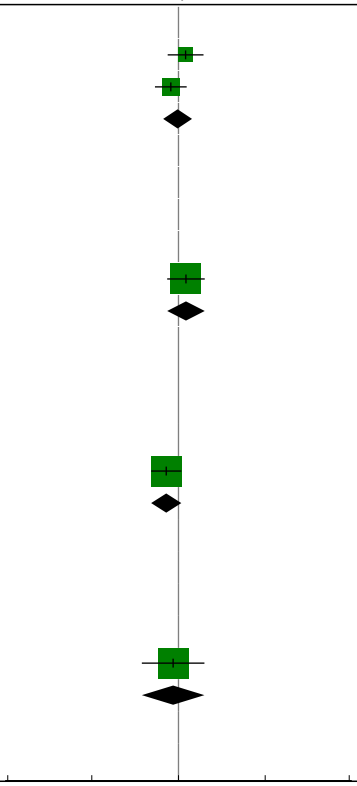
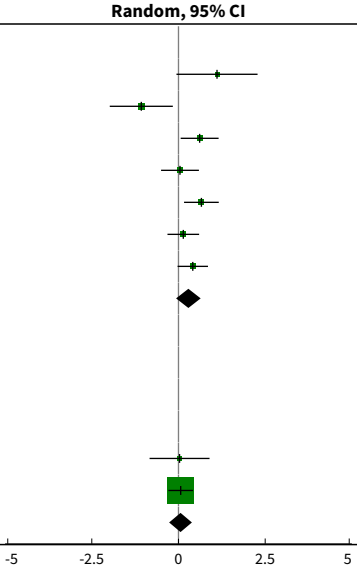
Analysis 13.26. Comparison 13 Subanalysis: outcomes by mode of physical activity intervention, Outcome 26 Overall pain/disability (change values).

Study or subgroup	Physical activity N	Physical activity Mean(SD)	Control N	Control Mean(SD)	Std. Mean Difference Random, 95% CI	Weight	Std. Mean Difference Random, 95% CI
13.26.1 Aerobic exercise							
Mehnert 2011	30	-2.4 (25)	28	-7.6 (25.2)		45.86%	0.21[-0.31,0.72]
Cadmus 2009	37	-2.2 (11.3)	37	-0.1 (7)		54.14%	-0.22[-0.68,0.24]
Subtotal ***	**67**		**65**			**100%**	**-0.03[-0.44,0.39]**
Heterogeneity: Tau²=0.03; Chi²=1.47, df=1(P=0.23); I²=31.79%							
Test for overall effect: Z=0.12(P=0.9)							
13.26.2 Resistance exercise							
Cormie 2014	43	3.4 (6.5)	19	2 (6.2)		100%	0.22[-0.33,0.76]
Subtotal ***	**43**		**19**			**100%**	**0.22[-0.33,0.76]**
Heterogeneity: Not applicable							
Test for overall effect: Z=0.78(P=0.44)							
13.26.3 Combined aerobic and resistance exercise							
Irwin 2015	45	-6 (19)	38	0.7 (18.6)		100%	-0.35[-0.79,0.08]
Subtotal ***	**45**		**38**			**100%**	**-0.35[-0.79,0.08]**
Heterogeneity: Not applicable							
Test for overall effect: Z=1.59(P=0.11)							
13.26.4 Yoga, Tai Chi, and Pilates							
Mustian 2004	9	-0.2 (1.3)	10	0 (1.4)		100%	-0.15[-1.06,0.75]
Subtotal ***	**9**		**10**			**100%**	**-0.15[-1.06,0.75]**
Heterogeneity: Not applicable							
Test for overall effect: Z=0.34(P=0.74)							



Analysis 13.27. Comparison 13 Subanalysis: outcomes by mode of physical activity intervention, Outcome 27 Overall self-esteem/body image (follow-up values).

Study or subgroup	Physical activity N	Physical activity Mean(SD)	Control N	Control Mean(SD)	Std. Mean Difference Random, 95% CI	Weight	Std. Mean Difference Random, 95% CI
13.27.1 Aerobic exercise							
Segar 1998	10	33 (1.8)	5	30.5 (2.7)		6.73%	1.11[-0.06,2.28]
Musanti 2012	10	21.7 (4.4)	12	26.3 (3.9)		9.46%	-1.07[-1.98,-0.16]
Mehnert 2011	27	-5.5 (1.7)	27	-6.8 (2.6)		15.68%	0.61[0.06,1.16]
Courneya 2003	24	34.8 (4.7)	28	34.6 (4.4)		15.7%	0.04[-0.5,0.59]
Daley 2007	33	2 (0.8)	32	1.6 (0.5)		16.69%	0.66[0.16,1.16]
Cadmus 2009	37	34.2 (5.5)	37	33.4 (5.9)		17.67%	0.14[-0.32,0.6]
Pinto 2005	39	30.3 (7.8)	43	27.2 (6.8)		18.08%	0.41[-0.03,0.85]
Subtotal ***	**180**		**184**			**100%**	**0.29[-0.07,0.64]**
Heterogeneity: Tau²=0.13; Chi²=15.4, df=6(P=0.02); I²=61.03%							
Test for overall effect: Z=1.58(P=0.12)							
13.27.2 Resistance exercise							
Musanti 2012	9	26.4 (2.6)	12	26.3 (3.9)		14.45%	0.03[-0.83,0.9]
Schmitz 2009	59	-70.4 (16.3)	63	-71.5 (18)		85.55%	0.06[-0.29,0.42]
Subtotal ***	**68**		**75**			**100%**	**0.06[-0.27,0.39]**



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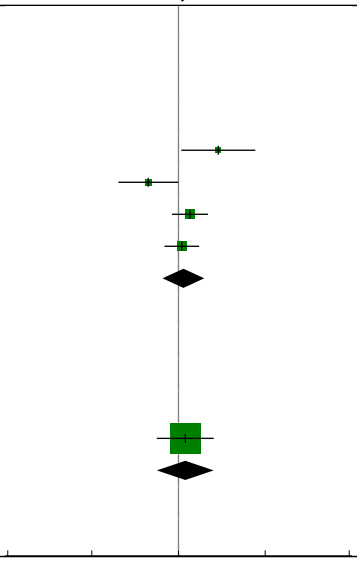
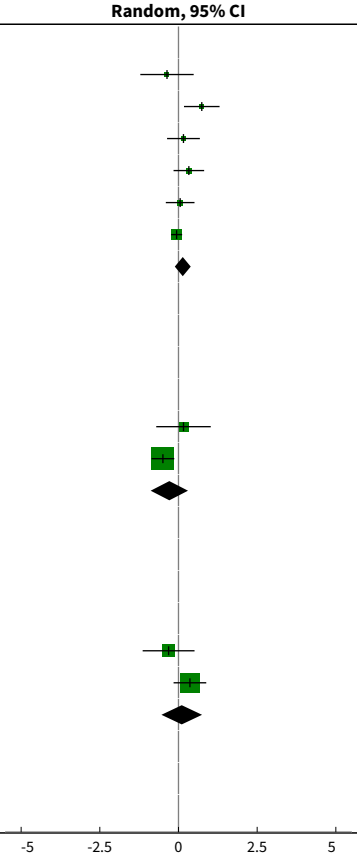
Study or subgroup	Physical activity N	Physical activity Mean(SD)	Control N	Control Mean(SD)	Std. Mean Difference Random, 95% CI	Weight	Std. Mean Difference Random, 95% CI
Heterogeneity: Tau²=0; Chi²=0, df=1(P=0.95); I²=0%							
Test for overall effect: Z=0.35(P=0.73)							
13.27.3 Combined aerobic and resistance exercise							
Pinto 2003	12	32.3 (4.3)	6	25.3 (8.2)		17.5%	1.15[0.08,2.22]
Musanti 2012	11	23.6 (1.2)	12	26.3 (3.9)		21.61%	-0.87[-1.74,-0.01]
Milne 2008	29	-17.9 (6.8)	29	-20.1 (6.3)		30.18%	0.33[-0.19,0.85]
Do 2015	32	37.9 (18.9)	30	36.1 (18.3)		30.7%	0.1[-0.4,0.59]
Subtotal ***	**84**		**77**			**100%**	**0.14[-0.46,0.74]**
Heterogeneity: Tau²=0.24; Chi²=9.25, df=3(P=0.03); I²=67.56%							
Test for overall effect: Z=0.46(P=0.64)							
13.27.4 Yoga, Tai Chi, and Pilates							
Loudon 2014	12	-1.4 (0.3)	11	-1.6 (0.9)		100%	0.2[-0.62,1.02]
Subtotal ***	**12**		**11**			**100%**	**0.2[-0.62,1.02]**
Heterogeneity: Tau²=0; Chi²=0, df=0(P<0.0001); I²=100%							
Test for overall effect: Z=0.47(P=0.64)							



Analysis 13.28. Comparison 13 Subanalysis: outcomes by mode of physical activity intervention, Outcome 28 Overall self-esteem/body image (change values).

Study or subgroup	Physical activity N	Physical activity Mean(SD)	Control N	Control Mean(SD)	Std. Mean Difference Random, 95% CI	Weight	Std. Mean Difference Random, 95% CI
13.28.1 Aerobic exercise							
Musanti 2012	10	-1.3 (6)	12	0.6 (3.9)		7.23%	-0.37[-1.21,0.48]
Courneya 2003	24	2.6 (3.7)	28	-0.1 (3.5)		13.14%	0.74[0.18,1.3]
Mehnert 2011	30	0.7 (2.1)	27	0.4 (2.1)		14.58%	0.16[-0.36,0.68]
Daley 2007	33	1.8 (0.7)	33	1.6 (0.7)		15.84%	0.33[-0.16,0.82]
Cadmus 2009	37	0.4 (4.4)	37	0.2 (2.9)		17.04%	0.05[-0.4,0.51]
Saarto 2012	263	10.7 (21.5)	237	12 (22)		32.17%	-0.06[-0.24,0.12]
Subtotal ***	**397**		**374**			**100%**	**0.14[-0.12,0.39]**
Heterogeneity: Tau²=0.04; Chi²=9.58, df=5(P=0.09); I²=47.79%							
Test for overall effect: Z=1.05(P=0.29)							
13.28.2 Resistance exercise							
Musanti 2012	9	1.1 (1.8)	12	0.6 (3.9)		31.15%	0.16[-0.71,1.03]
Schmitz 2009	59	-12 (15.5)	63	-4.1 (16.2)		68.85%	-0.49[-0.86,-0.13]
Subtotal ***	**68**		**75**			**100%**	**-0.29[-0.88,0.3]**
Heterogeneity: Tau²=0.1; Chi²=1.87, df=1(P=0.17); I²=46.47%							
Test for overall effect: Z=0.96(P=0.34)							
13.28.3 Combined aerobic and resistance exercise							
Musanti 2012	11	-0.8 (4.7)	12	0.6 (3.9)		38.39%	-0.31[-1.14,0.51]
Milne 2008	29	1.5 (3.7)	29	0.1 (3.9)		61.61%	0.36[-0.16,0.88]
Subtotal ***	**40**		**41**			**100%**	**0.1[-0.54,0.75]**
Heterogeneity: Tau²=0.11; Chi²=1.86, df=1(P=0.17); I²=46.2%							
Test for overall effect: Z=0.31(P=0.75)							



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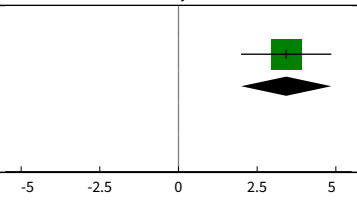
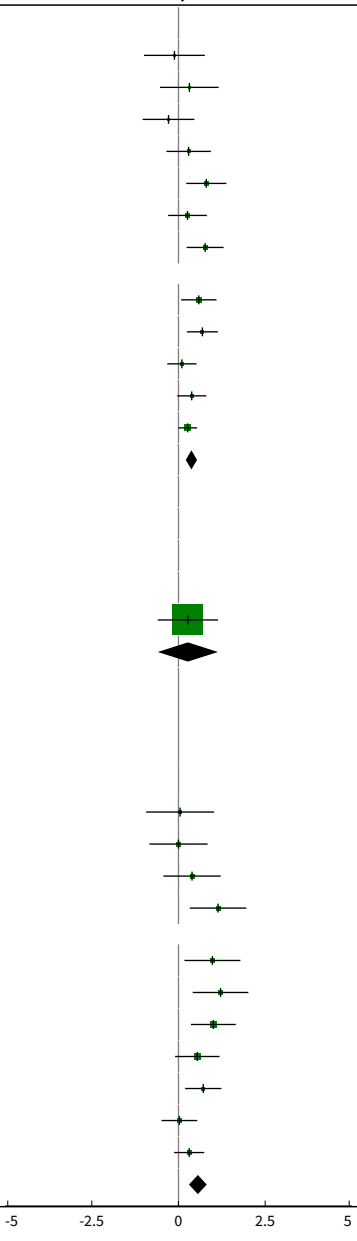
Study or subgroup	Physical activity N	Physical activity Mean(SD)	Control N	Control Mean(SD)	Std. Mean Difference Random, 95% CI	Weight	Std. Mean Difference Random, 95% CI
13.28.4 Yoga, Tai Chi, and Pilates							
Mustian 2004	11	3 (1)	10	-1.5 (1.5)		100%	3.42[1.99,4.86]
Subtotal ***	**11**		**10**			**100%**	**3.42[1.99,4.86]**
Heterogeneity: Not applicable							
Test for overall effect: Z=4.68(P<0.0001)							



Analysis 13.29. Comparison 13 Subanalysis: outcomes by mode of physical activity intervention, Outcome 29 Overall cardiorespiratory fitness (follow-up values).

Study or subgroup	Physical activity N	Physical activity Mean(SD)	Control N	Control Mean(SD)	Std. Mean Difference Random, 95% CI	Weight	Std. Mean Difference Random, 95% CI
13.29.1 Aerobic exercise							
Cerulli 2014	10	31.3 (5)	10	32.3 (10.1)		3.2%	-0.12[-0.99,0.76]
Musanti 2012	10	24.8 (6.5)	12	23 (4.3)		3.43%	0.31[-0.53,1.16]
Nikander 2007	14	-17.6 (1.3)	14	-17.2 (1.4)		4.32%	-0.29[-1.03,0.46]
Rogers 2009	20	29.5 (6.6)	18	27.6 (6.1)		5.66%	0.29[-0.35,0.93]
Courneya 2003	24	21.3 (3.7)	26	18.2 (3.9)		6.75%	0.8[0.22,1.38]
Mehnert 2011	27	26.9 (4.4)	23	25.7 (4.7)		7.17%	0.26[-0.3,0.82]
Basen-Enquist 2006	35	1643 (122.5)	25	1546 (127.5)		7.76%	0.77[0.24,1.3]
Murtezani 2014	30	875.1 (86.7)	32	823.5 (87.1)		8.36%	0.59[0.08,1.1]
Pinto 2005	39	-16.3 (2.1)	43	-17.8 (2.2)		10.31%	0.69[0.24,1.14]
Fillion 2008	44	27 (4.4)	43	26.5 (5.8)		11.3%	0.1[-0.32,0.52]
Daley 2007	33	35 (4.4)	69	33.1 (5.3)		11.4%	0.38[-0.04,0.8]
Rogers 2015	105	23.6 (4.8)	108	22.7 (0.3)		20.34%	0.27[-0,0.54]
Subtotal ***	**391**		**423**			**100%**	**0.37[0.21,0.54]**
Heterogeneity: Tau^2=0.01; Chi^2=13.52, df=11(P=0.26); I^2=18.63%							
Test for overall effect: Z=4.49(P<0.0001)							
13.29.2 Resistance exercise							
Musanti 2012	9	24.2 (4.4)	12	23 (4.3)		100%	0.27[-0.6,1.14]
Subtotal ***	**9**		**12**			**100%**	**0.27[-0.6,1.14]**
Heterogeneity: Not applicable							
Test for overall effect: Z=0.61(P=0.54)							
13.29.3 Combined aerobic and resistance exercise							
Herrero 2006	8	25.9 (4.5)	8	25.7 (3.7)		5.39%	0.05[-0.93,1.03]
Rogers 2013	12	23.9 (6.2)	10	23.9 (3.8)		6.83%	0[-0.84,0.84]
Musanti 2012	11	24.7 (4.1)	12	23 (4.3)		6.97%	0.39[-0.44,1.22]
Portela 2008	25	3007 (410.8)	9	2416.1 (718.6)		7.13%	1.14[0.33,1.96]
Kaltsatou 2011	14	483.3 (86)	13	403.1 (71.9)		7.24%	0.98[0.17,1.78]
Rahnama 2010	14	20.7 (5.7)	15	13.9 (5.2)		7.29%	1.21[0.41,2.01]
Rogers 2014	20	30.9 (6.3)	22	25.1 (5)		9.72%	1.01[0.36,1.65]
Kim 2015	20	424.8 (55.8)	19	394.4 (54)		9.83%	0.54[-0.1,1.18]
Do 2015	30	31.7 (12.4)	30	24.5 (6.6)		12.35%	0.72[0.19,1.24]
Milne 2008	29	1.5 (0.3)	29	1.5 (0.4)		12.56%	0.03[-0.49,0.54]
Irwin 2015	45	24.6 (5.5)	38	23 (4.7)		14.69%	0.31[-0.13,0.74]
Subtotal ***	**228**		**205**			**100%**	**0.56[0.3,0.81]**



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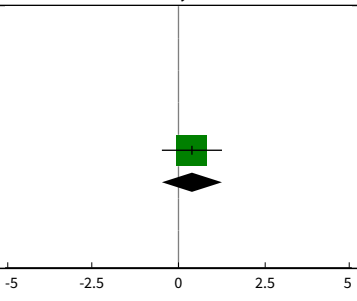
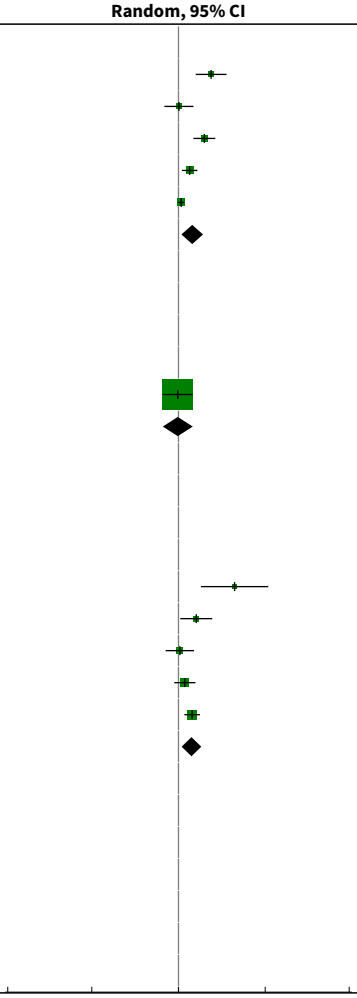
Study or subgroup	Physical activity N	Physical activity Mean(SD)	Control N	Control Mean(SD)	Std. Mean Difference Random, 95% CI	Weight	Std. Mean Difference Random, 95% CI
Heterogeneity: Tau²=0.07; Chi²=15.96, df=10(P=0.1); I²=37.35%							
Test for overall effect: Z=4.27(P<0.0001)							
13.29.4 Yoga, Tai Chi, and Pilates							
Mustian 2004	11	636.1 (50.6)	10	610.3 (75.9)		100%	0.39[-0.48,1.25]
Subtotal ***	**11**		**10**			**100%**	**0.39[-0.48,1.25]**
Heterogeneity: Not applicable							
Test for overall effect: Z=0.88(P=0.38)							



Analysis 13.30. Comparison 13 Subanalysis: outcomes by mode of physical activity intervention, Outcome 30 Overall cardiorespiratory fitness (change values).

Study or subgroup	Physical activity N	Physical activity Mean(SD)	Control N	Control Mean(SD)	Std. Mean Difference Random, 95% CI	Weight	Std. Mean Difference Random, 95% CI
13.30.1 Aerobic exercise							
Dolan 2016	23	12.2 (10.2)	10	-6 (7.2)		16.56%	1.88[0.99,2.77]
Musanti 2012	10	1 (2.4)	12	0.9 (3.4)		17.15%	0.03[-0.81,0.87]
Courneya 2003	24	2.7 (2.6)	26	-0.6 (1.7)		19.81%	1.49[0.86,2.12]
Pinto 2005	39	1.4 (2.4)	43	-0.2 (2.5)		22.08%	0.65[0.2,1.09]
Saarto 2012	262	0.9 (1.2)	236	0.7 (1)		24.4%	0.16[-0.02,0.33]
Subtotal ***	**358**		**327**			**100%**	**0.79[0.17,1.42]**
Heterogeneity: Tau²=0.41; Chi²=30.86, df=4(P<0.0001); I²=87.04%							
Test for overall effect: Z=2.49(P=0.01)							
13.30.2 Resistance exercise							
Musanti 2012	9	0.8 (3.7)	12	0.9 (3.4)		100%	-0.04[-0.91,0.82]
Subtotal ***	**9**		**12**			**100%**	**-0.04[-0.91,0.82]**
Heterogeneity: Not applicable							
Test for overall effect: Z=0.09(P=0.93)							
13.30.3 Combined aerobic and resistance exercise							
Nieman 1995	6	60.8 (8.4)	6	12 (17.8)		6.85%	3.24[1.29,5.18]
Naumann 2012	11	3.1 (2.9)	10	-0.1 (3.1)		18.32%	1.03[0.1,1.95]
Musanti 2012	11	1.2 (2.8)	12	0.9 (3.4)		20.44%	0.08[-0.74,0.9]
Rogers 2014	20	2.8 (4.9)	22	1.1 (4.2)		25.22%	0.37[-0.24,0.98]
Irwin 2015	45	1.5 (2.1)	38	-0.4 (2.7)		29.17%	0.79[0.34,1.24]
Subtotal ***	**93**		**88**			**100%**	**0.75[0.18,1.31]**
Heterogeneity: Tau²=0.23; Chi²=10.47, df=4(P=0.03); I²=61.79%							
Test for overall effect: Z=2.59(P=0.01)							
13.30.4 Yoga, Tai Chi, and Pilates							
Subtotal ***	**0**		**0**				**Not estimable**
Heterogeneity: Not applicable							
Test for overall effect: Not applicable							



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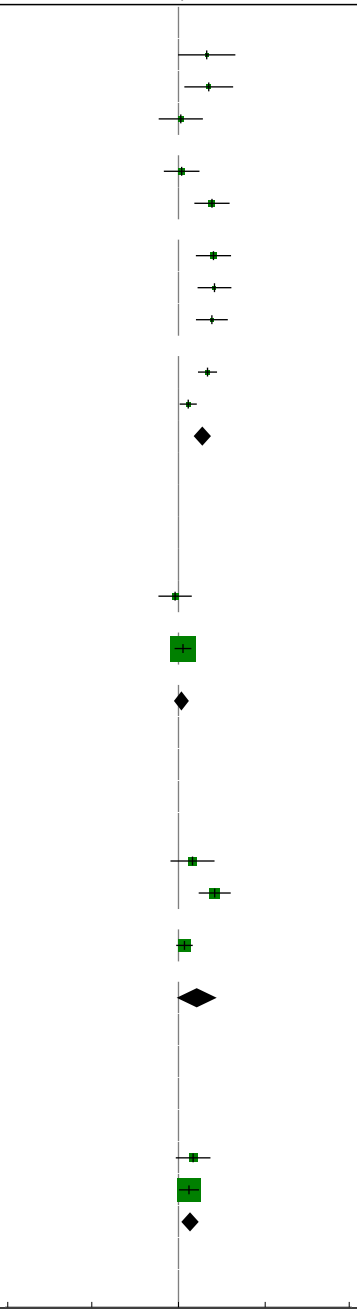
Analysis 13.31. Comparison 13 Subanalysis: outcomes by mode of physical activity intervention, Outcome 31 Overall self-reported physical activity (follow-up values).

Study or subgroup	Physical activity N	Physical activity Mean(SD)	Control N	Control Mean(SD)	Std. Mean Difference Random, 95% CI	Weight	Std. Mean Difference Random, 95% CI
13.31.1 Aerobic exercise							
Guinan 2013	16	38.7 (26.9)	10	19.9 (11.3)		5.91%	0.81[-0.01,1.64]
Matthews 2007	22	54.2 (34.1)	14	27.2 (22.7)		7.19%	0.87[0.17,1.58]
Rogers 2009	20	121.4 (73.2)	18	114.3 (131.5)		8.01%	0.07[-0.57,0.7]
Basen-Enquist 2006	35	428 (254.4)	25	404 (265)		9.81%	0.09[-0.42,0.61]
Cadmus 2009	34	161.7 (114.7)	33	55.6 (101.9)		9.9%	0.97[0.46,1.47]
Pinto 2015	36	70.3 (65.9)	32	16.5 (31.9)		9.91%	1.01[0.5,1.52]
Hatchett 2013	38	3.5 (2.2)	36	1.4 (1.7)		10.23%	1.04[0.55,1.53]
Pinto 2005	39	202.4 (161.7)	43	78.4 (86)		10.7%	0.96[0.5,1.42]
Rogers 2015	110	169 (119)	112	74 (107)		13.94%	0.84[0.56,1.11]
Vallance 2007	253	207.6 (169)	85	163 (121)		14.41%	0.28[0.03,0.53]
Subtotal ***	**603**		**408**			**100%**	**0.69[0.44,0.94]**
Heterogeneity: Tau^2=0.1; Chi^2=26.28, df=9(P=0); I^2=65.75%							
Test for overall effect: Z=5.4(P<0.0001)							
13.31.2 Resistance exercise							
Winters-Stone 2011	36	430.8 (281.4)	31	461.7 (346.4)		20.17%	-0.1[-0.58,0.38]
Schmitz 2009	131	3348.8 (9019.4)	133	2339.8 (6213.7)		79.83%	0.13[-0.11,0.37]
Subtotal ***	**167**		**164**			**100%**	**0.08[-0.13,0.3]**
Heterogeneity: Tau^2=0; Chi^2=0.69, df=1(P=0.41); I^2=0%							
Test for overall effect: Z=0.76(P=0.44)							
13.31.3 Combined aerobic and resistance exercise							
Kim 2015	20	17.6 (16)	19	11.8 (11.6)		27.81%	0.4[-0.23,1.04]
Irwin 2015	45	222.1 (118.6)	38	103.6 (104.6)		33.06%	1.04[0.58,1.51]
Short 2014	195	217.9 (222.9)	104	180.3 (206.9)		39.13%	0.17[-0.07,0.41]
Subtotal ***	**260**		**161**			**100%**	**0.53[-0.05,1.1]**
Heterogeneity: Tau^2=0.21; Chi^2=10.84, df=2(P=0); I^2=81.55%							
Test for overall effect: Z=1.78(P=0.07)							
13.31.4 Yoga, Tai Chi, and Pilates							
Littman 2012	32	19.2 (19.1)	31	12.1 (13.6)		25.09%	0.42[-0.08,0.92]
Kiecolt-Glaser 2014	96	11.2 (7.6)	90	9.1 (6.1)		74.91%	0.3[0.01,0.59]
Subtotal ***	**128**		**121**			**100%**	**0.33[0.08,0.58]**
Heterogeneity: Tau^2=0; Chi^2=0.16, df=1(P=0.69); I^2=0%							
Test for overall effect: Z=2.6(P=0.01)							



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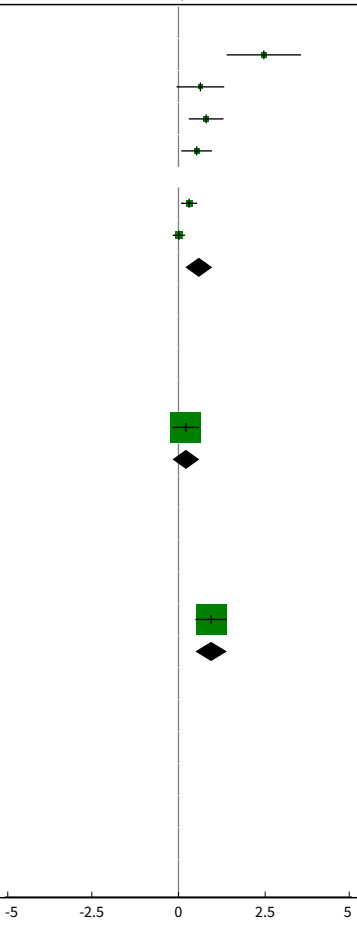
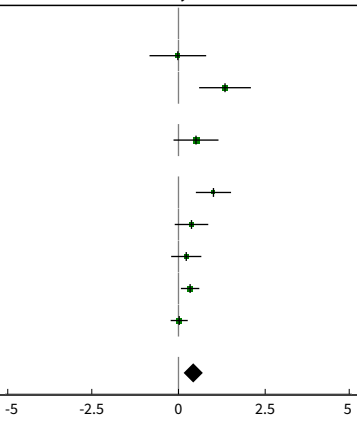
Analysis 13.32. Comparison 13 Subanalysis: outcomes by mode of physical activity intervention, Outcome 32 Overall self-reported physical activity (change values).

Study or subgroup	Physical activity N	Physical activity Mean(SD)	Control N	Control Mean(SD)	Std. Mean Difference Random, 95% CI	Weight	Std. Mean Difference Random, 95% CI
13.32.1 Aerobic exercise							
Guinan 2013	16	15.6 (11.4)	10	-8.3 (4.2)		8.36%	2.46[1.39,3.53]
Matthews 2007	22	21.5 (30.6)	14	5 (13.8)		13.42%	0.63[-0.06,1.32]
Cadmus 2009	34	129 (117.9)	33	44.3 (89.4)		16.77%	0.8[0.3,1.3]
Pinto 2005	39	84.7 (189.2)	43	-18.3 (200.7)		17.86%	0.52[0.08,0.96]
Vallance 2007	281	82 (168.7)	96	30 (167.8)		21.43%	0.31[0.08,0.54]
Saarto 2012	262	3.5 (18.3)	236	3.3 (21.5)		22.16%	0.01[-0.17,0.19]
Subtotal ***	**654**		**432**			**100%**	**0.59[0.2,0.97]**
Heterogeneity: Tau^2=0.17; Chi^2=30.98, df=5(P<0.0001); I^2=83.86%							
Test for overall effect: Z=2.96(P=0)							
13.32.2 Resistance exercise							
Schmitz 2009	48	2.8 (16.8)	57	-0.8 (16.6)		100%	0.21[-0.17,0.6]
Subtotal ***	**48**		**57**			**100%**	**0.21[-0.17,0.6]**
Heterogeneity: Not applicable							
Test for overall effect: Z=1.09(P=0.28)							
13.32.3 Combined aerobic and resistance exercise							
Irwin 2015	45	159 (136)	38	49 (86)		100%	0.94[0.48,1.4]
Subtotal ***	**45**		**38**			**100%**	**0.94[0.48,1.4]**
Heterogeneity: Not applicable							
Test for overall effect: Z=4.04(P<0.0001)							
13.32.4 Yoga, Tai Chi, and Pilates							
Subtotal ***	**0**		**0**				**Not estimable**
Heterogeneity: Not applicable							
Test for overall effect: Not applicable							



Analysis 13.33. Comparison 13 Subanalysis: outcomes by mode of physical activity intervention, Outcome 33 Overall objective physical activity (follow-up values).

Study or subgroup	Physical activity N	Physical activity Mean(SD)	Control N	Control Mean(SD)	Std. Mean Difference Random, 95% CI	Weight	Std. Mean Difference Random, 95% CI
13.33.1 Aerobic exercise							
Guinan 2013	16	30.7 (15.6)	9	31 (15.6)		7.42%	-0.02[-0.84,0.8]
Matthews 2007	22	330.8 (114.7)	14	198.5 (55.4)		8.3%	1.34[0.6,2.09]
Rogers 2009	20	252191 (91893)	18	210917 (64078)		9.75%	0.51[-0.14,1.15]
Pinto 2015	36	70.3 (65.9)	32	16.5 (31.9)		12.3%	1.01[0.5,1.52]
Cadmus 2009	33	6738 (2958)	34	5537 (3352)		12.79%	0.38[-0.11,0.86]
Pinto 2005	39	37.5 (14.3)	43	33.6 (19.4)		13.82%	0.22[-0.21,0.66]
Rogers 2015	110	246 (153)	112	197 (138)		17.6%	0.34[0.07,0.6]
Vallance 2007	253	8110.5 (4133.9)	85	8028 (3457)		18.01%	0.02[-0.23,0.27]
Subtotal ***	**529**		**347**			**100%**	**0.43[0.15,0.7]**



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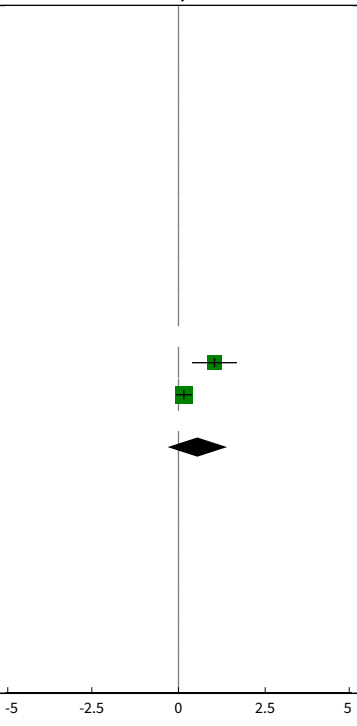
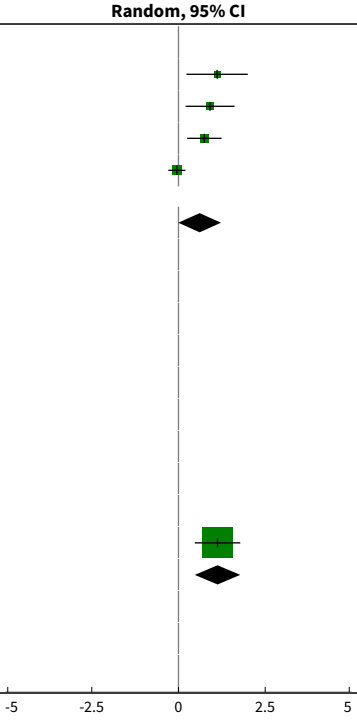
Study or subgroup	Physical activity N	Physical activity Mean(SD)	Control N	Control Mean(SD)	Std. Mean Difference Random, 95% CI	Weight	Std. Mean Difference Random, 95% CI
Heterogeneity: Tau²=0.09; Chi²=21.18, df=7(P=0); I²=66.95%							
Test for overall effect: Z=3.01(P=0)							
13.33.2 Resistance exercise							
Subtotal ***	**0**		**0**				**Not estimable**
Heterogeneity: Not applicable							
Test for overall effect: Not applicable							
13.33.3 Combined aerobic and resistance exercise							
Rogers 2013	12	198.4 (111.7)	10	0 (0)			Not estimable
Rogers 2014	20	294 (175)	22	154 (75)		43.82%	1.04[0.39,1.69]
Short 2014	219	9363.1 (7922.8)	111	8301.2 (3373.4)		56.18%	0.16[-0.07,0.39]
Subtotal ***	**251**		**143**			**100%**	**0.54[-0.31,1.4]**
Heterogeneity: Tau²=0.33; Chi²=6.3, df=1(P=0.01); I²=84.13%							
Test for overall effect: Z=1.24(P=0.21)							
13.33.4 Yoga, Tai Chi, and Pilates							
Subtotal ***	**0**		**0**				**Not estimable**
Heterogeneity: Not applicable							
Test for overall effect: Not applicable							



Analysis 13.34. Comparison 13 Subanalysis: outcomes by mode of physical activity intervention, Outcome 34 Overall objective physical activity (change values).

Study or subgroup	Physical activity N	Physical activity Mean(SD)	Control N	Control Mean(SD)	Std. Mean Difference Random, 95% CI	Weight	Std. Mean Difference Random, 95% CI
13.34.1 Aerobic exercise							
Guinan 2013	16	-1.1 (6.2)	9	-7.9 (5.3)		19.48%	1.11[0.23,2]
Matthews 2007	22	72.2 (114.6)	14	-16.8 (51.5)		22.77%	0.91[0.2,1.62]
Cadmus 2009	33	1621 (2108)	34	-60 (2341)		26.84%	0.75[0.25,1.24]
Vallance 2007	253	-150 (5173.3)	85	91 (5155.4)		30.91%	-0.05[-0.29,0.2]
Subtotal ***	**324**		**142**			**100%**	**0.61[-0.01,1.23]**
Heterogeneity: Tau²=0.3; Chi²=16.43, df=3(P=0); I²=81.74%							
Test for overall effect: Z=1.94(P=0.05)							
13.34.2 Resistance exercise							
Subtotal ***	**0**		**0**				**Not estimable**
Heterogeneity: Not applicable							
Test for overall effect: Not applicable							
13.34.3 Combined aerobic and resistance exercise							
Rogers 2014	20	114 (109)	22	10 (70)		100%	1.13[0.47,1.78]
Subtotal ***	**20**		**22**			**100%**	**1.13[0.47,1.78]**
Heterogeneity: Not applicable							
Test for overall effect: Z=3.36(P=0)							



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Study or subgroup	Physical activity N	Physical activity Mean(SD)	Control N	Control Mean(SD)	Std. Mean Difference Random, 95% CI	Weight	Std. Mean Difference Random, 95% CI
13.34.4 Yoga, Tai Chi, and Pilates							
Subtotal ***	**0**		**0**				**Not estimable**
Heterogeneity: Not applicable							
Test for overall effect: Not applicable							

Favours control -5 -2.5 0 2.5 5 Favours physical activity

Analysis 13.35. Comparison 13 Subanalysis: outcomes by mode of physical activity intervention, Outcome 35 Mass (follow-up values).

Study or subgroup	Physical activity N	Physical activity Mean(SD)	Control N	Control Mean(SD)	Mean Difference Fixed, 95% CI	Weight	Mean Difference Fixed, 95% CI
13.35.1 Aerobic exercise							
Matthews 2007	22	74.9 (15.2)	14	78.9 (20.3)		4.98%	-4[-16.39,8.39]
Courneya 2003	24	78.2 (20.5)	26	80.1 (16.2)		7.21%	-1.9[-12.2,8.4]
Nikander 2007	14	73.5 (13.3)	14	75.5 (12)		8.68%	-2[-11.38,7.38]
Cadmus 2009	36	80.7 (16.9)	33	78.5 (20.6)		9.56%	2.22[-6.72,11.16]
DeNysschen 2011	30	69.3 (14.2)	34	72.4 (19.6)		11.04%	-3.1[-11.42,5.22]
Daley 2007	33	74.3 (12.5)	69	75.6 (12.5)		28.46%	-1.34[-6.52,3.84]
Murtezani 2014	30	71.7 (9.5)	32	72.6 (10.8)		30.06%	-0.9[-5.94,4.14]
Subtotal ***	**189**		**222**			**100%**	**-1.29[-4.06,1.47]**
Heterogeneity: Tau^2=0; Chi^2=1.02, df=6(P=0.98); I^2=0%							
Test for overall effect: Z=0.92(P=0.36)							
13.35.2 Resistance exercise							
Winters-Stone 2011	36	76.5 (15.6)	31	74.2 (12.3)		1.96%	2.3[-4.39,8.99]
Schmitz 2009	131	76.2 (15.7)	133	77.2 (17)		5.64%	-1.04[-4.98,2.9]
Schmitz 2005	39	69.5 (2.2)	40	69.2 (2.2)		92.39%	0.3[-0.67,1.27]
Subtotal ***	**206**		**204**			**100%**	**0.26[-0.67,1.2]**
Heterogeneity: Tau^2=0; Chi^2=0.78, df=2(P=0.68); I^2=0%							
Test for overall effect: Z=0.55(P=0.58)							
13.35.3 Combined aerobic and resistance exercise							
Herrero 2006	8	65.6 (8.7)	8	67.3 (8.9)		30.78%	-1.7[-10.32,6.92]
Rahnama 2010	14	69.4 (13.5)	15	71.6 (9.2)		31.94%	-2.2[-10.67,6.27]
Ligibel 2008	40	80 (17.5)	42	83.3 (18.7)		37.29%	-3.3[-11.14,4.54]
Subtotal ***	**62**		**65**			**100%**	**-2.46[-7.24,2.33]**
Heterogeneity: Tau^2=0; Chi^2=0.08, df=2(P=0.96); I^2=0%							
Test for overall effect: Z=1.01(P=0.31)							
13.35.4 Yoga, Tai Chi, and Pilates							
Mustian 2004	11	67.1 (10.4)	10	68.6 (13.8)		0.53%	-1.5[-12.06,9.06]
Littman 2012	28	81.1 (13.6)	27	81.3 (14.3)		1.09%	-0.2[-7.58,7.18]
Kiecolt-Glaser 2014	96	75.2 (2.8)	90	75.2 (2.6)		98.38%	0[-0.78,0.78]
Subtotal ***	**135**		**127**			**100%**	**-0.01[-0.78,0.76]**
Heterogeneity: Tau^2=0; Chi^2=0.08, df=2(P=0.96); I^2=0%							
Test for overall effect: Z=0.03(P=0.98)							

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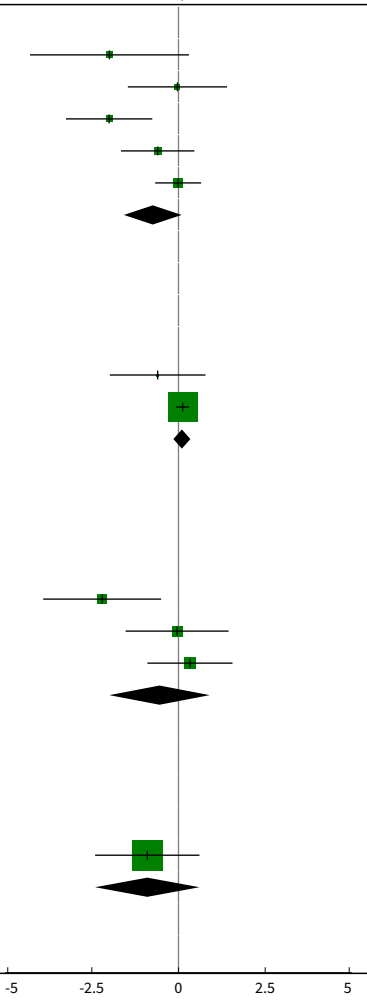
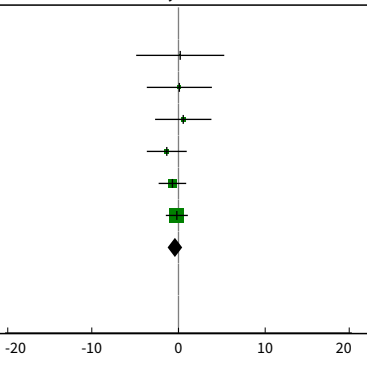
Analysis 13.36. Comparison 13 Subanalysis: outcomes by mode of physical activity intervention, Outcome 36 Mass (change values).

Study or subgroup	Physical activity N	Physical activity Mean(SD)	Control N	Control Mean(SD)	Mean Difference Random, 95% CI	Weight	Mean Difference Random, 95% CI
13.36.1 Aerobic exercise							
Dolan 2016	23	-0.5 (5)	10	1.4 (1.6)		9.72%	-1.99[-4.28,0.3]
Matthews 2007	22	0 (2.1)	14	0 (2.2)		17.6%	-0.03[-1.46,1.4]
Murtezani 2014	30	-2.3 (2.4)	32	-0.3 (2.6)		20.11%	-2[-3.24,-0.76]
Courneya 2003	24	0.1 (2)	26	0.7 (1.8)		22.96%	-0.6[-1.66,0.46]
Saarto 2012	262	0.7 (3.7)	236	0.7 (3.8)		29.61%	-0.01[-0.67,0.65]
Subtotal ***	**361**		**318**			**100%**	**-0.74[-1.58,0.09]**
Heterogeneity: Tau^2=0.5; Chi^2=9.76, df=4(P=0.04); I^2=59%							
Test for overall effect: Z=1.74(P=0.08)							
13.36.2 Resistance exercise							
Schmitz 2009	65	-1 (3.7)	65	-0.4 (4.3)		3.13%	-0.6[-1.98,0.78]
Schmitz 2005	39	0.3 (0.4)	40	0.2 (0.4)		96.87%	0.12[-0.07,0.31]
Subtotal ***	**104**		**105**			**100%**	**0.1[-0.15,0.34]**
Heterogeneity: Tau^2=0.01; Chi^2=1.03, df=1(P=0.31); I^2=2.73%							
Test for overall effect: Z=0.78(P=0.44)							
13.36.3 Combined aerobic and resistance exercise							
Irwin 2015	45	-2.1 (4.3)	38	0.1 (3.6)		29.82%	-2.2[-3.9,-0.5]
Ligibel 2008	22	0 (2.3)	14	0 (2.2)		33.04%	-0.04[-1.52,1.44]
Naumann 2012	11	0.5 (1.3)	10	0.1 (1.5)		37.13%	0.33[-0.9,1.56]
Subtotal ***	**78**		**62**			**100%**	**-0.55[-1.99,0.9]**
Heterogeneity: Tau^2=1.08; Chi^2=5.89, df=2(P=0.05); I^2=66.06%							
Test for overall effect: Z=0.74(P=0.46)							
13.36.4 Yoga, Tai Chi, and Pilates							
Mustian 2004	9	-0.3 (1.9)	10	0.6 (1.4)		100%	-0.9[-2.4,0.6]
Subtotal ***	**9**		**10**			**100%**	**-0.9[-2.4,0.6]**
Heterogeneity: Not applicable							
Test for overall effect: Z=1.17(P=0.24)							



Analysis 13.37. Comparison 13 Subanalysis: outcomes by mode of physical activity intervention, Outcome 37 BMI (follow-up values).

Study or subgroup	Physical activity N	Physical activity Mean(SD)	Control N	Control Mean(SD)	Mean Difference Fixed, 95% CI	Weight	Mean Difference Fixed, 95% CI
13.37.1 Aerobic exercise							
Rogers 2009	20	30.6 (7.6)	18	30.4 (8.3)		2.75%	0.2[-4.88,5.28]
Courneya 2003	24	29.4 (7.4)	26	29.3 (6)		5.03%	0.1[-3.65,3.85]
Cadmus 2009	36	30.5 (6)	33	29.9 (7.6)		6.72%	0.55[-2.7,3.8]
Pinto 2005	39	27.7 (5)	43	29 (5.6)		13.39%	-1.35[-3.65,0.95]
Murtezani 2014	30	25.1 (2.9)	32	25.8 (3.5)		28.1%	-0.7[-2.29,0.89]
Vallance 2007	253	27 (5.2)	85	27.2 (5.2)		44.01%	-0.19[-1.46,1.08]
Subtotal ***	**402**		**237**			**100%**	**-0.41[-1.26,0.43]**
Heterogeneity: Tau^2=0; Chi^2=1.35, df=5(P=0.93); I^2=0%							
Test for overall effect: Z=0.96(P=0.34)							



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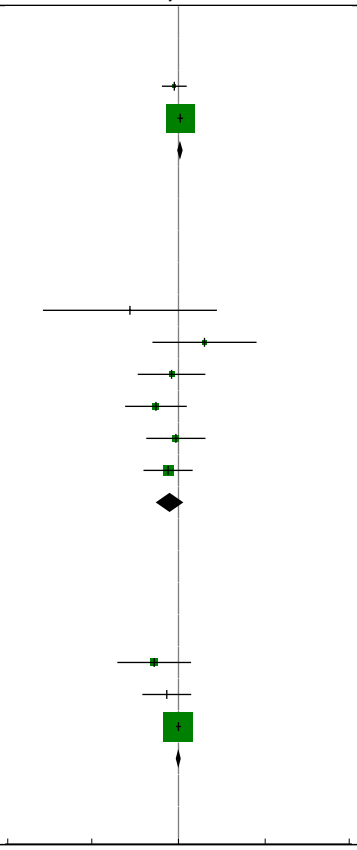
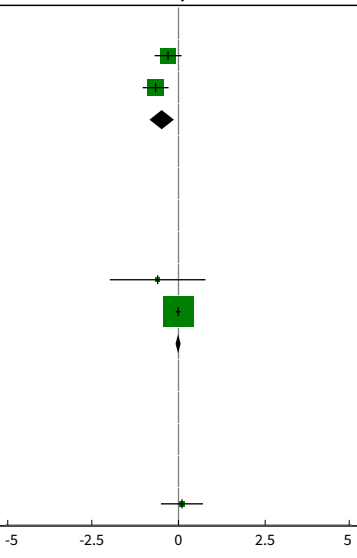
Study or subgroup	Physical activity N	Physical activity Mean(SD)	Control N	Control Mean(SD)	Mean Difference Fixed, 95% CI	Weight	Mean Difference Fixed, 95% CI
13.37.2 Resistance exercise							
Schmitz 2009	131	28.5 (5.6)	133	28.9 (6.3)		4.9%	-0.48[-1.91,0.95]
Schmitz 2005	39	26 (0.7)	40	25.8 (0.7)		95.1%	0.2[-0.12,0.52]
Subtotal ***	**170**		**173**			**100%**	**0.17[-0.15,0.48]**
Heterogeneity: Tau^2=0; Chi^2=0.83, df=1(P=0.36); I^2=0%							
Test for overall effect: Z=1.03(P=0.3)							
13.37.3 Combined aerobic and resistance exercise							
Portela 2008	25	29.1 (5.5)	9	34.7 (15)		2.53%	-5.6[-15.63,4.43]
Rogers 2013	12	33.6 (7)	10	30.6 (7.3)		7.06%	3[-3,9]
Nikander 2007	14	26.9 (5.6)	14	27.7 (4.9)		16.76%	-0.8[-4.7,3.1]
Rogers 2014	20	29.6 (5)	22	32.2 (6.7)		20.14%	-2.6[-6.16,0.96]
Rahnama 2010	14	27.7 (4.8)	15	28 (4.6)		21.83%	-0.3[-3.71,3.11]
Ligibel 2008	40	30.3 (6.3)	42	31.5 (6.8)		31.67%	-1.2[-4.04,1.64]
Subtotal ***	**125**		**112**			**100%**	**-1.03[-2.63,0.56]**
Heterogeneity: Tau^2=0; Chi^2=3.48, df=5(P=0.63); I^2=0%							
Test for overall effect: Z=1.27(P=0.2)							
13.37.4 Yoga, Tai Chi, and Pilates							
Mustian 2004	11	23.9 (4.2)	10	26.7 (5.6)		0.46%	-2.8[-7.05,1.45]
Littman 2012	28	27.7 (5)	27	29 (5.6)		1.06%	-1.35[-4.17,1.47]
Kiecolt-Glaser 2014	96	27.8 (1.1)	90	27.8 (1)		98.48%	0[-0.29,0.29]
Subtotal ***	**135**		**127**			**100%**	**-0.03[-0.32,0.26]**
Heterogeneity: Tau^2=0; Chi^2=2.51, df=2(P=0.28); I^2=20.45%							
Test for overall effect: Z=0.18(P=0.85)							



Favours physical activity — Favours control

Analysis 13.38. Comparison 13 Subanalysis: outcomes by mode of physical activity intervention, Outcome 38 BMI (change values).

Study or subgroup	Physical activity N	Physical activity Mean(SD)	Control N	Control Mean(SD)	Mean Difference Random, 95% CI	Weight	Mean Difference Random, 95% CI
13.38.1 Aerobic exercise							
Courneya 2003	24	0 (0.7)	26	0.3 (0.7)		48.87%	-0.3[-0.69,0.09]
Murtezani 2014	30	-0.8 (0.7)	32	-0.1 (0.8)		51.13%	-0.66[-1.03,-0.29]
Subtotal ***	**54**		**58**			**100%**	**-0.48[-0.84,-0.13]**
Heterogeneity: Tau^2=0.03; Chi^2=1.71, df=1(P=0.19); I^2=41.67%							
Test for overall effect: Z=2.69(P=0.01)							
13.38.2 Resistance exercise							
Schmitz 2009	65	-1 (3.7)	65	-0.4 (4.3)		0.28%	-0.6[-1.98,0.78]
Schmitz 2005	39	0.1 (0.2)	40	0.1 (0.2)		99.72%	-0.01[-0.08,0.06]
Subtotal ***	**104**		**105**			**100%**	**-0.01[-0.08,0.06]**
Heterogeneity: Tau^2=0; Chi^2=0.7, df=1(P=0.4); I^2=0%							
Test for overall effect: Z=0.31(P=0.75)							
13.38.3 Combined aerobic and resistance exercise							
Rogers 2014	20	-0.2 (0.9)	22	-0.3 (1.1)		18.45%	0.1[-0.51,0.71]



Favours physical activity — Favours control

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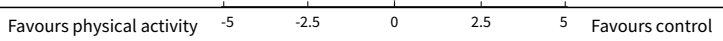
Study or subgroup	Physical activity N	Physical activity Mean(SD)	Control N	Control Mean(SD)	Mean Difference Random, 95% CI	Weight	Mean Difference Random, 95% CI
Naumann 2012	11	0.1 (0.5)	10	-0.1 (0.6)		31.91%	0.2[-0.26,0.66]
Ligibel 2008	40	0 (0.9)	42	0.2 (0.8)		49.64%	-0.2[-0.57,0.17]
Subtotal ***	**71**		**74**			**100%**	**-0.02[-0.28,0.24]**
Heterogeneity: Tau²=0; Chi²=1.94, df=2(P=0.38); I²=0%							
Test for overall effect: Z=0.13(P=0.9)							
13.38.4 Yoga, Tai Chi, and Pilates							
Mustian 2004	9	-0.4 (0.8)	10	0.3 (0.6)		100%	-0.71[-1.33,-0.09]
Subtotal ***	**9**		**10**			**100%**	**-0.71[-1.33,-0.09]**
Heterogeneity: Not applicable							
Test for overall effect: Z=2.25(P=0.02)							



Analysis 13.39. Comparison 13 Subanalysis: outcomes by mode of physical activity intervention, Outcome 39 Overall body fat (follow-up values).

Study or subgroup	Physical activity N	Physical activity Mean(SD)	Control N	Control Mean(SD)	Std. Mean Difference Random, 95% CI	Weight	Std. Mean Difference Random, 95% CI
13.39.1 Aerobic exercise							
Cerulli 2014	10	26.7 (5.3)	10	30.6 (4.4)		3.46%	-0.75[-1.66,0.16]
Musanti 2012	10	33.8 (7.6)	12	33.7 (5.7)		4.11%	0.01[-0.82,0.85]
Matthews 2007	22	39.7 (6.3)	14	43.1 (6.9)		6.23%	-0.51[-1.19,0.17]
Rogers 2009	20	44.3 (7.4)	19	43.5 (7.5)		7.33%	0.11[-0.52,0.73]
Courneya 2003	24	131.9 (46.4)	26	137.1 (44.4)		9.38%	-0.11[-0.67,0.44]
DeNysschen 2011	30	36.9 (8.4)	34	38 (10.2)		11.98%	-0.12[-0.61,0.38]
Saarto 2012	37	39.9 (7.5)	30	40.2 (8)		12.47%	-0.04[-0.52,0.44]
Cadmus 2009	36	40.5 (6.6)	33	39.6 (6)		12.93%	0.15[-0.33,0.62]
Pinto 2005	39	37.5 (4.8)	43	38.6 (4.8)		15.31%	-0.21[-0.64,0.22]
Daley 2007	33	39.4 (4.7)	69	40.1 (7.4)		16.79%	-0.1[-0.52,0.31]
Subtotal ***	**261**		**290**			**100%**	**-0.11[-0.28,0.06]**
Heterogeneity: Tau²=0; Chi²=5.16, df=9(P=0.82); I²=0%							
Test for overall effect: Z=1.26(P=0.21)							
13.39.2 Resistance exercise							
Musanti 2012	9	33.3 (7.1)	12	33.7 (5.7)		17.82%	-0.06[-0.93,0.8]
Winters-Stone 2011	36	40.5 (6.2)	31	38.5 (5.8)		25.77%	0.33[-0.16,0.81]
Schmitz 2005	39	40.9 (1.3)	40	42.3 (1.3)		26.02%	-1.05[-1.52,-0.58]
Schmitz 2009	130	38.5 (5.9)	132	39.7 (5.9)		30.38%	-0.21[-0.46,0.03]
Subtotal ***	**214**		**215**			**100%**	**-0.26[-0.81,0.28]**
Heterogeneity: Tau²=0.24; Chi²=16.72, df=3(P=0); I²=82.06%							
Test for overall effect: Z=0.95(P=0.34)							
13.39.3 Combined aerobic and resistance exercise							
Herrero 2006	8	22 (5)	8	22 (4)		8.76%	0[-0.98,0.98]
Rogers 2013	10	44.2 (6.7)	12	42.3 (7.7)		11.83%	0.25[-0.59,1.09]
Musanti 2012	11	35.2 (4.8)	12	33.7 (5.7)		12.43%	0.27[-0.55,1.1]
Rogers 2014	20	38.6 (6.4)	22	41.5 (7.4)		22.42%	-0.41[-1.02,0.2]
Ligibel 2008	40	42.9 (7.4)	42	44.7 (8)		44.56%	-0.23[-0.67,0.2]
Subtotal ***	**89**		**96**			**100%**	**-0.13[-0.42,0.16]**

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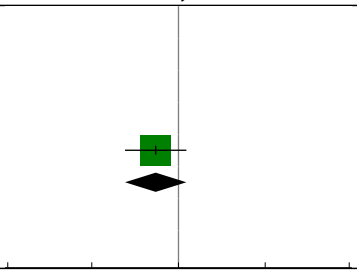
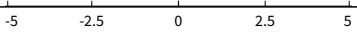
Study or subgroup	Physical activity N	Physical activity Mean(SD)	Control N	Control Mean(SD)	Std. Mean Difference Random, 95% CI	Weight	Std. Mean Difference Random, 95% CI
Heterogeneity: Tau²=0; Chi²=2.79, df=4(P=0.59); I²=0%							
Test for overall effect: Z=0.89(P=0.38)							
13.39.4 Yoga, Tai Chi, and Pilates							
Mustian 2004	11	38.5 (4.5)	10	41.7 (4.9)		100%	-0.66[-1.54,0.23]
Subtotal ***	**11**		**10**			**100%**	**-0.66[-1.54,0.23]**
Heterogeneity: Not applicable							
Test for overall effect: Z=1.46(P=0.15)							



Analysis 13.40. Comparison 13 Subanalysis: outcomes by mode of physical activity intervention, Outcome 40 Overall body fat (change values).

Study or subgroup	Physical activity N	Physical activity Mean(SD)	Control N	Control Mean(SD)	Std. Mean Difference Random, 95% CI	Weight	Std. Mean Difference Random, 95% CI
13.40.1 Aerobic exercise							
Musanti 2012	10	-0.3 (4.8)	12	1.4 (1.6)		20.44%	-0.48[-1.33,0.38]
Matthews 2007	22	-0.2 (1.6)	14	0.4 (1.9)		32.64%	-0.34[-1.02,0.33]
Courneya 2003	24	-4.9 (15.7)	26	5.1 (24.4)		46.92%	-0.48[-1.04,0.09]
Subtotal ***	**56**		**52**			**100%**	**-0.43[-0.82,-0.05]**
Heterogeneity: Tau²=0; Chi²=0.1, df=2(P=0.95); I²=0%							
Test for overall effect: Z=2.19(P=0.03)							
13.40.2 Resistance exercise							
Musanti 2012	9	-0.7 (2.3)	12	1.4 (1.6)		32.26%	-1.04[-1.98,-0.11]
Schmitz 2005	39	-1.1 (0.5)	40	0.2 (0.4)		33.42%	-3.07[-3.73,-2.41]
Schmitz 2009	65	-0.3 (5.7)	63	-0.1 (3.3)		34.32%	-0.04[-0.39,0.3]
Subtotal ***	**113**		**115**			**100%**	**-1.38[-3.39,0.63]**
Heterogeneity: Tau²=3.03; Chi²=63.85, df=2(P<0.0001); I²=96.87%							
Test for overall effect: Z=1.34(P=0.18)							
13.40.3 Combined aerobic and resistance exercise							
Naumann 2012	11	-0.3 (2.4)	10	0.8 (2.8)		12.35%	-0.41[-1.28,0.46]
Musanti 2012	11	0.2 (3.6)	12	1.4 (1.6)		13.5%	-0.43[-1.26,0.4]
Rogers 2014	20	-1.1 (2.2)	22	-0.6 (2.4)		25.17%	-0.21[-0.82,0.39]
Ligibel 2008	40	-0.2 (1.7)	42	0.3 (1.7)		48.98%	-0.29[-0.73,0.14]
Subtotal ***	**82**		**86**			**100%**	**-0.3[-0.61,0]**
Heterogeneity: Tau²=0; Chi²=0.23, df=3(P=0.97); I²=0%							
Test for overall effect: Z=1.96(P=0.05)							
13.40.4 Yoga, Tai Chi, and Pilates							
Mustian 2004	9	-0.2 (2.9)	10	0.3 (1.6)		100%	-0.18[-1.09,0.72]
Subtotal ***	**9**		**10**			**100%**	**-0.18[-1.09,0.72]**
Heterogeneity: Not applicable							
Test for overall effect: Z=0.4(P=0.69)							



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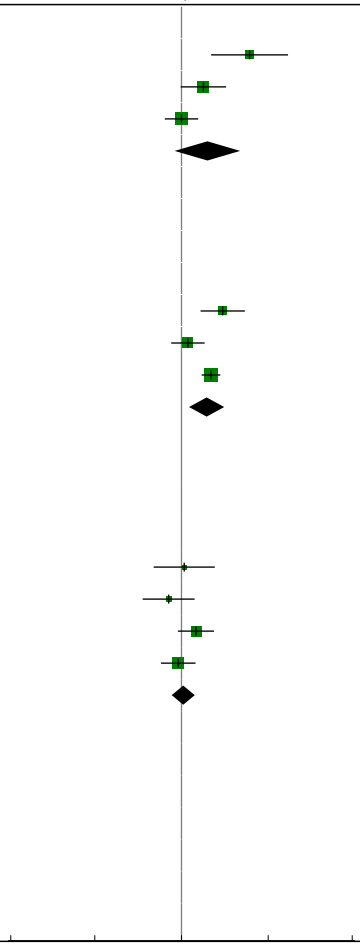
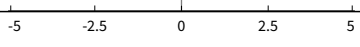
Analysis 13.41. Comparison 13 Subanalysis: outcomes by mode of physical activity intervention, Outcome 41 Lower body strength (follow-up values).

Study or subgroup	Physical activity N	Physical activity Mean(SD)	Control N	Control Mean(SD)	Std. Mean Difference Random, 95% CI	Weight	Std. Mean Difference Random, 95% CI
13.41.1 Aerobic exercise							
Cerulli 2014	10	114.9 (17.1)	10	79.1 (17.8)		26.73%	1.96[0.85,3.07]
Rogers 2009	20	80.3 (27)	18	64.9 (19.7)		35.16%	0.63[-0.02,1.29]
Saarto 2012	37	136 (23)	30	136 (29)		38.1%	0[-0.48,0.48]
Subtotal ***	**67**		**58**			**100%**	**0.75[-0.2,1.69]**
Heterogeneity: Tau²=0.55; Chi²=10.77, df=2(P=0); I²=81.43%							
Test for overall effect: Z=1.55(P=0.12)							
13.41.2 Resistance exercise							
Schmitz 2005	23	296.6 (48.9)	22	238.9 (46.4)		26.63%	1.19[0.55,1.83]
Winters-Stone 2011	36	201.3 (57.4)	31	191 (51.7)		32.57%	0.19[-0.3,0.67]
Schmitz 2009	113	223.4 (59.6)	119	175.1 (53.5)		40.81%	0.85[0.58,1.12]
Subtotal ***	**172**		**172**			**100%**	**0.72[0.22,1.23]**
Heterogeneity: Tau²=0.15; Chi²=7.64, df=2(P=0.02); I²=73.81%							
Test for overall effect: Z=2.8(P=0.01)							
13.41.3 Combined aerobic and resistance exercise							
Rogers 2013	11	68.4 (15.5)	9	67.1 (16.2)		13.17%	0.08[-0.8,0.96]
Nikander 2007	14	1305 (177)	14	1393 (275)		17.78%	-0.37[-1.12,0.38]
Milne 2008	29	66.2 (10.2)	29	61.7 (11)		33.29%	0.42[-0.1,0.94]
Do 2015	32	13 (1.6)	30	13.2 (1.6)		35.76%	-0.09[-0.59,0.41]
Subtotal ***	**86**		**82**			**100%**	**0.05[-0.28,0.38]**
Heterogeneity: Tau²=0.02; Chi²=3.45, df=3(P=0.33); I²=13.09%							
Test for overall effect: Z=0.3(P=0.76)							
13.41.4 Yoga, Tai Chi, and Pilates							
Subtotal ***	**0**		**0**				**Not estimable**
Heterogeneity: Not applicable							
Test for overall effect: Not applicable							



Analysis 13.42. Comparison 13 Subanalysis: outcomes by mode of physical activity intervention, Outcome 42 Lower body strength (change values).

Study or subgroup	Physical activity N	Physical activity Mean(SD)	Control N	Control Mean(SD)	Std. Mean Difference Random, 95% CI	Weight	Std. Mean Difference Random, 95% CI
13.42.1 Aerobic exercise							
Dolan 2016	23	11.8 (8.9)	10	0.3 (11.1)		100%	1.17[0.37,1.97]
Subtotal ***	**23**		**10**			**100%**	**1.17[0.37,1.97]**
Heterogeneity: Not applicable							
Test for overall effect: Z=2.86(P=0)							
13.42.2 Resistance exercise							
Schmitz 2005	23	81.8 (48.9)	22	20.3 (46)		17.64%	1.27[0.63,1.92]
Cormie 2014	43	37.6 (25.5)	19	6.7 (25.7)		19.59%	1.19[0.61,1.78]
Schmitz 2009	113	33.2 (33.9)	119	7.9 (26.6)		31.33%	0.83[0.56,1.1]
Waltman 2010	110	4.4 (11.5)	113	0.2 (8.4)		31.45%	0.42[0.15,0.69]



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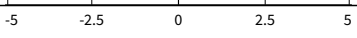
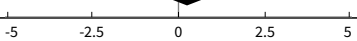
Study or subgroup	Physical activity N	Physical activity Mean(SD)	Control N	Control Mean(SD)	Std. Mean Difference Random, 95% CI	Weight	Std. Mean Difference Random, 95% CI
Subtotal ***	**289**		**273**			**100%**	**0.85[0.48,1.22]**
Heterogeneity: Tau²=0.1; Chi²=10.89, df=3(P=0.01); I²=72.46%							
Test for overall effect: Z=4.47(P<0.0001)							
13.42.3 Combined aerobic and resistance exercise							
Nieman 1995	6	28.9 (13.7)	6	3.5 (22.5)		18.37%	1.26[-0.03,2.55]
Naumann 2012	11	7.7 (12.6)	10	3.5 (13.9)		30.49%	0.3[-0.56,1.17]
Do 2015	32	0.9 (0.7)	60	1 (0.6)		51.14%	-0.08[-0.51,0.35]
Subtotal ***	**49**		**76**			**100%**	**0.28[-0.37,0.93]**
Heterogeneity: Tau²=0.17; Chi²=3.98, df=2(P=0.14); I²=49.77%							
Test for overall effect: Z=0.86(P=0.39)							
13.42.4 Yoga, Tai Chi, and Pilates							
Subtotal ***	**0**		**0**				**Not estimable**
Heterogeneity: Not applicable							
Test for overall effect: Not applicable							



Analysis 13.43. Comparison 13 Subanalysis: outcomes by mode of physical activity intervention, Outcome 43 Upper body strength (follow-up values).

Study or subgroup	Physical activity N	Physical activity Mean(SD)	Control N	Control Mean(SD)	Std. Mean Difference Random, 95% CI	Weight	Std. Mean Difference Random, 95% CI
13.43.1 Aerobic exercise							
Cerulli 2014	10	16.1 (5.4)	10	17.2 (8.1)		11.77%	-0.16[-1.03,0.72]
Musanti 2012	10	52.5 (21)	12	36.8 (20)		11.91%	0.74[-0.13,1.61]
Nikander 2007	14	131 (20)	14	129 (28)		16.53%	0.08[-0.66,0.82]
Rogers 2009	20	27.9 (5)	18	24.3 (6.2)		21.23%	0.63[-0.03,1.28]
Saarto 2012	37	32.7 (5.3)	30	30.8 (5.7)		38.56%	0.34[-0.14,0.83]
Subtotal ***	**91**		**84**			**100%**	**0.35[0.05,0.65]**
Heterogeneity: Tau²=0; Chi²=3.25, df=4(P=0.52); I²=0%							
Test for overall effect: Z=2.27(P=0.02)							
13.43.2 Resistance exercise							
Musanti 2012	9	56.4 (28)	12	36.8 (20)		17.3%	0.8[-0.11,1.7]
Schmitz 2005	23	83 (13.4)	22	63 (12.7)		22.58%	1.5[0.84,2.17]
Winters-Stone 2011	36	63.3 (15.3)	31	61.1 (16.8)		27.47%	0.14[-0.34,0.62]
Schmitz 2009	113	52.9 (15.3)	119	40.9 (11.8)		32.64%	0.88[0.61,1.15]
Subtotal ***	**181**		**184**			**100%**	**0.8[0.28,1.33]**
Heterogeneity: Tau²=0.2; Chi²=11.9, df=3(P=0.01); I²=74.79%							
Test for overall effect: Z=3(P=0)							
13.43.3 Combined aerobic and resistance exercise							
Musanti 2012	11	48.3 (14.8)	12	36.8 (20)		18.01%	0.63[-0.22,1.47]
Portela 2008	25	39.3 (12.3)	9	35.6 (13.1)		18.81%	0.29[-0.48,1.05]
Kaltsatou 2011	28	59.6 (8.5)	26	47.6 (9.8)		20.58%	1.29[0.7,1.88]
Milne 2008	29	7.6 (2.9)	29	9.4 (2.6)		21.17%	-0.64[-1.17,-0.12]
Do 2015	32	9.7 (1.7)	30	10.1 (1.7)		21.43%	-0.24[-0.74,0.26]
Subtotal ***	**125**		**106**			**100%**	**0.25[-0.47,0.97]**



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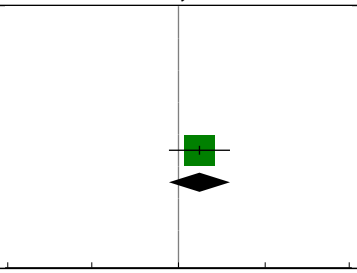
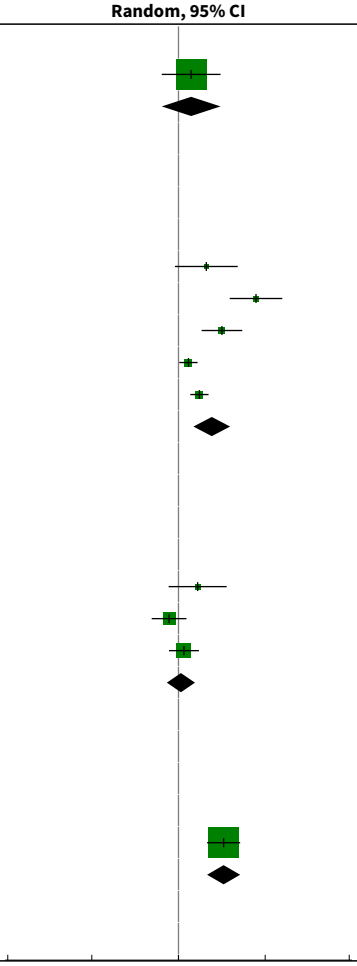
Study or subgroup	Physical activity N	Physical activity Mean(SD)	Control N	Control Mean(SD)	Std. Mean Difference Random, 95% CI	Weight	Std. Mean Difference Random, 95% CI
Heterogeneity: Tau²=0.56; Chi²=26.67, df=4(P<0.0001); I²=85%							
Test for overall effect: Z=0.67(P=0.5)							
13.43.4 Yoga, Tai Chi, and Pilates							
Mustian 2004	11	29.6 (3.3)	10	26.7 (5.7)		100%	0.6[-0.28,1.49]
Subtotal ***	**11**		**10**			**100%**	**0.6[-0.28,1.49]**
Heterogeneity: Not applicable							
Test for overall effect: Z=1.35(P=0.18)							



Analysis 13.44. Comparison 13 Subanalysis: outcomes by mode of physical activity intervention, Outcome 44 Upper body strength (change values).

Study or subgroup	Physical activity N	Physical activity Mean(SD)	Control N	Control Mean(SD)	Std. Mean Difference Random, 95% CI	Weight	Std. Mean Difference Random, 95% CI
13.44.1 Aerobic exercise							
Musanti 2012	10	5.5 (11.9)	12	0.8 (12.7)		100%	0.36[-0.48,1.21]
Subtotal ***	**10**		**12**			**100%**	**0.36[-0.48,1.21]**
Heterogeneity: Not applicable							
Test for overall effect: Z=0.84(P=0.4)							
13.44.2 Resistance exercise							
Musanti 2012	9	11.8 (13.7)	12	0.8 (12.7)		14.74%	0.8[-0.1,1.71]
Schmitz 2005	23	32.3 (11.5)	22	6.9 (10.8)		16.91%	2.24[1.48,2.99]
Cormie 2014	43	5.7 (3.7)	19	1 (3.8)		19.66%	1.25[0.67,1.84]
Waltman 2010	110	1.9 (4.9)	113	0.8 (2.9)		24.34%	0.29[0.02,0.55]
Schmitz 2009	113	33.2 (40.8)	119	7.6 (43.7)		24.34%	0.6[0.34,0.87]
Subtotal ***	**298**		**285**			**100%**	**0.96[0.43,1.49]**
Heterogeneity: Tau²=0.28; Chi²=28.18, df=4(P<0.0001); I²=85.8%							
Test for overall effect: Z=3.55(P=0)							
13.44.3 Combined aerobic and resistance exercise							
Musanti 2012	11	6.5 (5.1)	12	0.8 (12.7)		18.55%	0.55[-0.28,1.39]
Do 2015	32	0.3 (0.5)	30	0.6 (1.2)		37.55%	-0.27[-0.77,0.23]
Irwin 2015	45	0.4 (1.9)	38	0.1 (1.9)		43.9%	0.16[-0.27,0.59]
Subtotal ***	**88**		**80**			**100%**	**0.07[-0.34,0.48]**
Heterogeneity: Tau²=0.05; Chi²=3.21, df=2(P=0.2); I²=37.73%							
Test for overall effect: Z=0.34(P=0.74)							
13.44.4 Yoga, Tai Chi, and Pilates							
Mustian 2004	45	4.5 (4.7)	38	-0.8 (3.2)		100%	1.3[0.82,1.78]
Subtotal ***	**45**		**38**			**100%**	**1.3[0.82,1.78]**
Heterogeneity: Not applicable							
Test for overall effect: Z=5.35(P<0.0001)							



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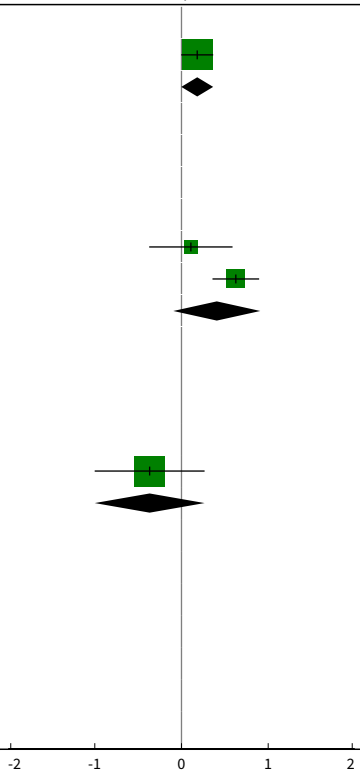
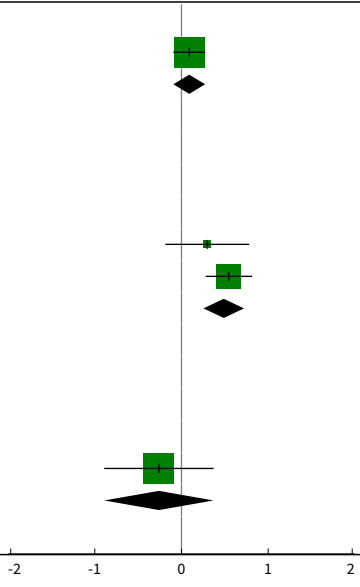
Analysis 13.45. Comparison 13 Subanalysis: outcomes by mode of physical activity intervention, Outcome 45 Bone mineral density - femoral neck (follow-up and change values).

Study or subgroup	Physical activity N	Physical activity Mean(SD)	Control N	Control Mean(SD)	Std. Mean Difference Random, 95% CI	Weight	Std. Mean Difference Random, 95% CI
13.45.1 Aerobic exercise							
Saarto 2012	239	-0 (0)	218	-0 (0)		100%	0.18[-0,0.37]
Subtotal ***	**239**		**218**			**100%**	**0.18[-0,0.37]**
Heterogeneity: Not applicable							
Test for overall effect: Z=1.93(P=0.05)							
13.45.2 Resistance exercise							
Winters-Stone 2011	36	0.7 (0.1)	31	0.7 (0.1)		42.32%	0.11[-0.37,0.59]
Waltman 2010	110	0.9 (0.5)	113	0.6 (0.4)		57.68%	0.63[0.36,0.9]
Subtotal ***	**146**		**144**			**100%**	**0.41[-0.09,0.91]**
Heterogeneity: Tau^2=0.09; Chi^2=3.4, df=1(P=0.07); I^2=70.62%							
Test for overall effect: Z=1.59(P=0.11)							
13.45.3 Combined aerobic and resistance exercise							
Kim 2015	20	0.8 (0.1)	19	0.8 (0.1)		100%	-0.37[-1,0.27]
Subtotal ***	**20**		**19**			**100%**	**-0.37[-1,0.27]**
Heterogeneity: Not applicable							
Test for overall effect: Z=1.14(P=0.26)							
13.45.4 Yoga, Tai Chi, and Pilates							
Subtotal ***	**0**		**0**				**Not estimable**
Heterogeneity: Not applicable							
Test for overall effect: Not applicable							



Analysis 13.46. Comparison 13 Subanalysis: outcomes by mode of physical activity intervention, Outcome 46 Bone mineral density - lumbar spine (follow-up and change values).

Study or subgroup	Physical activity N	Physical activity Mean(SD)	Control N	Control Mean(SD)	Std. Mean Difference Random, 95% CI	Weight	Std. Mean Difference Random, 95% CI
13.46.1 Aerobic exercise							
Saarto 2012	239	-0 (0)	218	-0 (0)		100%	0.09[-0.09,0.27]
Subtotal ***	**239**		**218**			**100%**	**0.09[-0.09,0.27]**
Heterogeneity: Not applicable							
Test for overall effect: Z=0.95(P=0.34)							
13.46.2 Resistance exercise							
Winters-Stone 2011	36	1 (0.2)	31	1 (0.1)		23.46%	0.3[-0.19,0.78]
Waltman 2010	110	3.1 (0.4)	113	2.9 (0.4)		76.54%	0.55[0.28,0.81]
Subtotal ***	**146**		**144**			**100%**	**0.49[0.25,0.72]**
Heterogeneity: Tau^2=0; Chi^2=0.78, df=1(P=0.38); I^2=0%							
Test for overall effect: Z=4.08(P<0.0001)							
13.46.3 Combined aerobic and resistance exercise							
Kim 2015	20	1 (0.1)	19	1 (0.1)		100%	-0.26[-0.89,0.37]
Subtotal ***	**20**		**19**			**100%**	**-0.26[-0.89,0.37]**
Heterogeneity: Not applicable							



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Study or subgroup	Physical activity N	Physical activity Mean(SD)	Control N	Control Mean(SD)	Std. Mean Difference Random, 95% CI	Weight	Std. Mean Difference Random, 95% CI
Test for overall effect: Z=0.81(P=0.42)							
13.46.4 Yoga, Tai Chi, and Pilates							
Subtotal ***	**0**		**0**				**Not estimable**
Heterogeneity: Not applicable							
Test for overall effect: Not applicable							

Analysis 13.47. Comparison 13 Subanalysis: outcomes by mode of physical activity intervention, Outcome 47 Bone mineral density - total hip (follow-up and change values).

Study or subgroup	Physical activity N	Physical activity Mean(SD)	Control N	Control Mean(SD)	Std. Mean Difference Random, 95% CI	Weight	Std. Mean Difference Random, 95% CI
13.47.1 Aerobic exercise							
Subtotal ***	**0**		**0**				**Not estimable**
Heterogeneity: Not applicable							
Test for overall effect: Not applicable							
13.47.2 Resistance exercise							
Winters-Stone 2011	36	0.9 (0.1)	31	0.8 (0.1)		47.32%	0.19[-0.29,0.67]
Waltman 2010	110	2.2 (0.3)	113	1.8 (0.4)		52.68%	1.05[0.77,1.33]
Subtotal ***	**146**		**144**			**100%**	**0.64[-0.2,1.48]**
Heterogeneity: Tau²=0.33; Chi²=9.19, df=1(P=0); I²=89.12%							
Test for overall effect: Z=1.49(P=0.14)							
13.47.3 Combined aerobic and resistance exercise							
Kim 2015	20	0.9 (0.1)	19	0.1 (0.1)		100%	10.34[7.84,12.84]
Subtotal ***	**20**		**19**			**100%**	**10.34[7.84,12.84]**
Heterogeneity: Not applicable							
Test for overall effect: Z=8.11(P<0.0001)							
13.47.4 Yoga, Tai Chi, and Pilates							
Subtotal ***	**0**		**0**				**Not estimable**
Heterogeneity: Not applicable							
Test for overall effect: Not applicable							

Comparison 14. Subanalysis: outcomes by intensity of physical activity intervention

Outcome or subgroup title	No. of studies	No. of participants	Statistical method	Effect size
1 Overall HRQoL (follow-up values)	22		Std. Mean Difference (IV, Random, 95% CI)	Subtotals only
1.1 Light-to-moderate intensity	16	983	Std. Mean Difference (IV, Random, 95% CI)	0.51 [0.25, 0.77]

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Outcome or subgroup title	No. of studies	No. of participants	Statistical method	Effect size
1.2 Moderate-to-high intensity	6	820	Std. Mean Difference (IV, Random, 95% CI)	0.19 [-0.05, 0.43]
2 Overall HRQoL (change values)	14		Std. Mean Difference (IV, Random, 95% CI)	Subtotals only
2.1 Light-to-moderate intensity	10	534	Std. Mean Difference (IV, Random, 95% CI)	0.99 [0.39, 1.60]
2.2 Moderate-to-high intensity	4	925	Std. Mean Difference (IV, Random, 95% CI)	0.28 [-0.11, 0.67]
3 Overall emotional function/mental health (follow-up values)	26		Std. Mean Difference (IV, Random, 95% CI)	Subtotals only
3.1 Light-to-moderate intensity	21	1489	Std. Mean Difference (IV, Random, 95% CI)	0.19 [0.08, 0.30]
3.2 Moderate-to-high intensity	5	613	Std. Mean Difference (IV, Random, 95% CI)	0.29 [-0.07, 0.65]
4 Overall emotional function/mental health (change values)	15		Std. Mean Difference (IV, Random, 95% CI)	Subtotals only
4.1 Light-to-moderate intensity	10	592	Std. Mean Difference (IV, Random, 95% CI)	0.41 [0.04, 0.77]
4.2 Moderate-to-high intensity	5	987	Std. Mean Difference (IV, Random, 95% CI)	0.07 [-0.07, 0.21]
5 Overall physical function (follow-up values)	25		Std. Mean Difference (IV, Random, 95% CI)	Subtotals only
5.1 Light-to-moderate intensity	20	1466	Std. Mean Difference (IV, Random, 95% CI)	0.38 [0.19, 0.58]
5.2 Moderate-to-high intensity	5	663	Std. Mean Difference (IV, Random, 95% CI)	0.14 [-0.02, 0.30]
6 Overall physical function (change values)	13		Std. Mean Difference (IV, Random, 95% CI)	Subtotals only
6.1 Light-to-moderate intensity	8	449	Std. Mean Difference (IV, Random, 95% CI)	0.81 [0.11, 1.51]
6.2 Moderate-to-high intensity	5	984	Std. Mean Difference (IV, Random, 95% CI)	0.28 [-0.06, 0.62]
7 Overall role function (follow-up values)	18		Std. Mean Difference (IV, Random, 95% CI)	Subtotals only
7.1 Light-to-moderate intensity	14	883	Std. Mean Difference (IV, Random, 95% CI)	0.36 [0.08, 0.64]

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Outcome or subgroup title	No. of studies	No. of participants	Statistical method	Effect size
7.2 Moderate-to-high intensity	4	487	Std. Mean Difference (IV, Random, 95% CI)	0.11 [-0.13, 0.35]
8 Overall role function (change values)	12		Std. Mean Difference (IV, Random, 95% CI)	Subtotals only
8.1 Light-to-moderate intensity	7	328	Std. Mean Difference (IV, Random, 95% CI)	0.18 [-0.19, 0.56]
8.2 Moderate-to-high intensity	5	987	Std. Mean Difference (IV, Random, 95% CI)	0.06 [-0.09, 0.21]
9 Overall social well-being/function (follow-up values)	18		Std. Mean Difference (IV, Random, 95% CI)	Subtotals only
9.1 Light-to-moderate intensity	15	1132	Std. Mean Difference (IV, Random, 95% CI)	0.23 [0.10, 0.36]
9.2 Moderate-to-high intensity	3	425	Std. Mean Difference (IV, Random, 95% CI)	0.05 [-0.16, 0.26]
10 Overall social well-being/function (change values)	12		Std. Mean Difference (IV, Random, 95% CI)	Subtotals only
10.1 Light-to-moderate intensity	8	413	Std. Mean Difference (IV, Random, 95% CI)	0.63 [0.21, 1.04]
10.2 Moderate-to-high intensity	4	971	Std. Mean Difference (IV, Random, 95% CI)	0.33 [-0.33, 0.98]
11 Overall cognitive function (follow-up values)	5		Std. Mean Difference (IV, Random, 95% CI)	Subtotals only
11.1 Light-to-moderate intensity	4	173	Std. Mean Difference (IV, Random, 95% CI)	0.43 [0.11, 0.74]
11.2 Moderate-to-high intensity	1	16	Std. Mean Difference (IV, Random, 95% CI)	0.16 [-0.82, 1.14]
12 Overall cognitive function (change values)	5		Std. Mean Difference (IV, Random, 95% CI)	Subtotals only
12.1 Light-to-moderate intensity	3	156	Std. Mean Difference (IV, Random, 95% CI)	0.17 [-0.21, 0.55]
12.2 Moderate-to-high intensity	2	516	Std. Mean Difference (IV, Random, 95% CI)	-0.17 [-0.35, 0.00]
13 Overall general health (follow-up values)	10		Std. Mean Difference (IV, Random, 95% CI)	Subtotals only
13.1 Light-to-moderate intensity	6	304	Std. Mean Difference (IV, Random, 95% CI)	0.17 [-0.14, 0.48]

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Outcome or subgroup title	No. of studies	No. of participants	Statistical method	Effect size
13.2 Moderate-to-high intensity	4	184	Std. Mean Difference (IV, Random, 95% CI)	0.30 [-0.35, 0.95]
14 Overall general health (change values)	9		Std. Mean Difference (IV, Random, 95% CI)	Subtotals only
14.1 Light-to-moderate intensity	5	254	Std. Mean Difference (IV, Random, 95% CI)	0.23 [-0.02, 0.48]
14.2 Moderate-to-high intensity	4	652	Std. Mean Difference (IV, Random, 95% CI)	0.20 [-0.24, 0.64]
15 Overall sexual function (follow-up values)	5		Std. Mean Difference (IV, Fixed, 95% CI)	Subtotals only
15.1 Light-to-moderate intensity	4	293	Std. Mean Difference (IV, Fixed, 95% CI)	0.22 [-0.01, 0.45]
15.2 Moderate-to-high intensity	1	118	Std. Mean Difference (IV, Fixed, 95% CI)	0.01 [-0.35, 0.38]
16 Overall sexual function (change values)	3		Mean Difference (IV, Random, 95% CI)	Subtotals only
16.1 Light-to-moderate intensity	2	193	Mean Difference (IV, Random, 95% CI)	3.83 [-1.83, 9.48]
16.2 Moderate-to-high intensity	1	500	Mean Difference (IV, Random, 95% CI)	0.5 [-3.86, 4.86]
17 Overall anxiety (follow-up values)	7		Std. Mean Difference (IV, Random, 95% CI)	Subtotals only
17.1 Light-to-moderate intensity	5	237	Std. Mean Difference (IV, Random, 95% CI)	-0.56 [-0.88, -0.25]
17.2 Moderate-to-high intensity	2	89	Std. Mean Difference (IV, Random, 95% CI)	-1.20 [-3.49, 1.09]
18 Overall anxiety (change values)	4		Std. Mean Difference (IV, Fixed, 95% CI)	Subtotals only
18.1 Light-to-moderate intensity	3	161	Std. Mean Difference (IV, Fixed, 95% CI)	-0.48 [-0.79, -0.16]
18.2 Moderate-to-high intensity	1	74	Std. Mean Difference (IV, Fixed, 95% CI)	-0.15 [-0.61, 0.30]
19 Overall depression (follow-up values)	12		Std. Mean Difference (IV, Random, 95% CI)	Subtotals only
19.1 Light-to-moderate intensity	9	542	Std. Mean Difference (IV, Random, 95% CI)	-0.24 [-0.53, 0.06]

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Outcome or subgroup title	No. of studies	No. of participants	Statistical method	Effect size
19.2 Moderate-to-high intensity	3	115	Std. Mean Difference (IV, Random, 95% CI)	-0.92 [-1.95, 0.11]
20 Overall depression (change values)	6		Std. Mean Difference (IV, Random, 95% CI)	Subtotals only
20.1 Light-to-moderate intensity	4	182	Std. Mean Difference (IV, Random, 95% CI)	-0.60 [-0.89, -0.30]
20.2 Moderate-to-high intensity	2	574	Std. Mean Difference (IV, Random, 95% CI)	0.00 [-0.21, 0.22]
21 Overall fatigue (follow-up values)	25		Std. Mean Difference (IV, Random, 95% CI)	Subtotals only
21.1 Light-to-moderate intensity	21	1155	Std. Mean Difference (IV, Random, 95% CI)	-0.38 [-0.56, -0.19]
21.2 Moderate-to-high intensity	4	770	Std. Mean Difference (IV, Random, 95% CI)	-0.13 [-0.28, 0.03]
22 Overall fatigue (change values)	12		Std. Mean Difference (IV, Random, 95% CI)	Subtotals only
22.1 Light-to-moderate intensity	9	420	Std. Mean Difference (IV, Random, 95% CI)	-0.36 [-0.84, 0.11]
22.2 Moderate-to-high intensity	3	851	Std. Mean Difference (IV, Random, 95% CI)	0.05 [-0.14, 0.24]
23 Overall pain/disability (follow-up values)	9		Std. Mean Difference (IV, Random, 95% CI)	Subtotals only
23.1 Light-to-moderate intensity	5	189	Std. Mean Difference (IV, Random, 95% CI)	0.13 [-0.25, 0.50]
23.2 Moderate-to-high intensity	4	346	Std. Mean Difference (IV, Random, 95% CI)	0.03 [-0.18, 0.24]
24 Overall pain/disability (change values)	5		Std. Mean Difference (IV, Random, 95% CI)	Subtotals only
24.1 Light-to-moderate intensity	2	77	Std. Mean Difference (IV, Random, 95% CI)	0.12 [-0.33, 0.56]
24.2 Moderate-to-high intensity	3	219	Std. Mean Difference (IV, Random, 95% CI)	-0.15 [-0.47, 0.16]
25 Overall self-esteem/body image (follow-up values)	12		Std. Mean Difference (IV, Random, 95% CI)	Subtotals only
25.1 Light-to-moderate intensity	8	474	Std. Mean Difference (IV, Random, 95% CI)	0.35 [0.14, 0.55]

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Outcome or subgroup title	No. of studies	No. of participants	Statistical method	Effect size
25.2 Moderate-to-high intensity	4	193	Std. Mean Difference (IV, Random, 95% CI)	0.06 [-0.45, 0.56]
26 Overall self-esteem/body image (change values)	9		Std. Mean Difference (IV, Random, 95% CI)	Subtotals only
26.1 Light-to-moderate intensity	6	376	Std. Mean Difference (IV, Random, 95% CI)	0.52 [-0.09, 1.13]
26.2 Moderate-to-high intensity	3	616	Std. Mean Difference (IV, Random, 95% CI)	-0.05 [-0.21, 0.10]
27 Overall cardiorespiratory fitness (follow-up values)	23		Std. Mean Difference (IV, Random, 95% CI)	Subtotals only
27.1 Light-to-moderate intensity	16	975	Std. Mean Difference (IV, Random, 95% CI)	0.43 [0.27, 0.59]
27.2 Moderate-to-high intensity	7	290	Std. Mean Difference (IV, Random, 95% CI)	0.46 [0.13, 0.80]
28 Overall cardiorespiratory fitness (change values)	9		Std. Mean Difference (IV, Random, 95% CI)	Subtotals only
28.1 Light-to-moderate intensity	6	228	Std. Mean Difference (IV, Random, 95% CI)	1.18 [0.60, 1.77]
28.2 Moderate-to-high intensity	4	645	Std. Mean Difference (IV, Random, 95% CI)	0.57 [0.01, 1.14]
29 Overall self-reported physical activity (follow-up values)	17		Std. Mean Difference (IV, Random, 95% CI)	Subtotals only
29.1 Light-to-moderate intensity	11	1112	Std. Mean Difference (IV, Random, 95% CI)	0.47 [0.23, 0.72]
29.2 Moderate-to-high intensity	6	893	Std. Mean Difference (IV, Random, 95% CI)	0.65 [0.27, 1.03]
30 Overall self-reported physical activity (change values)	8		Std. Mean Difference (IV, Random, 95% CI)	Subtotals only
30.1 Light-to-moderate intensity	4	249	Std. Mean Difference (IV, Random, 95% CI)	0.79 [0.15, 1.44]
30.2 Moderate-to-high intensity	4	1025	Std. Mean Difference (IV, Random, 95% CI)	0.46 [0.07, 0.85]
31 Overall objective physical activity (follow-up values)	12		Std. Mean Difference (IV, Random, 95% CI)	Subtotals only
31.1 Light-to-moderate intensity	9	574	Std. Mean Difference (IV, Random, 95% CI)	0.58 [0.29, 0.87]

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Outcome or subgroup title	No. of studies	No. of participants	Statistical method	Effect size
31.2 Moderate-to-high intensity	3	735	Std. Mean Difference (IV, Random, 95% CI)	0.12 [-0.03, 0.28]
32 Overall objective physical activity (change values)	5		Std. Mean Difference (IV, Random, 95% CI)	Subtotals only
32.1 Light-to-moderate intensity	3	103	Std. Mean Difference (IV, Random, 95% CI)	1.05 [0.62, 1.47]
32.2 Moderate-to-high intensity	2	405	Std. Mean Difference (IV, Random, 95% CI)	0.32 [-0.45, 1.09]
33 Mass (follow-up values)	16		Mean Difference (IV, Fixed, 95% CI)	Subtotals only
33.1 Light-to-moderate intensity	12	1015	Mean Difference (IV, Fixed, 95% CI)	0.03 [-0.56, 0.61]
33.2 Moderate-to-high intensity	4	195	Mean Difference (IV, Fixed, 95% CI)	-1.34 [-5.66, 2.98]
34 Mass (change values)	11		Mean Difference (IV, Random, 95% CI)	Subtotals only
34.1 Light-to-moderate intensity	8	418	Mean Difference (IV, Random, 95% CI)	-0.58 [-1.21, 0.05]
34.2 Moderate-to-high intensity	4	639	Mean Difference (IV, Random, 95% CI)	-0.97 [-2.18, 0.24]
35 BMI (follow-up values)	17		Mean Difference (IV, Fixed, 95% CI)	Subtotals only
35.1 Light-to-moderate intensity	12	930	Mean Difference (IV, Fixed, 95% CI)	0.03 [-0.18, 0.24]
35.2 Moderate-to-high intensity	5	551	Mean Difference (IV, Fixed, 95% CI)	-0.35 [-1.40, 0.69]
36 BMI (change values)	8		Mean Difference (IV, Random, 95% CI)	Subtotals only
36.1 Light-to-moderate intensity	7	403	Mean Difference (IV, Random, 95% CI)	-0.23 [-0.50, 0.05]
36.2 Moderate-to-high intensity	1	82	Mean Difference (IV, Random, 95% CI)	-0.2 [-0.57, 0.17]
37 Overall body fat (follow-up values)	18		Std. Mean Difference (IV, Random, 95% CI)	Subtotals only
37.1 Light-to-moderate intensity	13	886	Std. Mean Difference (IV, Random, 95% CI)	-0.24 [-0.44, -0.04]
37.2 Moderate-to-high intensity	5	276	Std. Mean Difference (IV, Random, 95% CI)	-0.03 [-0.27, 0.21]
38 Overall body fat (change values)	9		Std. Mean Difference (IV, Random, 95% CI)	Subtotals only

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Outcome or subgroup title	No. of studies	No. of participants	Statistical method	Effect size
38.1 Light-to-moderate intensity	7	375	Std. Mean Difference (IV, Random, 95% CI)	-0.68 [-1.44, 0.09]
38.2 Moderate-to-high intensity	2	124	Std. Mean Difference (IV, Random, 95% CI)	-0.39 [-0.76, -0.02]
39 Lower body strength (follow-up values)	10		Std. Mean Difference (IV, Random, 95% CI)	Subtotals only
39.1 Light-to-moderate intensity	7	480	Std. Mean Difference (IV, Random, 95% CI)	0.69 [0.34, 1.04]
39.2 Moderate-to-high intensity	3	157	Std. Mean Difference (IV, Random, 95% CI)	-0.10 [-0.42, 0.21]
40 Lower body strength (change values)	8		Std. Mean Difference (IV, Random, 95% CI)	Subtotals only
40.1 Light-to-moderate intensity	5	331	Std. Mean Difference (IV, Random, 95% CI)	0.87 [0.64, 1.09]
40.2 Moderate-to-high intensity	4	399	Std. Mean Difference (IV, Random, 95% CI)	0.62 [0.07, 1.17]
41 Upper body strength (follow-up values)	13		Std. Mean Difference (IV, Random, 95% CI)	Subtotals only
41.1 Light-to-moderate intensity	7	481	Std. Mean Difference (IV, Random, 95% CI)	0.43 [-0.11, 0.96]
41.2 Moderate-to-high intensity	6	287	Std. Mean Difference (IV, Random, 95% CI)	0.41 [-0.05, 0.87]
42 Upper body strength (change values)	8		Std. Mean Difference (IV, Random, 95% CI)	Subtotals only
42.1 Light-to-moderate intensity	3	360	Std. Mean Difference (IV, Random, 95% CI)	1.32 [0.47, 2.16]
42.2 Moderate-to-high intensity	5	472	Std. Mean Difference (IV, Random, 95% CI)	0.37 [-0.05, 0.79]
43 Bone mineral density - femoral neck (follow-up and change values)	4		Std. Mean Difference (IV, Random, 95% CI)	Subtotals only
43.1 Light-to-moderate intensity	2	106	Std. Mean Difference (IV, Random, 95% CI)	-0.08 [-0.54, 0.37]
43.2 Moderate-to-high intensity	2	680	Std. Mean Difference (IV, Random, 95% CI)	0.39 [-0.04, 0.83]
44 Bone mineral density - lumbar spine (follow-up and change values)	4		Std. Mean Difference (IV, Random, 95% CI)	Subtotals only

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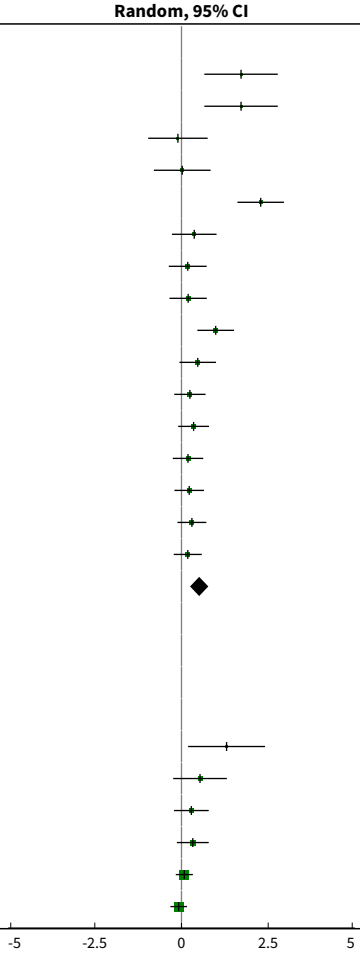
Outcome or subgroup title	No. of studies	No. of participants	Statistical method	Effect size
44.1 Light-to-moderate intensity	2	106	Std. Mean Difference (IV, Random, 95% CI)	0.06 [-0.48, 0.60]
44.2 Moderate-to-high intensity	2	680	Std. Mean Difference (IV, Random, 95% CI)	0.31 [-0.14, 0.75]
45 Bone mineral density - total hip (follow-up and change values)	3		Std. Mean Difference (IV, Random, 95% CI)	Subtotals only
45.1 Light-to-moderate intensity	2	106	Std. Mean Difference (IV, Random, 95% CI)	5.19 [-4.76, 15.14]
45.2 Moderate-to-high intensity	1	223	Std. Mean Difference (IV, Random, 95% CI)	1.05 [0.77, 1.33]

Analysis 14.1. Comparison 14 Subanalysis: outcomes by intensity of physical activity intervention, Outcome 1 Overall HRQoL (follow-up values).

Study or subgroup	Physical activity N	Physical activity Mean(SD)	Control N	Control Mean(SD)	Std. Mean Difference Random, 95% CI	Weight	Std. Mean Difference Random, 95% CI
14.1.1 Light-to-moderate intensity							
Cerulli 2014	10	85.2 (4.2)	10	65.9 (14.7)		3.71%	1.72[0.66,2.78]
Rogers 2015	10	85.2 (4.2)	10	65.9 (14.7)		3.71%	1.72[0.66,2.78]
Mustian 2004	11	121.7 (22.7)	10	124.3 (25.9)		4.68%	-0.1[-0.96,0.75]
Loudon 2014	12	-7.4 (1.2)	11	-7.4 (1.4)		4.89%	0.02[-0.8,0.84]
Milne 2008	29	86.4 (8.3)	29	64.1 (10.8)		5.78%	2.28[1.61,2.96]
Rogers 2009	20	92 (11.4)	18	87.4 (13.1)		5.97%	0.37[-0.27,1.01]
Courneya 2003	24	91.3 (11)	28	89.3 (10.9)		6.62%	0.18[-0.37,0.73]
Ergun 2013	40	71.6 (19.9)	20	67.9 (16.7)		6.68%	0.19[-0.35,0.73]
Murtezani 2014	30	86.5 (7.3)	32	79.1 (7.5)		6.73%	0.99[0.46,1.52]
Mehnert 2011	30	74.7 (21.7)	27	65.4 (16.8)		6.75%	0.47[-0.06,1]
Pinto 2015	39	117.8 (12.7)	37	114 (18)		7.27%	0.24[-0.21,0.69]
Schmitz 2005	39	-44.2 (8.7)	40	-47.4 (9.4)		7.32%	0.35[-0.09,0.79]
Taleghani 2012	40	217.5 (36.3)	40	210.1 (41.5)		7.36%	0.19[-0.25,0.63]
Loh 2014	63	112.4 (14.1)	32	109.3 (13.3)		7.44%	0.22[-0.2,0.65]
Daley 2007	33	90.9 (13.5)	69	86.4 (15.1)		7.51%	0.3[-0.12,0.72]
Littman 2012	30	90.3 (11)	110	87.7 (15)		7.59%	0.18[-0.22,0.59]
Subtotal ***	**460**		**523**			**100%**	**0.51[0.25,0.77]**
Heterogeneity: Tau^2=0.2; Chi^2=53.65, df=15(P<0.0001); I^2=72.04%							
Test for overall effect: Z=3.8(P=0)							
14.1.2 Moderate-to-high intensity							
Herrero 2006	8	81.3 (10.7)	8	62.5 (16.1)		4.15%	1.3[0.19,2.41]
Portela 2008	25	107.2 (28.5)	9	91.6 (28.5)		7.7%	0.53[-0.24,1.31]
Do 2015	32	87.3 (13.7)	30	82.4 (19.9)		14.56%	0.28[-0.22,0.79]
Cadmus 2009	37	91.2 (12.6)	37	86.2 (17.4)		16.23%	0.33[-0.13,0.78]
Vallance 2007	250	91.5 (11.8)	85	90.6 (13)		28.39%	0.08[-0.16,0.33]
Short 2014	195	106.8 (16.7)	104	108.2 (18.2)		28.96%	-0.08[-0.32,0.16]



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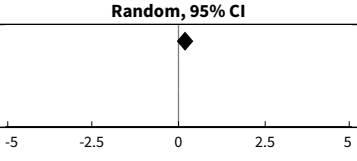
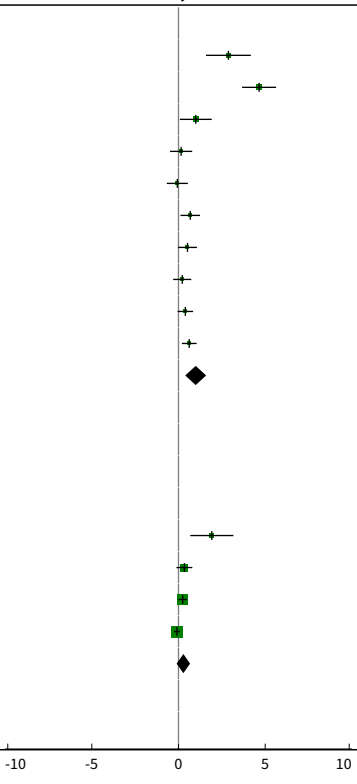
Study or subgroup	Physical activity N	Physical activity Mean(SD)	Control N	Control Mean(SD)	Std. Mean Difference Random, 95% CI	Weight	Std. Mean Difference Random, 95% CI
Subtotal ***	**547**		**273**			**100%**	**0.19[-0.05,0.43]**
Heterogeneity: Tau²=0.04; Chi²=9.41, df=5(P=0.09); I²=46.85%							
Test for overall effect: Z=1.56(P=0.12)							



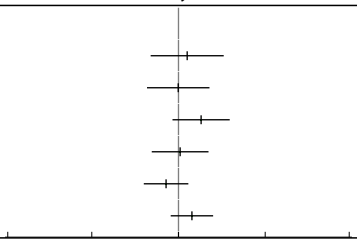
Analysis 14.2. Comparison 14 Subanalysis: outcomes by intensity of physical activity intervention, Outcome 2 Overall HRQoL (change values).

Study or subgroup	Physical activity N	Physical activity Mean(SD)	Control N	Control Mean(SD)	Std. Mean Difference Random, 95% CI	Weight	Std. Mean Difference Random, 95% CI
14.2.1 Light-to-moderate intensity							
Mustian 2004	11	15 (5)	10	0 (5)		7.58%	2.88[1.59,4.17]
Murtezani 2014	30	9.2 (2.1)	32	-0.6 (2)		8.88%	4.65[3.67,5.63]
Naumann 2012	11	14.5 (10.6)	10	3.1 (11.4)		9.14%	1[0.08,1.92]
Rogers 2009	20	4.5 (8.4)	18	2.9 (12)		10.28%	0.15[-0.49,0.79]
Cuesta-Vargas 2014	22	0.3 (0.2)	20	0.3 (0.1)		10.39%	-0.07[-0.67,0.54]
Courneya 2003	24	5.7 (7.4)	28	0.6 (7.4)		10.55%	0.68[0.12,1.24]
Ergun 2013	40	5.4 (21.5)	20	-6.7 (25.9)		10.6%	0.52[-0.03,1.06]
Mehnert 2011	30	9.7 (21)	27	5.6 (16.5)		10.68%	0.22[-0.31,0.74]
Schmitz 2005	39	2.3 (4.5)	40	0.6 (4)		10.92%	0.4[-0.05,0.84]
Daley 2007	33	10.2 (11.2)	69	3.2 (11.3)		10.98%	0.62[0.2,1.04]
Subtotal ***	**260**		**274**			**100%**	**0.99[0.39,1.6]**
Heterogeneity: Tau²=0.82; Chi²=87.64, df=9(P<0.0001); I²=89.73%							
Test for overall effect: Z=3.22(P=0)							
14.2.2 Moderate-to-high intensity							
Herrero 2006	8	17.7 (8.3)	8	-10.4 (17.7)		7.75%	1.92[0.68,3.17]
Cadmus 2009	37	0.6 (7.5)	37	-2.4 (9.8)		24.67%	0.34[-0.12,0.8]
Vallance 2007	250	2.3 (11.1)	85	-0.2 (6.4)		32.66%	0.24[-0,0.49]
Saarto 2012	263	4.2 (16.2)	237	5.6 (15.4)		34.92%	-0.09[-0.26,0.09]
Subtotal ***	**558**		**367**			**100%**	**0.28[-0.11,0.67]**
Heterogeneity: Tau²=0.1; Chi²=14.84, df=3(P=0); I²=79.79%							
Test for overall effect: Z=1.42(P=0.16)							



Analysis 14.3. Comparison 14 Subanalysis: outcomes by intensity of physical activity intervention, Outcome 3 Overall emotional function/mental health (follow-up values).

Study or subgroup	Physical activity N	Physical activity Mean(SD)	Control N	Control Mean(SD)	Std. Mean Difference Random, 95% CI	Weight	Std. Mean Difference Random, 95% CI
14.3.1 Light-to-moderate intensity							
Banasik 2011	7	0.5 (0.4)	7	0.4 (0.3)		1.04%	0.25[-0.8,1.3]
Mustian 2004	9	24.8 (2)	10	24.8 (3.2)		1.41%	-0.01[-0.91,0.89]
Pinto 2003	12	-10.8 (28.1)	12	-27.2 (19.5)		1.67%	0.65[-0.17,1.48]
Loudon 2014	12	-1.6 (0.7)	11	-1.6 (0.5)		1.7%	0.05[-0.77,0.87]
Rogers 2009	20	20 (3.1)	18	21.1 (2.9)		2.72%	-0.36[-1,0.28]
Cuesta-Vargas 2014	22	42.9 (19.2)	20	32.3 (33.3)		2.99%	0.39[-0.22,1]



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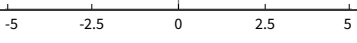
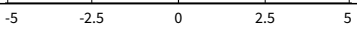
Study or subgroup	Physical activity N	Physical activity Mean(SD)	Control N	Control Mean(SD)	Std. Mean Difference Random, 95% CI	Weight	Std. Mean Difference Random, 95% CI
Basen-Enquist 2006	28	78.2 (10.6)	23	77.2 (12)		3.64%	0.09[-0.46,0.64]
Courneya 2003	24	21.5 (3.4)	28	20.7 (3)		3.7%	0.25[-0.3,0.79]
Milne 2008	29	19.6 (2.4)	29	16.7 (4.1)		3.81%	0.85[0.31,1.39]
Littman 2012	30	20.3 (4)	27	20.8 (3.1)		4.07%	-0.14[-0.66,0.38]
Mehnert 2011	30	77 (35.8)	28	69.1 (40.5)		4.13%	0.21[-0.31,0.72]
Cantarero-Villanueva 2013	32	-17175 (4279)	29	-20390 (6113)		4.16%	0.61[0.09,1.12]
Murtezani 2014	30	19.5 (3.3)	32	18.3 (3.5)		4.36%	0.35[-0.15,0.85]
Daley 2007	33	19.1 (4.2)	33	18.5 (3.3)		4.68%	0.16[-0.32,0.64]
Pinto 2015	39	54.2 (9.3)	37	52.5 (9.6)		5.33%	0.18[-0.27,0.63]
Schmitz 2005	39	-45.6 (8.2)	40	-48.2 (8.2)		5.49%	0.31[-0.13,0.76]
Pinto 2005	39	-8 (20.7)	43	-16.5 (28.8)		5.66%	0.33[-0.1,0.77]
Loh 2014	63	19.9 (2.8)	32	20 (3.2)		5.93%	-0.04[-0.46,0.39]
Fillion 2008	44	48.5 (7.9)	43	47.5 (9.1)		6.06%	0.12[-0.3,0.54]
Rogers 2015	105	20.6 (2.9)	108	19.7 (3.2)		13.19%	0.29[0.02,0.56]
Schmitz 2009	112	53.2 (9.6)	120	53.8 (8.7)		14.26%	-0.07[-0.32,0.19]
Subtotal ***	**759**		**730**			**100%**	**0.19[0.08,0.3]**
Heterogeneity: Tau²=0; Chi²=21.35, df=20(P=0.38); I²=6.34%							
Test for overall effect: Z=3.49(P=0)							
14.3.2 Moderate-to-high intensity							
Herrero 2006	8	90.6 (9.3)	8	83.3 (14.8)		9.14%	0.56[-0.45,1.56]
Do 2015	32	87.4 (8.8)	30	70.4 (21.5)		18.76%	1.03[0.5,1.57]
Cadmus 2009	37	20.5 (3)	37	19.8 (4.2)		21.04%	0.19[-0.27,0.65]
Duijits 2012	37	73.9 (34.7)	89	77.5 (34.3)		23.37%	-0.1[-0.49,0.28]
Vallance 2007	250	20.3 (3.3)	85	19.9 (3.4)		27.7%	0.11[-0.14,0.35]
Subtotal ***	**364**		**249**			**100%**	**0.29[-0.07,0.65]**
Heterogeneity: Tau²=0.11; Chi²=12.84, df=4(P=0.01); I²=68.84%							
Test for overall effect: Z=1.58(P=0.11)							



Analysis 14.4. Comparison 14 Subanalysis: outcomes by intensity of physical activity intervention, Outcome 4 Overall emotional function/mental health (change values).

Study or subgroup	Physical activity N	Physical activity Mean(SD)	Control N	Control Mean(SD)	Std. Mean Difference Random, 95% CI	Weight	Std. Mean Difference Random, 95% CI
14.4.1 Light-to-moderate intensity							
Mustian 2004	9	2.4 (2.5)	10	0.1 (1.7)		6.87%	1.06[0.08,2.03]
Naumann 2012	11	1 (2.7)	10	-0.1 (2.7)		7.67%	0.39[-0.48,1.26]
Rogers 2009	20	0.9 (2.5)	18	-0.1 (2.7)		9.51%	0.38[-0.27,1.02]
Murtezani 2014	30	2.1 (0.8)	32	0.5 (0.9)		9.92%	1.8[1.21,2.4]
Courneya 2003	24	2.3 (3.1)	28	0.8 (2.9)		10.29%	0.49[-0.06,1.05]
Mehnert 2011	30	2.3 (35.5)	28	3.6 (17.6)		10.63%	-0.04[-0.56,0.47]
Cantarero-Villanueva 2013	32	-1445 (4452)	29	353 (3323)		10.68%	-0.45[-0.96,0.06]
Schmitz 2005	39	2.5 (4.4)	40	0.3 (3.9)		11.19%	0.52[0.08,0.97]
Pinto 2005	39	-3.8 (27.7)	43	-11.5 (25.8)		11.31%	0.28[-0.15,0.72]
Schmitz 2009	58	3.3 (23.2)	62	3.1 (17.2)		11.93%	0.01[-0.35,0.37]
Subtotal ***	**292**		**300**			**100%**	**0.41[0.04,0.77]**
Heterogeneity: Tau²=0.26; Chi²=40.71, df=9(P<0.0001); I²=77.89%							



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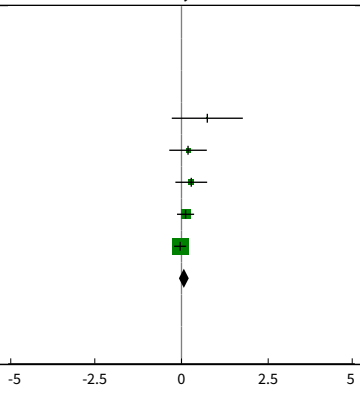
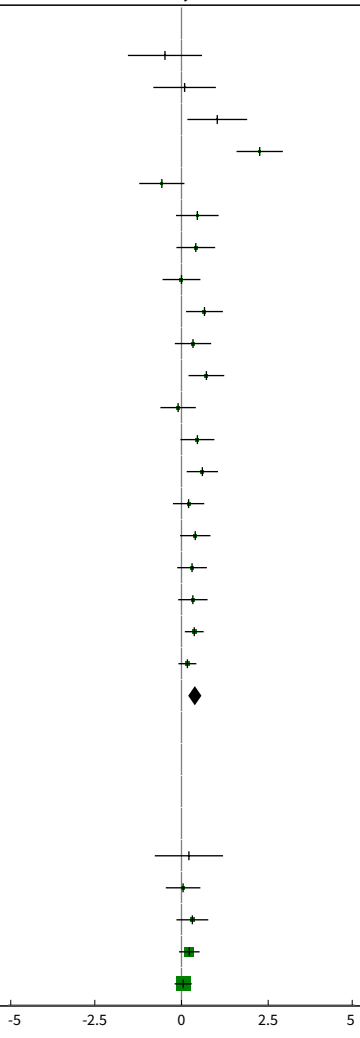
Study or subgroup	Physical activity N	Physical activity Mean(SD)	Control N	Control Mean(SD)	Std. Mean Difference Random, 95% CI	Weight	Std. Mean Difference Random, 95% CI
Test for overall effect: Z=2.18(P=0.03)							
14.4.2 Moderate-to-high intensity							
Herrero 2006	8	9.3 (19.6)	8	-2.1 (5.9)		1.91%	0.74[-0.28,1.77]
Cormie 2014	43	4.4 (9)	19	2.7 (8.6)		6.71%	0.19[-0.35,0.73]
Cadmus 2009	37	0.3 (2.2)	37	-0.5 (3.3)		9.27%	0.28[-0.18,0.74]
Vallance 2007	250	0.5 (3.5)	85	0.1 (2.5)		29.56%	0.12[-0.13,0.36]
Saarto 2012	263	1.2 (17.8)	237	1.9 (18.5)		52.54%	-0.04[-0.21,0.14]
Subtotal ***	**601**		**386**			**100%**	**0.07[-0.07,0.21]**
Heterogeneity: Tau^2=0; Chi^2=4.26, df=4(P=0.37); I^2=6.14%							
Test for overall effect: Z=0.93(P=0.35)							



Analysis 14.5. Comparison 14 Subanalysis: outcomes by intensity of physical activity intervention, Outcome 5 Overall physical function (follow-up values).

Study or subgroup	Physical activity N	Physical activity Mean(SD)	Control N	Control Mean(SD)	Std. Mean Difference Random, 95% CI	Weight	Std. Mean Difference Random, 95% CI
14.5.1 Light-to-moderate intensity							
Banasik 2011	7	-0.8 (0.9)	7	-0.4 (0.3)		2.3%	-0.48[-1.54,0.59]
Mustian 2004	9	26.9 (4.1)	10	26.5 (4.1)		2.91%	0.09[-0.81,0.99]
Pinto 2003	12	32.3 (4.3)	12	25.3 (8.2)		3.08%	1.03[0.17,1.89]
Milne 2008	29	24 (2.6)	29	15.6 (4.5)		4.12%	2.26[1.59,2.92]
Rogers 2009	20	23.3 (4.5)	18	25.4 (2.3)		4.22%	-0.57[-1.22,0.08]
Cuesta-Vargas 2014	22	42.9 (4.1)	20	32.4 (32.5)		4.46%	0.46[-0.16,1.07]
Basen-Enquist 2006	28	82.5 (12.7)	23	77.4 (11.5)		4.86%	0.41[-0.15,0.97]
Courneya 2003	24	25.3 (2.5)	28	25.3 (2.8)		4.95%	0[-0.55,0.55]
Mehnert 2011	30	89 (9.1)	28	78.1 (21.2)		5.06%	0.66[0.13,1.19]
Littman 2012	30	25.4 (1.7)	27	24.3 (4.4)		5.11%	0.33[-0.19,0.86]
Murtezani 2014	30	22.6 (4.4)	32	19.4 (4.4)		5.17%	0.72[0.2,1.23]
Winters-Stone 2011	36	51.7 (6.2)	25	52.3 (5.9)		5.21%	-0.1[-0.61,0.41]
Daley 2007	33	25.6 (2.2)	33	23.6 (5.7)		5.37%	0.46[-0.03,0.95]
Schmitz 2005	39	-44.2 (5.6)	40	-48.3 (7.7)		5.67%	0.6[0.15,1.05]
Pinto 2015	39	87.1 (4.4)	37	84.7 (15.9)		5.67%	0.21[-0.25,0.66]
Pinto 2005	39	30.3 (7.9)	43	27.3 (6.8)		5.78%	0.4[-0.04,0.83]
Loh 2014	63	24.9 (2.5)	32	24.2 (2.2)		5.86%	0.3[-0.12,0.73]
Fillion 2008	44	45.1 (10.4)	43	41.8 (9.8)		5.89%	0.33[-0.1,0.75]
Rogers 2015	105	24.1 (3.5)	108	22.5 (5)		7.11%	0.37[0.1,0.64]
Schmitz 2009	112	50.6 (8.2)	120	49.1 (9.3)		7.21%	0.17[-0.09,0.43]
Subtotal ***	**751**		**715**			**100%**	**0.38[0.19,0.58]**
Heterogeneity: Tau^2=0.11; Chi^2=55.68, df=19(P<0.0001); I^2=65.88%							
Test for overall effect: Z=3.95(P<0.0001)							
14.5.2 Moderate-to-high intensity							
Herrero 2006	8	94.1 (7.5)	8	92.5 (6.6)		2.74%	0.21[-0.77,1.2]
Do 2015	32	89.4 (8.4)	30	89 (8.7)		10.69%	0.05[-0.45,0.54]
Cadmus 2009	37	25.1 (2.7)	37	24 (4.1)		12.61%	0.31[-0.15,0.77]
Duijits 2012	87	84 (16.9)	89	80.2 (17.1)		30.18%	0.23[-0.07,0.52]
Vallance 2007	250	25.1 (3)	85	25 (3.3)		43.78%	0.05[-0.2,0.3]



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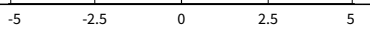
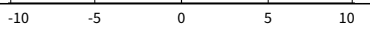
Study or subgroup	Physical activity N	Physical activity Mean(SD)	Control N	Control Mean(SD)	Std. Mean Difference Random, 95% CI	Weight	Std. Mean Difference Random, 95% CI
Subtotal ***	**414**		**249**			**100%**	**0.14[-0.02,0.3]**
Heterogeneity: Tau²=0; Chi²=1.55, df=4(P=0.82); I²=0%							
Test for overall effect: Z=1.69(P=0.09)							



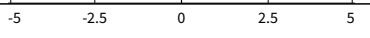
Analysis 14.6. Comparison 14 Subanalysis: outcomes by intensity of physical activity intervention, Outcome 6 Overall physical function (change values).

Study or subgroup	Physical activity N	Physical activity Mean(SD)	Control N	Control Mean(SD)	Std. Mean Difference Random, 95% CI	Weight	Std. Mean Difference Random, 95% CI
14.6.1 Light-to-moderate intensity							
Mustian 2004	9	1.9 (2.6)	10	-0.2 (1.6)		11.18%	0.93[-0.03,1.89]
Murtezani 2014	30	4.4 (1.5)	32	-1.3 (1.2)		11.4%	4.23[3.31,5.15]
Naumann 2012	11	1.9 (3.3)	10	0.8 (3.4)		11.65%	0.32[-0.55,1.18]
Rogers 2009	20	2.3 (5.1)	18	2.6 (6)		12.67%	-0.05[-0.69,0.58]
Courneya 2003	24	1.9 (2)	28	-0.2 (2.2)		12.91%	0.98[0.4,1.56]
Mehnert 2011	30	4 (10.8)	28	-2.1 (16.7)		13.13%	0.43[-0.09,0.95]
Schmitz 2005	39	1.2 (4.2)	40	1.5 (6.8)		13.4%	-0.05[-0.49,0.39]
Schmitz 2009	58	6.6 (17.1)	62	4.1 (17.3)		13.65%	0.14[-0.21,0.5]
Subtotal ***	**221**		**228**			**100%**	**0.81[0.11,1.51]**
Heterogeneity: Tau²=0.9; Chi²=79.79, df=7(P<0.0001); I²=91.23%							
Test for overall effect: Z=2.27(P=0.02)							
14.6.2 Moderate-to-high intensity							
Herrero 2006	8	6.7 (5)	8	-1.7 (6.9)		7.27%	1.32[0.21,2.43]
Cormie 2014	43	3.5 (5.2)	19	-0.5 (5.7)		17.09%	0.74[0.19,1.3]
Cadmus 2009	37	0.1 (6)	37	-0.5 (7.4)		20.07%	0.09[-0.37,0.54]
Vallance 2007	247	1 (3.3)	85	0.2 (2.1)		26.79%	0.26[0.02,0.51]
Saarto 2012	263	1.9 (13.7)	237	3.4 (13.4)		28.78%	-0.11[-0.29,0.06]
Subtotal ***	**598**		**386**			**100%**	**0.28[-0.06,0.62]**
Heterogeneity: Tau²=0.1; Chi²=16.88, df=4(P=0); I²=76.3%							
Test for overall effect: Z=1.6(P=0.11)							



Analysis 14.7. Comparison 14 Subanalysis: outcomes by intensity of physical activity intervention, Outcome 7 Overall role function (follow-up values).

Study or subgroup	Physical activity N	Physical activity Mean(SD)	Control N	Control Mean(SD)	Std. Mean Difference Random, 95% CI	Weight	Std. Mean Difference Random, 95% CI
14.7.1 Light-to-moderate intensity							
Banasik 2011	7	3.5 (0.6)	7	3.2 (0.6)		4.16%	0.34[-0.72,1.4]
Mustian 2004	9	2.4 (1.5)	9	2.8 (1.5)		4.84%	-0.23[-1.15,0.7]
Loudon 2014	12	-1.3 (0.3)	11	-1.3 (0.4)		5.5%	0[-0.82,0.82]
Milne 2008	29	22.2 (3)	29	12.5 (4.8)		6.43%	2.39[1.71,3.08]
Rogers 2009	20	21.4 (4.8)	18	23.8 (3.2)		6.68%	-0.57[-1.22,0.08]
Basen-Enquist 2006	28	86.1 (22.2)	23	73 (24.5)		7.36%	0.55[-0.01,1.12]
Courneya 2003	24	23.4 (4)	28	23.1 (4)		7.5%	0.07[-0.47,0.62]



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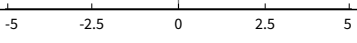
Study or subgroup	Physical activity N	Physical activity Mean(SD)	Control N	Control Mean(SD)	Std. Mean Difference Random, 95% CI	Weight	Std. Mean Difference Random, 95% CI
Mehnert 2011	30	90 (20.3)	27	79.6 (25)		7.65%	0.45[-0.07,0.98]
Littman 2012	30	22.6 (3.9)	27	21.7 (4.7)		7.7%	0.21[-0.31,0.73]
Murtezani 2014	30	24.2 (2.8)	32	23 (2.5)		7.83%	0.45[-0.06,0.95]
Daley 2007	33	22.9 (4.5)	33	20.3 (5.6)		7.94%	0.5[0.01,0.99]
Schmitz 2005	39	-49.2 (6.5)	40	-50 (6.2)		8.34%	0.12[-0.32,0.57]
Loh 2014	63	23.4 (4.3)	32	22.2 (5)		8.45%	0.25[-0.18,0.68]
Rogers 2015	105	22.3 (4.5)	108	20.3 (5.5)		9.6%	0.4[0.12,0.67]
Subtotal ***	**459**		**424**			**100%**	**0.36[0.08,0.64]**
Heterogeneity: Tau²=0.19; Chi²=47.79, df=13(P<0.0001); I²=72.8%							
Test for overall effect: Z=2.55(P=0.01)							
14.7.2 Moderate-to-high intensity							
Herrero 2006	8	97.6 (5.9)	8	100 (0)		5.45%	-0.54[-1.55,0.46]
Do 2015	32	78.1 (19.5)	30	79.2 (14.6)		19.43%	-0.06[-0.56,0.44]
Cadmus 2009	37	23.1 (4.7)	37	20.6 (7.2)		22.12%	0.41[-0.05,0.87]
Vallance 2007	250	23.2 (4)	85	22.7 (4.6)		53%	0.12[-0.13,0.37]
Subtotal ***	**327**		**160**			**100%**	**0.11[-0.13,0.35]**
Heterogeneity: Tau²=0.01; Chi²=3.69, df=3(P=0.3); I²=18.64%							
Test for overall effect: Z=0.92(P=0.36)							



Analysis 14.8. Comparison 14 Subanalysis: outcomes by intensity of physical activity intervention, Outcome 8 Overall role function (change values).

Study or subgroup	Physical activity N	Physical activity Mean(SD)	Control N	Control Mean(SD)	Std. Mean Difference Random, 95% CI	Weight	Std. Mean Difference Random, 95% CI
14.8.1 Light-to-moderate intensity							
Mustian 2004	9	0.6 (1.6)	10	0.8 (1.6)		9.96%	-0.15[-1.05,0.76]
Naumann 2012	11	1.5 (4.4)	10	0.5 (4.5)		10.52%	0.22[-0.64,1.08]
Rogers 2009	20	0.4 (3.3)	18	1.4 (4.3)		13.98%	-0.26[-0.9,0.38]
Courneya 2003	24	0.9 (2.8)	28	0.4 (2.7)		15.71%	0.18[-0.37,0.73]
Murtezani 2014	30	1.7 (0.7)	32	0.9 (0.6)		15.82%	1.16[0.62,1.7]
Mehnert 2011	30	6.7 (23.8)	27	5.6 (27)		16.23%	0.04[-0.48,0.56]
Schmitz 2005	39	1.2 (4.2)	40	1.5 (6.8)		17.79%	-0.05[-0.49,0.39]
Subtotal ***	**163**		**165**			**100%**	**0.18[-0.19,0.56]**
Heterogeneity: Tau²=0.15; Chi²=16.15, df=6(P=0.01); I²=62.85%							
Test for overall effect: Z=0.95(P=0.34)							
14.8.2 Moderate-to-high intensity							
Herrero 2006	8	2.1 (13.9)	8	2.1 (5.9)		2.34%	0[-0.98,0.98]
Cormie 2014	43	4.9 (7.1)	19	1.7 (7.1)		7.28%	0.45[-0.1,0.99]
Cadmus 2009	37	-0.3 (3.7)	37	-0.5 (3.4)		10.24%	0.06[-0.4,0.51]
Vallance 2007	250	0.6 (4.1)	85	-0 (2.7)		30.18%	0.17[-0.08,0.41]
Saarto 2012	263	2.4 (21.5)	237	3.8 (21.6)		49.97%	-0.06[-0.24,0.11]
Subtotal ***	**601**		**386**			**100%**	**0.06[-0.09,0.21]**
Heterogeneity: Tau²=0; Chi²=4.51, df=4(P=0.34); I²=11.35%							
Test for overall effect: Z=0.73(P=0.47)							

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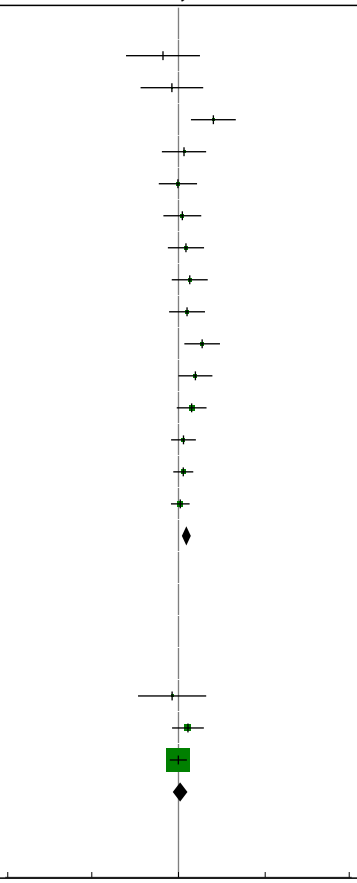
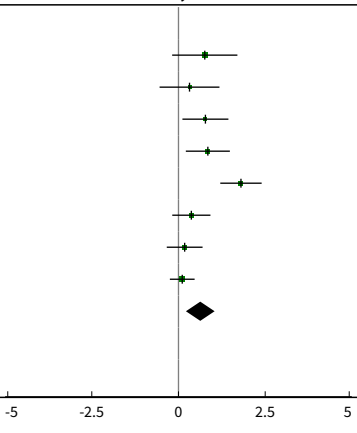
Analysis 14.9. Comparison 14 Subanalysis: outcomes by intensity of physical activity intervention, Outcome 9 Overall social well-being/function (follow-up values).

Study or subgroup	Physical activity N	Physical activity Mean(SD)	Control N	Control Mean(SD)	Std. Mean Difference Random, 95% CI	Weight	Std. Mean Difference Random, 95% CI
14.9.1 Light-to-moderate intensity							
Banasik 2011	7	2.8 (0.7)	7	3.2 (0.8)		1.43%	-0.45[-1.51,0.62]
Mustian 2004	9	8.6 (1.9)	10	9 (1.8)		1.98%	-0.19[-1.09,0.71]
Rogers 2014	20	7.3 (4.9)	22	3.1 (3.2)		3.74%	1.01[0.36,1.65]
Rogers 2009	20	22.6 (4.1)	18	21.8 (5.7)		3.83%	0.16[-0.48,0.8]
Basen-Enquist 2006	28	84.6 (16.9)	23	84.9 (19.2)		5.01%	-0.02[-0.57,0.54]
Courneya 2003	24	21.1 (3.5)	28	20.7 (3.6)		5.11%	0.11[-0.43,0.66]
Littman 2012	30	22.1 (5)	27	20.9 (6)		5.55%	0.22[-0.31,0.74]
Milne 2008	29	20.7 (4)	29	19.4 (3.9)		5.61%	0.32[-0.19,0.84]
Mehnert 2011	30	85.4 (20.9)	28	79.9 (22.7)		5.64%	0.25[-0.27,0.76]
Murtezani 2014	30	20.2 (2.8)	32	18.3 (2.7)		5.71%	0.68[0.17,1.2]
Daley 2007	33	23.3 (4.8)	33	20.4 (6.8)		6.21%	0.49[-0,0.98]
Loh 2014	63	21.5 (4.9)	32	19.6 (4.9)		7.85%	0.38[-0.05,0.81]
Schmitz 2009	59	14.9 (5.2)	62	14.1 (5.8)		10.71%	0.14[-0.21,0.5]
Kiecolt-Glaser 2014	96	95.2 (10.8)	90	93.8 (9.3)		15%	0.14[-0.15,0.43]
Rogers 2015	105	21 (5.7)	108	20.7 (5.8)		16.6%	0.05[-0.22,0.32]
Subtotal ***	**583**		**549**			**100%**	**0.23[0.1,0.36]**
Heterogeneity: Tau^2=0.01; Chi^2=15.82, df=14(P=0.32); I^2=11.5%							
Test for overall effect: Z=3.44(P=0)							
14.9.2 Moderate-to-high intensity							
Herrero 2006	8	87.5 (19.4)	8	91.7 (23.6)		4.64%	-0.18[-1.17,0.8]
Cadmus 2009	37	22.3 (4.9)	37	20.6 (7.2)		21.37%	0.27[-0.18,0.73]
Vallance 2007	250	22.9 (5)	85	23 (5.1)		73.99%	-0[-0.25,0.24]
Subtotal ***	**295**		**130**			**100%**	**0.05[-0.16,0.26]**
Heterogeneity: Tau^2=0; Chi^2=1.31, df=2(P=0.52); I^2=0%							
Test for overall effect: Z=0.43(P=0.66)							



Analysis 14.10. Comparison 14 Subanalysis: outcomes by intensity of physical activity intervention, Outcome 10 Overall social well-being/function (change values).

Study or subgroup	Physical activity N	Physical activity Mean(SD)	Control N	Control Mean(SD)	Std. Mean Difference Random, 95% CI	Weight	Std. Mean Difference Random, 95% CI
14.10.1 Light-to-moderate intensity							
Mustian 2004	9	1.5 (1.5)	10	0.4 (1.2)		9.26%	0.76[-0.18,1.7]
Naumann 2012	11	0.9 (3.3)	10	-0.2 (3.3)		10.01%	0.32[-0.54,1.18]
Rogers 2009	20	0.9 (2.6)	18	-1.2 (2.7)		12.19%	0.78[0.11,1.44]
Rogers 2014	20	2.1 (3.2)	22	-0.8 (3.5)		12.51%	0.85[0.21,1.48]
Murtezani 2014	30	2.1 (0.8)	32	0.5 (0.9)		12.96%	1.8[1.21,2.4]
Courneya 2003	24	0.6 (2.4)	28	-0.5 (3.3)		13.5%	0.37[-0.18,0.92]
Mehnert 2011	30	7.3 (22.3)	28	3.1 (24.3)		13.9%	0.18[-0.34,0.69]
Schmitz 2009	59	4.4 (33.8)	62	0.7 (34)		15.67%	0.11[-0.25,0.47]
Subtotal ***	**203**		**210**			**100%**	**0.63[0.21,1.04]**
Heterogeneity: Tau^2=0.25; Chi^2=26.88, df=7(P=0); I^2=73.95%							
Test for overall effect: Z=2.97(P=0)							



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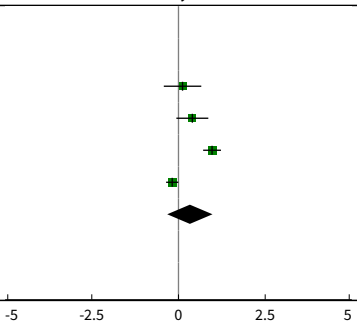
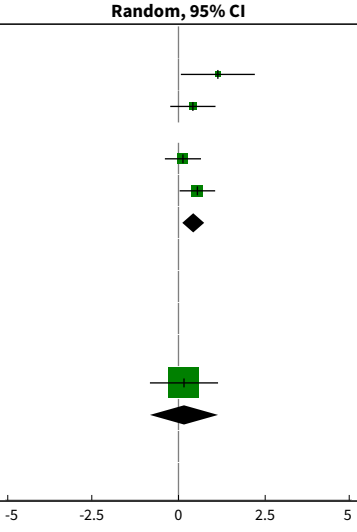
Study or subgroup	Physical activity N	Physical activity Mean(SD)	Control N	Control Mean(SD)	Std. Mean Difference Random, 95% CI	Weight	Std. Mean Difference Random, 95% CI
14.10.2 Moderate-to-high intensity							
Cormie 2014	43	3.5 (8.5)	19	2.5 (8.3)		23%	0.12[-0.42,0.66]
Cadmus 2009	37	0.6 (4.6)	37	-1 (3.2)		24.04%	0.4[-0.06,0.86]
Vallance 2007	250	0.2 (4.8)	85	-4.1 (3.3)		26.19%	0.97[0.71,1.23]
Saarto 2012	263	5 (21.1)	237	8.8 (20.8)		26.77%	-0.18[-0.36,-0.01]
Subtotal ***	**593**		**378**			**100%**	**0.33[-0.33,0.98]**
Heterogeneity: Tau²=0.41; Chi²=53.19, df=3(P<0.0001); I²=94.36%							
Test for overall effect: Z=0.98(P=0.32)							



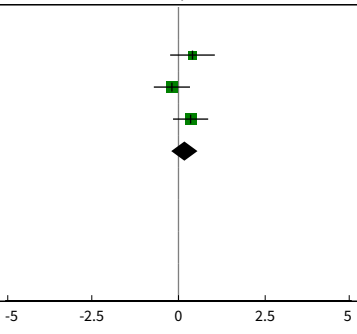
Analysis 14.11. Comparison 14 Subanalysis: outcomes by intensity of physical activity intervention, Outcome 11 Overall cognitive function (follow-up values).

Study or subgroup	Physical activity N	Physical activity Mean(SD)	Control N	Control Mean(SD)	Std. Mean Difference Random, 95% CI	Weight	Std. Mean Difference Random, 95% CI
14.11.1 Light-to-moderate intensity							
Pinto 2003	12	-4.3 (2.5)	6	-7.2 (2.1)		8.61%	1.14[0.07,2.2]
Rogers 2009	19	-124.5 (30.8)	18	-135.5 (19.5)		22.28%	0.42[-0.24,1.07]
Mehnert 2011	30	81.1 (16.8)	27	78.4 (24.4)		34.05%	0.13[-0.39,0.65]
Cantarero-Villanueva 2013	32	-37.9 (8.5)	29	-43 (10)		35.06%	0.55[0.03,1.06]
Subtotal ***	**93**		**80**			**100%**	**0.43[0.11,0.74]**
Heterogeneity: Tau²=0.01; Chi²=3.16, df=3(P=0.37); I²=5.18%							
Test for overall effect: Z=2.64(P=0.01)							
14.11.2 Moderate-to-high intensity							
Herrero 2006	8	91.7 (12.6)	8	89.6 (12.4)		100%	0.16[-0.82,1.14]
Subtotal ***	**8**		**8**			**100%**	**0.16[-0.82,1.14]**
Heterogeneity: Not applicable							
Test for overall effect: Z=0.32(P=0.75)							



Analysis 14.12. Comparison 14 Subanalysis: outcomes by intensity of physical activity intervention, Outcome 12 Overall cognitive function (change values).

Study or subgroup	Physical activity N	Physical activity Mean(SD)	Control N	Control Mean(SD)	Std. Mean Difference Random, 95% CI	Weight	Std. Mean Difference Random, 95% CI
14.12.1 Light-to-moderate intensity							
Rogers 2009	20	4.2 (16.8)	18	-4.7 (25.9)		26.49%	0.4[-0.24,1.05]
Mehnert 2011	30	1.7 (22.4)	27	6.2 (24.6)		36.05%	-0.19[-0.71,0.33]
Cantarero-Villanueva 2013	32	2.2 (7.6)	29	-0.2 (5.5)		37.46%	0.35[-0.16,0.86]
Subtotal ***	**82**		**74**			**100%**	**0.17[-0.21,0.55]**
Heterogeneity: Tau²=0.03; Chi²=2.82, df=2(P=0.24); I²=29.01%							
Test for overall effect: Z=0.88(P=0.38)							
14.12.2 Moderate-to-high intensity							



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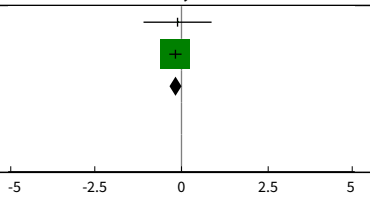
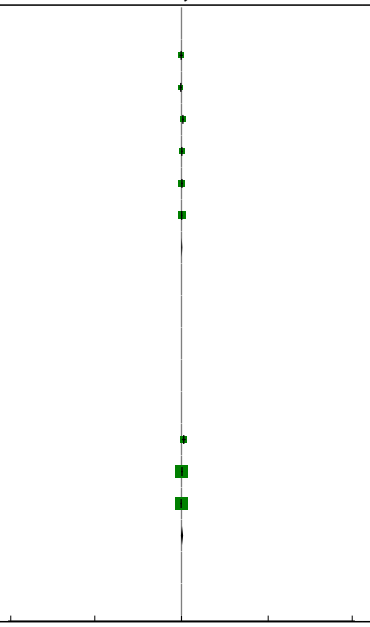
Study or subgroup	Physical activity N	Physical activity Mean(SD)	Control N	Control Mean(SD)	Std. Mean Difference Random, 95% CI	Weight	Std. Mean Difference Random, 95% CI
Herrero 2006	8	6.2 (19.8)	8	8.3 (14.8)		3.11%	-0.11[-1.09,0.87]
Saarto 2012	263	-1 (18.2)	237	2.2 (18.5)		96.89%	-0.17[-0.35,0]
Subtotal ***	**271**		**245**			**100%**	**-0.17[-0.35,0]**
Heterogeneity: Tau²=0; Chi²=0.01, df=1(P=0.9); I²=0%							
Test for overall effect: Z=1.95(P=0.05)							



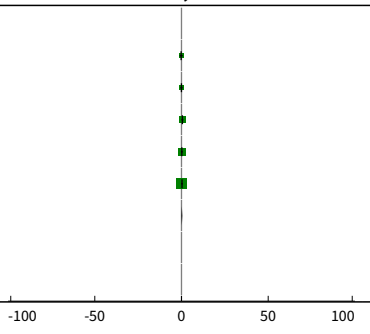
Analysis 14.13. Comparison 14 Subanalysis: outcomes by intensity of physical activity intervention, Outcome 13 Overall general health (follow-up values).

Study or subgroup	Physical activity N	Physical activity Mean(SD)	Control N	Control Mean(SD)	Std. Mean Difference Random, 95% CI	Weight	Std. Mean Difference Random, 95% CI
14.13.1 Light-to-moderate intensity							
Mustian 2004	9	18.6 (4.8)	9	19.3 (1.9)		8.72%	-0.18[-1.11,0.74]
Rogers 2009	20	3.5 (0.9)	18	3.8 (0.5)		14.72%	-0.4[-1.04,0.25]
Basen-Enquist 2006	28	77.4 (11.6)	23	67.1 (13.4)		16.9%	0.81[0.24,1.39]
Ergun 2013	40	71.6 (19.9)	20	67.9 (16.7)		18.26%	0.19[-0.35,0.73]
Mehnert 2011	30	74.4 (11.8)	28	70 (20.8)		19.06%	0.26[-0.26,0.77]
Schmitz 2005	39	53.8 (5.3)	40	53.2 (6)		22.32%	0.1[-0.34,0.55]
Subtotal ***	**166**		**138**			**100%**	**0.17[-0.14,0.48]**
Heterogeneity: Tau²=0.06; Chi²=8.53, df=5(P=0.13); I²=41.37%							
Test for overall effect: Z=1.08(P=0.28)							
14.13.2 Moderate-to-high intensity							
Baruth 2013	20	68.1 (0)	12	61.6 (0)			Not estimable
Herrero 2006	8	81.3 (10.7)	8	62.5 (16.1)		20.53%	1.3[0.19,2.41]
Do 2015	32	87.3 (13.7)	30	82.4 (19.9)		38.95%	0.28[-0.22,0.79]
Cadmus 2009	37	50 (8.8)	37	51.7 (8.4)		40.52%	-0.2[-0.65,0.26]
Subtotal ***	**97**		**87**			**100%**	**0.3[-0.35,0.95]**
Heterogeneity: Tau²=0.22; Chi²=6.6, df=2(P=0.04); I²=69.68%							
Test for overall effect: Z=0.9(P=0.37)							



Analysis 14.14. Comparison 14 Subanalysis: outcomes by intensity of physical activity intervention, Outcome 14 Overall general health (change values).

Study or subgroup	Physical activity N	Physical activity Mean(SD)	Control N	Control Mean(SD)	Std. Mean Difference Random, 95% CI	Weight	Std. Mean Difference Random, 95% CI
14.14.1 Light-to-moderate intensity							
Mustian 2004	9	0.2 (1.9)	10	0.7 (2.5)		7.71%	-0.2[-1.1,0.71]
Rogers 2009	20	0.2 (0.6)	18	0.2 (0.7)		15.52%	-0.03[-0.67,0.61]
Ergun 2013	40	5.4 (21.5)	20	-6.7 (25.9)		21.17%	0.52[-0.03,1.06]
Mehnert 2011	30	6.6 (13.7)	28	3.2 (19.7)		23.61%	0.2[-0.32,0.71]
Schmitz 2005	39	0.7 (4.8)	40	-0.6 (3.9)		31.99%	0.29[-0.15,0.74]
Subtotal ***	**138**		**116**			**100%**	**0.23[-0.02,0.48]**
Heterogeneity: Tau²=0; Chi²=2.67, df=4(P=0.61); I²=0%							
Test for overall effect: Z=1.8(P=0.07)							



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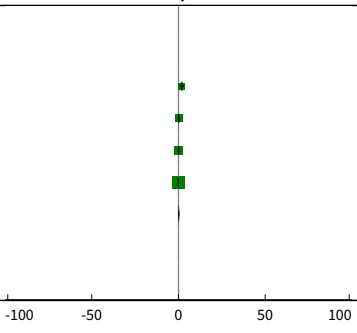
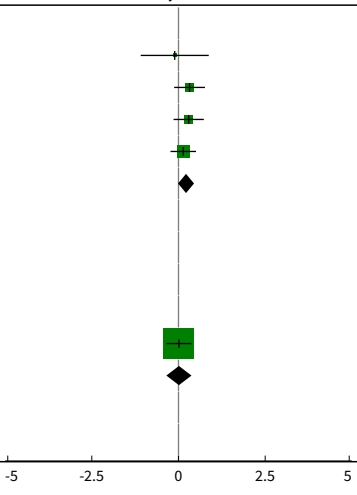
Study or subgroup	Physical activity N	Physical activity Mean(SD)	Control N	Control Mean(SD)	Std. Mean Difference Random, 95% CI	Weight	Std. Mean Difference Random, 95% CI
14.14.2 Moderate-to-high intensity							
Herrero 2006	8	17.7 (8.3)	8	-10.4 (17.7)		9.57%	1.92[0.68,3.17]
Cormie 2014	43	3.7 (7)	19	2.8 (7.1)		24.96%	0.13[-0.41,0.67]
Cadmus 2009	37	0.2 (4.4)	37	-0.1 (5.1)		27.98%	0.06[-0.39,0.52]
Saarto 2012	263	4.2 (16.2)	237	5.6 (15.4)		37.49%	-0.09[-0.26,0.09]
Subtotal ***	**351**		**301**			**100%**	**0.2[-0.24,0.64]**
Heterogeneity: Tau²=0.13; Chi²=10.34, df=3(P=0.02); I²=70.99%							
Test for overall effect: Z=0.89(P=0.38)							



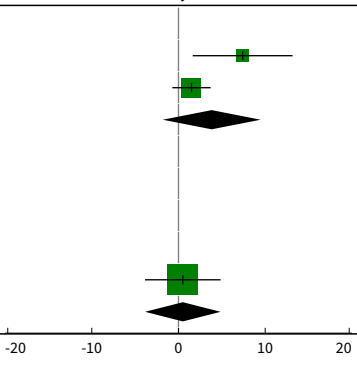
Analysis 14.15. Comparison 14 Subanalysis: outcomes by intensity of physical activity intervention, Outcome 15 Overall sexual function (follow-up values).

Study or subgroup	Physical activity N	Physical activity Mean(SD)	Control N	Control Mean(SD)	Std. Mean Difference Fixed, 95% CI	Weight	Std. Mean Difference Fixed, 95% CI
14.15.1 Light-to-moderate intensity							
Pinto 2005	12	42.8 (9.2)	6	43.7 (6.1)		5.54%	-0.11[-1.09,0.87]
Schmitz 2005	39	-51 (7.5)	40	-53.5 (8)		27.01%	0.32[-0.12,0.76]
Pinto 2003	39	42.5 (9.2)	43	40.1 (6.3)		28.03%	0.29[-0.14,0.73]
Schmitz 2009	57	-27.3 (5.3)	57	-28.1 (6.2)		39.41%	0.14[-0.23,0.51]
Subtotal ***	**147**		**146**			**100%**	**0.22[-0.01,0.45]**
Heterogeneity: Tau²=0; Chi²=0.93, df=3(P=0.82); I²=0%							
Test for overall effect: Z=1.84(P=0.07)							
14.15.2 Moderate-to-high intensity							
Duijits 2012	53	0.6 (0.8)	65	0.6 (0.8)		100%	0.01[-0.35,0.38]
Subtotal ***	**53**		**65**			**100%**	**0.01[-0.35,0.38]**
Heterogeneity: Not applicable							
Test for overall effect: Z=0.07(P=0.95)							



Analysis 14.16. Comparison 14 Subanalysis: outcomes by intensity of physical activity intervention, Outcome 16 Overall sexual function (change values).

Study or subgroup	Physical activity N	Physical activity Mean(SD)	Control N	Control Mean(SD)	Mean Difference Random, 95% CI	Weight	Mean Difference Random, 95% CI
14.16.1 Light-to-moderate intensity							
Schmitz 2009	57	7.2 (14.6)	57	-0.2 (16.7)		39.42%	7.4[1.64,13.16]
Schmitz 2005	39	1.7 (4.8)	40	0.2 (5.2)		60.58%	1.5[-0.71,3.71]
Subtotal ***	**96**		**97**			**100%**	**3.83[-1.83,9.48]**
Heterogeneity: Tau²=12.46; Chi²=3.52, df=1(P=0.06); I²=71.56%							
Test for overall effect: Z=1.33(P=0.18)							
14.16.2 Moderate-to-high intensity							
Saarto 2012	263	4.3 (25.4)	237	3.8 (24.4)		100%	0.5[-3.86,4.86]
Subtotal ***	**263**		**237**			**100%**	**0.5[-3.86,4.86]**



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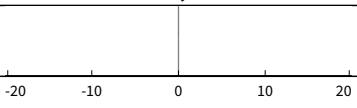
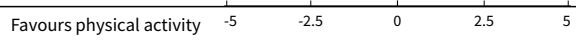
Study or subgroup	Physical activity N	Physical activity Mean(SD)	Control N	Control Mean(SD)	Mean Difference Random, 95% CI	Weight	Mean Difference Random, 95% CI
Heterogeneity: Not applicable							
Test for overall effect: Z=0.22(P=0.82)							



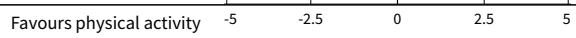
Analysis 14.17. Comparison 14 Subanalysis: outcomes by intensity of physical activity intervention, Outcome 17 Overall anxiety (follow-up values).

Study or subgroup	Physical activity N	Physical activity Mean(SD)	Control N	Control Mean(SD)	Std. Mean Difference Random, 95% CI	Weight	Std. Mean Difference Random, 95% CI
14.17.1 Light-to-moderate intensity							
Pinto 2003	12	7.6 (7.3)	6	10.5 (3.7)		8.79%	-0.43[-1.43,0.56]
Rogers 2014	20	45.6 (8.9)	22	45.7 (8)		19.71%	-0.01[-0.62,0.59]
Milne 2008	29	15.3 (6.2)	29	21 (5.7)		22.93%	-0.94[-1.49,-0.4]
Mehnert 2011	30	4.8 (3.5)	28	7.1 (5)		24.12%	-0.54[-1.06,-0.01]
Cantarero-Villanueva 2013	32	42.5 (8.6)	29	49.9 (11.7)		24.45%	-0.72[-1.24,-0.2]
Subtotal ***	**123**		**114**			**100%**	**-0.56[-0.88,-0.25]**
Heterogeneity: Tau²=0.03; Chi²=5.48, df=4(P=0.24); I²=27.05%							
Test for overall effect: Z=3.51(P=0)							
14.17.2 Moderate-to-high intensity							
Segar 1998	10	28.5 (3)	5	39.5 (6)		45.23%	-2.49[-3.98,-1]
Cadmus 2009	37	32.1 (12.3)	37	34.1 (15.4)		54.77%	-0.14[-0.6,0.31]
Subtotal ***	**47**		**42**			**100%**	**-1.2[-3.49,1.09]**
Heterogeneity: Tau²=2.44; Chi²=8.68, df=1(P=0); I²=88.48%							
Test for overall effect: Z=1.03(P=0.3)							



Analysis 14.18. Comparison 14 Subanalysis: outcomes by intensity of physical activity intervention, Outcome 18 Overall anxiety (change values).

Study or subgroup	Physical activity N	Physical activity Mean(SD)	Control N	Control Mean(SD)	Std. Mean Difference Fixed, 95% CI	Weight	Std. Mean Difference Fixed, 95% CI
14.18.1 Light-to-moderate intensity							
Rogers 2014	20	-4 (6.5)	22	-1.8 (5)		26.41%	-0.37[-0.99,0.24]
Mehnert 2011	30	-1.7 (3.7)	28	0.2 (4.9)		36.34%	-0.42[-0.95,0.1]
Cantarero-Villanueva 2013	32	-4.2 (9.8)	29	0.8 (5.5)		37.26%	-0.61[-1.12,-0.09]
Subtotal ***	**82**		**79**			**100%**	**-0.48[-0.79,-0.16]**
Heterogeneity: Tau²=0; Chi²=0.39, df=2(P=0.82); I²=0%							
Test for overall effect: Z=2.99(P=0)							
14.18.2 Moderate-to-high intensity							
Cadmus 2009	37	-0.7 (9.2)	37	0.5 (5.8)		100%	-0.15[-0.61,0.3]
Subtotal ***	**37**		**37**			**100%**	**-0.15[-0.61,0.3]**
Heterogeneity: Not applicable							
Test for overall effect: Z=0.66(P=0.51)							



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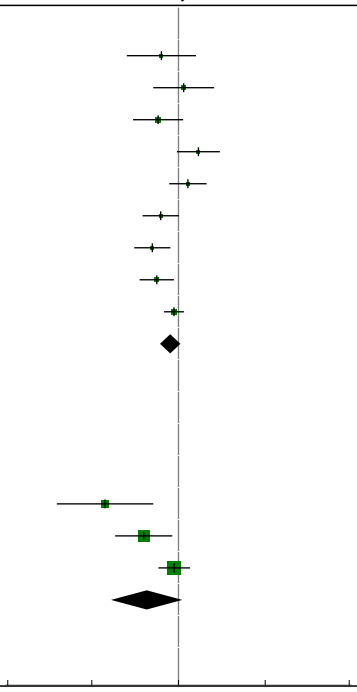
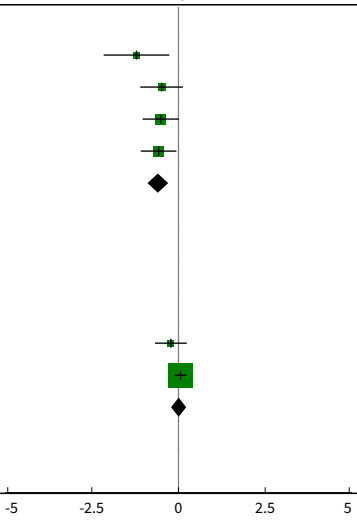
Analysis 14.19. Comparison 14 Subanalysis: outcomes by intensity of physical activity intervention, Outcome 19 Overall depression (follow-up values).

Study or subgroup	Physical activity N	Physical activity Mean(SD)	Control N	Control Mean(SD)	Std. Mean Difference Random, 95% CI	Weight	Std. Mean Difference Random, 95% CI
14.19.1 Light-to-moderate intensity							
Pinto 2003	12	6.2 (7.2)	6	9.8 (6.8)		6.1%	-0.49[-1.49,0.5]
Payne 2008	10	12.7 (8.7)	10	11.4 (7.9)		7.24%	0.15[-0.73,1.03]
Bower 2011	16	7.7 (5.8)	15	11.6 (7.1)		9.15%	-0.59[-1.31,0.13]
Rogers 2014	20	44.2 (8.6)	22	25.1 (44.2)		10.7%	0.58[-0.04,1.19]
Ergun 2013	40	6.9 (6.8)	20	5.2 (5.2)		12.09%	0.27[-0.27,0.81]
Mehnert 2011	30	2.7 (3)	28	4.6 (4.4)		12.37%	-0.51[-1.04,0.01]
Cantarero-Villanueva 2013	32	45.6 (9.7)	29	53.7 (11.6)		12.42%	-0.75[-1.28,-0.23]
Daley 2007	33	6 (6.5)	33	10.3 (7.2)		12.91%	-0.63[-1.12,-0.13]
Kiecolt-Glaser 2014	96	8.1 (8.6)	90	9.2 (8.2)		17.02%	-0.13[-0.42,0.16]
Subtotal ***	**289**		**253**			**100%**	**-0.24[-0.53,0.06]**
Heterogeneity: Tau²=0.11; Chi²=19.68, df=8(P=0.01); I²=59.35%							
Test for overall effect: Z=1.59(P=0.11)							
14.19.2 Moderate-to-high intensity							
Segar 1998	10	5.5 (2)	5	10 (2)		24.54%	-2.12[-3.51,-0.73]
Kaltsatou 2011	13	16.5 (1.7)	13	22.3 (7.7)		34.59%	-1[-1.83,-0.18]
Cadmus 2009	37	9.6 (9.3)	37	10.8 (10.1)		40.87%	-0.12[-0.58,0.33]
Subtotal ***	**60**		**55**			**100%**	**-0.92[-1.95,0.11]**
Heterogeneity: Tau²=0.62; Chi²=9.24, df=2(P=0.01); I²=78.35%							
Test for overall effect: Z=1.75(P=0.08)							



Analysis 14.20. Comparison 14 Subanalysis: outcomes by intensity of physical activity intervention, Outcome 20 Overall depression (change values).

Study or subgroup	Physical activity N	Physical activity Mean(SD)	Control N	Control Mean(SD)	Std. Mean Difference Random, 95% CI	Weight	Std. Mean Difference Random, 95% CI
14.20.1 Light-to-moderate intensity							
Naumann 2012	11	-3.6 (4.3)	10	2 (4.6)		9.95%	-1.21[-2.16,-0.26]
Rogers 2014	20	-1.7 (6.9)	22	1.1 (4.2)		23.6%	-0.49[-1.1,0.13]
Mehnert 2011	30	2.7 (3)	28	4.6 (4.4)		32.55%	-0.51[-1.04,0.01]
Cantarero-Villanueva 2013	32	-2.9 (7.8)	29	1.5 (7.4)		33.91%	-0.57[-1.09,-0.06]
Subtotal ***	**93**		**89**			**100%**	**-0.6[-0.89,-0.3]**
Heterogeneity: Tau²=0; Chi²=1.84, df=3(P=0.61); I²=0%							
Test for overall effect: Z=3.91(P<0.0001)							
14.20.2 Moderate-to-high intensity							
Cadmus 2009	37	0.3 (6.4)	37	1.7 (6.3)		19.98%	-0.22[-0.68,0.24]
Saarto 2012	263	-0.3 (3.3)	237	-0.5 (3.4)		80.02%	0.06[-0.12,0.24]
Subtotal ***	**300**		**274**			**100%**	**0[-0.21,0.22]**
Heterogeneity: Tau²=0.01; Chi²=1.24, df=1(P=0.27); I²=19.17%							
Test for overall effect: Z=0.04(P=0.97)							



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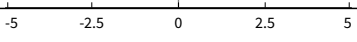
Analysis 14.21. Comparison 14 Subanalysis: outcomes by intensity of physical activity intervention, Outcome 21 Overall fatigue (follow-up values).

Study or subgroup	Physical activity N	Physical activity Mean(SD)	Control N	Control Mean(SD)	Std. Mean Difference Random, 95% CI	Weight	Std. Mean Difference Random, 95% CI
14.21.1 Light-to-moderate intensity							
Banasik 2011	7	1 (0.9)	7	1.6 (1)		2.28%	-0.57[-1.65,0.51]
Pinto 2003	12	7.2 (6.4)	6	9 (6.4)		2.6%	-0.27[-1.26,0.71]
Payne 2008	9	4.7 (2.6)	9	3.5 (1.7)		2.76%	0.52[-0.42,1.46]
Rogers 2013	11	4.2 (1.8)	9	4.2 (1.6)		3.04%	0[-0.88,0.88]
Loudon 2014	12	1.9 (2.2)	11	2.1 (2.5)		3.35%	-0.07[-0.89,0.75]
Bower 2011	16	3.4 (1.8)	15	4.9 (1.3)		3.75%	-0.93[-1.67,-0.18]
Rogers 2009	20	-12.4 (10.4)	18	-10.1 (6.6)		4.45%	-0.26[-0.9,0.38]
Cuesta-Vargas 2014	22	4 (1.8)	20	5.2 (3.2)		4.64%	-0.46[-1.07,0.15]
Rogers 2014	20	4.1 (2.1)	22	4 (1.8)		4.7%	0.05[-0.56,0.66]
Milne 2008	29	11.9 (3.2)	29	17.4 (4.7)		4.95%	-1.35[-1.92,-0.78]
Cantarero-Villanueva 2013	32	3.8 (1.8)	29	6.2 (1.7)		5.04%	-1.38[-1.94,-0.82]
Courneya 2003	24	-8.3 (7.9)	28	-8.8 (8.1)		5.19%	0.06[-0.48,0.61]
Ergun 2013	40	2.9 (2.2)	20	3.3 (1.8)		5.25%	-0.17[-0.71,0.37]
Mehnert 2011	30	28.5 (25.6)	27	39.9 (25.1)		5.34%	-0.44[-0.97,0.08]
Littman 2012	30	-45 (5.3)	27	-43.1 (10.3)		5.38%	-0.23[-0.75,0.29]
Daley 2007	33	2.1 (1.8)	33	3.4 (1.9)		5.59%	-0.71[-1.21,-0.21]
Winters-Stone 2011	36	45 (5.3)	31	43.1 (10.3)		5.74%	0.23[-0.25,0.72]
Pinto 2015	39	-43.8 (7.8)	37	-41.2 (8.5)		6%	-0.32[-0.77,0.14]
Pinto 2005	39	27.1 (21.4)	43	42.3 (26.2)		6.08%	-0.63[-1.07,-0.18]
Fillion 2008	44	2.7 (0.7)	43	2.9 (0.8)		6.29%	-0.27[-0.69,0.15]
Kiecolt-Glaser 2014	96	6.3 (19.6)	90	12.7 (19)		7.57%	-0.33[-0.62,-0.04]
Subtotal ***	**601**		**554**			**100%**	**-0.38[-0.56,-0.19]**
Heterogeneity: Tau²=0.1; Chi²=45.29, df=20(P=0); I²=55.84%							
Test for overall effect: Z=3.94(P<0.0001)							
14.21.2 Moderate-to-high intensity							
Do 2015	32	16.8 (13.3)	30	22.3 (15.1)		9.22%	-0.38[-0.89,0.12]
Cadmus 2009	37	-51.9 (9)	37	-50.6 (10)		11.21%	-0.14[-0.59,0.32]
Vallance 2007	250	-42.7 (8.4)	85	-42.6 (8.7)		38.52%	-0.01[-0.26,0.23]
Short 2014	195	-41.5 (9.3)	104	-39.8 (10.4)		41.05%	-0.17[-0.41,0.06]
Subtotal ***	**514**		**256**			**100%**	**-0.13[-0.28,0.03]**
Heterogeneity: Tau²=0; Chi²=1.99, df=3(P=0.57); I²=0%							
Test for overall effect: Z=1.63(P=0.1)							



Analysis 14.22. Comparison 14 Subanalysis: outcomes by intensity of physical activity intervention, Outcome 22 Overall fatigue (change values).

Study or subgroup	Physical activity N	Physical activity Mean(SD)	Control N	Control Mean(SD)	Std. Mean Difference Random, 95% CI	Weight	Std. Mean Difference Random, 95% CI
14.22.1 Light-to-moderate intensity							
Naumann 2012	11	-3.6 (4.4)	10	2 (4.6)		9.02%	-1.21[-2.16,-0.26]
Rogers 2013	11	4.2 (2)	9	3.9 (1.5)		9.48%	0.16[-0.72,1.04]
Loudon 2014	12	1.9 (2.2)	11	2.1 (2.5)		9.94%	-0.07[-0.89,0.75]
Rogers 2009	20	1.9 (9.6)	18	4.2 (12.3)		11.24%	-0.21[-0.84,0.43]
Courneya 2003	24	9.3 (10.2)	28	2 (7.5)		11.74%	0.81[0.24,1.38]

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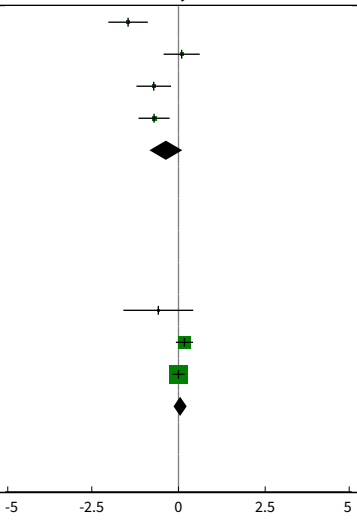
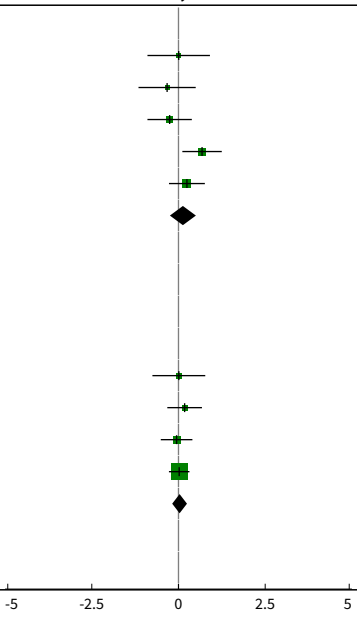
Study or subgroup	Physical activity N	Physical activity Mean(SD)	Control N	Control Mean(SD)	Std. Mean Difference Random, 95% CI	Weight	Std. Mean Difference Random, 95% CI
Cantarero-Villanueva 2013	32	-2 (1.8)	29	0.3 (1.4)		11.74%	-1.45[-2.02,-0.88]
Mehnert 2011	30	-0.7 (20.7)	27	-2.9 (25.3)		12.07%	0.09[-0.43,0.61]
Daley 2007	33	2.1 (1.8)	33	3.4 (1.9)		12.22%	-0.71[-1.21,-0.21]
Pinto 2005	39	-14.9 (23.5)	43	1.8 (23.5)		12.55%	-0.7[-1.15,-0.26]
Subtotal ***	**212**		**208**			**100%**	**-0.36[-0.84,0.11]**
Heterogeneity: Tau²=0.41; Chi²=42.67, df=8(P<0.0001); I²=81.25%							
Test for overall effect: Z=1.51(P=0.13)							
14.22.2 Moderate-to-high intensity							
Herrero 2006	8	-4.2 (19.6)	8	6.4 (14.5)		3.46%	-0.58[-1.59,0.43]
Vallance 2007	250	2.5 (8.2)	85	1.2 (6.6)		38.99%	0.17[-0.08,0.42]
Saarto 2012	263	-2.4 (9.1)	237	-2.4 (8.6)		57.56%	0[-0.18,0.18]
Subtotal ***	**521**		**330**			**100%**	**0.05[-0.14,0.24]**
Heterogeneity: Tau²=0.01; Chi²=2.75, df=2(P=0.25); I²=27.19%							
Test for overall effect: Z=0.48(P=0.63)							



Analysis 14.23. Comparison 14 Subanalysis: outcomes by intensity of physical activity intervention, Outcome 23 Overall pain/disability (follow-up values).

Study or subgroup	Physical activity N	Physical activity Mean(SD)	Control N	Control Mean(SD)	Std. Mean Difference Random, 95% CI	Weight	Std. Mean Difference Random, 95% CI
14.23.1 Light-to-moderate intensity							
Mustian 2004	9	9.1 (1.4)	10	9.1 (1.7)		13.14%	0.01[-0.89,0.91]
Loudon 2014	12	0.8 (1.5)	11	1.4 (2.2)		14.97%	-0.33[-1.15,0.5]
Rogers 2009	20	-3 (3)	18	-2.3 (2.8)		21.04%	-0.26[-0.89,0.38]
Basen-Enquist 2006	28	79.7 (10.6)	23	72.1 (11.5)		24.15%	0.68[0.11,1.25]
Mehnert 2011	30	79.4 (23.1)	28	73.5 (24.8)		26.71%	0.24[-0.27,0.76]
Subtotal ***	**99**		**90**			**100%**	**0.13[-0.25,0.5]**
Heterogeneity: Tau²=0.07; Chi²=6.39, df=4(P=0.17); I²=37.37%							
Test for overall effect: Z=0.66(P=0.51)							
14.23.2 Moderate-to-high intensity							
Portela 2008	25	-20.6 (20.2)	9	-20.8 (15.5)		7.83%	0.01[-0.75,0.77]
Do 2015	32	21.1 (24.6)	30	16.5 (26.7)		18.24%	0.18[-0.32,0.68]
Cadmus 2009	37	50.3 (9.1)	37	50.8 (9)		21.88%	-0.05[-0.51,0.4]
Duijits 2012	87	79.3 (23.6)	89	78.8 (23.8)		52.05%	0.02[-0.28,0.32]
Subtotal ***	**181**		**165**			**100%**	**0.03[-0.18,0.24]**
Heterogeneity: Tau²=0; Chi²=0.47, df=3(P=0.92); I²=0%							
Test for overall effect: Z=0.29(P=0.77)							



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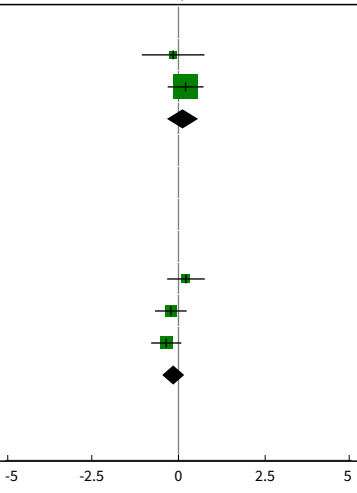
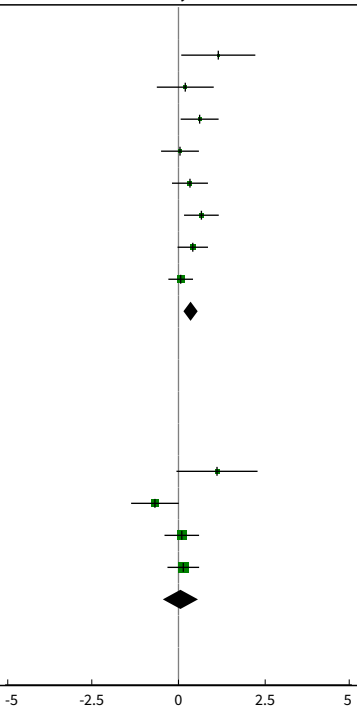
Analysis 14.24. Comparison 14 Subanalysis: outcomes by intensity of physical activity intervention, Outcome 24 Overall pain/disability (change values).

Study or subgroup	Physical activity N	Physical activity Mean(SD)	Control N	Control Mean(SD)	Std. Mean Difference Random, 95% CI	Weight	Std. Mean Difference Random, 95% CI
14.24.1 Light-to-moderate intensity							
Mustian 2004	9	-0.2 (1.3)	10	0 (1.4)		24.68%	-0.15[-1.06,0.75]
Mehnert 2011	30	-2.4 (25)	28	-7.6 (25.2)		75.32%	0.21[-0.31,0.72]
Subtotal ***	**39**		**38**			**100%**	**0.12[-0.33,0.56]**
Heterogeneity: Tau²=0; Chi²=0.46, df=1(P=0.5); I²=0%							
Test for overall effect: Z=0.51(P=0.61)							
14.24.2 Moderate-to-high intensity							
Cormie 2014	43	3.4 (6.5)	19	2 (6.2)		27.14%	0.22[-0.33,0.76]
Cadmus 2009	37	-2.2 (11.3)	37	-0.1 (7)		35.14%	-0.22[-0.68,0.24]
Irwin 2015	45	-6 (19)	38	0.7 (18.6)		37.72%	-0.35[-0.79,0.08]
Subtotal ***	**125**		**94**			**100%**	**-0.15[-0.47,0.16]**
Heterogeneity: Tau²=0.02; Chi²=2.68, df=2(P=0.26); I²=25.26%							
Test for overall effect: Z=0.94(P=0.35)							



Analysis 14.25. Comparison 14 Subanalysis: outcomes by intensity of physical activity intervention, Outcome 25 Overall self-esteem/body image (follow-up values).

Study or subgroup	Physical activity N	Physical activity Mean(SD)	Control N	Control Mean(SD)	Std. Mean Difference Random, 95% CI	Weight	Std. Mean Difference Random, 95% CI
14.25.1 Light-to-moderate intensity							
Pinto 2003	12	32.3 (4.3)	6	25.3 (8.2)		3.52%	1.15[0.08,2.22]
Loudon 2014	12	-1.4 (0.3)	11	-1.6 (0.9)		5.78%	0.2[-0.62,1.02]
Mehnert 2011	27	-5.5 (1.7)	27	-6.8 (2.6)		11.88%	0.61[0.06,1.16]
Courneya 2003	24	34.8 (4.7)	28	34.6 (4.4)		11.93%	0.04[-0.5,0.59]
Milne 2008	29	-17.9 (6.8)	29	-20.1 (6.3)		12.98%	0.33[-0.19,0.85]
Daley 2007	33	2 (0.8)	32	1.6 (0.5)		13.77%	0.66[0.16,1.16]
Pinto 2005	39	30.3 (7.8)	43	27.2 (6.8)		17%	0.41[-0.03,0.85]
Schmitz 2009	59	-70.4 (16.3)	63	-71.5 (18)		23.15%	0.06[-0.29,0.42]
Subtotal ***	**235**		**239**			**100%**	**0.35[0.14,0.55]**
Heterogeneity: Tau²=0.01; Chi²=8.4, df=7(P=0.3); I²=16.68%							
Test for overall effect: Z=3.32(P=0)							
14.25.2 Moderate-to-high intensity							
Segar 1998	10	33 (1.8)	5	30.5 (2.7)		13.12%	1.11[-0.06,2.28]
Musanti 2012	30	23.8 (3.5)	12	26.3 (3.9)		24.17%	-0.68[-1.37,0.01]
Do 2015	32	37.9 (18.9)	30	36.1 (18.3)		30.59%	0.1[-0.4,0.59]
Cadmus 2009	37	34.2 (5.5)	37	33.4 (5.9)		32.13%	0.14[-0.32,0.6]
Subtotal ***	**109**		**84**			**100%**	**0.06[-0.45,0.56]**
Heterogeneity: Tau²=0.15; Chi²=7.66, df=3(P=0.05); I²=60.85%							
Test for overall effect: Z=0.21(P=0.83)							



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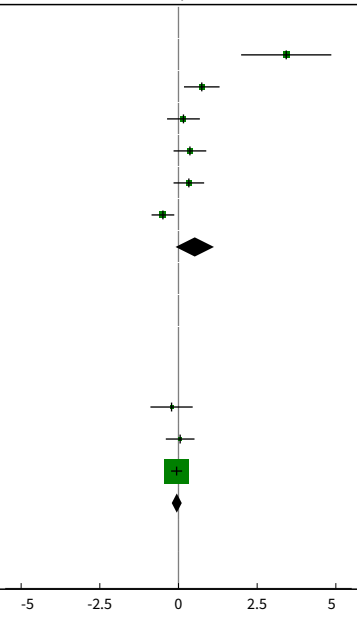
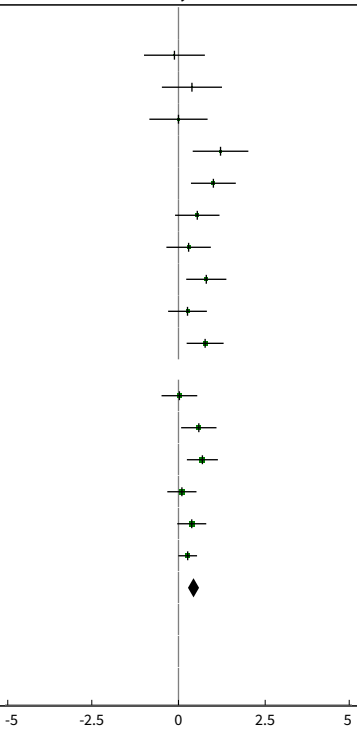
Analysis 14.26. Comparison 14 Subanalysis: outcomes by intensity of physical activity intervention, Outcome 26 Overall self-esteem/body image (change values).

Study or subgroup	Physical activity N	Physical activity Mean(SD)	Control N	Control Mean(SD)	Std. Mean Difference Random, 95% CI	Weight	Std. Mean Difference Random, 95% CI
14.26.1 Light-to-moderate intensity							
Mustian 2004	11	3 (1)	10	-1.5 (1.5)		9.63%	3.42[1.99,4.86]
Courneya 2003	24	2.6 (3.7)	28	-0.1 (3.5)		17.43%	0.74[0.18,1.3]
Mehnert 2011	30	0.7 (2.1)	27	0.4 (2.1)		17.83%	0.16[-0.36,0.68]
Milne 2008	29	1.5 (3.7)	29	0.1 (3.9)		17.85%	0.36[-0.16,0.88]
Daley 2007	33	1.8 (0.7)	33	1.6 (0.7)		18.14%	0.33[-0.16,0.82]
Schmitz 2009	59	-12 (15.5)	63	-4.1 (16.2)		19.12%	-0.49[-0.86,-0.13]
Subtotal ***	**186**		**190**			**100%**	**0.52[-0.09,1.13]**
Heterogeneity: Tau²=0.47; Chi²=37.69, df=5(P<0.0001); I²=86.74%							
Test for overall effect: Z=1.66(P=0.1)							
14.26.2 Moderate-to-high intensity							
Musanti 2012	30	-0.4 (4.5)	12	0.6 (3.9)		5.62%	-0.22[-0.89,0.45]
Cadmus 2009	37	0.4 (4.4)	37	0.2 (2.9)		12.2%	0.05[-0.4,0.51]
Saarto 2012	263	10.7 (21.5)	237	12 (22)		82.18%	-0.06[-0.24,0.12]
Subtotal ***	**330**		**286**			**100%**	**-0.05[-0.21,0.1]**
Heterogeneity: Tau²=0; Chi²=0.45, df=2(P=0.8); I²=0%							
Test for overall effect: Z=0.68(P=0.5)							



Analysis 14.27. Comparison 14 Subanalysis: outcomes by intensity of physical activity intervention, Outcome 27 Overall cardiorespiratory fitness (follow-up values).

Study or subgroup	Physical activity N	Physical activity Mean(SD)	Control N	Control Mean(SD)	Std. Mean Difference Random, 95% CI	Weight	Std. Mean Difference Random, 95% CI
14.27.1 Light-to-moderate intensity							
Cerulli 2014	10	31.3 (5)	10	32.3 (10.1)		2.91%	-0.12[-0.99,0.76]
Mustian 2004	11	636.1 (50.6)	10	610.3 (75.9)		2.98%	0.39[-0.48,1.25]
Rogers 2013	12	23.9 (6.2)	10	23.9 (3.8)		3.15%	0[-0.84,0.84]
Rahnama 2010	14	20.7 (5.7)	15	13.9 (5.2)		3.4%	1.21[0.41,2.01]
Rogers 2014	20	30.9 (6.3)	22	25.1 (5)		4.87%	1.01[0.36,1.65]
Kim 2015	20	424.8 (55.8)	19	394.4 (54)		4.94%	0.54[-0.1,1.18]
Rogers 2009	20	29.5 (6.6)	18	27.6 (6.1)		4.94%	0.29[-0.35,0.93]
Courneya 2003	24	21.3 (3.7)	26	18.2 (3.9)		5.78%	0.8[0.22,1.38]
Mehnert 2011	27	26.9 (4.4)	23	25.7 (4.7)		6.09%	0.26[-0.3,0.82]
Basen-Enquist 2006	35	1643 (122.5)	25	1546 (127.5)		6.54%	0.77[0.24,1.3]
Milne 2008	29	1.5 (0.3)	29	1.5 (0.4)		6.86%	0.03[-0.49,0.54]
Murtezani 2014	30	875.1 (86.7)	32	823.5 (87.1)		6.97%	0.59[0.08,1.1]
Pinto 2005	39	-16.3 (2.1)	43	-17.8 (2.2)		8.33%	0.69[0.24,1.14]
Fillion 2008	44	27 (4.4)	43	26.5 (5.8)		8.99%	0.1[-0.32,0.52]
Daley 2007	33	35 (4.4)	69	33.1 (5.3)		9.06%	0.38[-0.04,0.8]
Rogers 2015	105	23.6 (4.8)	108	22.7 (0.3)		14.2%	0.27[-0,0.54]
Subtotal ***	**473**		**502**			**100%**	**0.43[0.27,0.59]**
Heterogeneity: Tau²=0.03; Chi²=20.81, df=15(P=0.14); I²=27.93%							
Test for overall effect: Z=5.31(P<0.0001)							



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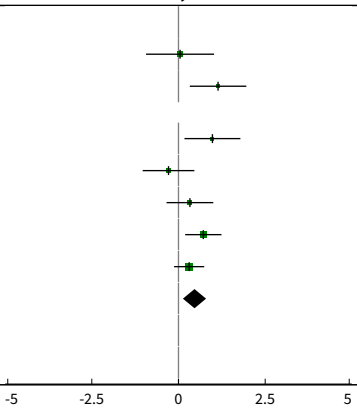
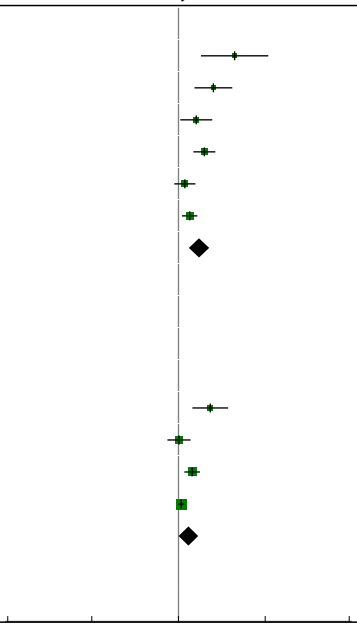
Study or subgroup	Physical activity N	Physical activity Mean(SD)	Control N	Control Mean(SD)	Std. Mean Difference Random, 95% CI	Weight	Std. Mean Difference Random, 95% CI
14.27.2 Moderate-to-high intensity							
Herrero 2006	8	25.9 (4.5)	8	25.7 (3.7)		8.73%	0.05[-0.93,1.03]
Portela 2008	25	3007 (410.8)	9	2416.1 (718.6)		11.39%	1.14[0.33,1.96]
Kaltsatou 2011	14	483.3 (86)	13	403.1 (71.9)		11.55%	0.98[0.17,1.78]
Nikander 2007	14	-17.6 (1.3)	14	-17.2 (1.4)		12.8%	-0.29[-1.03,0.46]
Musanti 2012	30	24.6 (4.9)	12	23 (4.3)		14.49%	0.33[-0.34,1]
Do 2015	30	31.7 (12.4)	30	24.5 (6.6)		18.92%	0.72[0.19,1.24]
Irwin 2015	45	24.6 (5.5)	38	23 (4.7)		22.11%	0.31[-0.13,0.74]
Subtotal ***	**166**		**124**			**100%**	**0.46[0.13,0.8]**
Heterogeneity: Tau^2=0.08; Chi^2=10.35, df=6(P=0.11); I^2=42.04%							
Test for overall effect: Z=2.71(P=0.01)							



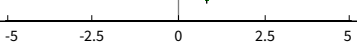
Analysis 14.28. Comparison 14 Subanalysis: outcomes by intensity of physical activity intervention, Outcome 28 Overall cardiorespiratory fitness (change values).

Study or subgroup	Physical activity N	Physical activity Mean(SD)	Control N	Control Mean(SD)	Std. Mean Difference Random, 95% CI	Weight	Std. Mean Difference Random, 95% CI
14.28.1 Light-to-moderate intensity							
Nieman 1995	6	60.8 (8.4)	6	12 (17.8)		6.78%	3.24[1.29,5.18]
Dolan 2016	11	13 (10.4)	10	-6 (7.2)		13.79%	2.01[0.92,3.1]
Naumann 2012	11	3.1 (2.9)	10	-0.1 (3.1)		15.95%	1.03[0.1,1.95]
Courneya 2003	24	2.7 (2.6)	26	-0.6 (1.7)		20.15%	1.49[0.86,2.12]
Rogers 2014	20	2.8 (4.9)	22	1.1 (4.2)		20.48%	0.37[-0.24,0.98]
Pinto 2005	39	1.4 (2.4)	43	-0.2 (2.5)		22.86%	0.65[0.2,1.09]
Subtotal ***	**111**		**117**			**100%**	**1.18[0.6,1.77]**
Heterogeneity: Tau^2=0.34; Chi^2=17.08, df=5(P=0); I^2=70.72%							
Test for overall effect: Z=3.95(P<0.0001)							
14.28.2 Moderate-to-high intensity							
Dolan 2016	12	11.5 (10.5)	10	-6 (7.2)		15.97%	1.83[0.8,2.86]
Musanti 2012	30	1 (3.1)	12	0.9 (3.4)		23.04%	0.03[-0.64,0.7]
Irwin 2015	45	1.5 (2.1)	38	-0.4 (2.7)		28.03%	0.79[0.34,1.24]
Saarto 2012	262	0.9 (1.2)	236	0.7 (1)		32.96%	0.16[-0.02,0.33]
Subtotal ***	**349**		**296**			**100%**	**0.57[0.01,1.14]**
Heterogeneity: Tau^2=0.24; Chi^2=16.01, df=3(P=0); I^2=81.26%							
Test for overall effect: Z=1.98(P=0.05)							



Analysis 14.29. Comparison 14 Subanalysis: outcomes by intensity of physical activity intervention, Outcome 29 Overall self-reported physical activity (follow-up values).

Study or subgroup	Physical activity N	Physical activity Mean(SD)	Control N	Control Mean(SD)	Std. Mean Difference Random, 95% CI	Weight	Std. Mean Difference Random, 95% CI
14.29.1 Light-to-moderate intensity							
Guinan 2013	16	38.7 (26.9)	10	19.9 (11.3)		5.41%	0.81[-0.01,1.64]



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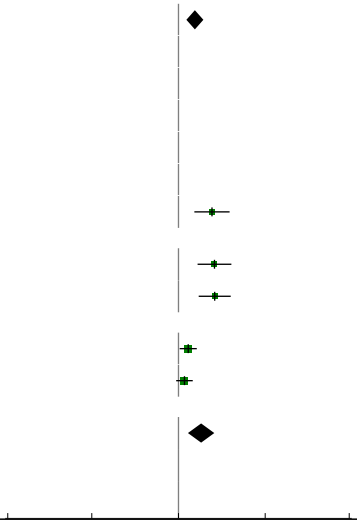
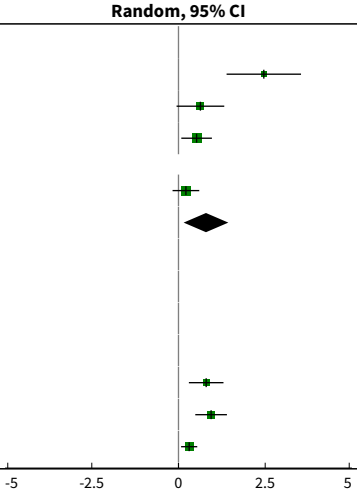
Study or subgroup	Physical activity N	Physical activity Mean(SD)	Control N	Control Mean(SD)	Std. Mean Difference Random, 95% CI	Weight	Std. Mean Difference Random, 95% CI
Matthews 2007	22	54.2 (34.1)	14	27.2 (22.7)		6.51%	0.87[0.17,1.58]
Rogers 2009	20	121.4 (73.2)	18	114.3 (131.5)		7.21%	0.07[-0.57,0.7]
Basen-Enquist 2006	35	428 (254.4)	25	404 (265)		8.69%	0.09[-0.42,0.61]
Pinto 2015	36	70.3 (65.9)	32	16.5 (31.9)		8.77%	1.01[0.5,1.52]
Littman 2012	32	19.2 (19.1)	31	12.1 (13.6)		8.86%	0.42[-0.08,0.92]
Winters-Stone 2011	36	430.8 (281.4)	31	461.7 (346.4)		9.12%	-0.1[-0.58,0.38]
Pinto 2005	39	202.4 (161.7)	43	78.4 (86)		9.41%	0.96[0.5,1.42]
Kiecolt-Glaser 2014	96	11.2 (7.6)	90	9.1 (6.1)		11.74%	0.3[0.01,0.59]
Rogers 2015	110	169 (119)	112	74 (107)		11.93%	0.84[0.56,1.11]
Schmitz 2009	131	3348.8 (9019.4)	133	2339.8 (6213.7)		12.35%	0.13[-0.11,0.37]
Subtotal ***	**573**		**539**			**100%**	**0.47[0.23,0.72]**
Heterogeneity: Tau²=0.11; Chi²=35.18, df=10(P=0); I²=71.58%							
Test for overall effect: Z=3.78(P=0)							
14.29.2 Moderate-to-high intensity							
Baruth 2013	20	0 (0)	12	0 (0)			Not estimable
Cadmus 2009	34	161.7 (114.7)	33	55.6 (101.9)		17.49%	0.97[0.46,1.47]
Hatchett 2013	38	3.5 (2.2)	36	1.4 (1.7)		17.94%	1.04[0.55,1.53]
Irwin 2015	45	222.1 (118.6)	38	103.6 (104.6)		18.5%	1.04[0.58,1.51]
Vallance 2007	253	207.6 (169)	85	163 (121)		22.96%	0.28[0.03,0.53]
Short 2014	195	217.9 (222.9)	104	180.3 (206.9)		23.11%	0.17[-0.07,0.41]
Subtotal ***	**585**		**308**			**100%**	**0.65[0.27,1.03]**
Heterogeneity: Tau²=0.15; Chi²=22.93, df=4(P=0); I²=82.55%							
Test for overall effect: Z=3.36(P=0)							



Analysis 14.30. Comparison 14 Subanalysis: outcomes by intensity of physical activity intervention, Outcome 30 Overall self-reported physical activity (change values).

Study or subgroup	Physical activity N	Physical activity Mean(SD)	Control N	Control Mean(SD)	Std. Mean Difference Random, 95% CI	Weight	Std. Mean Difference Random, 95% CI
14.30.1 Light-to-moderate intensity							
Guinan 2013	16	15.6 (11.4)	10	-8.3 (4.2)		17.32%	2.46[1.39,3.53]
Matthews 2007	22	21.5 (30.6)	14	5 (13.8)		24.14%	0.63[-0.06,1.32]
Pinto 2005	39	84.7 (189.2)	43	-18.3 (200.7)		28.8%	0.52[0.08,0.96]
Schmitz 2009	48	2.8 (16.8)	57	-0.8 (16.6)		29.75%	0.21[-0.17,0.6]
Subtotal ***	**125**		**124**			**100%**	**0.79[0.15,1.44]**
Heterogeneity: Tau²=0.33; Chi²=15.08, df=3(P=0); I²=80.11%							
Test for overall effect: Z=2.41(P=0.02)							
14.30.2 Moderate-to-high intensity							
Cadmus 2009	34	129 (117.9)	33	44.3 (89.4)		20.73%	0.8[0.3,1.3]
Irwin 2015	45	159 (136)	38	49 (86)		21.93%	0.94[0.48,1.4]
Vallance 2007	281	82 (168.7)	96	30 (167.8)		28.05%	0.31[0.08,0.54]



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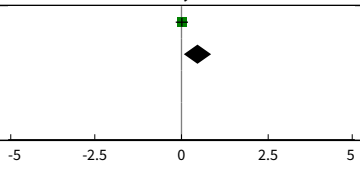
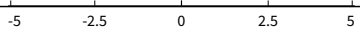
Study or subgroup	Physical activity N	Physical activity Mean(SD)	Control N	Control Mean(SD)	Std. Mean Difference Random, 95% CI	Weight	Std. Mean Difference Random, 95% CI
Saarto 2012	262	3.5 (18.3)	236	3.3 (21.5)		29.28%	0.01[-0.17,0.19]
Subtotal ***	**622**		**403**			**100%**	**0.46[0.07,0.85]**
Heterogeneity: Tau^2=0.13; Chi^2=20.76, df=3(P=0); I^2=85.55%							
Test for overall effect: Z=2.3(P=0.02)							



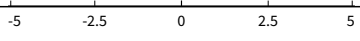
Analysis 14.31. Comparison 14 Subanalysis: outcomes by intensity of physical activity intervention, Outcome 31 Overall objective physical activity (follow-up values).

Study or subgroup	Physical activity N	Physical activity Mean(SD)	Control N	Control Mean(SD)	Std. Mean Difference Random, 95% CI	Weight	Std. Mean Difference Random, 95% CI
14.31.1 Light-to-moderate intensity							
Rogers 2013	12	198.4 (111.7)	10	0 (0)			Not estimable
Guinan 2013	16	30.7 (15.6)	9	31 (15.6)		8.26%	-0.02[-0.84,0.8]
Matthews 2007	22	330.8 (114.7)	14	198.5 (55.4)		9.26%	1.34[0.6,2.09]
Rogers 2014	20	294 (175)	22	154 (75)		10.9%	1.04[0.39,1.69]
Rogers 2009	20	252191 (91893)	18	210917 (64078)		10.92%	0.51[-0.14,1.15]
Kim 2015	20	17.6 (16)	19	11.8 (11.6)		11.16%	0.4[-0.23,1.04]
Pinto 2015	36	70.3 (65.9)	32	16.5 (31.9)		13.85%	1.01[0.5,1.52]
Pinto 2005	39	37.5 (14.3)	43	33.6 (19.4)		15.61%	0.22[-0.21,0.66]
Rogers 2015	110	246 (153)	112	197 (138)		20.04%	0.34[0.07,0.6]
Subtotal ***	**295**		**279**			**100%**	**0.58[0.29,0.87]**
Heterogeneity: Tau^2=0.09; Chi^2=16.06, df=7(P=0.02); I^2=56.41%							
Test for overall effect: Z=3.91(P<0.0001)							
14.31.2 Moderate-to-high intensity							
Cadmus 2009	33	6738 (2958)	34	5537 (3352)		10.71%	0.38[-0.11,0.86]
Vallance 2007	253	8110.5 (4133.9)	85	8028 (3457)		41.44%	0.02[-0.23,0.27]
Short 2014	219	9363.1 (7922.8)	111	8301.2 (3373.4)		47.85%	0.16[-0.07,0.39]
Subtotal ***	**505**		**230**			**100%**	**0.12[-0.03,0.28]**
Heterogeneity: Tau^2=0; Chi^2=1.8, df=2(P=0.41); I^2=0%							
Test for overall effect: Z=1.53(P=0.12)							



Analysis 14.32. Comparison 14 Subanalysis: outcomes by intensity of physical activity intervention, Outcome 32 Overall objective physical activity (change values).

Study or subgroup	Physical activity N	Physical activity Mean(SD)	Control N	Control Mean(SD)	Std. Mean Difference Random, 95% CI	Weight	Std. Mean Difference Random, 95% CI
14.32.1 Light-to-moderate intensity							
Guinan 2013	16	-1.1 (6.2)	9	-7.9 (5.3)		22.85%	1.11[0.23,2]
Matthews 2007	22	72.2 (114.6)	14	-16.8 (51.5)		35.75%	0.91[0.2,1.62]
Rogers 2014	20	114 (109)	22	10 (70)		41.4%	1.13[0.47,1.78]



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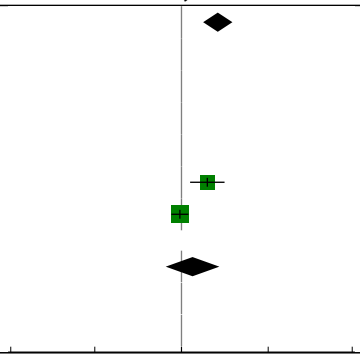
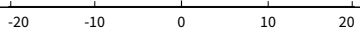
Study or subgroup	Physical activity N	Physical activity Mean(SD)	Control N	Control Mean(SD)	Std. Mean Difference Random, 95% CI	Weight	Std. Mean Difference Random, 95% CI
Subtotal ***	**58**		**45**			**100%**	**1.05[0.62,1.47]**
Heterogeneity: Tau²=0; Chi²=0.22, df=2(P=0.9); I²=0%							
Test for overall effect: Z=4.86(P<0.0001)							
14.32.2 Moderate-to-high intensity							
Cadmus 2009	33	1621 (2108)	34	-60 (2341)		46.14%	0.75[0.25,1.24]
Vallance 2007	253	-150 (5173.3)	85	91 (5155.4)		53.86%	-0.05[-0.29,0.2]
Subtotal ***	**286**		**119**			**100%**	**0.32[-0.45,1.09]**
Heterogeneity: Tau²=0.27; Chi²=7.85, df=1(P=0.01); I²=87.27%							
Test for overall effect: Z=0.81(P=0.42)							



Analysis 14.33. Comparison 14 Subanalysis: outcomes by intensity of physical activity intervention, Outcome 33 Mass (follow-up values).

Study or subgroup	Physical activity N	Physical activity Mean(SD)	Control N	Control Mean(SD)	Mean Difference Fixed, 95% CI	Weight	Mean Difference Fixed, 95% CI
14.33.1 Light-to-moderate intensity							
Matthews 2007	22	74.9 (15.2)	14	78.9 (20.3)		0.22%	-4[-16.39,8.39]
Mustian 2004	11	67.1 (10.4)	10	68.6 (13.8)		0.3%	-1.5[-12.06,9.06]
Courneya 2003	24	78.2 (20.5)	26	80.1 (16.2)		0.32%	-1.9[-12.2,8.4]
Rahnama 2010	14	69.4 (13.5)	15	71.6 (9.2)		0.47%	-2.2[-10.67,6.27]
DeNysschen 2011	30	69.3 (14.2)	34	72.4 (19.6)		0.49%	-3.1[-11.42,5.22]
Littman 2012	28	81.1 (13.6)	27	81.3 (14.3)		0.62%	-0.2[-7.58,7.18]
Winters-Stone 2011	36	76.5 (15.6)	31	74.2 (12.3)		0.76%	2.3[-4.39,8.99]
Daley 2007	33	74.3 (12.5)	69	75.6 (12.5)		1.26%	-1.34[-6.52,3.84]
Murtezani 2014	30	71.7 (9.5)	32	72.6 (10.8)		1.33%	-0.9[-5.94,4.14]
Schmitz 2009	131	76.2 (15.7)	133	77.2 (17)		2.18%	-1.04[-4.98,2.9]
Schmitz 2005	39	69.5 (2.2)	40	69.2 (2.2)		35.7%	0.3[-0.67,1.27]
Kiecolt-Glaser 2014	96	75.2 (2.8)	90	75.2 (2.6)		56.33%	0[-0.78,0.78]
Subtotal ***	**494**		**521**			**100%**	**0.03[-0.56,0.61]**
Heterogeneity: Tau²=0; Chi²=2.86, df=11(P=0.99); I²=0%							
Test for overall effect: Z=0.09(P=0.93)							
14.33.2 Moderate-to-high intensity							
Nikander 2007	14	73.5 (13.3)	14	75.5 (12)		21.19%	-2[-11.38,7.38]
Cadmus 2009	36	80.7 (16.9)	33	78.5 (20.6)		23.33%	2.22[-6.72,11.16]
Herrero 2006	8	65.6 (8.7)	8	67.3 (8.9)		25.09%	-1.7[-10.32,6.92]
Ligibel 2008	40	80 (17.5)	42	83.3 (18.7)		30.39%	-3.3[-11.14,4.54]
Subtotal ***	**98**		**97**			**100%**	**-1.34[-5.66,2.98]**
Heterogeneity: Tau²=0; Chi²=0.87, df=3(P=0.83); I²=0%							
Test for overall effect: Z=0.61(P=0.54)							



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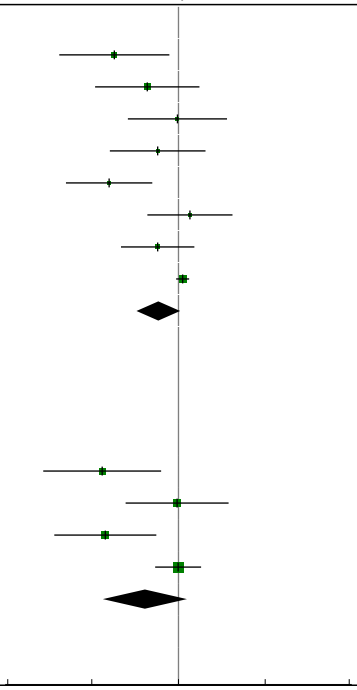
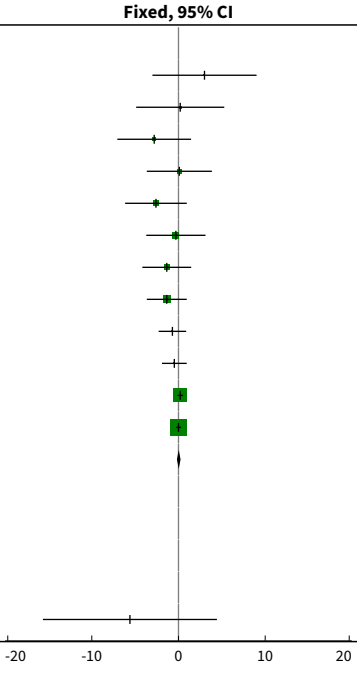
Analysis 14.34. Comparison 14 Subanalysis: outcomes by intensity of physical activity intervention, Outcome 34 Mass (change values).

Study or subgroup	Physical activity N	Physical activity Mean(SD)	Control N	Control Mean(SD)	Mean Difference Random, 95% CI	Weight	Mean Difference Random, 95% CI
14.34.1 Light-to-moderate intensity							
Dolan 2016	11	-0.4 (2.1)	10	1.4 (1.6)		9.24%	-1.85[-3.44,-0.26]
Mustian 2004	9	-0.3 (1.9)	10	0.6 (1.4)		9.83%	-0.9[-2.4,0.6]
Matthews 2007	22	0 (2.1)	14	0 (2.2)		10.4%	-0.03[-1.46,1.4]
Schmitz 2009	65	-1 (3.7)	65	-0.4 (4.3)		10.8%	-0.6[-1.98,0.78]
Murtezani 2014	30	-2.3 (2.4)	32	-0.3 (2.6)		11.94%	-2[-3.24,-0.76]
Naumann 2012	11	0.5 (1.3)	10	0.1 (1.5)		12.1%	0.33[-0.9,1.56]
Courneya 2003	24	0.1 (2)	26	0.7 (1.8)		13.72%	-0.6[-1.66,0.46]
Schmitz 2005	39	0.3 (0.4)	40	0.2 (0.4)		21.97%	0.12[-0.07,0.31]
Subtotal ***	**211**		**207**			**100%**	**-0.58[-1.21,0.05]**
Heterogeneity: Tau^2=0.46; Chi^2=20.32, df=7(P=0); I^2=65.55%							
Test for overall effect: Z=1.81(P=0.07)							
14.34.2 Moderate-to-high intensity							
Irwin 2015	45	-2.1 (4.3)	38	0.1 (3.6)		21%	-2.2[-3.9,-0.5]
Ligibel 2008	22	0 (2.3)	14	0 (2.2)		23.28%	-0.04[-1.52,1.44]
Dolan 2016	12	-0.7 (1.9)	10	1.4 (1.6)		23.43%	-2.11[-3.58,-0.64]
Saarto 2012	262	0.7 (3.7)	236	0.7 (3.8)		32.29%	-0.01[-0.67,0.65]
Subtotal ***	**341**		**298**			**100%**	**-0.97[-2.18,0.24]**
Heterogeneity: Tau^2=1.07; Chi^2=10.92, df=3(P=0.01); I^2=72.52%							
Test for overall effect: Z=1.57(P=0.12)							



Analysis 14.35. Comparison 14 Subanalysis: outcomes by intensity of physical activity intervention, Outcome 35 BMI (follow-up values).

Study or subgroup	Physical activity N	Physical activity Mean(SD)	Control N	Control Mean(SD)	Mean Difference Fixed, 95% CI	Weight	Mean Difference Fixed, 95% CI
14.35.1 Light-to-moderate intensity							
Rogers 2013	12	33.6 (7)	10	30.6 (7.3)		0.12%	3[-3,9]
Rogers 2009	20	30.6 (7.6)	18	30.4 (8.3)		0.17%	0.2[-4.88,5.28]
Mustian 2004	11	23.9 (4.2)	10	26.7 (5.6)		0.24%	-2.8[-7.05,1.45]
Courneya 2003	24	29.4 (7.4)	26	29.3 (6)		0.31%	0.1[-3.65,3.85]
Rogers 2014	20	29.6 (5)	22	32.2 (6.7)		0.35%	-2.6[-6.16,0.96]
Rahnama 2010	14	27.7 (4.8)	15	28 (4.6)		0.38%	-0.3[-3.71,3.11]
Littman 2012	28	27.7 (5)	27	29 (5.6)		0.55%	-1.35[-4.17,1.47]
Pinto 2005	39	27.7 (5)	43	29 (5.6)		0.83%	-1.35[-3.65,0.95]
Murtezani 2014	30	25.1 (2.9)	32	25.8 (3.5)		1.74%	-0.7[-2.29,0.89]
Schmitz 2009	131	28.5 (5.6)	133	28.9 (6.3)		2.15%	-0.48[-1.91,0.95]
Schmitz 2005	39	26 (0.7)	40	25.8 (0.7)		41.71%	0.2[-0.12,0.52]
Kiecolt-Glaser 2014	96	27.8 (1.1)	90	27.8 (1)		51.46%	0[-0.29,0.29]
Subtotal ***	**464**		**466**			**100%**	**0.03[-0.18,0.24]**
Heterogeneity: Tau^2=0; Chi^2=9.49, df=11(P=0.58); I^2=0%							
Test for overall effect: Z=0.28(P=0.78)							
14.35.2 Moderate-to-high intensity							
Portela 2008	25	29.1 (5.5)	9	34.7 (15)		1.08%	-5.6[-15.63,4.43]



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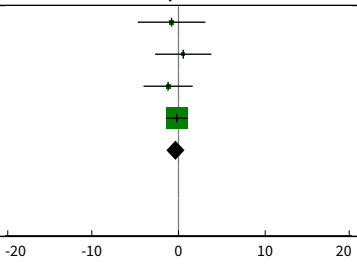
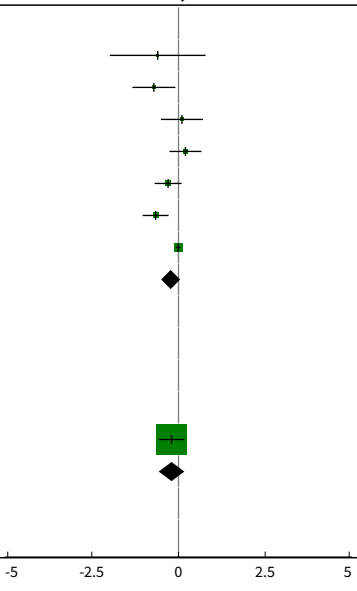
Study or subgroup	Physical activity N	Physical activity Mean(SD)	Control N	Control Mean(SD)	Mean Difference Fixed, 95% CI	Weight	Mean Difference Fixed, 95% CI
Nikander 2007	14	26.9 (5.6)	14	27.7 (4.9)		7.19%	-0.8[-4.7,3.1]
Cadmus 2009	36	30.5 (6)	33	29.9 (7.6)		10.35%	0.55[-2.7,3.8]
Ligibel 2008	40	30.3 (6.3)	42	31.5 (6.8)		13.58%	-1.2[-4.04,1.64]
Vallance 2007	253	27 (5.2)	85	27.2 (5.2)		67.79%	-0.19[-1.46,1.08]
Subtotal ***	**368**		**183**			**100%**	**-0.35[-1.4,0.69]**
Heterogeneity: Tau²=0; Chi²=1.8, df=4(P=0.77); I²=0%							
Test for overall effect: Z=0.66(P=0.51)							



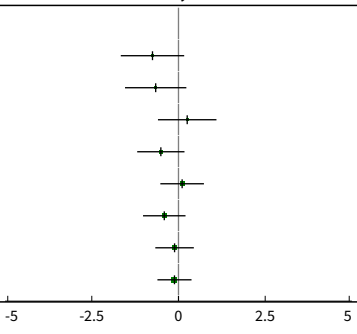
Analysis 14.36. Comparison 14 Subanalysis: outcomes by intensity of physical activity intervention, Outcome 36 BMI (change values).

Study or subgroup	Physical activity N	Physical activity Mean(SD)	Control N	Control Mean(SD)	Mean Difference Random, 95% CI	Weight	Mean Difference Random, 95% CI
14.36.1 Light-to-moderate intensity							
Schmitz 2009	65	-1 (3.7)	65	-0.4 (4.3)		3.42%	-0.6[-1.98,0.78]
Mustian 2004	9	-0.4 (0.8)	10	0.3 (0.6)		11.09%	-0.71[-1.33,-0.09]
Rogers 2014	20	-0.2 (0.9)	22	-0.3 (1.1)		11.36%	0.1[-0.51,0.71]
Naumann 2012	11	0.1 (0.5)	10	-0.1 (0.6)		14.84%	0.2[-0.26,0.66]
Courneya 2003	24	0 (0.7)	26	0.3 (0.7)		16.88%	-0.3[-0.69,0.09]
Murtezani 2014	30	-0.8 (0.7)	32	-0.1 (0.8)		17.32%	-0.66[-1.03,-0.29]
Schmitz 2005	39	0.1 (0.2)	40	0.1 (0.2)		25.09%	-0.01[-0.08,0.06]
Subtotal ***	**198**		**205**			**100%**	**-0.23[-0.5,0.05]**
Heterogeneity: Tau²=0.08; Chi²=19.32, df=6(P=0); I²=68.94%							
Test for overall effect: Z=1.61(P=0.11)							
14.36.2 Moderate-to-high intensity							
Ligibel 2008	40	0 (0.9)	42	0.2 (0.8)		100%	-0.2[-0.57,0.17]
Subtotal ***	**40**		**42**			**100%**	**-0.2[-0.57,0.17]**
Heterogeneity: Not applicable							
Test for overall effect: Z=1.06(P=0.29)							



Analysis 14.37. Comparison 14 Subanalysis: outcomes by intensity of physical activity intervention, Outcome 37 Overall body fat (follow-up values).

Study or subgroup	Physical activity N	Physical activity Mean(SD)	Control N	Control Mean(SD)	Std. Mean Difference Random, 95% CI	Weight	Std. Mean Difference Random, 95% CI
14.37.1 Light-to-moderate intensity							
Cerulli 2014	10	26.7 (5.3)	10	30.6 (4.4)		3.85%	-0.75[-1.66,0.16]
Mustian 2004	11	38.5 (4.5)	10	41.7 (4.9)		4.05%	-0.66[-1.54,0.23]
Rogers 2013	10	44.2 (6.7)	12	42.3 (7.7)		4.36%	0.25[-0.59,1.09]
Matthews 2007	22	39.7 (6.3)	14	43.1 (6.9)		5.91%	-0.51[-1.19,0.17]
Rogers 2009	20	44.3 (7.4)	19	43.5 (7.5)		6.56%	0.11[-0.52,0.73]
Rogers 2014	20	38.6 (6.4)	22	41.5 (7.4)		6.78%	-0.41[-1.02,0.2]
Courneya 2003	24	131.9 (46.4)	26	137.1 (44.4)		7.62%	-0.11[-0.67,0.44]
DeNysschen 2011	30	36.9 (8.4)	34	38 (10.2)		8.71%	-0.12[-0.61,0.38]



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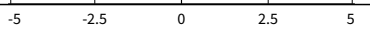
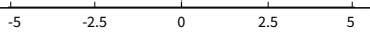
Study or subgroup	Physical activity N	Physical activity Mean(SD)	Control N	Control Mean(SD)	Std. Mean Difference Random, 95% CI	Weight	Std. Mean Difference Random, 95% CI
Winters-Stone 2011	36	40.5 (6.2)	31	38.5 (5.8)		8.85%	0.33[-0.16,0.81]
Schmitz 2005	39	40.9 (1.3)	40	42.3 (1.3)		9.07%	-1.05[-1.52,-0.58]
Pinto 2005	39	37.5 (4.8)	43	38.6 (4.8)		9.8%	-0.21[-0.64,0.22]
Daley 2007	33	39.4 (4.7)	69	40.1 (7.4)		10.21%	-0.1[-0.52,0.31]
Schmitz 2009	130	38.5 (5.9)	132	39.7 (5.9)		14.23%	-0.21[-0.46,0.03]
Subtotal ***	**424**		**462**			**100%**	**-0.24[-0.44,-0.04]**
Heterogeneity: Tau^2=0.06; Chi^2=22.86, df=12(P=0.03); I^2=47.51%							
Test for overall effect: Z=2.34(P=0.02)							
14.37.2 Moderate-to-high intensity							
Herrero 2006	8	22 (5)	8	22 (4)		6%	0[-0.98,0.98]
Musanti 2012	30	34.1 (6.6)	12	33.7 (5.7)		12.86%	0.07[-0.6,0.74]
Saarto 2012	37	39.9 (7.5)	30	40.2 (8)		24.85%	-0.04[-0.52,0.44]
Cadmus 2009	36	40.5 (6.6)	33	39.6 (6)		25.76%	0.15[-0.33,0.62]
Ligibel 2008	40	42.9 (7.4)	42	44.7 (8)		30.53%	-0.23[-0.67,0.2]
Subtotal ***	**151**		**125**			**100%**	**-0.03[-0.27,0.21]**
Heterogeneity: Tau^2=0; Chi^2=1.45, df=4(P=0.84); I^2=0%							
Test for overall effect: Z=0.27(P=0.78)							



Analysis 14.38. Comparison 14 Subanalysis: outcomes by intensity of physical activity intervention, Outcome 38 Overall body fat (change values).

Study or subgroup	Physical activity N	Physical activity Mean(SD)	Control N	Control Mean(SD)	Std. Mean Difference Random, 95% CI	Weight	Std. Mean Difference Random, 95% CI
14.38.1 Light-to-moderate intensity							
Mustian 2004	9	-0.2 (2.9)	10	0.3 (1.6)		13.13%	-0.18[-1.09,0.72]
Naumann 2012	11	-0.3 (2.4)	10	0.8 (2.8)		13.32%	-0.41[-1.28,0.46]
Matthews 2007	22	-0.2 (1.6)	14	0.4 (1.9)		14.28%	-0.34[-1.02,0.33]
Schmitz 2005	39	-1.1 (0.5)	40	0.2 (0.4)		14.35%	-3.07[-3.73,-2.41]
Rogers 2014	20	-1.1 (2.2)	22	-0.6 (2.4)		14.59%	-0.21[-0.82,0.39]
Courneya 2003	24	-4.9 (15.7)	26	5.1 (24.4)		14.78%	-0.48[-1.04,0.09]
Schmitz 2009	65	-0.3 (5.7)	63	-0.1 (3.3)		15.55%	-0.04[-0.39,0.3]
Subtotal ***	**190**		**185**			**100%**	**-0.68[-1.44,0.09]**
Heterogeneity: Tau^2=0.95; Chi^2=66.52, df=6(P<0.0001); I^2=90.98%							
Test for overall effect: Z=1.73(P=0.08)							
14.38.2 Moderate-to-high intensity							
Musanti 2012	30	-0.2 (2.8)	12	1.4 (1.6)		28.82%	-0.63[-1.32,0.05]
Ligibel 2008	40	-0.2 (1.7)	42	0.3 (1.7)		71.18%	-0.29[-0.73,0.14]
Subtotal ***	**70**		**54**			**100%**	**-0.39[-0.76,-0.02]**
Heterogeneity: Tau^2=0; Chi^2=0.68, df=1(P=0.41); I^2=0%							
Test for overall effect: Z=2.08(P=0.04)							



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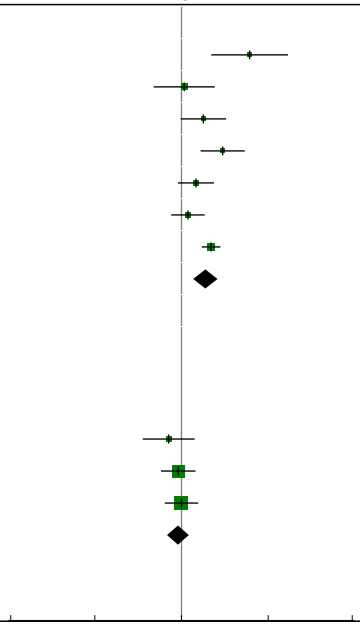
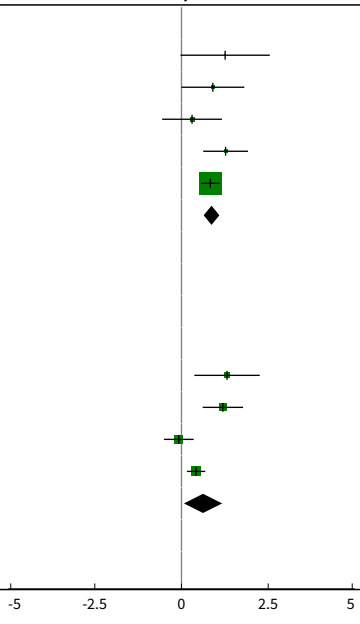
Analysis 14.39. Comparison 14 Subanalysis: outcomes by intensity of physical activity intervention, Outcome 39 Lower body strength (follow-up values).

Study or subgroup	Physical activity N	Physical activity Mean(SD)	Control N	Control Mean(SD)	Std. Mean Difference Random, 95% CI	Weight	Std. Mean Difference Random, 95% CI
14.39.1 Light-to-moderate intensity							
Cerulli 2014	10	114.9 (17.1)	10	79.1 (17.8)		7.2%	1.96[0.85,3.07]
Rogers 2013	11	68.4 (15.5)	9	67.1 (16.2)		9.78%	0.08[-0.8,0.96]
Rogers 2009	20	80.3 (27)	18	64.9 (19.7)		13.51%	0.63[-0.02,1.29]
Schmitz 2005	23	296.6 (48.9)	22	238.9 (46.4)		13.82%	1.19[0.55,1.83]
Milne 2008	29	66.2 (10.2)	29	61.7 (11)		16.32%	0.42[-0.1,0.94]
Winters-Stone 2011	36	201.3 (57.4)	31	191 (51.7)		17.22%	0.19[-0.3,0.67]
Schmitz 2009	113	223.4 (59.6)	119	175.1 (53.5)		22.15%	0.85[0.58,1.12]
Subtotal ***	**242**		**238**			**100%**	**0.69[0.34,1.04]**
Heterogeneity: Tau^2=0.13; Chi^2=15.91, df=6(P=0.01); I^2=62.29%							
Test for overall effect: Z=3.84(P=0)							
14.39.2 Moderate-to-high intensity							
Nikander 2007	14	1305 (177)	14	1393 (275)		17.65%	-0.37[-1.12,0.38]
Do 2015	32	13 (1.6)	30	13.2 (1.6)		39.76%	-0.09[-0.59,0.41]
Saarto 2012	37	136 (23)	30	136 (29)		42.59%	0[-0.48,0.48]
Subtotal ***	**83**		**74**			**100%**	**-0.1[-0.42,0.21]**
Heterogeneity: Tau^2=0; Chi^2=0.66, df=2(P=0.72); I^2=0%							
Test for overall effect: Z=0.64(P=0.52)							



Analysis 14.40. Comparison 14 Subanalysis: outcomes by intensity of physical activity intervention, Outcome 40 Lower body strength (change values).

Study or subgroup	Physical activity N	Physical activity Mean(SD)	Control N	Control Mean(SD)	Std. Mean Difference Random, 95% CI	Weight	Std. Mean Difference Random, 95% CI
14.40.1 Light-to-moderate intensity							
Nieman 1995	6	28.9 (13.7)	6	3.5 (22.5)		3.1%	1.26[-0.03,2.55]
Dolan 2016	11	10.3 (10)	10	0.3 (11.1)		6.24%	0.9[-0,1.81]
Naumann 2012	11	7.7 (12.6)	10	3.5 (13.9)		6.92%	0.3[-0.56,1.17]
Schmitz 2005	23	81.8 (48.9)	22	20.3 (46)		12.33%	1.27[0.63,1.92]
Schmitz 2009	113	33.2 (33.9)	119	7.9 (26.6)		71.41%	0.83[0.56,1.1]
Subtotal ***	**164**		**167**			**100%**	**0.87[0.64,1.09]**
Heterogeneity: Tau^2=0; Chi^2=3.58, df=4(P=0.47); I^2=0%							
Test for overall effect: Z=7.48(P<0.0001)							
14.40.2 Moderate-to-high intensity							
Dolan 2016	12	13.3 (7.9)	10	0.3 (11.1)		16.91%	1.31[0.37,2.26]
Cormie 2014	43	37.6 (25.5)	19	6.7 (25.7)		24.34%	1.19[0.61,1.78]
Do 2015	32	0.9 (0.7)	60	1 (0.6)		27.77%	-0.08[-0.51,0.35]
Waltman 2010	110	4.4 (11.5)	113	0.2 (8.4)		30.98%	0.42[0.15,0.69]
Subtotal ***	**197**		**202**			**100%**	**0.62[0.07,1.17]**
Heterogeneity: Tau^2=0.24; Chi^2=15.35, df=3(P=0); I^2=80.45%							
Test for overall effect: Z=2.21(P=0.03)							



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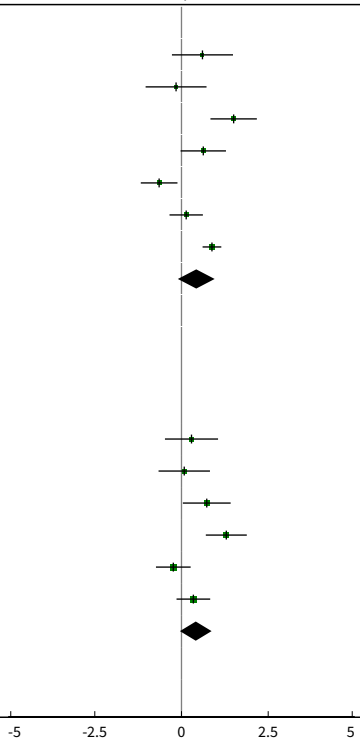
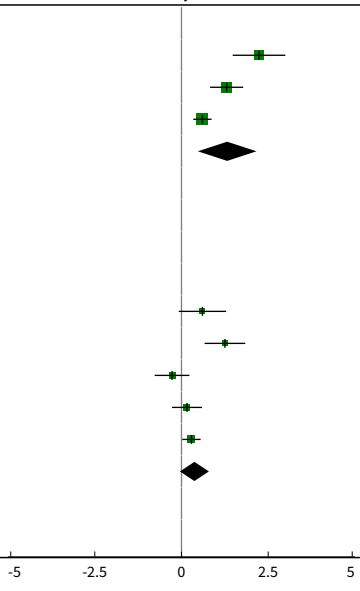
Analysis 14.41. Comparison 14 Subanalysis: outcomes by intensity of physical activity intervention, Outcome 41 Upper body strength (follow-up values).

Study or subgroup	Physical activity N	Physical activity Mean(SD)	Control N	Control Mean(SD)	Std. Mean Difference Random, 95% CI	Weight	Std. Mean Difference Random, 95% CI
14.41.1 Light-to-moderate intensity							
Mustian 2004	11	29.6 (3.3)	10	26.7 (5.7)		12%	0.6[-0.28,1.49]
Cerulli 2014	10	16.1 (5.4)	10	17.2 (8.1)		12.02%	-0.16[-1.03,0.72]
Schmitz 2005	23	83 (13.4)	22	63 (12.7)		13.95%	1.5[0.84,2.17]
Rogers 2009	20	27.9 (5)	18	24.3 (6.2)		14.08%	0.63[-0.03,1.28]
Milne 2008	29	7.6 (2.9)	29	9.4 (2.6)		15.21%	-0.64[-1.17,-0.12]
Winters-Stone 2011	36	63.3 (15.3)	31	61.1 (16.8)		15.62%	0.14[-0.34,0.62]
Schmitz 2009	113	52.9 (15.3)	119	40.9 (11.8)		17.12%	0.88[0.61,1.15]
Subtotal ***	**242**		**239**			**100%**	**0.43[-0.11,0.96]**
Heterogeneity: Tau²=0.41; Chi²=38.52, df=6(P<0.0001); I²=84.42%							
Test for overall effect: Z=1.57(P=0.12)							
14.41.2 Moderate-to-high intensity							
Portela 2008	25	39.3 (12.3)	9	35.6 (13.1)		14.43%	0.29[-0.48,1.05]
Nikander 2007	14	131 (20)	14	129 (28)		14.81%	0.08[-0.66,0.82]
Musanti 2012	30	52.1 (21)	12	36.8 (20)		15.63%	0.73[0.04,1.42]
Kaltsatou 2011	28	59.6 (8.5)	26	47.6 (9.8)		17.26%	1.29[0.7,1.88]
Do 2015	32	9.7 (1.7)	30	10.1 (1.7)		18.8%	-0.24[-0.74,0.26]
Saarto 2012	37	32.7 (5.3)	30	30.8 (5.7)		19.05%	0.34[-0.14,0.83]
Subtotal ***	**166**		**121**			**100%**	**0.41[-0.05,0.87]**
Heterogeneity: Tau²=0.22; Chi²=16.68, df=5(P=0.01); I²=70.02%							
Test for overall effect: Z=1.77(P=0.08)							



Analysis 14.42. Comparison 14 Subanalysis: outcomes by intensity of physical activity intervention, Outcome 42 Upper body strength (change values).

Study or subgroup	Physical activity N	Physical activity Mean(SD)	Control N	Control Mean(SD)	Std. Mean Difference Random, 95% CI	Weight	Std. Mean Difference Random, 95% CI
14.42.1 Light-to-moderate intensity							
Schmitz 2005	23	32.3 (11.5)	22	6.9 (10.8)		29.19%	2.24[1.48,2.99]
Mustian 2004	45	4.5 (4.7)	38	-0.8 (3.2)		34.02%	1.3[0.82,1.78]
Schmitz 2009	113	33.2 (40.8)	119	7.6 (43.7)		36.79%	0.6[0.34,0.87]
Subtotal ***	**181**		**179**			**100%**	**1.32[0.47,2.16]**
Heterogeneity: Tau²=0.49; Chi²=19.5, df=2(P<0.0001); I²=89.75%							
Test for overall effect: Z=3.05(P=0)							
14.42.2 Moderate-to-high intensity							
Musanti 2012	30	7.7 (10.6)	12	0.8 (12.7)		15.92%	0.6[-0.08,1.29]
Cormie 2014	43	5.7 (3.7)	19	1 (3.8)		17.94%	1.25[0.67,1.84]
Do 2015	32	0.3 (0.5)	30	0.6 (1.2)		19.83%	-0.27[-0.77,0.23]
Irwin 2015	45	0.4 (1.9)	38	0.1 (1.9)		21.37%	0.16[-0.27,0.59]
Waltman 2010	110	1.9 (4.9)	113	0.8 (2.9)		24.95%	0.29[0.02,0.55]
Subtotal ***	**260**		**212**			**100%**	**0.37[-0.05,0.79]**
Heterogeneity: Tau²=0.16; Chi²=16.36, df=4(P=0); I²=75.55%							
Test for overall effect: Z=1.75(P=0.08)							



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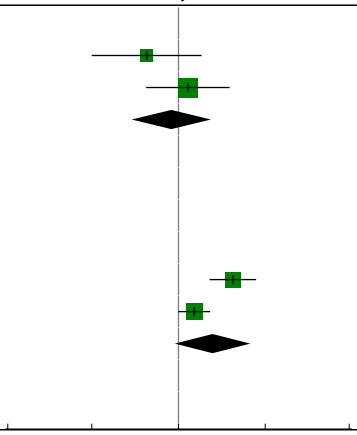
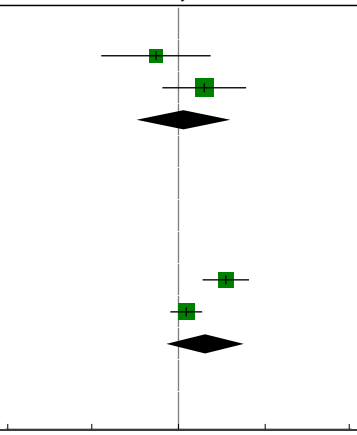
Analysis 14.43. Comparison 14 Subanalysis: outcomes by intensity of physical activity intervention, Outcome 43 Bone mineral density - femoral neck (follow-up and change values).

Study or subgroup	Physical activity N	Physical activity Mean(SD)	Control N	Control Mean(SD)	Std. Mean Difference Random, 95% CI	Weight	Std. Mean Difference Random, 95% CI
14.43.1 Light-to-moderate intensity							
Kim 2015	20	0.8 (0.1)	19	0.8 (0.1)		40.18%	-0.37[-1,0.27]
Winters-Stone 2011	36	0.7 (0.1)	31	0.7 (0.1)		59.82%	0.11[-0.37,0.59]
Subtotal ***	**56**		**50**			**100%**	**-0.08[-0.54,0.37]**
Heterogeneity: Tau²=0.03; Chi²=1.37, df=1(P=0.24); I²=27.19%							
Test for overall effect: Z=0.36(P=0.72)							
14.43.2 Moderate-to-high intensity							
Waltman 2010	110	0.9 (0.5)	113	0.6 (0.4)		47.47%	0.63[0.36,0.9]
Saarto 2012	239	-0 (0)	218	-0 (0)		52.53%	0.18[-0,0.37]
Subtotal ***	**349**		**331**			**100%**	**0.39[-0.04,0.83]**
Heterogeneity: Tau²=0.09; Chi²=7.17, df=1(P=0.01); I²=86.05%							
Test for overall effect: Z=1.77(P=0.08)							



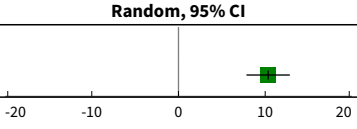
Analysis 14.44. Comparison 14 Subanalysis: outcomes by intensity of physical activity intervention, Outcome 44 Bone mineral density - lumbar spine (follow-up and change values).

Study or subgroup	Physical activity N	Physical activity Mean(SD)	Control N	Control Mean(SD)	Std. Mean Difference Random, 95% CI	Weight	Std. Mean Difference Random, 95% CI
14.44.1 Light-to-moderate intensity							
Kim 2015	20	1 (0.1)	19	1 (0.1)		43.1%	-0.26[-0.89,0.37]
Winters-Stone 2011	36	1 (0.2)	31	1 (0.1)		56.9%	0.3[-0.19,0.78]
Subtotal ***	**56**		**50**			**100%**	**0.06[-0.48,0.6]**
Heterogeneity: Tau²=0.07; Chi²=1.89, df=1(P=0.17); I²=47.1%							
Test for overall effect: Z=0.21(P=0.84)							
14.44.2 Moderate-to-high intensity							
Waltman 2010	110	3.1 (0.4)	113	2.9 (0.4)		47.63%	0.55[0.28,0.81]
Saarto 2012	239	-0 (0)	218	-0 (0)		52.37%	0.09[-0.09,0.27]
Subtotal ***	**349**		**331**			**100%**	**0.31[-0.14,0.75]**
Heterogeneity: Tau²=0.09; Chi²=7.59, df=1(P=0.01); I²=86.83%							
Test for overall effect: Z=1.35(P=0.18)							



Analysis 14.45. Comparison 14 Subanalysis: outcomes by intensity of physical activity intervention, Outcome 45 Bone mineral density - total hip (follow-up and change values).

Study or subgroup	Physical activity N	Physical activity Mean(SD)	Control N	Control Mean(SD)	Std. Mean Difference Random, 95% CI	Weight	Std. Mean Difference Random, 95% CI
14.45.1 Light-to-moderate intensity							
Kim 2015	20	0.9 (0.1)	19	0.1 (0.1)		49.24%	10.34[7.84,12.84]



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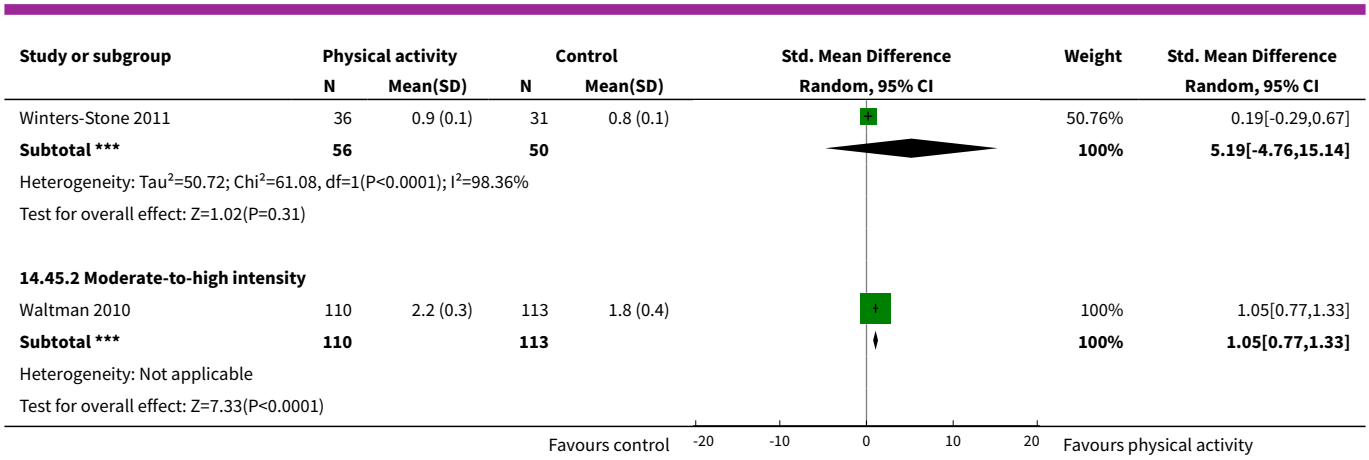

Comparison 15. Subanalysis: outcomes by duration of physical activity intervention

Outcome or subgroup title	No. of studies	No. of participants	Statistical method	Effect size
1 Overall HRQoL (follow-up values)	22		Std. Mean Difference (IV, Random, 95% CI)	Subtotals only
1.1 12 weeks or less	16	1404	Std. Mean Difference (IV, Random, 95% CI)	0.45 [0.19, 0.70]
1.2 More than 12 weeks	6	399	Std. Mean Difference (IV, Random, 95% CI)	0.38 [0.10, 0.65]
2 Overall HRQoL (change values)	14		Std. Mean Difference (IV, Random, 95% CI)	Subtotals only
2.1 12 weeks or less	11	828	Std. Mean Difference (IV, Random, 95% CI)	0.99 [0.45, 1.52]
2.2 More than 12 weeks	3	631	Std. Mean Difference (IV, Random, 95% CI)	0.27 [-0.21, 0.76]
3 Overall emotional function/mental health (follow-up values)	26		Std. Mean Difference (IV, Random, 95% CI)	Subtotals only
3.1 12 weeks or less	20	1557	Std. Mean Difference (IV, Random, 95% CI)	0.26 [0.12, 0.39]
3.2 More than 12 weeks	6	545	Std. Mean Difference (IV, Random, 95% CI)	0.06 [-0.11, 0.23]
4 Overall emotional function/mental health (change values)	15		Std. Mean Difference (IV, Random, 95% CI)	Subtotals only
4.1 12 weeks or less	10	754	Std. Mean Difference (IV, Random, 95% CI)	0.39 [0.03, 0.76]

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Outcome or subgroup title	No. of studies	No. of participants	Statistical method	Effect size
4.2 More than 12 weeks	5	825	Std. Mean Difference (IV, Random, 95% CI)	0.19 [-0.05, 0.43]
5 Overall physical function (follow-up values)	25		Std. Mean Difference (IV, Random, 95% CI)	Subtotals only
5.1 12 weeks or less	18	1523	Std. Mean Difference (IV, Random, 95% CI)	0.37 [0.17, 0.58]
5.2 More than 12 weeks	7	606	Std. Mean Difference (IV, Random, 95% CI)	0.24 [0.08, 0.40]
6 Overall physical function (change values)	13		Std. Mean Difference (IV, Random, 95% CI)	Subtotals only
6.1 12 weeks or less	8	608	Std. Mean Difference (IV, Random, 95% CI)	0.97 [0.27, 1.66]
6.2 More than 12 weeks	5	825	Std. Mean Difference (IV, Random, 95% CI)	0.15 [-0.16, 0.45]
7 Overall role function (follow-up values)	18		Std. Mean Difference (IV, Random, 95% CI)	Subtotals only
7.1 12 weeks or less	13	1057	Std. Mean Difference (IV, Random, 95% CI)	0.30 [-0.01, 0.60]
7.2 More than 12 weeks	5	313	Std. Mean Difference (IV, Random, 95% CI)	0.27 [0.04, 0.49]
8 Overall role function (change values)	12		Std. Mean Difference (IV, Random, 95% CI)	Subtotals only
8.1 12 weeks or less	8	610	Std. Mean Difference (IV, Random, 95% CI)	0.24 [-0.06, 0.55]
8.2 More than 12 weeks	4	705	Std. Mean Difference (IV, Random, 95% CI)	-0.03 [-0.18, 0.11]
9 Overall social well-being/function (follow-up values)	18		Std. Mean Difference (IV, Random, 95% CI)	Subtotals only
9.1 12 weeks or less	13	1202	Std. Mean Difference (IV, Random, 95% CI)	0.23 [0.06, 0.39]
9.2 More than 12 weeks	5	355	Std. Mean Difference (IV, Random, 95% CI)	0.15 [-0.05, 0.36]
10 Overall social well-being/function (change values)	12		Std. Mean Difference (IV, Random, 95% CI)	Subtotals only
10.1 12 weeks or less	8	637	Std. Mean Difference (IV, Random, 95% CI)	0.73 [0.35, 1.11]

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Outcome or subgroup title	No. of studies	No. of participants	Statistical method	Effect size
10.2 More than 12 weeks	4	747	Std. Mean Difference (IV, Random, 95% CI)	0.11 [-0.19, 0.42]
11 Overall cognitive function (follow-up values)	5		Std. Mean Difference (IV, Random, 95% CI)	Subtotals only
11.1 12 weeks or less	5	189	Std. Mean Difference (IV, Random, 95% CI)	0.40 [0.11, 0.69]
11.2 More than 12 weeks	0	0	Std. Mean Difference (IV, Random, 95% CI)	0.0 [0.0, 0.0]
12 Overall cognitive function (change values)	5		Std. Mean Difference (IV, Random, 95% CI)	Subtotals only
12.1 12 weeks or less	4	172	Std. Mean Difference (IV, Random, 95% CI)	0.14 [-0.17, 0.44]
12.2 More than 12 weeks	1	500	Std. Mean Difference (IV, Random, 95% CI)	-0.17 [-0.35, 0.00]
13 Overall general health (follow-up values)	9		Std. Mean Difference (IV, Random, 95% CI)	Subtotals only
13.1 12 weeks or less	6	252	Std. Mean Difference (IV, Random, 95% CI)	0.17 [-0.16, 0.50]
13.2 More than 12 weeks	3	204	Std. Mean Difference (IV, Random, 95% CI)	0.21 [-0.32, 0.75]
14 Overall general health (change values)	9		Std. Mean Difference (IV, Random, 95% CI)	Subtotals only
14.1 12 weeks or less	6	253	Std. Mean Difference (IV, Random, 95% CI)	0.29 [-0.09, 0.67]
14.2 More than 12 weeks	3	653	Std. Mean Difference (IV, Random, 95% CI)	0.01 [-0.20, 0.22]
15 Overall sexual function (follow-up values)	5		Std. Mean Difference (IV, Fixed, 95% CI)	Subtotals only
15.1 12 weeks or less	3	218	Std. Mean Difference (IV, Fixed, 95% CI)	0.11 [-0.16, 0.38]
15.2 More than 12 weeks	2	193	Std. Mean Difference (IV, Fixed, 95% CI)	0.21 [-0.07, 0.49]
16 Overall sexual function (change values)	3		Mean Difference (IV, Random, 95% CI)	Subtotals only
16.1 12 weeks or less	0	0	Mean Difference (IV, Random, 95% CI)	0.0 [0.0, 0.0]
16.2 More than 12 weeks	3	693	Mean Difference (IV, Random, 95% CI)	2.44 [-0.76, 5.64]
17 Overall sleep (follow-up values)	5		Std. Mean Difference (IV, Fixed, 95% CI)	Subtotals only

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Outcome or subgroup title	No. of studies	No. of participants	Statistical method	Effect size
17.1 12 weeks or less	5	188	Std. Mean Difference (IV, Fixed, 95% CI)	-0.09 [-0.37, 0.20]
17.2 More than 12 weeks	0	0	Std. Mean Difference (IV, Fixed, 95% CI)	0.0 [0.0, 0.0]
18 Overall sleep (change values)	3		Std. Mean Difference (IV, Random, 95% CI)	Subtotals only
18.1 12 weeks or less	3	136	Std. Mean Difference (IV, Random, 95% CI)	0.14 [-0.20, 0.48]
18.2 More than 12 weeks	0	0	Std. Mean Difference (IV, Random, 95% CI)	0.0 [0.0, 0.0]
19 Overall anxiety (follow-up values)	7		Std. Mean Difference (IV, Random, 95% CI)	Subtotals only
19.1 12 weeks or less	6	252	Std. Mean Difference (IV, Random, 95% CI)	-0.67 [-1.09, -0.25]
19.2 More than 12 weeks	1	74	Std. Mean Difference (IV, Random, 95% CI)	-0.14 [-0.60, 0.31]
20 Overall anxiety (change values)	4		Std. Mean Difference (IV, Fixed, 95% CI)	Subtotals only
20.1 12 weeks or less	3	161	Std. Mean Difference (IV, Fixed, 95% CI)	-0.48 [-0.79, -0.16]
20.2 More than 12 weeks	1	74	Std. Mean Difference (IV, Fixed, 95% CI)	-0.15 [-0.61, 0.30]
21 Overall depression (follow-up values)	12		Std. Mean Difference (IV, Random, 95% CI)	Subtotals only
21.1 12 weeks or less	9	537	Std. Mean Difference (IV, Random, 95% CI)	-0.36 [-0.70, -0.01]
21.2 More than 12 weeks	3	120	Std. Mean Difference (IV, Random, 95% CI)	-0.30 [-0.90, 0.30]
22 Overall depression (change values)	6		Std. Mean Difference (IV, Random, 95% CI)	Subtotals only
22.1 12 weeks or less	4	182	Std. Mean Difference (IV, Random, 95% CI)	-0.60 [-0.89, -0.30]
22.2 More than 12 weeks	2	574	Std. Mean Difference (IV, Random, 95% CI)	0.00 [-0.21, 0.22]
23 Overall fatigue (follow-up values)	25		Std. Mean Difference (IV, Random, 95% CI)	Subtotals only
23.1 12 weeks or less	20	1657	Std. Mean Difference (IV, Random, 95% CI)	-0.42 [-0.59, -0.25]
23.2 More than 12 weeks	5	268	Std. Mean Difference (IV, Random, 95% CI)	0.02 [-0.22, 0.26]

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Outcome or subgroup title	No. of studies	No. of participants	Statistical method	Effect size
24 Overall fatigue (change values)	12		Std. Mean Difference (IV, Random, 95% CI)	Subtotals only
24.1 12 weeks or less	10	719	Std. Mean Difference (IV, Random, 95% CI)	-0.44 [-0.83, -0.05]
24.2 More than 12 weeks	2	552	Std. Mean Difference (IV, Random, 95% CI)	0.36 [-0.43, 1.15]
25 Overall pain/disability (follow-up values)	9		Std. Mean Difference (IV, Random, 95% CI)	Subtotals only
25.1 12 weeks or less	6	376	Std. Mean Difference (IV, Random, 95% CI)	0.03 [-0.17, 0.23]
25.2 More than 12 weeks	3	159	Std. Mean Difference (IV, Random, 95% CI)	0.21 [-0.27, 0.70]
26 Overall pain/disability (change values)	5		Std. Mean Difference (IV, Random, 95% CI)	Subtotals only
26.1 12 weeks or less	3	139	Std. Mean Difference (IV, Random, 95% CI)	0.16 [-0.19, 0.50]
26.2 More than 12 weeks	2	157	Std. Mean Difference (IV, Random, 95% CI)	-0.29 [-0.61, 0.02]
27 Overall self-esteem/body image (follow-up values)	12		Std. Mean Difference (IV, Random, 95% CI)	Subtotals only
27.1 12 weeks or less	9	419	Std. Mean Difference (IV, Random, 95% CI)	0.36 [0.07, 0.66]
27.2 More than 12 weeks	3	248	Std. Mean Difference (IV, Random, 95% CI)	0.08 [-0.17, 0.33]
28 Overall self-esteem/body image (change values)	9		Std. Mean Difference (IV, Random, 95% CI)	Subtotals only
28.1 12 weeks or less	5	244	Std. Mean Difference (IV, Random, 95% CI)	0.54 [-0.10, 1.18]
28.2 More than 12 weeks	4	748	Std. Mean Difference (IV, Random, 95% CI)	0.01 [-0.37, 0.39]
29 Overall cardiorespiratory fitness (follow-up values)	23		Std. Mean Difference (IV, Random, 95% CI)	Subtotals only
29.1 12 weeks or less	15	923	Std. Mean Difference (IV, Random, 95% CI)	0.35 [0.20, 0.49]
29.2 More than 12 weeks	8	342	Std. Mean Difference (IV, Random, 95% CI)	0.67 [0.40, 0.94]

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Outcome or subgroup title	No. of studies	No. of participants	Statistical method	Effect size
30 Overall cardiorespiratory fitness (change values)	9		Std. Mean Difference (IV, Random, 95% CI)	Subtotals only
30.1 12 weeks or less	6	232	Std. Mean Difference (IV, Random, 95% CI)	0.91 [0.31, 1.52]
30.2 More than 12 weeks	3	631	Std. Mean Difference (IV, Random, 95% CI)	0.76 [0.02, 1.51]
31 Overall self-reported physical activity (follow-up values)	18		Std. Mean Difference (IV, Random, 95% CI)	Subtotals only
31.1 12 weeks or less	11	1401	Std. Mean Difference (IV, Random, 95% CI)	0.60 [0.36, 0.84]
31.2 More than 12 weeks	7	643	Std. Mean Difference (IV, Random, 95% CI)	0.41 [0.09, 0.74]
32 Overall self-reported physical activity (change values)	8		Std. Mean Difference (IV, Random, 95% CI)	Subtotals only
32.1 12 weeks or less	4	521	Std. Mean Difference (IV, Random, 95% CI)	0.78 [0.20, 1.36]
32.2 More than 12 weeks	4	753	Std. Mean Difference (IV, Random, 95% CI)	0.46 [-0.01, 0.92]
33 Overall objective physical activity (follow-up values)	11		Std. Mean Difference (IV, Random, 95% CI)	Subtotals only
33.1 12 weeks or less	10	1203	Std. Mean Difference (IV, Random, 95% CI)	0.44 [0.18, 0.70]
33.2 More than 12 weeks	1	67	Std. Mean Difference (IV, Random, 95% CI)	0.38 [-0.11, 0.86]
34 Overall objective physical activity (change values)	5		Std. Mean Difference (IV, Random, 95% CI)	Subtotals only
34.1 12 weeks or less	4	441	Std. Mean Difference (IV, Random, 95% CI)	0.72 [-0.02, 1.46]
34.2 More than 12 weeks	1	67	Std. Mean Difference (IV, Random, 95% CI)	0.75 [0.25, 1.24]
35 Mass (follow-up values)	16		Mean Difference (IV, Fixed, 95% CI)	Subtotals only
35.1 12 weeks or less	7	451	Mean Difference (IV, Fixed, 95% CI)	-0.10 [-0.85, 0.65]
35.2 More than 12 weeks	9	759	Mean Difference (IV, Fixed, 95% CI)	0.14 [-0.76, 1.05]
36 Mass (change values)	11		Mean Difference (IV, Random, 95% CI)	Subtotals only

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Outcome or subgroup title	No. of studies	No. of participants	Statistical method	Effect size
36.1 12 weeks or less	5	171	Mean Difference (IV, Random, 95% CI)	-0.82 [-1.81, 0.17]
36.2 More than 12 weeks	6	876	Mean Difference (IV, Random, 95% CI)	-0.25 [-0.73, 0.24]
37 BMI (follow-up values)	17		Mean Difference (IV, Fixed, 95% CI)	Subtotals only
37.1 12 weeks or less	9	819	Mean Difference (IV, Fixed, 95% CI)	-0.07 [-0.35, 0.20]
37.2 More than 12 weeks	8	662	Mean Difference (IV, Fixed, 95% CI)	0.13 [-0.18, 0.43]
38 BMI (change values)	8		Mean Difference (IV, Random, 95% CI)	Subtotals only
38.1 12 weeks or less	4	144	Mean Difference (IV, Random, 95% CI)	-0.27 [-0.76, 0.22]
38.2 More than 12 weeks	4	341	Mean Difference (IV, Random, 95% CI)	-0.08 [-0.22, 0.07]
39 Overall body fat (follow-up values)	18		Std. Mean Difference (IV, Random, 95% CI)	Subtotals only
39.1 12 weeks or less	9	402	Std. Mean Difference (IV, Random, 95% CI)	-0.16 [-0.37, 0.04]
39.2 More than 12 weeks	9	760	Std. Mean Difference (IV, Random, 95% CI)	-0.20 [-0.45, 0.05]
40 Overall body fat (change values)	9		Std. Mean Difference (IV, Random, 95% CI)	Subtotals only
40.1 12 weeks or less	5	160	Std. Mean Difference (IV, Random, 95% CI)	-0.36 [-0.68, -0.04]
40.2 More than 12 weeks	4	339	Std. Mean Difference (IV, Random, 95% CI)	-0.94 [-2.07, 0.18]
41 Lower body strength (follow-up values)	10		Std. Mean Difference (IV, Random, 95% CI)	Subtotals only
41.1 12 weeks or less	5	206	Std. Mean Difference (IV, Random, 95% CI)	0.15 [-0.19, 0.50]
41.2 More than 12 weeks	5	431	Std. Mean Difference (IV, Random, 95% CI)	0.72 [0.20, 1.24]
42 Lower body strength (change values)	8		Std. Mean Difference (IV, Random, 95% CI)	Subtotals only
42.1 12 weeks or less	5	220	Std. Mean Difference (IV, Random, 95% CI)	0.71 [0.06, 1.37]
42.2 More than 12 weeks	3	500	Std. Mean Difference (IV, Random, 95% CI)	0.76 [0.36, 1.17]
43 Upper body strength (follow-up values)	13		Std. Mean Difference (IV, Random, 95% CI)	Subtotals only

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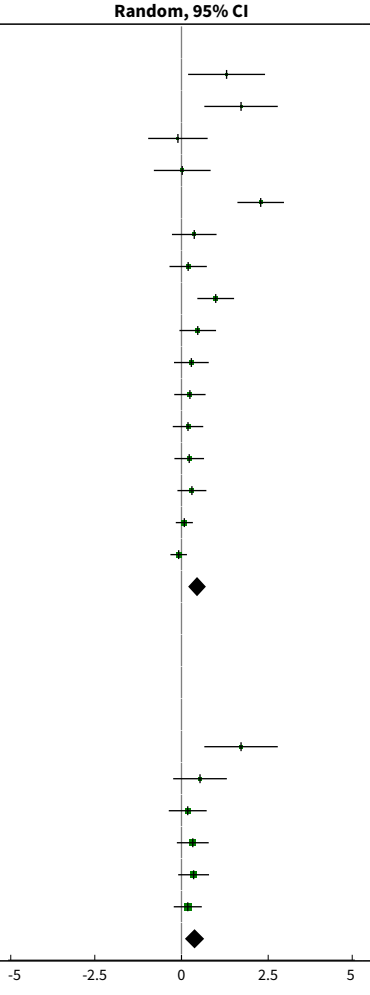
Outcome or subgroup title	No. of studies	No. of participants	Statistical method	Effect size
43.1 12 weeks or less	6	249	Std. Mean Difference (IV, Random, 95% CI)	0.15 [-0.32, 0.62]
43.2 More than 12 weeks	7	519	Std. Mean Difference (IV, Random, 95% CI)	0.64 [0.24, 1.04]
44 Upper body strength (change values)	8		Std. Mean Difference (IV, Random, 95% CI)	Subtotals only
44.1 12 weeks or less	4	249	Std. Mean Difference (IV, Random, 95% CI)	0.72 [-0.06, 1.50]
44.2 More than 12 weeks	4	583	Std. Mean Difference (IV, Random, 95% CI)	0.71 [0.17, 1.25]

Analysis 15.1. Comparison 15 Subanalysis: outcomes by duration of physical activity intervention, Outcome 1 Overall HRQoL (follow-up values).

Study or subgroup	Physical activity N	Physical activity Mean(SD)	Control N	Control Mean(SD)	Std. Mean Difference Random, 95% CI	Weight	Std. Mean Difference Random, 95% CI
15.1.1 12 weeks or less							
Herrero 2006	8	81.3 (10.7)	8	62.5 (16.1)		3.37%	1.3[0.19,2.41]
Rogers 2015	10	85.2 (4.2)	10	65.9 (14.7)		3.56%	1.72[0.66,2.78]
Mustian 2004	11	121.7 (22.7)	10	124.3 (25.9)		4.52%	-0.1[-0.96,0.75]
Loudon 2014	12	-7.4 (1.2)	11	-7.4 (1.4)		4.73%	0.02[-0.8,0.84]
Milne 2008	29	86.4 (8.3)	29	64.1 (10.8)		5.62%	2.28[1.61,2.96]
Rogers 2009	20	92 (11.4)	18	87.4 (13.1)		5.8%	0.37[-0.27,1.01]
Ergun 2013	40	71.6 (19.9)	20	67.9 (16.7)		6.52%	0.19[-0.35,0.73]
Murtezani 2014	30	86.5 (7.3)	32	79.1 (7.5)		6.58%	0.99[0.46,1.52]
Mehnert 2011	30	74.7 (21.7)	27	65.4 (16.8)		6.59%	0.47[-0.06,1]
Do 2015	32	87.3 (13.7)	30	82.4 (19.9)		6.78%	0.28[-0.22,0.79]
Pinto 2015	39	117.8 (12.7)	37	114 (18)		7.13%	0.24[-0.21,0.69]
Taleghani 2012	40	217.5 (36.3)	40	210.1 (41.5)		7.21%	0.19[-0.25,0.63]
Loh 2014	63	112.4 (14.1)	32	109.3 (13.3)		7.3%	0.22[-0.2,0.65]
Daley 2007	33	90.9 (13.5)	69	86.4 (15.1)		7.37%	0.3[-0.12,0.72]
Vallance 2007	250	91.5 (11.8)	85	90.6 (13)		8.44%	0.08[-0.16,0.33]
Short 2014	195	106.8 (16.7)	104	108.2 (18.2)		8.49%	-0.08[-0.32,0.16]
Subtotal ***	**842**		**562**			**100%**	**0.45[0.19,0.7]**
Heterogeneity: Tau^2=0.19; Chi^2=64.72, df=15(P<0.0001); I^2=76.82%							
Test for overall effect: Z=3.43(P=0)							
15.1.2 More than 12 weeks							
Cerulli 2014	10	85.2 (4.2)	10	65.9 (14.7)		6.02%	1.72[0.66,2.78]
Portela 2008	25	107.2 (28.5)	9	91.6 (28.5)		10.18%	0.53[-0.24,1.31]
Courneya 2003	24	91.3 (11)	28	89.3 (10.9)		16.93%	0.18[-0.37,0.73]
Cadmus 2009	37	91.2 (12.6)	37	86.2 (17.4)		21%	0.33[-0.13,0.78]
Schmitz 2005	39	-44.2 (8.7)	40	-47.4 (9.4)		21.77%	0.35[-0.09,0.79]
Littman 2012	30	90.3 (11)	110	87.7 (15)		24.11%	0.18[-0.22,0.59]
Subtotal ***	**165**		**234**			**100%**	**0.38[0.1,0.65]**



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Study or subgroup	Physical activity N	Physical activity Mean(SD)	Control N	Control Mean(SD)	Std. Mean Difference Random, 95% CI	Weight	Std. Mean Difference Random, 95% CI
Heterogeneity: Tau²=0.04; Chi²=7.67, df=5(P=0.18); I²=34.83%							
Test for overall effect: Z=2.66(P=0.01)							

Favours control -5 -2.5 0 2.5 5 Favours physical activity

Analysis 15.2. Comparison 15 Subanalysis: outcomes by duration of physical activity intervention, Outcome 2 Overall HRQoL (change values).

Study or subgroup	Physical activity N	Physical activity Mean(SD)	Control N	Control Mean(SD)	Std. Mean Difference Random, 95% CI	Weight	Std. Mean Difference Random, 95% CI
15.2.1 12 weeks or less							
Mustian 2004	11	15 (5)	10	0 (5)		6.7%	2.88[1.59,4.17]
Herrero 2006	8	17.7 (8.3)	8	-10.4 (17.7)		6.89%	1.92[0.68,3.17]
Murtezani 2014	30	9.2 (2.1)	32	-0.6 (2)		8.02%	4.65[3.67,5.63]
Naumann 2012	11	14.5 (10.6)	10	3.1 (11.4)		8.3%	1[0.08,1.92]
Rogers 2009	20	4.5 (8.4)	18	2.9 (12)		9.5%	0.15[-0.49,0.79]
Cuesta-Vargas 2014	22	0.3 (0.2)	20	0.3 (0.1)		9.63%	-0.07[-0.67,0.54]
Ergun 2013	40	5.4 (21.5)	20	-6.7 (25.9)		9.86%	0.52[-0.03,1.06]
Mehnert 2011	30	9.7 (21)	27	5.6 (16.5)		9.94%	0.22[-0.31,0.74]
Cadmus 2009	37	0.6 (7.5)	37	-2.4 (9.8)		10.16%	0.34[-0.12,0.8]
Daley 2007	33	10.2 (11.2)	69	3.2 (11.3)		10.27%	0.62[0.2,1.04]
Vallance 2007	250	2.3 (11.1)	85	-0.2 (6.4)		10.73%	0.24[-0,0.49]
Subtotal ***	**492**		**336**			**100%**	**0.99[0.45,1.52]**
Heterogeneity: Tau²=0.68; Chi²=98.44, df=10(P<0.0001); I²=89.84%							
Test for overall effect: Z=3.61(P=0)							
15.2.2 More than 12 weeks							
Courneya 2003	24	5.7 (7.4)	28	0.6 (7.4)		27.32%	0.68[0.12,1.24]
Schmitz 2005	39	2.3 (4.5)	40	0.6 (4)		31.67%	0.4[-0.05,0.84]
Saarto 2012	263	4.2 (16.2)	237	5.6 (15.4)		41.02%	-0.09[-0.26,0.09]
Subtotal ***	**326**		**305**			**100%**	**0.27[-0.21,0.76]**
Heterogeneity: Tau²=0.14; Chi²=9.45, df=2(P=0.01); I²=78.84%							
Test for overall effect: Z=1.11(P=0.26)							

Favours control -10 -5 0 5 10 Favours physical activity

Analysis 15.3. Comparison 15 Subanalysis: outcomes by duration of physical activity intervention, Outcome 3 Overall emotional function/mental health (follow-up values).

Study or subgroup	Physical activity N	Physical activity Mean(SD)	Control N	Control Mean(SD)	Std. Mean Difference Random, 95% CI	Weight	Std. Mean Difference Random, 95% CI
15.3.1 12 weeks or less							
Banasik 2011	7	0.5 (0.4)	7	0.4 (0.3)		1.49%	0.25[-0.8,1.3]
Herrero 2006	8	90.6 (9.3)	8	83.3 (14.8)		1.62%	0.56[-0.45,1.56]
Mustian 2004	9	24.8 (2)	10	24.8 (3.2)		1.97%	-0.01[-0.91,0.89]
Pinto 2003	12	-10.8 (28.1)	12	-27.2 (19.5)		2.3%	0.65[-0.17,1.48]
Loudon 2014	12	-1.6 (0.7)	11	-1.6 (0.5)		2.34%	0.05[-0.77,0.87]
Rogers 2009	20	20 (3.1)	18	21.1 (2.9)		3.5%	-0.36[-1,0.28]
Cuesta-Vargas 2014	22	42.9 (19.2)	20	32.3 (33.3)		3.78%	0.39[-0.22,1]

Favours control -5 -2.5 0 2.5 5 Favours physical activity

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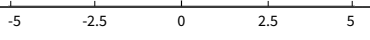
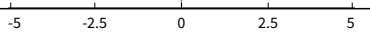
Study or subgroup	Physical activity N	Physical activity Mean(SD)	Control N	Control Mean(SD)	Std. Mean Difference Random, 95% CI	Weight	Std. Mean Difference Random, 95% CI
Milne 2008	29	19.6 (2.4)	29	16.7 (4.1)		4.59%	0.85[0.31,1.39]
Do 2015	32	87.4 (8.8)	30	70.4 (21.5)		4.67%	1.03[0.5,1.57]
Mehnert 2011	30	77 (35.8)	28	69.1 (40.5)		4.89%	0.21[-0.31,0.72]
Cantarero-Villanueva 2013	32	-17175 (4279)	29	-20390 (6113)		4.91%	0.61[0.09,1.12]
Murtezani 2014	30	19.5 (3.3)	32	18.3 (3.5)		5.09%	0.35[-0.15,0.85]
Daley 2007	33	19.1 (4.2)	33	18.5 (3.3)		5.37%	0.16[-0.32,0.64]
Pinto 2015	39	54.2 (9.3)	37	52.5 (9.6)		5.9%	0.18[-0.27,0.63]
Pinto 2005	39	-8 (20.7)	43	-16.5 (28.8)		6.16%	0.33[-0.1,0.77]
Loh 2014	63	19.9 (2.8)	32	20 (3.2)		6.36%	-0.04[-0.46,0.39]
Fillion 2008	44	48.5 (7.9)	43	47.5 (9.1)		6.46%	0.12[-0.3,0.54]
Duijits 2012	37	73.9 (34.7)	89	77.5 (34.3)		7.23%	-0.1[-0.49,0.28]
Rogers 2015	105	20.6 (2.9)	108	19.7 (3.2)		10.29%	0.29[0.02,0.56]
Vallance 2007	250	20.3 (3.3)	85	19.9 (3.4)		11.07%	0.11[-0.14,0.35]
Subtotal ***	**853**		**704**			**100%**	**0.26[0.12,0.39]**
Heterogeneity: Tau^2=0.03; Chi^2=27.63, df=19(P=0.09); I^2=31.23%							
Test for overall effect: Z=3.74(P=0)							
15.3.2 More than 12 weeks							
Basen-Enquist 2006	28	78.2 (10.6)	23	77.2 (12)		9.32%	0.09[-0.46,0.64]
Courneya 2003	24	21.5 (3.4)	28	20.7 (3)		9.47%	0.25[-0.3,0.79]
Littman 2012	30	20.3 (4)	27	20.8 (3.1)		10.47%	-0.14[-0.66,0.38]
Cadmus 2009	37	20.5 (3)	37	19.8 (4.2)		13.6%	0.19[-0.27,0.65]
Schmitz 2005	39	-45.6 (8.2)	40	-48.2 (8.2)		14.4%	0.31[-0.13,0.76]
Schmitz 2009	112	53.2 (9.6)	120	53.8 (8.7)		42.76%	-0.07[-0.32,0.19]
Subtotal ***	**270**		**275**			**100%**	**0.06[-0.11,0.23]**
Heterogeneity: Tau^2=0; Chi^2=3.49, df=5(P=0.63); I^2=0%							
Test for overall effect: Z=0.7(P=0.48)							



Analysis 15.4. Comparison 15 Subanalysis: outcomes by duration of physical activity intervention, Outcome 4 Overall emotional function/mental health (change values).

Study or subgroup	Physical activity N	Physical activity Mean(SD)	Control N	Control Mean(SD)	Std. Mean Difference Random, 95% CI	Weight	Std. Mean Difference Random, 95% CI
15.4.1 12 weeks or less							
Herrero 2006	8	9.3 (19.6)	8	-2.1 (5.9)		6.69%	0.74[-0.28,1.77]
Mustian 2004	9	2.4 (2.5)	10	0.1 (1.7)		7.03%	1.06[0.08,2.03]
Naumann 2012	11	1 (2.7)	10	-0.1 (2.7)		7.88%	0.39[-0.48,1.26]
Rogers 2009	20	0.9 (2.5)	18	-0.1 (2.7)		9.86%	0.38[-0.27,1.02]
Murtezani 2014	30	2.1 (0.8)	32	0.5 (0.9)		10.3%	1.8[1.21,2.4]
Cormie 2014	43	4.4 (9)	19	2.7 (8.6)		10.83%	0.19[-0.35,0.73]
Mehnert 2011	30	2.3 (35.5)	28	3.6 (17.6)		11.08%	-0.04[-0.56,0.47]
Cantarero-Villanueva 2013	32	-1445 (4452)	29	353 (3323)		11.13%	-0.45[-0.96,0.06]
Pinto 2005	39	-3.8 (27.7)	43	-11.5 (25.8)		11.82%	0.28[-0.15,0.72]
Vallance 2007	250	0.5 (3.5)	85	0.1 (2.5)		13.37%	0.12[-0.13,0.36]
Subtotal ***	**472**		**282**			**100%**	**0.39[0.03,0.76]**
Heterogeneity: Tau^2=0.24; Chi^2=39.44, df=9(P<0.0001); I^2=77.18%							
Test for overall effect: Z=2.11(P=0.03)							



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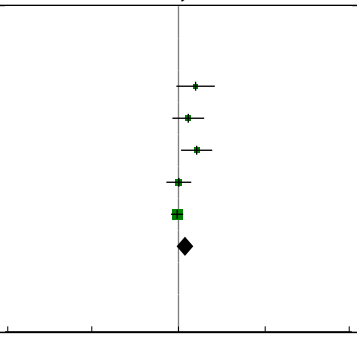
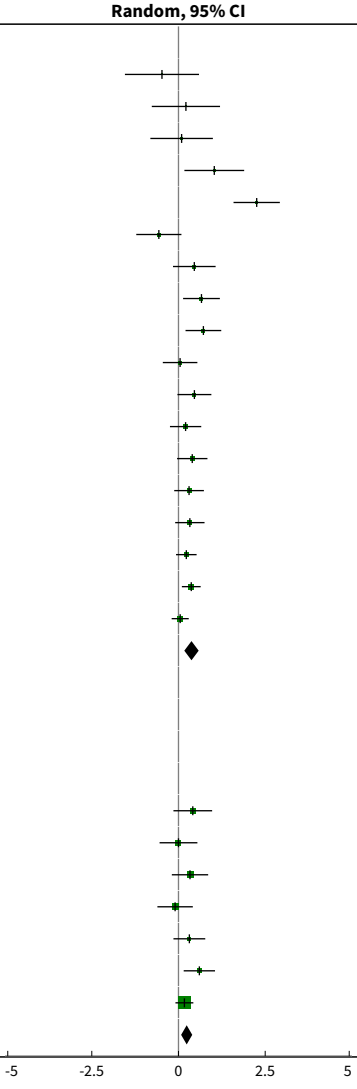
Study or subgroup	Physical activity N	Physical activity Mean(SD)	Control N	Control Mean(SD)	Std. Mean Difference Random, 95% CI	Weight	Std. Mean Difference Random, 95% CI
15.4.2 More than 12 weeks							
Courneya 2003	24	2.3 (3.1)	28	0.8 (2.9)		12.83%	0.49[-0.06,1.05]
Cadmus 2009	37	0.3 (2.2)	37	-0.5 (3.3)		16.34%	0.28[-0.18,0.74]
Schmitz 2005	39	2.5 (4.4)	40	0.3 (3.9)		16.73%	0.52[0.08,0.97]
Schmitz 2009	58	3.3 (23.2)	62	3.1 (17.2)		21.21%	0.01[-0.35,0.37]
Saarto 2012	263	1.2 (17.8)	237	1.9 (18.5)		32.9%	-0.04[-0.21,0.14]
Subtotal ***	**421**		**404**			**100%**	**0.19[-0.05,0.43]**
Heterogeneity: Tau²=0.04; Chi²=8.55, df=4(P=0.07); I²=53.23%							
Test for overall effect: Z=1.52(P=0.13)							



Analysis 15.5. Comparison 15 Subanalysis: outcomes by duration of physical activity intervention, Outcome 5 Overall physical function (follow-up values).

Study or subgroup	Physical activity N	Physical activity Mean(SD)	Control N	Control Mean(SD)	Std. Mean Difference Random, 95% CI	Weight	Std. Mean Difference Random, 95% CI
15.5.1 12 weeks or less							
Banasik 2011	7	-0.8 (0.9)	7	-0.4 (0.3)		2.66%	-0.48[-1.54,0.59]
Herrero 2006	8	94.1 (7.5)	8	92.5 (6.6)		2.98%	0.21[-0.77,1.2]
Mustian 2004	9	26.9 (4.1)	10	26.5 (4.1)		3.34%	0.09[-0.81,0.99]
Pinto 2003	12	32.3 (4.3)	12	25.3 (8.2)		3.54%	1.03[0.17,1.89]
Milne 2008	29	24 (2.6)	29	15.6 (4.5)		4.68%	2.26[1.59,2.92]
Rogers 2009	20	23.3 (4.5)	18	25.4 (2.3)		4.79%	-0.57[-1.22,0.08]
Cuesta-Vargas 2014	22	42.9 (4.1)	20	32.4 (32.5)		5.05%	0.46[-0.16,1.07]
Mehnert 2011	30	89 (9.1)	28	78.1 (21.2)		5.7%	0.66[0.13,1.19]
Murtezani 2014	30	22.6 (4.4)	32	19.4 (4.4)		5.82%	0.72[0.2,1.23]
Do 2015	32	89.4 (8.4)	30	89 (8.7)		5.95%	0.05[-0.45,0.54]
Daley 2007	33	25.6 (2.2)	33	23.6 (5.7)		6.03%	0.46[-0.03,0.95]
Pinto 2015	39	87.1 (4.4)	37	84.7 (15.9)		6.35%	0.21[-0.25,0.66]
Pinto 2005	39	30.3 (7.9)	43	27.3 (6.8)		6.46%	0.4[-0.04,0.83]
Loh 2014	63	24.9 (2.5)	32	24.2 (2.2)		6.54%	0.3[-0.12,0.73]
Fillion 2008	44	45.1 (10.4)	43	41.8 (9.8)		6.58%	0.33[-0.1,0.75]
Duijits 2012	87	84 (16.9)	89	80.2 (17.1)		7.65%	0.23[-0.07,0.52]
Rogers 2015	105	24.1 (3.5)	108	22.5 (5)		7.85%	0.37[0.1,0.64]
Vallance 2007	250	25.1 (3)	85	25 (3.3)		8.04%	0.05[-0.2,0.3]
Subtotal ***	**859**		**664**			**100%**	**0.37[0.17,0.58]**
Heterogeneity: Tau²=0.12; Chi²=55.55, df=17(P<0.0001); I²=69.4%							
Test for overall effect: Z=3.54(P=0)							
15.5.2 More than 12 weeks							
Basen-Enquist 2006	28	82.5 (12.7)	23	77.4 (11.5)		8.29%	0.41[-0.15,0.97]
Courneya 2003	24	25.3 (2.5)	28	25.3 (2.8)		8.68%	0[-0.55,0.55]
Littman 2012	30	25.4 (1.7)	27	24.3 (4.4)		9.41%	0.33[-0.19,0.86]
Winters-Stone 2011	36	51.7 (6.2)	25	52.3 (5.9)		9.9%	-0.1[-0.61,0.41]
Cadmus 2009	37	25.1 (2.7)	37	24 (4.1)		12.27%	0.31[-0.15,0.77]
Schmitz 2005	39	-44.2 (5.6)	40	-48.3 (7.7)		12.66%	0.6[0.15,1.05]
Schmitz 2009	112	50.6 (8.2)	120	49.1 (9.3)		38.78%	0.17[-0.09,0.43]
Subtotal ***	**306**		**300**			**100%**	**0.24[0.08,0.4]**



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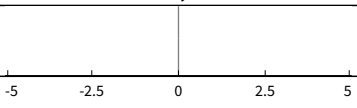
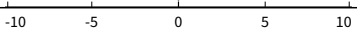
Study or subgroup	Physical activity N	Physical activity Mean(SD)	Control N	Control Mean(SD)	Std. Mean Difference Random, 95% CI	Weight	Std. Mean Difference Random, 95% CI
Heterogeneity: Tau²=0; Chi²=5.75, df=6(P=0.45); I²=0%							
Test for overall effect: Z=2.89(P=0)							



Analysis 15.6. Comparison 15 Subanalysis: outcomes by duration of physical activity intervention, Outcome 6 Overall physical function (change values).

Study or subgroup	Physical activity N	Physical activity Mean(SD)	Control N	Control Mean(SD)	Std. Mean Difference Random, 95% CI	Weight	Std. Mean Difference Random, 95% CI
15.6.1 12 weeks or less							
Herrero 2006	8	6.7 (5)	8	-1.7 (6.9)		10.65%	1.32[0.21,2.43]
Mustian 2004	9	1.9 (2.6)	10	-0.2 (1.6)		11.44%	0.93[-0.03,1.89]
Murtezani 2014	30	4.4 (1.5)	32	-1.3 (1.2)		11.67%	4.23[3.31,5.15]
Naumann 2012	11	1.9 (3.3)	10	0.8 (3.4)		11.94%	0.32[-0.55,1.18]
Rogers 2009	20	2.3 (5.1)	18	2.6 (6)		13.03%	-0.05[-0.69,0.58]
Cormie 2014	43	3.5 (5.2)	19	-0.5 (5.7)		13.38%	0.74[0.19,1.3]
Mehnert 2011	30	4 (10.8)	28	-2.1 (16.7)		13.52%	0.43[-0.09,0.95]
Vallance 2007	247	1 (3.3)	85	0.2 (2.1)		14.36%	0.26[0.02,0.51]
Subtotal ***	**398**		**210**			**100%**	**0.97[0.27,1.66]**
Heterogeneity: Tau²=0.86; Chi²=73.76, df=7(P<0.0001); I²=90.51%							
Test for overall effect: Z=2.72(P=0.01)							
15.6.2 More than 12 weeks							
Courneya 2003	24	1.9 (2)	28	-0.2 (2.2)		14.4%	0.98[0.4,1.56]
Cadmus 2009	37	0.1 (6)	37	-0.5 (7.4)		18.03%	0.09[-0.37,0.54]
Schmitz 2005	39	1.2 (4.2)	40	1.5 (6.8)		18.51%	-0.05[-0.49,0.39]
Schmitz 2009	58	6.6 (17.1)	62	4.1 (17.3)		21.37%	0.14[-0.21,0.5]
Saarto 2012	263	1.9 (13.7)	237	3.4 (13.4)		27.69%	-0.11[-0.29,0.06]
Subtotal ***	**421**		**404**			**100%**	**0.15[-0.16,0.45]**
Heterogeneity: Tau²=0.08; Chi²=13.32, df=4(P=0.01); I²=69.96%							
Test for overall effect: Z=0.96(P=0.34)							



Analysis 15.7. Comparison 15 Subanalysis: outcomes by duration of physical activity intervention, Outcome 7 Overall role function (follow-up values).

Study or subgroup	Physical activity N	Physical activity Mean(SD)	Control N	Control Mean(SD)	Std. Mean Difference Random, 95% CI	Weight	Std. Mean Difference Random, 95% CI
15.7.1 12 weeks or less							
Banasik 2011	7	3.5 (0.6)	7	3.2 (0.6)		4.71%	0.34[-0.72,1.4]
Herrero 2006	8	97.6 (5.9)	8	100 (0)		5%	-0.54[-1.55,0.46]
Mustian 2004	9	2.4 (1.5)	9	2.8 (1.5)		5.45%	-0.23[-1.15,0.7]
Loudon 2014	12	-1.3 (0.3)	11	-1.3 (0.4)		6.15%	0[-0.82,0.82]
Milne 2008	29	22.2 (3)	29	12.5 (4.8)		7.12%	2.39[1.71,3.08]
Rogers 2009	20	21.4 (4.8)	18	23.8 (3.2)		7.38%	-0.57[-1.22,0.08]
Mehnert 2011	30	90 (20.3)	27	79.6 (25)		8.37%	0.45[-0.07,0.98]
Murtezani 2014	30	24.2 (2.8)	32	23 (2.5)		8.56%	0.45[-0.06,0.95]

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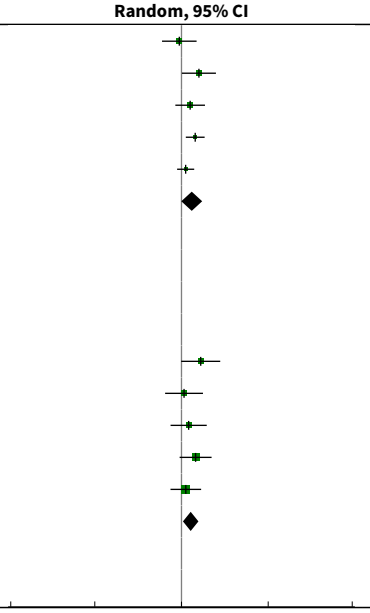
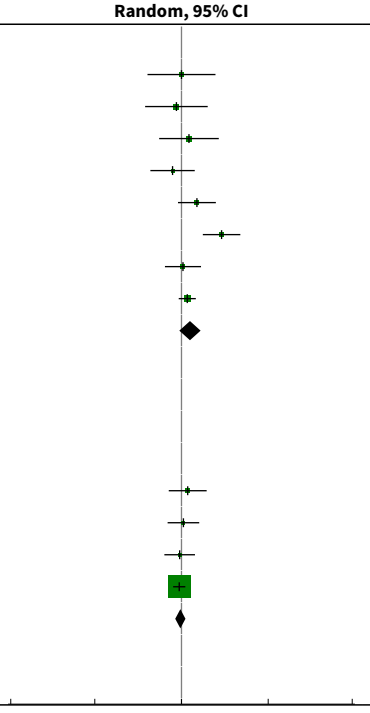
Study or subgroup	Physical activity N	Physical activity Mean(SD)	Control N	Control Mean(SD)	Std. Mean Difference Random, 95% CI	Weight	Std. Mean Difference Random, 95% CI
Do 2015	32	78.1 (19.5)	30	79.2 (14.6)		8.61%	-0.06[-0.56,0.44]
Daley 2007	33	22.9 (4.5)	33	20.3 (5.6)		8.67%	0.5[0.01,0.99]
Loh 2014	63	23.4 (4.3)	32	22.2 (5)		9.18%	0.25[-0.18,0.68]
Rogers 2015	105	22.3 (4.5)	108	20.3 (5.5)		10.32%	0.4[0.12,0.67]
Vallance 2007	250	23.2 (4)	85	22.7 (4.6)		10.47%	0.12[-0.13,0.37]
Subtotal ***	**628**		**429**			**100%**	**0.3[-0.01,0.6]**
Heterogeneity: Tau^2=0.21; Chi^2=53.08, df=12(P<0.0001); I^2=77.39%							
Test for overall effect: Z=1.92(P=0.05)							
15.7.2 More than 12 weeks							
Basen-Enquist 2006	28	86.1 (22.2)	23	73 (24.5)		15.75%	0.55[-0.01,1.12]
Courneya 2003	24	23.4 (4)	28	23.1 (4)		16.77%	0.07[-0.47,0.62]
Littman 2012	30	22.6 (3.9)	27	21.7 (4.7)		18.35%	0.21[-0.31,0.73]
Cadmus 2009	37	23.1 (4.7)	37	20.6 (7.2)		23.52%	0.41[-0.05,0.87]
Schmitz 2005	39	-49.2 (6.5)	40	-50 (6.2)		25.6%	0.12[-0.32,0.57]
Subtotal ***	**158**		**155**			**100%**	**0.27[0.04,0.49]**
Heterogeneity: Tau^2=0; Chi^2=2.29, df=4(P=0.68); I^2=0%							
Test for overall effect: Z=2.33(P=0.02)							



Analysis 15.8. Comparison 15 Subanalysis: outcomes by duration of physical activity intervention, Outcome 8 Overall role function (change values).

Study or subgroup	Physical activity N	Physical activity Mean(SD)	Control N	Control Mean(SD)	Std. Mean Difference Random, 95% CI	Weight	Std. Mean Difference Random, 95% CI
15.8.1 12 weeks or less							
Herrero 2006	8	2.1 (13.9)	8	2.1 (5.9)		7.06%	0[-0.98,0.98]
Mustian 2004	9	0.6 (1.6)	10	0.8 (1.6)		7.93%	-0.15[-1.05,0.76]
Naumann 2012	11	1.5 (4.4)	10	0.5 (4.5)		8.47%	0.22[-0.64,1.08]
Rogers 2009	20	0.4 (3.3)	18	1.4 (4.3)		12.03%	-0.26[-0.9,0.38]
Cormie 2014	43	4.9 (7.1)	19	1.7 (7.1)		14.03%	0.45[-0.1,0.99]
Murtezani 2014	30	1.7 (0.7)	32	0.9 (0.6)		14.15%	1.16[0.62,1.7]
Mehnert 2011	30	6.7 (23.8)	27	5.6 (27)		14.63%	0.04[-0.48,0.56]
Vallance 2007	250	0.6 (4.1)	85	-0 (2.7)		21.7%	0.17[-0.08,0.41]
Subtotal ***	**401**		**209**			**100%**	**0.24[-0.06,0.55]**
Heterogeneity: Tau^2=0.1; Chi^2=15.72, df=7(P=0.03); I^2=55.47%							
Test for overall effect: Z=1.56(P=0.12)							
15.8.2 More than 12 weeks							
Courneya 2003	24	0.9 (2.8)	28	0.4 (2.7)		7.32%	0.18[-0.37,0.73]
Cadmus 2009	37	-0.3 (3.7)	37	-0.5 (3.4)		10.53%	0.06[-0.4,0.51]
Schmitz 2005	39	1.2 (4.2)	40	1.5 (6.8)		11.24%	-0.05[-0.49,0.39]
Saarto 2012	263	2.4 (21.5)	237	3.8 (21.6)		70.92%	-0.06[-0.24,0.11]
Subtotal ***	**363**		**342**			**100%**	**-0.03[-0.18,0.11]**
Heterogeneity: Tau^2=0; Chi^2=0.86, df=3(P=0.84); I^2=0%							
Test for overall effect: Z=0.44(P=0.66)							



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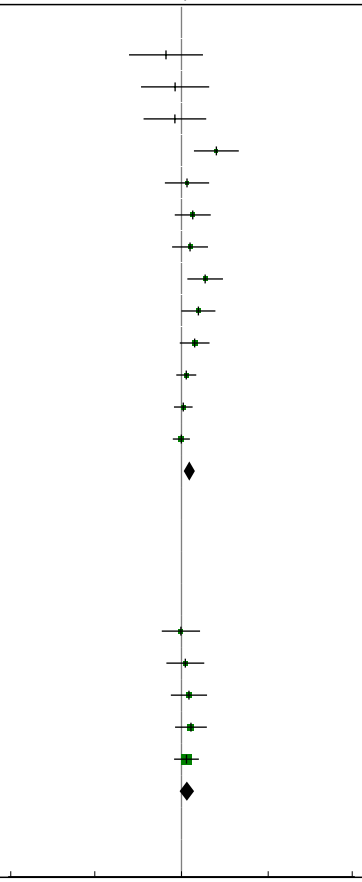
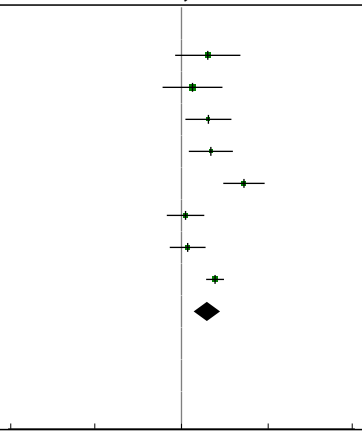
Analysis 15.9. Comparison 15 Subanalysis: outcomes by duration of physical activity intervention, Outcome 9 Overall social well-being/function (follow-up values).

Study or subgroup	Physical activity N	Physical activity Mean(SD)	Control N	Control Mean(SD)	Std. Mean Difference Random, 95% CI	Weight	Std. Mean Difference Random, 95% CI
15.9.1 12 weeks or less							
Banasik 2011	7	2.8 (0.7)	7	3.2 (0.8)		2.1%	-0.45[-1.51,0.62]
Herrero 2006	8	87.5 (19.4)	8	91.7 (23.6)		2.43%	-0.18[-1.17,0.8]
Mustian 2004	9	8.6 (1.9)	10	9 (1.8)		2.83%	-0.19[-1.09,0.71]
Rogers 2014	20	7.3 (4.9)	22	3.1 (3.2)		4.99%	1.01[0.36,1.65]
Rogers 2009	20	22.6 (4.1)	18	21.8 (5.7)		5.1%	0.16[-0.48,0.8]
Milne 2008	29	20.7 (4)	29	19.4 (3.9)		6.99%	0.32[-0.19,0.84]
Mehnert 2011	30	85.4 (20.9)	28	79.9 (22.7)		7.02%	0.25[-0.27,0.76]
Murtezani 2014	30	20.2 (2.8)	32	18.3 (2.7)		7.09%	0.68[0.17,1.2]
Daley 2007	33	23.3 (4.8)	33	20.4 (6.8)		7.58%	0.49[-0,0.98]
Loh 2014	63	21.5 (4.9)	32	19.6 (4.9)		9.06%	0.38[-0.05,0.81]
Kiecolt-Glaser 2014	96	95.2 (10.8)	90	93.8 (9.3)		14.01%	0.14[-0.15,0.43]
Rogers 2015	105	21 (5.7)	108	20.7 (5.8)		14.87%	0.05[-0.22,0.32]
Vallance 2007	250	22.9 (5)	85	23 (5.1)		15.93%	-0[-0.25,0.24]
Subtotal ***	**700**		**502**			**100%**	**0.23[0.06,0.39]**
Heterogeneity: Tau²=0.03; Chi²=18.26, df=12(P=0.11); I²=34.3%							
Test for overall effect: Z=2.74(P=0.01)							
15.9.2 More than 12 weeks							
Basen-Enquist 2006	28	84.6 (16.9)	23	84.9 (19.2)		14.33%	-0.02[-0.57,0.54]
Courneya 2003	24	21.1 (3.5)	28	20.7 (3.6)		14.64%	0.11[-0.43,0.66]
Littman 2012	30	22.1 (5)	27	20.9 (6)		16.03%	0.22[-0.31,0.74]
Cadmus 2009	37	22.3 (4.9)	37	20.6 (7.2)		20.79%	0.27[-0.18,0.73]
Schmitz 2009	59	14.9 (5.2)	62	14.1 (5.8)		34.21%	0.14[-0.21,0.5]
Subtotal ***	**178**		**177**			**100%**	**0.15[-0.05,0.36]**
Heterogeneity: Tau²=0; Chi²=0.71, df=4(P=0.95); I²=0%							
Test for overall effect: Z=1.45(P=0.15)							



Analysis 15.10. Comparison 15 Subanalysis: outcomes by duration of physical activity intervention, Outcome 10 Overall social well-being/function (change values).

Study or subgroup	Physical activity N	Physical activity Mean(SD)	Control N	Control Mean(SD)	Std. Mean Difference Random, 95% CI	Weight	Std. Mean Difference Random, 95% CI
15.10.1 12 weeks or less							
Mustian 2004	9	1.5 (1.5)	10	0.4 (1.2)		8.73%	0.76[-0.18,1.7]
Naumann 2012	11	0.9 (3.3)	10	-0.2 (3.3)		9.53%	0.32[-0.54,1.18]
Rogers 2009	20	0.9 (2.6)	18	-1.2 (2.7)		11.93%	0.78[0.11,1.44]
Rogers 2014	20	2.1 (3.2)	22	-0.8 (3.5)		12.3%	0.85[0.21,1.48]
Murtezani 2014	30	2.1 (0.8)	32	0.5 (0.9)		12.81%	1.8[1.21,2.4]
Cormie 2014	43	3.5 (8.5)	19	2.5 (8.3)		13.58%	0.12[-0.42,0.66]
Mehnert 2011	30	7.3 (22.3)	28	3.1 (24.3)		13.91%	0.18[-0.34,0.69]
Vallance 2007	250	0.2 (4.8)	85	-4.1 (3.3)		17.22%	0.97[0.71,1.23]
Subtotal ***	**413**		**224**			**100%**	**0.73[0.35,1.11]**
Heterogeneity: Tau²=0.2; Chi²=25.43, df=7(P=0); I²=72.47%							
Test for overall effect: Z=3.77(P=0)							



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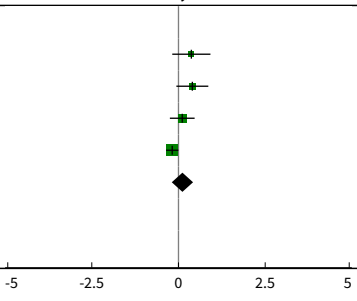
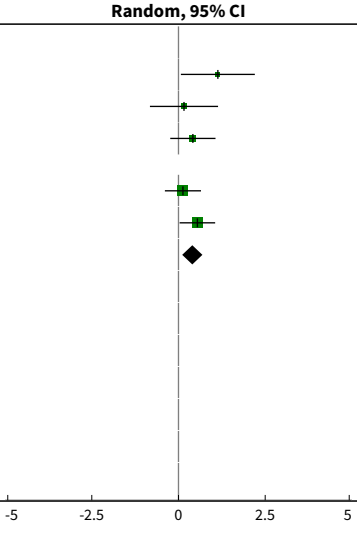
Study or subgroup	Physical activity N	Physical activity Mean(SD)	Control N	Control Mean(SD)	Std. Mean Difference Random, 95% CI	Weight	Std. Mean Difference Random, 95% CI
15.10.2 More than 12 weeks							
Courneya 2003	24	0.6 (2.4)	28	-0.5 (3.3)		17.52%	0.37[-0.18,0.92]
Cadmus 2009	37	0.6 (4.6)	37	-1 (3.2)		21.07%	0.4[-0.06,0.86]
Schmitz 2009	59	4.4 (33.8)	62	0.7 (34)		26%	0.11[-0.25,0.47]
Saarto 2012	263	5 (21.1)	237	8.8 (20.8)		35.41%	-0.18[-0.36,-0.01]
Subtotal ***	**383**		**364**			**100%**	**0.11[-0.19,0.42]**
Heterogeneity: Tau^2=0.06; Chi^2=8.78, df=3(P=0.03); I^2=65.82%							
Test for overall effect: Z=0.72(P=0.47)							



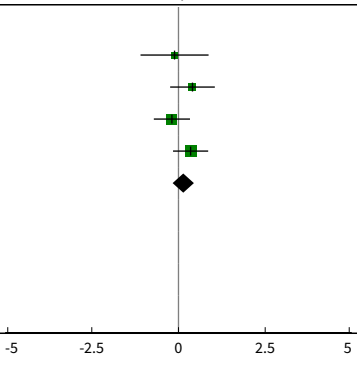
Analysis 15.11. Comparison 15 Subanalysis: outcomes by duration of physical activity intervention, Outcome 11 Overall cognitive function (follow-up values).

Study or subgroup	Physical activity N	Physical activity Mean(SD)	Control N	Control Mean(SD)	Std. Mean Difference Random, 95% CI	Weight	Std. Mean Difference Random, 95% CI
15.11.1 12 weeks or less							
Pinto 2003	12	-4.3 (2.5)	6	-7.2 (2.1)		7.48%	1.14[0.07,2.2]
Herrero 2006	8	91.7 (12.6)	8	89.6 (12.4)		8.81%	0.16[-0.82,1.14]
Rogers 2009	19	-124.5 (30.8)	18	-135.5 (19.5)		19.97%	0.42[-0.24,1.07]
Mehnert 2011	30	81.1 (16.8)	27	78.4 (24.4)		31.37%	0.13[-0.39,0.65]
Cantarero-Villanueva 2013	32	-37.9 (8.5)	29	-43 (10)		32.37%	0.55[0.03,1.06]
Subtotal ***	**101**		**88**			**100%**	**0.4[0.11,0.69]**
Heterogeneity: Tau^2=0; Chi^2=3.41, df=4(P=0.49); I^2=0%							
Test for overall effect: Z=2.68(P=0.01)							
15.11.2 More than 12 weeks							
Subtotal ***	**0**		**0**				**Not estimable**
Heterogeneity: Not applicable							
Test for overall effect: Not applicable							



Analysis 15.12. Comparison 15 Subanalysis: outcomes by duration of physical activity intervention, Outcome 12 Overall cognitive function (change values).

Study or subgroup	Physical activity N	Physical activity Mean(SD)	Control N	Control Mean(SD)	Std. Mean Difference Random, 95% CI	Weight	Std. Mean Difference Random, 95% CI
15.12.1 12 weeks or less							
Herrero 2006	8	6.2 (19.8)	8	8.3 (14.8)		9.67%	-0.11[-1.09,0.87]
Rogers 2009	20	4.2 (16.8)	18	-4.7 (25.9)		22.08%	0.4[-0.24,1.05]
Mehnert 2011	30	1.7 (22.4)	27	6.2 (24.6)		33.2%	-0.19[-0.71,0.33]
Cantarero-Villanueva 2013	32	2.2 (7.6)	29	-0.2 (5.5)		35.05%	0.35[-0.16,0.86]
Subtotal ***	**90**		**82**			**100%**	**0.14[-0.17,0.44]**
Heterogeneity: Tau^2=0; Chi^2=3.1, df=3(P=0.38); I^2=3.09%							
Test for overall effect: Z=0.88(P=0.38)							
15.12.2 More than 12 weeks							



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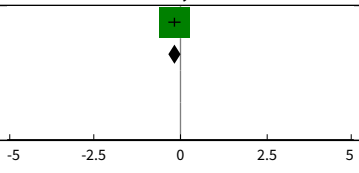
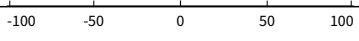
Study or subgroup	Physical activity N	Physical activity Mean(SD)	Control N	Control Mean(SD)	Std. Mean Difference Random, 95% CI	Weight	Std. Mean Difference Random, 95% CI
Saarto 2012	263	-1 (18.2)	237	2.2 (18.5)		100%	-0.17[-0.35,0]
Subtotal ***	**263**		**237**			**100%**	**-0.17[-0.35,0]**
Heterogeneity: Not applicable							
Test for overall effect: Z=1.94(P=0.05)							



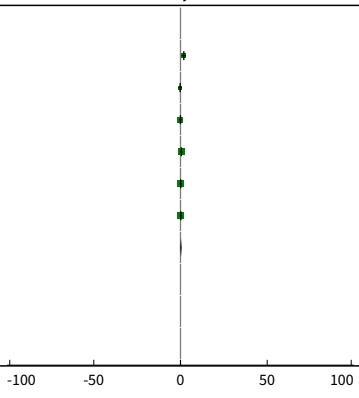
Analysis 15.13. Comparison 15 Subanalysis: outcomes by duration of physical activity intervention, Outcome 13 Overall general health (follow-up values).

Study or subgroup	Physical activity N	Physical activity Mean(SD)	Control N	Control Mean(SD)	Std. Mean Difference Random, 95% CI	Weight	Std. Mean Difference Random, 95% CI
15.13.1 12 weeks or less							
Herrero 2006	8	81.3 (10.7)	8	62.5 (16.1)		7.47%	1.3[0.19,2.41]
Mustian 2004	9	18.6 (4.8)	9	19.3 (1.9)		10.02%	-0.18[-1.11,0.74]
Rogers 2009	20	3.5 (0.9)	18	3.8 (0.5)		16.92%	-0.4[-1.04,0.25]
Ergun 2013	40	71.6 (19.9)	20	67.9 (16.7)		20.99%	0.19[-0.35,0.73]
Mehnert 2011	30	74.4 (11.8)	28	70 (20.8)		21.91%	0.26[-0.26,0.77]
Do 2015	32	87.3 (13.7)	30	82.4 (19.9)		22.68%	0.28[-0.22,0.79]
Subtotal ***	**139**		**113**			**100%**	**0.17[-0.16,0.5]**
Heterogeneity: Tau²=0.06; Chi²=7.85, df=5(P=0.16); I²=36.35%							
Test for overall effect: Z=1.03(P=0.31)							
15.13.2 More than 12 weeks							
Basen-Enquist 2006	28	77.4 (11.6)	23	67.1 (13.4)		30.21%	0.81[0.24,1.39]
Cadmus 2009	37	50 (8.8)	37	51.7 (8.4)		34.61%	-0.2[-0.65,0.26]
Schmitz 2005	39	53.8 (5.3)	40	53.2 (6)		35.19%	0.1[-0.34,0.55]
Subtotal ***	**104**		**100**			**100%**	**0.21[-0.32,0.75]**
Heterogeneity: Tau²=0.16; Chi²=7.33, df=2(P=0.03); I²=72.72%							
Test for overall effect: Z=0.78(P=0.44)							



Analysis 15.14. Comparison 15 Subanalysis: outcomes by duration of physical activity intervention, Outcome 14 Overall general health (change values).

Study or subgroup	Physical activity N	Physical activity Mean(SD)	Control N	Control Mean(SD)	Std. Mean Difference Random, 95% CI	Weight	Std. Mean Difference Random, 95% CI
15.14.1 12 weeks or less							
Herrero 2006	8	17.7 (8.3)	8	-10.4 (17.7)		7.4%	1.92[0.68,3.17]
Mustian 2004	9	0.2 (1.9)	10	0.7 (2.5)		11.85%	-0.2[-1.1,0.71]
Rogers 2009	20	0.2 (0.6)	18	0.2 (0.7)		17.85%	-0.03[-0.67,0.61]
Ergun 2013	40	5.4 (21.5)	20	-6.7 (25.9)		20.6%	0.52[-0.03,1.06]
Cormie 2014	43	3.7 (7)	19	2.8 (7.1)		20.76%	0.13[-0.41,0.67]
Mehnert 2011	30	6.6 (13.7)	28	3.2 (19.7)		21.55%	0.2[-0.32,0.71]
Subtotal ***	**150**		**103**			**100%**	**0.29[-0.09,0.67]**
Heterogeneity: Tau²=0.11; Chi²=9.79, df=5(P=0.08); I²=48.91%							
Test for overall effect: Z=1.49(P=0.14)							



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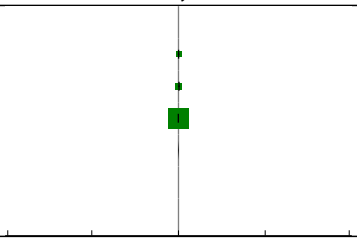
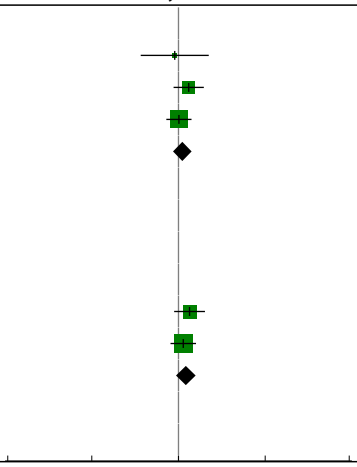
Study or subgroup	Physical activity N	Physical activity Mean(SD)	Control N	Control Mean(SD)	Std. Mean Difference Random, 95% CI	Weight	Std. Mean Difference Random, 95% CI
15.14.2 More than 12 weeks							
Cadmus 2009	37	0.2 (4.4)	37	-0.1 (5.1)		17.92%	0.06[-0.39,0.52]
Schmitz 2005	39	0.7 (4.8)	40	-0.6 (3.9)		18.76%	0.29[-0.15,0.74]
Saarto 2012	263	4.2 (16.2)	237	5.6 (15.4)		63.32%	-0.09[-0.26,0.09]
Subtotal ***	**339**		**314**			**100%**	**0.01[-0.2,0.22]**
Heterogeneity: Tau^2=0.01; Chi^2=2.64, df=2(P=0.27); I^2=24.13%							
Test for overall effect: Z=0.1(P=0.92)							



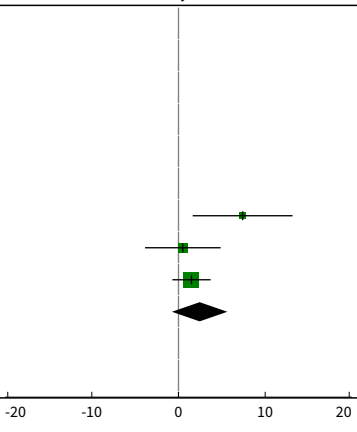
Analysis 15.15. Comparison 15 Subanalysis: outcomes by duration of physical activity intervention, Outcome 15 Overall sexual function (follow-up values).

Study or subgroup	Physical activity N	Physical activity Mean(SD)	Control N	Control Mean(SD)	Std. Mean Difference Fixed, 95% CI	Weight	Std. Mean Difference Fixed, 95% CI
15.15.1 12 weeks or less							
Pinto 2005	12	42.8 (9.2)	6	43.7 (6.1)		7.48%	-0.11[-1.09,0.87]
Pinto 2003	39	42.5 (9.2)	43	40.1 (6.3)		37.86%	0.29[-0.14,0.73]
Duijits 2012	53	0.6 (0.8)	65	0.6 (0.8)		54.66%	0.01[-0.35,0.38]
Subtotal ***	**104**		**114**			**100%**	**0.11[-0.16,0.38]**
Heterogeneity: Tau^2=0; Chi^2=1.16, df=2(P=0.56); I^2=0%							
Test for overall effect: Z=0.81(P=0.42)							
15.15.2 More than 12 weeks							
Schmitz 2005	39	-51 (7.5)	40	-53.5 (8)		40.67%	0.32[-0.12,0.76]
Schmitz 2009	57	-27.3 (5.3)	57	-28.1 (6.2)		59.33%	0.14[-0.23,0.51]
Subtotal ***	**96**		**97**			**100%**	**0.21[-0.07,0.49]**
Heterogeneity: Tau^2=0; Chi^2=0.38, df=1(P=0.54); I^2=0%							
Test for overall effect: Z=1.46(P=0.14)							



Analysis 15.16. Comparison 15 Subanalysis: outcomes by duration of physical activity intervention, Outcome 16 Overall sexual function (change values).

Study or subgroup	Physical activity N	Physical activity Mean(SD)	Control N	Control Mean(SD)	Mean Difference Random, 95% CI	Weight	Mean Difference Random, 95% CI
15.16.1 12 weeks or less							
Subtotal ***	**0**		**0**				**Not estimable**
Heterogeneity: Not applicable							
Test for overall effect: Not applicable							
15.16.2 More than 12 weeks							
Schmitz 2009	57	7.2 (14.6)	57	-0.2 (16.7)		20.91%	7.4[1.64,13.16]
Saarto 2012	263	4.3 (25.4)	237	3.8 (24.4)		29.42%	0.5[-3.86,4.86]
Schmitz 2005	39	1.7 (4.8)	40	0.2 (5.2)		49.67%	1.5[-0.71,3.71]
Subtotal ***	**359**		**334**			**100%**	**2.44[-0.76,5.64]**
Heterogeneity: Tau^2=4.09; Chi^2=4.03, df=2(P=0.13); I^2=50.31%							
Test for overall effect: Z=1.5(P=0.13)							



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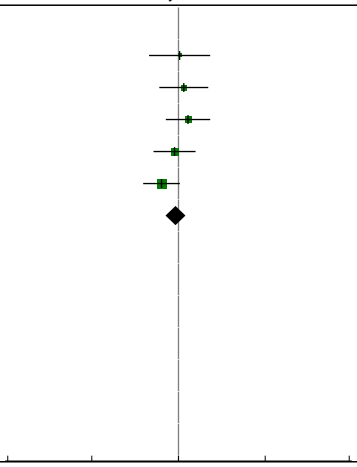
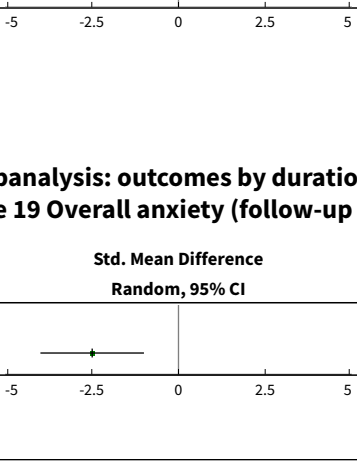
Analysis 15.17. Comparison 15 Subanalysis: outcomes by duration of physical activity intervention, Outcome 17 Overall sleep (follow-up values).

Study or subgroup	Physical activity N	Physical activity Mean(SD)	Control N	Control Mean(SD)	Std. Mean Difference Fixed, 95% CI	Weight	Std. Mean Difference Fixed, 95% CI
15.17.1 12 weeks or less							
Rogers 2013	11	6.3 (2.7)	9	6.2 (3.2)		10.7%	0.03[-0.85,0.91]
Bower 2011	16	8.1 (2.5)	15	7.7 (2.6)		16.68%	0.15[-0.55,0.86]
Rogers 2009	20	6.7 (4.2)	18	5.5 (4)		20.26%	0.28[-0.36,0.92]
Rogers 2014	20	6.7 (3.7)	22	7.1 (3.2)		22.6%	-0.11[-0.72,0.49]
Mehnert 2011	30	23.8 (27)	27	38.3 (31.6)		29.76%	-0.49[-1.02,0.04]
Subtotal ***	**97**		**91**			**100%**	**-0.09[-0.37,0.2]**
Heterogeneity: Tau²=0; Chi²=3.98, df=4(P=0.41); I²=0%							
Test for overall effect: Z=0.59(P=0.56)							
15.17.2 More than 12 weeks							
Subtotal ***	**0**		**0**				**Not estimable**
Heterogeneity: Not applicable							
Test for overall effect: Not applicable							



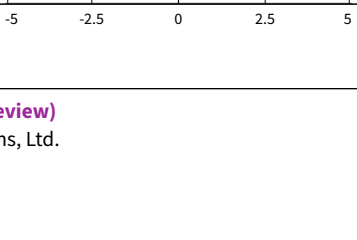
Analysis 15.18. Comparison 15 Subanalysis: outcomes by duration of physical activity intervention, Outcome 18 Overall sleep (change values).

Study or subgroup	Physical activity N	Physical activity Mean(SD)	Control N	Control Mean(SD)	Std. Mean Difference Random, 95% CI	Weight	Std. Mean Difference Random, 95% CI
15.18.1 12 weeks or less							
Rogers 2009	20	0.5 (2.1)	18	0.3 (4.7)		28.01%	0.05[-0.59,0.68]
Rogers 2014	20	-1.3 (3.2)	22	-2.2 (4.4)		30.76%	0.23[-0.38,0.84]
Mehnert 2011	29	-5.4 (29.9)	27	-9.9 (33.3)		41.24%	0.14[-0.38,0.67]
Subtotal ***	**69**		**67**			**100%**	**0.14[-0.2,0.48]**
Heterogeneity: Tau²=0; Chi²=0.16, df=2(P=0.92); I²=0%							
Test for overall effect: Z=0.82(P=0.41)							
15.18.2 More than 12 weeks							
Subtotal ***	**0**		**0**				**Not estimable**
Heterogeneity: Not applicable							
Test for overall effect: Not applicable							



Analysis 15.19. Comparison 15 Subanalysis: outcomes by duration of physical activity intervention, Outcome 19 Overall anxiety (follow-up values).

Study or subgroup	Physical activity N	Physical activity Mean(SD)	Control N	Control Mean(SD)	Std. Mean Difference Random, 95% CI	Weight	Std. Mean Difference Random, 95% CI
15.19.1 12 weeks or less							
Segar 1998	10	28.5 (3)	5	39.5 (6)		6.36%	-2.49[-3.98,-1]



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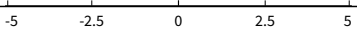
Study or subgroup	Physical activity N	Physical activity Mean(SD)	Control N	Control Mean(SD)	Std. Mean Difference Random, 95% CI	Weight	Std. Mean Difference Random, 95% CI
Pinto 2003	12	7.6 (7.3)	6	10.5 (3.7)		11.46%	-0.43[-1.43,0.56]
Rogers 2014	20	45.6 (8.9)	22	45.7 (8)		19.08%	-0.01[-0.62,0.59]
Milne 2008	29	15.3 (6.2)	29	21 (5.7)		20.64%	-0.94[-1.49,-0.4]
Mehnert 2011	30	4.8 (3.5)	28	7.1 (5)		21.16%	-0.54[-1.06,-0.01]
Cantarero-Villanueva 2013	32	42.5 (8.6)	29	49.9 (11.7)		21.3%	-0.72[-1.24,-0.2]
Subtotal ***	**133**		**119**			**100%**	**-0.67[-1.09,-0.25]**
Heterogeneity: Tau²=0.15; Chi²=11.63, df=5(P=0.04); I²=56.99%							
Test for overall effect: Z=3.12(P=0)							
15.19.2 More than 12 weeks							
Cadmus 2009	37	32.1 (12.3)	37	34.1 (15.4)		100%	-0.14[-0.6,0.31]
Subtotal ***	**37**		**37**			**100%**	**-0.14[-0.6,0.31]**
Heterogeneity: Not applicable							
Test for overall effect: Z=0.61(P=0.54)							

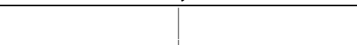


Analysis 15.20. Comparison 15 Subanalysis: outcomes by duration of physical activity intervention, Outcome 20 Overall anxiety (change values).

Study or subgroup	Physical activity N	Physical activity Mean(SD)	Control N	Control Mean(SD)	Std. Mean Difference Fixed, 95% CI	Weight	Std. Mean Difference Fixed, 95% CI
15.20.1 12 weeks or less							
Rogers 2014	20	-4 (6.5)	22	-1.8 (5)		26.41%	-0.37[-0.99,0.24]
Mehnert 2011	30	-1.7 (3.7)	28	0.2 (4.9)		36.34%	-0.42[-0.95,0.1]
Cantarero-Villanueva 2013	32	-4.2 (9.8)	29	0.8 (5.5)		37.26%	-0.61[-1.12,-0.09]
Subtotal ***	**82**		**79**			**100%**	**-0.48[-0.79,-0.16]**
Heterogeneity: Tau²=0; Chi²=0.39, df=2(P=0.82); I²=0%							
Test for overall effect: Z=2.99(P=0)							
15.20.2 More than 12 weeks							
Cadmus 2009	37	-0.7 (9.2)	37	0.5 (5.8)		100%	-0.15[-0.61,0.3]
Subtotal ***	**37**		**37**			**100%**	**-0.15[-0.61,0.3]**
Heterogeneity: Not applicable							
Test for overall effect: Z=0.66(P=0.51)							

Analysis 15.21. Comparison 15 Subanalysis: outcomes by duration of physical activity intervention, Outcome 21 Overall depression (follow-up values).

Study or subgroup	Physical activity N	Physical activity Mean(SD)	Control N	Control Mean(SD)	Std. Mean Difference Random, 95% CI	Weight	Std. Mean Difference Random, 95% CI
15.21.1 12 weeks or less							
Segar 1998	10	5.5 (2)	5	10 (2)		4.6%	-2.12[-3.51,-0.73]
Pinto 2003	12	6.2 (7.2)	6	9.8 (6.8)		7.2%	-0.49[-1.49,0.5]
Bower 2011	16	7.7 (5.8)	15	11.6 (7.1)		10.05%	-0.59[-1.31,0.13]
Rogers 2014	20	44.2 (8.6)	22	25.1 (44.2)		11.36%	0.58[-0.04,1.19]
Ergun 2013	40	6.9 (6.8)	20	5.2 (5.2)		12.46%	0.27[-0.27,0.81]



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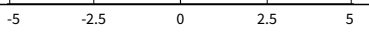
Study or subgroup	Physical activity N	Physical activity Mean(SD)	Control N	Control Mean(SD)	Std. Mean Difference Random, 95% CI	Weight	Std. Mean Difference Random, 95% CI
Mehnert 2011	30	2.7 (3)	28	4.6 (4.4)		12.67%	-0.51[-1.04,0.01]
Cantarero-Villanueva 2013	32	45.6 (9.7)	29	53.7 (11.6)		12.71%	-0.75[-1.28,-0.23]
Daley 2007	33	6 (6.5)	33	10.3 (7.2)		13.08%	-0.63[-1.12,-0.13]
Kiecolt-Glaser 2014	96	8.1 (8.6)	90	9.2 (8.2)		15.89%	-0.13[-0.42,0.16]
Subtotal ***	**289**		**248**			**100%**	**-0.36[-0.7,-0.01]**
Heterogeneity: Tau^2=0.17; Chi^2=25.79, df=8(P=0); I^2=68.98%							
Test for overall effect: Z=2.02(P=0.04)							
15.21.2 More than 12 weeks							
Payne 2008	10	12.7 (8.7)	10	11.4 (7.9)		26.36%	0.15[-0.73,1.03]
Kaltsatou 2011	13	16.5 (1.7)	13	22.3 (7.7)		28.3%	-1[-1.83,-0.18]
Cadmus 2009	37	9.6 (9.3)	37	10.8 (10.1)		45.34%	-0.12[-0.58,0.33]
Subtotal ***	**60**		**60**			**100%**	**-0.3[-0.9,0.3]**
Heterogeneity: Tau^2=0.15; Chi^2=4.31, df=2(P=0.12); I^2=53.56%							
Test for overall effect: Z=0.99(P=0.32)							

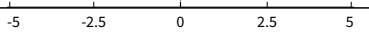


Analysis 15.22. Comparison 15 Subanalysis: outcomes by duration of physical activity intervention, Outcome 22 Overall depression (change values).

Study or subgroup	Physical activity N	Physical activity Mean(SD)	Control N	Control Mean(SD)	Std. Mean Difference Random, 95% CI	Weight	Std. Mean Difference Random, 95% CI
15.22.1 12 weeks or less							
Naumann 2012	11	-3.6 (4.3)	10	2 (4.6)		9.95%	-1.21[-2.16,-0.26]
Rogers 2014	20	-1.7 (6.9)	22	1.1 (4.2)		23.6%	-0.49[-1.1,0.13]
Mehnert 2011	30	2.7 (3)	28	4.6 (4.4)		32.55%	-0.51[-1.04,0.01]
Cantarero-Villanueva 2013	32	-2.9 (7.8)	29	1.5 (7.4)		33.91%	-0.57[-1.09,-0.06]
Subtotal ***	**93**		**89**			**100%**	**-0.6[-0.89,-0.3]**
Heterogeneity: Tau^2=0; Chi^2=1.84, df=3(P=0.61); I^2=0%							
Test for overall effect: Z=3.91(P<0.0001)							
15.22.2 More than 12 weeks							
Cadmus 2009	37	0.3 (6.4)	37	1.7 (6.3)		19.98%	-0.22[-0.68,0.24]
Saarto 2012	263	-0.3 (3.3)	237	-0.5 (3.4)		80.02%	0.06[-0.12,0.24]
Subtotal ***	**300**		**274**			**100%**	**0[-0.21,0.22]**
Heterogeneity: Tau^2=0.01; Chi^2=1.24, df=1(P=0.27); I^2=19.17%							
Test for overall effect: Z=0.04(P=0.97)							

Analysis 15.23. Comparison 15 Subanalysis: outcomes by duration of physical activity intervention, Outcome 23 Overall fatigue (follow-up values).

Study or subgroup	Physical activity N	Physical activity Mean(SD)	Control N	Control Mean(SD)	Std. Mean Difference Random, 95% CI	Weight	Std. Mean Difference Random, 95% CI
15.23.1 12 weeks or less							
Banasik 2011	7	1 (0.9)	7	1.6 (1)		1.99%	-0.57[-1.65,0.51]
Pinto 2003	12	7.2 (6.4)	6	9 (6.4)		2.29%	-0.27[-1.26,0.71]



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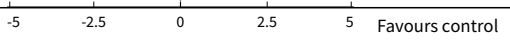
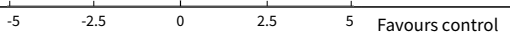
Study or subgroup	Physical activity N	Physical activity Mean(SD)	Control N	Control Mean(SD)	Std. Mean Difference Random, 95% CI	Weight	Std. Mean Difference Random, 95% CI
Rogers 2013	11	4.2 (1.8)	9	4.2 (1.6)		2.72%	0[-0.88,0.88]
Loudon 2014	12	1.9 (2.2)	11	2.1 (2.5)		3.02%	-0.07[-0.89,0.75]
Bower 2011	16	3.4 (1.8)	15	4.9 (1.3)		3.43%	-0.93[-1.67,-0.18]
Rogers 2009	20	-12.4 (10.4)	18	-10.1 (6.6)		4.16%	-0.26[-0.9,0.38]
Cuesta-Vargas 2014	22	4 (1.8)	20	5.2 (3.2)		4.37%	-0.46[-1.07,0.15]
Rogers 2014	20	4.1 (2.1)	22	4 (1.8)		4.44%	0.05[-0.56,0.66]
Milne 2008	29	11.9 (3.2)	29	17.4 (4.7)		4.71%	-1.35[-1.92,-0.78]
Cantarero-Villanueva 2013	32	3.8 (1.8)	29	6.2 (1.7)		4.81%	-1.38[-1.94,-0.82]
Ergun 2013	40	2.9 (2.2)	20	3.3 (1.8)		5.04%	-0.17[-0.71,0.37]
Mehnert 2011	30	28.5 (25.6)	27	39.9 (25.1)		5.15%	-0.44[-0.97,0.08]
Do 2015	32	16.8 (13.3)	30	22.3 (15.1)		5.39%	-0.38[-0.89,0.12]
Daley 2007	33	2.1 (1.8)	33	3.4 (1.9)		5.43%	-0.71[-1.21,-0.21]
Pinto 2015	39	-43.8 (7.8)	37	-41.2 (8.5)		5.92%	-0.32[-0.77,0.14]
Pinto 2005	39	27.1 (21.4)	43	42.3 (26.2)		6.01%	-0.63[-1.07,-0.18]
Fillion 2008	44	2.7 (0.7)	43	2.9 (0.8)		6.27%	-0.27[-0.69,0.15]
Kiecolt-Glaser 2014	96	6.3 (19.6)	90	12.7 (19)		7.9%	-0.33[-0.62,-0.04]
Vallance 2007	250	-42.7 (8.4)	85	-42.6 (8.7)		8.44%	-0.01[-0.26,0.23]
Short 2014	195	-41.5 (9.3)	104	-39.8 (10.4)		8.53%	-0.17[-0.41,0.06]
Subtotal ***	**979**		**678**			**100%**	**-0.42[-0.59,-0.25]**
Heterogeneity: Tau²=0.07; Chi²=43.47, df=19(P=0); I²=56.29%							
Test for overall effect: Z=4.82(P<0.0001)							
15.23.2 More than 12 weeks							
Payne 2008	9	4.7 (2.6)	9	3.5 (1.7)		6.5%	0.52[-0.42,1.46]
Courneya 2003	24	-8.3 (7.9)	28	-8.8 (8.1)		19.47%	0.06[-0.48,0.61]
Littman 2012	30	-45 (5.3)	27	-43.1 (10.3)		21.27%	-0.23[-0.75,0.29]
Winters-Stone 2011	36	45 (5.3)	31	43.1 (10.3)		24.93%	0.23[-0.25,0.72]
Cadmus 2009	37	-51.9 (9)	37	-50.6 (10)		27.82%	-0.14[-0.59,0.32]
Subtotal ***	**136**		**132**			**100%**	**0.02[-0.22,0.26]**
Heterogeneity: Tau²=0; Chi²=3.21, df=4(P=0.52); I²=0%							
Test for overall effect: Z=0.14(P=0.89)							



Analysis 15.24. Comparison 15 Subanalysis: outcomes by duration of physical activity intervention, Outcome 24 Overall fatigue (change values).

Study or subgroup	Physical activity N	Physical activity Mean(SD)	Control N	Control Mean(SD)	Std. Mean Difference Random, 95% CI	Weight	Std. Mean Difference Random, 95% CI
15.24.1 12 weeks or less							
Herrero 2006	8	-4.2 (19.6)	8	6.4 (14.5)		7.23%	-0.58[-1.59,0.43]
Naumann 2012	11	-3.6 (4.4)	10	2 (4.6)		7.65%	-1.21[-2.16,-0.26]
Rogers 2013	11	4.2 (2)	9	3.9 (1.5)		8.13%	0.16[-0.72,1.04]
Loudon 2014	12	1.9 (2.2)	11	2.1 (2.5)		8.64%	-0.07[-0.89,0.75]
Rogers 2009	20	1.9 (9.6)	18	4.2 (12.3)		10.14%	-0.21[-0.84,0.43]
Cantarero-Villanueva 2013	32	-2 (1.8)	29	0.3 (1.4)		10.75%	-1.45[-2.02,-0.88]
Mehnert 2011	30	-0.7 (20.7)	27	-2.9 (25.3)		11.16%	0.09[-0.43,0.61]
Daley 2007	33	2.1 (1.8)	33	3.4 (1.9)		11.35%	-0.71[-1.21,-0.21]
Pinto 2005	39	-14.9 (23.5)	43	1.8 (23.5)		11.77%	-0.7[-1.15,-0.26]
Vallance 2007	250	2.5 (8.2)	85	1.2 (6.6)		13.19%	0.17[-0.08,0.42]



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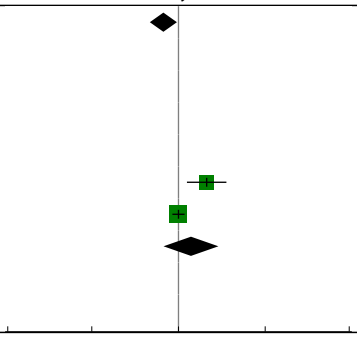
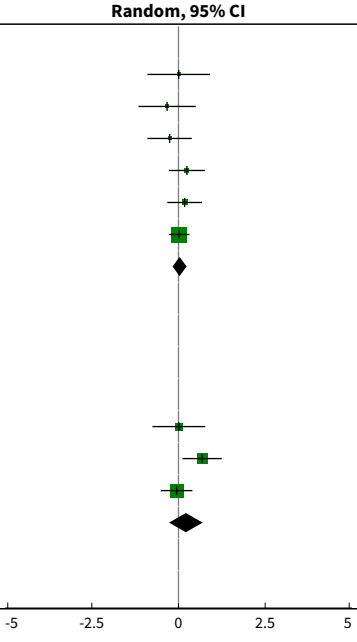
Study or subgroup	Physical activity N	Physical activity Mean(SD)	Control N	Control Mean(SD)	Std. Mean Difference Random, 95% CI	Weight	Std. Mean Difference Random, 95% CI
Subtotal ***	**446**		**273**			**100%**	**-0.44[-0.83,-0.05]**
Heterogeneity: Tau²=0.28; Chi²=42.74, df=9(P<0.0001); I²=78.94%							
Test for overall effect: Z=2.19(P=0.03)							
15.24.2 More than 12 weeks							
Courneya 2003	24	9.3 (10.2)	28	2 (7.5)		44.23%	0.81[0.24,1.38]
Saarto 2012	263	-2.4 (9.1)	237	-2.4 (8.6)		55.77%	0[-0.18,0.18]
Subtotal ***	**287**		**265**			**100%**	**0.36[-0.43,1.15]**
Heterogeneity: Tau²=0.28; Chi²=7.16, df=1(P=0.01); I²=86.04%							
Test for overall effect: Z=0.89(P=0.37)							



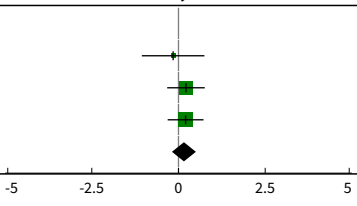
Analysis 15.25. Comparison 15 Subanalysis: outcomes by duration of physical activity intervention, Outcome 25 Overall pain/disability (follow-up values).

Study or subgroup	Physical activity N	Physical activity Mean(SD)	Control N	Control Mean(SD)	Std. Mean Difference Random, 95% CI	Weight	Std. Mean Difference Random, 95% CI
15.25.1 12 weeks or less							
Mustian 2004	9	9.1 (1.4)	10	9.1 (1.7)		5.06%	0.01[-0.89,0.91]
Loudon 2014	12	0.8 (1.5)	11	1.4 (2.2)		6.04%	-0.33[-1.15,0.5]
Rogers 2009	20	-3 (3)	18	-2.3 (2.8)		10.04%	-0.26[-0.89,0.38]
Mehnert 2011	30	79.4 (23.1)	28	73.5 (24.8)		15.36%	0.24[-0.27,0.76]
Do 2015	32	21.1 (24.6)	30	16.5 (26.7)		16.48%	0.18[-0.32,0.68]
Duijits 2012	87	79.3 (23.6)	89	78.8 (23.8)		47.02%	0.02[-0.28,0.32]
Subtotal ***	**190**		**186**			**100%**	**0.03[-0.17,0.23]**
Heterogeneity: Tau²=0; Chi²=2.48, df=5(P=0.78); I²=0%							
Test for overall effect: Z=0.3(P=0.76)							
15.25.2 More than 12 weeks							
Portela 2008	25	-20.6 (20.2)	9	-20.8 (15.5)		24.87%	0.01[-0.75,0.77]
Basen-Enquist 2006	28	79.7 (10.6)	23	72.1 (11.5)		34.14%	0.68[0.11,1.25]
Cadmus 2009	37	50.3 (9.1)	37	50.8 (9)		40.99%	-0.05[-0.51,0.4]
Subtotal ***	**90**		**69**			**100%**	**0.21[-0.27,0.7]**
Heterogeneity: Tau²=0.1; Chi²=4.17, df=2(P=0.12); I²=52.08%							
Test for overall effect: Z=0.86(P=0.39)							



Analysis 15.26. Comparison 15 Subanalysis: outcomes by duration of physical activity intervention, Outcome 26 Overall pain/disability (change values).

Study or subgroup	Physical activity N	Physical activity Mean(SD)	Control N	Control Mean(SD)	Std. Mean Difference Random, 95% CI	Weight	Std. Mean Difference Random, 95% CI
15.26.1 12 weeks or less							
Mustian 2004	9	-0.2 (1.3)	10	0 (1.4)		14.64%	-0.15[-1.06,0.75]
Cormie 2014	43	3.4 (6.5)	19	2 (6.2)		40.67%	0.22[-0.33,0.76]
Mehnert 2011	30	-2.4 (25)	28	-7.6 (25.2)		44.69%	0.21[-0.31,0.72]
Subtotal ***	**82**		**57**			**100%**	**0.16[-0.19,0.5]**



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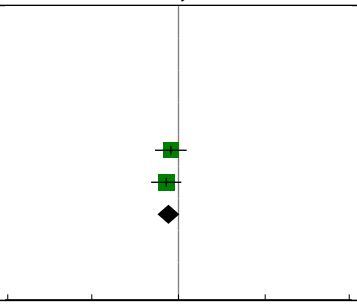
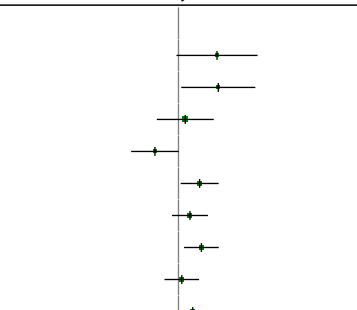
Study or subgroup	Physical activity N	Physical activity Mean(SD)	Control N	Control Mean(SD)	Std. Mean Difference Random, 95% CI	Weight	Std. Mean Difference Random, 95% CI
Heterogeneity: Tau²=0; Chi²=0.54, df=2(P=0.76); I²=0%							
Test for overall effect: Z=0.89(P=0.37)							
15.26.2 More than 12 weeks							
Cadmus 2009	37	-2.2 (11.3)	37	-0.1 (7)		47.55%	-0.22[-0.68,0.24]
Irwin 2015	45	-6 (19)	38	0.7 (18.6)		52.45%	-0.35[-0.79,0.08]
Subtotal ***	**82**		**75**			**100%**	**-0.29[-0.61,0.02]**
Heterogeneity: Tau²=0; Chi²=0.17, df=1(P=0.68); I²=0%							
Test for overall effect: Z=1.81(P=0.07)							



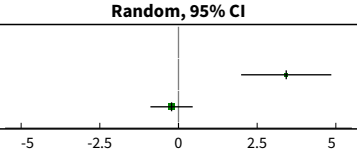
Analysis 15.27. Comparison 15 Subanalysis: outcomes by duration of physical activity intervention, Outcome 27 Overall self-esteem/body image (follow-up values).

Study or subgroup	Physical activity N	Physical activity Mean(SD)	Control N	Control Mean(SD)	Std. Mean Difference Random, 95% CI	Weight	Std. Mean Difference Random, 95% CI
15.27.1 12 weeks or less							
Segar 1998	10	33 (1.8)	5	30.5 (2.7)		5%	1.11[-0.06,2.28]
Pinto 2003	12	32.3 (4.3)	6	25.3 (8.2)		5.75%	1.15[0.08,2.22]
Loudon 2014	12	-1.4 (0.3)	11	-1.6 (0.9)		8.35%	0.2[-0.62,1.02]
Musanti 2012	30	23.8 (3.5)	12	26.3 (3.9)		10.36%	-0.68[-1.37,0.01]
Mehnert 2011	27	-5.5 (1.7)	27	-6.8 (2.6)		13.06%	0.61[0.06,1.16]
Milne 2008	29	-17.9 (6.8)	29	-20.1 (6.3)		13.68%	0.33[-0.19,0.85]
Daley 2007	33	2 (0.8)	32	1.6 (0.5)		14.09%	0.66[0.16,1.16]
Do 2015	32	37.9 (18.9)	30	36.1 (18.3)		14.14%	0.1[-0.4,0.59]
Pinto 2005	39	30.3 (7.8)	43	27.2 (6.8)		15.57%	0.41[-0.03,0.85]
Subtotal ***	**224**		**195**			**100%**	**0.36[0.07,0.66]**
Heterogeneity: Tau²=0.09; Chi²=15.97, df=8(P=0.04); I²=49.9%							
Test for overall effect: Z=2.42(P=0.02)							
15.27.2 More than 12 weeks							
Courneya 2003	24	34.8 (4.7)	28	34.6 (4.4)		20.9%	0.04[-0.5,0.59]
Cadmus 2009	37	34.2 (5.5)	37	33.4 (5.9)		29.85%	0.14[-0.32,0.6]
Schmitz 2009	59	-70.4 (16.3)	63	-71.5 (18)		49.25%	0.06[-0.29,0.42]
Subtotal ***	**120**		**128**			**100%**	**0.08[-0.17,0.33]**
Heterogeneity: Tau²=0; Chi²=0.09, df=2(P=0.96); I²=0%							
Test for overall effect: Z=0.64(P=0.52)							



Analysis 15.28. Comparison 15 Subanalysis: outcomes by duration of physical activity intervention, Outcome 28 Overall self-esteem/body image (change values).

Study or subgroup	Physical activity N	Physical activity Mean(SD)	Control N	Control Mean(SD)	Std. Mean Difference Random, 95% CI	Weight	Std. Mean Difference Random, 95% CI
15.28.1 12 weeks or less							
Mustian 2004	11	3 (1)	10	-1.5 (1.5)		11.43%	3.42[1.99,4.86]
Musanti 2012	30	-0.4 (4.5)	12	0.6 (3.9)		20.52%	-0.22[-0.89,0.45]



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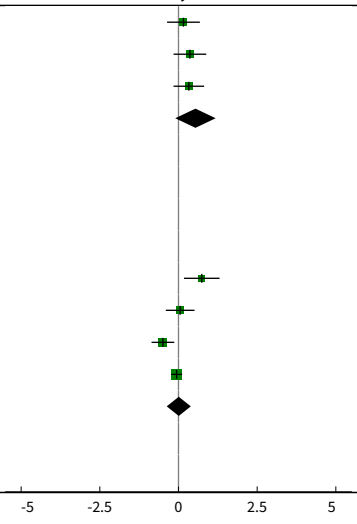
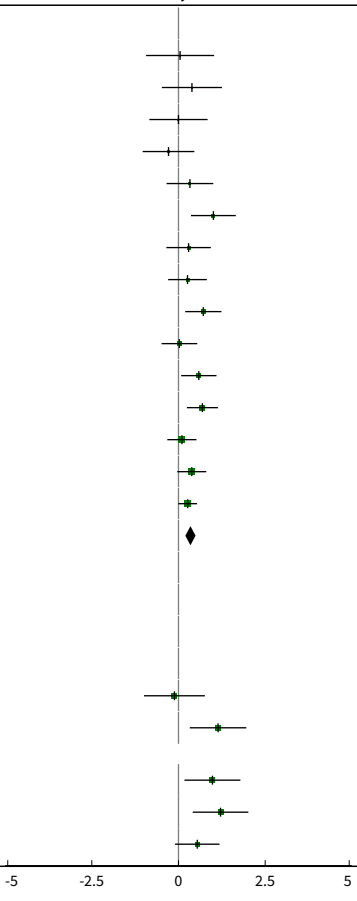
Study or subgroup	Physical activity N	Physical activity Mean(SD)	Control N	Control Mean(SD)	Std. Mean Difference Random, 95% CI	Weight	Std. Mean Difference Random, 95% CI
Mehnert 2011	30	0.7 (2.1)	27	0.4 (2.1)		22.53%	0.16[-0.36,0.68]
Milne 2008	29	1.5 (3.7)	29	0.1 (3.9)		22.55%	0.36[-0.16,0.88]
Daley 2007	33	1.8 (0.7)	33	1.6 (0.7)		22.97%	0.33[-0.16,0.82]
Subtotal ***	**133**		**111**			**100%**	**0.54[-0.1,1.18]**
Heterogeneity: Tau²=0.41; Chi²=20.91, df=4(P=0); I²=80.87%							
Test for overall effect: Z=1.64(P=0.1)							
15.28.2 More than 12 weeks							
Courneya 2003	24	2.6 (3.7)	28	-0.1 (3.5)		19.49%	0.74[0.18,1.3]
Cadmus 2009	37	0.4 (4.4)	37	0.2 (2.9)		22.88%	0.05[-0.4,0.51]
Schmitz 2009	59	-12 (15.5)	63	-4.1 (16.2)		26.03%	-0.49[-0.86,-0.13]
Saarto 2012	263	10.7 (21.5)	237	12 (22)		31.6%	-0.06[-0.24,0.12]
Subtotal ***	**383**		**365**			**100%**	**0.01[-0.37,0.39]**
Heterogeneity: Tau²=0.11; Chi²=13.52, df=3(P=0); I²=77.81%							
Test for overall effect: Z=0.04(P=0.96)							



Analysis 15.29. Comparison 15 Subanalysis: outcomes by duration of physical activity intervention, Outcome 29 Overall cardiorespiratory fitness (follow-up values).

Study or subgroup	Physical activity N	Physical activity Mean(SD)	Control N	Control Mean(SD)	Std. Mean Difference Random, 95% CI	Weight	Std. Mean Difference Random, 95% CI
15.29.1 12 weeks or less							
Herrero 2006	8	25.9 (4.5)	8	25.7 (3.7)		2.16%	0.05[-0.93,1.03]
Mustian 2004	11	636.1 (50.6)	10	610.3 (75.9)		2.73%	0.39[-0.48,1.25]
Rogers 2013	12	23.9 (6.2)	10	23.9 (3.8)		2.9%	0[-0.84,0.84]
Nikander 2007	14	-17.6 (1.3)	14	-17.2 (1.4)		3.62%	-0.29[-1.03,0.46]
Musanti 2012	30	24.6 (4.9)	12	23 (4.3)		4.36%	0.33[-0.34,1]
Rogers 2014	20	30.9 (6.3)	22	25.1 (5)		4.7%	1.01[0.36,1.65]
Rogers 2009	20	29.5 (6.6)	18	27.6 (6.1)		4.78%	0.29[-0.35,0.93]
Mehnert 2011	27	26.9 (4.4)	23	25.7 (4.7)		6.1%	0.26[-0.3,0.82]
Do 2015	30	31.7 (12.4)	30	24.5 (6.6)		6.85%	0.72[0.19,1.24]
Milne 2008	29	1.5 (0.3)	29	1.5 (0.4)		7.04%	0.03[-0.49,0.54]
Murtezani 2014	30	875.1 (86.7)	32	823.5 (87.1)		7.17%	0.59[0.08,1.1]
Pinto 2005	39	-16.3 (2.1)	43	-17.8 (2.2)		8.95%	0.69[0.24,1.14]
Fillion 2008	44	27 (4.4)	43	26.5 (5.8)		9.87%	0.1[-0.32,0.52]
Daley 2007	33	35 (4.4)	69	33.1 (5.3)		9.96%	0.38[-0.04,0.8]
Rogers 2015	105	23.6 (4.8)	108	22.7 (0.3)		18.82%	0.27[-0,0.54]
Subtotal ***	**452**		**471**			**100%**	**0.35[0.2,0.49]**
Heterogeneity: Tau²=0.01; Chi²=16.15, df=14(P=0.3); I²=13.3%							
Test for overall effect: Z=4.6(P<0.0001)							
15.29.2 More than 12 weeks							
Cerulli 2014	10	31.3 (5)	10	32.3 (10.1)		7.9%	-0.12[-0.99,0.76]
Portela 2008	25	3007 (410.8)	9	2416.1 (718.6)		8.92%	1.14[0.33,1.96]
Kaltsatou 2011	14	483.3 (86)	13	403.1 (71.9)		9.07%	0.98[0.17,1.78]
Rahnama 2010	14	20.7 (5.7)	15	13.9 (5.2)		9.14%	1.21[0.41,2.01]
Kim 2015	20	424.8 (55.8)	19	394.4 (54)		12.84%	0.54[-0.1,1.18]



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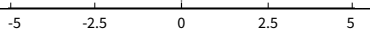
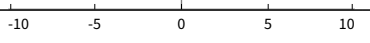
Study or subgroup	Physical activity N	Physical activity Mean(SD)	Control N	Control Mean(SD)	Std. Mean Difference Random, 95% CI	Weight	Std. Mean Difference Random, 95% CI
Courneya 2003	24	21.3 (3.7)	26	18.2 (3.9)		14.79%	0.8[0.22,1.38]
Basen-Enquist 2006	35	1643 (122.5)	25	1546 (127.5)		16.47%	0.77[0.24,1.3]
Irwin 2015	45	24.6 (5.5)	38	23 (4.7)		20.88%	0.31[-0.13,0.74]
Subtotal ***	**187**		**155**			**100%**	**0.67[0.4,0.94]**
Heterogeneity: Tau²=0.04; Chi²=9.8, df=7(P=0.2); I²=28.58%							
Test for overall effect: Z=4.84(P<0.0001)							



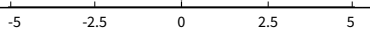
Analysis 15.30. Comparison 15 Subanalysis: outcomes by duration of physical activity intervention, Outcome 30 Overall cardiorespiratory fitness (change values).

Study or subgroup	Physical activity N	Physical activity Mean(SD)	Control N	Control Mean(SD)	Std. Mean Difference Random, 95% CI	Weight	Std. Mean Difference Random, 95% CI
15.30.1 12 weeks or less							
Nieman 1995	6	60.8 (8.4)	6	12 (17.8)		6.98%	3.24[1.29,5.18]
Naumann 2012	11	3.1 (2.9)	10	-0.1 (3.1)		15.79%	1.03[0.1,1.95]
Dolan 2016	23	12.2 (10.2)	10	-6 (7.2)		16.25%	1.88[0.99,2.77]
Musanti 2012	30	1 (3.1)	12	0.9 (3.4)		19.11%	0.03[-0.64,0.7]
Rogers 2014	20	2.8 (4.9)	22	1.1 (4.2)		19.89%	0.37[-0.24,0.98]
Pinto 2005	39	1.4 (2.4)	43	-0.2 (2.5)		21.98%	0.65[0.2,1.09]
Subtotal ***	**129**		**103**			**100%**	**0.91[0.31,1.52]**
Heterogeneity: Tau²=0.38; Chi²=18.87, df=5(P=0); I²=73.51%							
Test for overall effect: Z=2.96(P=0)							
15.30.2 More than 12 weeks							
Courneya 2003	24	2.7 (2.6)	26	-0.6 (1.7)		29.7%	1.49[0.86,2.12]
Irwin 2015	45	1.5 (2.1)	38	-0.4 (2.7)		33.25%	0.79[0.34,1.24]
Saarto 2012	262	0.9 (1.2)	236	0.7 (1)		37.05%	0.16[-0.02,0.33]
Subtotal ***	**331**		**300**			**100%**	**0.76[0.02,1.51]**
Heterogeneity: Tau²=0.38; Chi²=20.62, df=2(P<0.0001); I²=90.3%							
Test for overall effect: Z=2.01(P=0.04)							



Analysis 15.31. Comparison 15 Subanalysis: outcomes by duration of physical activity intervention, Outcome 31 Overall self-reported physical activity (follow-up values).

Study or subgroup	Physical activity N	Physical activity Mean(SD)	Control N	Control Mean(SD)	Std. Mean Difference Random, 95% CI	Weight	Std. Mean Difference Random, 95% CI
15.31.1 12 weeks or less							
Baruth 2013	20	0 (0)	12	0 (0)			Not estimable
Guinan 2013	16	38.7 (26.9)	10	19.9 (11.3)		5.47%	0.81[-0.01,1.64]
Matthews 2007	22	54.2 (34.1)	14	27.2 (22.7)		6.65%	0.87[0.17,1.58]
Rogers 2009	20	121.4 (73.2)	18	114.3 (131.5)		7.4%	0.07[-0.57,0.7]
Pinto 2015	36	70.3 (65.9)	32	16.5 (31.9)		9.14%	1.01[0.5,1.52]
Hatchett 2013	38	3.5 (2.2)	36	1.4 (1.7)		9.44%	1.04[0.55,1.53]



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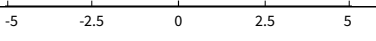
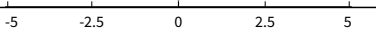
Study or subgroup	Physical activity N	Physical activity Mean(SD)	Control N	Control Mean(SD)	Std. Mean Difference Random, 95% CI	Weight	Std. Mean Difference Random, 95% CI
Pinto 2005	39	202.4 (161.7)	43	78.4 (86)		9.87%	0.96[0.5,1.42]
Kiecolt-Glaser 2014	96	11.2 (7.6)	90	9.1 (6.1)		12.59%	0.3[0.01,0.59]
Rogers 2015	110	169 (119)	112	74 (107)		12.82%	0.84[0.56,1.11]
Vallance 2007	253	207.6 (169)	85	163 (121)		13.25%	0.28[0.03,0.53]
Short 2014	195	217.9 (222.9)	104	180.3 (206.9)		13.37%	0.17[-0.07,0.41]
Subtotal ***	**845**		**556**			**100%**	**0.6[0.36,0.84]**
Heterogeneity: Tau²=0.1; Chi²=33.71, df=9(P=0); I²=73.3%							
Test for overall effect: Z=4.87(P<0.0001)							
15.31.2 More than 12 weeks							
Kim 2015	20	17.6 (16)	19	11.8 (11.6)		11.55%	0.4[-0.23,1.04]
Basen-Enquist 2006	35	428 (254.4)	25	404 (265)		13.62%	0.09[-0.42,0.61]
Cadmus 2009	34	161.7 (114.7)	33	55.6 (101.9)		13.72%	0.97[0.46,1.47]
Littman 2012	32	19.2 (19.1)	31	12.1 (13.6)		13.86%	0.42[-0.08,0.92]
Winters-Stone 2011	36	430.8 (281.4)	31	461.7 (346.4)		14.21%	-0.1[-0.58,0.38]
Irwin 2015	45	222.1 (118.6)	38	103.6 (104.6)		14.56%	1.04[0.58,1.51]
Schmitz 2009	131	3348.8 (9019.4)	133	2339.8 (6213.7)		18.47%	0.13[-0.11,0.37]
Subtotal ***	**333**		**310**			**100%**	**0.41[0.09,0.74]**
Heterogeneity: Tau²=0.13; Chi²=21.91, df=6(P=0); I²=72.61%							
Test for overall effect: Z=2.48(P=0.01)							



Analysis 15.32. Comparison 15 Subanalysis: outcomes by duration of physical activity intervention, Outcome 32 Overall self-reported physical activity (change values).

Study or subgroup	Physical activity N	Physical activity Mean(SD)	Control N	Control Mean(SD)	Std. Mean Difference Random, 95% CI	Weight	Std. Mean Difference Random, 95% CI
15.32.1 12 weeks or less							
Guinan 2013	16	15.6 (11.4)	10	-8.3 (4.2)		15.75%	2.46[1.39,3.53]
Matthews 2007	22	21.5 (30.6)	14	5 (13.8)		23.12%	0.63[-0.06,1.32]
Pinto 2005	39	84.7 (189.2)	43	-18.3 (200.7)		28.62%	0.52[0.08,0.96]
Vallance 2007	281	82 (168.7)	96	30 (167.8)		32.51%	0.31[0.08,0.54]
Subtotal ***	**358**		**163**			**100%**	**0.78[0.2,1.36]**
Heterogeneity: Tau²=0.25; Chi²=15.29, df=3(P=0); I²=80.37%							
Test for overall effect: Z=2.65(P=0.01)							
15.32.2 More than 12 weeks							
Cadmus 2009	34	129 (117.9)	33	44.3 (89.4)		22.43%	0.8[0.3,1.3]
Irwin 2015	45	159 (136)	38	49 (86)		23.43%	0.94[0.48,1.4]
Schmitz 2009	48	2.8 (16.8)	57	-0.8 (16.6)		25.07%	0.21[-0.17,0.6]
Saarto 2012	262	3.5 (18.3)	236	3.3 (21.5)		29.07%	0.01[-0.17,0.19]
Subtotal ***	**389**		**364**			**100%**	**0.46[-0.01,0.92]**
Heterogeneity: Tau²=0.18; Chi²=20.15, df=3(P=0); I²=85.11%							
Test for overall effect: Z=1.93(P=0.05)							



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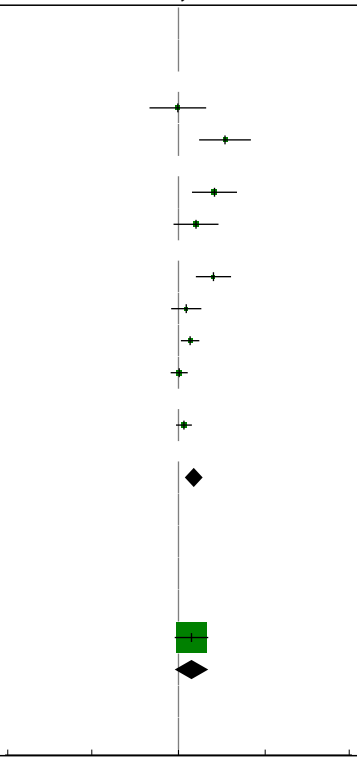
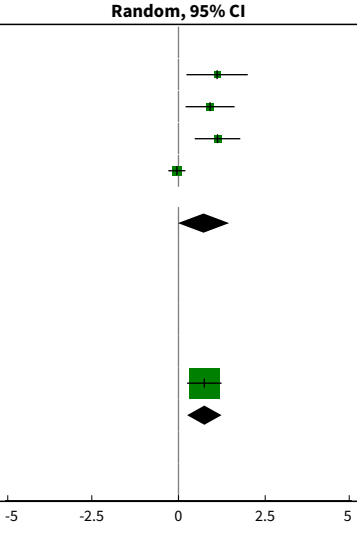
Analysis 15.33. Comparison 15 Subanalysis: outcomes by duration of physical activity intervention, Outcome 33 Overall objective physical activity (follow-up values).

Study or subgroup	Physical activity N	Physical activity Mean(SD)	Control N	Control Mean(SD)	Std. Mean Difference Random, 95% CI	Weight	Std. Mean Difference Random, 95% CI
15.33.1 12 weeks or less							
Rogers 2013	12	198.4 (111.7)	10	0 (0)			Not estimable
Guinan 2013	16	30.7 (15.6)	9	31 (15.6)		6.43%	-0.02[-0.84,0.8]
Matthews 2007	22	330.8 (114.7)	14	198.5 (55.4)		7.2%	1.34[0.6,2.09]
Rogers 2014	20	294 (175)	22	154 (75)		8.44%	1.04[0.39,1.69]
Rogers 2009	20	252191 (91893)	18	210917 (64078)		8.46%	0.51[-0.14,1.15]
Pinto 2015	36	70.3 (65.9)	32	16.5 (31.9)		10.67%	1.01[0.5,1.52]
Pinto 2005	39	37.5 (14.3)	43	33.6 (19.4)		11.99%	0.22[-0.21,0.66]
Rogers 2015	110	246 (153)	112	197 (138)		15.27%	0.34[0.07,0.6]
Vallance 2007	253	8110.5 (4133.9)	85	8028 (3457)		15.62%	0.02[-0.23,0.27]
Short 2014	219	9363.1 (7922.8)	111	8301.2 (3373.4)		15.93%	0.16[-0.07,0.39]
Subtotal ***	**747**		**456**			**100%**	**0.44[0.18,0.7]**
Heterogeneity: Tau^2=0.09; Chi^2=27.53, df=8(P=0); I^2=70.94%							
Test for overall effect: Z=3.35(P=0)							
15.33.2 More than 12 weeks							
Cadmus 2009	33	6738 (2958)	34	5537 (3352)		100%	0.38[-0.11,0.86]
Subtotal ***	**33**		**34**			**100%**	**0.38[-0.11,0.86]**
Heterogeneity: Not applicable							
Test for overall effect: Z=1.52(P=0.13)							



Analysis 15.34. Comparison 15 Subanalysis: outcomes by duration of physical activity intervention, Outcome 34 Overall objective physical activity (change values).

Study or subgroup	Physical activity N	Physical activity Mean(SD)	Control N	Control Mean(SD)	Std. Mean Difference Random, 95% CI	Weight	Std. Mean Difference Random, 95% CI
15.34.1 12 weeks or less							
Guinan 2013	16	-1.1 (6.2)	9	-7.9 (5.3)		21.38%	1.11[0.23,2]
Matthews 2007	22	72.2 (114.6)	14	-16.8 (51.5)		24.04%	0.91[0.2,1.62]
Rogers 2014	20	114 (109)	22	10 (70)		24.78%	1.13[0.47,1.78]
Vallance 2007	253	-150 (5173.3)	85	91 (5155.4)		29.8%	-0.05[-0.29,0.2]
Subtotal ***	**311**		**130**			**100%**	**0.72[-0.02,1.46]**
Heterogeneity: Tau^2=0.46; Chi^2=19.44, df=3(P=0); I^2=84.57%							
Test for overall effect: Z=1.92(P=0.06)							
15.34.2 More than 12 weeks							
Cadmus 2009	33	1621 (2108)	34	-60 (2341)		100%	0.75[0.25,1.24]
Subtotal ***	**33**		**34**			**100%**	**0.75[0.25,1.24]**
Heterogeneity: Not applicable							
Test for overall effect: Z=2.94(P=0)							



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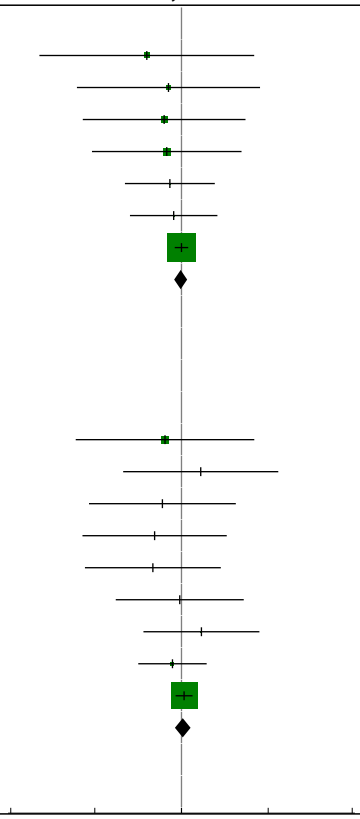
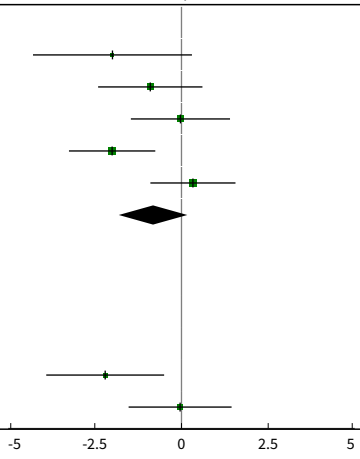
Analysis 15.35. Comparison 15 Subanalysis: outcomes by duration of physical activity intervention, Outcome 35 Mass (follow-up values).

Study or subgroup	Physical activity N	Physical activity Mean(SD)	Control N	Control Mean(SD)	Mean Difference Fixed, 95% CI	Weight	Mean Difference Fixed, 95% CI
15.35.1 12 weeks or less							
Matthews 2007	22	74.9 (15.2)	14	78.9 (20.3)		0.37%	-4[-16.39,8.39]
Mustian 2004	11	67.1 (10.4)	10	68.6 (13.8)		0.5%	-1.5[-12.06,9.06]
Nikander 2007	14	73.5 (13.3)	14	75.5 (12)		0.64%	-2[-11.38,7.38]
Herrero 2006	8	65.6 (8.7)	8	67.3 (8.9)		0.76%	-1.7[-10.32,6.92]
Daley 2007	33	74.3 (12.5)	69	75.6 (12.5)		2.09%	-1.34[-6.52,3.84]
Murtezani 2014	30	71.7 (9.5)	32	72.6 (10.8)		2.21%	-0.9[-5.94,4.14]
Kiecolt-Glaser 2014	96	75.2 (2.8)	90	75.2 (2.6)		93.43%	0[-0.78,0.78]
Subtotal ***	**214**		**237**			**100%**	**-0.1[-0.85,0.65]**
Heterogeneity: Tau²=0; Chi²=1.12, df=6(P=0.98); I²=0%							
Test for overall effect: Z=0.25(P=0.8)							
15.35.2 More than 12 weeks							
Courneya 2003	24	78.2 (20.5)	26	80.1 (16.2)		0.77%	-1.9[-12.2,8.4]
Cadmus 2009	36	80.7 (16.9)	33	78.5 (20.6)		1.02%	2.22[-6.72,11.16]
Rahnama 2010	14	69.4 (13.5)	15	71.6 (9.2)		1.14%	-2.2[-10.67,6.27]
DeNysschen 2011	30	69.3 (14.2)	34	72.4 (19.6)		1.18%	-3.1[-11.42,5.22]
Ligibel 2008	40	80 (17.5)	42	83.3 (18.7)		1.33%	-3.3[-11.14,4.54]
Littman 2012	28	81.1 (13.6)	27	81.3 (14.3)		1.5%	-0.2[-7.58,7.18]
Winters-Stone 2011	36	76.5 (15.6)	31	74.2 (12.3)		1.83%	2.3[-4.39,8.99]
Schmitz 2009	131	76.2 (15.7)	133	77.2 (17)		5.25%	-1.04[-4.98,2.9]
Schmitz 2005	39	69.5 (2.2)	40	69.2 (2.2)		85.98%	0.3[-0.67,1.27]
Subtotal ***	**378**		**381**			**100%**	**0.14[-0.76,1.05]**
Heterogeneity: Tau²=0; Chi²=2.83, df=8(P=0.94); I²=0%							
Test for overall effect: Z=0.31(P=0.75)							



Analysis 15.36. Comparison 15 Subanalysis: outcomes by duration of physical activity intervention, Outcome 36 Mass (change values).

Study or subgroup	Physical activity N	Physical activity Mean(SD)	Control N	Control Mean(SD)	Mean Difference Random, 95% CI	Weight	Mean Difference Random, 95% CI
15.36.1 12 weeks or less							
Dolan 2016	23	-0.5 (5)	10	1.4 (1.6)		12.38%	-1.99[-4.28,0.3]
Mustian 2004	9	-0.3 (1.9)	10	0.6 (1.4)		19.92%	-0.9[-2.4,0.6]
Matthews 2007	22	0 (2.1)	14	0 (2.2)		20.85%	-0.03[-1.46,1.4]
Murtezani 2014	30	-2.3 (2.4)	32	-0.3 (2.6)		23.3%	-2[-3.24,-0.76]
Naumann 2012	11	0.5 (1.3)	10	0.1 (1.5)		23.55%	0.33[-0.9,1.56]
Subtotal ***	**95**		**76**			**100%**	**-0.82[-1.81,0.17]**
Heterogeneity: Tau²=0.69; Chi²=8.99, df=4(P=0.06); I²=55.49%							
Test for overall effect: Z=1.63(P=0.1)							
15.36.2 More than 12 weeks							
Irwin 2015	45	-2.1 (4.3)	38	0.1 (3.6)		6.71%	-2.2[-3.9,-0.5]
Ligibel 2008	22	0 (2.3)	14	0 (2.2)		8.37%	-0.04[-1.52,1.44]



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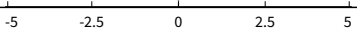
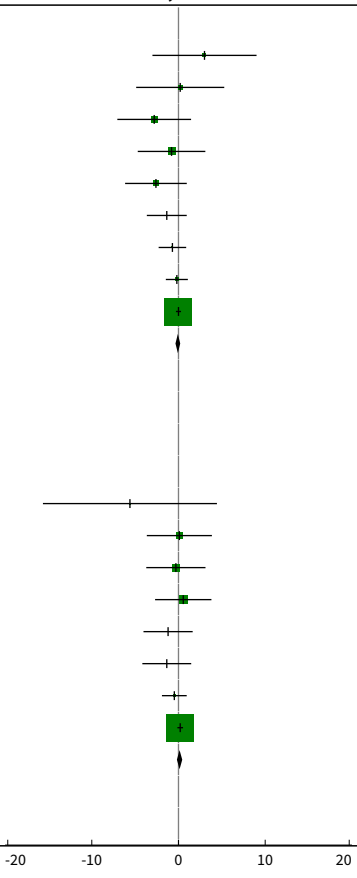
Study or subgroup	Physical activity N	Physical activity Mean(SD)	Control N	Control Mean(SD)	Mean Difference Random, 95% CI	Weight	Mean Difference Random, 95% CI
Schmitz 2009	65	-1 (3.7)	65	-0.4 (4.3)		9.39%	-0.6[-1.98,0.78]
Courneya 2003	24	0.1 (2)	26	0.7 (1.8)		13.76%	-0.6[-1.66,0.46]
Saarto 2012	262	0.7 (3.7)	236	0.7 (3.8)		23.1%	-0.01[-0.67,0.65]
Schmitz 2005	39	0.3 (0.4)	40	0.2 (0.4)		38.66%	0.12[-0.07,0.31]
Subtotal ***	**457**		**419**			**100%**	**-0.25[-0.73,0.24]**
Heterogeneity: Tau^2=0.15; Chi^2=9.62, df=5(P=0.09); I^2=48%							
Test for overall effect: Z=1(P=0.32)							



Analysis 15.37. Comparison 15 Subanalysis: outcomes by duration of physical activity intervention, Outcome 37 BMI (follow-up values).

Study or subgroup	Physical activity N	Physical activity Mean(SD)	Control N	Control Mean(SD)	Mean Difference Fixed, 95% CI	Weight	Mean Difference Fixed, 95% CI
15.37.1 12 weeks or less							
Rogers 2013	12	33.6 (7)	10	30.6 (7.3)		0.21%	3[-3,9]
Rogers 2009	20	30.6 (7.6)	18	30.4 (8.3)		0.29%	0.2[-4.88,5.28]
Mustian 2004	11	23.9 (4.2)	10	26.7 (5.6)		0.42%	-2.8[-7.05,1.45]
Nikander 2007	14	26.9 (5.6)	14	27.7 (4.9)		0.5%	-0.8[-4.7,3.1]
Rogers 2014	20	29.6 (5)	22	32.2 (6.7)		0.6%	-2.6[-6.16,0.96]
Pinto 2005	39	27.7 (5)	43	29 (5.6)		1.43%	-1.35[-3.65,0.95]
Murtezani 2014	30	25.1 (2.9)	32	25.8 (3.5)		3%	-0.7[-2.29,0.89]
Vallance 2007	253	27 (5.2)	85	27.2 (5.2)		4.7%	-0.19[-1.46,1.08]
Kiecolt-Glaser 2014	96	27.8 (1.1)	90	27.8 (1)		88.85%	0[-0.29,0.29]
Subtotal ***	**495**		**324**			**100%**	**-0.07[-0.35,0.2]**
Heterogeneity: Tau^2=0; Chi^2=6.73, df=8(P=0.57); I^2=0%							
Test for overall effect: Z=0.52(P=0.6)							
15.37.2 More than 12 weeks							
Portela 2008	25	29.1 (5.5)	9	34.7 (15)		0.09%	-5.6[-15.63,4.43]
Courneya 2003	24	29.4 (7.4)	26	29.3 (6)		0.68%	0.1[-3.65,3.85]
Rahnama 2010	14	27.7 (4.8)	15	28 (4.6)		0.82%	-0.3[-3.71,3.11]
Cadmus 2009	36	30.5 (6)	33	29.9 (7.6)		0.9%	0.55[-2.7,3.8]
Ligibel 2008	40	30.3 (6.3)	42	31.5 (6.8)		1.18%	-1.2[-4.04,1.64]
Littman 2012	28	27.7 (5)	27	29 (5.6)		1.2%	-1.35[-4.17,1.47]
Schmitz 2009	131	28.5 (5.6)	133	28.9 (6.3)		4.66%	-0.48[-1.91,0.95]
Schmitz 2005	39	26 (0.7)	40	25.8 (0.7)		90.47%	0.2[-0.12,0.52]
Subtotal ***	**337**		**325**			**100%**	**0.13[-0.18,0.43]**
Heterogeneity: Tau^2=0; Chi^2=4.16, df=7(P=0.76); I^2=0%							
Test for overall effect: Z=0.8(P=0.42)							



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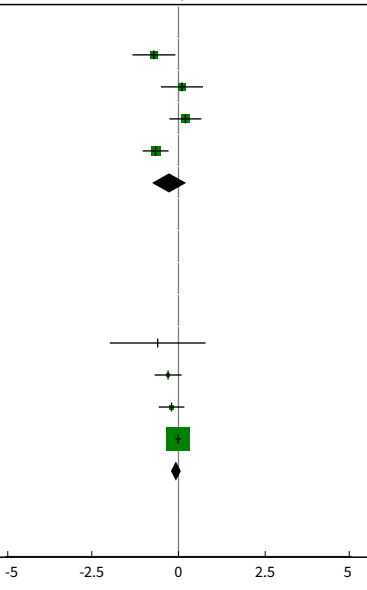
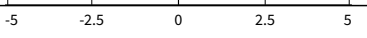
Analysis 15.38. Comparison 15 Subanalysis: outcomes by duration of physical activity intervention, Outcome 38 BMI (change values).

Study or subgroup	Physical activity N	Physical activity Mean(SD)	Control N	Control Mean(SD)	Mean Difference Random, 95% CI	Weight	Mean Difference Random, 95% CI
15.38.1 12 weeks or less							
Mustian 2004	9	-0.4 (0.8)	10	0.3 (0.6)		22.25%	-0.71[-1.33,-0.09]
Rogers 2014	20	-0.2 (0.9)	22	-0.3 (1.1)		22.59%	0.1[-0.51,0.71]
Naumann 2012	11	0.1 (0.5)	10	-0.1 (0.6)		26.43%	0.2[-0.26,0.66]
Murtezani 2014	30	-0.8 (0.7)	32	-0.1 (0.8)		28.73%	-0.66[-1.03,-0.29]
Subtotal ***	**70**		**74**			**100%**	**-0.27[-0.76,0.22]**
Heterogeneity: Tau^2=0.18; Chi^2=11.45, df=3(P=0.01); I^2=73.79%							
Test for overall effect: Z=1.09(P=0.28)							
15.38.2 More than 12 weeks							
Schmitz 2009	65	-1 (3.7)	65	-0.4 (4.3)		1.07%	-0.6[-1.98,0.78]
Courneya 2003	24	0 (0.7)	26	0.3 (0.7)		11.84%	-0.3[-0.69,0.09]
Ligibel 2008	40	0 (0.9)	42	0.2 (0.8)		12.92%	-0.2[-0.57,0.17]
Schmitz 2005	39	0.1 (0.2)	40	0.1 (0.2)		74.17%	-0.01[-0.08,0.06]
Subtotal ***	**168**		**173**			**100%**	**-0.08[-0.22,0.07]**
Heterogeneity: Tau^2=0.01; Chi^2=3.61, df=3(P=0.31); I^2=16.98%							
Test for overall effect: Z=1.03(P=0.3)							



Analysis 15.39. Comparison 15 Subanalysis: outcomes by duration of physical activity intervention, Outcome 39 Overall body fat (follow-up values).

Study or subgroup	Physical activity N	Physical activity Mean(SD)	Control N	Control Mean(SD)	Std. Mean Difference Random, 95% CI	Weight	Std. Mean Difference Random, 95% CI
15.39.1 12 weeks or less							
Herrero 2006	8	22 (5)	8	22 (4)		4.27%	0[-0.98,0.98]
Mustian 2004	11	38.5 (4.5)	10	41.7 (4.9)		5.24%	-0.66[-1.54,0.23]
Rogers 2013	10	44.2 (6.7)	12	42.3 (7.7)		5.76%	0.25[-0.59,1.09]
Matthews 2007	22	39.7 (6.3)	14	43.1 (6.9)		8.82%	-0.51[-1.19,0.17]
Musanti 2012	30	34.1 (6.6)	12	33.7 (5.7)		9.14%	0.07[-0.6,0.74]
Rogers 2009	20	44.3 (7.4)	19	43.5 (7.5)		10.38%	0.11[-0.52,0.73]
Rogers 2014	20	38.6 (6.4)	22	41.5 (7.4)		10.92%	-0.41[-1.02,0.2]
Pinto 2005	39	37.5 (4.8)	43	38.6 (4.8)		21.69%	-0.21[-0.64,0.22]
Daley 2007	33	39.4 (4.7)	69	40.1 (7.4)		23.78%	-0.1[-0.52,0.31]
Subtotal ***	**193**		**209**			**100%**	**-0.16[-0.37,0.04]**
Heterogeneity: Tau^2=0; Chi^2=5.12, df=8(P=0.74); I^2=0%							
Test for overall effect: Z=1.58(P=0.11)							
15.39.2 More than 12 weeks							
Cerulli 2014	10	26.7 (5.3)	10	30.6 (4.4)		5.42%	-0.75[-1.66,0.16]
Courneya 2003	24	131.9 (46.4)	26	137.1 (44.4)		9.89%	-0.11[-0.67,0.44]
DeNysschen 2011	30	36.9 (8.4)	34	38 (10.2)		11.05%	-0.12[-0.61,0.38]
Winters-Stone 2011	36	40.5 (6.2)	31	38.5 (5.8)		11.19%	0.33[-0.16,0.81]
Saarto 2012	37	39.9 (7.5)	30	40.2 (8)		11.23%	-0.04[-0.52,0.44]
Cadmus 2009	36	40.5 (6.6)	33	39.6 (6)		11.4%	0.15[-0.33,0.62]
Schmitz 2005	39	40.9 (1.3)	40	42.3 (1.3)		11.42%	-1.05[-1.52,-0.58]
Ligibel 2008	40	42.9 (7.4)	42	44.7 (8)		12.17%	-0.23[-0.67,0.2]



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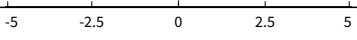
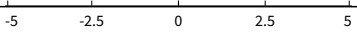
Study or subgroup	Physical activity N	Physical activity Mean(SD)	Control N	Control Mean(SD)	Std. Mean Difference Random, 95% CI	Weight	Std. Mean Difference Random, 95% CI
Schmitz 2009	130	38.5 (5.9)	132	39.7 (5.9)		16.22%	-0.21[-0.46,0.03]
Subtotal ***	**382**		**378**			**100%**	**-0.2[-0.45,0.05]**
Heterogeneity: Tau²=0.09; Chi²=21.11, df=8(P=0.01); I²=62.1%							
Test for overall effect: Z=1.54(P=0.12)							



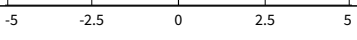
Analysis 15.40. Comparison 15 Subanalysis: outcomes by duration of physical activity intervention, Outcome 40 Overall body fat (change values).

Study or subgroup	Physical activity N	Physical activity Mean(SD)	Control N	Control Mean(SD)	Std. Mean Difference Random, 95% CI	Weight	Std. Mean Difference Random, 95% CI
15.40.1 12 weeks or less							
Mustian 2004	9	-0.2 (2.9)	10	0.3 (1.6)		12.78%	-0.18[-1.09,0.72]
Naumann 2012	11	-0.3 (2.4)	10	0.8 (2.8)		13.86%	-0.41[-1.28,0.46]
Musanti 2012	30	-0.2 (2.8)	12	1.4 (1.6)		22.25%	-0.63[-1.32,0.05]
Matthews 2007	22	-0.2 (1.6)	14	0.4 (1.9)		22.86%	-0.34[-1.02,0.33]
Rogers 2014	20	-1.1 (2.2)	22	-0.6 (2.4)		28.25%	-0.21[-0.82,0.39]
Subtotal ***	**92**		**68**			**100%**	**-0.36[-0.68,-0.04]**
Heterogeneity: Tau²=0; Chi²=1, df=4(P=0.91); I²=0%							
Test for overall effect: Z=2.18(P=0.03)							
15.40.2 More than 12 weeks							
Schmitz 2005	39	-1.1 (0.5)	40	0.2 (0.4)		24.17%	-3.07[-3.73,-2.41]
Courneya 2003	24	-4.9 (15.7)	26	5.1 (24.4)		24.73%	-0.48[-1.04,0.09]
Ligibel 2008	40	-0.2 (1.7)	42	0.3 (1.7)		25.37%	-0.29[-0.73,0.14]
Schmitz 2009	65	-0.3 (5.7)	63	-0.1 (3.3)		25.73%	-0.04[-0.39,0.3]
Subtotal ***	**168**		**171**			**100%**	**-0.94[-2.07,0.18]**
Heterogeneity: Tau²=1.24; Chi²=65.67, df=3(P<0.0001); I²=95.43%							
Test for overall effect: Z=1.65(P=0.1)							



Analysis 15.41. Comparison 15 Subanalysis: outcomes by duration of physical activity intervention, Outcome 41 Lower body strength (follow-up values).

Study or subgroup	Physical activity N	Physical activity Mean(SD)	Control N	Control Mean(SD)	Std. Mean Difference Random, 95% CI	Weight	Std. Mean Difference Random, 95% CI
15.41.1 12 weeks or less							
Rogers 2013	11	68.4 (15.5)	9	67.1 (16.2)		12.25%	0.08[-0.8,0.96]
Nikander 2007	14	1305 (177)	14	1393 (275)		15.8%	-0.37[-1.12,0.38]
Rogers 2009	20	80.3 (27)	18	64.9 (19.7)		19.18%	0.63[-0.02,1.29]
Milne 2008	29	66.2 (10.2)	29	61.7 (11)		25.72%	0.42[-0.1,0.94]
Do 2015	32	13 (1.6)	30	13.2 (1.6)		27.06%	-0.09[-0.59,0.41]
Subtotal ***	**106**		**100**			**100%**	**0.15[-0.19,0.5]**
Heterogeneity: Tau²=0.05; Chi²=5.9, df=4(P=0.21); I²=32.21%							
Test for overall effect: Z=0.88(P=0.38)							
15.41.2 More than 12 weeks							



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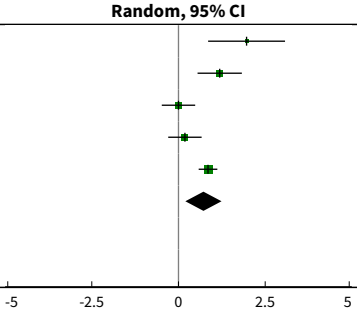
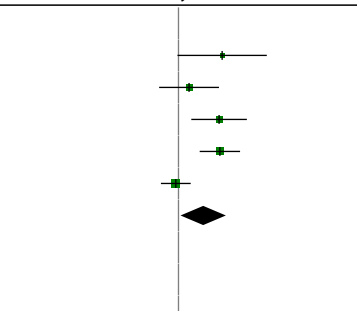
Study or subgroup	Physical activity N	Physical activity Mean(SD)	Control N	Control Mean(SD)	Std. Mean Difference Random, 95% CI	Weight	Std. Mean Difference Random, 95% CI
Cerulli 2014	10	114.9 (17.1)	10	79.1 (17.8)		12.13%	1.96[0.85,3.07]
Schmitz 2005	23	296.6 (48.9)	22	238.9 (46.4)		19.14%	1.19[0.55,1.83]
Saarto 2012	37	136 (23)	30	136 (29)		21.84%	0[-0.48,0.48]
Winters-Stone 2011	36	201.3 (57.4)	31	191 (51.7)		21.84%	0.19[-0.3,0.67]
Schmitz 2009	113	223.4 (59.6)	119	175.1 (53.5)		25.04%	0.85[0.58,1.12]
Subtotal ***	**219**		**212**			**100%**	**0.72[0.2,1.24]**
Heterogeneity: Tau²=0.26; Chi²=20.83, df=4(P=0); I²=80.8%							
Test for overall effect: Z=2.7(P=0.01)							



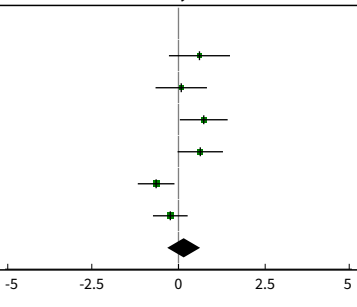
Analysis 15.42. Comparison 15 Subanalysis: outcomes by duration of physical activity intervention, Outcome 42 Lower body strength (change values).

Study or subgroup	Physical activity N	Physical activity Mean(SD)	Control N	Control Mean(SD)	Std. Mean Difference Random, 95% CI	Weight	Std. Mean Difference Random, 95% CI
15.42.1 12 weeks or less							
Nieman 1995	6	28.9 (13.7)	6	3.5 (22.5)		13.43%	1.26[-0.03,2.55]
Naumann 2012	11	7.7 (12.6)	10	3.5 (13.9)		18.85%	0.3[-0.56,1.17]
Dolan 2016	23	11.8 (8.9)	10	0.3 (11.1)		19.74%	1.17[0.37,1.97]
Cormie 2014	43	37.6 (25.5)	19	6.7 (25.7)		22.95%	1.19[0.61,1.78]
Do 2015	32	0.9 (0.7)	60	1 (0.6)		25.03%	-0.08[-0.51,0.35]
Subtotal ***	**115**		**105**			**100%**	**0.71[0.06,1.37]**
Heterogeneity: Tau²=0.4; Chi²=16.62, df=4(P=0); I²=75.93%							
Test for overall effect: Z=2.14(P=0.03)							
15.42.2 More than 12 weeks							
Schmitz 2005	23	81.8 (48.9)	22	20.3 (46)		21.57%	1.27[0.63,1.92]
Schmitz 2009	113	33.2 (33.9)	119	7.9 (26.6)		39.14%	0.83[0.56,1.1]
Waltman 2010	110	4.4 (11.5)	113	0.2 (8.4)		39.29%	0.42[0.15,0.69]
Subtotal ***	**246**		**254**			**100%**	**0.76[0.36,1.17]**
Heterogeneity: Tau²=0.09; Chi²=8.1, df=2(P=0.02); I²=75.31%							
Test for overall effect: Z=3.68(P=0)							



Analysis 15.43. Comparison 15 Subanalysis: outcomes by duration of physical activity intervention, Outcome 43 Upper body strength (follow-up values).

Study or subgroup	Physical activity N	Physical activity Mean(SD)	Control N	Control Mean(SD)	Std. Mean Difference Random, 95% CI	Weight	Std. Mean Difference Random, 95% CI
15.43.1 12 weeks or less							
Mustian 2004	11	29.6 (3.3)	10	26.7 (5.7)		13.34%	0.6[-0.28,1.49]
Nikander 2007	14	131 (20)	14	129 (28)		15.4%	0.08[-0.66,0.82]
Musanti 2012	30	52.1 (21)	12	36.8 (20)		16.22%	0.73[0.04,1.42]
Rogers 2009	20	27.9 (5)	18	24.3 (6.2)		16.79%	0.63[-0.03,1.28]
Milne 2008	29	7.6 (2.9)	29	9.4 (2.6)		18.88%	-0.64[-1.17,-0.12]
Do 2015	32	9.7 (1.7)	30	10.1 (1.7)		19.37%	-0.24[-0.74,0.26]
Subtotal ***	**136**		**113**			**100%**	**0.15[-0.32,0.62]**



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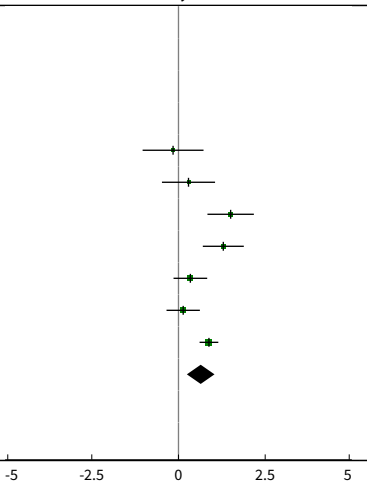
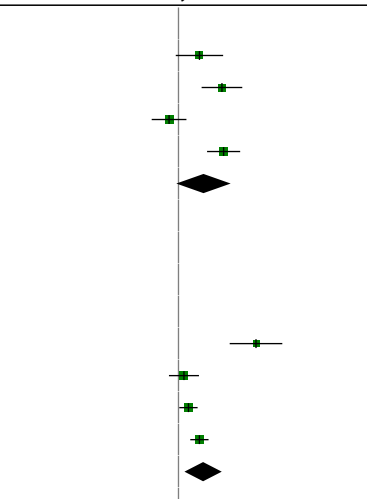
Study or subgroup	Physical activity N	Physical activity Mean(SD)	Control N	Control Mean(SD)	Std. Mean Difference Random, 95% CI	Weight	Std. Mean Difference Random, 95% CI
Heterogeneity: Tau²=0.24; Chi²=16.15, df=5(P=0.01); I²=69.03%							
Test for overall effect: Z=0.62(P=0.54)							
15.43.2 More than 12 weeks							
Cerulli 2014	10	16.1 (5.4)	10	17.2 (8.1)		10.32%	-0.16[-1.03,0.72]
Portela 2008	25	39.3 (12.3)	9	35.6 (13.1)		11.74%	0.29[-0.48,1.05]
Schmitz 2005	23	83 (13.4)	22	63 (12.7)		13.07%	1.5[0.84,2.17]
Kaltsatou 2011	28	59.6 (8.5)	26	47.6 (9.8)		14.23%	1.29[0.7,1.88]
Saarto 2012	37	32.7 (5.3)	30	30.8 (5.7)		15.84%	0.34[-0.14,0.83]
Winters-Stone 2011	36	63.3 (15.3)	31	61.1 (16.8)		15.9%	0.14[-0.34,0.62]
Schmitz 2009	113	52.9 (15.3)	119	40.9 (11.8)		18.9%	0.88[0.61,1.15]
Subtotal ***	**272**		**247**			**100%**	**0.64[0.24,1.04]**
Heterogeneity: Tau²=0.2; Chi²=23.22, df=6(P=0); I²=74.16%							
Test for overall effect: Z=3.15(P=0)							



Analysis 15.44. Comparison 15 Subanalysis: outcomes by duration of physical activity intervention, Outcome 44 Upper body strength (change values).

Study or subgroup	Physical activity N	Physical activity Mean(SD)	Control N	Control Mean(SD)	Std. Mean Difference Random, 95% CI	Weight	Std. Mean Difference Random, 95% CI
15.44.1 12 weeks or less							
Musanti 2012	30	7.7 (10.6)	12	0.8 (12.7)		23.58%	0.6[-0.08,1.29]
Cormie 2014	43	5.7 (3.7)	19	1 (3.8)		24.75%	1.25[0.67,1.84]
Do 2015	32	0.3 (0.5)	30	0.6 (1.2)		25.71%	-0.27[-0.77,0.23]
Mustian 2004	45	4.5 (4.7)	38	-0.8 (3.2)		25.96%	1.3[0.82,1.78]
Subtotal ***	**150**		**99**			**100%**	**0.72[-0.06,1.5]**
Heterogeneity: Tau²=0.56; Chi²=24.08, df=3(P<0.0001); I²=87.54%							
Test for overall effect: Z=1.8(P=0.07)							
15.44.2 More than 12 weeks							
Schmitz 2005	23	32.3 (11.5)	22	6.9 (10.8)		18.81%	2.24[1.48,2.99]
Irwin 2015	45	0.4 (1.9)	38	0.1 (1.9)		25.16%	0.16[-0.27,0.59]
Waltman 2010	110	1.9 (4.9)	113	0.8 (2.9)		28.01%	0.29[0.02,0.55]
Schmitz 2009	113	33.2 (40.8)	119	7.6 (43.7)		28.02%	0.6[0.34,0.87]
Subtotal ***	**291**		**292**			**100%**	**0.71[0.17,1.25]**
Heterogeneity: Tau²=0.25; Chi²=25.58, df=3(P<0.0001); I²=88.27%							
Test for overall effect: Z=2.59(P=0.01)							



Comparison 16. Subanalysis: outcomes by format of intervention

Outcome or subgroup title	No. of studies	No. of participants	Statistical method	Effect size
1 Overall HRQoL (follow-up values)	21		Std. Mean Difference (IV, Random, 95% CI)	Subtotals only

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Outcome or subgroup title	No. of studies	No. of participants	Statistical method	Effect size
1.1 Group format	5	214	Std. Mean Difference (IV, Random, 95% CI)	0.99 [0.22, 1.75]
1.2 Individual format	10	1137	Std. Mean Difference (IV, Random, 95% CI)	0.21 [0.03, 0.38]
1.3 Both group and individual formats	6	390	Std. Mean Difference (IV, Random, 95% CI)	0.33 [0.04, 0.62]
2 Overall HRQoL (change values)	14		Std. Mean Difference (IV, Random, 95% CI)	Subtotals only
2.1 Group format	5	198	Std. Mean Difference (IV, Random, 95% CI)	1.88 [0.19, 3.56]
2.2 Individual format	6	649	Std. Mean Difference (IV, Random, 95% CI)	0.43 [0.25, 0.61]
2.3 Both group and individual formats	3	612	Std. Mean Difference (IV, Random, 95% CI)	0.06 [-0.22, 0.33]
3 Overall emotional function/mental health (follow-up values)	26		Std. Mean Difference (IV, Random, 95% CI)	Subtotals only
3.1 Group format	10	649	Std. Mean Difference (IV, Random, 95% CI)	0.28 [0.07, 0.49]
3.2 Individual format	10	923	Std. Mean Difference (IV, Random, 95% CI)	0.16 [0.02, 0.30]
3.3 Both group and individual formats	6	500	Std. Mean Difference (IV, Random, 95% CI)	0.10 [-0.09, 0.29]
4 Overall emotional function/mental health (change values)	15		Std. Mean Difference (IV, Random, 95% CI)	Subtotals only
4.1 Group format	7	398	Std. Mean Difference (IV, Random, 95% CI)	0.42 [-0.14, 0.99]
4.2 Individual format	5	569	Std. Mean Difference (IV, Random, 95% CI)	0.26 [0.08, 0.44]
4.3 Both group and individual formats	3	612	Std. Mean Difference (IV, Random, 95% CI)	0.09 [-0.16, 0.34]
5 Overall physical function (follow-up values)	24		Std. Mean Difference (IV, Random, 95% CI)	Subtotals only
5.1 Group format	9	588	Std. Mean Difference (IV, Random, 95% CI)	0.53 [0.12, 0.94]
5.2 Individual format	9	941	Std. Mean Difference (IV, Random, 95% CI)	0.28 [0.12, 0.45]

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Outcome or subgroup title	No. of studies	No. of participants	Statistical method	Effect size
5.3 Both group and individual formats	6	538	Std. Mean Difference (IV, Random, 95% CI)	0.18 [-0.06, 0.42]
6 Overall physical function (change values)	13		Std. Mean Difference (IV, Random, 95% CI)	Subtotals only
6.1 Group format	6	337	Std. Mean Difference (IV, Random, 95% CI)	1.25 [0.29, 2.21]
6.2 Individual format	3	432	Std. Mean Difference (IV, Random, 95% CI)	0.20 [-0.01, 0.41]
6.3 Both group and individual formats	4	664	Std. Mean Difference (IV, Random, 95% CI)	0.19 [-0.25, 0.63]
7 Overall role function (follow-up values)	18		Std. Mean Difference (IV, Random, 95% CI)	Subtotals only
7.1 Group format	6	225	Std. Mean Difference (IV, Random, 95% CI)	0.52 [-0.27, 1.30]
7.2 Individual format	7	689	Std. Mean Difference (IV, Random, 95% CI)	0.23 [0.07, 0.40]
7.3 Both group and individual formats	5	426	Std. Mean Difference (IV, Random, 95% CI)	0.15 [-0.15, 0.45]
8 Overall role function (change values)	12		Std. Mean Difference (IV, Random, 95% CI)	Subtotals only
8.1 Group format	5	216	Std. Mean Difference (IV, Random, 95% CI)	0.36 [-0.14, 0.85]
8.2 Individual format	4	487	Std. Mean Difference (IV, Random, 95% CI)	0.13 [-0.07, 0.32]
8.3 Both group and individual formats	3	612	Std. Mean Difference (IV, Random, 95% CI)	-0.06 [-0.22, 0.10]
9 Overall social well-being/function (follow-up values)	18		Std. Mean Difference (IV, Random, 95% CI)	Subtotals only
9.1 Group format	7	348	Std. Mean Difference (IV, Random, 95% CI)	0.22 [0.00, 0.45]
9.2 Individual format	5	546	Std. Mean Difference (IV, Random, 95% CI)	0.27 [-0.07, 0.61]
9.3 Both group and individual formats	6	663	Std. Mean Difference (IV, Random, 95% CI)	0.16 [0.01, 0.32]
10 Overall social well-being/function (change values)	12		Std. Mean Difference (IV, Random, 95% CI)	Subtotals only

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Outcome or subgroup title	No. of studies	No. of participants	Statistical method	Effect size
10.1 Group format	5	322	Std. Mean Difference (IV, Random, 95% CI)	0.57 [-0.06, 1.19]
10.2 Individual format	4	450	Std. Mean Difference (IV, Random, 95% CI)	0.72 [0.38, 1.06]
10.3 Both group and individual formats	3	612	Std. Mean Difference (IV, Random, 95% CI)	0.27 [-0.31, 0.85]
11 Overall cognitive function (follow-up values)	5		Std. Mean Difference (IV, Random, 95% CI)	Subtotals only
11.1 Group format	3	134	Std. Mean Difference (IV, Random, 95% CI)	0.32 [-0.02, 0.66]
11.2 Individual format	1	18	Std. Mean Difference (IV, Random, 95% CI)	1.14 [0.07, 2.20]
11.3 Both group and individual formats	1	37	Std. Mean Difference (IV, Random, 95% CI)	0.42 [-0.24, 1.07]
12 Overall cognitive function (change values)	5		Std. Mean Difference (IV, Random, 95% CI)	Subtotals only
12.1 Group format	3	134	Std. Mean Difference (IV, Random, 95% CI)	0.06 [-0.31, 0.43]
12.2 Individual format	0	0	Std. Mean Difference (IV, Random, 95% CI)	0.0 [0.0, 0.0]
12.3 Both group and individual formats	2	538	Std. Mean Difference (IV, Random, 95% CI)	0.03 [-0.51, 0.57]
13 Overall general health (follow-up values)	9		Std. Mean Difference (IV, Random, 95% CI)	Subtotals only
13.1 Group format	3	92	Std. Mean Difference (IV, Random, 95% CI)	0.38 [-0.31, 1.07]
13.2 Individual format	4	222	Std. Mean Difference (IV, Random, 95% CI)	0.34 [-0.08, 0.76]
13.3 Both group and individual formats	2	112	Std. Mean Difference (IV, Random, 95% CI)	-0.26 [-0.64, 0.11]
14 Overall general health (change values)	9		Std. Mean Difference (IV, Random, 95% CI)	Subtotals only
14.1 Group format	4	155	Std. Mean Difference (IV, Random, 95% CI)	0.35 [-0.25, 0.95]
14.2 Individual format	2	139	Std. Mean Difference (IV, Random, 95% CI)	0.38 [0.04, 0.73]

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Outcome or subgroup title	No. of studies	No. of participants	Statistical method	Effect size
14.3 Both group and individual formats	3	612	Std. Mean Difference (IV, Random, 95% CI)	-0.07 [-0.23, 0.09]
15 Overall sexual function (follow-up values)	5		Std. Mean Difference (IV, Fixed, 95% CI)	Subtotals only
15.1 Group format	1	114	Std. Mean Difference (IV, Fixed, 95% CI)	0.14 [-0.23, 0.51]
15.2 Individual format	4	297	Std. Mean Difference (IV, Fixed, 95% CI)	0.17 [-0.06, 0.40]
15.3 Both group and individual formats	0	0	Std. Mean Difference (IV, Fixed, 95% CI)	0.0 [0.0, 0.0]
16 Overall sleep (follow-up values)	5		Std. Mean Difference (IV, Fixed, 95% CI)	Subtotals only
16.1 Group format	2	88	Std. Mean Difference (IV, Fixed, 95% CI)	-0.26 [-0.68, 0.16]
16.2 Individual format	2	62	Std. Mean Difference (IV, Fixed, 95% CI)	-0.07 [-0.57, 0.43]
16.3 Both group and individual formats	1	38	Std. Mean Difference (IV, Fixed, 95% CI)	0.28 [-0.36, 0.92]
17 Overall anxiety (follow-up values)	6		Std. Mean Difference (IV, Random, 95% CI)	Subtotals only
17.1 Group format	3	177	Std. Mean Difference (IV, Random, 95% CI)	-0.73 [-1.03, -0.42]
17.2 Individual format	2	60	Std. Mean Difference (IV, Random, 95% CI)	-0.13 [-0.64, 0.39]
17.3 Both group and individual formats	1	74	Std. Mean Difference (IV, Random, 95% CI)	-0.14 [-0.60, 0.31]
18 Overall anxiety (change values)	4		Std. Mean Difference (IV, Fixed, 95% CI)	Subtotals only
18.1 Group format	2	119	Std. Mean Difference (IV, Fixed, 95% CI)	-0.52 [-0.88, -0.15]
18.2 Individual format	1	42	Std. Mean Difference (IV, Fixed, 95% CI)	-0.37 [-0.99, 0.24]
18.3 Both group and individual formats	1	74	Std. Mean Difference (IV, Fixed, 95% CI)	-0.15 [-0.61, 0.30]
19 Overall depression (change values)	7		Std. Mean Difference (IV, Random, 95% CI)	Subtotals only
19.1 Group format	2	119	Std. Mean Difference (IV, Random, 95% CI)	-0.54 [-0.91, -0.18]
19.2 Individual format	3	123	Std. Mean Difference (IV, Random, 95% CI)	-0.51 [-1.03, 0.01]

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Outcome or subgroup title	No. of studies	No. of participants	Statistical method	Effect size
19.3 Both group and individual formats	2	574	Std. Mean Difference (IV, Random, 95% CI)	0.00 [-0.21, 0.22]
20 Overall depression (follow-up values)	11		Std. Mean Difference (IV, Random, 95% CI)	Subtotals only
20.1 Group format	4	176	Std. Mean Difference (IV, Random, 95% CI)	-0.68 [-0.98, -0.37]
20.2 Individual format	5	206	Std. Mean Difference (IV, Random, 95% CI)	-0.01 [-0.51, 0.49]
20.3 Both group and individual formats	2	260	Std. Mean Difference (IV, Random, 95% CI)	-0.13 [-0.37, 0.12]
21 Overall fatigue (follow-up values)	24		Std. Mean Difference (IV, Random, 95% CI)	Subtotals only
21.1 Group format	7	350	Std. Mean Difference (IV, Random, 95% CI)	-0.77 [-1.15, -0.39]
21.2 Individual format	11	1068	Std. Mean Difference (IV, Random, 95% CI)	-0.19 [-0.36, -0.02]
21.3 Both group and individual formats	6	445	Std. Mean Difference (IV, Random, 95% CI)	-0.18 [-0.37, 0.01]
22 Overall fatigue (change values)	12		Std. Mean Difference (IV, Random, 95% CI)	Subtotals only
22.1 Group format	2	73	Std. Mean Difference (IV, Random, 95% CI)	-0.10 [-0.70, 0.50]
22.2 Individual format	7	637	Std. Mean Difference (IV, Random, 95% CI)	-0.40 [-0.98, 0.17]
22.3 Both group and individual formats	3	561	Std. Mean Difference (IV, Random, 95% CI)	-0.02 [-0.18, 0.15]
23 Overall pain/disability (follow-up values)	8		Std. Mean Difference (IV, Random, 95% CI)	Subtotals only
23.1 Group format	2	77	Std. Mean Difference (IV, Random, 95% CI)	0.18 [-0.26, 0.63]
23.2 Individual format	3	261	Std. Mean Difference (IV, Random, 95% CI)	0.22 [-0.22, 0.65]
23.3 Both group and individual formats	3	135	Std. Mean Difference (IV, Random, 95% CI)	-0.16 [-0.50, 0.18]
24 Overall pain/disability (change values)	3		Std. Mean Difference (IV, Random, 95% CI)	Subtotals only

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Outcome or subgroup title	No. of studies	No. of participants	Statistical method	Effect size
24.1 Group format	3	139	Std. Mean Difference (IV, Random, 95% CI)	0.16 [-0.19, 0.50]
24.2 Individual format	0	0	Std. Mean Difference (IV, Random, 95% CI)	0.0 [0.0, 0.0]
24.3 Both group and individual formats	0	0	Std. Mean Difference (IV, Random, 95% CI)	0.0 [0.0, 0.0]
25 Overall self-esteem/body image (follow-up values)	10		Std. Mean Difference (IV, Random, 95% CI)	Subtotals only
25.1 Group format	3	234	Std. Mean Difference (IV, Random, 95% CI)	0.28 [-0.04, 0.60]
25.2 Individual format	5	259	Std. Mean Difference (IV, Random, 95% CI)	0.27 [-0.21, 0.76]
25.3 Both group and individual formats	2	97	Std. Mean Difference (IV, Random, 95% CI)	0.15 [-0.25, 0.55]
26 Overall self-esteem/body image (change values)	9		Std. Mean Difference (IV, Random, 95% CI)	Subtotals only
26.1 Group format	4	258	Std. Mean Difference (IV, Random, 95% CI)	0.59 [-0.33, 1.51]
26.2 Individual format	3	160	Std. Mean Difference (IV, Random, 95% CI)	0.31 [-0.19, 0.81]
26.3 Both group and individual formats	2	574	Std. Mean Difference (IV, Random, 95% CI)	-0.05 [-0.21, 0.12]
27 Overall cardiorespiratory fitness (follow-up values)	21		Std. Mean Difference (IV, Random, 95% CI)	Subtotals only
27.1 Group format	7	321	Std. Mean Difference (IV, Random, 95% CI)	0.29 [0.06, 0.51]
27.2 Individual format	10	493	Std. Mean Difference (IV, Random, 95% CI)	0.59 [0.38, 0.79]
27.3 Both group and individual formats	4	362	Std. Mean Difference (IV, Random, 95% CI)	0.24 [0.03, 0.44]
28 Overall cardiorespiratory fitness (change values)	6		Std. Mean Difference (IV, Random, 95% CI)	Subtotals only
28.1 Group format	0	0	Std. Mean Difference (IV, Random, 95% CI)	0.0 [0.0, 0.0]
28.2 Individual format	4	216	Std. Mean Difference (IV, Random, 95% CI)	0.64 [0.08, 1.19]

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Outcome or subgroup title	No. of studies	No. of participants	Statistical method	Effect size
28.3 Both group and individual formats	2	581	Std. Mean Difference (IV, Random, 95% CI)	0.44 [-0.18, 1.05]
29 Overall self-reported physical activity (follow-up values)	17		Std. Mean Difference (IV, Random, 95% CI)	Subtotals only
29.1 Group format	1	264	Std. Mean Difference (IV, Random, 95% CI)	0.13 [-0.11, 0.37]
29.2 Individual format	8	989	Std. Mean Difference (IV, Random, 95% CI)	0.59 [0.28, 0.90]
29.3 Both group and individual formats	8	752	Std. Mean Difference (IV, Random, 95% CI)	0.55 [0.25, 0.84]
30 Overall self-reported physical activity (change values)	8		Std. Mean Difference (IV, Random, 95% CI)	Subtotals only
30.1 Group format	1	105	Std. Mean Difference (IV, Random, 95% CI)	0.21 [-0.17, 0.60]
30.2 Individual format	3	495	Std. Mean Difference (IV, Random, 95% CI)	0.38 [0.18, 0.57]
30.3 Both group and individual formats	4	674	Std. Mean Difference (IV, Random, 95% CI)	0.92 [0.14, 1.70]
31 Overall objective physical activity (follow-up values)	12		Std. Mean Difference (IV, Random, 95% CI)	Subtotals only
31.1 Group format	0	0	Std. Mean Difference (IV, Random, 95% CI)	0.0 [0.0, 0.0]
31.2 Individual format	8	957	Std. Mean Difference (IV, Random, 95% CI)	0.51 [0.18, 0.85]
31.3 Both group and individual formats	4	352	Std. Mean Difference (IV, Random, 95% CI)	0.34 [0.13, 0.55]
32 Overall objective physical activity (change values)	5		Std. Mean Difference (IV, Random, 95% CI)	Subtotals only
32.1 Group format	0	0	Std. Mean Difference (IV, Random, 95% CI)	0.0 [0.0, 0.0]
32.2 Individual format	3	416	Std. Mean Difference (IV, Random, 95% CI)	0.62 [-0.23, 1.46]
32.3 Both group and individual formats	2	92	Std. Mean Difference (IV, Random, 95% CI)	0.83 [0.40, 1.27]
33 Mass (follow-up values)	15		Mean Difference (IV, Fixed, 95% CI)	Subtotals only

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Outcome or subgroup title	No. of studies	No. of participants	Statistical method	Effect size
33.1 Group format	4	363	Mean Difference (IV, Fixed, 95% CI)	-1.10 [-3.92, 1.72]
33.2 Individual format	5	331	Mean Difference (IV, Fixed, 95% CI)	0.16 [-0.79, 1.10]
33.3 Both group and individual formats	6	487	Mean Difference (IV, Fixed, 95% CI)	-0.00 [-0.76, 0.76]
34 Mass (change values)	10		Mean Difference (IV, Random, 95% CI)	Subtotals only
34.1 Group format	3	211	Mean Difference (IV, Random, 95% CI)	-1.23 [-2.10, -0.35]
34.2 Individual format	4	186	Mean Difference (IV, Random, 95% CI)	0.10 [-0.08, 0.28]
34.3 Both group and individual formats	3	617	Mean Difference (IV, Random, 95% CI)	-0.58 [-1.80, 0.63]
35 BMI (follow-up values)	16		Mean Difference (IV, Fixed, 95% CI)	Subtotals only
35.1 Group format	3	347	Mean Difference (IV, Fixed, 95% CI)	-0.71 [-1.74, 0.32]
35.2 Individual format	7	647	Mean Difference (IV, Fixed, 95% CI)	0.13 [-0.18, 0.44]
35.3 Both group and individual formats	6	458	Mean Difference (IV, Fixed, 95% CI)	-0.03 [-0.31, 0.26]
36 BMI (change values)	8		Mean Difference (IV, Random, 95% CI)	Subtotals only
36.1 Group format	3	211	Mean Difference (IV, Random, 95% CI)	-0.67 [-0.98, -0.36]
36.2 Individual format	3	150	Mean Difference (IV, Random, 95% CI)	-0.03 [-0.22, 0.15]
36.3 Both group and individual formats	2	124	Mean Difference (IV, Random, 95% CI)	-0.12 [-0.43, 0.20]
37 Overall body fat (follow-up values)	18		Std. Mean Difference (IV, Random, 95% CI)	Subtotals only
37.1 Group format	3	299	Std. Mean Difference (IV, Random, 95% CI)	-0.23 [-0.46, -0.00]
37.2 Individual format	10	539	Std. Mean Difference (IV, Random, 95% CI)	-0.30 [-0.54, -0.06]
37.3 Both group and individual formats	5	324	Std. Mean Difference (IV, Random, 95% CI)	0.05 [-0.17, 0.26]
38 Overall body fat (change values)	9		Std. Mean Difference (IV, Random, 95% CI)	Subtotals only
38.1 Group format	2	147	Std. Mean Difference (IV, Random, 95% CI)	-0.06 [-0.38, 0.26]
38.2 Individual format	6	270	Std. Mean Difference (IV, Random, 95% CI)	-0.86 [-1.74, 0.02]

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Outcome or subgroup title	No. of studies	No. of participants	Statistical method	Effect size
38.3 Both group and individual formats	1	82	Std. Mean Difference (IV, Random, 95% CI)	-0.29 [-0.73, 0.14]
39 Lower body strength (follow-up values)	9		Std. Mean Difference (IV, Random, 95% CI)	Subtotals only
39.1 Group format	2	290	Std. Mean Difference (IV, Random, 95% CI)	0.69 [0.29, 1.10]
39.2 Individual format	3	85	Std. Mean Difference (IV, Random, 95% CI)	1.04 [0.08, 2.00]
39.3 Both group and individual formats	4	200	Std. Mean Difference (IV, Random, 95% CI)	0.13 [-0.22, 0.47]
40 Lower body strength (change values)	5		Std. Mean Difference (IV, Random, 95% CI)	Subtotals only
40.1 Group format	2	294	Std. Mean Difference (IV, Random, 95% CI)	0.92 [0.61, 1.22]
40.2 Individual format	3	289	Std. Mean Difference (IV, Random, 95% CI)	0.65 [0.09, 1.22]
40.3 Both group and individual formats	0	0	Std. Mean Difference (IV, Random, 95% CI)	0.0 [0.0, 0.0]
41 Upper body strength (follow-up values)	12		Std. Mean Difference (IV, Random, 95% CI)	Subtotals only
41.1 Group format	4	365	Std. Mean Difference (IV, Random, 95% CI)	0.53 [-0.29, 1.35]
41.2 Individual format	4	141	Std. Mean Difference (IV, Random, 95% CI)	0.63 [-0.06, 1.32]
41.3 Both group and individual formats	4	200	Std. Mean Difference (IV, Random, 95% CI)	0.29 [0.01, 0.57]
42 Upper body strength (change values)	7		Std. Mean Difference (IV, Random, 95% CI)	Subtotals only
42.1 Group format	3	377	Std. Mean Difference (IV, Random, 95% CI)	1.01 [0.49, 1.53]
42.2 Individual format	3	310	Std. Mean Difference (IV, Random, 95% CI)	1.00 [-0.08, 2.09]
42.3 Both group and individual formats	1	83	Std. Mean Difference (IV, Random, 95% CI)	0.16 [-0.27, 0.59]
43 Bone mineral density - femoral neck (follow-up and change values)	4		Std. Mean Difference (IV, Random, 95% CI)	Subtotals only

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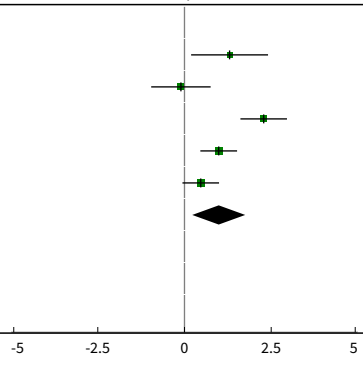
Outcome or subgroup title	No. of studies	No. of participants	Statistical method	Effect size
43.1 Group format	0	0	Std. Mean Difference (IV, Random, 95% CI)	0.0 [0.0, 0.0]
43.2 Individual format	2	262	Std. Mean Difference (IV, Random, 95% CI)	0.17 [-0.80, 1.14]
43.3 Both group and individual formats	2	524	Std. Mean Difference (IV, Random, 95% CI)	0.17 [0.00, 0.34]
44 Bone mineral density - lumbar spine (follow-up and change values)	4		Std. Mean Difference (IV, Random, 95% CI)	Subtotals only
44.1 Group format	0	0	Std. Mean Difference (IV, Random, 95% CI)	0.0 [0.0, 0.0]
44.2 Individual format	2	262	Std. Mean Difference (IV, Random, 95% CI)	0.20 [-0.59, 0.98]
44.3 Both group and individual formats	2	524	Std. Mean Difference (IV, Random, 95% CI)	0.12 [-0.06, 0.29]
45 Bone mineral density - total hip (follow-up and change values)	3		Std. Mean Difference (IV, Random, 95% CI)	Subtotals only
45.1 Group format	0	0	Std. Mean Difference (IV, Random, 95% CI)	0.0 [0.0, 0.0]
45.2 Individual format	1	39	Std. Mean Difference (IV, Random, 95% CI)	10.34 [7.84, 12.84]
45.3 Both group and individual formats	2	290	Std. Mean Difference (IV, Random, 95% CI)	0.64 [-0.20, 1.48]

Analysis 16.1. Comparison 16 Subanalysis: outcomes by format of intervention, Outcome 1 Overall HRQoL (follow-up values).

Study or subgroup	Physical activity N	Physical activity Mean(SD)	Control N	Control Mean(SD)	Std. Mean Difference Random, 95% CI	Weight	Std. Mean Difference Random, 95% CI
16.1.1 Group format							
Herrero 2006	8	81.3 (10.7)	8	62.5 (16.1)		16.25%	1.3[0.19,2.41]
Mustian 2004	11	121.7 (22.7)	10	124.3 (25.9)		18.84%	-0.1[-0.96,0.75]
Milne 2008	29	86.4 (8.3)	29	64.1 (10.8)		20.74%	2.28[1.61,2.96]
Murtezani 2014	30	86.5 (7.3)	32	79.1 (7.5)		22.08%	0.99[0.46,1.52]
Mehnert 2011	30	74.7 (21.7)	27	65.4 (16.8)		22.09%	0.47[-0.06,1]
Subtotal ***	**108**		**106**			**100%**	**0.99[0.22,1.75]**

Heterogeneity: Tau^2=0.62; Chi^2=24.56, df=4(P<0.0001); I^2=83.72%

Test for overall effect: Z=2.53(P=0.01)



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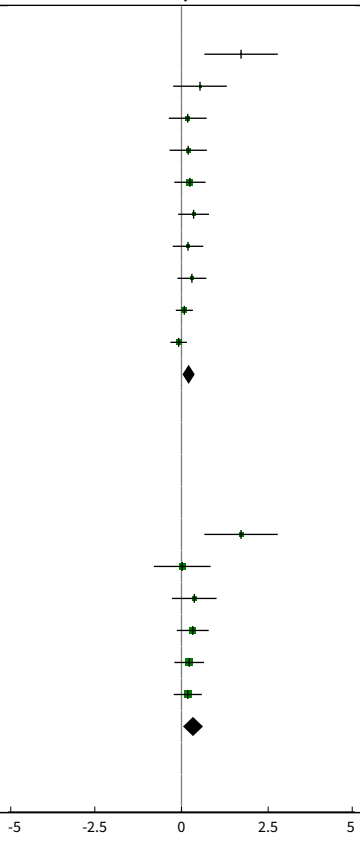
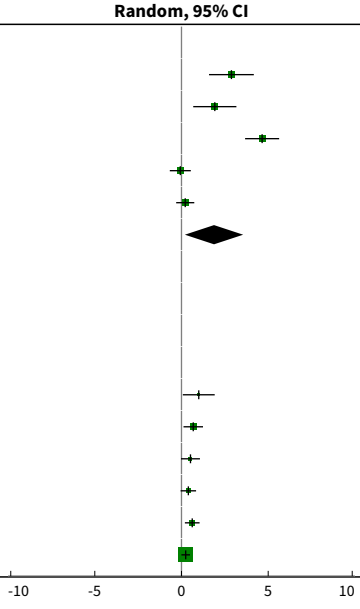
Study or subgroup	Physical activity N	Physical activity Mean(SD)	Control N	Control Mean(SD)	Std. Mean Difference Random, 95% CI	Weight	Std. Mean Difference Random, 95% CI
16.1.2 Individual format							
Cerulli 2014	10	85.2 (4.2)	10	65.9 (14.7)		2.5%	1.72[0.66,2.78]
Portela 2008	25	107.2 (28.5)	9	91.6 (28.5)		4.35%	0.53[-0.24,1.31]
Courneya 2003	24	91.3 (11)	28	89.3 (10.9)		7.56%	0.18[-0.37,0.73]
Ergun 2013	40	71.6 (19.9)	20	67.9 (16.7)		7.73%	0.19[-0.35,0.73]
Pinto 2015	39	117.8 (12.7)	37	114 (18)		9.85%	0.24[-0.21,0.69]
Schmitz 2005	39	-44.2 (8.7)	40	-47.4 (9.4)		10.05%	0.35[-0.09,0.79]
Taleghani 2012	40	217.5 (36.3)	40	210.1 (41.5)		10.21%	0.19[-0.25,0.63]
Daley 2007	33	90.9 (13.5)	69	86.4 (15.1)		10.9%	0.3[-0.12,0.72]
Vallance 2007	250	91.5 (11.8)	85	90.6 (13)		18.2%	0.08[-0.16,0.33]
Short 2014	195	106.8 (16.7)	104	108.2 (18.2)		18.63%	-0.08[-0.32,0.16]
Subtotal ***	**695**		**442**			**100%**	**0.21[0.03,0.38]**
Heterogeneity: Tau^2=0.03; Chi^2=14.77, df=9(P=0.1); I^2=39.08%							
Test for overall effect: Z=2.3(P=0.02)							
16.1.3 Both group and individual formats							
Rogers 2015	10	85.2 (4.2)	10	65.9 (14.7)		6.4%	1.72[0.66,2.78]
Loudon 2014	12	-7.4 (1.2)	11	-7.4 (1.4)		9.83%	0.02[-0.8,0.84]
Rogers 2009	20	92 (11.4)	18	87.4 (13.1)		14.14%	0.37[-0.27,1.01]
Cadmus 2009	37	91.2 (12.6)	37	86.2 (17.4)		21.62%	0.33[-0.13,0.78]
Loh 2014	63	112.4 (14.1)	32	109.3 (13.3)		23.36%	0.22[-0.2,0.65]
Littman 2012	30	90.3 (11)	110	87.7 (15)		24.65%	0.18[-0.22,0.59]
Subtotal ***	**172**		**218**			**100%**	**0.33[0.04,0.62]**
Heterogeneity: Tau^2=0.04; Chi^2=7.84, df=5(P=0.17); I^2=36.24%							
Test for overall effect: Z=2.26(P=0.02)							



Analysis 16.2. Comparison 16 Subanalysis: outcomes by format of intervention, Outcome 2 Overall HRQoL (change values).

Study or subgroup	Physical activity N	Physical activity Mean(SD)	Control N	Control Mean(SD)	Std. Mean Difference Random, 95% CI	Weight	Std. Mean Difference Random, 95% CI
16.2.1 Group format							
Mustian 2004	11	15 (5)	10	0 (5)		19.02%	2.88[1.59,4.17]
Herrero 2006	8	17.7 (8.3)	8	-10.4 (17.7)		19.17%	1.92[0.68,3.17]
Murtezani 2014	30	9.2 (2.1)	32	-0.6 (2)		19.97%	4.65[3.67,5.63]
Cuesta-Vargas 2014	22	0.3 (0.2)	20	0.3 (0.1)		20.85%	-0.07[-0.67,0.54]
Mehnert 2011	30	9.7 (21)	27	5.6 (16.5)		20.99%	0.22[-0.31,0.74]
Subtotal ***	**101**		**97**			**100%**	**1.88[0.19,3.56]**
Heterogeneity: Tau^2=3.43; Chi^2=83.96, df=4(P<0.0001); I^2=95.24%							
Test for overall effect: Z=2.19(P=0.03)							
16.2.2 Individual format							
Naumann 2012	11	14.5 (10.6)	10	3.1 (11.4)		3.75%	1[0.08,1.92]
Courneya 2003	24	5.7 (7.4)	28	0.6 (7.4)		9.8%	0.68[0.12,1.24]
Ergun 2013	40	5.4 (21.5)	20	-6.7 (25.9)		10.38%	0.52[-0.03,1.06]
Schmitz 2005	39	2.3 (4.5)	40	0.6 (4)		15.25%	0.4[-0.05,0.84]
Daley 2007	33	10.2 (11.2)	69	3.2 (11.3)		16.76%	0.62[0.2,1.04]
Vallance 2007	250	2.3 (11.1)	85	-0.2 (6.4)		44.07%	0.24[-0,0.49]



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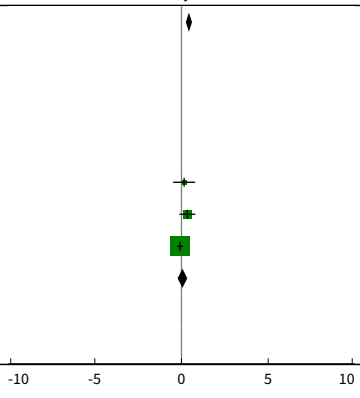
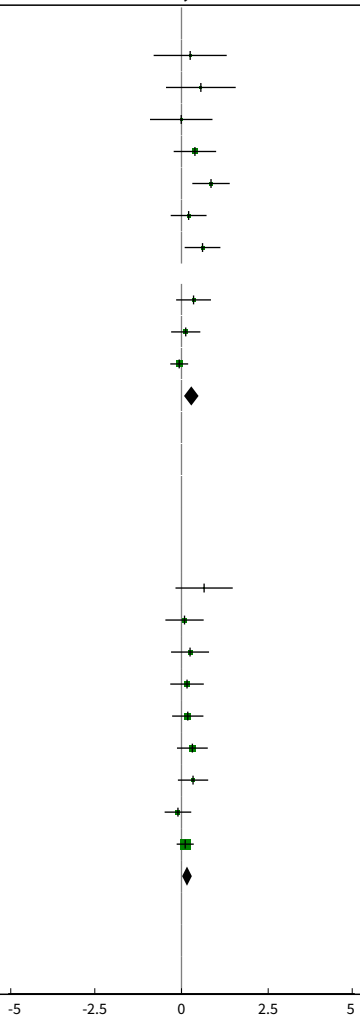
Study or subgroup	Physical activity N	Physical activity Mean(SD)	Control N	Control Mean(SD)	Std. Mean Difference Random, 95% CI	Weight	Std. Mean Difference Random, 95% CI
Subtotal ***	**397**		**252**			**100%**	**0.43[0.25,0.61]**
Heterogeneity: Tau²=0; Chi²=5.29, df=5(P=0.38); I²=5.56%							
Test for overall effect: Z=4.69(P<0.0001)							
16.2.3 Both group and individual formats							
Rogers 2009	20	4.5 (8.4)	18	2.9 (12)		15.32%	0.15[-0.49,0.79]
Cadmus 2009	37	0.6 (7.5)	37	-2.4 (9.8)		25.01%	0.34[-0.12,0.8]
Saarto 2012	263	4.2 (16.2)	237	5.6 (15.4)		59.66%	-0.09[-0.26,0.09]
Subtotal ***	**320**		**292**			**100%**	**0.06[-0.22,0.33]**
Heterogeneity: Tau²=0.03; Chi²=3.23, df=2(P=0.2); I²=38%							
Test for overall effect: Z=0.39(P=0.69)							



Analysis 16.3. Comparison 16 Subanalysis: outcomes by format of intervention, Outcome 3 Overall emotional function/mental health (follow-up values).

Study or subgroup	Physical activity N	Physical activity Mean(SD)	Control N	Control Mean(SD)	Std. Mean Difference Random, 95% CI	Weight	Std. Mean Difference Random, 95% CI
16.3.1 Group format							
Banasik 2011	7	0.5 (0.4)	7	0.4 (0.3)		3.54%	0.25[-0.8,1.3]
Herrero 2006	8	90.6 (9.3)	8	83.3 (14.8)		3.84%	0.56[-0.45,1.56]
Mustian 2004	9	24.8 (2)	10	24.8 (3.2)		4.65%	-0.01[-0.91,0.89]
Cuesta-Vargas 2014	22	42.9 (19.2)	20	32.3 (33.3)		8.63%	0.39[-0.22,1]
Milne 2008	29	19.6 (2.4)	29	16.7 (4.1)		10.31%	0.85[0.31,1.39]
Mehnert 2011	30	77 (35.8)	28	69.1 (40.5)		10.93%	0.21[-0.31,0.72]
Cantarero-Villanueva 2013	32	-17175 (4279)	29	-20390 (6113)		10.98%	0.61[0.09,1.12]
Murtezani 2014	30	19.5 (3.3)	32	18.3 (3.5)		11.34%	0.35[-0.15,0.85]
Fillion 2008	44	48.5 (7.9)	43	47.5 (9.1)		14.06%	0.12[-0.3,0.54]
Schmitz 2009	112	53.2 (9.6)	120	53.8 (8.7)		21.73%	-0.07[-0.32,0.19]
Subtotal ***	**323**		**326**			**100%**	**0.28[0.07,0.49]**
Heterogeneity: Tau²=0.04; Chi²=13.58, df=9(P=0.14); I²=33.74%							
Test for overall effect: Z=2.64(P=0.01)							
16.3.2 Individual format							
Baruth 2013	20	83.5 (0)	12	68.5 (0)			Not estimable
Pinto 2003	12	-10.8 (28.1)	12	-27.2 (19.5)		2.88%	0.65[-0.17,1.48]
Basen-Enquist 2006	28	78.2 (10.6)	23	77.2 (12)		6.45%	0.09[-0.46,0.64]
Courneya 2003	24	21.5 (3.4)	28	20.7 (3)		6.56%	0.25[-0.3,0.79]
Daley 2007	33	19.1 (4.2)	33	18.5 (3.3)		8.41%	0.16[-0.32,0.64]
Pinto 2015	39	54.2 (9.3)	37	52.5 (9.6)		9.67%	0.18[-0.27,0.63]
Schmitz 2005	39	-45.6 (8.2)	40	-48.2 (8.2)		9.97%	0.31[-0.13,0.76]
Pinto 2005	39	-8 (20.7)	43	-16.5 (28.8)		10.31%	0.33[-0.1,0.77]
Duijits 2012	37	73.9 (34.7)	89	77.5 (34.3)		13.35%	-0.1[-0.49,0.28]
Vallance 2007	250	20.3 (3.3)	85	19.9 (3.4)		32.4%	0.11[-0.14,0.35]
Subtotal ***	**521**		**402**			**100%**	**0.16[0.02,0.3]**
Heterogeneity: Tau²=0; Chi²=4.57, df=8(P=0.8); I²=0%							
Test for overall effect: Z=2.22(P=0.03)							



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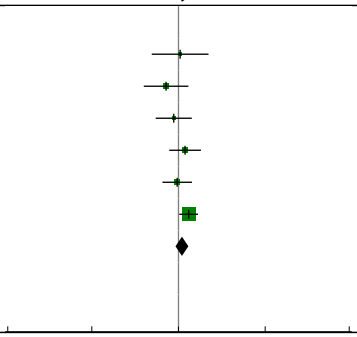
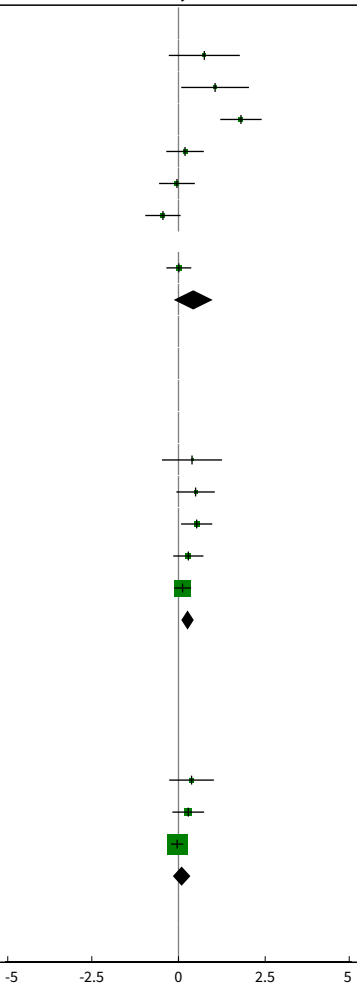
Study or subgroup	Physical activity N	Physical activity Mean(SD)	Control N	Control Mean(SD)	Std. Mean Difference Random, 95% CI	Weight	Std. Mean Difference Random, 95% CI
16.3.3 Both group and individual formats							
Loudon 2014	12	-1.6 (0.7)	11	-1.6 (0.5)		5.08%	0.05[-0.77,0.87]
Rogers 2009	20	20 (3.1)	18	21.1 (2.9)		8.15%	-0.36[-1,0.28]
Littman 2012	30	20.3 (4)	27	20.8 (3.1)		12.24%	-0.14[-0.66,0.38]
Cadmus 2009	37	20.5 (3)	37	19.8 (4.2)		15.71%	0.19[-0.27,0.65]
Loh 2014	63	19.9 (2.8)	32	20 (3.2)		17.95%	-0.04[-0.46,0.39]
Rogers 2015	105	20.6 (2.9)	108	19.7 (3.2)		40.87%	0.29[0.02,0.56]
Subtotal ***	**267**		**233**			**100%**	**0.1[-0.09,0.29]**
Heterogeneity: Tau^2=0; Chi^2=5.27, df=5(P=0.38); I^2=5.19%							
Test for overall effect: Z=1.05(P=0.29)							



Analysis 16.4. Comparison 16 Subanalysis: outcomes by format of intervention, Outcome 4 Overall emotional function/mental health (change values).

Study or subgroup	Physical activity N	Physical activity Mean(SD)	Control N	Control Mean(SD)	Std. Mean Difference Random, 95% CI	Weight	Std. Mean Difference Random, 95% CI
16.4.1 Group format							
Herrero 2006	8	9.3 (19.6)	8	-2.1 (5.9)		11.14%	0.74[-0.28,1.77]
Mustian 2004	9	2.4 (2.5)	10	0.1 (1.7)		11.53%	1.06[0.08,2.03]
Murtezani 2014	30	2.1 (0.8)	32	0.5 (0.9)		14.76%	1.8[1.21,2.4]
Cormie 2014	43	4.4 (9)	19	2.7 (8.6)		15.2%	0.19[-0.35,0.73]
Mehnert 2011	30	2.3 (35.5)	28	3.6 (17.6)		15.41%	-0.04[-0.56,0.47]
Cantarero-Villanueva 2013	32	-1445 (4452)	29	353 (3323)		15.45%	-0.45[-0.96,0.06]
Schmitz 2009	58	3.3 (23.2)	62	3.1 (17.2)		16.51%	0.01[-0.35,0.37]
Subtotal ***	**210**		**188**			**100%**	**0.42[-0.14,0.99]**
Heterogeneity: Tau^2=0.46; Chi^2=39.78, df=6(P<0.0001); I^2=84.92%							
Test for overall effect: Z=1.48(P=0.14)							
16.4.2 Individual format							
Naumann 2012	11	1 (2.7)	10	-0.1 (2.7)		4.26%	0.39[-0.48,1.26]
Courneya 2003	24	2.3 (3.1)	28	0.8 (2.9)		10.4%	0.49[-0.06,1.05]
Schmitz 2005	39	2.5 (4.4)	40	0.3 (3.9)		15.84%	0.52[0.08,0.97]
Pinto 2005	39	-3.8 (27.7)	43	-11.5 (25.8)		16.83%	0.28[-0.15,0.72]
Vallance 2007	250	0.5 (3.5)	85	0.1 (2.5)		52.67%	0.12[-0.13,0.36]
Subtotal ***	**363**		**206**			**100%**	**0.26[0.08,0.44]**
Heterogeneity: Tau^2=0; Chi^2=3.4, df=4(P=0.49); I^2=0%							
Test for overall effect: Z=2.86(P=0)							
16.4.3 Both group and individual formats							
Rogers 2009	20	0.9 (2.5)	18	-0.1 (2.7)		13.31%	0.38[-0.27,1.02]
Cadmus 2009	37	0.3 (2.2)	37	-0.5 (3.3)		22.99%	0.28[-0.18,0.74]
Saarto 2012	263	1.2 (17.8)	237	1.9 (18.5)		63.7%	-0.04[-0.21,0.14]
Subtotal ***	**320**		**292**			**100%**	**0.09[-0.16,0.34]**
Heterogeneity: Tau^2=0.02; Chi^2=2.87, df=2(P=0.24); I^2=30.25%							
Test for overall effect: Z=0.7(P=0.48)							



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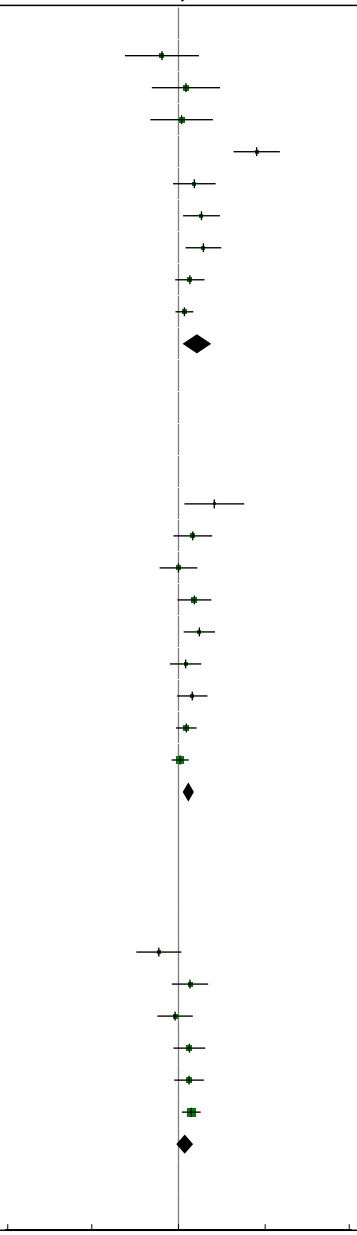
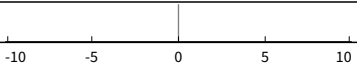
Analysis 16.5. Comparison 16 Subanalysis: outcomes by format of intervention, Outcome 5 Overall physical function (follow-up values).

Study or subgroup	Physical activity N	Physical activity Mean(SD)	Control N	Control Mean(SD)	Std. Mean Difference Random, 95% CI	Weight	Std. Mean Difference Random, 95% CI
16.5.1 Group format							
Banasik 2011	7	-0.8 (0.9)	7	-0.4 (0.3)		7.59%	-0.48[-1.54,0.59]
Herrero 2006	8	94.1 (7.5)	8	92.5 (6.6)		8.23%	0.21[-0.77,1.2]
Mustian 2004	9	26.9 (4.1)	10	26.5 (4.1)		8.9%	0.09[-0.81,0.99]
Milne 2008	29	24 (2.6)	29	15.6 (4.5)		11.02%	2.26[1.59,2.92]
Cuesta-Vargas 2014	22	42.9 (4.1)	20	32.4 (32.5)		11.53%	0.46[-0.16,1.07]
Mehnert 2011	30	89 (9.1)	28	78.1 (21.2)		12.33%	0.66[0.13,1.19]
Murtezani 2014	30	22.6 (4.4)	32	19.4 (4.4)		12.48%	0.72[0.2,1.23]
Fillion 2008	44	45.1 (10.4)	43	41.8 (9.8)		13.32%	0.33[-0.1,0.75]
Schmitz 2009	112	50.6 (8.2)	120	49.1 (9.3)		14.61%	0.17[-0.09,0.43]
Subtotal ***	**291**		**297**			**100%**	**0.53[0.12,0.94]**
Heterogeneity: Tau²=0.28; Chi²=38.27, df=8(P<0.0001); I²=79.1%							
Test for overall effect: Z=2.52(P=0.01)							
16.5.2 Individual format							
Pinto 2003	12	32.3 (4.3)	12	25.3 (8.2)		3.29%	1.03[0.17,1.89]
Basen-Enquist 2006	28	82.5 (12.7)	23	77.4 (11.5)		7.2%	0.41[-0.15,0.97]
Courneya 2003	24	25.3 (2.5)	28	25.3 (2.8)		7.49%	0[-0.55,0.55]
Daley 2007	33	25.6 (2.2)	33	23.6 (5.7)		8.97%	0.46[-0.03,0.95]
Schmitz 2005	39	-44.2 (5.6)	40	-48.3 (7.7)		10.22%	0.6[0.15,1.05]
Pinto 2015	39	87.1 (4.4)	37	84.7 (15.9)		10.23%	0.21[-0.25,0.66]
Pinto 2005	39	30.3 (7.9)	43	27.3 (6.8)		10.72%	0.4[-0.04,0.83]
Duijits 2012	87	84 (16.9)	89	80.2 (17.1)		18.68%	0.23[-0.07,0.52]
Vallance 2007	250	25.1 (3)	85	25 (3.3)		23.2%	0.05[-0.2,0.3]
Subtotal ***	**551**		**390**			**100%**	**0.28[0.12,0.45]**
Heterogeneity: Tau²=0.01; Chi²=10.38, df=8(P=0.24); I²=22.93%							
Test for overall effect: Z=3.44(P=0)							
16.5.3 Both group and individual formats							
Rogers 2009	20	23.3 (4.5)	18	25.4 (2.3)		10.32%	-0.57[-1.22,0.08]
Littman 2012	30	25.4 (1.7)	27	24.3 (4.4)		13.99%	0.33[-0.19,0.86]
Winters-Stone 2011	36	51.7 (6.2)	25	52.3 (5.9)		14.46%	-0.1[-0.61,0.41]
Cadmus 2009	37	25.1 (2.7)	37	24 (4.1)		16.51%	0.31[-0.15,0.77]
Loh 2014	63	24.9 (2.5)	32	24.2 (2.2)		17.88%	0.3[-0.12,0.73]
Rogers 2015	105	24.1 (3.5)	108	22.5 (5)		26.84%	0.37[0.1,0.64]
Subtotal ***	**291**		**247**			**100%**	**0.18[-0.06,0.42]**
Heterogeneity: Tau²=0.04; Chi²=8.72, df=5(P=0.12); I²=42.68%							
Test for overall effect: Z=1.45(P=0.15)							



Analysis 16.6. Comparison 16 Subanalysis: outcomes by format of intervention, Outcome 6 Overall physical function (change values).

Study or subgroup	Physical activity N	Physical activity Mean(SD)	Control N	Control Mean(SD)	Std. Mean Difference Random, 95% CI	Weight	Std. Mean Difference Random, 95% CI
16.6.1 Group format							



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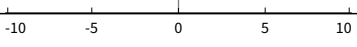
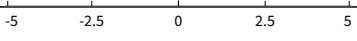
Study or subgroup	Physical activity N	Physical activity Mean(SD)	Control N	Control Mean(SD)	Std. Mean Difference Random, 95% CI	Weight	Std. Mean Difference Random, 95% CI
Herrero 2006	8	6.7 (5)	8	-1.7 (6.9)		14.92%	1.32[0.21,2.43]
Mustian 2004	9	1.9 (2.6)	10	-0.2 (1.6)		15.72%	0.93[-0.03,1.89]
Murtezani 2014	30	4.4 (1.5)	32	-1.3 (1.2)		15.95%	4.23[3.31,5.15]
Cormie 2014	43	3.5 (5.2)	19	-0.5 (5.7)		17.55%	0.74[0.19,1.3]
Mehnert 2011	30	4 (10.8)	28	-2.1 (16.7)		17.68%	0.43[-0.09,0.95]
Schmitz 2009	58	6.6 (17.1)	62	4.1 (17.3)		18.18%	0.14[-0.21,0.5]
Subtotal ***	**178**		**159**			**100%**	**1.25[0.29,2.21]**
Heterogeneity: Tau²=1.29; Chi²=68.65, df=5(P<0.0001); I²=92.72%							
Test for overall effect: Z=2.55(P=0.01)							
16.6.2 Individual format							
Naumann 2012	11	1.9 (3.3)	10	0.8 (3.4)		5.88%	0.32[-0.55,1.18]
Schmitz 2005	39	1.2 (4.2)	40	1.5 (6.8)		22.51%	-0.05[-0.49,0.39]
Vallance 2007	247	1 (3.3)	85	0.2 (2.1)		71.61%	0.26[0.02,0.51]
Subtotal ***	**297**		**135**			**100%**	**0.2[-0.01,0.41]**
Heterogeneity: Tau²=0; Chi²=1.59, df=2(P=0.45); I²=0%							
Test for overall effect: Z=1.84(P=0.07)							
16.6.3 Both group and individual formats							
Rogers 2009	20	2.3 (5.1)	18	2.6 (6)		20.15%	-0.05[-0.69,0.58]
Courneya 2003	24	1.9 (2)	28	-0.2 (2.2)		21.71%	0.98[0.4,1.56]
Cadmus 2009	37	0.1 (6)	37	-0.5 (7.4)		25.31%	0.09[-0.37,0.54]
Saarto 2012	263	1.9 (13.7)	237	3.4 (13.4)		32.83%	-0.11[-0.29,0.06]
Subtotal ***	**344**		**320**			**100%**	**0.19[-0.25,0.63]**
Heterogeneity: Tau²=0.15; Chi²=12.68, df=3(P=0.01); I²=76.34%							
Test for overall effect: Z=0.83(P=0.4)							



Analysis 16.7. Comparison 16 Subanalysis: outcomes by format of intervention, Outcome 7 Overall role function (follow-up values).

Study or subgroup	Physical activity N	Physical activity Mean(SD)	Control N	Control Mean(SD)	Std. Mean Difference Random, 95% CI	Weight	Std. Mean Difference Random, 95% CI
16.7.1 Group format							
Banasik 2011	7	3.5 (0.6)	7	3.2 (0.6)		14.72%	0.34[-0.72,1.4]
Herrero 2006	8	97.6 (5.9)	8	100 (0)		15.13%	-0.54[-1.55,0.46]
Mustian 2004	9	2.4 (1.5)	9	2.8 (1.5)		15.7%	-0.23[-1.15,0.7]
Milne 2008	29	22.2 (3)	29	12.5 (4.8)		17.44%	2.39[1.71,3.08]
Mehnert 2011	30	90 (20.3)	27	79.6 (25)		18.44%	0.45[-0.07,0.98]
Murtezani 2014	30	24.2 (2.8)	32	23 (2.5)		18.57%	0.45[-0.06,0.95]
Subtotal ***	**113**		**112**			**100%**	**0.52[-0.27,1.3]**
Heterogeneity: Tau²=0.8; Chi²=35.2, df=5(P<0.0001); I²=85.8%							
Test for overall effect: Z=1.29(P=0.2)							
16.7.2 Individual format							
Baruth 2013	20	72.9 (0)	12	65.6 (0)			Not estimable
Basen-Enquist 2006	28	86.1 (22.2)	23	73 (24.5)		8.53%	0.55[-0.01,1.12]
Courneya 2003	24	23.4 (4)	28	23.1 (4)		9.08%	0.07[-0.47,0.62]
Daley 2007	33	22.9 (4.5)	33	20.3 (5.6)		11.23%	0.5[0.01,0.99]



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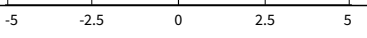
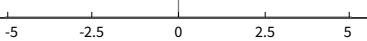
Study or subgroup	Physical activity N	Physical activity Mean(SD)	Control N	Control Mean(SD)	Std. Mean Difference Random, 95% CI	Weight	Std. Mean Difference Random, 95% CI
Cadmus 2009	37	23.1 (4.7)	37	20.6 (7.2)		12.74%	0.41[-0.05,0.87]
Schmitz 2005	39	-49.2 (6.5)	40	-50 (6.2)		13.86%	0.12[-0.32,0.57]
Vallance 2007	250	23.2 (4)	85	22.7 (4.6)		44.56%	0.12[-0.13,0.37]
Subtotal ***	**431**		**258**			**100%**	**0.23[0.07,0.4]**
Heterogeneity: Tau²=0; Chi²=4.32, df=5(P=0.5); I²=0%							
Test for overall effect: Z=2.78(P=0.01)							
16.7.3 Both group and individual formats							
Loudon 2014	12	-1.3 (0.3)	11	-1.3 (0.4)		10.33%	0[-0.82,0.82]
Rogers 2009	20	21.4 (4.8)	18	23.8 (3.2)		14.4%	-0.57[-1.22,0.08]
Littman 2012	30	22.6 (3.9)	27	21.7 (4.7)		19.02%	0.21[-0.31,0.73]
Loh 2014	63	23.4 (4.3)	32	22.2 (5)		23.47%	0.25[-0.18,0.68]
Rogers 2015	105	22.3 (4.5)	108	20.3 (5.5)		32.78%	0.4[0.12,0.67]
Subtotal ***	**230**		**196**			**100%**	**0.15[-0.15,0.45]**
Heterogeneity: Tau²=0.05; Chi²=7.56, df=4(P=0.11); I²=47.08%							
Test for overall effect: Z=0.95(P=0.34)							



Analysis 16.8. Comparison 16 Subanalysis: outcomes by format of intervention, Outcome 8 Overall role function (change values).

Study or subgroup	Physical activity N	Physical activity Mean(SD)	Control N	Control Mean(SD)	Std. Mean Difference Random, 95% CI	Weight	Std. Mean Difference Random, 95% CI
16.8.1 Group format							
Herrero 2006	8	2.1 (13.9)	8	2.1 (5.9)		14.24%	0[-0.98,0.98]
Mustian 2004	9	0.6 (1.6)	10	0.8 (1.6)		15.57%	-0.15[-1.05,0.76]
Cormie 2014	43	4.9 (7.1)	19	1.7 (7.1)		23.15%	0.45[-0.1,0.99]
Murtezani 2014	30	1.7 (0.7)	32	0.9 (0.6)		23.27%	1.16[0.62,1.7]
Mehnert 2011	30	6.7 (23.8)	27	5.6 (27)		23.77%	0.04[-0.48,0.56]
Subtotal ***	**120**		**96**			**100%**	**0.36[-0.14,0.85]**
Heterogeneity: Tau²=0.2; Chi²=11.36, df=4(P=0.02); I²=64.8%							
Test for overall effect: Z=1.42(P=0.15)							
16.8.2 Individual format							
Naumann 2012	11	1.5 (4.4)	10	0.5 (4.5)		5.15%	0.22[-0.64,1.08]
Courneya 2003	24	0.9 (2.8)	28	0.4 (2.7)		12.73%	0.18[-0.37,0.73]
Schmitz 2005	39	1.2 (4.2)	40	1.5 (6.8)		19.53%	-0.05[-0.49,0.39]
Vallance 2007	250	0.6 (4.1)	85	-0 (2.7)		62.59%	0.17[-0.08,0.41]
Subtotal ***	**324**		**163**			**100%**	**0.13[-0.07,0.32]**
Heterogeneity: Tau²=0; Chi²=0.81, df=3(P=0.85); I²=0%							
Test for overall effect: Z=1.29(P=0.2)							
16.8.3 Both group and individual formats							
Rogers 2009	20	0.4 (3.3)	18	1.4 (4.3)		6.16%	-0.26[-0.9,0.38]
Cadmus 2009	37	-0.3 (3.7)	37	-0.5 (3.4)		12.13%	0.06[-0.4,0.51]
Saarto 2012	263	2.4 (21.5)	237	3.8 (21.6)		81.72%	-0.06[-0.24,0.11]
Subtotal ***	**320**		**292**			**100%**	**-0.06[-0.22,0.1]**
Heterogeneity: Tau²=0; Chi²=0.62, df=2(P=0.74); I²=0%							
Test for overall effect: Z=0.77(P=0.44)							



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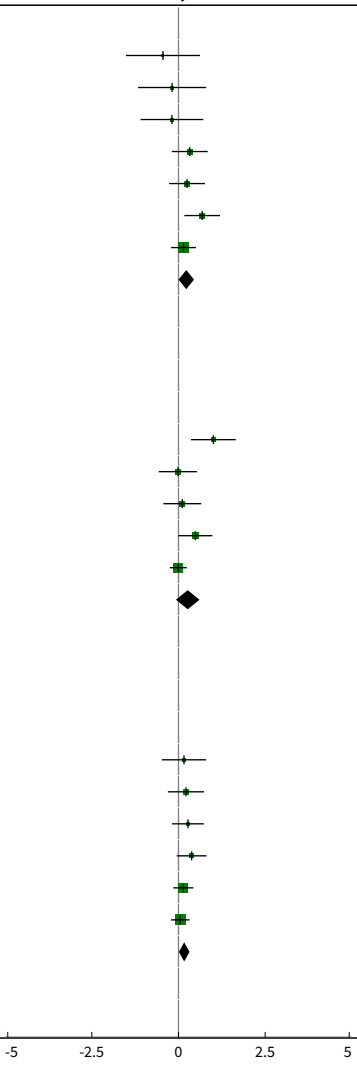
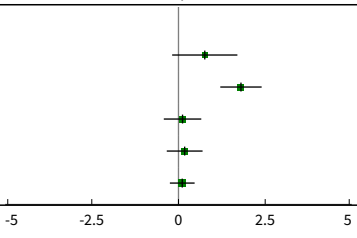
Analysis 16.9. Comparison 16 Subanalysis: outcomes by format of intervention, Outcome 9 Overall social well-being/function (follow-up values).

Study or subgroup	Physical activity N	Physical activity Mean(SD)	Control N	Control Mean(SD)	Std. Mean Difference Random, 95% CI	Weight	Std. Mean Difference Random, 95% CI
16.9.1 Group format							
Banasik 2011	7	2.8 (0.7)	7	3.2 (0.8)		4.3%	-0.45[-1.51,0.62]
Herrero 2006	8	87.5 (19.4)	8	91.7 (23.6)		5.04%	-0.18[-1.17,0.8]
Mustian 2004	9	8.6 (1.9)	10	9 (1.8)		5.94%	-0.19[-1.09,0.71]
Milne 2008	29	20.7 (4)	29	19.4 (3.9)		17.08%	0.32[-0.19,0.84]
Mehnert 2011	30	85.4 (20.9)	28	79.9 (22.7)		17.15%	0.25[-0.27,0.76]
Murtezani 2014	30	20.2 (2.8)	32	18.3 (2.7)		17.38%	0.68[0.17,1.2]
Schmitz 2009	59	14.9 (5.2)	62	14.1 (5.8)		33.11%	0.14[-0.21,0.5]
Subtotal ***	**172**		**176**			**100%**	**0.22[0,0.45]**
Heterogeneity: Tau^2=0.01; Chi^2=6.4, df=6(P=0.38); I^2=6.27%							
Test for overall effect: Z=1.97(P=0.05)							
16.9.2 Individual format							
Rogers 2014	20	7.3 (4.9)	22	3.1 (3.2)		15.22%	1.01[0.36,1.65]
Basen-Enquist 2006	28	84.6 (16.9)	23	84.9 (19.2)		17.91%	-0.02[-0.57,0.54]
Courneya 2003	24	21.1 (3.5)	28	20.7 (3.6)		18.1%	0.11[-0.43,0.66]
Daley 2007	33	23.3 (4.8)	33	20.4 (6.8)		19.9%	0.49[-0,0.98]
Vallance 2007	250	22.9 (5)	85	23 (5.1)		28.87%	-0[-0.25,0.24]
Subtotal ***	**355**		**191**			**100%**	**0.27[-0.07,0.61]**
Heterogeneity: Tau^2=0.09; Chi^2=10.43, df=4(P=0.03); I^2=61.64%							
Test for overall effect: Z=1.54(P=0.12)							
16.9.3 Both group and individual formats							
Rogers 2009	20	22.6 (4.1)	18	21.8 (5.7)		5.82%	0.16[-0.48,0.8]
Littman 2012	30	22.1 (5)	27	20.9 (6)		8.7%	0.22[-0.31,0.74]
Cadmus 2009	37	22.3 (4.9)	37	20.6 (7.2)		11.29%	0.27[-0.18,0.73]
Loh 2014	63	21.5 (4.9)	32	19.6 (4.9)		12.86%	0.38[-0.05,0.81]
Kiecolt-Glaser 2014	96	95.2 (10.8)	90	93.8 (9.3)		28.55%	0.14[-0.15,0.43]
Rogers 2015	105	21 (5.7)	108	20.7 (5.8)		32.79%	0.05[-0.22,0.32]
Subtotal ***	**351**		**312**			**100%**	**0.16[0.01,0.32]**
Heterogeneity: Tau^2=0; Chi^2=1.92, df=5(P=0.86); I^2=0%							
Test for overall effect: Z=2.09(P=0.04)							



Analysis 16.10. Comparison 16 Subanalysis: outcomes by format of intervention, Outcome 10 Overall social well-being/function (change values).

Study or subgroup	Physical activity N	Physical activity Mean(SD)	Control N	Control Mean(SD)	Std. Mean Difference Random, 95% CI	Weight	Std. Mean Difference Random, 95% CI
16.10.1 Group format							
Mustian 2004	9	1.5 (1.5)	10	0.4 (1.2)		15.73%	0.76[-0.18,1.7]
Murtezani 2014	30	2.1 (0.8)	32	0.5 (0.9)		20%	1.8[1.21,2.4]
Cormie 2014	43	3.5 (8.5)	19	2.5 (8.3)		20.67%	0.12[-0.42,0.66]
Mehnert 2011	30	7.3 (22.3)	28	3.1 (24.3)		20.96%	0.18[-0.34,0.69]
Schmitz 2009	59	4.4 (33.8)	62	0.7 (34)		22.65%	0.11[-0.25,0.47]



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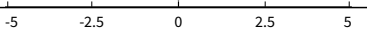
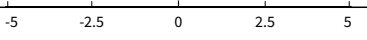
Study or subgroup	Physical activity N	Physical activity Mean(SD)	Control N	Control Mean(SD)	Std. Mean Difference Random, 95% CI	Weight	Std. Mean Difference Random, 95% CI
Subtotal ***	**171**		**151**			**100%**	**0.57[-0.06,1.19]**
Heterogeneity: Tau²=0.41; Chi²=26.1, df=4(P<0.0001); I²=84.67%							
Test for overall effect: Z=1.78(P=0.08)							
16.10.2 Individual format							
Naumann 2012	11	0.9 (3.3)	10	-0.2 (3.3)		12.35%	0.32[-0.54,1.18]
Rogers 2014	20	2.1 (3.2)	22	-0.8 (3.5)		19.45%	0.85[0.21,1.48]
Courneya 2003	24	0.6 (2.4)	28	-0.5 (3.3)		23.38%	0.37[-0.18,0.92]
Vallance 2007	250	0.2 (4.8)	85	-4.1 (3.3)		44.82%	0.97[0.71,1.23]
Subtotal ***	**305**		**145**			**100%**	**0.72[0.38,1.06]**
Heterogeneity: Tau²=0.05; Chi²=5.14, df=3(P=0.16); I²=41.63%							
Test for overall effect: Z=4.17(P<0.0001)							
16.10.3 Both group and individual formats							
Rogers 2009	20	0.9 (2.6)	18	-1.2 (2.7)		26.97%	0.78[0.11,1.44]
Cadmus 2009	37	0.6 (4.6)	37	-1 (3.2)		32.97%	0.4[-0.06,0.86]
Saarto 2012	263	5 (21.1)	237	8.8 (20.8)		40.06%	-0.18[-0.36,-0.01]
Subtotal ***	**320**		**292**			**100%**	**0.27[-0.31,0.85]**
Heterogeneity: Tau²=0.21; Chi²=11.76, df=2(P=0); I²=82.99%							
Test for overall effect: Z=0.91(P=0.36)							



Analysis 16.11. Comparison 16 Subanalysis: outcomes by format of intervention, Outcome 11 Overall cognitive function (follow-up values).

Study or subgroup	Physical activity N	Physical activity Mean(SD)	Control N	Control Mean(SD)	Std. Mean Difference Random, 95% CI	Weight	Std. Mean Difference Random, 95% CI
16.11.1 Group format							
Herrero 2006	8	91.7 (12.6)	8	89.6 (12.4)		12.15%	0.16[-0.82,1.14]
Mehnert 2011	30	81.1 (16.8)	27	78.4 (24.4)		43.23%	0.13[-0.39,0.65]
Cantarero-Villanueva 2013	32	-37.9 (8.5)	29	-43 (10)		44.62%	0.55[0.03,1.06]
Subtotal ***	**70**		**64**			**100%**	**0.32[-0.02,0.66]**
Heterogeneity: Tau²=0; Chi²=1.36, df=2(P=0.51); I²=0%							
Test for overall effect: Z=1.82(P=0.07)							
16.11.2 Individual format							
Pinto 2003	12	-4.3 (2.5)	6	-7.2 (2.1)		100%	1.14[0.07,2.2]
Subtotal ***	**12**		**6**			**100%**	**1.14[0.07,2.2]**
Heterogeneity: Not applicable							
Test for overall effect: Z=2.09(P=0.04)							
16.11.3 Both group and individual formats							
Rogers 2009	19	-124.5 (30.8)	18	-135.5 (19.5)		100%	0.42[-0.24,1.07]
Subtotal ***	**19**		**18**			**100%**	**0.42[-0.24,1.07]**
Heterogeneity: Not applicable							
Test for overall effect: Z=1.25(P=0.21)							



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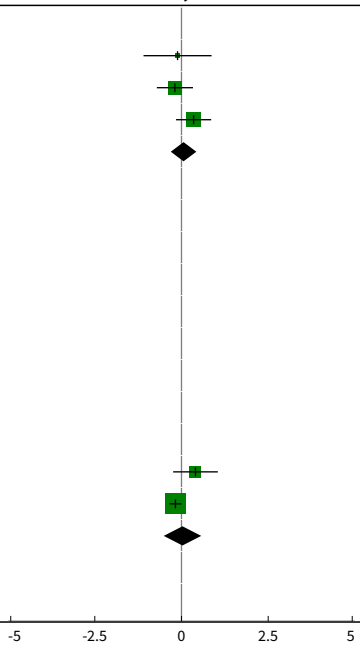
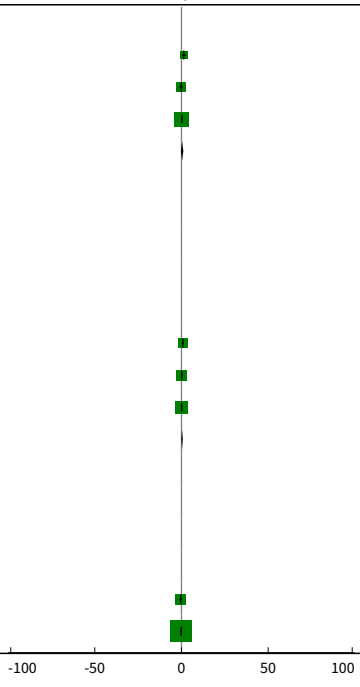
Analysis 16.12. Comparison 16 Subanalysis: outcomes by format of intervention, Outcome 12 Overall cognitive function (change values).

Study or subgroup	Physical activity N	Physical activity Mean(SD)	Control N	Control Mean(SD)	Std. Mean Difference Random, 95% CI	Weight	Std. Mean Difference Random, 95% CI
16.12.1 Group format							
Herrero 2006	8	6.2 (19.8)	8	8.3 (14.8)		13.42%	-0.11[-1.09,0.87]
Mehnert 2011	30	1.7 (22.4)	27	6.2 (24.6)		42.26%	-0.19[-0.71,0.33]
Cantarero-Villanueva 2013	32	2.2 (7.6)	29	-0.2 (5.5)		44.33%	0.35[-0.16,0.86]
Subtotal ***	**70**		**64**			**100%**	**0.06[-0.31,0.43]**
Heterogeneity: Tau²=0.01; Chi²=2.26, df=2(P=0.32); I²=11.37%							
Test for overall effect: Z=0.32(P=0.75)							
16.12.2 Individual format							
Subtotal ***	**0**		**0**				**Not estimable**
Heterogeneity: Not applicable							
Test for overall effect: Not applicable							
16.12.3 Both group and individual formats							
Rogers 2009	20	4.2 (16.8)	18	-4.7 (25.9)		35.06%	0.4[-0.24,1.05]
Saarto 2012	263	-1 (18.2)	237	2.2 (18.5)		64.94%	-0.17[-0.35,0]
Subtotal ***	**283**		**255**			**100%**	**0.03[-0.51,0.57]**
Heterogeneity: Tau²=0.11; Chi²=2.88, df=1(P=0.09); I²=65.29%							
Test for overall effect: Z=0.1(P=0.92)							



Analysis 16.13. Comparison 16 Subanalysis: outcomes by format of intervention, Outcome 13 Overall general health (follow-up values).

Study or subgroup	Physical activity N	Physical activity Mean(SD)	Control N	Control Mean(SD)	Std. Mean Difference Random, 95% CI	Weight	Std. Mean Difference Random, 95% CI
16.13.1 Group format							
Herrero 2006	8	81.3 (10.7)	8	62.5 (16.1)		23.95%	1.3[0.19,2.41]
Mustian 2004	9	18.6 (4.8)	9	19.3 (1.9)		29.48%	-0.18[-1.11,0.74]
Mehnert 2011	30	74.4 (11.8)	28	70 (20.8)		46.57%	0.26[-0.26,0.77]
Subtotal ***	**47**		**45**			**100%**	**0.38[-0.31,1.07]**
Heterogeneity: Tau²=0.2; Chi²=4.19, df=2(P=0.12); I²=52.3%							
Test for overall effect: Z=1.07(P=0.28)							
16.13.2 Individual format							
Baruth 2013	20	68.1 (0)	12	61.6 (0)			Not estimable
Basen-Enquist 2006	28	77.4 (11.6)	23	67.1 (13.4)		29.61%	0.81[0.24,1.39]
Ergun 2013	40	71.6 (19.9)	20	67.9 (16.7)		31.87%	0.19[-0.35,0.73]
Schmitz 2005	39	53.8 (5.3)	40	53.2 (6)		38.52%	0.1[-0.34,0.55]
Subtotal ***	**127**		**95**			**100%**	**0.34[-0.08,0.76]**
Heterogeneity: Tau²=0.07; Chi²=3.94, df=2(P=0.14); I²=49.3%							
Test for overall effect: Z=1.61(P=0.11)							
16.13.3 Both group and individual formats							
Rogers 2009	20	3.5 (0.9)	18	3.8 (0.5)		33.49%	-0.4[-1.04,0.25]
Cadmus 2009	37	50 (8.8)	37	51.7 (8.4)		66.51%	-0.2[-0.65,0.26]



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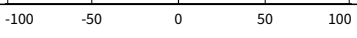
Study or subgroup	Physical activity N	Physical activity Mean(SD)	Control N	Control Mean(SD)	Std. Mean Difference Random, 95% CI	Weight	Std. Mean Difference Random, 95% CI
Subtotal ***	**57**		**55**			**100%**	**-0.26[-0.64,0.11]**
Heterogeneity: Tau²=0; Chi²=0.25, df=1(P=0.62); I²=0%							
Test for overall effect: Z=1.38(P=0.17)							

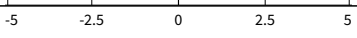


Analysis 16.14. Comparison 16 Subanalysis: outcomes by format of intervention, Outcome 14 Overall general health (change values).

Study or subgroup	Physical activity N	Physical activity Mean(SD)	Control N	Control Mean(SD)	Std. Mean Difference Random, 95% CI	Weight	Std. Mean Difference Random, 95% CI
16.14.1 Group format							
Herrero 2006	8	17.7 (8.3)	8	-10.4 (17.7)		14.97%	1.92[0.68,3.17]
Mustian 2004	9	0.2 (1.9)	10	0.7 (2.5)		21.54%	-0.2[-1.1,0.71]
Cormie 2014	43	3.7 (7)	19	2.8 (7.1)		31.39%	0.13[-0.41,0.67]
Mehnert 2011	30	6.6 (13.7)	28	3.2 (19.7)		32.1%	0.2[-0.32,0.71]
Subtotal ***	**90**		**65**			**100%**	**0.35[-0.25,0.95]**
Heterogeneity: Tau²=0.22; Chi²=8.11, df=3(P=0.04); I²=63%							
Test for overall effect: Z=1.14(P=0.25)							
16.14.2 Individual format							
Ergun 2013	40	5.4 (21.5)	20	-6.7 (25.9)		39.82%	0.52[-0.03,1.06]
Schmitz 2005	39	0.7 (4.8)	40	-0.6 (3.9)		60.18%	0.29[-0.15,0.74]
Subtotal ***	**79**		**60**			**100%**	**0.38[0.04,0.73]**
Heterogeneity: Tau²=0; Chi²=0.39, df=1(P=0.53); I²=0%							
Test for overall effect: Z=2.19(P=0.03)							
16.14.3 Both group and individual formats							
Rogers 2009	20	0.2 (0.6)	18	0.2 (0.7)		6.21%	-0.03[-0.67,0.61]
Cadmus 2009	37	0.2 (4.4)	37	-0.1 (5.1)		12.12%	0.06[-0.39,0.52]
Saarto 2012	263	4.2 (16.2)	237	5.6 (15.4)		81.66%	-0.09[-0.26,0.09]
Subtotal ***	**320**		**292**			**100%**	**-0.07[-0.23,0.09]**
Heterogeneity: Tau²=0; Chi²=0.38, df=2(P=0.83); I²=0%							
Test for overall effect: Z=0.82(P=0.41)							

Analysis 16.15. Comparison 16 Subanalysis: outcomes by format of intervention, Outcome 15 Overall sexual function (follow-up values).

Study or subgroup	Physical activity N	Physical activity Mean(SD)	Control N	Control Mean(SD)	Std. Mean Difference Fixed, 95% CI	Weight	Std. Mean Difference Fixed, 95% CI
16.15.1 Group format							
Schmitz 2009	57	-27.3 (5.3)	57	-28.1 (6.2)		100%	0.14[-0.23,0.51]
Subtotal ***	**57**		**57**			**100%**	**0.14[-0.23,0.51]**
Heterogeneity: Not applicable							
Test for overall effect: Z=0.73(P=0.46)							
16.15.2 Individual format							



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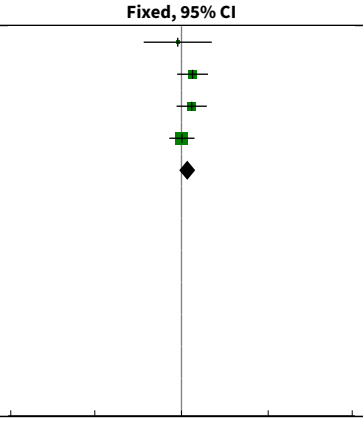
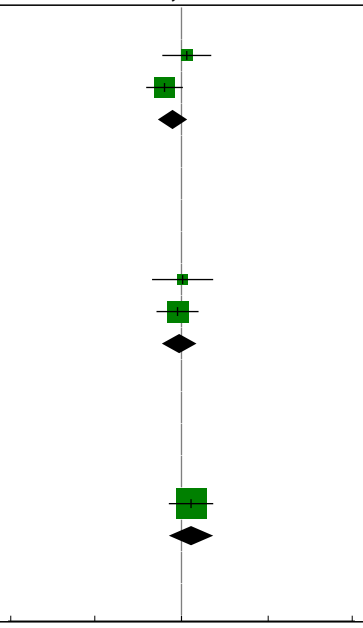
Study or subgroup	Physical activity N	Physical activity Mean(SD)	Control N	Control Mean(SD)	Std. Mean Difference Fixed, 95% CI	Weight	Std. Mean Difference Fixed, 95% CI
Pinto 2005	12	42.8 (9.2)	6	43.7 (6.1)		5.48%	-0.11[-1.09,0.87]
Schmitz 2005	39	-51 (7.5)	40	-53.5 (8)		26.73%	0.32[-0.12,0.76]
Pinto 2003	39	42.5 (9.2)	43	40.1 (6.3)		27.74%	0.29[-0.14,0.73]
Duijits 2012	53	0.6 (0.8)	65	0.6 (0.8)		40.05%	0.01[-0.35,0.38]
Subtotal ***	**143**		**154**			**100%**	**0.17[-0.06,0.4]**
Heterogeneity: Tau²=0; Chi²=1.78, df=3(P=0.62); I²=0%							
Test for overall effect: Z=1.42(P=0.16)							
16.15.3 Both group and individual formats							
Subtotal ***	**0**		**0**				**Not estimable**
Heterogeneity: Not applicable							
Test for overall effect: Not applicable							



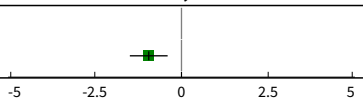
Analysis 16.16. Comparison 16 Subanalysis: outcomes by format of intervention, Outcome 16 Overall sleep (follow-up values).

Study or subgroup	Physical activity N	Physical activity Mean(SD)	Control N	Control Mean(SD)	Std. Mean Difference Fixed, 95% CI	Weight	Std. Mean Difference Fixed, 95% CI
16.16.1 Group format							
Bower 2011	16	8.1 (2.5)	15	7.7 (2.6)		35.91%	0.15[-0.55,0.86]
Mehnert 2011	30	23.8 (27)	27	38.3 (31.6)		64.09%	-0.49[-1.02,0.04]
Subtotal ***	**46**		**42**			**100%**	**-0.26[-0.68,0.16]**
Heterogeneity: Tau²=0; Chi²=2.04, df=1(P=0.15); I²=50.93%							
Test for overall effect: Z=1.2(P=0.23)							
16.16.2 Individual format							
Rogers 2013	11	6.3 (2.7)	9	6.2 (3.2)		32.12%	0.03[-0.85,0.91]
Rogers 2014	20	6.7 (3.7)	22	7.1 (3.2)		67.88%	-0.11[-0.72,0.49]
Subtotal ***	**31**		**31**			**100%**	**-0.07[-0.57,0.43]**
Heterogeneity: Tau²=0; Chi²=0.07, df=1(P=0.79); I²=0%							
Test for overall effect: Z=0.26(P=0.79)							
16.16.3 Both group and individual formats							
Rogers 2009	20	6.7 (4.2)	18	5.5 (4)		100%	0.28[-0.36,0.92]
Subtotal ***	**20**		**18**			**100%**	**0.28[-0.36,0.92]**
Heterogeneity: Not applicable							
Test for overall effect: Z=0.84(P=0.4)							



Analysis 16.17. Comparison 16 Subanalysis: outcomes by format of intervention, Outcome 17 Overall anxiety (follow-up values).

Study or subgroup	Physical activity N	Physical activity Mean(SD)	Control N	Control Mean(SD)	Std. Mean Difference Random, 95% CI	Weight	Std. Mean Difference Random, 95% CI
16.17.1 Group format							
Milne 2008	29	15.3 (6.2)	29	21 (5.7)		31.49%	-0.94[-1.49,-0.4]



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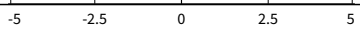
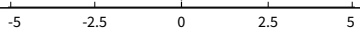
Study or subgroup	Physical activity N	Physical activity Mean(SD)	Control N	Control Mean(SD)	Std. Mean Difference Random, 95% CI	Weight	Std. Mean Difference Random, 95% CI
Mehnert 2011	30	4.8 (3.5)	28	7.1 (5)		33.91%	-0.54[-1.06,-0.01]
Cantarero-Villanueva 2013	32	42.5 (8.6)	29	49.9 (11.7)		34.6%	-0.72[-1.24,-0.2]
Subtotal ***	**91**		**86**			**100%**	**-0.73[-1.03,-0.42]**
Heterogeneity: Tau²=0; Chi²=1.12, df=2(P=0.57); I²=0%							
Test for overall effect: Z=4.67(P<0.0001)							
16.17.2 Individual format							
Pinto 2003	12	7.6 (7.3)	6	10.5 (3.7)		27.1%	-0.43[-1.43,0.56]
Rogers 2014	20	45.6 (8.9)	22	45.7 (8)		72.9%	-0.01[-0.62,0.59]
Subtotal ***	**32**		**28**			**100%**	**-0.13[-0.64,0.39]**
Heterogeneity: Tau²=0; Chi²=0.51, df=1(P=0.48); I²=0%							
Test for overall effect: Z=0.48(P=0.63)							
16.17.3 Both group and individual formats							
Cadmus 2009	37	32.1 (12.3)	37	34.1 (15.4)		100%	-0.14[-0.6,0.31]
Subtotal ***	**37**		**37**			**100%**	**-0.14[-0.6,0.31]**
Heterogeneity: Not applicable							
Test for overall effect: Z=0.61(P=0.54)							



Analysis 16.18. Comparison 16 Subanalysis: outcomes by format of intervention, Outcome 18 Overall anxiety (change values).

Study or subgroup	Physical activity N	Physical activity Mean(SD)	Control N	Control Mean(SD)	Std. Mean Difference Fixed, 95% CI	Weight	Std. Mean Difference Fixed, 95% CI
16.18.1 Group format							
Mehnert 2011	30	-1.7 (3.7)	28	0.2 (4.9)		49.37%	-0.42[-0.95,0.1]
Cantarero-Villanueva 2013	32	-4.2 (9.8)	29	0.8 (5.5)		50.63%	-0.61[-1.12,-0.09]
Subtotal ***	**62**		**57**			**100%**	**-0.52[-0.88,-0.15]**
Heterogeneity: Tau²=0; Chi²=0.24, df=1(P=0.62); I²=0%							
Test for overall effect: Z=2.76(P=0.01)							
16.18.2 Individual format							
Rogers 2014	20	-4 (6.5)	22	-1.8 (5)		100%	-0.37[-0.99,0.24]
Subtotal ***	**20**		**22**			**100%**	**-0.37[-0.99,0.24]**
Heterogeneity: Not applicable							
Test for overall effect: Z=1.2(P=0.23)							
16.18.3 Both group and individual formats							
Cadmus 2009	37	-0.7 (9.2)	37	0.5 (5.8)		100%	-0.15[-0.61,0.3]
Subtotal ***	**37**		**37**			**100%**	**-0.15[-0.61,0.3]**
Heterogeneity: Not applicable							
Test for overall effect: Z=0.66(P=0.51)							



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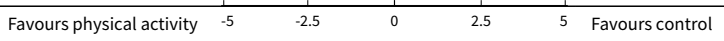
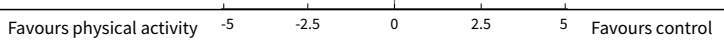
Analysis 16.19. Comparison 16 Subanalysis: outcomes by format of intervention, Outcome 19 Overall depression (change values).

Study or subgroup	Physical activity N	Physical activity Mean(SD)	Control N	Control Mean(SD)	Std. Mean Difference Random, 95% CI	Weight	Std. Mean Difference Random, 95% CI
16.19.1 Group format							
Mehnert 2011	30	2.7 (3)	28	4.6 (4.4)		48.98%	-0.51[-1.04,0.01]
Cantarero-Villanueva 2013	32	-2.9 (7.8)	29	1.5 (7.4)		51.02%	-0.57[-1.09,-0.06]
Subtotal ***	**62**		**57**			**100%**	**-0.54[-0.91,-0.18]**
Heterogeneity: Tau²=0; Chi²=0.03, df=1(P=0.87); I²=0%							
Test for overall effect: Z=2.9(P=0)							
16.19.2 Individual format							
Naumann 2012	11	-3.6 (4.3)	10	2 (4.6)		21.52%	-1.21[-2.16,-0.26]
Rogers 2014	20	-1.7 (6.9)	22	1.1 (4.2)		36.7%	-0.49[-1.1,0.13]
Ergun 2013	40	1.2 (6.2)	20	2.4 (8)		41.78%	-0.16[-0.7,0.37]
Subtotal ***	**71**		**52**			**100%**	**-0.51[-1.03,0.01]**
Heterogeneity: Tau²=0.09; Chi²=3.58, df=2(P=0.17); I²=44.16%							
Test for overall effect: Z=1.91(P=0.06)							
16.19.3 Both group and individual formats							
Cadmus 2009	37	0.3 (6.4)	37	1.7 (6.3)		19.98%	-0.22[-0.68,0.24]
Saarto 2012	263	-0.3 (3.3)	237	-0.5 (3.4)		80.02%	0.06[-0.12,0.24]
Subtotal ***	**300**		**274**			**100%**	**0[-0.21,0.22]**
Heterogeneity: Tau²=0.01; Chi²=1.24, df=1(P=0.27); I²=19.17%							
Test for overall effect: Z=0.04(P=0.97)							



Analysis 16.20. Comparison 16 Subanalysis: outcomes by format of intervention, Outcome 20 Overall depression (follow-up values).

Study or subgroup	Physical activity N	Physical activity Mean(SD)	Control N	Control Mean(SD)	Std. Mean Difference Random, 95% CI	Weight	Std. Mean Difference Random, 95% CI
16.20.1 Group format							
Kaltsatou 2011	13	16.5 (1.7)	13	22.3 (7.7)		13.75%	-1[-1.83,-0.18]
Bower 2011	16	7.7 (5.8)	15	11.6 (7.1)		17.92%	-0.59[-1.31,0.13]
Mehnert 2011	30	2.7 (3)	28	4.6 (4.4)		33.99%	-0.51[-1.04,0.01]
Cantarero-Villanueva 2013	32	45.6 (9.7)	29	53.7 (11.6)		34.34%	-0.75[-1.28,-0.23]
Subtotal ***	**91**		**85**			**100%**	**-0.68[-0.98,-0.37]**
Heterogeneity: Tau²=0; Chi²=1.13, df=3(P=0.77); I²=0%							
Test for overall effect: Z=4.34(P<0.0001)							
16.20.2 Individual format							
Pinto 2003	12	6.2 (7.2)	6	9.8 (6.8)		14.22%	-0.49[-1.49,0.5]
Payne 2008	10	12.7 (8.7)	10	11.4 (7.9)		16.24%	0.15[-0.73,1.03]
Rogers 2014	20	44.2 (8.6)	22	25.1 (44.2)		21.6%	0.58[-0.04,1.19]
Ergun 2013	40	6.9 (6.8)	20	5.2 (5.2)		23.45%	0.27[-0.27,0.81]
Daley 2007	33	6 (6.5)	33	10.3 (7.2)		24.49%	-0.63[-1.12,-0.13]
Subtotal ***	**115**		**91**			**100%**	**-0.01[-0.51,0.49]**
Heterogeneity: Tau²=0.21; Chi²=11.43, df=4(P=0.02); I²=64.99%							
Test for overall effect: Z=0.04(P=0.97)							



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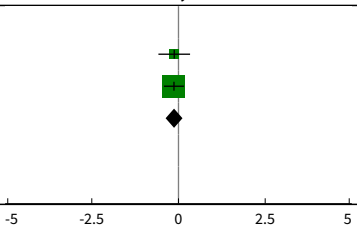
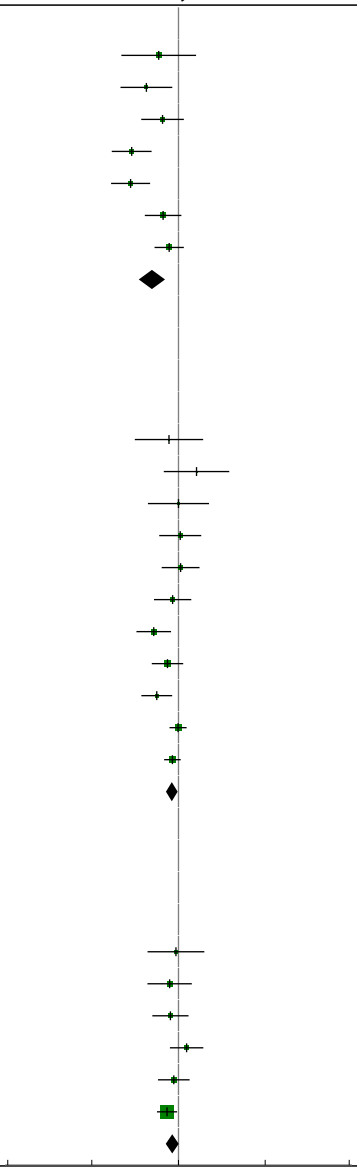
Study or subgroup	Physical activity N	Physical activity Mean(SD)	Control N	Control Mean(SD)	Std. Mean Difference Random, 95% CI	Weight	Std. Mean Difference Random, 95% CI
16.20.3 Both group and individual formats							
Cadmus 2009	37	9.6 (9.3)	37	10.8 (10.1)		28.49%	-0.12[-0.58,0.33]
Kiecolt-Glaser 2014	96	8.1 (8.6)	90	9.2 (8.2)		71.51%	-0.13[-0.42,0.16]
Subtotal ***	**133**		**127**			**100%**	**-0.13[-0.37,0.12]**
Heterogeneity: Tau^2=0; Chi^2=0, df=1(P=0.98); I^2=0%							
Test for overall effect: Z=1.03(P=0.3)							



Analysis 16.21. Comparison 16 Subanalysis: outcomes by format of intervention, Outcome 21 Overall fatigue (follow-up values).

Study or subgroup	Physical activity N	Physical activity Mean(SD)	Control N	Control Mean(SD)	Std. Mean Difference Random, 95% CI	Weight	Std. Mean Difference Random, 95% CI
16.21.1 Group format							
Banasik 2011	7	1 (0.9)	7	1.6 (1)		8.1%	-0.57[-1.65,0.51]
Bower 2011	16	3.4 (1.8)	15	4.9 (1.3)		12.29%	-0.93[-1.67,-0.18]
Cuesta-Vargas 2014	22	4 (1.8)	20	5.2 (3.2)		14.52%	-0.46[-1.07,0.15]
Milne 2008	29	11.9 (3.2)	29	17.4 (4.7)		15.26%	-1.35[-1.92,-0.78]
Cantarero-Villanueva 2013	32	3.8 (1.8)	29	6.2 (1.7)		15.47%	-1.38[-1.94,-0.82]
Mehnert 2011	30	28.5 (25.6)	27	39.9 (25.1)		16.16%	-0.44[-0.97,0.08]
Fillion 2008	44	2.7 (0.7)	43	2.9 (0.8)		18.19%	-0.27[-0.69,0.15]
Subtotal ***	**180**		**170**			**100%**	**-0.77[-1.15,-0.39]**
Heterogeneity: Tau^2=0.16; Chi^2=16.43, df=6(P=0.01); I^2=63.48%							
Test for overall effect: Z=3.97(P<0.0001)							
16.21.2 Individual format							
Pinto 2003	12	7.2 (6.4)	6	9 (6.4)		2.7%	-0.27[-1.26,0.71]
Payne 2008	9	4.7 (2.6)	9	3.5 (1.7)		2.93%	0.52[-0.42,1.46]
Rogers 2013	11	4.2 (1.8)	9	4.2 (1.6)		3.32%	0[-0.88,0.88]
Rogers 2014	20	4.1 (2.1)	22	4 (1.8)		6.35%	0.05[-0.56,0.66]
Courneya 2003	24	-8.3 (7.9)	28	-8.8 (8.1)		7.51%	0.06[-0.48,0.61]
Ergun 2013	40	2.9 (2.2)	20	3.3 (1.8)		7.68%	-0.17[-0.71,0.37]
Daley 2007	33	2.1 (1.8)	33	3.4 (1.9)		8.63%	-0.71[-1.21,-0.21]
Pinto 2015	39	-43.8 (7.8)	37	-41.2 (8.5)		9.94%	-0.32[-0.77,0.14]
Pinto 2005	39	27.1 (21.4)	43	42.3 (26.2)		10.21%	-0.63[-1.07,-0.18]
Vallance 2007	250	-42.7 (8.4)	85	-42.6 (8.7)		20.09%	-0.01[-0.26,0.23]
Short 2014	195	-41.5 (9.3)	104	-39.8 (10.4)		20.63%	-0.17[-0.41,0.06]
Subtotal ***	**672**		**396**			**100%**	**-0.19[-0.36,-0.02]**
Heterogeneity: Tau^2=0.02; Chi^2=14.04, df=10(P=0.17); I^2=28.77%							
Test for overall effect: Z=2.24(P=0.03)							
16.21.3 Both group and individual formats							
Loudon 2014	12	1.9 (2.2)	11	2.1 (2.5)		5.21%	-0.07[-0.89,0.75]
Rogers 2009	20	-12.4 (10.4)	18	-10.1 (6.6)		8.53%	-0.26[-0.9,0.38]
Littman 2012	30	-45 (5.3)	27	-43.1 (10.3)		12.82%	-0.23[-0.75,0.29]
Winters-Stone 2011	36	45 (5.3)	31	43.1 (10.3)		15.03%	0.23[-0.25,0.72]
Cadmus 2009	37	-51.9 (9)	37	-50.6 (10)		16.77%	-0.14[-0.59,0.32]
Kiecolt-Glaser 2014	96	6.3 (19.6)	90	12.7 (19)		41.63%	-0.33[-0.62,-0.04]
Subtotal ***	**231**		**214**			**100%**	**-0.18[-0.37,0.01]**



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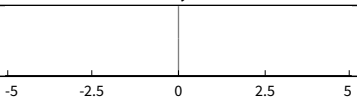
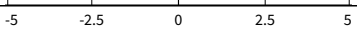
Study or subgroup	Physical activity N	Physical activity Mean(SD)	Control N	Control Mean(SD)	Std. Mean Difference Random, 95% CI	Weight	Std. Mean Difference Random, 95% CI
Heterogeneity: Tau²=0; Chi²=4.07, df=5(P=0.54); I²=0%							
Test for overall effect: Z=1.89(P=0.06)							



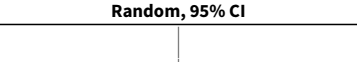
Analysis 16.22. Comparison 16 Subanalysis: outcomes by format of intervention, Outcome 22 Overall fatigue (change values).

Study or subgroup	Physical activity N	Physical activity Mean(SD)	Control N	Control Mean(SD)	Std. Mean Difference Random, 95% CI	Weight	Std. Mean Difference Random, 95% CI
16.22.1 Group format							
Herrero 2006	8	-4.2 (19.6)	8	6.4 (14.5)		28.64%	-0.58[-1.59,0.43]
Mehnert 2011	30	-0.7 (20.7)	27	-2.9 (25.3)		71.36%	0.09[-0.43,0.61]
Subtotal ***	**38**		**35**			**100%**	**-0.1[-0.7,0.5]**
Heterogeneity: Tau²=0.06; Chi²=1.35, df=1(P=0.24); I²=26.17%							
Test for overall effect: Z=0.33(P=0.74)							
16.22.2 Individual format							
Naumann 2012	11	-3.6 (4.4)	10	2 (4.6)		11.66%	-1.21[-2.16,-0.26]
Rogers 2013	11	4.2 (2)	9	3.9 (1.5)		12.16%	0.16[-0.72,1.04]
Courneya 2003	24	9.3 (10.2)	28	2 (7.5)		14.59%	0.81[0.24,1.38]
Cantarero-Villanueva 2013	32	-2 (1.8)	29	0.3 (1.4)		14.59%	-1.45[-2.02,-0.88]
Daley 2007	33	2.1 (1.8)	33	3.4 (1.9)		15.09%	-0.71[-1.21,-0.21]
Pinto 2005	39	-14.9 (23.5)	43	1.8 (23.5)		15.43%	-0.7[-1.15,-0.26]
Vallance 2007	250	2.5 (8.2)	85	1.2 (6.6)		16.49%	0.17[-0.08,0.42]
Subtotal ***	**400**		**237**			**100%**	**-0.4[-0.98,0.17]**
Heterogeneity: Tau²=0.51; Chi²=53.5, df=6(P<0.0001); I²=88.79%							
Test for overall effect: Z=1.37(P=0.17)							
16.22.3 Both group and individual formats							
Loudon 2014	12	1.9 (2.2)	11	2.1 (2.5)		4.1%	-0.07[-0.89,0.75]
Rogers 2009	20	1.9 (9.6)	18	4.2 (12.3)		6.74%	-0.21[-0.84,0.43]
Saarto 2012	263	-2.4 (9.1)	237	-2.4 (8.6)		89.16%	0[-0.18,0.18]
Subtotal ***	**295**		**266**			**100%**	**-0.02[-0.18,0.15]**
Heterogeneity: Tau²=0; Chi²=0.39, df=2(P=0.82); I²=0%							
Test for overall effect: Z=0.2(P=0.84)							



Analysis 16.23. Comparison 16 Subanalysis: outcomes by format of intervention, Outcome 23 Overall pain/disability (follow-up values).

Study or subgroup	Physical activity N	Physical activity Mean(SD)	Control N	Control Mean(SD)	Std. Mean Difference Random, 95% CI	Weight	Std. Mean Difference Random, 95% CI
16.23.1 Group format							
Mustian 2004	9	9.1 (1.4)	10	9.1 (1.7)		24.79%	0.01[-0.89,0.91]
Mehnert 2011	30	79.4 (23.1)	28	73.5 (24.8)		75.21%	0.24[-0.27,0.76]
Subtotal ***	**39**		**38**			**100%**	**0.18[-0.26,0.63]**
Heterogeneity: Tau²=0; Chi²=0.2, df=1(P=0.65); I²=0%							



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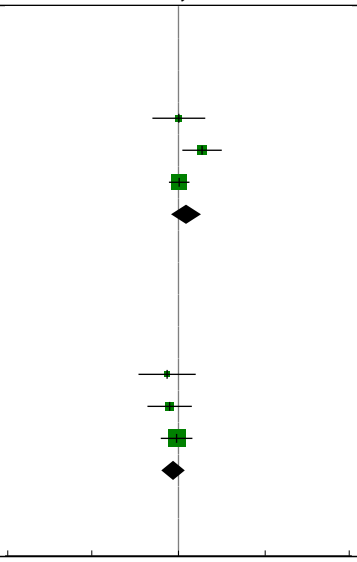
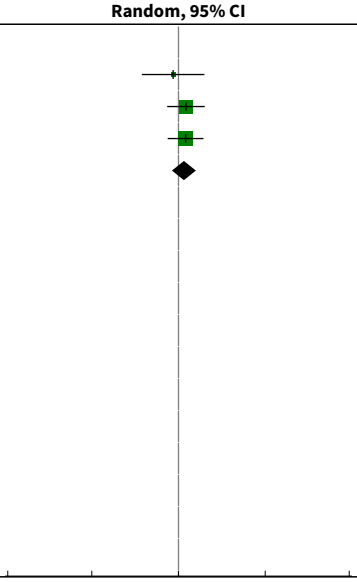
Study or subgroup	Physical activity N	Physical activity Mean(SD)	Control N	Control Mean(SD)	Std. Mean Difference Random, 95% CI	Weight	Std. Mean Difference Random, 95% CI
Test for overall effect: Z=0.81(P=0.42)							
16.23.2 Individual format							
Portela 2008	25	-20.6 (20.2)	9	-20.8 (15.5)		21.28%	0.01[-0.75,0.77]
Basen-Enquist 2006	28	79.7 (10.6)	23	72.1 (11.5)		30.12%	0.68[0.11,1.25]
Duijits 2012	87	79.3 (23.6)	89	78.8 (23.8)		48.61%	0.02[-0.28,0.32]
Subtotal ***	**140**		**121**			**100%**	**0.22[-0.22,0.65]**
Heterogeneity: Tau²=0.08; Chi²=4.21, df=2(P=0.12); I²=52.46%							
Test for overall effect: Z=0.98(P=0.33)							
16.23.3 Both group and individual formats							
Loudon 2014	12	0.8 (1.5)	11	1.4 (2.2)		16.84%	-0.33[-1.15,0.5]
Rogers 2009	20	-3 (3)	18	-2.3 (2.8)		28%	-0.26[-0.89,0.38]
Cadmus 2009	37	50.3 (9.1)	37	50.8 (9)		55.15%	-0.05[-0.51,0.4]
Subtotal ***	**69**		**66**			**100%**	**-0.16[-0.5,0.18]**
Heterogeneity: Tau²=0; Chi²=0.45, df=2(P=0.8); I²=0%							
Test for overall effect: Z=0.91(P=0.36)							



Analysis 16.24. Comparison 16 Subanalysis: outcomes by format of intervention, Outcome 24 Overall pain/disability (change values).

Study or subgroup	Physical activity N	Physical activity Mean(SD)	Control N	Control Mean(SD)	Std. Mean Difference Random, 95% CI	Weight	Std. Mean Difference Random, 95% CI
16.24.1 Group format							
Mustian 2004	9	-0.2 (1.3)	10	0 (1.4)		14.64%	-0.15[-1.06,0.75]
Cormie 2014	43	3.4 (6.5)	19	2 (6.2)		40.67%	0.22[-0.33,0.76]
Mehnert 2011	30	-2.4 (25)	28	-7.6 (25.2)		44.69%	0.21[-0.31,0.72]
Subtotal ***	**82**		**57**			**100%**	**0.16[-0.19,0.5]**
Heterogeneity: Tau²=0; Chi²=0.54, df=2(P=0.76); I²=0%							
Test for overall effect: Z=0.89(P=0.37)							
16.24.2 Individual format							
Subtotal ***	**0**		**0**				**Not estimable**
Heterogeneity: Not applicable							
Test for overall effect: Not applicable							
16.24.3 Both group and individual formats							
Subtotal ***	**0**		**0**				**Not estimable**
Heterogeneity: Not applicable							
Test for overall effect: Not applicable							



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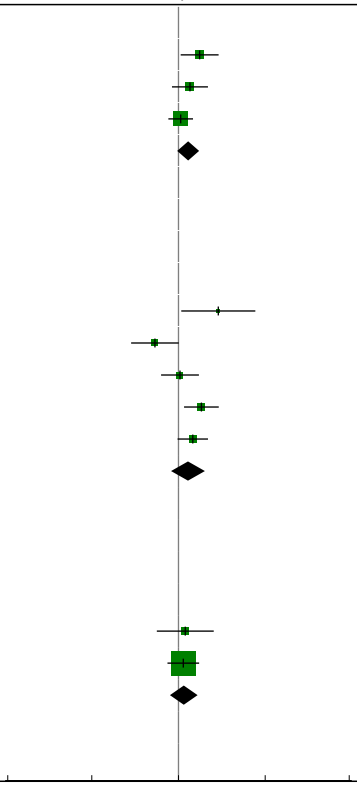
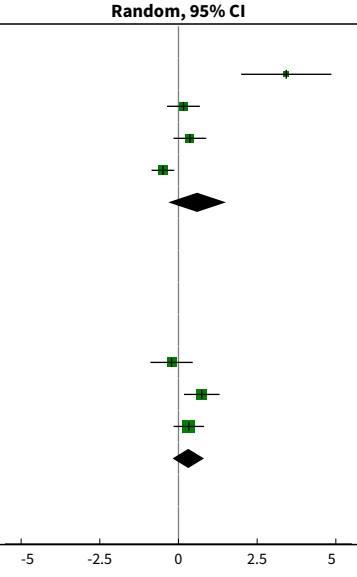
Analysis 16.25. Comparison 16 Subanalysis: outcomes by format of intervention, Outcome 25 Overall self-esteem/body image (follow-up values).

Study or subgroup	Physical activity N	Physical activity Mean(SD)	Control N	Control Mean(SD)	Std. Mean Difference Random, 95% CI	Weight	Std. Mean Difference Random, 95% CI
16.25.1 Group format							
Mehnert 2011	27	-5.5 (1.7)	27	-6.8 (2.6)		25.75%	0.61[0.06,1.16]
Milne 2008	29	-17.9 (6.8)	29	-20.1 (6.3)		27.9%	0.33[-0.19,0.85]
Schmitz 2009	59	-70.4 (16.3)	63	-71.5 (18)		46.35%	0.06[-0.29,0.42]
Subtotal ***	**115**		**119**			**100%**	**0.28[-0.04,0.6]**
Heterogeneity: Tau²=0.02; Chi²=2.82, df=2(P=0.24); I²=29.02%							
Test for overall effect: Z=1.73(P=0.08)							
16.25.2 Individual format							
Pinto 2003	12	32.3 (4.3)	6	25.3 (8.2)		12.33%	1.15[0.08,2.22]
Musanti 2012	30	23.8 (3.5)	12	26.3 (3.9)		18.84%	-0.68[-1.37,0.01]
Courneya 2003	24	34.8 (4.7)	28	34.6 (4.4)		21.84%	0.04[-0.5,0.59]
Daley 2007	33	2 (0.8)	32	1.6 (0.5)		22.83%	0.66[0.16,1.16]
Pinto 2005	39	30.3 (7.8)	43	27.2 (6.8)		24.17%	0.41[-0.03,0.85]
Subtotal ***	**138**		**121**			**100%**	**0.27[-0.21,0.76]**
Heterogeneity: Tau²=0.21; Chi²=13.33, df=4(P=0.01); I²=69.99%							
Test for overall effect: Z=1.1(P=0.27)							
16.25.3 Both group and individual formats							
Loudon 2014	12	-1.4 (0.3)	11	-1.6 (0.9)		23.62%	0.2[-0.62,1.02]
Cadmus 2009	37	34.2 (5.5)	37	33.4 (5.9)		76.38%	0.14[-0.32,0.6]
Subtotal ***	**49**		**48**			**100%**	**0.15[-0.25,0.55]**
Heterogeneity: Tau²=0; Chi²=0.01, df=1(P=0.91); I²=0%							
Test for overall effect: Z=0.75(P=0.45)							



Analysis 16.26. Comparison 16 Subanalysis: outcomes by format of intervention, Outcome 26 Overall self-esteem/body image (change values).

Study or subgroup	Physical activity N	Physical activity Mean(SD)	Control N	Control Mean(SD)	Std. Mean Difference Random, 95% CI	Weight	Std. Mean Difference Random, 95% CI
16.26.1 Group format							
Mustian 2004	11	3 (1)	10	-1.5 (1.5)		17.26%	3.42[1.99,4.86]
Mehnert 2011	30	0.7 (2.1)	27	0.4 (2.1)		27.15%	0.16[-0.36,0.68]
Milne 2008	29	1.5 (3.7)	29	0.1 (3.9)		27.16%	0.36[-0.16,0.88]
Schmitz 2009	59	-12 (15.5)	63	-4.1 (16.2)		28.44%	-0.49[-0.86,-0.13]
Subtotal ***	**129**		**129**			**100%**	**0.59[-0.33,1.51]**
Heterogeneity: Tau²=0.74; Chi²=31.39, df=3(P<0.0001); I²=90.44%							
Test for overall effect: Z=1.26(P=0.21)							
16.26.2 Individual format							
Musanti 2012	30	-0.4 (4.5)	12	0.6 (3.9)		28.54%	-0.22[-0.89,0.45]
Courneya 2003	24	2.6 (3.7)	28	-0.1 (3.5)		33.61%	0.74[0.18,1.3]
Daley 2007	33	1.8 (0.7)	33	1.6 (0.7)		37.85%	0.33[-0.16,0.82]
Subtotal ***	**87**		**73**			**100%**	**0.31[-0.19,0.81]**
Heterogeneity: Tau²=0.11; Chi²=4.6, df=2(P=0.1); I²=56.53%							
Test for overall effect: Z=1.22(P=0.22)							



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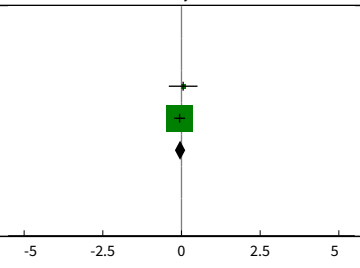
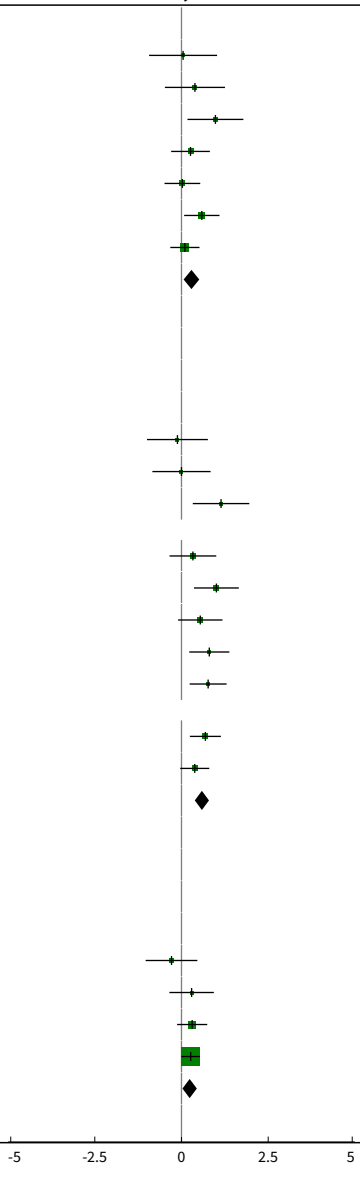
Study or subgroup	Physical activity N	Physical activity Mean(SD)	Control N	Control Mean(SD)	Std. Mean Difference Random, 95% CI	Weight	Std. Mean Difference Random, 95% CI
16.26.3 Both group and individual formats							
Cadmus 2009	37	0.4 (4.4)	37	0.2 (2.9)		12.92%	0.05[-0.4,0.51]
Saarto 2012	263	10.7 (21.5)	237	12 (22)		87.08%	-0.06[-0.24,0.12]
Subtotal ***	**300**		**274**			**100%**	**-0.05[-0.21,0.12]**
Heterogeneity: Tau²=0; Chi²=0.2, df=1(P=0.65); I²=0%							
Test for overall effect: Z=0.54(P=0.59)							



Analysis 16.27. Comparison 16 Subanalysis: outcomes by format of intervention, Outcome 27 Overall cardiorespiratory fitness (follow-up values).

Study or subgroup	Physical activity N	Physical activity Mean(SD)	Control N	Control Mean(SD)	Std. Mean Difference Random, 95% CI	Weight	Std. Mean Difference Random, 95% CI
16.27.1 Group format							
Herrero 2006	8	25.9 (4.5)	8	25.7 (3.7)		5.27%	0.05[-0.93,1.03]
Mustian 2004	11	636.1 (50.6)	10	610.3 (75.9)		6.72%	0.39[-0.48,1.25]
Kaltsatou 2011	14	483.3 (86)	13	403.1 (71.9)		7.75%	0.98[0.17,1.78]
Mehnert 2011	27	26.9 (4.4)	23	25.7 (4.7)		15.8%	0.26[-0.3,0.82]
Milne 2008	29	1.5 (0.3)	29	1.5 (0.4)		18.49%	0.03[-0.49,0.54]
Murtezani 2014	30	875.1 (86.7)	32	823.5 (87.1)		18.86%	0.59[0.08,1.1]
Fillion 2008	44	27 (4.4)	43	26.5 (5.8)		27.1%	0.1[-0.32,0.52]
Subtotal ***	**163**		**158**			**100%**	**0.29[0.06,0.51]**
Heterogeneity: Tau²=0; Chi²=6.21, df=6(P=0.4); I²=3.31%							
Test for overall effect: Z=2.49(P=0.01)							
16.27.2 Individual format							
Cerulli 2014	10	31.3 (5)	10	32.3 (10.1)		5.08%	-0.12[-0.99,0.76]
Rogers 2013	12	23.9 (6.2)	10	23.9 (3.8)		5.52%	0[-0.84,0.84]
Portela 2008	25	3007 (410.8)	9	2416.1 (718.6)		5.83%	1.14[0.33,1.96]
Musanti 2012	30	24.6 (4.9)	12	23 (4.3)		8.22%	0.33[-0.34,1]
Rogers 2014	20	30.9 (6.3)	22	25.1 (5)		8.84%	1.01[0.36,1.65]
Kim 2015	20	424.8 (55.8)	19	394.4 (54)		8.98%	0.54[-0.1,1.18]
Courneya 2003	24	21.3 (3.7)	26	18.2 (3.9)		10.72%	0.8[0.22,1.38]
Basen-Enquist 2006	35	1643 (122.5)	25	1546 (127.5)		12.33%	0.77[0.24,1.3]
Pinto 2005	39	-16.3 (2.1)	43	-17.8 (2.2)		16.37%	0.69[0.24,1.14]
Daley 2007	33	35 (4.4)	69	33.1 (5.3)		18.11%	0.38[-0.04,0.8]
Subtotal ***	**248**		**245**			**100%**	**0.59[0.38,0.79]**
Heterogeneity: Tau²=0.01; Chi²=10.42, df=9(P=0.32); I²=13.62%							
Test for overall effect: Z=5.63(P<0.0001)							
16.27.3 Both group and individual formats							
Nikander 2007	14	-17.6 (1.3)	14	-17.2 (1.4)		7.74%	-0.29[-1.03,0.46]
Rogers 2009	20	29.5 (6.6)	18	27.6 (6.1)		10.47%	0.29[-0.35,0.93]
Irwin 2015	45	24.6 (5.5)	38	23 (4.7)		22.77%	0.31[-0.13,0.74]
Rogers 2015	105	23.6 (4.8)	108	22.7 (0.3)		59.02%	0.27[-0,0.54]
Subtotal ***	**184**		**178**			**100%**	**0.24[0.03,0.44]**
Heterogeneity: Tau²=0; Chi²=2.08, df=3(P=0.56); I²=0%							



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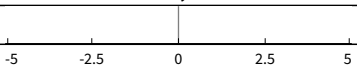
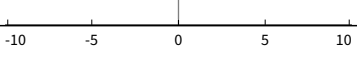
Study or subgroup	Physical activity N	Physical activity Mean(SD)	Control N	Control Mean(SD)	Std. Mean Difference Random, 95% CI	Weight	Std. Mean Difference Random, 95% CI
Test for overall effect: Z=2.22(P=0.03)							



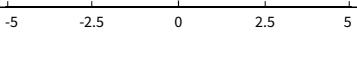
Analysis 16.28. Comparison 16 Subanalysis: outcomes by format of intervention, Outcome 28 Overall cardiorespiratory fitness (change values).

Study or subgroup	Physical activity N	Physical activity Mean(SD)	Control N	Control Mean(SD)	Std. Mean Difference Random, 95% CI	Weight	Std. Mean Difference Random, 95% CI
16.28.1 Group format							
Subtotal ***	**0**		**0**				**Not estimable**
Heterogeneity: Not applicable							
Test for overall effect: Not applicable							
16.28.2 Individual format							
Musanti 2012	30	1 (3.1)	12	0.9 (3.4)		23.11%	0.03[-0.64,0.7]
Courneya 2003	24	2.7 (2.6)	26	-0.6 (1.7)		23.96%	1.49[0.86,2.12]
Rogers 2014	20	2.8 (4.9)	22	1.1 (4.2)		24.48%	0.37[-0.24,0.98]
Pinto 2005	39	1.4 (2.4)	43	-0.2 (2.5)		28.45%	0.65[0.2,1.09]
Subtotal ***	**113**		**103**			**100%**	**0.64[0.08,1.19]**
Heterogeneity: Tau^2=0.23; Chi^2=10.9, df=3(P=0.01); I^2=72.47%							
Test for overall effect: Z=2.25(P=0.02)							
16.28.3 Both group and individual formats							
Irwin 2015	45	1.5 (2.1)	38	-0.4 (2.7)		44.42%	0.79[0.34,1.24]
Saarto 2012	262	0.9 (1.2)	236	0.7 (1)		55.58%	0.16[-0.02,0.33]
Subtotal ***	**307**		**274**			**100%**	**0.44[-0.18,1.05]**
Heterogeneity: Tau^2=0.17; Chi^2=6.56, df=1(P=0.01); I^2=84.77%							
Test for overall effect: Z=1.39(P=0.16)							



Analysis 16.29. Comparison 16 Subanalysis: outcomes by format of intervention, Outcome 29 Overall self-reported physical activity (follow-up values).

Study or subgroup	Physical activity N	Physical activity Mean(SD)	Control N	Control Mean(SD)	Std. Mean Difference Random, 95% CI	Weight	Std. Mean Difference Random, 95% CI
16.29.1 Group format							
Schmitz 2009	131	3348.8 (9019.4)	133	2339.8 (6213.7)		100%	0.13[-0.11,0.37]
Subtotal ***	**131**		**133**			**100%**	**0.13[-0.11,0.37]**
Heterogeneity: Not applicable							
Test for overall effect: Z=1.06(P=0.29)							
16.29.2 Individual format							
Baruth 2013	20	0 (0)	12	0 (0)			Not estimable
Matthews 2007	22	54.2 (34.1)	14	27.2 (22.7)		9.97%	0.87[0.17,1.58]
Basen-Enquist 2006	35	428 (254.4)	25	404 (265)		13.07%	0.09[-0.42,0.61]
Pinto 2015	36	70.3 (65.9)	32	16.5 (31.9)		13.19%	1.01[0.5,1.52]



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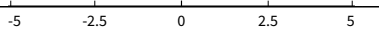
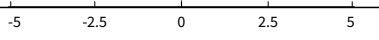
Study or subgroup	Physical activity N	Physical activity Mean(SD)	Control N	Control Mean(SD)	Std. Mean Difference Random, 95% CI	Weight	Std. Mean Difference Random, 95% CI
Hatchett 2013	38	3.5 (2.2)	36	1.4 (1.7)		13.56%	1.04[0.55,1.53]
Pinto 2005	39	202.4 (161.7)	43	78.4 (86)		14.08%	0.96[0.5,1.42]
Vallance 2007	253	207.6 (169)	85	163 (121)		18%	0.28[0.03,0.53]
Short 2014	195	217.9 (222.9)	104	180.3 (206.9)		18.14%	0.17[-0.07,0.41]
Subtotal ***	**638**		**351**			**100%**	**0.59[0.28,0.9]**
Heterogeneity: Tau²=0.12; Chi²=25.23, df=6(P=0); I²=76.22%							
Test for overall effect: Z=3.72(P=0)							
16.29.3 Both group and individual formats							
Guinan 2013	16	38.7 (26.9)	10	19.9 (11.3)		7.58%	0.81[-0.01,1.64]
Rogers 2009	20	121.4 (73.2)	18	114.3 (131.5)		10.03%	0.07[-0.57,0.7]
Cadmus 2009	34	161.7 (114.7)	33	55.6 (101.9)		12.13%	0.97[0.46,1.47]
Littman 2012	32	19.2 (19.1)	31	12.1 (13.6)		12.27%	0.42[-0.08,0.92]
Winters-Stone 2011	36	430.8 (281.4)	31	461.7 (346.4)		12.61%	-0.1[-0.58,0.38]
Irwin 2015	45	222.1 (118.6)	38	103.6 (104.6)		12.95%	1.04[0.58,1.51]
Kiecolt-Glaser 2014	96	11.2 (7.6)	90	9.1 (6.1)		16.09%	0.3[0.01,0.59]
Rogers 2015	110	169 (119)	112	74 (107)		16.35%	0.84[0.56,1.11]
Subtotal ***	**389**		**363**			**100%**	**0.55[0.25,0.84]**
Heterogeneity: Tau²=0.12; Chi²=23.8, df=7(P=0); I²=70.58%							
Test for overall effect: Z=3.65(P=0)							



Analysis 16.30. Comparison 16 Subanalysis: outcomes by format of intervention, Outcome 30 Overall self-reported physical activity (change values).

Study or subgroup	Physical activity N	Physical activity Mean(SD)	Control N	Control Mean(SD)	Std. Mean Difference Random, 95% CI	Weight	Std. Mean Difference Random, 95% CI
16.30.1 Group format							
Schmitz 2009	48	2.8 (16.8)	57	-0.8 (16.6)		100%	0.21[-0.17,0.6]
Subtotal ***	**48**		**57**			**100%**	**0.21[-0.17,0.6]**
Heterogeneity: Not applicable							
Test for overall effect: Z=1.09(P=0.28)							
16.30.2 Individual format							
Matthews 2007	22	21.5 (30.6)	14	5 (13.8)		8.22%	0.63[-0.06,1.32]
Pinto 2005	39	84.7 (189.2)	43	-18.3 (200.7)		19.99%	0.52[0.08,0.96]
Vallance 2007	281	82 (168.7)	96	30 (167.8)		71.79%	0.31[0.08,0.54]
Subtotal ***	**342**		**153**			**100%**	**0.38[0.18,0.57]**
Heterogeneity: Tau²=0; Chi²=1.28, df=2(P=0.53); I²=0%							
Test for overall effect: Z=3.75(P=0)							
16.30.3 Both group and individual formats							
Guinan 2013	16	15.6 (11.4)	10	-8.3 (4.2)		18.78%	2.46[1.39,3.53]
Cadmus 2009	34	129 (117.9)	33	44.3 (89.4)		26.03%	0.8[0.3,1.3]
Irwin 2015	45	159 (136)	38	49 (86)		26.49%	0.94[0.48,1.4]



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Study or subgroup	Physical activity N	Physical activity Mean(SD)	Control N	Control Mean(SD)	Std. Mean Difference Random, 95% CI	Weight	Std. Mean Difference Random, 95% CI
Saarto 2012	262	3.5 (18.3)	236	3.3 (21.5)		28.7%	0.01[-0.17,0.19]
Subtotal ***	**357**		**317**			**100%**	**0.92[0.14,1.7]**
Heterogeneity: Tau²=0.54; Chi²=36.9, df=3(P<0.0001); I²=91.87%							
Test for overall effect: Z=2.32(P=0.02)							

Favours control -5 -2.5 0 2.5 5 Favours physical activity

Analysis 16.31. Comparison 16 Subanalysis: outcomes by format of intervention, Outcome 31 Overall objective physical activity (follow-up values).

Study or subgroup	Physical activity N	Physical activity Mean(SD)	Control N	Control Mean(SD)	Std. Mean Difference Random, 95% CI	Weight	Std. Mean Difference Random, 95% CI
16.31.1 Group format							
Subtotal ***	**0**		**0**				**Not estimable**
Heterogeneity: Not applicable							
Test for overall effect: Not applicable							
16.31.2 Individual format							
Rogers 2013	12	198.4 (111.7)	10	0 (0)			Not estimable
Matthews 2007	22	330.8 (114.7)	14	198.5 (55.4)		10.14%	1.34[0.6,2.09]
Rogers 2014	20	294 (175)	22	154 (75)		11.58%	1.04[0.39,1.69]
Kim 2015	20	17.6 (16)	19	11.8 (11.6)		11.79%	0.4[-0.23,1.04]
Pinto 2015	36	70.3 (65.9)	32	16.5 (31.9)		13.95%	1.01[0.5,1.52]
Pinto 2005	39	37.5 (14.3)	43	33.6 (19.4)		15.25%	0.22[-0.21,0.66]
Vallance 2007	253	8110.5 (4133.9)	85	8028 (3457)		18.52%	0.02[-0.23,0.27]
Short 2014	219	9363.1 (7922.8)	111	8301.2 (3373.4)		18.77%	0.16[-0.07,0.39]
Subtotal ***	**621**		**336**			**100%**	**0.51[0.18,0.85]**
Heterogeneity: Tau²=0.14; Chi²=26.54, df=6(P=0); I²=77.4%							
Test for overall effect: Z=3.01(P=0)							
16.31.3 Both group and individual formats							
Guinan 2013	16	30.7 (15.6)	9	31 (15.6)		6.69%	-0.02[-0.84,0.8]
Rogers 2009	20	252191 (91893)	18	210917 (64078)		10.63%	0.51[-0.14,1.15]
Cadmus 2009	33	6738 (2958)	34	5537 (3352)		19.1%	0.38[-0.11,0.86]
Rogers 2015	110	246 (153)	112	197 (138)		63.57%	0.34[0.07,0.6]
Subtotal ***	**179**		**173**			**100%**	**0.34[0.13,0.55]**
Heterogeneity: Tau²=0; Chi²=1.01, df=3(P=0.8); I²=0%							
Test for overall effect: Z=3.13(P=0)							

Favours control -5 -2.5 0 2.5 5 Favours physical activity

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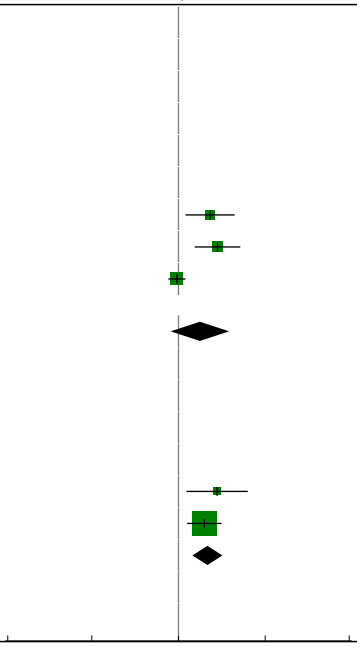
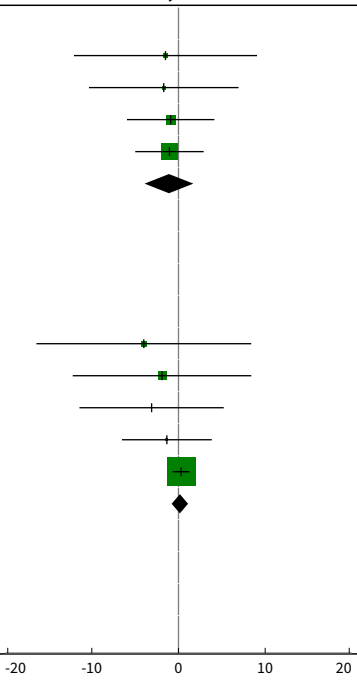
Analysis 16.32. Comparison 16 Subanalysis: outcomes by format of intervention, Outcome 32 Overall objective physical activity (change values).

Study or subgroup	Physical activity N	Physical activity Mean(SD)	Control N	Control Mean(SD)	Std. Mean Difference Random, 95% CI	Weight	Std. Mean Difference Random, 95% CI
16.32.1 Group format							
Subtotal ***	**0**		**0**				**Not estimable**
Heterogeneity: Not applicable							
Test for overall effect: Not applicable							
16.32.2 Individual format							
Matthews 2007	22	72.2 (114.6)	14	-16.8 (51.5)		30.65%	0.91[0.2,1.62]
Rogers 2014	20	114 (109)	22	10 (70)		31.58%	1.13[0.47,1.78]
Vallance 2007	253	-150 (5173.3)	85	91 (5155.4)		37.77%	-0.05[-0.29,0.2]
Subtotal ***	**295**		**121**			**100%**	**0.62[-0.23,1.46]**
Heterogeneity: Tau^2=0.48; Chi^2=15.36, df=2(P=0); I^2=86.98%							
Test for overall effect: Z=1.43(P=0.15)							
16.32.3 Both group and individual formats							
Guinan 2013	16	-1.1 (6.2)	9	-7.9 (5.3)		24%	1.11[0.23,2]
Cadmus 2009	33	1621 (2108)	34	-60 (2341)		76%	0.75[0.25,1.24]
Subtotal ***	**49**		**43**			**100%**	**0.83[0.4,1.27]**
Heterogeneity: Tau^2=0; Chi^2=0.51, df=1(P=0.48); I^2=0%							
Test for overall effect: Z=3.78(P=0)							



Analysis 16.33. Comparison 16 Subanalysis: outcomes by format of intervention, Outcome 33 Mass (follow-up values).

Study or subgroup	Physical activity N	Physical activity Mean(SD)	Control N	Control Mean(SD)	Mean Difference Fixed, 95% CI	Weight	Mean Difference Fixed, 95% CI
16.33.1 Group format							
Mustian 2004	11	67.1 (10.4)	10	68.6 (13.8)		7.12%	-1.5[-12.06,9.06]
Herrero 2006	8	65.6 (8.7)	8	67.3 (8.9)		10.67%	-1.7[-10.32,6.92]
Murtezani 2014	30	71.7 (9.5)	32	72.6 (10.8)		31.21%	-0.9[-5.94,4.14]
Schmitz 2009	131	76.2 (15.7)	133	77.2 (17)		51.01%	-1.04[-4.98,2.9]
Subtotal ***	**180**		**183**			**100%**	**-1.1[-3.92,1.72]**
Heterogeneity: Tau^2=0; Chi^2=0.03, df=3(P=1); I^2=0%							
Test for overall effect: Z=0.76(P=0.44)							
16.33.2 Individual format							
Matthews 2007	22	74.9 (15.2)	14	78.9 (20.3)		0.58%	-4[-16.39,8.39]
Courneya 2003	24	78.2 (20.5)	26	80.1 (16.2)		0.84%	-1.9[-12.2,8.4]
DeNysschen 2011	30	69.3 (14.2)	34	72.4 (19.6)		1.29%	-3.1[-11.42,5.22]
Daley 2007	33	74.3 (12.5)	69	75.6 (12.5)		3.32%	-1.34[-6.52,3.84]
Schmitz 2005	39	69.5 (2.2)	40	69.2 (2.2)		93.96%	0.3[-0.67,1.27]
Subtotal ***	**148**		**183**			**100%**	**0.16[-0.79,1.1]**
Heterogeneity: Tau^2=0; Chi^2=1.58, df=4(P=0.81); I^2=0%							
Test for overall effect: Z=0.33(P=0.74)							
16.33.3 Both group and individual formats							



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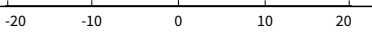
Study or subgroup	Physical activity N	Physical activity Mean(SD)	Control N	Control Mean(SD)	Mean Difference Fixed, 95% CI	Weight	Mean Difference Fixed, 95% CI
Nikander 2007	14	73.5 (13.3)	14	75.5 (12)		0.65%	-2[-11.38,7.38]
Cadmus 2009	36	80.7 (16.9)	33	78.5 (20.6)		0.72%	2.22[-6.72,11.16]
Ligibel 2008	40	80 (17.5)	42	83.3 (18.7)		0.94%	-3.3[-11.14,4.54]
Littman 2012	28	81.1 (13.6)	27	81.3 (14.3)		1.05%	-0.2[-7.58,7.18]
Winters-Stone 2011	36	76.5 (15.6)	31	74.2 (12.3)		1.28%	2.3[-4.39,8.99]
Kiecolt-Glaser 2014	96	75.2 (2.8)	90	75.2 (2.6)		95.36%	0[-0.78,0.78]
Subtotal ***	**250**		**237**			**100%**	**-0[-0.76,0.76]**
Heterogeneity: Tau²=0; Chi²=1.55, df=5(P=0.91); I²=0%							
Test for overall effect: Z=0(P=1)							

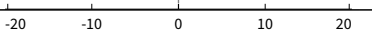


Analysis 16.34. Comparison 16 Subanalysis: outcomes by format of intervention, Outcome 34 Mass (change values).

Study or subgroup	Physical activity N	Physical activity Mean(SD)	Control N	Control Mean(SD)	Mean Difference Random, 95% CI	Weight	Mean Difference Random, 95% CI
16.34.1 Group format							
Mustian 2004	9	-0.3 (1.9)	10	0.6 (1.4)		28.45%	-0.9[-2.4,0.6]
Schmitz 2009	65	-1 (3.7)	65	-0.4 (4.3)		32.85%	-0.6[-1.98,0.78]
Murtezani 2014	30	-2.3 (2.4)	32	-0.3 (2.6)		38.7%	-2[-3.24,-0.76]
Subtotal ***	**104**		**107**			**100%**	**-1.23[-2.1,-0.35]**
Heterogeneity: Tau²=0.11; Chi²=2.46, df=2(P=0.29); I²=18.57%							
Test for overall effect: Z=2.75(P=0.01)							
16.34.2 Individual format							
Matthews 2007	22	0 (2.1)	14	0 (2.2)		1.61%	-0.03[-1.46,1.4]
Naumann 2012	11	0.5 (1.3)	10	0.1 (1.5)		2.18%	0.33[-0.9,1.56]
Courneya 2003	24	0.1 (2)	26	0.7 (1.8)		2.93%	-0.6[-1.66,0.46]
Schmitz 2005	39	0.3 (0.4)	40	0.2 (0.4)		93.29%	0.12[-0.07,0.31]
Subtotal ***	**96**		**90**			**100%**	**0.1[-0.08,0.28]**
Heterogeneity: Tau²=0; Chi²=1.89, df=3(P=0.59); I²=0%							
Test for overall effect: Z=1.09(P=0.27)							
16.34.3 Both group and individual formats							
Irwin 2015	45	-2.1 (4.3)	38	0.1 (3.6)		25.73%	-2.2[-3.9,-0.5]
Ligibel 2008	22	0 (2.3)	14	0 (2.2)		29.23%	-0.04[-1.52,1.44]
Saarto 2012	262	0.7 (3.7)	236	0.7 (3.8)		45.03%	-0.01[-0.67,0.65]
Subtotal ***	**329**		**288**			**100%**	**-0.58[-1.8,0.63]**
Heterogeneity: Tau²=0.74; Chi²=5.64, df=2(P=0.06); I²=64.52%							
Test for overall effect: Z=0.94(P=0.35)							

Analysis 16.35. Comparison 16 Subanalysis: outcomes by format of intervention, Outcome 35 BMI (follow-up values).

Study or subgroup	Physical activity N	Physical activity Mean(SD)	Control N	Control Mean(SD)	Mean Difference Fixed, 95% CI	Weight	Mean Difference Fixed, 95% CI
16.35.1 Group format							



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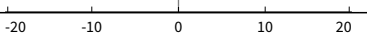
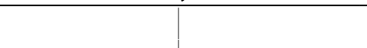
Study or subgroup	Physical activity N	Physical activity Mean(SD)	Control N	Control Mean(SD)	Mean Difference Fixed, 95% CI	Weight	Mean Difference Fixed, 95% CI
Mustian 2004	11	23.9 (4.2)	10	26.7 (5.6)		5.87%	-2.8[-7.05,1.45]
Murtezani 2014	30	25.1 (2.9)	32	25.8 (3.5)		42.07%	-0.7[-2.29,0.89]
Schmitz 2009	131	28.5 (5.6)	133	28.9 (6.3)		52.05%	-0.48[-1.91,0.95]
Subtotal ***	**172**		**175**			**100%**	**-0.71[-1.74,0.32]**
Heterogeneity: Tau²=0; Chi²=1.03, df=2(P=0.6); I²=0%							
Test for overall effect: Z=1.35(P=0.18)							
16.35.2 Individual format							
Portela 2008	25	29.1 (5.5)	9	34.7 (15)		0.09%	-5.6[-15.63,4.43]
Rogers 2013	12	33.6 (7)	10	30.6 (7.3)		0.26%	3[-3,9]
Courneya 2003	24	29.4 (7.4)	26	29.3 (6)		0.68%	0.1[-3.65,3.85]
Rogers 2014	20	29.6 (5)	22	32.2 (6.7)		0.75%	-2.6[-6.16,0.96]
Pinto 2005	39	27.7 (5)	43	29 (5.6)		1.8%	-1.35[-3.65,0.95]
Vallance 2007	253	27 (5.2)	85	27.2 (5.2)		5.91%	-0.19[-1.46,1.08]
Schmitz 2005	39	26 (0.7)	40	25.8 (0.7)		90.51%	0.2[-0.12,0.52]
Subtotal ***	**412**		**235**			**100%**	**0.13[-0.18,0.44]**
Heterogeneity: Tau²=0; Chi²=6.41, df=6(P=0.38); I²=6.37%							
Test for overall effect: Z=0.82(P=0.41)							
16.35.3 Both group and individual formats							
Rogers 2009	20	30.6 (7.6)	18	30.4 (8.3)		0.32%	0.2[-4.88,5.28]
Nikander 2007	14	26.9 (5.6)	14	27.7 (4.9)		0.54%	-0.8[-4.7,3.1]
Cadmus 2009	36	30.5 (6)	33	29.9 (7.6)		0.78%	0.55[-2.7,3.8]
Ligibel 2008	40	30.3 (6.3)	42	31.5 (6.8)		1.02%	-1.2[-4.04,1.64]
Littman 2012	28	27.7 (5)	27	29 (5.6)		1.03%	-1.35[-4.17,1.47]
Kiecolt-Glaser 2014	96	27.8 (1.1)	90	27.8 (1)		96.31%	0[-0.29,0.29]
Subtotal ***	**234**		**224**			**100%**	**-0.03[-0.31,0.26]**
Heterogeneity: Tau²=0; Chi²=1.82, df=5(P=0.87); I²=0%							
Test for overall effect: Z=0.18(P=0.86)							



Analysis 16.36. Comparison 16 Subanalysis: outcomes by format of intervention, Outcome 36 BMI (change values).

Study or subgroup	Physical activity N	Physical activity Mean(SD)	Control N	Control Mean(SD)	Mean Difference Random, 95% CI	Weight	Mean Difference Random, 95% CI
16.36.1 Group format							
Schmitz 2009	65	-1 (3.7)	65	-0.4 (4.3)		5.1%	-0.6[-1.98,0.78]
Mustian 2004	9	-0.4 (0.8)	10	0.3 (0.6)		25.34%	-0.71[-1.33,-0.09]
Murtezani 2014	30	-0.8 (0.7)	32	-0.1 (0.8)		69.55%	-0.66[-1.03,-0.29]
Subtotal ***	**104**		**107**			**100%**	**-0.67[-0.98,-0.36]**
Heterogeneity: Tau²=0; Chi²=0.03, df=2(P=0.99); I²=0%							
Test for overall effect: Z=4.21(P<0.0001)							
16.36.2 Individual format							
Naumann 2012	11	0.1 (0.5)	10	-0.1 (0.6)		13.09%	0.2[-0.26,0.66]
Courneya 2003	24	0 (0.7)	26	0.3 (0.7)		17.24%	-0.3[-0.69,0.09]
Schmitz 2005	39	0.1 (0.2)	40	0.1 (0.2)		69.67%	-0.01[-0.08,0.06]
Subtotal ***	**74**		**76**			**100%**	**-0.03[-0.22,0.15]**
Heterogeneity: Tau²=0.01; Chi²=2.92, df=2(P=0.23); I²=31.6%							



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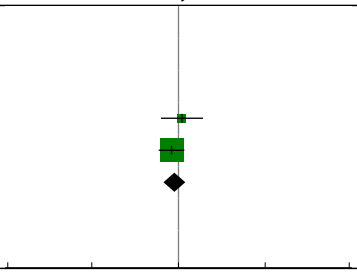
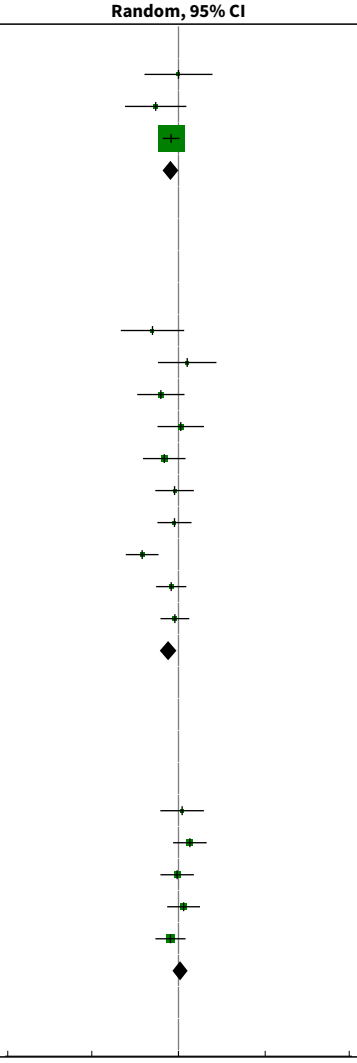
Study or subgroup	Physical activity N	Physical activity Mean(SD)	Control N	Control Mean(SD)	Mean Difference Random, 95% CI	Weight	Mean Difference Random, 95% CI
Test for overall effect: Z=0.35(P=0.73)							
16.36.3 Both group and individual formats							
Rogers 2014	20	-0.2 (0.9)	22	-0.3 (1.1)		27.09%	0.1[-0.51,0.71]
Ligibel 2008	40	0 (0.9)	42	0.2 (0.8)		72.91%	-0.2[-0.57,0.17]
Subtotal ***	**60**		**64**			**100%**	**-0.12[-0.43,0.2]**
Heterogeneity: Tau²=0; Chi²=0.69, df=1(P=0.41); I²=0%							
Test for overall effect: Z=0.74(P=0.46)							



Analysis 16.37. Comparison 16 Subanalysis: outcomes by format of intervention, Outcome 37 Overall body fat (follow-up values).

Study or subgroup	Physical activity N	Physical activity Mean(SD)	Control N	Control Mean(SD)	Std. Mean Difference Random, 95% CI	Weight	Std. Mean Difference Random, 95% CI
16.37.1 Group format							
Herrero 2006	8	22 (5)	8	22 (4)		5.4%	0[-0.98,0.98]
Mustian 2004	11	38.5 (4.5)	10	41.7 (4.9)		6.64%	-0.66[-1.54,0.23]
Schmitz 2009	130	38.5 (5.9)	132	39.7 (5.9)		87.96%	-0.21[-0.46,0.03]
Subtotal ***	**149**		**150**			**100%**	**-0.23[-0.46,-0]**
Heterogeneity: Tau²=0; Chi²=1.12, df=2(P=0.57); I²=0%							
Test for overall effect: Z=2(P=0.05)							
16.37.2 Individual format							
Cerulli 2014	10	26.7 (5.3)	10	30.6 (4.4)		5.37%	-0.75[-1.66,0.16]
Rogers 2013	10	44.2 (6.7)	12	42.3 (7.7)		6.07%	0.25[-0.59,1.09]
Matthews 2007	22	39.7 (6.3)	14	43.1 (6.9)		8.2%	-0.51[-1.19,0.17]
Musanti 2012	30	34.1 (6.6)	12	33.7 (5.7)		8.39%	0.07[-0.6,0.74]
Rogers 2014	20	38.6 (6.4)	22	41.5 (7.4)		9.39%	-0.41[-1.02,0.2]
Courneya 2003	24	131.9 (46.4)	26	137.1 (44.4)		10.54%	-0.11[-0.67,0.44]
DeNysschen 2011	30	36.9 (8.4)	34	38 (10.2)		12.01%	-0.12[-0.61,0.38]
Schmitz 2005	39	40.9 (1.3)	40	42.3 (1.3)		12.5%	-1.05[-1.52,-0.58]
Pinto 2005	39	37.5 (4.8)	43	38.6 (4.8)		13.49%	-0.21[-0.64,0.22]
Daley 2007	33	39.4 (4.7)	69	40.1 (7.4)		14.03%	-0.1[-0.52,0.31]
Subtotal ***	**257**		**282**			**100%**	**-0.3[-0.54,-0.06]**
Heterogeneity: Tau²=0.06; Chi²=15.84, df=9(P=0.07); I²=43.16%							
Test for overall effect: Z=2.44(P=0.01)							
16.37.3 Both group and individual formats							
Rogers 2009	20	44.3 (7.4)	19	43.5 (7.5)		12.13%	0.11[-0.52,0.73]
Winters-Stone 2011	36	40.5 (6.2)	31	38.5 (5.8)		20.47%	0.33[-0.16,0.81]
Saarto 2012	37	39.9 (7.5)	30	40.2 (8)		20.65%	-0.04[-0.52,0.44]
Cadmus 2009	36	40.5 (6.6)	33	39.6 (6)		21.4%	0.15[-0.33,0.62]
Ligibel 2008	40	42.9 (7.4)	42	44.7 (8)		25.36%	-0.23[-0.67,0.2]
Subtotal ***	**169**		**155**			**100%**	**0.05[-0.17,0.26]**
Heterogeneity: Tau²=0; Chi²=3.2, df=4(P=0.52); I²=0%							
Test for overall effect: Z=0.4(P=0.69)							



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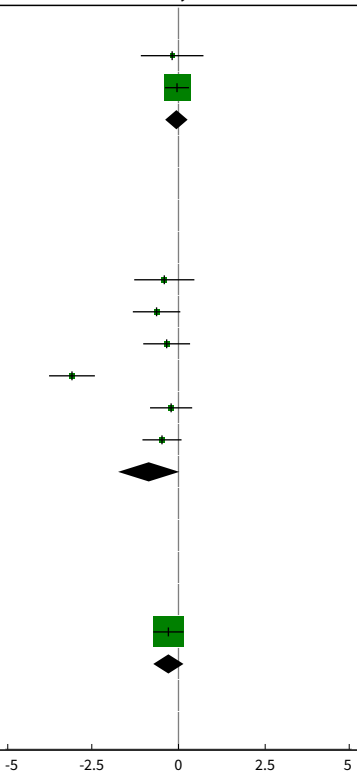
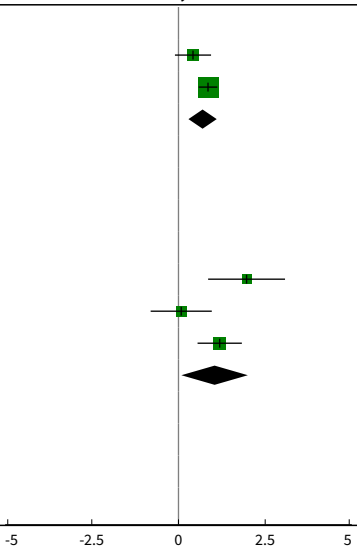
Analysis 16.38. Comparison 16 Subanalysis: outcomes by format of intervention, Outcome 38 Overall body fat (change values).

Study or subgroup	Physical activity N	Physical activity Mean(SD)	Control N	Control Mean(SD)	Std. Mean Difference Random, 95% CI	Weight	Std. Mean Difference Random, 95% CI
16.38.1 Group format							
Mustian 2004	9	-0.2 (2.9)	10	0.3 (1.6)		12.84%	-0.18[-1.09,0.72]
Schmitz 2009	65	-0.3 (5.7)	63	-0.1 (3.3)		87.16%	-0.04[-0.39,0.3]
Subtotal ***	**74**		**73**			**100%**	**-0.06[-0.38,0.26]**
Heterogeneity: Tau²=0; Chi²=0.08, df=1(P=0.78); I²=0%							
Test for overall effect: Z=0.37(P=0.71)							
16.38.2 Individual format							
Naumann 2012	11	-0.3 (2.4)	10	0.8 (2.8)		15.69%	-0.41[-1.28,0.46]
Musanti 2012	30	-0.2 (2.8)	12	1.4 (1.6)		16.65%	-0.63[-1.32,0.05]
Matthews 2007	22	-0.2 (1.6)	14	0.4 (1.9)		16.69%	-0.34[-1.02,0.33]
Schmitz 2005	39	-1.1 (0.5)	40	0.2 (0.4)		16.76%	-3.07[-3.73,-2.41]
Rogers 2014	20	-1.1 (2.2)	22	-0.6 (2.4)		17.01%	-0.21[-0.82,0.39]
Courneya 2003	24	-4.9 (15.7)	26	5.1 (24.4)		17.2%	-0.48[-1.04,0.09]
Subtotal ***	**146**		**124**			**100%**	**-0.86[-1.74,0.02]**
Heterogeneity: Tau²=1.1; Chi²=52.97, df=5(P<0.0001); I²=90.56%							
Test for overall effect: Z=1.91(P=0.06)							
16.38.3 Both group and individual formats							
Ligibel 2008	40	-0.2 (1.7)	42	0.3 (1.7)		100%	-0.29[-0.73,0.14]
Subtotal ***	**40**		**42**			**100%**	**-0.29[-0.73,0.14]**
Heterogeneity: Not applicable							
Test for overall effect: Z=1.31(P=0.19)							



Analysis 16.39. Comparison 16 Subanalysis: outcomes by format of intervention, Outcome 39 Lower body strength (follow-up values).

Study or subgroup	Physical activity N	Physical activity Mean(SD)	Control N	Control Mean(SD)	Std. Mean Difference Random, 95% CI	Weight	Std. Mean Difference Random, 95% CI
16.39.1 Group format							
Milne 2008	29	66.2 (10.2)	29	61.7 (11)		36.19%	0.42[-0.1,0.94]
Schmitz 2009	113	223.4 (59.6)	119	175.1 (53.5)		63.81%	0.85[0.58,1.12]
Subtotal ***	**142**		**148**			**100%**	**0.69[0.29,1.1]**
Heterogeneity: Tau²=0.05; Chi²=2.09, df=1(P=0.15); I²=52.25%							
Test for overall effect: Z=3.34(P=0)							
16.39.2 Individual format							
Cerulli 2014	10	114.9 (17.1)	10	79.1 (17.8)		28.53%	1.96[0.85,3.07]
Rogers 2013	11	68.4 (15.5)	9	67.1 (16.2)		33.19%	0.08[-0.8,0.96]
Schmitz 2005	23	296.6 (48.9)	22	238.9 (46.4)		38.29%	1.19[0.55,1.83]
Subtotal ***	**44**		**41**			**100%**	**1.04[0.08,2]**
Heterogeneity: Tau²=0.52; Chi²=7.43, df=2(P=0.02); I²=73.08%							
Test for overall effect: Z=2.13(P=0.03)							
16.39.3 Both group and individual formats							



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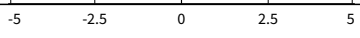
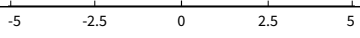
Study or subgroup	Physical activity N	Physical activity Mean(SD)	Control N	Control Mean(SD)	Std. Mean Difference Random, 95% CI	Weight	Std. Mean Difference Random, 95% CI
Nikander 2007	14	1305 (177)	14	1393 (275)		16.72%	-0.37[-1.12,0.38]
Rogers 2009	20	80.3 (27)	18	64.9 (19.7)		20.58%	0.63[-0.02,1.29]
Saarto 2012	37	136 (23)	30	136 (29)		31.34%	0[-0.48,0.48]
Winters-Stone 2011	36	201.3 (57.4)	31	191 (51.7)		31.36%	0.19[-0.3,0.67]
Subtotal ***	**107**		**93**			**100%**	**0.13[-0.22,0.47]**
Heterogeneity: Tau^2=0.04; Chi^2=4.31, df=3(P=0.23); I^2=30.4%							
Test for overall effect: Z=0.72(P=0.47)							



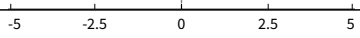
Analysis 16.40. Comparison 16 Subanalysis: outcomes by format of intervention, Outcome 40 Lower body strength (change values).

Study or subgroup	Physical activity N	Physical activity Mean(SD)	Control N	Control Mean(SD)	Std. Mean Difference Random, 95% CI	Weight	Std. Mean Difference Random, 95% CI
16.40.1 Group format							
Cormie 2014	43	37.6 (25.5)	19	6.7 (25.7)		23.74%	1.19[0.61,1.78]
Schmitz 2009	113	33.2 (33.9)	119	7.9 (26.6)		76.26%	0.83[0.56,1.1]
Subtotal ***	**156**		**138**			**100%**	**0.92[0.61,1.22]**
Heterogeneity: Tau^2=0.01; Chi^2=1.24, df=1(P=0.27); I^2=19.09%							
Test for overall effect: Z=5.93(P<0.0001)							
16.40.2 Individual format							
Naumann 2012	11	7.7 (12.6)	10	3.5 (13.9)		23.44%	0.3[-0.56,1.17]
Schmitz 2005	23	81.8 (48.9)	22	20.3 (46)		30.72%	1.27[0.63,1.92]
Waltman 2010	110	4.4 (11.5)	113	0.2 (8.4)		45.84%	0.42[0.15,0.69]
Subtotal ***	**144**		**145**			**100%**	**0.65[0.09,1.22]**
Heterogeneity: Tau^2=0.17; Chi^2=5.98, df=2(P=0.05); I^2=66.58%							
Test for overall effect: Z=2.26(P=0.02)							
16.40.3 Both group and individual formats							
Subtotal ***	**0**		**0**				**Not estimable**
Heterogeneity: Not applicable							
Test for overall effect: Not applicable							



Analysis 16.41. Comparison 16 Subanalysis: outcomes by format of intervention, Outcome 41 Upper body strength (follow-up values).

Study or subgroup	Physical activity N	Physical activity Mean(SD)	Control N	Control Mean(SD)	Std. Mean Difference Random, 95% CI	Weight	Std. Mean Difference Random, 95% CI
16.41.1 Group format							
Mustian 2004	11	29.6 (3.3)	10	26.7 (5.7)		21.57%	0.6[-0.28,1.49]
Kaltsatou 2011	28	59.6 (8.5)	26	47.6 (9.8)		24.97%	1.29[0.7,1.88]
Milne 2008	29	7.6 (2.9)	29	9.4 (2.6)		25.63%	-0.64[-1.17,-0.12]
Schmitz 2009	113	52.9 (15.3)	119	40.9 (11.8)		27.82%	0.88[0.61,1.15]
Subtotal ***	**181**		**184**			**100%**	**0.53[-0.29,1.35]**
Heterogeneity: Tau^2=0.61; Chi^2=30.31, df=3(P<0.0001); I^2=90.1%							



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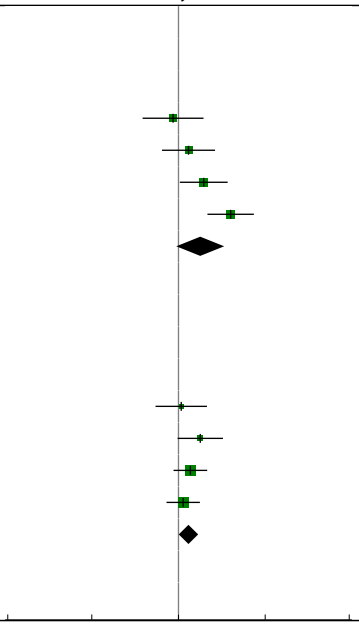
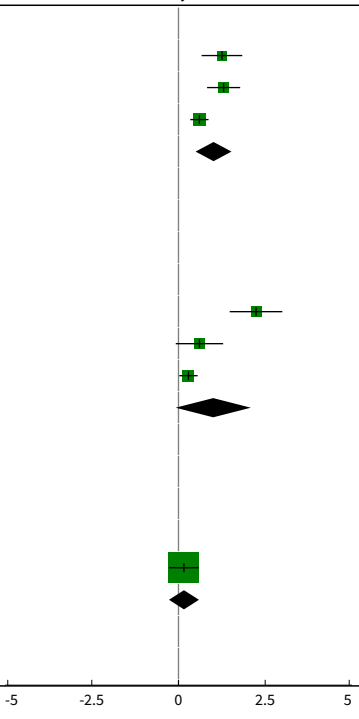
Study or subgroup	Physical activity N	Physical activity Mean(SD)	Control N	Control Mean(SD)	Std. Mean Difference Random, 95% CI	Weight	Std. Mean Difference Random, 95% CI
Test for overall effect: Z=1.27(P=0.2)							
16.41.2 Individual format							
Cerulli 2014	10	16.1 (5.4)	10	17.2 (8.1)		22.53%	-0.16[-1.03,0.72]
Portela 2008	25	39.3 (12.3)	9	35.6 (13.1)		24.69%	0.29[-0.48,1.05]
Musanti 2012	30	52.1 (21)	12	36.8 (20)		26.19%	0.73[0.04,1.42]
Schmitz 2005	23	83 (13.4)	22	63 (12.7)		26.59%	1.5[0.84,2.17]
Subtotal ***	**88**		**53**			**100%**	**0.63[-0.06,1.32]**
Heterogeneity: Tau²=0.35; Chi²=10.32, df=3(P=0.02); I²=70.92%							
Test for overall effect: Z=1.78(P=0.08)							
16.41.3 Both group and individual formats							
Nikander 2007	14	131 (20)	14	129 (28)		14.3%	0.08[-0.66,0.82]
Rogers 2009	20	27.9 (5)	18	24.3 (6.2)		18.36%	0.63[-0.03,1.28]
Saarto 2012	37	32.7 (5.3)	30	30.8 (5.7)		33.36%	0.34[-0.14,0.83]
Winters-Stone 2011	36	63.3 (15.3)	31	61.1 (16.8)		33.98%	0.14[-0.34,0.62]
Subtotal ***	**107**		**93**			**100%**	**0.29[0.01,0.57]**
Heterogeneity: Tau²=0; Chi²=1.78, df=3(P=0.62); I²=0%							
Test for overall effect: Z=2.01(P=0.04)							



Analysis 16.42. Comparison 16 Subanalysis: outcomes by format of intervention, Outcome 42 Upper body strength (change values).

Study or subgroup	Physical activity N	Physical activity Mean(SD)	Control N	Control Mean(SD)	Std. Mean Difference Random, 95% CI	Weight	Std. Mean Difference Random, 95% CI
16.42.1 Group format							
Cormie 2014	43	5.7 (3.7)	19	1 (3.8)		28.22%	1.25[0.67,1.84]
Mustian 2004	45	4.5 (4.7)	38	-0.8 (3.2)		32.13%	1.3[0.82,1.78]
Schmitz 2009	113	33.2 (40.8)	119	7.6 (43.7)		39.65%	0.6[0.34,0.87]
Subtotal ***	**201**		**176**			**100%**	**1.01[0.49,1.53]**
Heterogeneity: Tau²=0.16; Chi²=8.61, df=2(P=0.01); I²=76.77%							
Test for overall effect: Z=3.82(P=0)							
16.42.2 Individual format							
Schmitz 2005	23	32.3 (11.5)	22	6.9 (10.8)		31.39%	2.24[1.48,2.99]
Musanti 2012	30	7.7 (10.6)	12	0.8 (12.7)		32.33%	0.6[-0.08,1.29]
Waltman 2010	110	1.9 (4.9)	113	0.8 (2.9)		36.28%	0.29[0.02,0.55]
Subtotal ***	**163**		**147**			**100%**	**1[-0.08,2.09]**
Heterogeneity: Tau²=0.83; Chi²=22.68, df=2(P<0.0001); I²=91.18%							
Test for overall effect: Z=1.81(P=0.07)							
16.42.3 Both group and individual formats							
Irwin 2015	45	0.4 (1.9)	38	0.1 (1.9)		100%	0.16[-0.27,0.59]
Subtotal ***	**45**		**38**			**100%**	**0.16[-0.27,0.59]**
Heterogeneity: Not applicable							
Test for overall effect: Z=0.71(P=0.47)							



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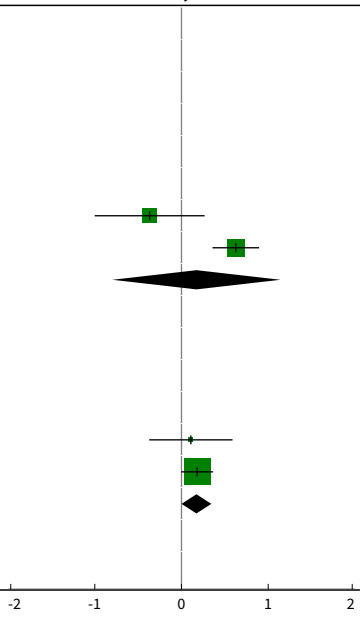
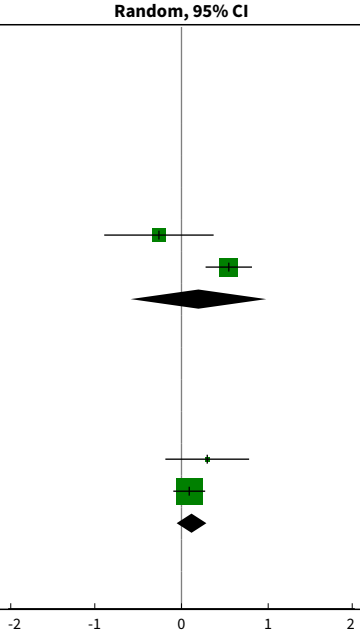
Analysis 16.43. Comparison 16 Subanalysis: outcomes by format of intervention, Outcome 43 Bone mineral density - femoral neck (follow-up and change values).

Study or subgroup	Physical activity N	Physical activity Mean(SD)	Control N	Control Mean(SD)	Std. Mean Difference Random, 95% CI	Weight	Std. Mean Difference Random, 95% CI
16.43.1 Group format							
Subtotal ***	**0**		**0**				**Not estimable**
Heterogeneity: Not applicable							
Test for overall effect: Not applicable							
16.43.2 Individual format							
Kim 2015	20	0.8 (0.1)	19	0.8 (0.1)		45.66%	-0.37[-1,0.27]
Waltman 2010	110	0.9 (0.5)	113	0.6 (0.4)		54.34%	0.63[0.36,0.9]
Subtotal ***	**130**		**132**			**100%**	**0.17[-0.8,1.14]**
Heterogeneity: Tau^2=0.43; Chi^2=8.01, df=1(P=0); I^2=87.51%							
Test for overall effect: Z=0.35(P=0.73)							
16.43.3 Both group and individual formats							
Winters-Stone 2011	36	0.7 (0.1)	31	0.7 (0.1)		12.78%	0.11[-0.37,0.59]
Saarto 2012	239	-0 (0)	218	-0 (0)		87.22%	0.18[-0,0.37]
Subtotal ***	**275**		**249**			**100%**	**0.17[0,0.34]**
Heterogeneity: Tau^2=0; Chi^2=0.08, df=1(P=0.78); I^2=0%							
Test for overall effect: Z=1.96(P=0.05)							



Analysis 16.44. Comparison 16 Subanalysis: outcomes by format of intervention, Outcome 44 Bone mineral density - lumbar spine (follow-up and change values).

Study or subgroup	Physical activity N	Physical activity Mean(SD)	Control N	Control Mean(SD)	Std. Mean Difference Random, 95% CI	Weight	Std. Mean Difference Random, 95% CI
16.44.1 Group format							
Subtotal ***	**0**		**0**				**Not estimable**
Heterogeneity: Not applicable							
Test for overall effect: Not applicable							
16.44.2 Individual format							
Kim 2015	20	1 (0.1)	19	1 (0.1)		43.45%	-0.26[-0.89,0.37]
Waltman 2010	110	3.1 (0.4)	113	2.9 (0.4)		56.55%	0.55[0.28,0.81]
Subtotal ***	**130**		**132**			**100%**	**0.2[-0.59,0.98]**
Heterogeneity: Tau^2=0.26; Chi^2=5.31, df=1(P=0.02); I^2=81.17%							
Test for overall effect: Z=0.49(P=0.62)							
16.44.3 Both group and individual formats							
Winters-Stone 2011	36	1 (0.2)	31	1 (0.1)		12.63%	0.3[-0.19,0.78]
Saarto 2012	239	-0 (0)	218	-0 (0)		87.37%	0.09[-0.09,0.27]
Subtotal ***	**275**		**249**			**100%**	**0.12[-0.06,0.29]**
Heterogeneity: Tau^2=0; Chi^2=0.62, df=1(P=0.43); I^2=0%							
Test for overall effect: Z=1.32(P=0.19)							



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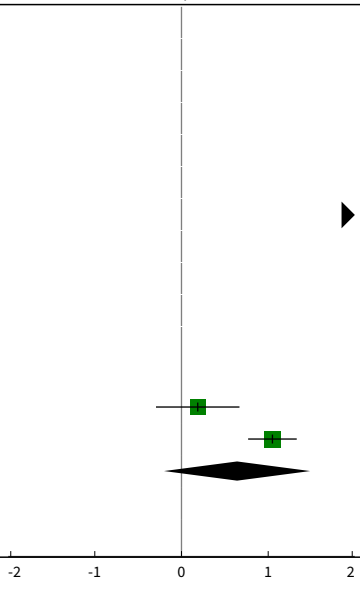
Analysis 16.45. Comparison 16 Subanalysis: outcomes by format of intervention, Outcome 45 Bone mineral density - total hip (follow-up and change values).

Study or subgroup	Physical activity N	Physical activity Mean(SD)	Control N	Control Mean(SD)	Std. Mean Difference Random, 95% CI	Weight	Std. Mean Difference Random, 95% CI
16.45.1 Group format							
Subtotal ***	**0**		**0**				**Not estimable**
Heterogeneity: Not applicable							
Test for overall effect: Not applicable							
16.45.2 Individual format							
Kim 2015	20	0.9 (0.1)	19	0.1 (0.1)		100%	10.34[7.84,12.84]
Subtotal ***	**20**		**19**			**100%**	**10.34[7.84,12.84]**
Heterogeneity: Not applicable							
Test for overall effect: Z=8.11(P<0.0001)							
16.45.3 Both group and individual formats							
Winters-Stone 2011	36	0.9 (0.1)	31	0.8 (0.1)		47.32%	0.19[-0.29,0.67]
Waltman 2010	110	2.2 (0.3)	113	1.8 (0.4)		52.68%	1.05[0.77,1.33]
Subtotal ***	**146**		**144**			**100%**	**0.64[-0.2,1.48]**
Heterogeneity: Tau²=0.33; Chi²=9.19, df=1(P=0); I²=89.12%							
Test for overall effect: Z=1.49(P=0.14)							



Comparison 17. Subanalysis: outcomes by setting of intervention

Outcome or subgroup title	No. of studies	No. of participants	Statistical method	Effect size
1 Overall HRQoL (follow-up values)	22		Std. Mean Difference (IV, Random, 95% CI)	Subtotals only
1.1 Home-based	5	792	Std. Mean Difference (IV, Random, 95% CI)	0.04 [-0.11, 0.19]
1.2 Facility-based	15	833	Std. Mean Difference (IV, Random, 95% CI)	0.55 [0.27, 0.83]
1.3 Both home- and facility-based	4	227	Std. Mean Difference (IV, Random, 95% CI)	0.48 [0.04, 0.92]
2 Overall HRQoL (change values)	14		Std. Mean Difference (IV, Random, 95% CI)	Subtotals only
2.1 Home-based	2	375	Std. Mean Difference (IV, Random, 95% CI)	0.27 [0.04, 0.50]
2.2 Facility-based	10	492	Std. Mean Difference (IV, Random, 95% CI)	1.18 [0.53, 1.82]
2.3 Both home- and facility-based	3	612	Std. Mean Difference (IV, Random, 95% CI)	0.06 [-0.22, 0.33]

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Outcome or subgroup title	No. of studies	No. of participants	Statistical method	Effect size
3 Overall emotional function/mental health (follow-up values)	26		Std. Mean Difference (IV, Random, 95% CI)	Subtotals only
3.1 Home-based	5	670	Std. Mean Difference (IV, Random, 95% CI)	0.11 [-0.06, 0.27]
3.2 Facility-based	15	901	Std. Mean Difference (IV, Random, 95% CI)	0.31 [0.12, 0.50]
3.3 Both home- and facility-based	6	531	Std. Mean Difference (IV, Random, 95% CI)	0.15 [-0.04, 0.34]
4 Overall emotional function/mental health (change values)	15		Std. Mean Difference (IV, Random, 95% CI)	Subtotals only
4.1 Home-based	2	417	Std. Mean Difference (IV, Random, 95% CI)	0.16 [-0.06, 0.37]
4.2 Facility-based	10	550	Std. Mean Difference (IV, Random, 95% CI)	0.43 [0.04, 0.82]
4.3 Both home- and facility-based	3	612	Std. Mean Difference (IV, Random, 95% CI)	0.09 [-0.16, 0.34]
5 Overall physical function (follow-up values)	25		Std. Mean Difference (IV, Random, 95% CI)	Subtotals only
5.1 Home-based	5	720	Std. Mean Difference (IV, Random, 95% CI)	0.19 [0.03, 0.34]
5.2 Facility-based	13	816	Std. Mean Difference (IV, Random, 95% CI)	0.43 [0.14, 0.73]
5.3 Both home- and facility-based	7	592	Std. Mean Difference (IV, Random, 95% CI)	0.23 [-0.02, 0.48]
6 Overall physical function (change values)	13		Std. Mean Difference (IV, Random, 95% CI)	Subtotals only
6.1 Home-based	1	332	Std. Mean Difference (IV, Random, 95% CI)	0.26 [0.02, 0.51]
6.2 Facility-based	9	489	Std. Mean Difference (IV, Random, 95% CI)	0.95 [0.31, 1.59]
6.3 Both home- and facility-based	3	612	Std. Mean Difference (IV, Random, 95% CI)	-0.08 [-0.24, 0.08]
7 Overall role function (follow-up values)	18		Std. Mean Difference (IV, Random, 95% CI)	Subtotals only
7.1 Home-based	2	386	Std. Mean Difference (IV, Random, 95% CI)	0.26 [-0.14, 0.66]

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Outcome or subgroup title	No. of studies	No. of participants	Statistical method	Effect size
7.2 Facility-based	12	564	Std. Mean Difference (IV, Random, 95% CI)	0.33 [-0.03, 0.69]
7.3 Both home- and facility-based	4	420	Std. Mean Difference (IV, Random, 95% CI)	0.20 [-0.14, 0.54]
8 Overall role function (change values)	12		Std. Mean Difference (IV, Random, 95% CI)	Subtotals only
8.1 Home-based	1	335	Std. Mean Difference (IV, Random, 95% CI)	0.17 [-0.08, 0.41]
8.2 Facility-based	8	368	Std. Mean Difference (IV, Random, 95% CI)	0.26 [-0.06, 0.58]
8.3 Both home- and facility-based	3	612	Std. Mean Difference (IV, Random, 95% CI)	-0.06 [-0.22, 0.10]
9 Overall social well-being/function (follow-up values)	18		Std. Mean Difference (IV, Random, 95% CI)	Subtotals only
9.1 Home-based	2	386	Std. Mean Difference (IV, Random, 95% CI)	-0.01 [-0.23, 0.22]
9.2 Facility-based	11	709	Std. Mean Difference (IV, Random, 95% CI)	0.22 [0.07, 0.37]
9.3 Both home- and facility-based	5	462	Std. Mean Difference (IV, Random, 95% CI)	0.31 [0.03, 0.59]
10 Overall social well-being/function (change values)	12		Std. Mean Difference (IV, Random, 95% CI)	Subtotals only
10.1 Home-based	1	335	Std. Mean Difference (IV, Random, 95% CI)	0.97 [0.71, 1.23]
10.2 Facility-based	7	395	Std. Mean Difference (IV, Random, 95% CI)	0.50 [0.05, 0.95]
10.3 Both home- and facility-based	4	654	Std. Mean Difference (IV, Random, 95% CI)	0.41 [-0.15, 0.96]
11 Overall cognitive function (follow-up values)	5		Std. Mean Difference (IV, Random, 95% CI)	Subtotals only
11.1 Home-based	0	0	Std. Mean Difference (IV, Random, 95% CI)	0.0 [0.0, 0.0]
11.2 Facility-based	3	134	Std. Mean Difference (IV, Random, 95% CI)	0.32 [-0.02, 0.66]
11.3 Both home- and facility-based	2	55	Std. Mean Difference (IV, Random, 95% CI)	0.65 [-0.01, 1.31]

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Outcome or subgroup title	No. of studies	No. of participants	Statistical method	Effect size
12 Overall cognitive function (change values)	5		Std. Mean Difference (IV, Random, 95% CI)	Subtotals only
12.1 Home-based	0	0	Std. Mean Difference (IV, Random, 95% CI)	0.0 [0.0, 0.0]
12.2 Facility-based	3	134	Std. Mean Difference (IV, Random, 95% CI)	0.06 [-0.31, 0.43]
12.3 Both home- and facility-based	2	538	Std. Mean Difference (IV, Random, 95% CI)	0.03 [-0.51, 0.57]
13 Overall general health (follow-up values)	9		Std. Mean Difference (IV, Random, 95% CI)	Subtotals only
13.1 Home-based	2	111	Std. Mean Difference (IV, Random, 95% CI)	0.43 [-0.32, 1.17]
13.2 Facility-based	6	273	Std. Mean Difference (IV, Random, 95% CI)	0.25 [0.01, 0.49]
13.3 Both home- and facility-based	2	112	Std. Mean Difference (IV, Random, 95% CI)	-0.26 [-0.64, 0.11]
14 Overall general health (change values)	5		Std. Mean Difference (IV, Random, 95% CI)	Subtotals only
14.1 Home-based	1	40	Std. Mean Difference (IV, Random, 95% CI)	0.42 [-0.21, 1.05]
14.2 Facility-based	2	59	Std. Mean Difference (IV, Random, 95% CI)	0.27 [-0.49, 1.03]
14.3 Both home- and facility-based	3	612	Std. Mean Difference (IV, Random, 95% CI)	-0.07 [-0.23, 0.09]
15 Overall sexual function (follow-up values)	5		Std. Mean Difference (IV, Fixed, 95% CI)	Subtotals only
15.1 Home-based	2	136	Std. Mean Difference (IV, Fixed, 95% CI)	-0.00 [-0.34, 0.34]
15.2 Facility-based	2	193	Std. Mean Difference (IV, Fixed, 95% CI)	0.21 [-0.07, 0.49]
15.3 Both home- and facility-based	1	82	Std. Mean Difference (IV, Fixed, 95% CI)	0.29 [-0.14, 0.73]
16 Overall sexual function (change values)	3		Mean Difference (IV, Random, 95% CI)	Subtotals only
16.1 Home-based	0	0	Mean Difference (IV, Random, 95% CI)	0.0 [0.0, 0.0]
16.2 Facility-based	2	193	Mean Difference (IV, Random, 95% CI)	3.83 [-1.83, 9.48]
16.3 Both home- and facility-based	1	500	Mean Difference (IV, Random, 95% CI)	0.5 [-3.86, 4.86]

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Outcome or subgroup title	No. of studies	No. of participants	Statistical method	Effect size
17 Overall sleep (follow-up values)	5		Std. Mean Difference (IV, Fixed, 95% CI)	Subtotals only
17.1 Home-based	0	0	Std. Mean Difference (IV, Fixed, 95% CI)	0.0 [0.0, 0.0]
17.2 Facility-based	2	88	Std. Mean Difference (IV, Fixed, 95% CI)	-0.26 [-0.68, 0.16]
17.3 Both home- and facility-based	3	100	Std. Mean Difference (IV, Fixed, 95% CI)	0.06 [-0.33, 0.46]
18 Overall sleep (change values)	3		Std. Mean Difference (IV, Random, 95% CI)	Subtotals only
18.1 Home-based	0	0	Std. Mean Difference (IV, Random, 95% CI)	0.0 [0.0, 0.0]
18.2 Facility-based	1	56	Std. Mean Difference (IV, Random, 95% CI)	0.14 [-0.38, 0.67]
18.3 Both home- and facility-based	2	80	Std. Mean Difference (IV, Random, 95% CI)	0.14 [-0.30, 0.58]
19 Overall anxiety (follow-up values)	7		Std. Mean Difference (IV, Random, 95% CI)	Subtotals only
19.1 Home-based	0	0	Std. Mean Difference (IV, Random, 95% CI)	0.0 [0.0, 0.0]
19.2 Facility-based	4	192	Std. Mean Difference (IV, Random, 95% CI)	-0.87 [-1.34, -0.41]
19.3 Both home- and facility-based	3	134	Std. Mean Difference (IV, Random, 95% CI)	-0.14 [-0.48, 0.21]
20 Overall anxiety (change values)	4		Std. Mean Difference (IV, Fixed, 95% CI)	Subtotals only
20.1 Home-based	0	0	Std. Mean Difference (IV, Fixed, 95% CI)	0.0 [0.0, 0.0]
20.2 Facility-based	2	119	Std. Mean Difference (IV, Fixed, 95% CI)	-0.52 [-0.88, -0.15]
20.3 Both home- and facility-based	2	116	Std. Mean Difference (IV, Fixed, 95% CI)	-0.23 [-0.60, 0.13]
21 Overall depression (follow-up values)	12		Std. Mean Difference (IV, Random, 95% CI)	Subtotals only
21.1 Home-based	2	60	Std. Mean Difference (IV, Random, 95% CI)	0.34 [-0.17, 0.85]
21.2 Facility-based	8	483	Std. Mean Difference (IV, Random, 95% CI)	-0.55 [-0.85, -0.25]
21.3 Both home- and facility-based	3	134	Std. Mean Difference (IV, Random, 95% CI)	0.05 [-0.52, 0.61]

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Outcome or subgroup title	No. of studies	No. of participants	Statistical method	Effect size
22 Overall depression (change values)	7		Std. Mean Difference (IV, Random, 95% CI)	Subtotals only
22.1 Home-based	1	40	Std. Mean Difference (IV, Random, 95% CI)	-0.39 [-1.02, 0.23]
22.2 Facility-based	3	140	Std. Mean Difference (IV, Random, 95% CI)	-0.63 [-0.97, -0.29]
22.3 Both home- and facility-based	3	616	Std. Mean Difference (IV, Random, 95% CI)	-0.11 [-0.41, 0.19]
23 Overall fatigue (follow-up values)	25		Std. Mean Difference (IV, Random, 95% CI)	Subtotals only
23.1 Home-based	6	850	Std. Mean Difference (IV, Random, 95% CI)	-0.18 [-0.39, 0.03]
23.2 Facility-based	13	749	Std. Mean Difference (IV, Random, 95% CI)	-0.53 [-0.77, -0.29]
23.3 Both home- and facility-based	7	346	Std. Mean Difference (IV, Random, 95% CI)	-0.09 [-0.30, 0.13]
24 Overall fatigue (change values)	12		Std. Mean Difference (IV, Random, 95% CI)	Subtotals only
24.1 Home-based	2	417	Std. Mean Difference (IV, Random, 95% CI)	-0.25 [-1.10, 0.61]
24.2 Facility-based	7	296	Std. Mean Difference (IV, Random, 95% CI)	-0.43 [-1.06, 0.20]
24.3 Both home- and facility-based	3	558	Std. Mean Difference (IV, Random, 95% CI)	-0.01 [-0.17, 0.16]
25 Overall pain/disability (follow-up values)	9		Std. Mean Difference (IV, Random, 95% CI)	Subtotals only
25.1 Home-based	3	249	Std. Mean Difference (IV, Random, 95% CI)	0.24 [-0.20, 0.68]
25.2 Facility-based	5	183	Std. Mean Difference (IV, Random, 95% CI)	0.09 [-0.20, 0.38]
25.3 Both home- and facility-based	2	112	Std. Mean Difference (IV, Random, 95% CI)	-0.12 [-0.49, 0.25]
26 Overall pain/disability (change values)	5		Std. Mean Difference (IV, Random, 95% CI)	Subtotals only
26.1 Home-based	0	0	Std. Mean Difference (IV, Random, 95% CI)	0.0 [0.0, 0.0]

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Outcome or subgroup title	No. of studies	No. of participants	Statistical method	Effect size
26.2 Facility-based	3	139	Std. Mean Difference (IV, Random, 95% CI)	0.16 [-0.19, 0.50]
26.3 Both home- and facility-based	2	157	Std. Mean Difference (IV, Random, 95% CI)	-0.29 [-0.61, 0.02]
27 Overall self-esteem/body image (follow-up values)	12		Std. Mean Difference (IV, Random, 95% CI)	Subtotals only
27.1 Home-based	2	124	Std. Mean Difference (IV, Random, 95% CI)	-0.10 [-1.17, 0.97]
27.2 Facility-based	8	451	Std. Mean Difference (IV, Random, 95% CI)	0.29 [0.09, 0.50]
27.3 Both home- and facility-based	2	92	Std. Mean Difference (IV, Random, 95% CI)	0.52 [-0.44, 1.48]
28 Overall self-esteem/body image (change values)	9		Std. Mean Difference (IV, Random, 95% CI)	Subtotals only
28.1 Home-based	1	42	Std. Mean Difference (IV, Random, 95% CI)	-0.22 [-0.89, 0.45]
28.2 Facility-based	6	376	Std. Mean Difference (IV, Random, 95% CI)	0.52 [-0.09, 1.13]
28.3 Both home- and facility-based	2	574	Std. Mean Difference (IV, Random, 95% CI)	-0.05 [-0.21, 0.12]
29 Overall cardiorespiratory fitness (follow-up values)	23		Std. Mean Difference (IV, Random, 95% CI)	Subtotals only
29.1 Home-based	5	245	Std. Mean Difference (IV, Random, 95% CI)	0.66 [0.40, 0.92]
29.2 Facility-based	13	603	Std. Mean Difference (IV, Random, 95% CI)	0.45 [0.25, 0.66]
29.3 Both home- and facility-based	6	426	Std. Mean Difference (IV, Random, 95% CI)	0.29 [0.03, 0.56]
30 Overall cardiorespiratory fitness (change values)	9		Std. Mean Difference (IV, Random, 95% CI)	Subtotals only
30.1 Home-based	2	124	Std. Mean Difference (IV, Random, 95% CI)	0.39 [-0.20, 0.99]
30.2 Facility-based	4	116	Std. Mean Difference (IV, Random, 95% CI)	1.62 [1.03, 2.21]
30.3 Both home- and facility-based	3	623	Std. Mean Difference (IV, Random, 95% CI)	0.40 [-0.02, 0.82]

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Outcome or subgroup title	No. of studies	No. of participants	Statistical method	Effect size
31 Overall self-reported physical activity (follow-up values)	18		Std. Mean Difference (IV, Random, 95% CI)	Subtotals only
31.1 Home-based	9	1028	Std. Mean Difference (IV, Random, 95% CI)	0.57 [0.29, 0.85]
31.2 Facility-based	3	513	Std. Mean Difference (IV, Random, 95% CI)	0.23 [0.05, 0.40]
31.3 Both home- and facility-based	6	503	Std. Mean Difference (IV, Random, 95% CI)	0.62 [0.23, 1.00]
32 Overall self-reported physical activity (change values)	8		Std. Mean Difference (IV, Random, 95% CI)	Subtotals only
32.1 Home-based	3	495	Std. Mean Difference (IV, Random, 95% CI)	0.38 [0.18, 0.57]
32.2 Facility-based	1	105	Std. Mean Difference (IV, Random, 95% CI)	0.21 [-0.17, 0.60]
32.3 Both home- and facility-based	4	674	Std. Mean Difference (IV, Random, 95% CI)	0.92 [0.14, 1.70]
33 Overall objective physical activity (follow-up values)	11		Std. Mean Difference (IV, Random, 95% CI)	Subtotals only
33.1 Home-based	5	854	Std. Mean Difference (IV, Random, 95% CI)	0.45 [0.07, 0.82]
33.2 Facility-based	0	0	Std. Mean Difference (IV, Random, 95% CI)	0.0 [0.0, 0.0]
33.3 Both home- and facility-based	6	416	Std. Mean Difference (IV, Random, 95% CI)	0.43 [0.17, 0.68]
34 Overall objective physical activity (change values)	5		Std. Mean Difference (IV, Random, 95% CI)	Subtotals only
34.1 Home-based	2	374	Std. Mean Difference (IV, Random, 95% CI)	0.37 [-0.56, 1.30]
34.2 Facility-based	0	0	Std. Mean Difference (IV, Random, 95% CI)	0.0 [0.0, 0.0]
34.3 Both home- and facility-based	3	134	Std. Mean Difference (IV, Random, 95% CI)	0.92 [0.56, 1.28]
35 Mass (follow-up values)	16		Mean Difference (IV, Fixed, 95% CI)	Subtotals only
35.1 Home-based	2	100	Mean Difference (IV, Fixed, 95% CI)	-3.38 [-10.29, 3.53]

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Outcome or subgroup title	No. of studies	No. of participants	Statistical method	Effect size
35.2 Facility-based	10	864	Mean Difference (IV, Fixed, 95% CI)	0.03 [-0.56, 0.61]
35.3 Both home- and facility-based	4	246	Mean Difference (IV, Fixed, 95% CI)	0.04 [-3.96, 4.04]
36 Mass (change values)	11		Mean Difference (IV, Random, 95% CI)	Subtotals only
36.1 Home-based	1	36	Mean Difference (IV, Random, 95% CI)	-0.03 [-1.46, 1.40]
36.2 Facility-based	7	394	Mean Difference (IV, Random, 95% CI)	-0.61 [-1.31, 0.08]
36.3 Both home- and facility-based	3	617	Mean Difference (IV, Random, 95% CI)	-0.58 [-1.80, 0.63]
37 BMI (follow-up values)	17		Mean Difference (IV, Fixed, 95% CI)	Subtotals only
37.1 Home-based	3	442	Mean Difference (IV, Fixed, 95% CI)	-0.53 [-1.64, 0.57]
37.2 Facility-based	9	767	Mean Difference (IV, Fixed, 95% CI)	0.04 [-0.17, 0.26]
37.3 Both home- and facility-based	6	281	Mean Difference (IV, Fixed, 95% CI)	-0.61 [-2.14, 0.91]
38 BMI (change values)	8		Mean Difference (IV, Random, 95% CI)	Subtotals only
38.1 Home-based	0	0	Mean Difference (IV, Random, 95% CI)	0.0 [0.0, 0.0]
38.2 Facility-based	6	361	Mean Difference (IV, Random, 95% CI)	-0.27 [-0.58, 0.04]
38.3 Both home- and facility-based	2	124	Mean Difference (IV, Random, 95% CI)	-0.12 [-0.43, 0.20]
39 Overall body fat (follow-up values)	18		Std. Mean Difference (IV, Random, 95% CI)	Subtotals only
39.1 Home-based	4	224	Std. Mean Difference (IV, Random, 95% CI)	-0.18 [-0.45, 0.09]
39.2 Facility-based	7	550	Std. Mean Difference (IV, Random, 95% CI)	-0.39 [-0.69, -0.08]
39.3 Both home- and facility-based	7	388	Std. Mean Difference (IV, Random, 95% CI)	0.01 [-0.19, 0.21]
40 Overall body fat (change values)	9		Std. Mean Difference (IV, Random, 95% CI)	Subtotals only
40.1 Home-based	2	78	Std. Mean Difference (IV, Random, 95% CI)	-0.48 [-0.97, -0.00]
40.2 Facility-based	5	297	Std. Mean Difference (IV, Random, 95% CI)	-0.84 [-1.94, 0.26]
40.3 Both home- and facility-based	2	124	Std. Mean Difference (IV, Random, 95% CI)	-0.26 [-0.62, 0.09]

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Outcome or subgroup title	No. of studies	No. of participants	Statistical method	Effect size
41 Lower body strength (follow-up values)	10		Std. Mean Difference (IV, Random, 95% CI)	Subtotals only
41.1 Home-based	0	0	Std. Mean Difference (IV, Random, 95% CI)	0.0 [0.0, 0.0]
41.2 Facility-based	5	417	Std. Mean Difference (IV, Random, 95% CI)	0.75 [0.24, 1.27]
41.3 Both home- and facility-based	5	220	Std. Mean Difference (IV, Random, 95% CI)	0.12 [-0.16, 0.40]
42 Lower body strength (change values)	8		Std. Mean Difference (IV, Random, 95% CI)	Subtotals only
42.1 Home-based	0	0	Std. Mean Difference (IV, Random, 95% CI)	0.0 [0.0, 0.0]
42.2 Facility-based	7	497	Std. Mean Difference (IV, Random, 95% CI)	0.80 [0.38, 1.23]
42.3 Both home- and facility-based	1	223	Std. Mean Difference (IV, Random, 95% CI)	0.42 [0.15, 0.69]
43 Upper body strength (follow-up values)	13		Std. Mean Difference (IV, Random, 95% CI)	Subtotals only
43.1 Home-based	2	64	Std. Mean Difference (IV, Random, 95% CI)	0.58 [0.05, 1.12]
43.2 Facility-based	8	513	Std. Mean Difference (IV, Random, 95% CI)	0.43 [-0.12, 0.98]
43.3 Both home- and facility-based	4	200	Std. Mean Difference (IV, Random, 95% CI)	0.29 [0.01, 0.57]
44 Upper body strength (change values)	8		Std. Mean Difference (IV, Random, 95% CI)	Subtotals only
44.1 Home-based	0	0	Std. Mean Difference (IV, Random, 95% CI)	0.0 [0.0, 0.0]
44.2 Facility-based	6	526	Std. Mean Difference (IV, Random, 95% CI)	0.92 [0.34, 1.50]
44.3 Both home- and facility-based	2	306	Std. Mean Difference (IV, Random, 95% CI)	0.25 [0.03, 0.48]
45 Bone mineral density - femoral neck (follow-up and change values)	4		Std. Mean Difference (IV, Random, 95% CI)	Subtotals only
45.1 Home-based	1	39	Std. Mean Difference (IV, Random, 95% CI)	-0.37 [-1.00, 0.27]

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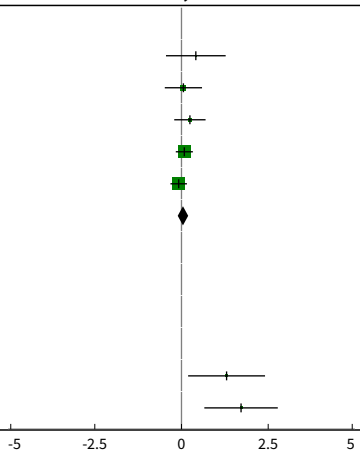
Outcome or subgroup title	No. of studies	No. of participants	Statistical method	Effect size
45.2 Facility-based	0	0	Std. Mean Difference (IV, Random, 95% CI)	0.0 [0.0, 0.0]
45.3 Both home- and facility-based	3	747	Std. Mean Difference (IV, Random, 95% CI)	0.32 [-0.01, 0.65]
46 Bone mineral density - lumbar spine (follow-up and change values)	4		Std. Mean Difference (IV, Random, 95% CI)	Subtotals only
46.1 Home-based	1	39	Std. Mean Difference (IV, Random, 95% CI)	-0.26 [-0.89, 0.37]
46.2 Facility-based	0	0	Std. Mean Difference (IV, Random, 95% CI)	0.0 [0.0, 0.0]
46.3 Both home- and facility-based	3	747	Std. Mean Difference (IV, Random, 95% CI)	0.30 [-0.02, 0.63]
47 Bone mineral density - total hip (follow-up and change values)	3		Std. Mean Difference (IV, Random, 95% CI)	Subtotals only
47.1 Home-based	1	39	Std. Mean Difference (IV, Random, 95% CI)	10.34 [7.84, 12.84]
47.2 Facility-based	0	0	Std. Mean Difference (IV, Random, 95% CI)	0.0 [0.0, 0.0]
47.3 Both home- and facility-based	2	290	Std. Mean Difference (IV, Random, 95% CI)	0.64 [-0.20, 1.48]

Analysis 17.1. Comparison 17 Subanalysis: outcomes by setting of intervention, Outcome 1 Overall HRQoL (follow-up values).

Study or subgroup	Physical activity N	Physical activity Mean(SD)	Control N	Control Mean(SD)	Std. Mean Difference Random, 95% CI	Weight	Std. Mean Difference Random, 95% CI
17.1.1 Home-based							
Portela 2008	13	104.8 (32.1)	9	91.6 (28.5)		3.08%	0.41[-0.45,1.27]
Ergun 2013	40	69 (19.9)	20	67.9 (16.7)		7.91%	0.06[-0.48,0.59]
Pinto 2015	39	117.8 (12.7)	37	114 (18)		11.18%	0.24[-0.21,0.69]
Vallance 2007	250	91.5 (11.8)	85	90.6 (13)		37.62%	0.08[-0.16,0.33]
Short 2014	195	106.8 (16.7)	104	108.2 (18.2)		40.22%	-0.08[-0.32,0.16]
Subtotal ***	**537**		**255**			**100%**	**0.04[-0.11,0.19]**
Heterogeneity: Tau^2=0; Chi^2=2.6, df=4(P=0.63); I^2=0%							
Test for overall effect: Z=0.55(P=0.58)							
17.1.2 Facility-based							
Herrero 2006	8	81.3 (10.7)	8	62.5 (16.1)		3.97%	1.3[0.19,2.41]
Cerulli 2014	10	85.2 (4.2)	10	65.9 (14.7)		4.2%	1.72[0.66,2.78]



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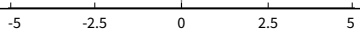
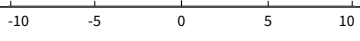
Study or subgroup	Physical activity N	Physical activity Mean(SD)	Control N	Control Mean(SD)	Std. Mean Difference Random, 95% CI	Weight	Std. Mean Difference Random, 95% CI
Portela 2008	12	109.8 (25.2)	9	91.6 (28.5)		5.05%	0.66[-0.24,1.55]
Mustian 2004	11	121.7 (22.7)	10	124.3 (25.9)		5.25%	-0.1[-0.96,0.75]
Loudon 2014	12	-7.4 (1.2)	11	-7.4 (1.4)		5.49%	0.02[-0.8,0.84]
Milne 2008	29	86.4 (8.3)	29	64.1 (10.8)		6.45%	2.28[1.61,2.96]
Ergun 2013	20	74.2 (18.7)	20	67.9 (16.7)		6.77%	0.35[-0.28,0.97]
Courneya 2003	24	91.3 (11)	28	89.3 (10.9)		7.34%	0.18[-0.37,0.73]
Murtezani 2014	30	86.5 (7.3)	32	79.1 (7.5)		7.46%	0.99[0.46,1.52]
Mehnert 2011	30	74.7 (21.7)	27	65.4 (16.8)		7.48%	0.47[-0.06,1]
Do 2015	32	87.3 (13.7)	30	82.4 (19.9)		7.67%	0.28[-0.22,0.79]
Schmitz 2005	39	-44.2 (8.7)	40	-47.4 (9.4)		8.08%	0.35[-0.09,0.79]
Taleghani 2012	40	217.5 (36.3)	40	210.1 (41.5)		8.12%	0.19[-0.25,0.63]
Daley 2007	33	90.9 (13.5)	69	86.4 (15.1)		8.28%	0.3[-0.12,0.72]
Littman 2012	30	90.3 (11)	110	87.7 (15)		8.37%	0.18[-0.22,0.59]
Subtotal ***	**360**		**473**			**100%**	**0.55[0.27,0.83]**
Heterogeneity: Tau²=0.21; Chi²=48.47, df=14(P<0.0001); I²=71.12%							
Test for overall effect: Z=3.8(P=0)							
17.1.3 Both home- and facility-based							
Rogers 2015	10	85.2 (4.2)	10	65.9 (14.7)		12.58%	1.72[0.66,2.78]
Rogers 2009	20	92 (11.4)	18	87.4 (13.1)		23.48%	0.37[-0.27,1.01]
Cadmus 2009	37	91.2 (12.6)	37	86.2 (17.4)		31.22%	0.33[-0.13,0.78]
Loh 2014	63	112.4 (14.1)	32	109.3 (13.3)		32.73%	0.22[-0.2,0.65]
Subtotal ***	**130**		**97**			**100%**	**0.48[0.04,0.92]**
Heterogeneity: Tau²=0.11; Chi²=6.7, df=3(P=0.08); I²=55.25%							
Test for overall effect: Z=2.14(P=0.03)							



Analysis 17.2. Comparison 17 Subanalysis: outcomes by setting of intervention, Outcome 2 Overall HRQoL (change values).

Study or subgroup	Physical activity N	Physical activity Mean(SD)	Control N	Control Mean(SD)	Std. Mean Difference Random, 95% CI	Weight	Std. Mean Difference Random, 95% CI
17.2.1 Home-based							
Ergun 2013	20	4.6 (26.5)	20	-6.7 (25.9)		13.4%	0.42[-0.21,1.05]
Vallance 2007	250	2.3 (11.1)	85	-0.2 (6.4)		86.6%	0.24[-0,0.49]
Subtotal ***	**270**		**105**			**100%**	**0.27[0.04,0.5]**
Heterogeneity: Tau²=0; Chi²=0.27, df=1(P=0.6); I²=0%							
Test for overall effect: Z=2.28(P=0.02)							
17.2.2 Facility-based							
Mustian 2004	11	15 (5)	10	0 (5)		7.99%	2.88[1.59,4.17]
Herrero 2006	8	17.7 (8.3)	8	-10.4 (17.7)		8.17%	1.92[0.68,3.17]
Murtezani 2014	30	9.2 (2.1)	32	-0.6 (2)		9.23%	4.65[3.67,5.63]
Naumann 2012	11	14.5 (10.6)	10	3.1 (11.4)		9.48%	1[0.08,1.92]
Ergun 2013	20	6.3 (15.5)	20	-6.7 (25.9)		10.54%	0.59[-0.04,1.23]
Cuesta-Vargas 2014	22	0.3 (0.2)	20	0.3 (0.1)		10.63%	-0.07[-0.67,0.54]
Courneya 2003	24	5.7 (7.4)	28	0.6 (7.4)		10.78%	0.68[0.12,1.24]
Mehnert 2011	30	9.7 (21)	27	5.6 (16.5)		10.9%	0.22[-0.31,0.74]
Schmitz 2005	39	2.3 (4.5)	40	0.6 (4)		11.11%	0.4[-0.05,0.84]



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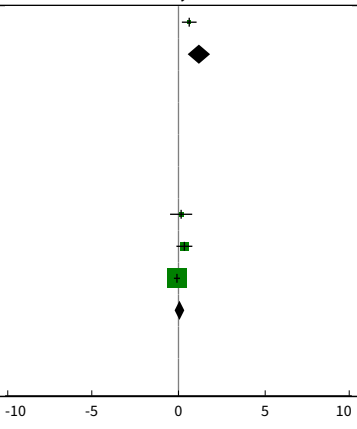
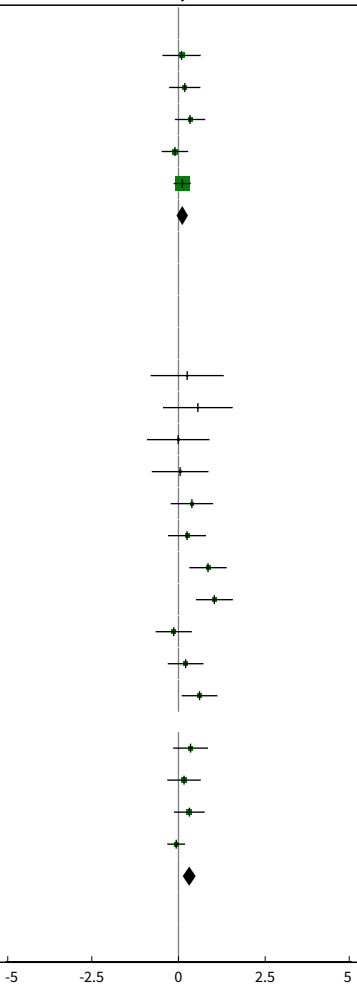
Study or subgroup	Physical activity N	Physical activity Mean(SD)	Control N	Control Mean(SD)	Std. Mean Difference Random, 95% CI	Weight	Std. Mean Difference Random, 95% CI
Daley 2007	33	10.2 (11.2)	69	3.2 (11.3)		11.17%	0.62[0.2,1.04]
Subtotal ***	**228**		**264**			**100%**	**1.18[0.53,1.82]**
Heterogeneity: Tau²=0.93; Chi²=88.77, df=9(P<0.0001); I²=89.86%							
Test for overall effect: Z=3.57(P=0)							
17.2.3 Both home- and facility-based							
Rogers 2009	20	4.5 (8.4)	18	2.9 (12)		15.32%	0.15[-0.49,0.79]
Cadmus 2009	37	0.6 (7.5)	37	-2.4 (9.8)		25.01%	0.34[-0.12,0.8]
Saarto 2012	263	4.2 (16.2)	237	5.6 (15.4)		59.66%	-0.09[-0.26,0.09]
Subtotal ***	**320**		**292**			**100%**	**0.06[-0.22,0.33]**
Heterogeneity: Tau²=0.03; Chi²=3.23, df=2(P=0.2); I²=38%							
Test for overall effect: Z=0.39(P=0.69)							



Analysis 17.3. Comparison 17 Subanalysis: outcomes by setting of intervention, Outcome 3 Overall emotional function/mental health (follow-up values).

Study or subgroup	Physical activity N	Physical activity Mean(SD)	Control N	Control Mean(SD)	Std. Mean Difference Random, 95% CI	Weight	Std. Mean Difference Random, 95% CI
17.3.1 Home-based							
Basen-Enquist 2006	28	78.2 (10.6)	23	77.2 (12)		8.94%	0.09[-0.46,0.64]
Pinto 2015	39	54.2 (9.3)	37	52.5 (9.6)		13.39%	0.18[-0.27,0.63]
Pinto 2005	39	-8 (20.7)	43	-16.5 (28.8)		14.28%	0.33[-0.1,0.77]
Duijits 2012	37	73.9 (34.7)	89	77.5 (34.3)		18.5%	-0.1[-0.49,0.28]
Vallance 2007	250	20.3 (3.3)	85	19.9 (3.4)		44.89%	0.11[-0.14,0.35]
Subtotal ***	**393**		**277**			**100%**	**0.11[-0.06,0.27]**
Heterogeneity: Tau²=0; Chi²=2.28, df=4(P=0.68); I²=0%							
Test for overall effect: Z=1.3(P=0.2)							
17.3.2 Facility-based							
Banasik 2011	7	0.5 (0.4)	7	0.4 (0.3)		2.67%	0.25[-0.8,1.3]
Herrero 2006	8	90.6 (9.3)	8	83.3 (14.8)		2.89%	0.56[-0.45,1.56]
Mustian 2004	9	24.8 (2)	10	24.8 (3.2)		3.45%	-0.01[-0.91,0.89]
Loudon 2014	12	-1.6 (0.7)	11	-1.6 (0.5)		4.01%	0.05[-0.77,0.87]
Cuesta-Vargas 2014	22	42.9 (19.2)	20	32.3 (33.3)		6.06%	0.39[-0.22,1]
Courneya 2003	24	21.5 (3.4)	28	20.7 (3)		6.96%	0.25[-0.3,0.79]
Milne 2008	29	19.6 (2.4)	29	16.7 (4.1)		7.08%	0.85[0.31,1.39]
Do 2015	32	87.4 (8.8)	30	70.4 (21.5)		7.19%	1.03[0.5,1.57]
Littman 2012	30	20.3 (4)	27	20.8 (3.1)		7.38%	-0.14[-0.66,0.38]
Mehnert 2011	30	77 (35.8)	28	69.1 (40.5)		7.44%	0.21[-0.31,0.72]
Cantarero-Villanueva 2013	32	-17175 (4279)	29	-20390 (6113)		7.47%	0.61[0.09,1.12]
Murtezani 2014	30	19.5 (3.3)	32	18.3 (3.5)		7.68%	0.35[-0.15,0.85]
Daley 2007	33	19.1 (4.2)	33	18.5 (3.3)		8.01%	0.16[-0.32,0.64]
Schmitz 2005	39	-45.6 (8.2)	40	-48.2 (8.2)		8.74%	0.31[-0.13,0.76]
Schmitz 2009	112	53.2 (9.6)	120	53.8 (8.7)		12.96%	-0.07[-0.32,0.19]
Subtotal ***	**449**		**452**			**100%**	**0.31[0.12,0.5]**
Heterogeneity: Tau²=0.05; Chi²=24.33, df=14(P=0.04); I²=42.47%							
Test for overall effect: Z=3.23(P=0)							



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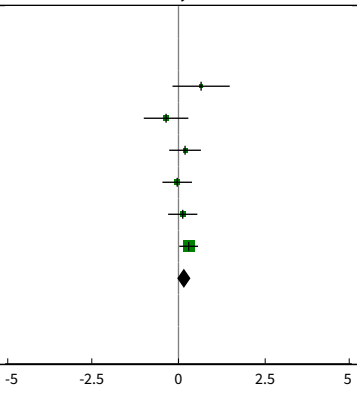
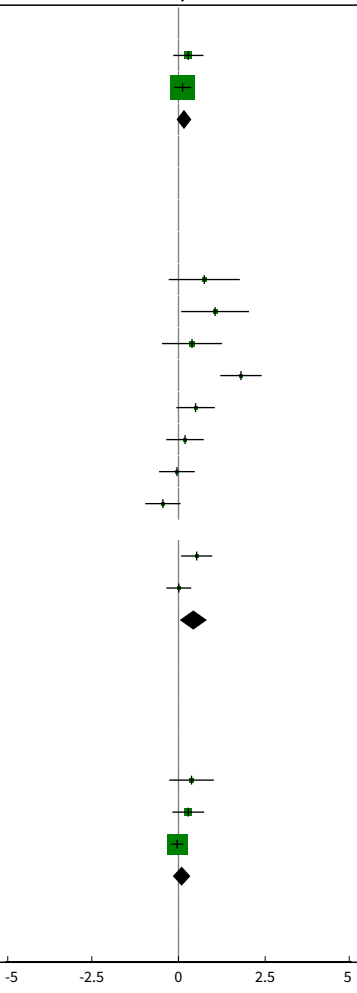
Study or subgroup	Physical activity N	Physical activity Mean(SD)	Control N	Control Mean(SD)	Std. Mean Difference Random, 95% CI	Weight	Std. Mean Difference Random, 95% CI
17.3.3 Both home- and facility-based							
Pinto 2003	12	-10.8 (28.1)	12	-27.2 (19.5)		5.1%	0.65[-0.17,1.48]
Rogers 2009	20	20 (3.1)	18	21.1 (2.9)		8.22%	-0.36[-1,0.28]
Cadmus 2009	37	20.5 (3)	37	19.8 (4.2)		15.34%	0.19[-0.27,0.65]
Loh 2014	63	19.9 (2.8)	32	20 (3.2)		17.38%	-0.04[-0.46,0.39]
Fillion 2008	44	48.5 (7.9)	43	47.5 (9.1)		17.73%	0.12[-0.3,0.54]
Rogers 2015	105	20.6 (2.9)	108	19.7 (3.2)		36.24%	0.29[0.02,0.56]
Subtotal ***	**281**		**250**			**100%**	**0.15[-0.04,0.34]**
Heterogeneity: Tau^2=0.01; Chi^2=5.67, df=5(P=0.34); I^2=11.85%							
Test for overall effect: Z=1.59(P=0.11)							



Analysis 17.4. Comparison 17 Subanalysis: outcomes by setting of intervention, Outcome 4 Overall emotional function/mental health (change values).

Study or subgroup	Physical activity N	Physical activity Mean(SD)	Control N	Control Mean(SD)	Std. Mean Difference Random, 95% CI	Weight	Std. Mean Difference Random, 95% CI
17.4.1 Home-based							
Pinto 2005	39	-3.8 (27.7)	43	-11.5 (25.8)		24.21%	0.28[-0.15,0.72]
Vallance 2007	250	0.5 (3.5)	85	0.1 (2.5)		75.79%	0.12[-0.13,0.36]
Subtotal ***	**289**		**128**			**100%**	**0.16[-0.06,0.37]**
Heterogeneity: Tau^2=0; Chi^2=0.43, df=1(P=0.51); I^2=0%							
Test for overall effect: Z=1.44(P=0.15)							
17.4.2 Facility-based							
Herrero 2006	8	9.3 (19.6)	8	-2.1 (5.9)		7.04%	0.74[-0.28,1.77]
Mustian 2004	9	2.4 (2.5)	10	0.1 (1.7)		7.36%	1.06[0.08,2.03]
Naumann 2012	11	1 (2.7)	10	-0.1 (2.7)		8.15%	0.39[-0.48,1.26]
Murtezani 2014	30	2.1 (0.8)	32	0.5 (0.9)		10.32%	1.8[1.21,2.4]
Courneya 2003	24	2.3 (3.1)	28	0.8 (2.9)		10.66%	0.49[-0.06,1.05]
Cormie 2014	43	4.4 (9)	19	2.7 (8.6)		10.77%	0.19[-0.35,0.73]
Mehnert 2011	30	2.3 (35.5)	28	3.6 (17.6)		10.98%	-0.04[-0.56,0.47]
Cantarero-Villanueva 2013	32	-1445 (4452)	29	353 (3323)		11.03%	-0.45[-0.96,0.06]
Schmitz 2005	39	2.5 (4.4)	40	0.3 (3.9)		11.51%	0.52[0.08,0.97]
Schmitz 2009	58	3.3 (23.2)	62	3.1 (17.2)		12.18%	0.01[-0.35,0.37]
Subtotal ***	**284**		**266**			**100%**	**0.43[0.04,0.82]**
Heterogeneity: Tau^2=0.29; Chi^2=41.54, df=9(P<0.0001); I^2=78.33%							
Test for overall effect: Z=2.14(P=0.03)							
17.4.3 Both home- and facility-based							
Rogers 2009	20	0.9 (2.5)	18	-0.1 (2.7)		13.31%	0.38[-0.27,1.02]
Cadmus 2009	37	0.3 (2.2)	37	-0.5 (3.3)		22.99%	0.28[-0.18,0.74]
Saarto 2012	263	1.2 (17.8)	237	1.9 (18.5)		63.7%	-0.04[-0.21,0.14]
Subtotal ***	**320**		**292**			**100%**	**0.09[-0.16,0.34]**
Heterogeneity: Tau^2=0.02; Chi^2=2.87, df=2(P=0.24); I^2=30.25%							
Test for overall effect: Z=0.7(P=0.48)							



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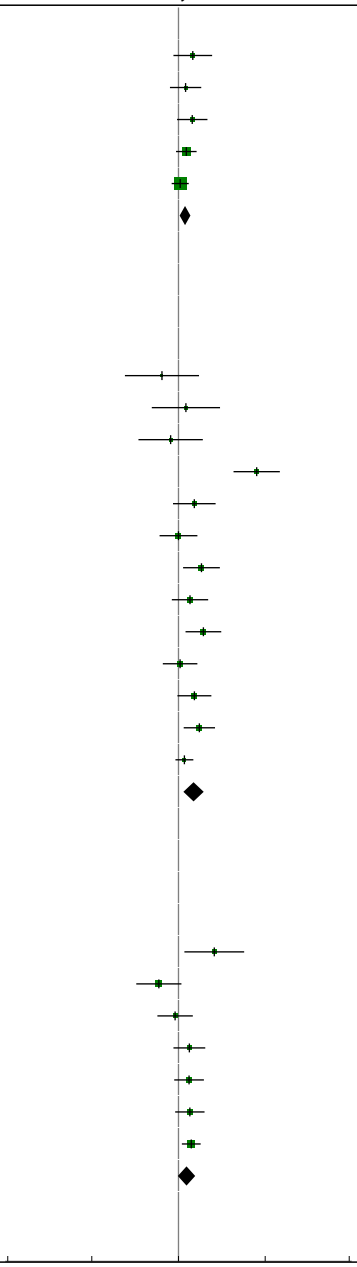
Analysis 17.5. Comparison 17 Subanalysis: outcomes by setting of intervention, Outcome 5 Overall physical function (follow-up values).

Study or subgroup	Physical activity N	Physical activity Mean(SD)	Control N	Control Mean(SD)	Std. Mean Difference Random, 95% CI	Weight	Std. Mean Difference Random, 95% CI
17.5.1 Home-based							
Basen-Enquist 2006	28	82.5 (12.7)	23	77.4 (11.5)		7.79%	0.41[-0.15,0.97]
Pinto 2015	39	87.1 (4.4)	37	84.7 (15.9)		11.92%	0.21[-0.25,0.66]
Pinto 2005	39	30.3 (7.9)	43	27.3 (6.8)		12.65%	0.4[-0.04,0.83]
Duijits 2012	87	84 (16.9)	89	80.2 (17.1)		27.6%	0.23[-0.07,0.52]
Vallance 2007	250	25.1 (3)	85	25 (3.3)		40.04%	0.05[-0.2,0.3]
Subtotal ***	**443**		**277**			**100%**	**0.19[0.03,0.34]**
Heterogeneity: Tau²=0; Chi²=2.78, df=4(P=0.59); I²=0%							
Test for overall effect: Z=2.38(P=0.02)							
17.5.2 Facility-based							
Banasik 2011	7	-0.8 (0.9)	7	-0.4 (0.3)		4.54%	-0.48[-1.54,0.59]
Herrero 2006	8	94.1 (7.5)	8	92.5 (6.6)		5%	0.21[-0.77,1.2]
Mustian 2004	9	2.4 (1.5)	9	2.8 (1.5)		5.33%	-0.23[-1.15,0.7]
Milne 2008	29	24 (2.6)	29	15.6 (4.5)		7.19%	2.26[1.59,2.92]
Cuesta-Vargas 2014	22	42.9 (4.1)	20	32.4 (32.5)		7.63%	0.46[-0.16,1.07]
Courneya 2003	24	25.3 (2.5)	28	25.3 (2.8)		8.21%	0[-0.55,0.55]
Mehnert 2011	30	89 (9.1)	28	78.1 (21.2)		8.34%	0.66[0.13,1.19]
Littman 2012	30	25.4 (1.7)	27	24.3 (4.4)		8.4%	0.33[-0.19,0.86]
Murtezani 2014	30	22.6 (4.4)	32	19.4 (4.4)		8.47%	0.72[0.2,1.23]
Do 2015	32	89.4 (8.4)	30	89 (8.7)		8.62%	0.05[-0.45,0.54]
Daley 2007	33	25.6 (2.2)	33	23.6 (5.7)		8.69%	0.46[-0.03,0.95]
Schmitz 2005	39	-44.2 (5.6)	40	-48.3 (7.7)		9.02%	0.6[0.15,1.05]
Schmitz 2009	112	50.6 (8.2)	120	49.1 (9.3)		10.54%	0.17[-0.09,0.43]
Subtotal ***	**405**		**411**			**100%**	**0.43[0.14,0.73]**
Heterogeneity: Tau²=0.19; Chi²=44.5, df=12(P<0.0001); I²=73.04%							
Test for overall effect: Z=2.91(P=0)							
17.5.3 Both home- and facility-based							
Pinto 2003	12	32.3 (4.3)	12	25.3 (8.2)		6.61%	1.03[0.17,1.89]
Rogers 2009	20	23.3 (4.5)	18	25.4 (2.3)		9.96%	-0.57[-1.22,0.08]
Winters-Stone 2011	36	51.7 (6.2)	25	52.3 (5.9)		13.44%	-0.1[-0.61,0.41]
Cadmus 2009	37	25.1 (2.7)	37	24 (4.1)		15.07%	0.31[-0.15,0.77]
Loh 2014	63	24.9 (2.5)	32	24.2 (2.2)		16.13%	0.3[-0.12,0.73]
Fillion 2008	44	45.1 (10.4)	43	41.8 (9.8)		16.3%	0.33[-0.1,0.75]
Rogers 2015	105	24.1 (3.5)	108	22.5 (5)		22.48%	0.37[0.1,0.64]
Subtotal ***	**317**		**275**			**100%**	**0.23[-0.02,0.48]**
Heterogeneity: Tau²=0.05; Chi²=11.97, df=6(P=0.06); I²=49.87%							
Test for overall effect: Z=1.81(P=0.07)							



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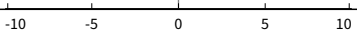
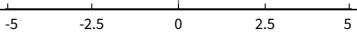
Analysis 17.6. Comparison 17 Subanalysis: outcomes by setting of intervention, Outcome 6 Overall physical function (change values).

Study or subgroup	Physical activity N	Physical activity Mean(SD)	Control N	Control Mean(SD)	Std. Mean Difference Random, 95% CI	Weight	Std. Mean Difference Random, 95% CI
17.6.1 Home-based							
Vallance 2007	247	1 (3.3)	85	0.2 (2.1)		100%	0.26[0.02,0.51]
Subtotal ***	**247**		**85**			**100%**	**0.26[0.02,0.51]**
Heterogeneity: Not applicable							
Test for overall effect: Z=2.1(P=0.04)							
17.6.2 Facility-based							
Herrero 2006	8	6.7 (5)	8	-1.7 (6.9)		9.29%	1.32[0.21,2.43]
Mustian 2004	9	1.9 (2.6)	10	-0.2 (1.6)		10.01%	0.93[-0.03,1.89]
Murtezani 2014	30	4.4 (1.5)	32	-1.3 (1.2)		10.22%	4.23[3.31,5.15]
Naumann 2012	11	1.9 (3.3)	10	0.8 (3.4)		10.47%	0.32[-0.55,1.18]
Courneya 2003	24	1.9 (2)	28	-0.2 (2.2)		11.69%	0.98[0.4,1.56]
Cormie 2014	43	3.5 (5.2)	19	-0.5 (5.7)		11.78%	0.74[0.19,1.3]
Mehnert 2011	30	4 (10.8)	28	-2.1 (16.7)		11.91%	0.43[-0.09,0.95]
Schmitz 2005	39	1.2 (4.2)	40	1.5 (6.8)		12.19%	-0.05[-0.49,0.39]
Schmitz 2009	58	6.6 (17.1)	62	4.1 (17.3)		12.43%	0.14[-0.21,0.5]
Subtotal ***	**252**		**237**			**100%**	**0.95[0.31,1.59]**
Heterogeneity: Tau²=0.82; Chi²=79.49, df=8(P<0.0001); I²=89.94%							
Test for overall effect: Z=2.9(P=0)							
17.6.3 Both home- and facility-based							
Rogers 2009	20	2.3 (5.1)	18	2.6 (6)		6.21%	-0.05[-0.69,0.58]
Cadmus 2009	37	0.1 (6)	37	-0.5 (7.4)		12.13%	0.09[-0.37,0.54]
Saarto 2012	263	1.9 (13.7)	237	3.4 (13.4)		81.66%	-0.11[-0.29,0.06]
Subtotal ***	**320**		**292**			**100%**	**-0.08[-0.24,0.08]**
Heterogeneity: Tau²=0; Chi²=0.64, df=2(P=0.72); I²=0%							
Test for overall effect: Z=1.03(P=0.3)							



Analysis 17.7. Comparison 17 Subanalysis: outcomes by setting of intervention, Outcome 7 Overall role function (follow-up values).

Study or subgroup	Physical activity N	Physical activity Mean(SD)	Control N	Control Mean(SD)	Std. Mean Difference Random, 95% CI	Weight	Std. Mean Difference Random, 95% CI
17.7.1 Home-based							
Basen-Enquist 2006	28	86.1 (22.2)	23	73 (24.5)		32.3%	0.55[-0.01,1.12]
Vallance 2007	250	23.2 (4)	85	22.7 (4.6)		67.7%	0.12[-0.13,0.37]
Subtotal ***	**278**		**108**			**100%**	**0.26[-0.14,0.66]**
Heterogeneity: Tau²=0.05; Chi²=1.92, df=1(P=0.17); I²=47.84%							
Test for overall effect: Z=1.28(P=0.2)							
17.7.2 Facility-based							
Banasik 2011	7	3.5 (0.6)	7	3.2 (0.6)		5.76%	0.34[-0.72,1.4]
Herrero 2006	8	97.6 (5.9)	8	100 (0)		6.07%	-0.54[-1.55,0.46]
Mustian 2004	9	2.4 (1.5)	9	2.8 (1.5)		6.53%	-0.23[-1.15,0.7]
Loudon 2014	12	-1.3 (0.3)	11	-1.3 (0.4)		7.24%	0[-0.82,0.82]
Milne 2008	29	22.2 (3)	29	12.5 (4.8)		8.17%	2.39[1.71,3.08]



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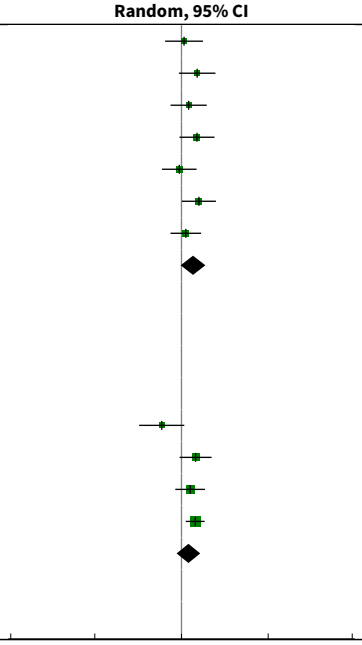
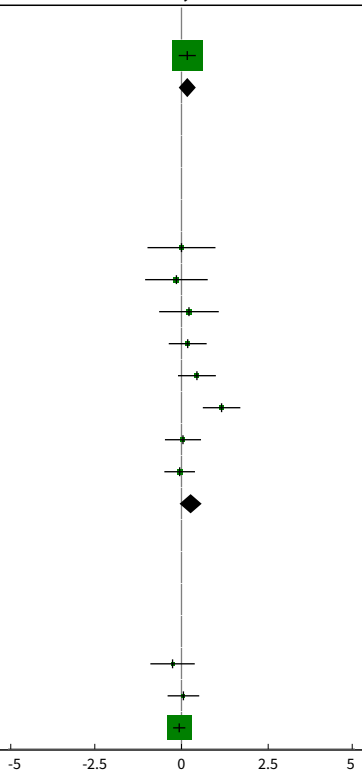
Study or subgroup	Physical activity N	Physical activity Mean(SD)	Control N	Control Mean(SD)	Std. Mean Difference Random, 95% CI	Weight	Std. Mean Difference Random, 95% CI
Courneya 2003	24	23.4 (4)	28	23.1 (4)		9.17%	0.07[-0.47,0.62]
Mehnert 2011	30	90 (20.3)	27	79.6 (25)		9.3%	0.45[-0.07,0.98]
Littman 2012	30	22.6 (3.9)	27	21.7 (4.7)		9.34%	0.21[-0.31,0.73]
Murtezani 2014	30	24.2 (2.8)	32	23 (2.5)		9.46%	0.45[-0.06,0.95]
Do 2015	32	78.1 (19.5)	30	79.2 (14.6)		9.5%	-0.06[-0.56,0.44]
Daley 2007	33	22.9 (4.5)	33	20.3 (5.6)		9.56%	0.5[0.01,0.99]
Schmitz 2005	39	-49.2 (6.5)	40	-50 (6.2)		9.9%	0.12[-0.32,0.57]
Subtotal ***	**283**		**281**			**100%**	**0.33[-0.03,0.69]**
Heterogeneity: Tau²=0.29; Chi²=44.95, df=11(P<0.0001); I²=75.53%							
Test for overall effect: Z=1.82(P=0.07)							
17.7.3 Both home- and facility-based							
Rogers 2009	20	21.4 (4.8)	18	23.8 (3.2)		16.69%	-0.57[-1.22,0.08]
Cadmus 2009	37	23.1 (4.7)	37	20.6 (7.2)		24.02%	0.41[-0.05,0.87]
Loh 2014	63	23.4 (4.3)	32	22.2 (5)		25.6%	0.25[-0.18,0.68]
Rogers 2015	105	22.3 (4.5)	108	20.3 (5.5)		33.69%	0.4[0.12,0.67]
Subtotal ***	**225**		**195**			**100%**	**0.2[-0.14,0.54]**
Heterogeneity: Tau²=0.07; Chi²=7.56, df=3(P=0.06); I²=60.32%							
Test for overall effect: Z=1.15(P=0.25)							



Analysis 17.8. Comparison 17 Subanalysis: outcomes by setting of intervention, Outcome 8 Overall role function (change values).

Study or subgroup	Physical activity N	Physical activity Mean(SD)	Control N	Control Mean(SD)	Std. Mean Difference Random, 95% CI	Weight	Std. Mean Difference Random, 95% CI
17.8.1 Home-based							
Vallance 2007	250	0.6 (4.1)	85	-0 (2.7)		100%	0.17[-0.08,0.41]
Subtotal ***	**250**		**85**			**100%**	**0.17[-0.08,0.41]**
Heterogeneity: Not applicable							
Test for overall effect: Z=1.33(P=0.18)							
17.8.2 Facility-based							
Herrero 2006	8	2.1 (13.9)	8	2.1 (5.9)		7.43%	0[-0.98,0.98]
Mustian 2004	9	0.6 (1.6)	10	0.8 (1.6)		8.33%	-0.15[-1.05,0.76]
Naumann 2012	11	1.5 (4.4)	10	0.5 (4.5)		8.87%	0.22[-0.64,1.08]
Courneya 2003	24	0.9 (2.8)	28	0.4 (2.7)		14.43%	0.18[-0.37,0.73]
Cormie 2014	43	4.9 (7.1)	19	1.7 (7.1)		14.44%	0.45[-0.1,0.99]
Murtezani 2014	30	1.7 (0.7)	32	0.9 (0.6)		14.55%	1.16[0.62,1.7]
Mehnert 2011	30	6.7 (23.8)	27	5.6 (27)		15.03%	0.04[-0.48,0.56]
Schmitz 2005	39	1.2 (4.2)	40	1.5 (6.8)		16.93%	-0.05[-0.49,0.39]
Subtotal ***	**194**		**174**			**100%**	**0.26[-0.06,0.58]**
Heterogeneity: Tau²=0.11; Chi²=14.73, df=7(P=0.04); I²=52.47%							
Test for overall effect: Z=1.62(P=0.11)							
17.8.3 Both home- and facility-based							
Rogers 2009	20	0.4 (3.3)	18	1.4 (4.3)		6.16%	-0.26[-0.9,0.38]
Cadmus 2009	37	-0.3 (3.7)	37	-0.5 (3.4)		12.13%	0.06[-0.4,0.51]
Saarto 2012	263	2.4 (21.5)	237	3.8 (21.6)		81.72%	-0.06[-0.24,0.11]



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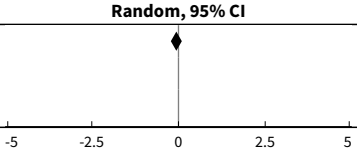
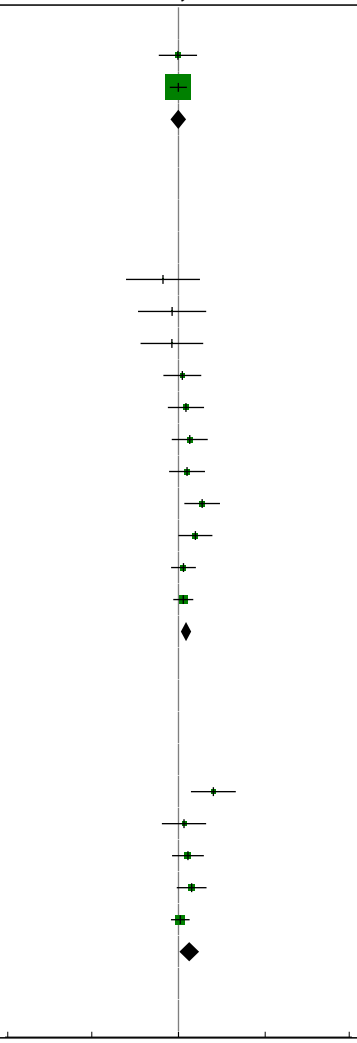
Study or subgroup	Physical activity N	Physical activity Mean(SD)	Control N	Control Mean(SD)	Std. Mean Difference Random, 95% CI	Weight	Std. Mean Difference Random, 95% CI
Subtotal ***	**320**		**292**			**100%**	**-0.06[-0.22,0.1]**
Heterogeneity: Tau²=0; Chi²=0.62, df=2(P=0.74); I²=0%							
Test for overall effect: Z=0.77(P=0.44)							



Analysis 17.9. Comparison 17 Subanalysis: outcomes by setting of intervention, Outcome 9 Overall social well-being/function (follow-up values).

Study or subgroup	Physical activity N	Physical activity Mean(SD)	Control N	Control Mean(SD)	Std. Mean Difference Random, 95% CI	Weight	Std. Mean Difference Random, 95% CI
17.9.1 Home-based							
Basen-Enquist 2006	28	84.6 (16.9)	23	84.9 (19.2)		16.6%	-0.02[-0.57,0.54]
Vallance 2007	250	22.9 (5)	85	23 (5.1)		83.4%	-0[-0.25,0.24]
Subtotal ***	**278**		**108**			**100%**	**-0.01[-0.23,0.22]**
Heterogeneity: Tau²=0; Chi²=0, df=1(P=0.97); I²=0%							
Test for overall effect: Z=0.05(P=0.96)							
17.9.2 Facility-based							
Banasik 2011	7	2.8 (0.7)	7	3.2 (0.8)		1.93%	-0.45[-1.51,0.62]
Herrero 2006	8	87.5 (19.4)	8	91.7 (23.6)		2.28%	-0.18[-1.17,0.8]
Mustian 2004	9	8.6 (1.9)	10	9 (1.8)		2.69%	-0.19[-1.09,0.71]
Courneya 2003	24	21.1 (3.5)	28	20.7 (3.6)		7.38%	0.11[-0.43,0.66]
Littman 2012	30	22.1 (5)	27	20.9 (6)		8.08%	0.22[-0.31,0.74]
Milne 2008	29	20.7 (4)	29	19.4 (3.9)		8.18%	0.32[-0.19,0.84]
Mehnert 2011	30	85.4 (20.9)	28	79.9 (22.7)		8.22%	0.25[-0.27,0.76]
Murtezani 2014	30	20.2 (2.8)	32	18.3 (2.7)		8.34%	0.68[0.17,1.2]
Daley 2007	33	23.3 (4.8)	33	20.4 (6.8)		9.15%	0.49[-0,0.98]
Schmitz 2009	59	14.9 (5.2)	62	14.1 (5.8)		17.25%	0.14[-0.21,0.5]
Kiecolt-Glaser 2014	96	95.2 (10.8)	90	93.8 (9.3)		26.51%	0.14[-0.15,0.43]
Subtotal ***	**355**		**354**			**100%**	**0.22[0.07,0.37]**
Heterogeneity: Tau²=0; Chi²=8.01, df=10(P=0.63); I²=0%							
Test for overall effect: Z=2.87(P=0)							
17.9.3 Both home- and facility-based							
Rogers 2014	20	7.3 (4.9)	22	3.1 (3.2)		13.33%	1.01[0.36,1.65]
Rogers 2009	20	22.6 (4.1)	18	21.8 (5.7)		13.58%	0.16[-0.48,0.8]
Cadmus 2009	37	22.3 (4.9)	37	20.6 (7.2)		20.31%	0.27[-0.18,0.73]
Loh 2014	63	21.5 (4.9)	32	19.6 (4.9)		21.71%	0.38[-0.05,0.81]
Rogers 2015	105	21 (5.7)	108	20.7 (5.8)		31.06%	0.05[-0.22,0.32]
Subtotal ***	**245**		**217**			**100%**	**0.31[0.03,0.59]**
Heterogeneity: Tau²=0.05; Chi²=7.76, df=4(P=0.1); I²=48.48%							
Test for overall effect: Z=2.14(P=0.03)							



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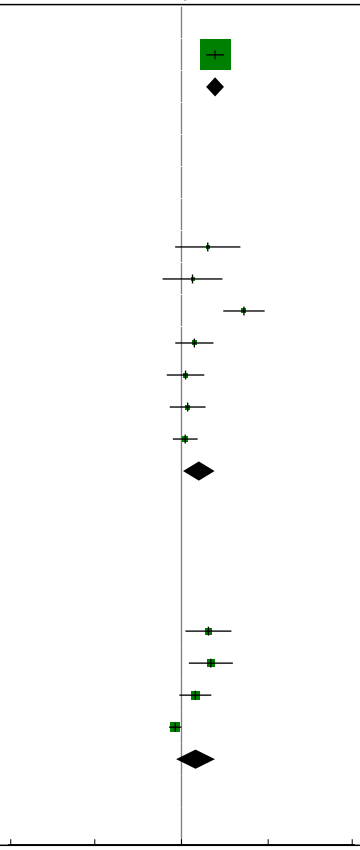
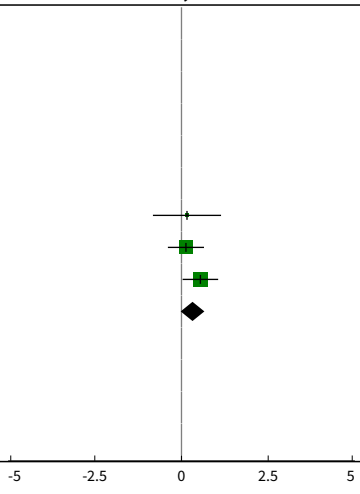
Analysis 17.10. Comparison 17 Subanalysis: outcomes by setting of intervention, Outcome 10 Overall social well-being/function (change values).

Study or subgroup	Physical activity N	Physical activity Mean(SD)	Control N	Control Mean(SD)	Std. Mean Difference Random, 95% CI	Weight	Std. Mean Difference Random, 95% CI
17.10.1 Home-based							
Vallance 2007	250	0.2 (4.8)	85	-4.1 (3.3)		100%	0.97[0.71,1.23]
Subtotal ***	**250**		**85**			**100%**	**0.97[0.71,1.23]**
Heterogeneity: Not applicable							
Test for overall effect: Z=7.39(P<0.0001)							
17.10.2 Facility-based							
Mustian 2004	9	1.5 (1.5)	10	0.4 (1.2)		10.62%	0.76[-0.18,1.7]
Naumann 2012	11	0.9 (3.3)	10	-0.2 (3.3)		11.44%	0.32[-0.54,1.18]
Murtezani 2014	30	2.1 (0.8)	32	0.5 (0.9)		14.58%	1.8[1.21,2.4]
Courneya 2003	24	0.6 (2.4)	28	-0.5 (3.3)		15.15%	0.37[-0.18,0.92]
Cormie 2014	43	3.5 (8.5)	19	2.5 (8.3)		15.27%	0.12[-0.42,0.66]
Mehnert 2011	30	7.3 (22.3)	28	3.1 (24.3)		15.56%	0.18[-0.34,0.69]
Schmitz 2009	59	4.4 (33.8)	62	0.7 (34)		17.38%	0.11[-0.25,0.47]
Subtotal ***	**206**		**189**			**100%**	**0.5[0.05,0.95]**
Heterogeneity: Tau^2=0.28; Chi^2=26.16, df=6(P=0); I^2=77.06%							
Test for overall effect: Z=2.16(P=0.03)							
17.10.3 Both home- and facility-based							
Rogers 2009	20	0.9 (2.6)	18	-1.2 (2.7)		21.7%	0.78[0.11,1.44]
Rogers 2014	20	2.1 (3.2)	22	-0.8 (3.5)		22.27%	0.85[0.21,1.48]
Cadmus 2009	37	0.6 (4.6)	37	-1 (3.2)		25.76%	0.4[-0.06,0.86]
Saarto 2012	263	5 (21.1)	237	8.8 (20.8)		30.27%	-0.18[-0.36,-0.01]
Subtotal ***	**340**		**314**			**100%**	**0.41[-0.15,0.96]**
Heterogeneity: Tau^2=0.26; Chi^2=19.06, df=3(P=0); I^2=84.26%							
Test for overall effect: Z=1.42(P=0.16)							



Analysis 17.11. Comparison 17 Subanalysis: outcomes by setting of intervention, Outcome 11 Overall cognitive function (follow-up values).

Study or subgroup	Physical activity N	Physical activity Mean(SD)	Control N	Control Mean(SD)	Std. Mean Difference Random, 95% CI	Weight	Std. Mean Difference Random, 95% CI
17.11.1 Home-based							
Subtotal ***	**0**		**0**				**Not estimable**
Heterogeneity: Not applicable							
Test for overall effect: Not applicable							
17.11.2 Facility-based							
Herrero 2006	8	91.7 (12.6)	8	89.6 (12.4)		12.15%	0.16[-0.82,1.14]
Mehnert 2011	30	81.1 (16.8)	27	78.4 (24.4)		43.23%	0.13[-0.39,0.65]
Cantarero-Villanueva 2013	32	-37.9 (8.5)	29	-43 (10)		44.62%	0.55[0.03,1.06]
Subtotal ***	**70**		**64**			**100%**	**0.32[-0.02,0.66]**
Heterogeneity: Tau^2=0; Chi^2=1.36, df=2(P=0.51); I^2=0%							
Test for overall effect: Z=1.82(P=0.07)							
17.11.3 Both home- and facility-based							



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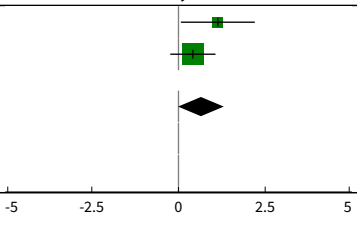
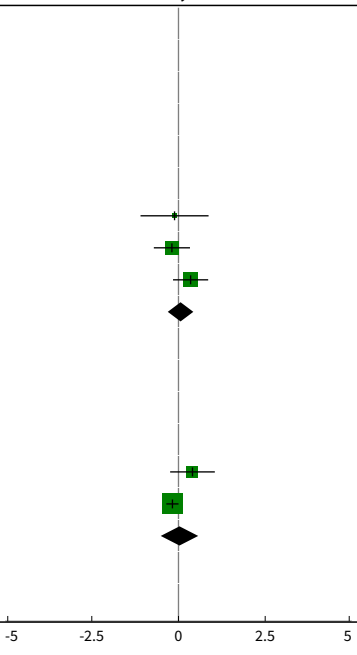
Study or subgroup	Physical activity N	Physical activity Mean(SD)	Control N	Control Mean(SD)	Std. Mean Difference Random, 95% CI	Weight	Std. Mean Difference Random, 95% CI
Pinto 2003	12	-4.3 (2.5)	6	-7.2 (2.1)		32.17%	1.14[0.07,2.2]
Rogers 2009	19	-124.5 (30.8)	18	-135.5 (19.5)		67.83%	0.42[-0.24,1.07]
Subtotal ***	**31**		**24**			**100%**	**0.65[-0.01,1.31]**
Heterogeneity: Tau²=0.06; Chi²=1.28, df=1(P=0.26); I²=21.64%							
Test for overall effect: Z=1.92(P=0.05)							



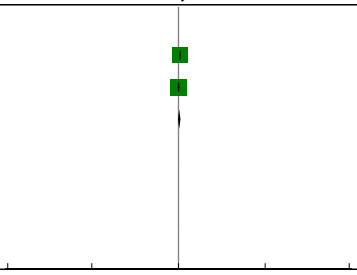
Analysis 17.12. Comparison 17 Subanalysis: outcomes by setting of intervention, Outcome 12 Overall cognitive function (change values).

Study or subgroup	Physical activity N	Physical activity Mean(SD)	Control N	Control Mean(SD)	Std. Mean Difference Random, 95% CI	Weight	Std. Mean Difference Random, 95% CI
17.12.1 Home-based							
Subtotal ***	**0**		**0**				**Not estimable**
Heterogeneity: Not applicable							
Test for overall effect: Not applicable							
17.12.2 Facility-based							
Herrero 2006	8	6.2 (19.8)	8	8.3 (14.8)		13.42%	-0.11[-1.09,0.87]
Mehnert 2011	30	1.7 (22.4)	27	6.2 (24.6)		42.26%	-0.19[-0.71,0.33]
Cantarero-Villanueva 2013	32	2.2 (7.6)	29	-0.2 (5.5)		44.33%	0.35[-0.16,0.86]
Subtotal ***	**70**		**64**			**100%**	**0.06[-0.31,0.43]**
Heterogeneity: Tau²=0.01; Chi²=2.26, df=2(P=0.32); I²=11.37%							
Test for overall effect: Z=0.32(P=0.75)							
17.12.3 Both home- and facility-based							
Rogers 2009	20	4.2 (16.8)	18	-4.7 (25.9)		35.06%	0.4[-0.24,1.05]
Saarto 2012	263	-1 (18.2)	237	2.2 (18.5)		64.94%	-0.17[-0.35,0]
Subtotal ***	**283**		**255**			**100%**	**0.03[-0.51,0.57]**
Heterogeneity: Tau²=0.11; Chi²=2.88, df=1(P=0.09); I²=65.29%							
Test for overall effect: Z=0.1(P=0.92)							



Analysis 17.13. Comparison 17 Subanalysis: outcomes by setting of intervention, Outcome 13 Overall general health (follow-up values).

Study or subgroup	Physical activity N	Physical activity Mean(SD)	Control N	Control Mean(SD)	Std. Mean Difference Random, 95% CI	Weight	Std. Mean Difference Random, 95% CI
17.13.1 Home-based							
Basen-Enquist 2006	28	77.4 (11.6)	23	67.1 (13.4)		49.03%	0.81[0.24,1.39]
Ergun 2013	40	69 (19.9)	20	67.9 (16.7)		50.97%	0.06[-0.48,0.59]
Subtotal ***	**68**		**43**			**100%**	**0.43[-0.32,1.17]**
Heterogeneity: Tau²=0.21; Chi²=3.56, df=1(P=0.06); I²=71.91%							
Test for overall effect: Z=1.13(P=0.26)							
17.13.2 Facility-based							



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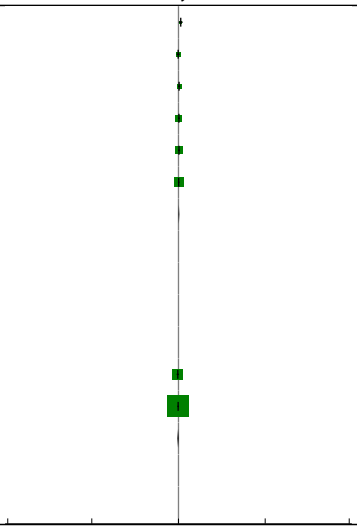
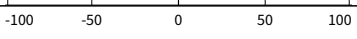
Study or subgroup	Physical activity N	Physical activity Mean(SD)	Control N	Control Mean(SD)	Std. Mean Difference Random, 95% CI	Weight	Std. Mean Difference Random, 95% CI
Herrero 2006	8	81.3 (10.7)	8	62.5 (16.1)		4.67%	1.3[0.19,2.41]
Mustian 2004	9	18.6 (4.8)	9	19.3 (1.9)		6.7%	-0.18[-1.11,0.74]
Ergun 2013	20	74.2 (18.7)	20	67.9 (16.7)		14.72%	0.35[-0.28,0.97]
Mehnert 2011	30	74.4 (11.8)	28	70 (20.8)		21.48%	0.26[-0.26,0.77]
Do 2015	32	87.3 (13.7)	30	82.4 (19.9)		22.92%	0.28[-0.22,0.79]
Schmitz 2005	39	53.8 (5.3)	40	53.2 (6)		29.51%	0.1[-0.34,0.55]
Subtotal ***	**138**		**135**			**100%**	**0.25[0.01,0.49]**
Heterogeneity: Tau^2=0; Chi^2=4.81, df=5(P=0.44); I^2=0%							
Test for overall effect: Z=2.05(P=0.04)							
17.13.3 Both home- and facility-based							
Rogers 2009	20	3.5 (0.9)	18	3.8 (0.5)		33.49%	-0.4[-1.04,0.25]
Cadmus 2009	37	50 (8.8)	37	51.7 (8.4)		66.51%	-0.2[-0.65,0.26]
Subtotal ***	**57**		**55**			**100%**	**-0.26[-0.64,0.11]**
Heterogeneity: Tau^2=0; Chi^2=0.25, df=1(P=0.62); I^2=0%							
Test for overall effect: Z=1.38(P=0.17)							



Analysis 17.14. Comparison 17 Subanalysis: outcomes by setting of intervention, Outcome 14 Overall general health (change values).

Study or subgroup	Physical activity N	Physical activity Mean(SD)	Control N	Control Mean(SD)	Std. Mean Difference Random, 95% CI	Weight	Std. Mean Difference Random, 95% CI
17.14.1 Home-based							
Ergun 2013	20	4.6 (26.5)	20	-6.7 (25.9)		100%	0.42[-0.21,1.05]
Subtotal ***	**20**		**20**			**100%**	**0.42[-0.21,1.05]**
Heterogeneity: Tau^2=0; Chi^2=0, df=0(P<0.0001); I^2=100%							
Test for overall effect: Z=1.32(P=0.19)							
17.14.2 Facility-based							
Mustian 2004	9	0.2 (1.9)	10	0.7 (2.5)		41.37%	-0.2[-1.1,0.71]
Ergun 2013	20	6.3 (15.5)	20	-6.7 (25.9)		58.63%	0.59[-0.04,1.23]
Subtotal ***	**29**		**30**			**100%**	**0.27[-0.49,1.03]**
Heterogeneity: Tau^2=0.15; Chi^2=1.96, df=1(P=0.16); I^2=49.04%							
Test for overall effect: Z=0.69(P=0.49)							
17.14.3 Both home- and facility-based							
Rogers 2009	20	0.2 (0.6)	18	0.2 (0.7)		6.21%	-0.03[-0.67,0.61]
Cadmus 2009	37	0.2 (4.4)	37	-0.1 (5.1)		12.12%	0.06[-0.39,0.52]
Saarto 2012	263	4.2 (16.2)	237	5.6 (15.4)		81.66%	-0.09[-0.26,0.09]
Subtotal ***	**320**		**292**			**100%**	**-0.07[-0.23,0.09]**
Heterogeneity: Tau^2=0; Chi^2=0.38, df=2(P=0.83); I^2=0%							
Test for overall effect: Z=0.82(P=0.41)							



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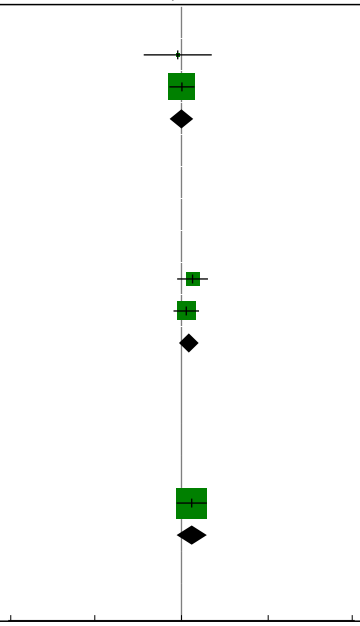
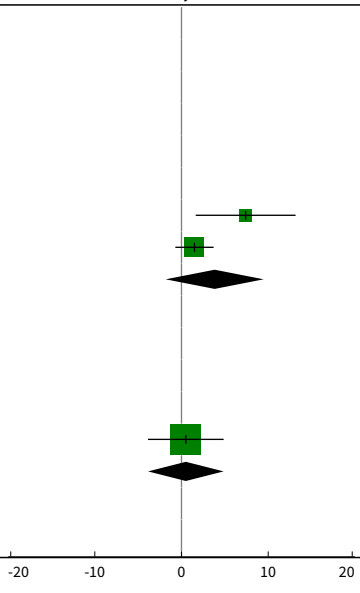
Analysis 17.15. Comparison 17 Subanalysis: outcomes by setting of intervention, Outcome 15 Overall sexual function (follow-up values).

Study or subgroup	Physical activity N	Physical activity Mean(SD)	Control N	Control Mean(SD)	Std. Mean Difference Fixed, 95% CI	Weight	Std. Mean Difference Fixed, 95% CI
17.15.1 Home-based							
Pinto 2005	12	42.8 (9.2)	6	43.7 (6.1)		12.03%	-0.11[-1.09,0.87]
Duijits 2012	53	0.6 (0.8)	65	0.6 (0.8)		87.97%	0.01[-0.35,0.38]
Subtotal ***	**65**		**71**			**100%**	**-0[-0.34,0.34]**
Heterogeneity: Tau²=0; Chi²=0.05, df=1(P=0.82); I²=0%							
Test for overall effect: Z=0.01(P=0.99)							
17.15.2 Facility-based							
Schmitz 2005	39	-51 (7.5)	40	-53.5 (8)		40.67%	0.32[-0.12,0.76]
Schmitz 2009	57	-27.3 (5.3)	57	-28.1 (6.2)		59.33%	0.14[-0.23,0.51]
Subtotal ***	**96**		**97**			**100%**	**0.21[-0.07,0.49]**
Heterogeneity: Tau²=0; Chi²=0.38, df=1(P=0.54); I²=0%							
Test for overall effect: Z=1.46(P=0.14)							
17.15.3 Both home- and facility-based							
Pinto 2003	39	42.5 (9.2)	43	40.1 (6.3)		100%	0.29[-0.14,0.73]
Subtotal ***	**39**		**43**			**100%**	**0.29[-0.14,0.73]**
Heterogeneity: Not applicable							
Test for overall effect: Z=1.32(P=0.19)							



Analysis 17.16. Comparison 17 Subanalysis: outcomes by setting of intervention, Outcome 16 Overall sexual function (change values).

Study or subgroup	Physical activity N	Physical activity Mean(SD)	Control N	Control Mean(SD)	Mean Difference Random, 95% CI	Weight	Mean Difference Random, 95% CI
17.16.1 Home-based							
Subtotal ***	**0**		**0**				**Not estimable**
Heterogeneity: Not applicable							
Test for overall effect: Not applicable							
17.16.2 Facility-based							
Schmitz 2009	57	7.2 (14.6)	57	-0.2 (16.7)		39.42%	7.4[1.64,13.16]
Schmitz 2005	39	1.7 (4.8)	40	0.2 (5.2)		60.58%	1.5[-0.71,3.71]
Subtotal ***	**96**		**97**			**100%**	**3.83[-1.83,9.48]**
Heterogeneity: Tau²=12.46; Chi²=3.52, df=1(P=0.06); I²=71.56%							
Test for overall effect: Z=1.33(P=0.18)							
17.16.3 Both home- and facility-based							
Saarto 2012	263	4.3 (25.4)	237	3.8 (24.4)		100%	0.5[-3.86,4.86]
Subtotal ***	**263**		**237**			**100%**	**0.5[-3.86,4.86]**
Heterogeneity: Not applicable							
Test for overall effect: Z=0.22(P=0.82)							



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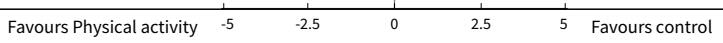
Analysis 17.17. Comparison 17 Subanalysis: outcomes by setting of intervention, Outcome 17 Overall sleep (follow-up values).

Study or subgroup	Physical activity N	Physical activity Mean(SD)	Control N	Control Mean(SD)	Std. Mean Difference Fixed, 95% CI	Weight	Std. Mean Difference Fixed, 95% CI
17.17.1 Home-based							
Subtotal ***	**0**		**0**				**Not estimable**
Heterogeneity: Not applicable							
Test for overall effect: Not applicable							
17.17.2 Facility-based							
Bower 2011	16	8.1 (2.5)	15	7.7 (2.6)		35.91%	0.15[-0.55,0.86]
Mehnert 2011	30	23.8 (27)	27	38.3 (31.6)		64.09%	-0.49[-1.02,0.04]
Subtotal ***	**46**		**42**			**100%**	**-0.26[-0.68,0.16]**
Heterogeneity: Tau^2=0; Chi^2=2.04, df=1(P=0.15); I^2=50.93%							
Test for overall effect: Z=1.2(P=0.23)							
17.17.3 Both home- and facility-based							
Rogers 2013	11	6.3 (2.7)	9	6.2 (3.2)		19.97%	0.03[-0.85,0.91]
Rogers 2009	20	6.7 (4.2)	18	5.5 (4)		37.83%	0.28[-0.36,0.92]
Rogers 2014	20	6.7 (3.7)	22	7.1 (3.2)		42.2%	-0.11[-0.72,0.49]
Subtotal ***	**51**		**49**			**100%**	**0.06[-0.33,0.46]**
Heterogeneity: Tau^2=0; Chi^2=0.75, df=2(P=0.69); I^2=0%							
Test for overall effect: Z=0.31(P=0.76)							



Analysis 17.18. Comparison 17 Subanalysis: outcomes by setting of intervention, Outcome 18 Overall sleep (change values).

Study or subgroup	Physical activity N	Physical activity Mean(SD)	Control N	Control Mean(SD)	Std. Mean Difference Random, 95% CI	Weight	Std. Mean Difference Random, 95% CI
17.18.1 Home-based							
Subtotal ***	**0**		**0**				**Not estimable**
Heterogeneity: Not applicable							
Test for overall effect: Not applicable							
17.18.2 Facility-based							
Mehnert 2011	29	-5.4 (29.9)	27	-9.9 (33.3)		100%	0.14[-0.38,0.67]
Subtotal ***	**29**		**27**			**100%**	**0.14[-0.38,0.67]**
Heterogeneity: Not applicable							
Test for overall effect: Z=0.53(P=0.6)							
17.18.3 Both home- and facility-based							
Rogers 2009	20	0.5 (2.1)	18	0.3 (4.7)		47.66%	0.05[-0.59,0.68]
Rogers 2014	20	-1.3 (3.2)	22	-2.2 (4.4)		52.34%	0.23[-0.38,0.84]
Subtotal ***	**40**		**40**			**100%**	**0.14[-0.3,0.58]**
Heterogeneity: Tau^2=0; Chi^2=0.16, df=1(P=0.69); I^2=0%							
Test for overall effect: Z=0.63(P=0.53)							

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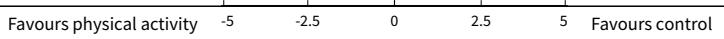
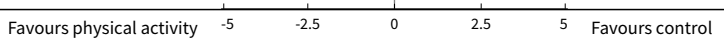
Analysis 17.19. Comparison 17 Subanalysis: outcomes by setting of intervention, Outcome 19 Overall anxiety (follow-up values).

Study or subgroup	Physical activity N	Physical activity Mean(SD)	Control N	Control Mean(SD)	Std. Mean Difference Random, 95% CI	Weight	Std. Mean Difference Random, 95% CI
17.19.1 Home-based							
Subtotal ***	**0**		**0**				**Not estimable**
Heterogeneity: Not applicable							
Test for overall effect: Not applicable							
17.19.2 Facility-based							
Segar 1998	10	28.5 (3)	5	39.5 (6)		8.12%	-2.49[-3.98,-1]
Milne 2008	29	15.3 (6.2)	29	21 (5.7)		29.94%	-0.94[-1.49,-0.4]
Mehnert 2011	30	4.8 (3.5)	28	7.1 (5)		30.85%	-0.54[-1.06,-0.01]
Cantarero-Villanueva 2013	32	42.5 (8.6)	29	49.9 (11.7)		31.09%	-0.72[-1.24,-0.2]
Subtotal ***	**101**		**91**			**100%**	**-0.87[-1.34,-0.41]**
Heterogeneity: Tau²=0.11; Chi²=6.25, df=3(P=0.1); I²=52.04%							
Test for overall effect: Z=3.69(P=0)							
17.19.3 Both home- and facility-based							
Pinto 2003	12	7.6 (7.3)	6	10.5 (3.7)		11.87%	-0.43[-1.43,0.56]
Rogers 2014	20	45.6 (8.9)	22	45.7 (8)		31.92%	-0.01[-0.62,0.59]
Cadmus 2009	37	32.1 (12.3)	37	34.1 (15.4)		56.21%	-0.14[-0.6,0.31]
Subtotal ***	**69**		**65**			**100%**	**-0.14[-0.48,0.21]**
Heterogeneity: Tau²=0; Chi²=0.51, df=2(P=0.77); I²=0%							
Test for overall effect: Z=0.77(P=0.44)							



Analysis 17.20. Comparison 17 Subanalysis: outcomes by setting of intervention, Outcome 20 Overall anxiety (change values).

Study or subgroup	Physical activity N	Physical activity Mean(SD)	Control N	Control Mean(SD)	Std. Mean Difference Fixed, 95% CI	Weight	Std. Mean Difference Fixed, 95% CI
17.20.1 Home-based							
Subtotal ***	**0**		**0**				**Not estimable**
Heterogeneity: Not applicable							
Test for overall effect: Not applicable							
17.20.2 Facility-based							
Mehnert 2011	30	-1.7 (3.7)	28	0.2 (4.9)		49.37%	-0.42[-0.95,0.1]
Cantarero-Villanueva 2013	32	-4.2 (9.8)	29	0.8 (5.5)		50.63%	-0.61[-1.12,-0.09]
Subtotal ***	**62**		**57**			**100%**	**-0.52[-0.88,-0.15]**
Heterogeneity: Tau²=0; Chi²=0.24, df=1(P=0.62); I²=0%							
Test for overall effect: Z=2.76(P=0.01)							
17.20.3 Both home- and facility-based							
Rogers 2014	20	-4 (6.5)	22	-1.8 (5)		35.79%	-0.37[-0.99,0.24]
Cadmus 2009	37	-0.7 (9.2)	37	0.5 (5.8)		64.21%	-0.15[-0.61,0.3]
Subtotal ***	**57**		**59**			**100%**	**-0.23[-0.6,0.13]**
Heterogeneity: Tau²=0; Chi²=0.32, df=1(P=0.57); I²=0%							
Test for overall effect: Z=1.25(P=0.21)							



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Analysis 17.21. Comparison 17 Subanalysis: outcomes by setting of intervention, Outcome 21 Overall depression (follow-up values).

Study or subgroup	Physical activity N	Physical activity Mean(SD)	Control N	Control Mean(SD)	Std. Mean Difference Random, 95% CI	Weight	Std. Mean Difference Random, 95% CI
17.21.1 Home-based							
Payne 2008	10	12.7 (8.7)	10	11.4 (7.9)		33.85%	0.15[-0.73,1.03]
Ergun 2013	20	8.9 (10.5)	20	5.2 (5.2)		66.15%	0.44[-0.19,1.07]
Subtotal ***	**30**		**30**			**100%**	**0.34[-0.17,0.85]**
Heterogeneity: Tau²=0; Chi²=0.28, df=1(P=0.6); I²=0%							
Test for overall effect: Z=1.32(P=0.19)							
17.21.2 Facility-based							
Segar 1998	10	5.5 (2)	5	10 (2)		3.95%	-2.12[-3.51,-0.73]
Kaltsatou 2011	13	16.5 (1.7)	13	22.3 (7.7)		8.75%	-1[-1.83,-0.18]
Bower 2011	16	7.7 (5.8)	15	11.6 (7.1)		10.34%	-0.59[-1.31,0.13]
Ergun 2013	20	4.7 (4.1)	20	5.2 (5.2)		12.25%	-0.09[-0.71,0.53]
Mehnert 2011	30	2.7 (3)	28	4.6 (4.4)		14.4%	-0.51[-1.04,0.01]
Cantarero-Villanueva 2013	32	45.6 (9.7)	29	53.7 (11.6)		14.46%	-0.75[-1.28,-0.23]
Daley 2007	33	6 (6.5)	33	10.3 (7.2)		15.11%	-0.63[-1.12,-0.13]
Kiecolt-Glaser 2014	96	8.1 (8.6)	90	9.2 (8.2)		20.75%	-0.13[-0.42,0.16]
Subtotal ***	**250**		**233**			**100%**	**-0.55[-0.85,-0.25]**
Heterogeneity: Tau²=0.09; Chi²=15.18, df=7(P=0.03); I²=53.88%							
Test for overall effect: Z=3.58(P=0)							
17.21.3 Both home- and facility-based							
Pinto 2003	12	6.2 (7.2)	6	9.8 (6.8)		21%	-0.49[-1.49,0.5]
Rogers 2014	20	44.2 (8.6)	22	25.1 (44.2)		35.24%	0.58[-0.04,1.19]
Cadmus 2009	37	9.6 (9.3)	37	10.8 (10.1)		43.77%	-0.12[-0.58,0.33]
Subtotal ***	**69**		**65**			**100%**	**0.05[-0.52,0.61]**
Heterogeneity: Tau²=0.13; Chi²=4.45, df=2(P=0.11); I²=55.07%							
Test for overall effect: Z=0.16(P=0.87)							

Analysis 17.22. Comparison 17 Subanalysis: outcomes by setting of intervention, Outcome 22 Overall depression (change values).

Study or subgroup	Physical activity N	Physical activity Mean(SD)	Control N	Control Mean(SD)	Std. Mean Difference Random, 95% CI	Weight	Std. Mean Difference Random, 95% CI
17.22.1 Home-based							
Ergun 2013	20	-0.6 (6.7)	20	2.4 (8)		100%	-0.39[-1.02,0.23]
Subtotal ***	**20**		**20**			**100%**	**-0.39[-1.02,0.23]**
Heterogeneity: Not applicable							
Test for overall effect: Z=1.23(P=0.22)							
17.22.2 Facility-based							
Naumann 2012	11	-3.6 (4.3)	10	2 (4.6)		13.02%	-1.21[-2.16,-0.26]
Mehnert 2011	30	2.7 (3)	28	4.6 (4.4)		42.6%	-0.51[-1.04,0.01]
Cantarero-Villanueva 2013	32	-2.9 (7.8)	29	1.5 (7.4)		44.38%	-0.57[-1.09,-0.06]
Subtotal ***	**73**		**67**			**100%**	**-0.63[-0.97,-0.29]**

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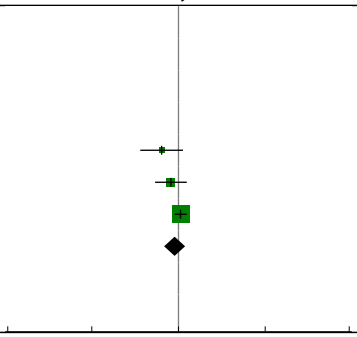
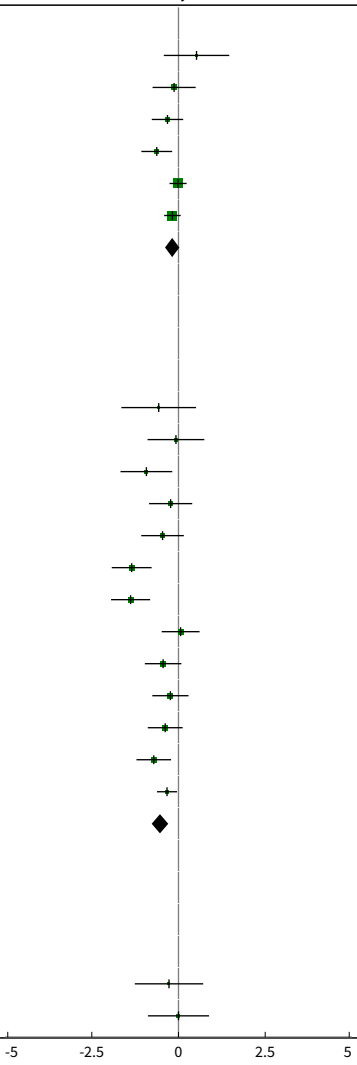
Study or subgroup	Physical activity N	Physical activity Mean(SD)	Control N	Control Mean(SD)	Std. Mean Difference Random, 95% CI	Weight	Std. Mean Difference Random, 95% CI
Heterogeneity: Tau²=0; Chi²=1.68, df=2(P=0.43); I²=0%							
Test for overall effect: Z=3.61(P=0)							
17.22.3 Both home- and facility-based							
Rogers 2014	20	-1.7 (6.9)	22	1.1 (4.2)		17.85%	-0.49[-1.1,0.13]
Cadmus 2009	37	0.3 (6.4)	37	1.7 (6.3)		26.68%	-0.22[-0.68,0.24]
Saarto 2012	263	-0.3 (3.3)	237	-0.5 (3.4)		55.47%	0.06[-0.12,0.24]
Subtotal ***	**320**		**296**			**100%**	**-0.11[-0.41,0.19]**
Heterogeneity: Tau²=0.03; Chi²=3.71, df=2(P=0.16); I²=46.05%							
Test for overall effect: Z=0.73(P=0.47)							



Analysis 17.23. Comparison 17 Subanalysis: outcomes by setting of intervention, Outcome 23 Overall fatigue (follow-up values).

Study or subgroup	Physical activity N	Physical activity Mean(SD)	Control N	Control Mean(SD)	Std. Mean Difference Random, 95% CI	Weight	Std. Mean Difference Random, 95% CI
17.23.1 Home-based							
Payne 2008	9	4.7 (2.6)	9	3.5 (1.7)		4.36%	0.52[-0.42,1.46]
Ergun 2013	20	3 (2.5)	20	3.3 (1.8)		8.99%	-0.13[-0.75,0.49]
Pinto 2015	39	-43.8 (7.8)	37	-41.2 (8.5)		14.47%	-0.32[-0.77,0.14]
Pinto 2005	39	27.1 (21.4)	43	42.3 (26.2)		14.85%	-0.63[-1.07,-0.18]
Vallance 2007	250	-42.7 (8.4)	85	-42.6 (8.7)		28.31%	-0.01[-0.26,0.23]
Short 2014	195	-41.5 (9.3)	104	-39.8 (10.4)		29.03%	-0.17[-0.41,0.06]
Subtotal ***	**552**		**298**			**100%**	**-0.18[-0.39,0.03]**
Heterogeneity: Tau²=0.02; Chi²=8.11, df=5(P=0.15); I²=38.33%							
Test for overall effect: Z=1.72(P=0.09)							
17.23.2 Facility-based							
Banasik 2011	7	1 (0.9)	7	1.6 (1)		3.67%	-0.57[-1.65,0.51]
Loudon 2014	12	1.9 (2.2)	11	2.1 (2.5)		5.35%	-0.07[-0.89,0.75]
Bower 2011	16	3.4 (1.8)	15	4.9 (1.3)		5.98%	-0.93[-1.67,-0.18]
Ergun 2013	20	2.9 (2)	20	3.3 (1.8)		7.27%	-0.23[-0.85,0.4]
Cuesta-Vargas 2014	22	4 (1.8)	20	5.2 (3.2)		7.36%	-0.46[-1.07,0.15]
Milne 2008	29	11.9 (3.2)	29	17.4 (4.7)		7.84%	-1.35[-1.92,-0.78]
Cantarero-Villanueva 2013	32	3.8 (1.8)	29	6.2 (1.7)		7.98%	-1.38[-1.94,-0.82]
Courneya 2003	24	-8.3 (7.9)	28	-8.8 (8.1)		8.2%	0.06[-0.48,0.61]
Mehnert 2011	30	28.5 (25.6)	27	39.9 (25.1)		8.44%	-0.44[-0.97,0.08]
Littman 2012	30	-45 (5.3)	27	-43.1 (10.3)		8.51%	-0.23[-0.75,0.29]
Do 2015	32	16.8 (13.3)	30	22.3 (15.1)		8.76%	-0.38[-0.89,0.12]
Daley 2007	33	2.1 (1.8)	33	3.4 (1.9)		8.82%	-0.71[-1.21,-0.21]
Kiecolt-Glaser 2014	96	6.3 (19.6)	90	12.7 (19)		11.83%	-0.33[-0.62,-0.04]
Subtotal ***	**383**		**366**			**100%**	**-0.53[-0.77,-0.29]**
Heterogeneity: Tau²=0.1; Chi²=28.25, df=12(P=0.01); I²=57.52%							
Test for overall effect: Z=4.38(P<0.0001)							
17.23.3 Both home- and facility-based							
Pinto 2003	12	7.2 (6.4)	6	9 (6.4)		4.64%	-0.27[-1.26,0.71]
Rogers 2013	11	4.2 (1.8)	9	4.2 (1.6)		5.8%	0[-0.88,0.88]



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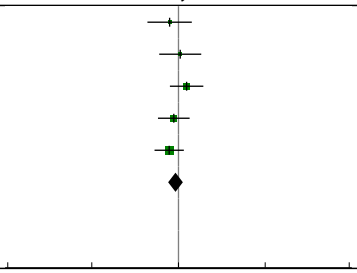
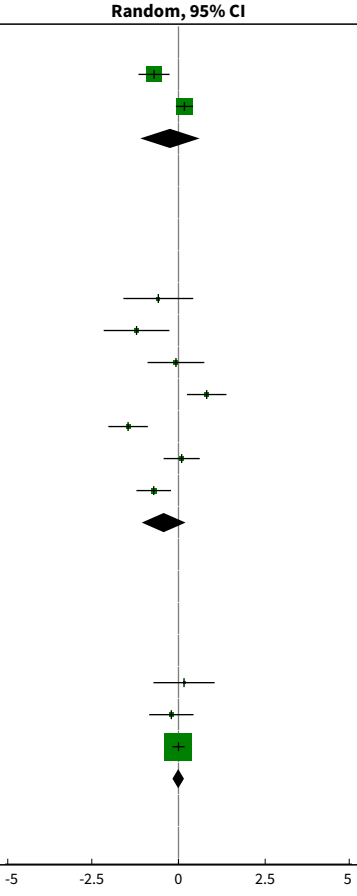
Study or subgroup	Physical activity N	Physical activity Mean(SD)	Control N	Control Mean(SD)	Std. Mean Difference Random, 95% CI	Weight	Std. Mean Difference Random, 95% CI
Rogers 2009	20	-12.4 (10.4)	18	-10.1 (6.6)		11.01%	-0.26[-0.9,0.38]
Rogers 2014	20	4.1 (2.1)	22	4 (1.8)		12.28%	0.05[-0.56,0.66]
Winters-Stone 2011	36	45 (5.3)	31	43.1 (10.3)		19.39%	0.23[-0.25,0.72]
Cadmus 2009	37	-51.9 (9)	37	-50.6 (10)		21.63%	-0.14[-0.59,0.32]
Fillion 2008	44	2.7 (0.7)	43	2.9 (0.8)		25.26%	-0.27[-0.69,0.15]
Subtotal ***	**180**		**166**			**100%**	**-0.09[-0.3,0.13]**
Heterogeneity: Tau^2=0; Chi^2=3.1, df=6(P=0.8); I^2=0%							
Test for overall effect: Z=0.8(P=0.43)							



Analysis 17.24. Comparison 17 Subanalysis: outcomes by setting of intervention, Outcome 24 Overall fatigue (change values).

Study or subgroup	Physical activity N	Physical activity Mean(SD)	Control N	Control Mean(SD)	Std. Mean Difference Random, 95% CI	Weight	Std. Mean Difference Random, 95% CI
17.24.1 Home-based							
Pinto 2005	39	-14.9 (23.5)	43	1.8 (23.5)		47.64%	-0.7[-1.15,-0.26]
Vallance 2007	250	2.5 (8.2)	85	1.2 (6.6)		52.36%	0.17[-0.08,0.42]
Subtotal ***	**289**		**128**			**100%**	**-0.25[-1.1,0.61]**
Heterogeneity: Tau^2=0.35; Chi^2=11.3, df=1(P=0); I^2=91.15%							
Test for overall effect: Z=0.56(P=0.57)							
17.24.2 Facility-based							
Herrero 2006	8	-4.2 (19.6)	8	6.4 (14.5)		12.09%	-0.58[-1.59,0.43]
Naumann 2012	11	-3.6 (4.4)	10	2 (4.6)		12.53%	-1.21[-2.16,-0.26]
Loudon 2014	12	1.9 (2.2)	11	2.1 (2.5)		13.49%	-0.07[-0.89,0.75]
Courneya 2003	24	9.3 (10.2)	28	2 (7.5)		15.28%	0.81[0.24,1.38]
Cantarero-Villanueva 2013	32	-2 (1.8)	29	0.3 (1.4)		15.28%	-1.45[-2.02,-0.88]
Mehnert 2011	30	-0.7 (20.7)	27	-2.9 (25.3)		15.6%	0.09[-0.43,0.61]
Daley 2007	33	2.1 (1.8)	33	3.4 (1.9)		15.73%	-0.71[-1.21,-0.21]
Subtotal ***	**150**		**146**			**100%**	**-0.43[-1.06,0.2]**
Heterogeneity: Tau^2=0.6; Chi^2=39.08, df=6(P<0.0001); I^2=84.65%							
Test for overall effect: Z=1.33(P=0.19)							
17.24.3 Both home- and facility-based							
Rogers 2013	11	4.2 (2)	9	3.9 (1.5)		3.55%	0.16[-0.72,1.04]
Rogers 2009	20	1.9 (9.6)	18	4.2 (12.3)		6.78%	-0.21[-0.84,0.43]
Saarto 2012	263	-2.4 (9.1)	237	-2.4 (8.6)		89.68%	0[-0.18,0.18]
Subtotal ***	**294**		**264**			**100%**	**-0.01[-0.17,0.16]**
Heterogeneity: Tau^2=0; Chi^2=0.51, df=2(P=0.77); I^2=0%							
Test for overall effect: Z=0.1(P=0.92)							



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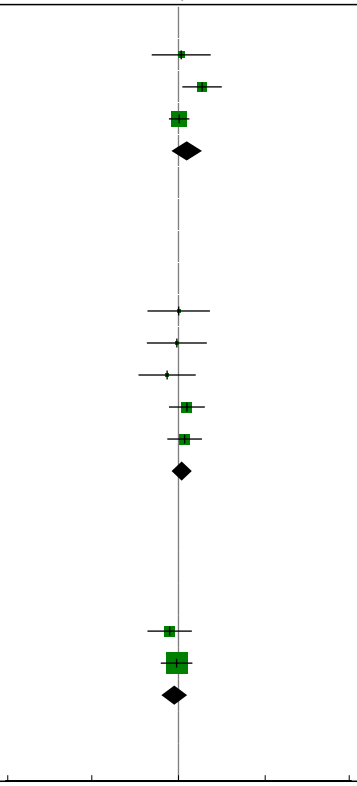
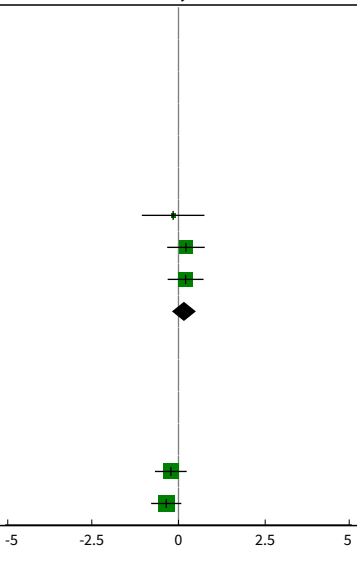
Analysis 17.25. Comparison 17 Subanalysis: outcomes by setting of intervention, Outcome 25 Overall pain/disability (follow-up values).

Study or subgroup	Physical activity N	Physical activity Mean(SD)	Control N	Control Mean(SD)	Std. Mean Difference Random, 95% CI	Weight	Std. Mean Difference Random, 95% CI
17.25.1 Home-based							
Portela 2008	13	-19.4 (18.2)	9	-20.8 (15.5)		18.96%	0.08[-0.77,0.93]
Basen-Enquist 2006	28	79.7 (10.6)	23	72.1 (11.5)		31.1%	0.68[0.11,1.25]
Duijits 2012	87	79.3 (23.6)	89	78.8 (23.8)		49.94%	0.02[-0.28,0.32]
Subtotal ***	**128**		**121**			**100%**	**0.24[-0.2,0.68]**
Heterogeneity: Tau²=0.08; Chi²=4.11, df=2(P=0.13); I²=51.29%							
Test for overall effect: Z=1.05(P=0.29)							
17.25.2 Facility-based							
Mustian 2004	9	9.1 (1.4)	10	9.1 (1.7)		10.45%	0.01[-0.89,0.91]
Portela 2008	12	-21.8 (23)	9	-20.8 (15.5)		11.35%	-0.05[-0.91,0.82]
Loudon 2014	12	0.8 (1.5)	11	1.4 (2.2)		12.46%	-0.33[-1.15,0.5]
Mehnert 2011	30	79.4 (23.1)	28	73.5 (24.8)		31.71%	0.24[-0.27,0.76]
Do 2015	32	21.1 (24.6)	30	16.5 (26.7)		34.03%	0.18[-0.32,0.68]
Subtotal ***	**95**		**88**			**100%**	**0.09[-0.2,0.38]**
Heterogeneity: Tau²=0; Chi²=1.57, df=4(P=0.81); I²=0%							
Test for overall effect: Z=0.62(P=0.54)							
17.25.3 Both home- and facility-based							
Rogers 2009	20	-3 (3)	18	-2.3 (2.8)		33.67%	-0.26[-0.89,0.38]
Cadmus 2009	37	50.3 (9.1)	37	50.8 (9)		66.33%	-0.05[-0.51,0.4]
Subtotal ***	**57**		**55**			**100%**	**-0.12[-0.49,0.25]**
Heterogeneity: Tau²=0; Chi²=0.25, df=1(P=0.62); I²=0%							
Test for overall effect: Z=0.65(P=0.52)							



Analysis 17.26. Comparison 17 Subanalysis: outcomes by setting of intervention, Outcome 26 Overall pain/disability (change values).

Study or subgroup	Physical activity N	Physical activity Mean(SD)	Control N	Control Mean(SD)	Std. Mean Difference Random, 95% CI	Weight	Std. Mean Difference Random, 95% CI
17.26.1 Home-based							
Subtotal ***	**0**		**0**				**Not estimable**
Heterogeneity: Not applicable							
Test for overall effect: Not applicable							
17.26.2 Facility-based							
Mustian 2004	9	-0.2 (1.3)	10	0 (1.4)		14.64%	-0.15[-1.06,0.75]
Cormie 2014	43	3.4 (6.5)	19	2 (6.2)		40.67%	0.22[-0.33,0.76]
Mehnert 2011	30	-2.4 (25)	28	-7.6 (25.2)		44.69%	0.21[-0.31,0.72]
Subtotal ***	**82**		**57**			**100%**	**0.16[-0.19,0.5]**
Heterogeneity: Tau²=0; Chi²=0.54, df=2(P=0.76); I²=0%							
Test for overall effect: Z=0.89(P=0.37)							
17.26.3 Both home- and facility-based							
Cadmus 2009	37	-2.2 (11.3)	37	-0.1 (7)		47.55%	-0.22[-0.68,0.24]
Irwin 2015	45	-6 (19)	38	0.7 (18.6)		52.45%	-0.35[-0.79,0.08]



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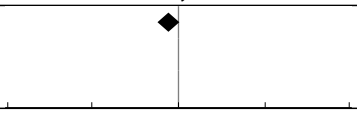
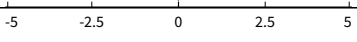
Study or subgroup	Physical activity N	Physical activity Mean(SD)	Control N	Control Mean(SD)	Std. Mean Difference Random, 95% CI	Weight	Std. Mean Difference Random, 95% CI
Subtotal ***	**82**		**75**			**100%**	**-0.29[-0.61,0.02]**
Heterogeneity: Tau²=0; Chi²=0.17, df=1(P=0.68); I²=0%							
Test for overall effect: Z=1.81(P=0.07)							



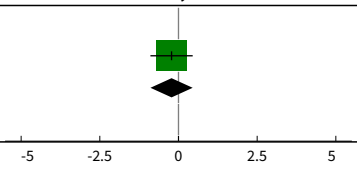
Analysis 17.27. Comparison 17 Subanalysis: outcomes by setting of intervention, Outcome 27 Overall self-esteem/body image (follow-up values).

Study or subgroup	Physical activity N	Physical activity Mean(SD)	Control N	Control Mean(SD)	Std. Mean Difference Random, 95% CI	Weight	Std. Mean Difference Random, 95% CI
17.27.1 Home-based							
Musanti 2012	30	23.8 (3.5)	12	26.3 (3.9)		46.95%	-0.68[-1.37,0.01]
Pinto 2005	39	30.3 (7.8)	43	27.2 (6.8)		53.05%	0.41[-0.03,0.85]
Subtotal ***	**69**		**55**			**100%**	**-0.1[-1.17,0.97]**
Heterogeneity: Tau²=0.51; Chi²=6.89, df=1(P=0.01); I²=85.49%							
Test for overall effect: Z=0.18(P=0.85)							
17.27.2 Facility-based							
Segar 1998	10	33 (1.8)	5	30.5 (2.7)		3.07%	1.11[-0.06,2.28]
Loudon 2014	12	-1.4 (0.3)	11	-1.6 (0.9)		5.99%	0.2[-0.62,1.02]
Mehnert 2011	27	-5.5 (1.7)	27	-6.8 (2.6)		12.33%	0.61[0.06,1.16]
Courneya 2003	24	34.8 (4.7)	28	34.6 (4.4)		12.38%	0.04[-0.5,0.59]
Milne 2008	29	-17.9 (6.8)	29	-20.1 (6.3)		13.47%	0.33[-0.19,0.85]
Daley 2007	33	2 (0.8)	32	1.6 (0.5)		14.3%	0.66[0.16,1.16]
Do 2015	32	37.9 (18.9)	30	36.1 (18.3)		14.38%	0.1[-0.4,0.59]
Schmitz 2009	59	-70.4 (16.3)	63	-71.5 (18)		24.07%	0.06[-0.29,0.42]
Subtotal ***	**226**		**225**			**100%**	**0.29[0.09,0.5]**
Heterogeneity: Tau²=0.01; Chi²=8.32, df=7(P=0.31); I²=15.88%							
Test for overall effect: Z=2.76(P=0.01)							
17.27.3 Both home- and facility-based							
Pinto 2003	12	32.3 (4.3)	6	25.3 (8.2)		38.09%	1.15[0.08,2.22]
Cadmus 2009	37	34.2 (5.5)	37	33.4 (5.9)		61.91%	0.14[-0.32,0.6]
Subtotal ***	**49**		**43**			**100%**	**0.52[-0.44,1.48]**
Heterogeneity: Tau²=0.33; Chi²=2.9, df=1(P=0.09); I²=65.53%							
Test for overall effect: Z=1.07(P=0.29)							



Analysis 17.28. Comparison 17 Subanalysis: outcomes by setting of intervention, Outcome 28 Overall self-esteem/body image (change values).

Study or subgroup	Physical activity N	Physical activity Mean(SD)	Control N	Control Mean(SD)	Std. Mean Difference Random, 95% CI	Weight	Std. Mean Difference Random, 95% CI
17.28.1 Home-based							
Musanti 2012	30	-0.4 (4.5)	12	0.6 (3.9)		100%	-0.22[-0.89,0.45]
Subtotal ***	**30**		**12**			**100%**	**-0.22[-0.89,0.45]**
Heterogeneity: Not applicable							



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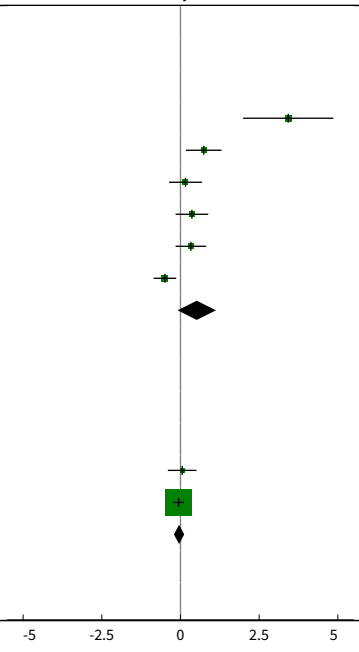
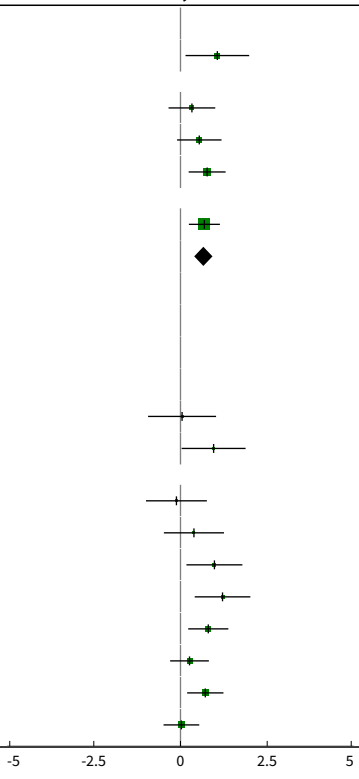
Study or subgroup	Physical activity N	Physical activity Mean(SD)	Control N	Control Mean(SD)	Std. Mean Difference Random, 95% CI	Weight	Std. Mean Difference Random, 95% CI
Test for overall effect: Z=0.64(P=0.52)							
17.28.2 Facility-based							
Mustian 2004	11	3 (1)	10	-1.5 (1.5)		9.63%	3.42[1.99,4.86]
Courneya 2003	24	2.6 (3.7)	28	-0.1 (3.5)		17.43%	0.74[0.18,1.3]
Mehnert 2011	30	0.7 (2.1)	27	0.4 (2.1)		17.83%	0.16[-0.36,0.68]
Milne 2008	29	1.5 (3.7)	29	0.1 (3.9)		17.85%	0.36[-0.16,0.88]
Daley 2007	33	1.8 (0.7)	33	1.6 (0.7)		18.14%	0.33[-0.16,0.82]
Schmitz 2009	59	-12 (15.5)	63	-4.1 (16.2)		19.12%	-0.49[-0.86,-0.13]
Subtotal ***	**186**		**190**			**100%**	**0.52[-0.09,1.13]**
Heterogeneity: Tau²=0.47; Chi²=37.69, df=5(P<0.0001); I²=86.74%							
Test for overall effect: Z=1.66(P=0.1)							
17.28.3 Both home- and facility-based							
Cadmus 2009	37	0.4 (4.4)	37	0.2 (2.9)		12.92%	0.05[-0.4,0.51]
Saarto 2012	263	10.7 (21.5)	237	12 (22)		87.08%	-0.06[-0.24,0.12]
Subtotal ***	**300**		**274**			**100%**	**-0.05[-0.21,0.12]**
Heterogeneity: Tau²=0; Chi²=0.2, df=1(P=0.65); I²=0%							
Test for overall effect: Z=0.54(P=0.59)							



Analysis 17.29. Comparison 17 Subanalysis: outcomes by setting of intervention, Outcome 29 Overall cardiorespiratory fitness (follow-up values).

Study or subgroup	Physical activity N	Physical activity Mean(SD)	Control N	Control Mean(SD)	Std. Mean Difference Random, 95% CI	Weight	Std. Mean Difference Random, 95% CI
17.29.1 Home-based							
Portela 2008	13	3044.3 (440.9)	9	2416.1 (718.6)		8.26%	1.06[0.15,1.98]
Musanti 2012	30	24.6 (4.9)	12	23 (4.3)		15.34%	0.33[-0.34,1]
Kim 2015	20	424.8 (55.8)	19	394.4 (54)		16.96%	0.54[-0.1,1.18]
Basen-Enquist 2006	35	1643 (122.5)	25	1546 (127.5)		24.54%	0.77[0.24,1.3]
Pinto 2005	39	-16.3 (2.1)	43	-17.8 (2.2)		34.89%	0.69[0.24,1.14]
Subtotal ***	**137**		**108**			**100%**	**0.66[0.4,0.92]**
Heterogeneity: Tau²=0; Chi²=1.97, df=4(P=0.74); I²=0%							
Test for overall effect: Z=4.9(P<0.0001)							
17.29.2 Facility-based							
Herrero 2006	8	25.9 (4.5)	8	25.7 (3.7)		3.73%	0.05[-0.93,1.03]
Portela 2008	12	2966.5 (390.7)	9	2416.1 (718.6)		4.14%	0.96[0.03,1.88]
Cerulli 2014	10	31.3 (5)	10	32.3 (10.1)		4.5%	-0.12[-0.99,0.76]
Mustian 2004	11	636.1 (50.6)	10	610.3 (75.9)		4.6%	0.39[-0.48,1.25]
Kaltsatou 2011	14	483.3 (86)	13	403.1 (71.9)		5.18%	0.98[0.17,1.78]
Rahnama 2010	14	20.7 (5.7)	15	13.9 (5.2)		5.22%	1.21[0.41,2.01]
Courneya 2003	24	21.3 (3.7)	26	18.2 (3.9)		8.53%	0.8[0.22,1.38]
Mehnert 2011	27	26.9 (4.4)	23	25.7 (4.7)		8.95%	0.26[-0.3,0.82]
Do 2015	30	31.7 (12.4)	30	24.5 (6.6)		9.76%	0.72[0.19,1.24]
Milne 2008	29	1.5 (0.3)	29	1.5 (0.4)		9.96%	0.03[-0.49,0.54]



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Study or subgroup	Physical activity N	Physical activity Mean(SD)	Control N	Control Mean(SD)	Std. Mean Difference Random, 95% CI	Weight	Std. Mean Difference Random, 95% CI
Murtezani 2014	30	875.1 (86.7)	32	823.5 (87.1)		10.09%	0.59[0.08,1.1]
Fillion 2008	44	27 (4.4)	43	26.5 (5.8)		12.63%	0.1[-0.32,0.52]
Daley 2007	33	35 (4.4)	69	33.1 (5.3)		12.7%	0.38[-0.04,0.8]
Subtotal ***	**286**		**317**			**100%**	**0.45[0.25,0.66]**
Heterogeneity: Tau²=0.04; Chi²=17.02, df=12(P=0.15); I²=29.51%							
Test for overall effect: Z=4.35(P<0.0001)							
17.29.3 Both home- and facility-based							
Rogers 2013	12	23.9 (6.2)	10	23.9 (3.8)		8.42%	0[-0.84,0.84]
Nikander 2007	14	-17.6 (1.3)	14	-17.2 (1.4)		10.24%	-0.29[-1.03,0.46]
Rogers 2014	20	30.9 (6.3)	22	25.1 (5)		12.78%	1.01[0.36,1.65]
Rogers 2009	20	29.5 (6.6)	18	27.6 (6.1)		12.95%	0.29[-0.35,0.93]
Irwin 2015	45	24.6 (5.5)	38	23 (4.7)		21.77%	0.31[-0.13,0.74]
Rogers 2015	105	23.6 (4.8)	108	22.7 (0.3)		33.83%	0.27[-0,0.54]
Subtotal ***	**216**		**210**			**100%**	**0.29[0.03,0.56]**
Heterogeneity: Tau²=0.04; Chi²=7.52, df=5(P=0.18); I²=33.52%							
Test for overall effect: Z=2.16(P=0.03)							

Analysis 17.30. Comparison 17 Subanalysis: outcomes by setting of intervention, Outcome 30 Overall cardiorespiratory fitness (change values).

Study or subgroup	Physical activity N	Physical activity Mean(SD)	Control N	Control Mean(SD)	Std. Mean Difference Random, 95% CI	Weight	Std. Mean Difference Random, 95% CI
17.30.1 Home-based							
Musanti 2012	30	1 (3.1)	12	0.9 (3.4)		41.4%	0.03[-0.64,0.7]
Pinto 2005	39	1.4 (2.4)	43	-0.2 (2.5)		58.6%	0.65[0.2,1.09]
Subtotal ***	**69**		**55**			**100%**	**0.39[-0.2,0.99]**
Heterogeneity: Tau²=0.11; Chi²=2.25, df=1(P=0.13); I²=55.56%							
Test for overall effect: Z=1.29(P=0.2)							
17.30.2 Facility-based							
Nieman 1995	6	60.8 (8.4)	6	12 (17.8)		8.14%	3.24[1.29,5.18]
Naumann 2012	11	3.1 (2.9)	10	-0.1 (3.1)		25.83%	1.03[0.1,1.95]
Dolan 2016	23	12.2 (10.2)	10	-6 (7.2)		27.18%	1.88[0.99,2.77]
Courneya 2003	24	2.7 (2.6)	26	-0.6 (1.7)		38.85%	1.49[0.86,2.12]
Subtotal ***	**64**		**52**			**100%**	**1.62[1.03,2.21]**
Heterogeneity: Tau²=0.13; Chi²=4.69, df=3(P=0.2); I²=36.09%							
Test for overall effect: Z=5.38(P<0.0001)							
17.30.3 Both home- and facility-based							
Rogers 2014	20	2.8 (4.9)	22	1.1 (4.2)		23.95%	0.37[-0.24,0.98]
Irwin 2015	45	1.5 (2.1)	38	-0.4 (2.7)		31.25%	0.79[0.34,1.24]
Saarto 2012	262	0.9 (1.2)	236	0.7 (1)		44.8%	0.16[-0.02,0.33]
Subtotal ***	**327**		**296**			**100%**	**0.4[-0.02,0.82]**
Heterogeneity: Tau²=0.09; Chi²=6.72, df=2(P=0.03); I²=70.23%							
Test for overall effect: Z=1.89(P=0.06)							

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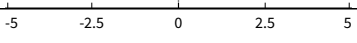
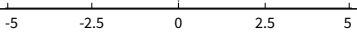
Analysis 17.31. Comparison 17 Subanalysis: outcomes by setting of intervention, Outcome 31 Overall self-reported physical activity (follow-up values).

Study or subgroup	Physical activity N	Physical activity Mean(SD)	Control N	Control Mean(SD)	Std. Mean Difference Random, 95% CI	Weight	Std. Mean Difference Random, 95% CI
17.31.1 Home-based							
Baruth 2013	20	0 (0)	12	0 (0)			Not estimable
Matthews 2007	22	54.2 (34.1)	14	27.2 (22.7)		8.73%	0.87[0.17,1.58]
Kim 2015	20	17.6 (16)	19	11.8 (11.6)		9.7%	0.4[-0.23,1.04]
Basen-Enquist 2006	35	428 (254.4)	25	404 (265)		11.68%	0.09[-0.42,0.61]
Pinto 2015	36	70.3 (65.9)	32	16.5 (31.9)		11.79%	1.01[0.5,1.52]
Hatchett 2013	38	3.5 (2.2)	36	1.4 (1.7)		12.14%	1.04[0.55,1.53]
Pinto 2005	39	202.4 (161.7)	43	78.4 (86)		12.66%	0.96[0.5,1.42]
Vallance 2007	253	207.6 (169)	85	163 (121)		16.58%	0.28[0.03,0.53]
Short 2014	195	217.9 (222.9)	104	180.3 (206.9)		16.72%	0.17[-0.07,0.41]
Subtotal ***	**658**		**370**			**100%**	**0.57[0.29,0.85]**
Heterogeneity: Tau^2=0.11; Chi^2=25.24, df=7(P=0); I^2=72.26%							
Test for overall effect: Z=3.94(P<0.0001)							
17.31.2 Facility-based							
Littman 2012	32	19.2 (19.1)	31	12.1 (13.6)		12.1%	0.42[-0.08,0.92]
Kiecolt-Glaser 2014	96	11.2 (7.6)	90	9.1 (6.1)		36.11%	0.3[0.01,0.59]
Schmitz 2009	131	3348.8 (9019.4)	133	2339.8 (6213.7)		51.79%	0.13[-0.11,0.37]
Subtotal ***	**259**		**254**			**100%**	**0.23[0.05,0.4]**
Heterogeneity: Tau^2=0; Chi^2=1.46, df=2(P=0.48); I^2=0%							
Test for overall effect: Z=2.57(P=0.01)							
17.31.3 Both home- and facility-based							
Guinan 2013	16	38.7 (26.9)	10	19.9 (11.3)		11.44%	0.81[-0.01,1.64]
Rogers 2009	20	121.4 (73.2)	18	114.3 (131.5)		14.54%	0.07[-0.57,0.7]
Cadmus 2009	34	161.7 (114.7)	33	55.6 (101.9)		17.01%	0.97[0.46,1.47]
Winters-Stone 2011	36	430.8 (281.4)	31	461.7 (346.4)		17.55%	-0.1[-0.58,0.38]
Irwin 2015	45	222.1 (118.6)	38	103.6 (104.6)		17.93%	1.04[0.58,1.51]
Rogers 2015	110	169 (119)	112	74 (107)		21.51%	0.84[0.56,1.11]
Subtotal ***	**261**		**242**			**100%**	**0.62[0.23,1]**
Heterogeneity: Tau^2=0.16; Chi^2=18.59, df=5(P=0); I^2=73.1%							
Test for overall effect: Z=3.14(P=0)							



Analysis 17.32. Comparison 17 Subanalysis: outcomes by setting of intervention, Outcome 32 Overall self-reported physical activity (change values).

Study or subgroup	Physical activity N	Physical activity Mean(SD)	Control N	Control Mean(SD)	Std. Mean Difference Random, 95% CI	Weight	Std. Mean Difference Random, 95% CI
17.32.1 Home-based							
Matthews 2007	22	21.5 (30.6)	14	5 (13.8)		8.22%	0.63[-0.06,1.32]



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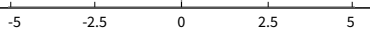
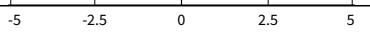
Study or subgroup	Physical activity N	Physical activity Mean(SD)	Control N	Control Mean(SD)	Std. Mean Difference Random, 95% CI	Weight	Std. Mean Difference Random, 95% CI
Pinto 2005	39	84.7 (189.2)	43	-18.3 (200.7)		19.99%	0.52[0.08,0.96]
Vallance 2007	281	82 (168.7)	96	30 (167.8)		71.79%	0.31[0.08,0.54]
Subtotal ***	**342**		**153**			**100%**	**0.38[0.18,0.57]**
Heterogeneity: Tau²=0; Chi²=1.28, df=2(P=0.53); I²=0%							
Test for overall effect: Z=3.75(P=0)							
17.32.2 Facility-based							
Schmitz 2009	48	2.8 (16.8)	57	-0.8 (16.6)		100%	0.21[-0.17,0.6]
Subtotal ***	**48**		**57**			**100%**	**0.21[-0.17,0.6]**
Heterogeneity: Not applicable							
Test for overall effect: Z=1.09(P=0.28)							
17.32.3 Both home- and facility-based							
Guinan 2013	16	15.6 (11.4)	10	-8.3 (4.2)		18.78%	2.46[1.39,3.53]
Cadmus 2009	34	129 (117.9)	33	44.3 (89.4)		26.03%	0.8[0.3,1.3]
Irwin 2015	45	159 (136)	38	49 (86)		26.49%	0.94[0.48,1.4]
Saarto 2012	262	3.5 (18.3)	236	3.3 (21.5)		28.7%	0.01[-0.17,0.19]
Subtotal ***	**357**		**317**			**100%**	**0.92[0.14,1.7]**
Heterogeneity: Tau²=0.54; Chi²=36.9, df=3(P<0.0001); I²=91.87%							
Test for overall effect: Z=2.32(P=0.02)							



Analysis 17.33. Comparison 17 Subanalysis: outcomes by setting of intervention, Outcome 33 Overall objective physical activity (follow-up values).

Study or subgroup	Physical activity N	Physical activity Mean(SD)	Control N	Control Mean(SD)	Std. Mean Difference Random, 95% CI	Weight	Std. Mean Difference Random, 95% CI
17.33.1 Home-based							
Matthews 2007	22	330.8 (114.7)	14	198.5 (55.4)		13.12%	1.34[0.6,2.09]
Pinto 2015	36	70.3 (65.9)	32	16.5 (31.9)		18.15%	1.01[0.5,1.52]
Pinto 2005	39	37.5 (14.3)	43	33.6 (19.4)		19.88%	0.22[-0.21,0.66]
Vallance 2007	253	8110.5 (4133.9)	85	8028 (3457)		24.26%	0.02[-0.23,0.27]
Short 2014	219	9363.1 (7922.8)	111	8301.2 (3373.4)		24.6%	0.16[-0.07,0.39]
Subtotal ***	**569**		**285**			**100%**	**0.45[0.07,0.82]**
Heterogeneity: Tau²=0.14; Chi²=20.75, df=4(P=0); I²=80.72%							
Test for overall effect: Z=2.33(P=0.02)							
17.33.2 Facility-based							
Subtotal ***	**0**		**0**				**Not estimable**
Heterogeneity: Not applicable							
Test for overall effect: Not applicable							
17.33.3 Both home- and facility-based							
Rogers 2013	12	198.4 (111.7)	10	0 (0)			Not estimable
Guinan 2013	16	30.7 (15.6)	9	31 (15.6)		8.54%	-0.02[-0.84,0.8]
Rogers 2014	20	294 (175)	22	154 (75)		12.83%	1.04[0.39,1.69]



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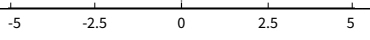
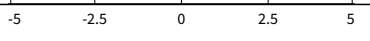
Study or subgroup	Physical activity N	Physical activity Mean(SD)	Control N	Control Mean(SD)	Std. Mean Difference Random, 95% CI	Weight	Std. Mean Difference Random, 95% CI
Rogers 2009	20	252191 (91893)	18	210917 (64078)		12.86%	0.51[-0.14,1.15]
Cadmus 2009	33	6738 (2958)	34	5537 (3352)		20.75%	0.38[-0.11,0.86]
Rogers 2015	110	246 (153)	112	197 (138)		45.02%	0.34[0.07,0.6]
Subtotal ***	**211**		**205**			**100%**	**0.43[0.17,0.68]**
Heterogeneity: Tau^2=0.02; Chi^2=5.06, df=4(P=0.28); I^2=21.02%							
Test for overall effect: Z=3.32(P=0)							



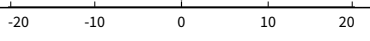
Analysis 17.34. Comparison 17 Subanalysis: outcomes by setting of intervention, Outcome 34 Overall objective physical activity (change values).

Study or subgroup	Physical activity N	Physical activity Mean(SD)	Control N	Control Mean(SD)	Std. Mean Difference Random, 95% CI	Weight	Std. Mean Difference Random, 95% CI
17.34.1 Home-based							
Matthews 2007	22	72.2 (114.6)	14	-16.8 (51.5)		43.78%	0.91[0.2,1.62]
Vallance 2007	253	-150 (5173.3)	85	91 (5155.4)		56.22%	-0.05[-0.29,0.2]
Subtotal ***	**275**		**99**			**100%**	**0.37[-0.56,1.3]**
Heterogeneity: Tau^2=0.39; Chi^2=6.3, df=1(P=0.01); I^2=84.12%							
Test for overall effect: Z=0.78(P=0.43)							
17.34.2 Facility-based							
Subtotal ***	**0**		**0**				**Not estimable**
Heterogeneity: Not applicable							
Test for overall effect: Not applicable							
17.34.3 Both home- and facility-based							
Guinan 2013	16	-1.1 (6.2)	9	-7.9 (5.3)		16.73%	1.11[0.23,2]
Rogers 2014	20	114 (109)	22	10 (70)		30.3%	1.13[0.47,1.78]
Cadmus 2009	33	1621 (2108)	34	-60 (2341)		52.97%	0.75[0.25,1.24]
Subtotal ***	**69**		**65**			**100%**	**0.92[0.56,1.28]**
Heterogeneity: Tau^2=0; Chi^2=1.04, df=2(P=0.59); I^2=0%							
Test for overall effect: Z=5(P<0.0001)							



Analysis 17.35. Comparison 17 Subanalysis: outcomes by setting of intervention, Outcome 35 Mass (follow-up values).

Study or subgroup	Physical activity N	Physical activity Mean(SD)	Control N	Control Mean(SD)	Mean Difference Fixed, 95% CI	Weight	Mean Difference Fixed, 95% CI
17.35.1 Home-based							
Matthews 2007	22	74.9 (15.2)	14	78.9 (20.3)		31.09%	-4[-16.39,8.39]
DeNysschen 2011	30	69.3 (14.2)	34	72.4 (19.6)		68.91%	-3.1[-11.42,5.22]
Subtotal ***	**52**		**48**			**100%**	**-3.38[-10.29,3.53]**
Heterogeneity: Tau^2=0; Chi^2=0.01, df=1(P=0.91); I^2=0%							
Test for overall effect: Z=0.96(P=0.34)							



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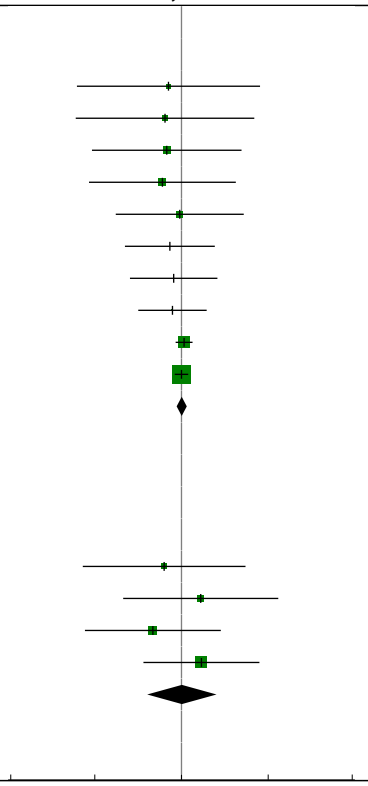
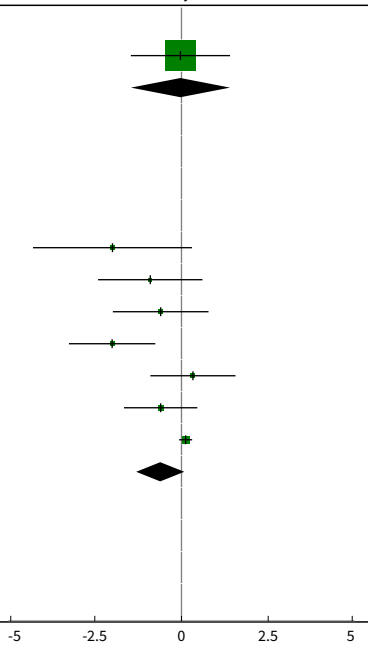
Study or subgroup	Physical activity N	Physical activity Mean(SD)	Control N	Control Mean(SD)	Mean Difference Fixed, 95% CI	Weight	Mean Difference Fixed, 95% CI
17.35.2 Facility-based							
Mustian 2004	11	67.1 (10.4)	10	68.6 (13.8)		0.31%	-1.5[-12.06,9.06]
Courneya 2003	24	78.2 (20.5)	26	80.1 (16.2)		0.32%	-1.9[-12.2,8.4]
Herrero 2006	8	65.6 (8.7)	8	67.3 (8.9)		0.46%	-1.7[-10.32,6.92]
Rahnama 2010	14	69.4 (13.5)	15	71.6 (9.2)		0.48%	-2.2[-10.67,6.27]
Littman 2012	28	81.1 (13.6)	27	81.3 (14.3)		0.63%	-0.2[-7.58,7.18]
Daley 2007	33	74.3 (12.5)	69	75.6 (12.5)		1.28%	-1.34[-6.52,3.84]
Murtezani 2014	30	71.7 (9.5)	32	72.6 (10.8)		1.35%	-0.9[-5.94,4.14]
Schmitz 2009	131	76.2 (15.7)	133	77.2 (17)		2.2%	-1.04[-4.98,2.9]
Schmitz 2005	39	69.5 (2.2)	40	69.2 (2.2)		36.07%	0.3[-0.67,1.27]
Kiecolt-Glaser 2014	96	75.2 (2.8)	90	75.2 (2.6)		56.91%	0[-0.78,0.78]
Subtotal ***	**414**		**450**			**100%**	**0.03[-0.56,0.61]**
Heterogeneity: Tau^2=0; Chi^2=1.62, df=9(P=1); I^2=0%							
Test for overall effect: Z=0.09(P=0.93)							
17.35.3 Both home- and facility-based							
Nikander 2007	14	73.5 (13.3)	14	75.5 (12)		18.17%	-2[-11.38,7.38]
Cadmus 2009	36	80.7 (16.9)	33	78.5 (20.6)		20%	2.22[-6.72,11.16]
Ligibel 2008	40	80 (17.5)	42	83.3 (18.7)		26.06%	-3.3[-11.14,4.54]
Winters-Stone 2011	36	76.5 (15.6)	31	74.2 (12.3)		35.78%	2.3[-4.39,8.99]
Subtotal ***	**126**		**120**			**100%**	**0.04[-3.96,4.04]**
Heterogeneity: Tau^2=0; Chi^2=1.55, df=3(P=0.67); I^2=0%							
Test for overall effect: Z=0.02(P=0.98)							



Analysis 17.36. Comparison 17 Subanalysis: outcomes by setting of intervention, Outcome 36 Mass (change values).

Study or subgroup	Physical activity N	Physical activity Mean(SD)	Control N	Control Mean(SD)	Mean Difference Random, 95% CI	Weight	Mean Difference Random, 95% CI
17.36.1 Home-based							
Matthews 2007	22	0 (2.1)	14	0 (2.2)		100%	-0.03[-1.46,1.4]
Subtotal ***	**22**		**14**			**100%**	**-0.03[-1.46,1.4]**
Heterogeneity: Not applicable							
Test for overall effect: Z=0.04(P=0.97)							
17.36.2 Facility-based							
Dolan 2016	23	-0.5 (5)	10	1.4 (1.6)		6.74%	-1.99[-4.28,0.3]
Mustian 2004	9	-0.3 (1.9)	10	0.6 (1.4)		11.58%	-0.9[-2.4,0.6]
Schmitz 2009	65	-1 (3.7)	65	-0.4 (4.3)		12.67%	-0.6[-1.98,0.78]
Murtezani 2014	30	-2.3 (2.4)	32	-0.3 (2.6)		13.97%	-2[-3.24,-0.76]
Naumann 2012	11	0.5 (1.3)	10	0.1 (1.5)		14.15%	0.33[-0.9,1.56]
Courneya 2003	24	0.1 (2)	26	0.7 (1.8)		15.97%	-0.6[-1.66,0.46]
Schmitz 2005	39	0.3 (0.4)	40	0.2 (0.4)		24.93%	0.12[-0.07,0.31]
Subtotal ***	**201**		**193**			**100%**	**-0.61[-1.31,0.08]**
Heterogeneity: Tau^2=0.49; Chi^2=17.95, df=6(P=0.01); I^2=66.56%							
Test for overall effect: Z=1.73(P=0.08)							
17.36.3 Both home- and facility-based							



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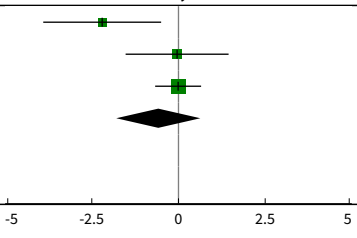
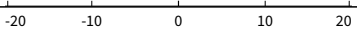
Study or subgroup	Physical activity N	Physical activity Mean(SD)	Control N	Control Mean(SD)	Mean Difference Random, 95% CI	Weight	Mean Difference Random, 95% CI
Irwin 2015	45	-2.1 (4.3)	38	0.1 (3.6)		25.73%	-2.2[-3.9,-0.5]
Ligibel 2008	22	0 (2.3)	14	0 (2.2)		29.23%	-0.04[-1.52,1.44]
Saarto 2012	262	0.7 (3.7)	236	0.7 (3.8)		45.03%	-0.01[-0.67,0.65]
Subtotal ***	**329**		**288**			**100%**	**-0.58[-1.8,0.63]**
Heterogeneity: Tau²=0.74; Chi²=5.64, df=2(P=0.06); I²=64.52%							
Test for overall effect: Z=0.94(P=0.35)							



Analysis 17.37. Comparison 17 Subanalysis: outcomes by setting of intervention, Outcome 37 BMI (follow-up values).

Study or subgroup	Physical activity N	Physical activity Mean(SD)	Control N	Control Mean(SD)	Mean Difference Fixed, 95% CI	Weight	Mean Difference Fixed, 95% CI
17.37.1 Home-based							
Portela 2008	13	27.8 (6.3)	9	34.7 (15)		1.13%	-6.9[-17.28,3.48]
Pinto 2005	39	27.7 (5)	43	29 (5.6)		23.06%	-1.35[-3.65,0.95]
Vallance 2007	253	27 (5.2)	85	27.2 (5.2)		75.8%	-0.19[-1.46,1.08]
Subtotal ***	**305**		**137**			**100%**	**-0.53[-1.64,0.57]**
Heterogeneity: Tau²=0; Chi²=2.21, df=2(P=0.33); I²=9.5%							
Test for overall effect: Z=0.95(P=0.34)							
17.37.2 Facility-based							
Portela 2008	12	30.5 (4.4)	9	34.7 (15)		0.04%	-4.2[-14.31,5.91]
Mustian 2004	11	23.9 (4.2)	10	26.7 (5.6)		0.25%	-2.8[-7.05,1.45]
Courneya 2003	24	29.4 (7.4)	26	29.3 (6)		0.32%	0.1[-3.65,3.85]
Rahnama 2010	14	27.7 (4.8)	15	28 (4.6)		0.38%	-0.3[-3.71,3.11]
Littman 2012	28	27.7 (5)	27	29 (5.6)		0.56%	-1.35[-4.17,1.47]
Murtezani 2014	30	25.1 (2.9)	32	25.8 (3.5)		1.76%	-0.7[-2.29,0.89]
Schmitz 2009	131	28.5 (5.6)	133	28.9 (6.3)		2.18%	-0.48[-1.91,0.95]
Schmitz 2005	39	26 (0.7)	40	25.8 (0.7)		42.31%	0.2[-0.12,0.52]
Kiecolt-Glaser 2014	96	27.8 (1.1)	90	27.8 (1)		52.2%	0[-0.29,0.29]
Subtotal ***	**385**		**382**			**100%**	**0.04[-0.17,0.26]**
Heterogeneity: Tau²=0; Chi²=5.71, df=8(P=0.68); I²=0%							
Test for overall effect: Z=0.42(P=0.68)							
17.37.3 Both home- and facility-based							
Rogers 2013	12	33.6 (7)	10	30.6 (7.3)		6.44%	3[-3,9]
Rogers 2009	20	30.6 (7.6)	18	30.4 (8.3)		9%	0.2[-4.88,5.28]
Nikander 2007	14	26.9 (5.6)	14	27.7 (4.9)		15.29%	-0.8[-4.7,3.1]
Rogers 2014	20	29.6 (5)	22	32.2 (6.7)		18.37%	-2.6[-6.16,0.96]
Cadmus 2009	36	30.5 (6)	33	29.9 (7.6)		22.02%	0.55[-2.7,3.8]
Ligibel 2008	40	30.3 (6.3)	42	31.5 (6.8)		28.88%	-1.2[-4.04,1.64]
Subtotal ***	**142**		**139**			**100%**	**-0.61[-2.14,0.91]**
Heterogeneity: Tau²=0; Chi²=3.36, df=5(P=0.65); I²=0%							
Test for overall effect: Z=0.79(P=0.43)							



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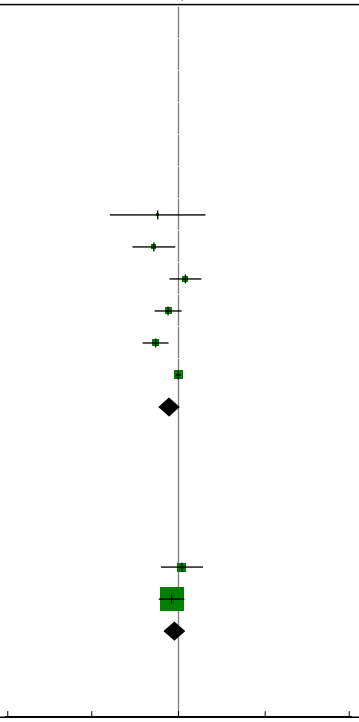
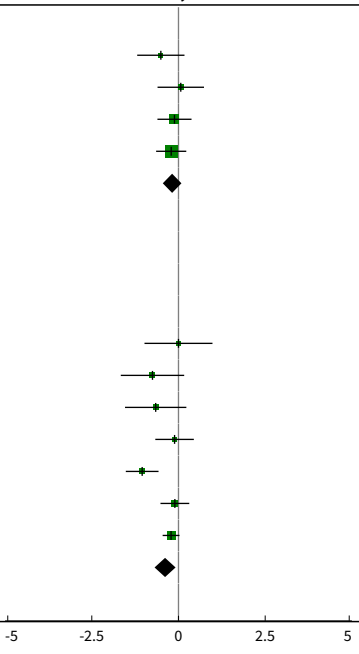
Analysis 17.38. Comparison 17 Subanalysis: outcomes by setting of intervention, Outcome 38 BMI (change values).

Study or subgroup	Physical activity N	Physical activity Mean(SD)	Control N	Control Mean(SD)	Mean Difference Random, 95% CI	Weight	Mean Difference Random, 95% CI
17.38.1 Home-based							
Subtotal ***	**0**		**0**				**Not estimable**
Heterogeneity: Not applicable							
Test for overall effect: Not applicable							
17.38.2 Facility-based							
Schmitz 2009	65	-1 (3.7)	65	-0.4 (4.3)		4.24%	-0.6[-1.98,0.78]
Mustian 2004	9	-0.4 (0.8)	10	0.3 (0.6)		13.05%	-0.71[-1.33,-0.09]
Naumann 2012	11	0.1 (0.5)	10	-0.1 (0.6)		17.03%	0.2[-0.26,0.66]
Courneya 2003	24	0 (0.7)	26	0.3 (0.7)		19.12%	-0.3[-0.69,0.09]
Murtezani 2014	30	-0.8 (0.7)	32	-0.1 (0.8)		19.56%	-0.66[-1.03,-0.29]
Schmitz 2005	39	0.1 (0.2)	40	0.1 (0.2)		26.99%	-0.01[-0.08,0.06]
Subtotal ***	**178**		**183**			**100%**	**-0.27[-0.58,0.04]**
Heterogeneity: Tau^2=0.09; Chi^2=19.09, df=5(P=0); I^2=73.81%							
Test for overall effect: Z=1.73(P=0.08)							
17.38.3 Both home- and facility-based							
Rogers 2014	20	-0.2 (0.9)	22	-0.3 (1.1)		27.09%	0.1[-0.51,0.71]
Ligibel 2008	40	0 (0.9)	42	0.2 (0.8)		72.91%	-0.2[-0.57,0.17]
Subtotal ***	**60**		**64**			**100%**	**-0.12[-0.43,0.2]**
Heterogeneity: Tau^2=0; Chi^2=0.69, df=1(P=0.41); I^2=0%							
Test for overall effect: Z=0.74(P=0.46)							



Analysis 17.39. Comparison 17 Subanalysis: outcomes by setting of intervention, Outcome 39 Overall body fat (follow-up values).

Study or subgroup	Physical activity N	Physical activity Mean(SD)	Control N	Control Mean(SD)	Std. Mean Difference Random, 95% CI	Weight	Std. Mean Difference Random, 95% CI
17.39.1 Home-based							
Matthews 2007	22	39.7 (6.3)	14	43.1 (6.9)		15.58%	-0.51[-1.19,0.17]
Musanti 2012	30	34.1 (6.6)	12	33.7 (5.7)		16.14%	0.07[-0.6,0.74]
DeNysschen 2011	30	36.9 (8.4)	34	38 (10.2)		29.97%	-0.12[-0.61,0.38]
Pinto 2005	39	37.5 (4.8)	43	38.6 (4.8)		38.31%	-0.21[-0.64,0.22]
Subtotal ***	**121**		**103**			**100%**	**-0.18[-0.45,0.09]**
Heterogeneity: Tau^2=0; Chi^2=1.5, df=3(P=0.68); I^2=0%							
Test for overall effect: Z=1.34(P=0.18)							
17.39.2 Facility-based							
Herrero 2006	8	22 (5)	8	22 (4)		7.23%	0[-0.98,0.98]
Cerulli 2014	10	26.7 (5.3)	10	30.6 (4.4)		8.02%	-0.75[-1.66,0.16]
Mustian 2004	11	38.5 (4.5)	10	41.7 (4.9)		8.42%	-0.66[-1.54,0.23]
Courneya 2003	24	131.9 (46.4)	26	137.1 (44.4)		14.89%	-0.11[-0.67,0.44]
Schmitz 2005	39	40.9 (1.3)	40	42.3 (1.3)		17.3%	-1.05[-1.52,-0.58]
Daley 2007	33	39.4 (4.7)	69	40.1 (7.4)		19.11%	-0.1[-0.52,0.31]
Schmitz 2009	130	38.5 (5.9)	132	39.7 (5.9)		25.02%	-0.21[-0.46,0.03]
Subtotal ***	**255**		**295**			**100%**	**-0.39[-0.69,-0.08]**
Heterogeneity: Tau^2=0.08; Chi^2=13.24, df=6(P=0.04); I^2=54.69%							



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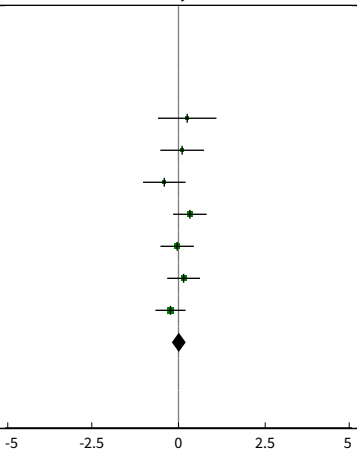
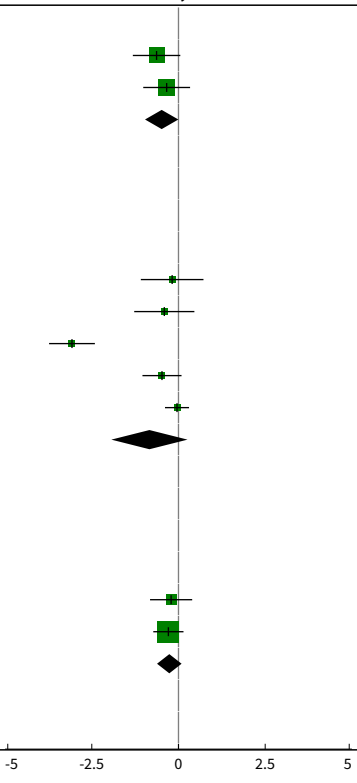
Study or subgroup	Physical activity N	Physical activity Mean(SD)	Control N	Control Mean(SD)	Std. Mean Difference Random, 95% CI	Weight	Std. Mean Difference Random, 95% CI
Test for overall effect: Z=2.5(P=0.01)							
17.39.3 Both home- and facility-based							
Rogers 2013	10	44.2 (6.7)	12	42.3 (7.7)		5.64%	0.25[-0.59,1.09]
Rogers 2009	20	44.3 (7.4)	19	43.5 (7.5)		10.15%	0.11[-0.52,0.73]
Rogers 2014	20	38.6 (6.4)	22	41.5 (7.4)		10.68%	-0.41[-1.02,0.2]
Winters-Stone 2011	36	40.5 (6.2)	31	38.5 (5.8)		17.13%	0.33[-0.16,0.81]
Saarto 2012	37	39.9 (7.5)	30	40.2 (8)		17.28%	-0.04[-0.52,0.44]
Cadmus 2009	36	40.5 (6.6)	33	39.6 (6)		17.91%	0.15[-0.33,0.62]
Ligibel 2008	40	42.9 (7.4)	42	44.7 (8)		21.22%	-0.23[-0.67,0.2]
Subtotal ***	**199**		**189**			**100%**	**0.01[-0.19,0.21]**
Heterogeneity: Tau^2=0; Chi^2=5.42, df=6(P=0.49); I^2=0%							
Test for overall effect: Z=0.08(P=0.94)							



Analysis 17.40. Comparison 17 Subanalysis: outcomes by setting of intervention, Outcome 40 Overall body fat (change values).

Study or subgroup	Physical activity N	Physical activity Mean(SD)	Control N	Control Mean(SD)	Std. Mean Difference Random, 95% CI	Weight	Std. Mean Difference Random, 95% CI
17.40.1 Home-based							
Musanti 2012	30	-0.2 (2.8)	12	1.4 (1.6)		49.33%	-0.63[-1.32,0.05]
Matthews 2007	22	-0.2 (1.6)	14	0.4 (1.9)		50.67%	-0.34[-1.02,0.33]
Subtotal ***	**52**		**26**			**100%**	**-0.48[-0.97,-0]**
Heterogeneity: Tau^2=0; Chi^2=0.35, df=1(P=0.55); I^2=0%							
Test for overall effect: Z=1.98(P=0.05)							
17.40.2 Facility-based							
Mustian 2004	9	-0.2 (2.9)	10	0.3 (1.6)		18.94%	-0.18[-1.09,0.72]
Naumann 2012	11	-0.3 (2.4)	10	0.8 (2.8)		19.13%	-0.41[-1.28,0.46]
Schmitz 2005	39	-1.1 (0.5)	40	0.2 (0.4)		20.14%	-3.07[-3.73,-2.41]
Courneya 2003	24	-4.9 (15.7)	26	5.1 (24.4)		20.54%	-0.48[-1.04,0.09]
Schmitz 2009	65	-0.3 (5.7)	63	-0.1 (3.3)		21.25%	-0.04[-0.39,0.3]
Subtotal ***	**148**		**149**			**100%**	**-0.84[-1.94,0.26]**
Heterogeneity: Tau^2=1.45; Chi^2=64.94, df=4(P<0.0001); I^2=93.84%							
Test for overall effect: Z=1.49(P=0.14)							
17.40.3 Both home- and facility-based							
Rogers 2014	20	-1.1 (2.2)	22	-0.6 (2.4)		33.94%	-0.21[-0.82,0.39]
Ligibel 2008	40	-0.2 (1.7)	42	0.3 (1.7)		66.06%	-0.29[-0.73,0.14]
Subtotal ***	**60**		**64**			**100%**	**-0.26[-0.62,0.09]**
Heterogeneity: Tau^2=0; Chi^2=0.04, df=1(P=0.84); I^2=0%							
Test for overall effect: Z=1.47(P=0.14)							



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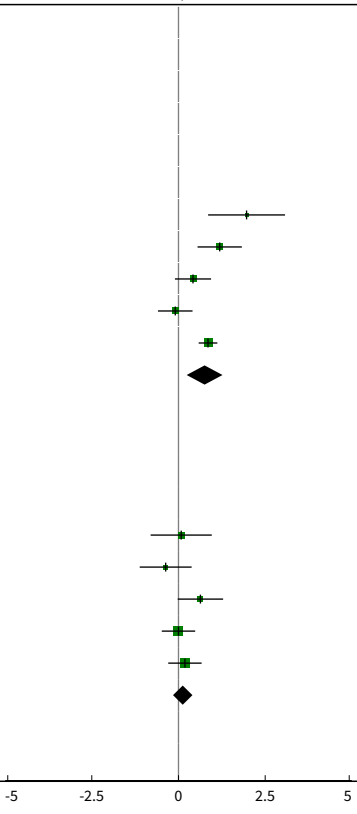
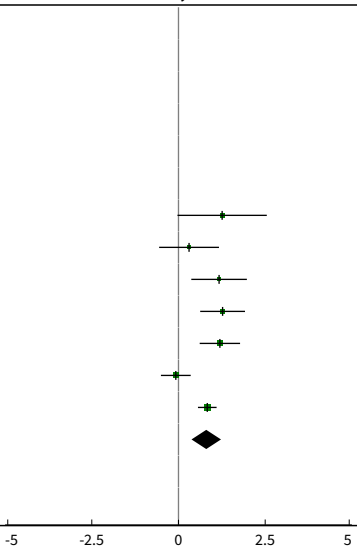
Analysis 17.41. Comparison 17 Subanalysis: outcomes by setting of intervention, Outcome 41 Lower body strength (follow-up values).

Study or subgroup	Physical activity N	Physical activity Mean(SD)	Control N	Control Mean(SD)	Std. Mean Difference Random, 95% CI	Weight	Std. Mean Difference Random, 95% CI
17.41.1 Home-based							
Subtotal ***	**0**		**0**				**Not estimable**
Heterogeneity: Not applicable							
Test for overall effect: Not applicable							
17.41.2 Facility-based							
Cerulli 2014	10	114.9 (17.1)	10	79.1 (17.8)		12.11%	1.96[0.85,3.07]
Schmitz 2005	23	296.6 (48.9)	22	238.9 (46.4)		19.28%	1.19[0.55,1.83]
Milne 2008	29	66.2 (10.2)	29	61.7 (11)		21.39%	0.42[-0.1,0.94]
Do 2015	32	13 (1.6)	30	13.2 (1.6)		21.79%	-0.09[-0.59,0.41]
Schmitz 2009	113	223.4 (59.6)	119	175.1 (53.5)		25.43%	0.85[0.58,1.12]
Subtotal ***	**207**		**210**			**100%**	**0.75[0.24,1.27]**
Heterogeneity: Tau^2=0.25; Chi^2=19.31, df=4(P=0); I^2=79.28%							
Test for overall effect: Z=2.85(P=0)							
17.41.3 Both home- and facility-based							
Rogers 2013	11	68.4 (15.5)	9	67.1 (16.2)		9.72%	0.08[-0.8,0.96]
Nikander 2007	14	1305 (177)	14	1393 (275)		13.29%	-0.37[-1.12,0.38]
Rogers 2009	20	80.3 (27)	18	64.9 (19.7)		17.11%	0.63[-0.02,1.29]
Saarto 2012	37	136 (23)	30	136 (29)		29.93%	0[-0.48,0.48]
Winters-Stone 2011	36	201.3 (57.4)	31	191 (51.7)		29.95%	0.19[-0.3,0.67]
Subtotal ***	**118**		**102**			**100%**	**0.12[-0.16,0.4]**
Heterogeneity: Tau^2=0.01; Chi^2=4.32, df=4(P=0.36); I^2=7.42%							
Test for overall effect: Z=0.86(P=0.39)							



Analysis 17.42. Comparison 17 Subanalysis: outcomes by setting of intervention, Outcome 42 Lower body strength (change values).

Study or subgroup	Physical activity N	Physical activity Mean(SD)	Control N	Control Mean(SD)	Std. Mean Difference Random, 95% CI	Weight	Std. Mean Difference Random, 95% CI
17.42.1 Home-based							
Subtotal ***	**0**		**0**				**Not estimable**
Heterogeneity: Not applicable							
Test for overall effect: Not applicable							
17.42.2 Facility-based							
Nieman 1995	6	28.9 (13.7)	6	3.5 (22.5)		7.31%	1.26[-0.03,2.55]
Naumann 2012	11	7.7 (12.6)	10	3.5 (13.9)		11.59%	0.3[-0.56,1.17]
Dolan 2016	23	11.8 (8.9)	10	0.3 (11.1)		12.4%	1.17[0.37,1.97]
Schmitz 2005	23	81.8 (48.9)	22	20.3 (46)		14.65%	1.27[0.63,1.92]
Cormie 2014	43	37.6 (25.5)	19	6.7 (25.7)		15.65%	1.19[0.61,1.78]
Do 2015	32	0.9 (0.7)	60	1 (0.6)		18.06%	-0.08[-0.51,0.35]
Schmitz 2009	113	33.2 (33.9)	119	7.9 (26.6)		20.34%	0.83[0.56,1.1]
Subtotal ***	**251**		**246**			**100%**	**0.8[0.38,1.23]**
Heterogeneity: Tau^2=0.21; Chi^2=22.01, df=6(P=0); I^2=72.74%							
Test for overall effect: Z=3.69(P=0)							



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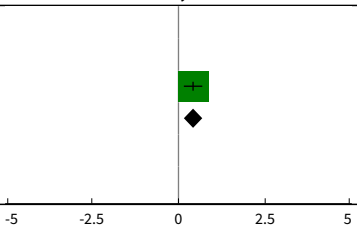
Study or subgroup	Physical activity N	Physical activity Mean(SD)	Control N	Control Mean(SD)	Std. Mean Difference Random, 95% CI	Weight	Std. Mean Difference Random, 95% CI
17.42.3 Both home- and facility-based							
Waltman 2010	110	4.4 (11.5)	113	0.2 (8.4)		100%	0.42[0.15,0.69]
Subtotal ***	**110**		**113**			**100%**	**0.42[0.15,0.69]**
Heterogeneity: Not applicable							
Test for overall effect: Z=3.1(P=0)							



Analysis 17.43. Comparison 17 Subanalysis: outcomes by setting of intervention, Outcome 43 Upper body strength (follow-up values).

Study or subgroup	Physical activity N	Physical activity Mean(SD)	Control N	Control Mean(SD)	Std. Mean Difference Random, 95% CI	Weight	Std. Mean Difference Random, 95% CI
17.43.1 Home-based							
Portela 2008	13	40.6 (13.5)	9	35.6 (13.1)		39.22%	0.36[-0.5,1.22]
Musanti 2012	30	52.1 (21)	12	36.8 (20)		60.78%	0.73[0.04,1.42]
Subtotal ***	**43**		**21**			**100%**	**0.58[0.05,1.12]**
Heterogeneity: Tau^2=0; Chi^2=0.43, df=1(P=0.51); I^2=0%							
Test for overall effect: Z=2.13(P=0.03)							
17.43.2 Facility-based							
Mustian 2004	11	29.6 (3.3)	10	26.7 (5.7)		10.97%	0.6[-0.28,1.49]
Cerulli 2014	10	16.1 (5.4)	10	17.2 (8.1)		10.98%	-0.16[-1.03,0.72]
Portela 2008	12	37.8 (14.4)	9	35.6 (13.1)		11.07%	0.15[-0.71,1.02]
Schmitz 2005	23	83 (13.4)	22	63 (12.7)		12.44%	1.5[0.84,2.17]
Kaltsatou 2011	28	59.6 (8.5)	26	47.6 (9.8)		12.96%	1.29[0.7,1.88]
Milne 2008	29	7.6 (2.9)	29	9.4 (2.6)		13.36%	-0.64[-1.17,-0.12]
Do 2015	32	9.7 (1.7)	30	10.1 (1.7)		13.53%	-0.24[-0.74,0.26]
Schmitz 2009	113	52.9 (15.3)	119	40.9 (11.8)		14.69%	0.88[0.61,1.15]
Subtotal ***	**258**		**255**			**100%**	**0.43[-0.12,0.98]**
Heterogeneity: Tau^2=0.52; Chi^2=51.98, df=7(P<0.0001); I^2=86.53%							
Test for overall effect: Z=1.54(P=0.12)							
17.43.3 Both home- and facility-based							
Nikander 2007	14	131 (20)	14	129 (28)		14.3%	0.08[-0.66,0.82]
Rogers 2009	20	27.9 (5)	18	24.3 (6.2)		18.36%	0.63[-0.03,1.28]
Saarto 2012	37	32.7 (5.3)	30	30.8 (5.7)		33.36%	0.34[-0.14,0.83]
Winters-Stone 2011	36	63.3 (15.3)	31	61.1 (16.8)		33.98%	0.14[-0.34,0.62]
Subtotal ***	**107**		**93**			**100%**	**0.29[0.01,0.57]**
Heterogeneity: Tau^2=0; Chi^2=1.78, df=3(P=0.62); I^2=0%							
Test for overall effect: Z=2.01(P=0.04)							

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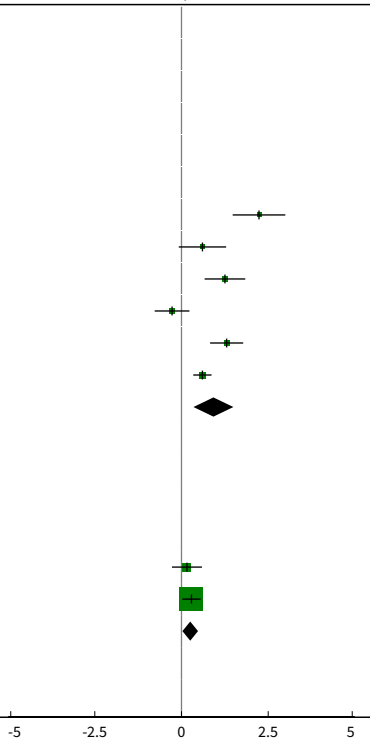
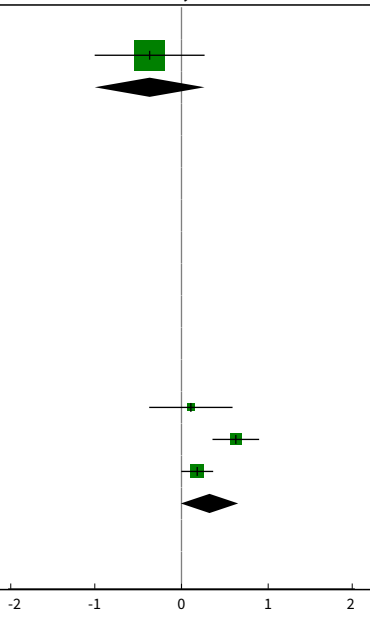
Analysis 17.44. Comparison 17 Subanalysis: outcomes by setting of intervention, Outcome 44 Upper body strength (change values).

Study or subgroup	Physical activity N	Physical activity Mean(SD)	Control N	Control Mean(SD)	Std. Mean Difference Random, 95% CI	Weight	Std. Mean Difference Random, 95% CI
17.44.1 Home-based							
Subtotal ***	**0**		**0**				**Not estimable**
Heterogeneity: Not applicable							
Test for overall effect: Not applicable							
17.44.2 Facility-based							
Schmitz 2005	23	32.3 (11.5)	22	6.9 (10.8)		14.7%	2.24[1.48,2.99]
Musanti 2012	30	7.7 (10.6)	12	0.8 (12.7)		15.44%	0.6[-0.08,1.29]
Cormie 2014	43	5.7 (3.7)	19	1 (3.8)		16.38%	1.25[0.67,1.84]
Do 2015	32	0.3 (0.5)	30	0.6 (1.2)		17.17%	-0.27[-0.77,0.23]
Mustian 2004	45	4.5 (4.7)	38	-0.8 (3.2)		17.37%	1.3[0.82,1.78]
Schmitz 2009	113	33.2 (40.8)	119	7.6 (43.7)		18.94%	0.6[0.34,0.87]
Subtotal ***	**286**		**240**			**100%**	**0.92[0.34,1.5]**
Heterogeneity: Tau^2=0.44; Chi^2=40.07, df=5(P<0.0001); I^2=87.52%							
Test for overall effect: Z=3.13(P=0)							
17.44.3 Both home- and facility-based							
Irwin 2015	45	0.4 (1.9)	38	0.1 (1.9)		27.13%	0.16[-0.27,0.59]
Waltman 2010	110	1.9 (4.9)	113	0.8 (2.9)		72.87%	0.29[0.02,0.55]
Subtotal ***	**155**		**151**			**100%**	**0.25[0.03,0.48]**
Heterogeneity: Tau^2=0; Chi^2=0.25, df=1(P=0.62); I^2=0%							
Test for overall effect: Z=2.19(P=0.03)							



Analysis 17.45. Comparison 17 Subanalysis: outcomes by setting of intervention, Outcome 45 Bone mineral density - femoral neck (follow-up and change values).

Study or subgroup	Physical activity N	Physical activity Mean(SD)	Control N	Control Mean(SD)	Std. Mean Difference Random, 95% CI	Weight	Std. Mean Difference Random, 95% CI
17.45.1 Home-based							
Kim 2015	20	0.8 (0.1)	19	0.8 (0.1)		100%	-0.37[-1,0.27]
Subtotal ***	**20**		**19**			**100%**	**-0.37[-1,0.27]**
Heterogeneity: Not applicable							
Test for overall effect: Z=1.14(P=0.26)							
17.45.2 Facility-based							
Subtotal ***	**0**		**0**				**Not estimable**
Heterogeneity: Not applicable							
Test for overall effect: Not applicable							
17.45.3 Both home- and facility-based							
Winters-Stone 2011	36	0.7 (0.1)	31	0.7 (0.1)		23.53%	0.11[-0.37,0.59]
Waltman 2010	110	0.9 (0.5)	113	0.6 (0.4)		35.68%	0.63[0.36,0.9]
Saarto 2012	239	-0 (0)	218	-0 (0)		40.8%	0.18[-0,0.37]
Subtotal ***	**385**		**362**			**100%**	**0.32[-0.01,0.65]**
Heterogeneity: Tau^2=0.06; Chi^2=7.87, df=2(P=0.02); I^2=74.58%							
Test for overall effect: Z=1.91(P=0.06)							



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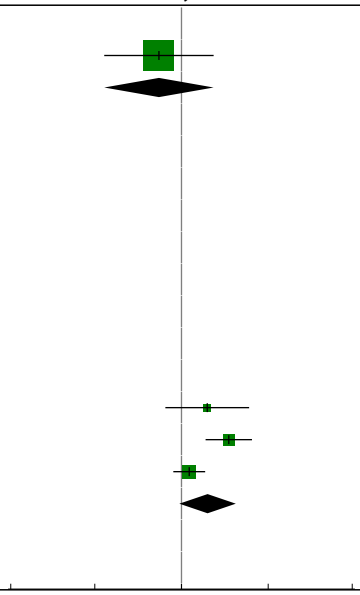
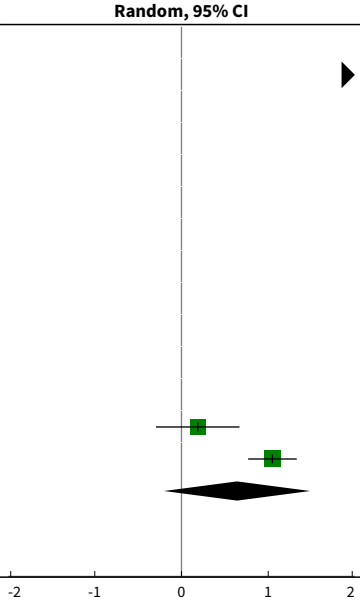
Analysis 17.46. Comparison 17 Subanalysis: outcomes by setting of intervention, Outcome 46 Bone mineral density - lumbar spine (follow-up and change values).

Study or subgroup	Physical activity N	Physical activity Mean(SD)	Control N	Control Mean(SD)	Std. Mean Difference Random, 95% CI	Weight	Std. Mean Difference Random, 95% CI
17.46.1 Home-based							
Kim 2015	20	1 (0.1)	19	1 (0.1)		100%	-0.26[-0.89,0.37]
Subtotal ***	**20**		**19**			**100%**	**-0.26[-0.89,0.37]**
Heterogeneity: Not applicable							
Test for overall effect: Z=0.81(P=0.42)							
17.46.2 Facility-based							
Subtotal ***	**0**		**0**				**Not estimable**
Heterogeneity: Not applicable							
Test for overall effect: Not applicable							
17.46.3 Both home- and facility-based							
Winters-Stone 2011	36	1 (0.2)	31	1 (0.1)		23.16%	0.3[-0.19,0.78]
Waltman 2010	110	3.1 (0.4)	113	2.9 (0.4)		35.8%	0.55[0.28,0.81]
Saarto 2012	239	-0 (0)	218	-0 (0)		41.04%	0.09[-0.09,0.27]
Subtotal ***	**385**		**362**			**100%**	**0.3[-0.02,0.63]**
Heterogeneity: Tau²=0.06; Chi²=7.65, df=2(P=0.02); I²=73.85%							
Test for overall effect: Z=1.81(P=0.07)							



Analysis 17.47. Comparison 17 Subanalysis: outcomes by setting of intervention, Outcome 47 Bone mineral density - total hip (follow-up and change values).

Study or subgroup	Physical activity N	Physical activity Mean(SD)	Control N	Control Mean(SD)	Std. Mean Difference Random, 95% CI	Weight	Std. Mean Difference Random, 95% CI
17.47.1 Home-based							
Kim 2015	20	0.9 (0.1)	19	0.1 (0.1)		100%	10.34[7.84,12.84]
Subtotal ***	**20**		**19**			**100%**	**10.34[7.84,12.84]**
Heterogeneity: Not applicable							
Test for overall effect: Z=8.11(P<0.0001)							
17.47.2 Facility-based							
Subtotal ***	**0**		**0**				**Not estimable**
Heterogeneity: Not applicable							
Test for overall effect: Not applicable							
17.47.3 Both home- and facility-based							
Winters-Stone 2011	36	0.9 (0.1)	31	0.8 (0.1)		47.32%	0.19[-0.29,0.67]
Waltman 2010	110	2.2 (0.3)	113	1.8 (0.4)		52.68%	1.05[0.77,1.33]
Subtotal ***	**146**		**144**			**100%**	**0.64[-0.2,1.48]**
Heterogeneity: Tau²=0.33; Chi²=9.19, df=1(P=0); I²=89.12%							
Test for overall effect: Z=1.49(P=0.14)							



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Comparison 18. Sensitivity analysis: outcomes by risk of bias

Outcome or subgroup title	No. of studies	No. of participants	Statistical method	Effect size
1 Overall HRQoL (follow-up values)	22		Std. Mean Difference (IV, Random, 95% CI)	Subtotals only
1.1 Low risk of bias	15	1521	Std. Mean Difference (IV, Random, 95% CI)	0.43 [0.19, 0.66]
1.2 Unclear/high risk of bias	7	475	Std. Mean Difference (IV, Random, 95% CI)	0.30 [0.06, 0.55]
2 Overall HRQoL (change values)	14		Std. Mean Difference (IV, Random, 95% CI)	Subtotals only
2.1 Low risk of bias	11	1360	Std. Mean Difference (IV, Random, 95% CI)	0.70 [0.28, 1.12]
2.2 Unclear/high risk of bias	3	99	Std. Mean Difference (IV, Random, 95% CI)	1.26 [-0.11, 2.62]
3 Overall emotional function/mental health (follow-up values)	26		Std. Mean Difference (IV, Random, 95% CI)	Subtotals only
3.1 Low risk of bias	15	1427	Std. Mean Difference (IV, Random, 95% CI)	0.22 [0.09, 0.34]
3.2 Unclear/high risk of bias	11	675	Std. Mean Difference (IV, Random, 95% CI)	0.19 [-0.02, 0.40]
4 Overall emotional function/mental health (change values)	15		Std. Mean Difference (IV, Random, 95% CI)	Subtotals only
4.1 Low risk of bias	11	1399	Std. Mean Difference (IV, Random, 95% CI)	0.31 [0.04, 0.58]
4.2 Unclear/high risk of bias	4	180	Std. Mean Difference (IV, Random, 95% CI)	0.28 [-0.08, 0.65]
5 Overall physical function (follow-up values)	25		Std. Mean Difference (IV, Random, 95% CI)	Subtotals only
5.1 Low risk of bias	13	1343	Std. Mean Difference (IV, Random, 95% CI)	0.38 [0.13, 0.63]
5.2 Unclear/high risk of bias	12	786	Std. Mean Difference (IV, Random, 95% CI)	0.28 [0.14, 0.42]
6 Overall physical function (change values)	13		Std. Mean Difference (IV, Random, 95% CI)	Subtotals only
6.1 Low risk of bias	10	1335	Std. Mean Difference (IV, Random, 95% CI)	0.63 [0.19, 1.07]

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Outcome or subgroup title	No. of studies	No. of participants	Statistical method	Effect size
6.2 Unclear/high risk of bias	3	98	Std. Mean Difference (IV, Random, 95% CI)	0.50 [0.09, 0.90]
7 Overall role function (follow-up values)	18		Std. Mean Difference (IV, Random, 95% CI)	Subtotals only
7.1 Low risk of bias	12	1111	Std. Mean Difference (IV, Random, 95% CI)	0.32 [0.02, 0.61]
7.2 Unclear/high risk of bias	6	259	Std. Mean Difference (IV, Random, 95% CI)	0.24 [-0.01, 0.48]
8 Overall role function (change values)	12		Std. Mean Difference (IV, Random, 95% CI)	Subtotals only
8.1 Low risk of bias	9	1218	Std. Mean Difference (IV, Random, 95% CI)	0.17 [-0.06, 0.40]
8.2 Unclear/high risk of bias	3	97	Std. Mean Difference (IV, Random, 95% CI)	0.04 [-0.36, 0.44]
9 Overall social well-being/function (follow-up values)	18		Std. Mean Difference (IV, Random, 95% CI)	Subtotals only
9.1 Low risk of bias	12	1263	Std. Mean Difference (IV, Random, 95% CI)	0.21 [0.07, 0.36]
9.2 Unclear/high risk of bias	6	294	Std. Mean Difference (IV, Random, 95% CI)	0.17 [-0.06, 0.40]
10 Overall social well-being/function (change values)	12		Std. Mean Difference (IV, Random, 95% CI)	Subtotals only
10.1 Low risk of bias	9	1286	Std. Mean Difference (IV, Random, 95% CI)	0.56 [0.13, 0.98]
10.2 Unclear/high risk of bias	3	98	Std. Mean Difference (IV, Random, 95% CI)	0.31 [-0.09, 0.71]
11 Overall cognitive function (follow-up values)	5		Std. Mean Difference (IV, Random, 95% CI)	Subtotals only
11.1 Low risk of bias	3	114	Std. Mean Difference (IV, Random, 95% CI)	0.45 [0.07, 0.82]
11.2 Unclear/high risk of bias	2	75	Std. Mean Difference (IV, Random, 95% CI)	0.52 [-0.44, 1.48]
12 Overall cognitive function (change values)	5		Std. Mean Difference (IV, Random, 95% CI)	Subtotals only
12.1 Low risk of bias	4	615	Std. Mean Difference (IV, Random, 95% CI)	0.07 [-0.28, 0.42]

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Outcome or subgroup title	No. of studies	No. of participants	Statistical method	Effect size
12.2 Unclear/high risk of bias	1	57	Std. Mean Difference (IV, Random, 95% CI)	-0.19 [-0.71, 0.33]
13 Overall general health (follow-up values)	9		Std. Mean Difference (IV, Random, 95% CI)	Subtotals only
13.1 Low risk of bias	5	267	Std. Mean Difference (IV, Random, 95% CI)	0.06 [-0.31, 0.43]
13.2 Unclear/high risk of bias	4	189	Std. Mean Difference (IV, Random, 95% CI)	0.36 [0.02, 0.70]
14 Overall general health (change values)	9		Std. Mean Difference (IV, Random, 95% CI)	Subtotals only
14.1 Low risk of bias	7	829	Std. Mean Difference (IV, Random, 95% CI)	0.21 [-0.08, 0.49]
14.2 Unclear/high risk of bias	2	77	Std. Mean Difference (IV, Random, 95% CI)	0.10 [-0.35, 0.55]
15 Overall sexual function (follow-up values)	5		Std. Mean Difference (IV, Fixed, 95% CI)	Subtotals only
15.1 Low risk of bias	2	193	Std. Mean Difference (IV, Fixed, 95% CI)	0.21 [-0.07, 0.49]
15.2 Unclear/high risk of bias	3	218	Std. Mean Difference (IV, Fixed, 95% CI)	0.11 [-0.16, 0.38]
16 Overall sexual function (change values)	3		Std. Mean Difference (IV, Random, 95% CI)	Subtotals only
16.1 Low risk of bias	3	693	Std. Mean Difference (IV, Random, 95% CI)	0.22 [-0.08, 0.52]
16.2 Unclear/high risk of bias	0	0	Std. Mean Difference (IV, Random, 95% CI)	0.0 [0.0, 0.0]
17 Overall sleep (follow-up values)	5		Std. Mean Difference (IV, Fixed, 95% CI)	Subtotals only
17.1 Low risk of bias	3	111	Std. Mean Difference (IV, Fixed, 95% CI)	0.09 [-0.28, 0.47]
17.2 Unclear/high risk of bias	2	77	Std. Mean Difference (IV, Fixed, 95% CI)	-0.35 [-0.80, 0.10]
18 Overall sleep (change values)	3		Std. Mean Difference (IV, Random, 95% CI)	Subtotals only
18.1 Low risk of bias	2	80	Std. Mean Difference (IV, Random, 95% CI)	0.14 [-0.30, 0.58]

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Outcome or subgroup title	No. of studies	No. of participants	Statistical method	Effect size
18.2 Unclear/high risk of bias	1	56	Std. Mean Difference (IV, Random, 95% CI)	0.14 [-0.38, 0.67]
19 Overall anxiety (follow-up values)	7		Std. Mean Difference (IV, Random, 95% CI)	Subtotals only
19.1 Low risk of bias	4	235	Std. Mean Difference (IV, Random, 95% CI)	-0.46 [-0.89, -0.03]
19.2 Unclear/high risk of bias	3	91	Std. Mean Difference (IV, Random, 95% CI)	-0.95 [-1.92, 0.02]
20 Overall anxiety (change values)	4		Std. Mean Difference (IV, Fixed, 95% CI)	Subtotals only
20.1 Low risk of bias	3	177	Std. Mean Difference (IV, Fixed, 95% CI)	-0.36 [-0.66, -0.06]
20.2 Unclear/high risk of bias	1	58	Std. Mean Difference (IV, Fixed, 95% CI)	-0.42 [-0.95, 0.10]
21 Overall self-esteem/body image (follow-up values)	12		Std. Mean Difference (IV, Random, 95% CI)	Subtotals only
21.1 Low risk of bias	7	436	Std. Mean Difference (IV, Random, 95% CI)	0.14 [-0.12, 0.40]
21.2 Unclear/high risk of bias	5	231	Std. Mean Difference (IV, Random, 95% CI)	0.48 [0.16, 0.80]
22 Overall self-esteem/body image (change values)	9		Std. Mean Difference (IV, Random, 95% CI)	Subtotals only
22.1 Low risk of bias	7	914	Std. Mean Difference (IV, Random, 95% CI)	0.07 [-0.21, 0.34]
22.2 Unclear/high risk of bias	2	78	Std. Mean Difference (IV, Random, 95% CI)	1.72 [-1.48, 4.92]
23 Overall depression (follow-up values)	12		Std. Mean Difference (IV, Random, 95% CI)	Subtotals only
23.1 Low risk of bias	7	520	Std. Mean Difference (IV, Random, 95% CI)	-0.20 [-0.52, 0.12]
23.2 Unclear/high risk of bias	5	137	Std. Mean Difference (IV, Random, 95% CI)	-0.67 [-1.23, -0.11]
24 Overall depression (change values)	7		Std. Mean Difference (IV, Random, 95% CI)	Subtotals only
24.1 Low risk of bias	5	737	Std. Mean Difference (IV, Random, 95% CI)	-0.20 [-0.47, 0.06]

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Outcome or subgroup title	No. of studies	No. of participants	Statistical method	Effect size
24.2 Unclear/high risk of bias	2	79	Std. Mean Difference (IV, Random, 95% CI)	-0.75 [-1.39, -0.10]
25 Overall fatigue (follow-up values)	25		Std. Mean Difference (IV, Random, 95% CI)	Subtotals only
25.1 Low risk of bias	15	1443	Std. Mean Difference (IV, Random, 95% CI)	-0.38 [-0.59, -0.18]
25.2 Unclear/high risk of bias	10	482	Std. Mean Difference (IV, Random, 95% CI)	-0.25 [-0.45, -0.05]
26 Overall fatigue (change values)	13		Std. Mean Difference (IV, Random, 95% CI)	Subtotals only
26.1 Low risk of bias	8	1091	Std. Mean Difference (IV, Random, 95% CI)	-0.22 [-0.61, 0.16]
26.2 Unclear/high risk of bias	5	198	Std. Mean Difference (IV, Random, 95% CI)	-0.45 [-0.95, 0.05]
27 Overall pain/disability (follow-up values)	9		Std. Mean Difference (IV, Random, 95% CI)	Subtotals only
27.1 Low risk of bias	4	169	Std. Mean Difference (IV, Random, 95% CI)	-0.13 [-0.44, 0.18]
27.2 Unclear/high risk of bias	5	352	Std. Mean Difference (IV, Random, 95% CI)	0.25 [0.04, 0.46]
28 Overall pain/disability (change values)	6		Std. Mean Difference (IV, Random, 95% CI)	Subtotals only
28.1 Low risk of bias	2	136	Std. Mean Difference (IV, Random, 95% CI)	-0.03 [-0.45, 0.40]
28.2 Unclear/high risk of bias	4	196	Std. Mean Difference (IV, Random, 95% CI)	-0.05 [-0.36, 0.26]
29 Overall cardiorespiratory fitness (follow-up values)	23		Std. Mean Difference (IV, Random, 95% CI)	Subtotals only
29.1 Low risk of bias	10	657	Std. Mean Difference (IV, Random, 95% CI)	0.44 [0.24, 0.65]
29.2 Unclear/high risk of bias	13	608	Std. Mean Difference (IV, Random, 95% CI)	0.44 [0.23, 0.65]
30 Overall cardiorespiratory fitness (change values)	9		Std. Mean Difference (IV, Random, 95% CI)	Subtotals only
30.1 Low risk of bias	4	632	Std. Mean Difference (IV, Random, 95% CI)	0.49 [-0.09, 1.06]

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Outcome or subgroup title	No. of studies	No. of participants	Statistical method	Effect size
30.2 Unclear/high risk of bias	5	231	Std. Mean Difference (IV, Random, 95% CI)	1.16 [0.60, 1.72]
31 Overall self-reported physical activity (follow-up values)	17		Std. Mean Difference (IV, Random, 95% CI)	Subtotals only
31.1 Low risk of bias	8	1482	Std. Mean Difference (IV, Random, 95% CI)	0.45 [0.21, 0.68]
31.2 Unclear/high risk of bias	9	530	Std. Mean Difference (IV, Random, 95% CI)	0.61 [0.31, 0.91]
32 Overall self-reported physical activity (change values)	8		Std. Mean Difference (IV, Random, 95% CI)	Subtotals only
32.1 Low risk of bias	4	1047	Std. Mean Difference (IV, Random, 95% CI)	0.27 [-0.00, 0.55]
32.2 Unclear/high risk of bias	4	227	Std. Mean Difference (IV, Random, 95% CI)	0.99 [0.40, 1.58]
33 Overall objective physical activity (follow-up values)	11		Std. Mean Difference (IV, Random, 95% CI)	Subtotals only
33.1 Low risk of bias	7	1105	Std. Mean Difference (IV, Random, 95% CI)	0.41 [0.15, 0.66]
33.2 Unclear/high risk of bias	4	165	Std. Mean Difference (IV, Random, 95% CI)	0.50 [-0.24, 1.25]
34 Overall objective physical activity (change values)	5		Std. Mean Difference (IV, Random, 95% CI)	Subtotals only
34.1 Low risk of bias	3	447	Std. Mean Difference (IV, Random, 95% CI)	0.56 [-0.18, 1.30]
34.2 Unclear/high risk of bias	2	61	Std. Mean Difference (IV, Random, 95% CI)	0.99 [0.44, 1.54]
35 Mass (follow-up values)	16		Mean Difference (IV, Fixed, 95% CI)	Subtotals only
35.1 Low risk of bias	8	828	Mean Difference (IV, Fixed, 95% CI)	0.05 [-0.54, 0.64]
35.2 Unclear/high risk of bias	8	382	Mean Difference (IV, Fixed, 95% CI)	-1.28 [-4.26, 1.70]
36 Mass (change values)	11		Mean Difference (IV, Random, 95% CI)	Subtotals only
36.1 Low risk of bias	5	819	Mean Difference (IV, Random, 95% CI)	-0.43 [-1.05, 0.20]
36.2 Unclear/high risk of bias	6	228	Mean Difference (IV, Random, 95% CI)	-0.62 [-1.44, 0.19]
37 BMI (follow-up values)	17		Mean Difference (IV, Fixed, 95% CI)	Subtotals only
37.1 Low risk of bias	10	1162	Mean Difference (IV, Fixed, 95% CI)	0.05 [-0.16, 0.26]

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Outcome or subgroup title	No. of studies	No. of participants	Statistical method	Effect size
37.2 Unclear/high risk of bias	7	319	Mean Difference (IV, Fixed, 95% CI)	-1.07 [-2.29, 0.14]
38 BMI (change values)	8		Mean Difference (IV, Random, 95% CI)	Subtotals only
38.1 Low risk of bias	5	363	Mean Difference (IV, Random, 95% CI)	-0.24 [-0.56, 0.08]
38.2 Unclear/high risk of bias	3	122	Mean Difference (IV, Random, 95% CI)	-0.20 [-0.65, 0.25]
39 Overall body fat (follow-up values)	18		Std. Mean Difference (IV, Random, 95% CI)	Subtotals only
39.1 Low risk of bias	10	768	Std. Mean Difference (IV, Random, 95% CI)	-0.19 [-0.41, 0.03]
39.2 Unclear/high risk of bias	8	394	Std. Mean Difference (IV, Random, 95% CI)	-0.17 [-0.40, 0.07]
40 Overall body fat (change values)	9		Std. Mean Difference (IV, Random, 95% CI)	Subtotals only
40.1 Low risk of bias	5	341	Std. Mean Difference (IV, Random, 95% CI)	-0.87 [-1.86, 0.12]
40.2 Unclear/high risk of bias	4	158	Std. Mean Difference (IV, Random, 95% CI)	-0.30 [-0.62, 0.01]
41 Lower body strength (follow-up values)	10		Std. Mean Difference (IV, Random, 95% CI)	Subtotals only
41.1 Low risk of bias	5	440	Std. Mean Difference (IV, Random, 95% CI)	0.61 [0.22, 1.00]
41.2 Unclear/high risk of bias	5	197	Std. Mean Difference (IV, Random, 95% CI)	0.23 [-0.32, 0.79]
42 Lower body strength (change values)	8		Std. Mean Difference (IV, Random, 95% CI)	Subtotals only
42.1 Low risk of bias	3	339	Std. Mean Difference (IV, Random, 95% CI)	0.97 [0.70, 1.25]
42.2 Unclear/high risk of bias	5	381	Std. Mean Difference (IV, Random, 95% CI)	0.46 [0.04, 0.88]
43 Upper body strength (follow-up values)	13		Std. Mean Difference (IV, Random, 95% CI)	Subtotals only
43.1 Low risk of bias	7	516	Std. Mean Difference (IV, Random, 95% CI)	0.53 [0.04, 1.01]
43.2 Unclear/high risk of bias	6	252	Std. Mean Difference (IV, Random, 95% CI)	0.29 [-0.21, 0.78]
44 Upper body strength (change values)	9		Std. Mean Difference (IV, Random, 95% CI)	Subtotals only

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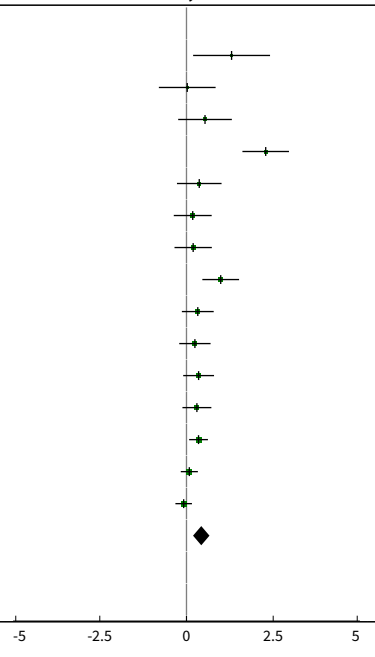
Outcome or subgroup title	No. of studies	No. of participants	Statistical method	Effect size
44.1 Low risk of bias	4	381	Std. Mean Difference (IV, Random, 95% CI)	1.13 [0.46, 1.80]
44.2 Unclear/high risk of bias	5	487	Std. Mean Difference (IV, Random, 95% CI)	0.43 [-0.05, 0.91]
45 Bone mineral density - femoral neck (follow-up and change values)	4		Std. Mean Difference (IV, Random, 95% CI)	Subtotals only
45.1 Low risk of bias	1	457	Std. Mean Difference (IV, Random, 95% CI)	0.18 [-0.00, 0.37]
45.2 Unclear/high risk of bias	3	329	Std. Mean Difference (IV, Random, 95% CI)	0.18 [-0.39, 0.75]
46 Bone mineral density - lumbar spine (follow-up and change values)	4		Std. Mean Difference (IV, Random, 95% CI)	Subtotals only
46.1 Low risk of bias	1	457	Std. Mean Difference (IV, Random, 95% CI)	0.09 [-0.09, 0.27]
46.2 Unclear/high risk of bias	3	329	Std. Mean Difference (IV, Random, 95% CI)	0.27 [-0.16, 0.70]

Analysis 18.1. Comparison 18 Sensitivity analysis: outcomes by risk of bias, Outcome 1 Overall HRQoL (follow-up values).

Study or subgroup	Physical activity N	Physical activity Mean(SD)	Control N	Control Mean(SD)	Std. Mean Difference Random, 95% CI	Weight	Std. Mean Difference Random, 95% CI
18.1.1 Low risk of bias							
Herrero 2006	8	81.3 (10.7)	8	62.5 (16.1)		3.13%	1.3[0.19,2.41]
Loudon 2014	12	-7.4 (1.2)	11	-7.4 (1.4)		4.55%	0.02[-0.8,0.84]
Portela 2008	25	107.2 (28.5)	9	91.6 (28.5)		4.83%	0.53[-0.24,1.31]
Milne 2008	29	86.4 (8.3)	29	64.1 (10.8)		5.54%	2.28[1.61,2.96]
Rogers 2009	20	92 (11.4)	18	87.4 (13.1)		5.75%	0.37[-0.27,1.01]
Courneya 2003	24	91.3 (11)	28	89.3 (10.9)		6.51%	0.18[-0.37,0.73]
Ergun 2013	40	71.6 (19.9)	20	67.9 (16.7)		6.58%	0.19[-0.35,0.73]
Murtezani 2014	30	86.5 (7.3)	32	79.1 (7.5)		6.66%	0.99[0.46,1.52]
Cadmus 2009	37	91.2 (12.6)	37	86.2 (17.4)		7.25%	0.33[-0.13,0.78]
Pinto 2015	39	117.8 (12.7)	37	114 (18)		7.32%	0.24[-0.21,0.69]
Schmitz 2005	39	-44.2 (8.7)	40	-47.4 (9.4)		7.38%	0.35[-0.09,0.79]
Daley 2007	33	90.9 (13.5)	69	86.4 (15.1)		7.62%	0.3[-0.12,0.72]
Rogers 2015	105	88.1 (12.4)	108	83.2 (15.5)		8.82%	0.35[0.08,0.62]
Vallance 2007	250	91.5 (11.8)	85	90.6 (13)		9%	0.08[-0.16,0.33]
Short 2014	195	106.8 (16.7)	104	108.2 (18.2)		9.06%	-0.08[-0.32,0.16]
Subtotal ***	**886**		**635**			**100%**	**0.43[0.19,0.66]**
Heterogeneity: Tau^2=0.15; Chi^2=57.17, df=14(P<0.0001); I^2=75.51%							
Test for overall effect: Z=3.52(P=0)							



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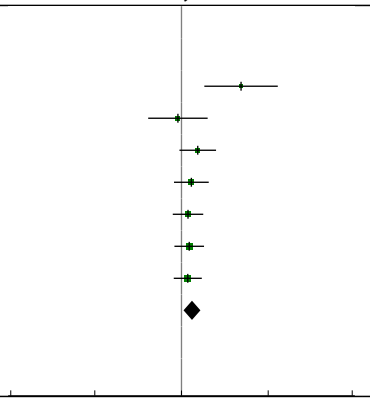
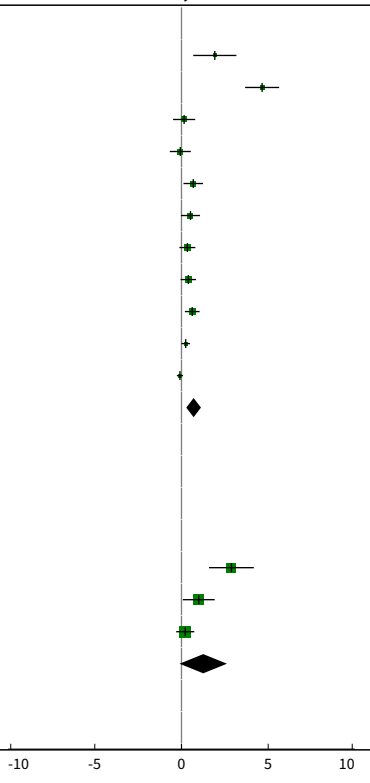
Study or subgroup	Physical activity N	Physical activity Mean(SD)	Control N	Control Mean(SD)	Std. Mean Difference Random, 95% CI	Weight	Std. Mean Difference Random, 95% CI
18.1.2 Unclear/high risk of bias							
Cerulli 2014	10	85.2 (4.2)	10	65.9 (14.7)		4.76%	1.72[0.66,2.78]
Mustian 2004	11	121.7 (22.7)	10	124.3 (25.9)		6.89%	-0.1[-0.96,0.75]
Mehnert 2011	30	74.7 (21.7)	27	65.4 (16.8)		14.62%	0.47[-0.06,1]
Do 2015	32	87.3 (13.7)	30	82.4 (19.9)		15.68%	0.28[-0.22,0.79]
Taleghani 2012	40	217.5 (36.3)	40	210.1 (41.5)		18.51%	0.19[-0.25,0.63]
Loh 2014	63	112.4 (14.1)	32	109.3 (13.3)		19.16%	0.22[-0.2,0.65]
Littman 2012	30	90.3 (11)	110	87.7 (15)		20.38%	0.18[-0.22,0.59]
Subtotal ***	**216**		**259**			**100%**	**0.3[0.06,0.55]**
Heterogeneity: Tau²=0.03; Chi²=8.81, df=6(P=0.18); I²=31.87%							
Test for overall effect: Z=2.43(P=0.02)							



Analysis 18.2. Comparison 18 Sensitivity analysis: outcomes by risk of bias, Outcome 2 Overall HRQoL (change values).

Study or subgroup	Physical activity N	Physical activity Mean(SD)	Control N	Control Mean(SD)	Std. Mean Difference Random, 95% CI	Weight	Std. Mean Difference Random, 95% CI
18.2.1 Low risk of bias							
Herrero 2006	8	17.7 (8.3)	8	-10.4 (17.7)		5.65%	1.92[0.68,3.17]
Murtezani 2014	30	9.2 (2.1)	32	-0.6 (2)		6.93%	4.65[3.67,5.63]
Rogers 2009	20	4.5 (8.4)	18	2.9 (12)		8.83%	0.15[-0.49,0.79]
Cuesta-Vargas 2014	22	0.3 (0.2)	20	0.3 (0.1)		9%	-0.07[-0.67,0.54]
Courneya 2003	24	5.7 (7.4)	28	0.6 (7.4)		9.24%	0.68[0.12,1.24]
Ergun 2013	40	5.4 (21.5)	20	-6.7 (25.9)		9.33%	0.52[-0.03,1.06]
Cadmus 2009	37	0.6 (7.5)	37	-2.4 (9.8)		9.77%	0.34[-0.12,0.8]
Schmitz 2005	39	2.3 (4.5)	40	0.6 (4)		9.84%	0.4[-0.05,0.84]
Daley 2007	33	10.2 (11.2)	69	3.2 (11.3)		9.94%	0.62[0.2,1.04]
Vallance 2007	250	2.3 (11.1)	85	-0.2 (6.4)		10.64%	0.24[-0,0.49]
Saarto 2012	263	4.2 (16.2)	237	5.6 (15.4)		10.83%	-0.09[-0.26,0.09]
Subtotal ***	**766**		**594**			**100%**	**0.7[0.28,1.12]**
Heterogeneity: Tau²=0.42; Chi²=106.14, df=10(P<0.0001); I²=90.58%							
Test for overall effect: Z=3.24(P=0)							
18.2.2 Unclear/high risk of bias							
Mustian 2004	11	15 (5)	10	0 (5)		29.2%	2.88[1.59,4.17]
Naumann 2012	11	14.5 (10.6)	10	3.1 (11.4)		33.49%	1[0.08,1.92]
Mehnert 2011	30	9.7 (21)	27	5.6 (16.5)		37.31%	0.22[-0.31,0.74]
Subtotal ***	**52**		**47**			**100%**	**1.26[-0.11,2.62]**
Heterogeneity: Tau²=1.24; Chi²=14.64, df=2(P=0); I²=86.34%							
Test for overall effect: Z=1.8(P=0.07)							



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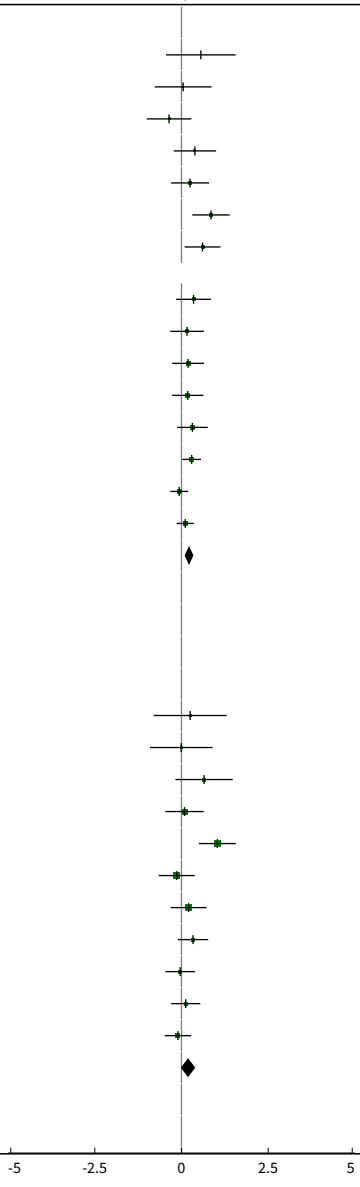
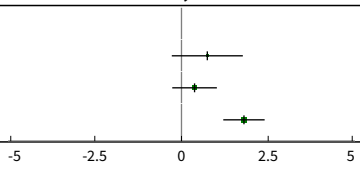
Analysis 18.3. Comparison 18 Sensitivity analysis: outcomes by risk of bias, Outcome 3 Overall emotional function/mental health (follow-up values).

Study or subgroup	Physical activity N	Physical activity Mean(SD)	Control N	Control Mean(SD)	Std. Mean Difference Random, 95% CI	Weight	Std. Mean Difference Random, 95% CI
18.3.1 Low risk of bias							
Herrero 2006	8	90.6 (9.3)	8	83.3 (14.8)		1.55%	0.56[-0.45,1.56]
Loudon 2014	12	-1.6 (0.7)	11	-1.6 (0.5)		2.28%	0.05[-0.77,0.87]
Rogers 2009	20	20 (3.1)	18	21.1 (2.9)		3.55%	-0.36[-1,0.28]
Cuesta-Vargas 2014	22	42.9 (19.2)	20	32.3 (33.3)		3.88%	0.39[-0.22,1]
Courneya 2003	24	21.5 (3.4)	28	20.7 (3)		4.71%	0.25[-0.3,0.79]
Milne 2008	29	19.6 (2.4)	29	16.7 (4.1)		4.83%	0.85[0.31,1.39]
Cantarero-Villanueva 2013	32	-17175 (4279)	29	-20390 (6113)		5.23%	0.61[0.09,1.12]
Murtezani 2014	30	19.5 (3.3)	32	18.3 (3.5)		5.46%	0.35[-0.15,0.85]
Daley 2007	33	19.1 (4.2)	33	18.5 (3.3)		5.82%	0.16[-0.32,0.64]
Cadmus 2009	37	20.5 (3)	37	19.8 (4.2)		6.38%	0.19[-0.27,0.65]
Pinto 2015	39	54.2 (9.3)	37	52.5 (9.6)		6.52%	0.18[-0.27,0.63]
Schmitz 2005	39	-45.6 (8.2)	40	-48.2 (8.2)		6.69%	0.31[-0.13,0.76]
Rogers 2015	105	20.6 (2.9)	108	19.7 (3.2)		13.59%	0.29[0.02,0.56]
Schmitz 2009	112	53.2 (9.6)	120	53.8 (8.7)		14.38%	-0.07[-0.32,0.19]
Vallance 2007	250	20.3 (3.3)	85	19.9 (3.4)		15.14%	0.11[-0.14,0.35]
Subtotal ***	**792**		**635**			**100%**	**0.22[0.09,0.34]**
Heterogeneity: Tau^2=0.01; Chi^2=17.62, df=14(P=0.22); I^2=20.56%							
Test for overall effect: Z=3.32(P=0)							
18.3.2 Unclear/high risk of bias							
Banasik 2011	7	0.5 (0.4)	7	0.4 (0.3)		3.37%	0.25[-0.8,1.3]
Mustian 2004	9	24.8 (2)	10	24.8 (3.2)		4.38%	-0.01[-0.91,0.89]
Pinto 2003	12	-10.8 (28.1)	12	-27.2 (19.5)		5.05%	0.65[-0.17,1.48]
Basen-Enquist 2006	28	78.2 (10.6)	23	77.2 (12)		8.99%	0.09[-0.46,0.64]
Do 2015	32	87.4 (8.8)	30	70.4 (21.5)		9.4%	1.03[0.5,1.57]
Littman 2012	30	20.3 (4)	27	20.8 (3.1)		9.66%	-0.14[-0.66,0.38]
Mehnert 2011	30	77 (35.8)	28	69.1 (40.5)		9.75%	0.21[-0.31,0.72]
Pinto 2005	39	-8 (20.7)	43	-16.5 (28.8)		11.77%	0.33[-0.1,0.77]
Loh 2014	63	19.9 (2.8)	32	20 (3.2)		12.08%	-0.04[-0.46,0.39]
Fillion 2008	44	48.5 (7.9)	43	47.5 (9.1)		12.22%	0.12[-0.3,0.54]
Duijits 2012	37	73.9 (34.7)	89	77.5 (34.3)		13.34%	-0.1[-0.49,0.28]
Subtotal ***	**331**		**344**			**100%**	**0.19[-0.02,0.4]**
Heterogeneity: Tau^2=0.05; Chi^2=16.47, df=10(P=0.09); I^2=39.29%							
Test for overall effect: Z=1.78(P=0.08)							



Analysis 18.4. Comparison 18 Sensitivity analysis: outcomes by risk of bias, Outcome 4 Overall emotional function/mental health (change values).

Study or subgroup	Physical activity N	Physical activity Mean(SD)	Control N	Control Mean(SD)	Std. Mean Difference Random, 95% CI	Weight	Std. Mean Difference Random, 95% CI
18.4.1 Low risk of bias							
Herrero 2006	8	9.3 (19.6)	8	-2.1 (5.9)		4.53%	0.74[-0.28,1.77]
Rogers 2009	20	0.9 (2.5)	18	-0.1 (2.7)		7.51%	0.38[-0.27,1.02]
Murtezani 2014	30	2.1 (0.8)	32	0.5 (0.9)		7.99%	1.8[1.21,2.4]



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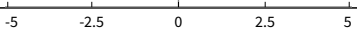
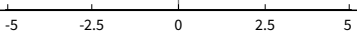
Study or subgroup	Physical activity N	Physical activity Mean(SD)	Control N	Control Mean(SD)	Std. Mean Difference Random, 95% CI	Weight	Std. Mean Difference Random, 95% CI
Courneya 2003	24	2.3 (3.1)	28	0.8 (2.9)		8.44%	0.49[-0.06,1.05]
Cormie 2014	43	4.4 (9)	19	2.7 (8.6)		8.58%	0.19[-0.35,0.73]
Cantarero-Villanueva 2013	32	-1445 (4452)	29	353 (3323)		8.93%	-0.45[-0.96,0.06]
Cadmus 2009	37	0.3 (2.2)	37	-0.5 (3.3)		9.51%	0.28[-0.18,0.74]
Schmitz 2005	39	2.5 (4.4)	40	0.3 (3.9)		9.62%	0.52[0.08,0.97]
Schmitz 2009	58	3.3 (23.2)	62	3.1 (17.2)		10.65%	0.01[-0.35,0.37]
Vallance 2007	250	0.5 (3.5)	85	0.1 (2.5)		11.82%	0.12[-0.13,0.36]
Saarto 2012	263	1.2 (17.8)	237	1.9 (18.5)		12.43%	-0.04[-0.21,0.14]
Subtotal ***	**804**		**595**			**100%**	**0.31[0.04,0.58]**
Heterogeneity: Tau^2=0.14; Chi^2=46.12, df=10(P<0.0001); I^2=78.32%							
Test for overall effect: Z=2.26(P=0.02)							
18.4.2 Unclear/high risk of bias							
Mustian 2004	9	2.4 (2.5)	10	0.1 (1.7)		12.01%	1.06[0.08,2.03]
Naumann 2012	11	1 (2.7)	10	-0.1 (2.7)		14.76%	0.39[-0.48,1.26]
Mehnert 2011	30	2.3 (35.5)	28	3.6 (17.6)		32.78%	-0.04[-0.56,0.47]
Pinto 2005	39	-3.8 (27.7)	43	-11.5 (25.8)		40.46%	0.28[-0.15,0.72]
Subtotal ***	**89**		**91**			**100%**	**0.28[-0.08,0.65]**
Heterogeneity: Tau^2=0.03; Chi^2=3.99, df=3(P=0.26); I^2=24.84%							
Test for overall effect: Z=1.55(P=0.12)							



Analysis 18.5. Comparison 18 Sensitivity analysis: outcomes by risk of bias, Outcome 5 Overall physical function (follow-up values).

Study or subgroup	Physical activity N	Physical activity Mean(SD)	Control N	Control Mean(SD)	Std. Mean Difference Random, 95% CI	Weight	Std. Mean Difference Random, 95% CI
18.5.1 Low risk of bias							
Herrero 2006	8	94.1 (7.5)	8	92.5 (6.6)		4.1%	0.21[-0.77,1.2]
Milne 2008	29	24 (2.6)	29	15.6 (4.5)		6.2%	2.26[1.59,2.92]
Rogers 2009	20	23.3 (4.5)	18	25.4 (2.3)		6.34%	-0.57[-1.22,0.08]
Cuesta-Vargas 2014	22	42.9 (4.1)	20	32.4 (32.5)		6.65%	0.46[-0.16,1.07]
Courneya 2003	24	25.3 (2.5)	28	25.3 (2.8)		7.27%	0[-0.55,0.55]
Murtezani 2014	30	22.6 (4.4)	32	19.4 (4.4)		7.55%	0.72[0.2,1.23]
Daley 2007	33	25.6 (2.2)	33	23.6 (5.7)		7.79%	0.46[-0.03,0.95]
Cadmus 2009	37	25.1 (2.7)	37	24 (4.1)		8.08%	0.31[-0.15,0.77]
Schmitz 2005	39	-44.2 (5.6)	40	-48.3 (7.7)		8.15%	0.6[0.15,1.05]
Pinto 2015	39	87.1 (4.4)	37	84.7 (15.9)		8.15%	0.21[-0.25,0.66]
Rogers 2015	105	24.1 (3.5)	108	22.5 (5)		9.8%	0.37[0.1,0.64]
Schmitz 2009	112	50.6 (8.2)	120	49.1 (9.3)		9.91%	0.17[-0.09,0.43]
Vallance 2007	250	25.1 (3)	85	25 (3.3)		10%	0.05[-0.2,0.3]
Subtotal ***	**748**		**595**			**100%**	**0.38[0.13,0.63]**
Heterogeneity: Tau^2=0.15; Chi^2=51.23, df=12(P<0.0001); I^2=76.57%							
Test for overall effect: Z=2.99(P=0)							
18.5.2 Unclear/high risk of bias							
Banasik 2011	7	-0.8 (0.9)	7	-0.4 (0.3)		1.77%	-0.48[-1.54,0.59]
Mustian 2004	9	26.9 (4.1)	10	26.5 (4.1)		2.49%	0.09[-0.81,0.99]



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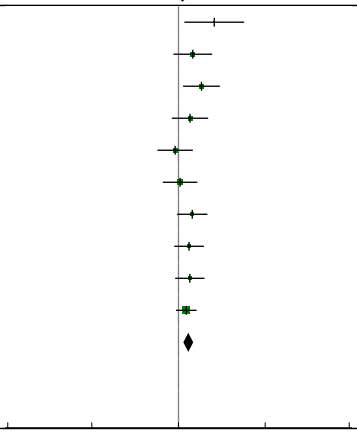
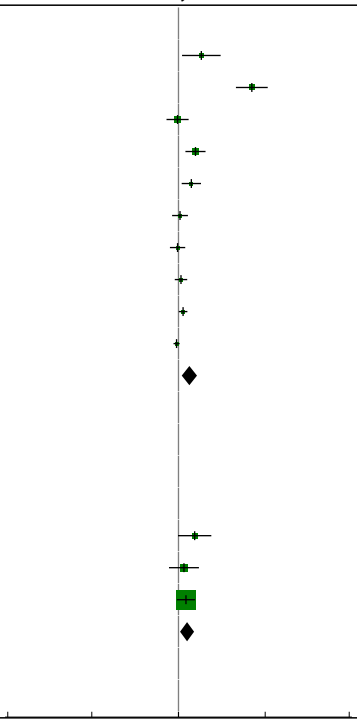
Study or subgroup	Physical activity N	Physical activity Mean(SD)	Control N	Control Mean(SD)	Std. Mean Difference Random, 95% CI	Weight	Std. Mean Difference Random, 95% CI
Pinto 2003	12	32.3 (4.3)	12	25.3 (8.2)		2.73%	1.03[0.17,1.89]
Basen-Enquist 2006	28	82.5 (12.7)	23	77.4 (11.5)		6.51%	0.41[-0.15,0.97]
Mehnert 2011	30	89 (9.1)	28	78.1 (21.2)		7.21%	0.66[0.13,1.19]
Littman 2012	30	25.4 (1.7)	27	24.3 (4.4)		7.38%	0.33[-0.19,0.86]
Winters-Stone 2011	36	51.7 (6.2)	25	52.3 (5.9)		7.77%	-0.1[-0.61,0.41]
Do 2015	32	89.4 (8.4)	30	89 (8.7)		8.16%	0.05[-0.45,0.54]
Pinto 2005	39	30.3 (7.9)	43	27.3 (6.8)		10.56%	0.4[-0.04,0.83]
Loh 2014	63	24.9 (2.5)	32	24.2 (2.2)		11.07%	0.3[-0.12,0.73]
Fillion 2008	44	45.1 (10.4)	43	41.8 (9.8)		11.3%	0.33[-0.1,0.75]
Duijits 2012	87	84 (16.9)	89	80.2 (17.1)		23.04%	0.23[-0.07,0.52]
Subtotal ***	**417**		**369**			**100%**	**0.28[0.14,0.42]**
Heterogeneity: Tau^2=0; Chi^2=10.69, df=11(P=0.47); I^2=0%							
Test for overall effect: Z=3.88(P=0)							



Analysis 18.6. Comparison 18 Sensitivity analysis: outcomes by risk of bias, Outcome 6 Overall physical function (change values).

Study or subgroup	Physical activity N	Physical activity Mean(SD)	Control N	Control Mean(SD)	Std. Mean Difference Random, 95% CI	Weight	Std. Mean Difference Random, 95% CI
18.6.1 Low risk of bias							
Herrero 2006	8	6.7 (5)	8	-1.7 (6.9)		6.79%	1.32[0.21,2.43]
Murtezani 2014	30	4.4 (1.5)	32	-1.3 (1.2)		7.89%	4.23[3.31,5.15]
Rogers 2009	20	2.3 (5.1)	18	2.6 (6)		9.58%	-0.05[-0.69,0.58]
Courneya 2003	24	1.9 (2)	28	-0.2 (2.2)		9.93%	0.98[0.4,1.56]
Cormie 2014	43	3.5 (5.2)	19	-0.5 (5.7)		10.06%	0.74[0.19,1.3]
Cadmus 2009	37	0.1 (6)	37	-0.5 (7.4)		10.62%	0.09[-0.37,0.54]
Schmitz 2005	39	1.2 (4.2)	40	1.5 (6.8)		10.7%	-0.05[-0.49,0.39]
Schmitz 2009	58	6.6 (17.1)	62	4.1 (17.3)		11.11%	0.14[-0.21,0.5]
Vallance 2007	247	1 (3.3)	85	0.2 (2.1)		11.56%	0.26[0.02,0.51]
Saarto 2012	263	1.9 (13.7)	237	3.4 (13.4)		11.77%	-0.11[-0.29,0.06]
Subtotal ***	**769**		**566**			**100%**	**0.63[0.19,1.07]**
Heterogeneity: Tau^2=0.42; Chi^2=103.01, df=9(P<0.0001); I^2=91.26%							
Test for overall effect: Z=2.8(P=0.01)							
18.6.2 Unclear/high risk of bias							
Mustian 2004	9	1.9 (2.6)	10	-0.2 (1.6)		17.76%	0.93[-0.03,1.89]
Naumann 2012	11	1.9 (3.3)	10	0.8 (3.4)		22%	0.32[-0.55,1.18]
Mehnert 2011	30	4 (10.8)	28	-2.1 (16.7)		60.24%	0.43[-0.09,0.95]
Subtotal ***	**50**		**48**			**100%**	**0.5[0.09,0.9]**
Heterogeneity: Tau^2=0; Chi^2=1.02, df=2(P=0.6); I^2=0%							
Test for overall effect: Z=2.4(P=0.02)							



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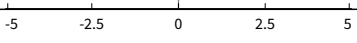
Analysis 18.7. Comparison 18 Sensitivity analysis: outcomes by risk of bias, Outcome 7 Overall role function (follow-up values).

Study or subgroup	Physical activity N	Physical activity Mean(SD)	Control N	Control Mean(SD)	Std. Mean Difference Random, 95% CI	Weight	Std. Mean Difference Random, 95% CI
18.7.1 Low risk of bias							
Herrero 2006	8	97.6 (5.9)	8	100 (0)		4.9%	-0.54[-1.55,0.46]
Loudon 2014	12	-1.3 (0.3)	11	-1.3 (0.4)		6.08%	0[-0.82,0.82]
Milne 2008	29	22.2 (3)	29	12.5 (4.8)		7.1%	2.39[1.71,3.08]
Rogers 2009	20	21.4 (4.8)	18	23.8 (3.2)		7.37%	-0.57[-1.22,0.08]
Courneya 2003	24	23.4 (4)	28	23.1 (4)		8.28%	0.07[-0.47,0.62]
Murtezani 2014	30	24.2 (2.8)	32	23 (2.5)		8.64%	0.45[-0.06,0.95]
Daley 2007	33	22.9 (4.5)	33	20.3 (5.6)		8.76%	0.5[0.01,0.99]
Cadmus 2009	37	23.1 (4.7)	37	20.6 (7.2)		9.03%	0.41[-0.05,0.87]
Schmitz 2005	39	-49.2 (6.5)	40	-50 (6.2)		9.19%	0.12[-0.32,0.57]
Loh 2014	63	23.4 (4.3)	32	22.2 (5)		9.32%	0.25[-0.18,0.68]
Rogers 2015	105	22.3 (4.5)	108	20.3 (5.5)		10.58%	0.4[0.12,0.67]
Vallance 2007	250	23.2 (4)	85	22.7 (4.6)		10.75%	0.12[-0.13,0.37]
Subtotal ***	**650**		**461**			**100%**	**0.32[0.02,0.61]**
Heterogeneity: Tau²=0.19; Chi²=50.99, df=11(P<0.0001); I²=78.43%							
Test for overall effect: Z=2.12(P=0.03)							
18.7.2 Unclear/high risk of bias							
Banasik 2011	7	3.5 (0.6)	7	3.2 (0.6)		5.41%	0.34[-0.72,1.4]
Mustian 2004	9	2.4 (1.5)	9	2.8 (1.5)		7.03%	-0.23[-1.15,0.7]
Basen-Enquist 2006	28	86.1 (22.2)	23	73 (24.5)		19.11%	0.55[-0.01,1.12]
Mehnert 2011	30	90 (20.3)	27	79.6 (25)		21.8%	0.45[-0.07,0.98]
Littman 2012	30	22.6 (3.9)	27	21.7 (4.7)		22.27%	0.21[-0.31,0.73]
Do 2015	32	78.1 (19.5)	30	79.2 (14.6)		24.39%	-0.06[-0.56,0.44]
Subtotal ***	**136**		**123**			**100%**	**0.24[-0.01,0.48]**
Heterogeneity: Tau²=0; Chi²=4.26, df=5(P=0.51); I²=0%							
Test for overall effect: Z=1.89(P=0.06)							



Analysis 18.8. Comparison 18 Sensitivity analysis: outcomes by risk of bias, Outcome 8 Overall role function (change values).

Study or subgroup	Physical activity N	Physical activity Mean(SD)	Control N	Control Mean(SD)	Std. Mean Difference Random, 95% CI	Weight	Std. Mean Difference Random, 95% CI
18.8.1 Low risk of bias							
Herrero 2006	8	2.1 (13.9)	8	2.1 (5.9)		4.38%	0[-0.98,0.98]
Rogers 2009	20	0.4 (3.3)	18	1.4 (4.3)		8.01%	-0.26[-0.9,0.38]
Courneya 2003	24	0.9 (2.8)	28	0.4 (2.7)		9.61%	0.18[-0.37,0.73]
Cormie 2014	43	4.9 (7.1)	19	1.7 (7.1)		9.62%	0.45[-0.1,0.99]
Murtezani 2014	30	1.7 (0.7)	32	0.9 (0.6)		9.72%	1.16[0.62,1.7]
Cadmus 2009	37	-0.3 (3.7)	37	-0.5 (3.4)		11.49%	0.06[-0.4,0.51]
Schmitz 2005	39	1.2 (4.2)	40	1.5 (6.8)		11.82%	-0.05[-0.49,0.39]
Vallance 2007	250	0.6 (4.1)	85	-0 (2.7)		16.8%	0.17[-0.08,0.41]
Saarto 2012	263	2.4 (21.5)	237	3.8 (21.6)		18.55%	-0.06[-0.24,0.11]
Subtotal ***	**714**		**504**			**100%**	**0.17[-0.06,0.4]**
Heterogeneity: Tau²=0.07; Chi²=21.6, df=8(P=0.01); I²=62.96%							
Test for overall effect: Z=1.43(P=0.15)							

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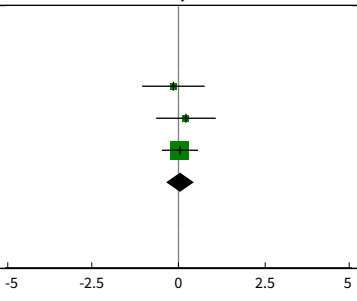
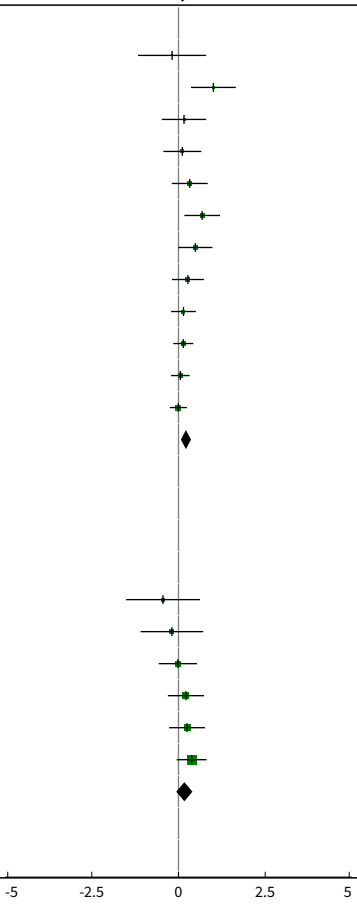
Study or subgroup	Physical activity N	Physical activity Mean(SD)	Control N	Control Mean(SD)	Std. Mean Difference Random, 95% CI	Weight	Std. Mean Difference Random, 95% CI
18.8.2 Unclear/high risk of bias							
Mustian 2004	9	0.6 (1.6)	10	0.8 (1.6)		19.57%	-0.15[-1.05,0.76]
Naumann 2012	11	1.5 (4.4)	10	0.5 (4.5)		21.55%	0.22[-0.64,1.08]
Mehnert 2011	30	6.7 (23.8)	27	5.6 (27)		58.88%	0.04[-0.48,0.56]
Subtotal ***	**50**		**47**			**100%**	**0.04[-0.36,0.44]**
Heterogeneity: Tau²=0; Chi²=0.32, df=2(P=0.85); I²=0%							
Test for overall effect: Z=0.21(P=0.83)							



Analysis 18.9. Comparison 18 Sensitivity analysis: outcomes by risk of bias, Outcome 9 Overall social well-being/function (follow-up values).

Study or subgroup	Physical activity N	Physical activity Mean(SD)	Control N	Control Mean(SD)	Std. Mean Difference Random, 95% CI	Weight	Std. Mean Difference Random, 95% CI
18.9.1 Low risk of bias							
Herrero 2006	8	87.5 (19.4)	8	91.7 (23.6)		2.07%	-0.18[-1.17,0.8]
Rogers 2014	20	7.3 (4.9)	22	3.1 (3.2)		4.38%	1.01[0.36,1.65]
Rogers 2009	20	22.6 (4.1)	18	21.8 (5.7)		4.48%	0.16[-0.48,0.8]
Courneya 2003	24	21.1 (3.5)	28	20.7 (3.6)		5.81%	0.11[-0.43,0.66]
Milne 2008	29	20.7 (4)	29	19.4 (3.9)		6.31%	0.32[-0.19,0.84]
Murtezani 2014	30	20.2 (2.8)	32	18.3 (2.7)		6.4%	0.68[0.17,1.2]
Daley 2007	33	23.3 (4.8)	33	20.4 (6.8)		6.89%	0.49[-0,0.98]
Cadmus 2009	37	22.3 (4.9)	37	20.6 (7.2)		7.63%	0.27[-0.18,0.73]
Schmitz 2009	59	14.9 (5.2)	62	14.1 (5.8)		10.8%	0.14[-0.21,0.5]
Kiecolt-Glaser 2014	96	95.2 (10.8)	90	93.8 (9.3)		13.94%	0.14[-0.15,0.43]
Rogers 2015	105	21 (5.7)	108	20.7 (5.8)		14.98%	0.05[-0.22,0.32]
Vallance 2007	250	22.9 (5)	85	23 (5.1)		16.31%	-0[-0.25,0.24]
Subtotal ***	**711**		**552**			**100%**	**0.21[0.07,0.36]**
Heterogeneity: Tau²=0.02; Chi²=15.66, df=11(P=0.15); I²=29.75%							
Test for overall effect: Z=2.87(P=0)							
18.9.2 Unclear/high risk of bias							
Banasik 2011	7	2.8 (0.7)	7	3.2 (0.8)		4.83%	-0.45[-1.51,0.62]
Mustian 2004	9	8.6 (1.9)	10	9 (1.8)		6.72%	-0.19[-1.09,0.71]
Basen-Enquist 2006	28	84.6 (16.9)	23	84.9 (19.2)		18.02%	-0.02[-0.57,0.54]
Littman 2012	30	22.1 (5)	27	20.9 (6)		20.15%	0.22[-0.31,0.74]
Mehnert 2011	30	85.4 (20.9)	28	79.9 (22.7)		20.5%	0.25[-0.27,0.76]
Loh 2014	63	21.5 (4.9)	32	19.6 (4.9)		29.78%	0.38[-0.05,0.81]
Subtotal ***	**167**		**127**			**100%**	**0.17[-0.06,0.4]**
Heterogeneity: Tau²=0; Chi²=3.37, df=5(P=0.64); I²=0%							
Test for overall effect: Z=1.42(P=0.16)							



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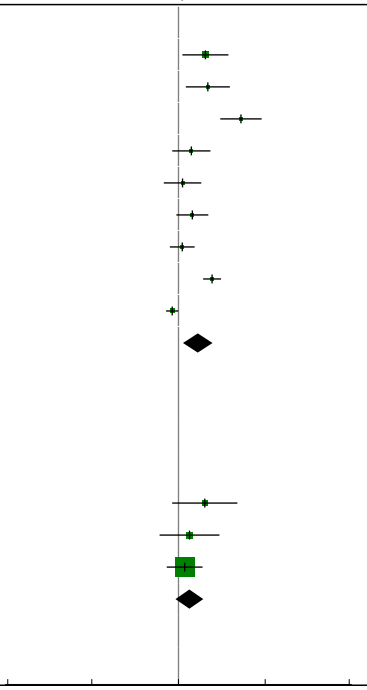
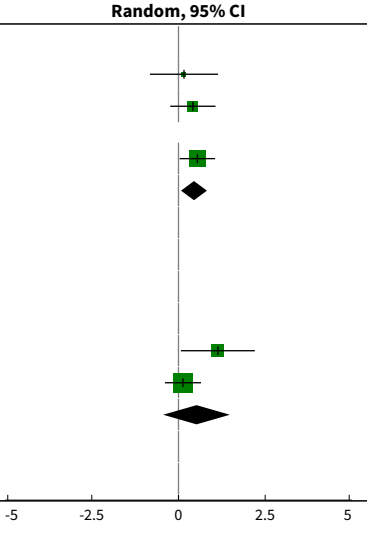
Analysis 18.10. Comparison 18 Sensitivity analysis: outcomes by risk of bias, Outcome 10 Overall social well-being/function (change values).

Study or subgroup	Physical activity N	Physical activity Mean(SD)	Control N	Control Mean(SD)	Std. Mean Difference Random, 95% CI	Weight	Std. Mean Difference Random, 95% CI
18.10.1 Low risk of bias							
Rogers 2009	20	0.9 (2.6)	18	-1.2 (2.7)		9.88%	0.78[0.11,1.44]
Rogers 2014	20	2.1 (3.2)	22	-0.8 (3.5)		10.08%	0.85[0.21,1.48]
Murtezani 2014	30	2.1 (0.8)	32	0.5 (0.9)		10.35%	1.8[1.21,2.4]
Courneya 2003	24	0.6 (2.4)	28	-0.5 (3.3)		10.67%	0.37[-0.18,0.92]
Cormie 2014	43	3.5 (8.5)	19	2.5 (8.3)		10.74%	0.12[-0.42,0.66]
Cadmus 2009	37	0.6 (4.6)	37	-1 (3.2)		11.27%	0.4[-0.06,0.86]
Schmitz 2009	59	4.4 (33.8)	62	0.7 (34)		11.9%	0.11[-0.25,0.47]
Vallance 2007	250	0.2 (4.8)	85	-4.1 (3.3)		12.4%	0.97[0.71,1.23]
Saarto 2012	263	5 (21.1)	237	8.8 (20.8)		12.7%	-0.18[-0.36,-0.01]
Subtotal ***	**746**		**540**			**100%**	**0.56[0.13,0.98]**
Heterogeneity: Tau²=0.36; Chi²=85.7, df=8(P<0.0001); I²=90.67%							
Test for overall effect: Z=2.56(P=0.01)							
18.10.2 Unclear/high risk of bias							
Mustian 2004	9	1.5 (1.5)	10	0.4 (1.2)		18.16%	0.76[-0.18,1.7]
Naumann 2012	11	0.9 (3.3)	10	-0.2 (3.3)		21.56%	0.32[-0.54,1.18]
Mehnert 2011	30	7.3 (22.3)	28	3.1 (24.3)		60.28%	0.18[-0.34,0.69]
Subtotal ***	**50**		**48**			**100%**	**0.31[-0.09,0.71]**
Heterogeneity: Tau²=0; Chi²=1.12, df=2(P=0.57); I²=0%							
Test for overall effect: Z=1.53(P=0.12)							



Analysis 18.11. Comparison 18 Sensitivity analysis: outcomes by risk of bias, Outcome 11 Overall cognitive function (follow-up values).

Study or subgroup	Physical activity N	Physical activity Mean(SD)	Control N	Control Mean(SD)	Std. Mean Difference Random, 95% CI	Weight	Std. Mean Difference Random, 95% CI
18.11.1 Low risk of bias							
Herrero 2006	8	91.7 (12.6)	8	89.6 (12.4)		14.41%	0.16[-0.82,1.14]
Rogers 2009	19	-124.5 (30.8)	18	-135.5 (19.5)		32.65%	0.42[-0.24,1.07]
Cantarero-Villanueva 2013	32	-37.9 (8.5)	29	-43 (10)		52.94%	0.55[0.03,1.06]
Subtotal ***	**59**		**55**			**100%**	**0.45[0.07,0.82]**
Heterogeneity: Tau²=0; Chi²=0.48, df=2(P=0.79); I²=0%							
Test for overall effect: Z=2.35(P=0.02)							
18.11.2 Unclear/high risk of bias							
Pinto 2003	12	-4.3 (2.5)	6	-7.2 (2.1)		38.89%	1.14[0.07,2.2]
Mehnert 2011	30	81.1 (16.8)	27	78.4 (24.4)		61.11%	0.13[-0.39,0.65]
Subtotal ***	**42**		**33**			**100%**	**0.52[-0.44,1.48]**
Heterogeneity: Tau²=0.32; Chi²=2.77, df=1(P=0.1); I²=63.87%							
Test for overall effect: Z=1.06(P=0.29)							



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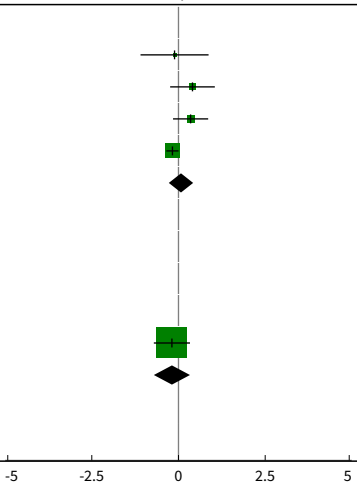
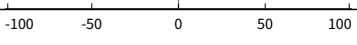
Analysis 18.12. Comparison 18 Sensitivity analysis: outcomes by risk of bias, Outcome 12 Overall cognitive function (change values).

Study or subgroup	Physical activity N	Physical activity Mean(SD)	Control N	Control Mean(SD)	Std. Mean Difference Random, 95% CI	Weight	Std. Mean Difference Random, 95% CI
18.12.1 Low risk of bias							
Herrero 2006	8	6.2 (19.8)	8	8.3 (14.8)		10.27%	-0.11[-1.09,0.87]
Rogers 2009	20	4.2 (16.8)	18	-4.7 (25.9)		18.89%	0.4[-0.24,1.05]
Cantarero-Villanueva 2013	32	2.2 (7.6)	29	-0.2 (5.5)		24.94%	0.35[-0.16,0.86]
Saarto 2012	263	-1 (18.2)	237	2.2 (18.5)		45.9%	-0.17[-0.35,0]
Subtotal ***	**323**		**292**			**100%**	**0.07[-0.28,0.42]**
Heterogeneity: Tau²=0.06; Chi²=6.03, df=3(P=0.11); I²=50.28%							
Test for overall effect: Z=0.4(P=0.69)							
18.12.2 Unclear/high risk of bias							
Mehnert 2011	30	1.7 (22.4)	27	6.2 (24.6)		100%	-0.19[-0.71,0.33]
Subtotal ***	**30**		**27**			**100%**	**-0.19[-0.71,0.33]**
Heterogeneity: Not applicable							
Test for overall effect: Z=0.71(P=0.48)							



Analysis 18.13. Comparison 18 Sensitivity analysis: outcomes by risk of bias, Outcome 13 Overall general health (follow-up values).

Study or subgroup	Physical activity N	Physical activity Mean(SD)	Control N	Control Mean(SD)	Std. Mean Difference Random, 95% CI	Weight	Std. Mean Difference Random, 95% CI
18.13.1 Low risk of bias							
Herrero 2006	8	81.3 (10.7)	8	62.5 (16.1)		8.71%	1.3[0.19,2.41]
Rogers 2009	20	3.5 (0.9)	18	3.8 (0.5)		18.25%	-0.4[-1.04,0.25]
Ergun 2013	40	71.6 (19.9)	20	67.9 (16.7)		21.93%	0.19[-0.35,0.73]
Cadmus 2009	37	50 (8.8)	37	51.7 (8.4)		25.22%	-0.2[-0.65,0.26]
Schmitz 2005	39	53.8 (5.3)	40	53.2 (6)		25.89%	0.1[-0.34,0.55]
Subtotal ***	**144**		**123**			**100%**	**0.06[-0.31,0.43]**
Heterogeneity: Tau²=0.09; Chi²=8.13, df=4(P=0.09); I²=50.8%							
Test for overall effect: Z=0.32(P=0.75)							
18.13.2 Unclear/high risk of bias							
Mustian 2004	9	18.6 (4.8)	9	19.3 (1.9)		11.85%	-0.18[-1.11,0.74]
Basen-Enquist 2006	28	77.4 (11.6)	23	67.1 (13.4)		26%	0.81[0.24,1.39]
Mehnert 2011	30	74.4 (11.8)	28	70 (20.8)		30.37%	0.26[-0.26,0.77]
Do 2015	32	87.3 (13.7)	30	82.4 (19.9)		31.79%	0.28[-0.22,0.79]
Subtotal ***	**99**		**90**			**100%**	**0.36[0.02,0.7]**
Heterogeneity: Tau²=0.03; Chi²=3.94, df=3(P=0.27); I²=23.83%							
Test for overall effect: Z=2.07(P=0.04)							



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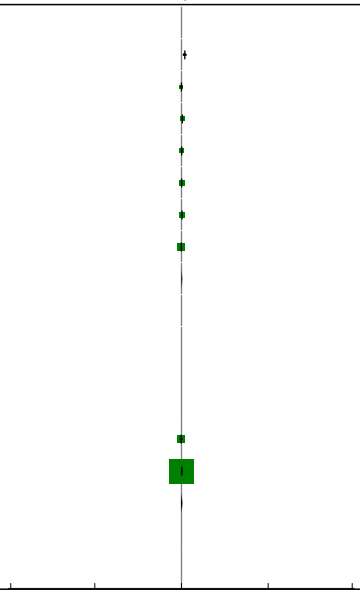
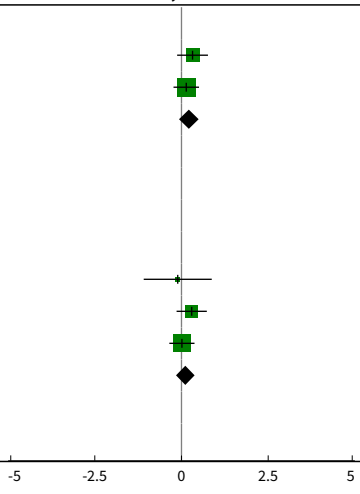
Analysis 18.14. Comparison 18 Sensitivity analysis: outcomes by risk of bias, Outcome 14 Overall general health (change values).

Study or subgroup	Physical activity N	Physical activity Mean(SD)	Control N	Control Mean(SD)	Std. Mean Difference Random, 95% CI	Weight	Std. Mean Difference Random, 95% CI
18.14.1 Low risk of bias							
Herrero 2006	8	17.7 (8.3)	8	-10.4 (17.7)		4.4%	1.92[0.68,3.17]
Rogers 2009	20	0.2 (0.6)	18	0.2 (0.7)		11.51%	-0.03[-0.67,0.61]
Ergun 2013	40	5.4 (21.5)	20	-6.7 (25.9)		13.59%	0.52[-0.03,1.06]
Cormie 2014	43	3.7 (7)	19	2.8 (7.1)		13.71%	0.13[-0.41,0.67]
Cadmus 2009	37	0.2 (4.4)	37	-0.1 (5.1)		15.98%	0.06[-0.39,0.52]
Schmitz 2005	39	0.7 (4.8)	40	-0.6 (3.9)		16.33%	0.29[-0.15,0.74]
Saarto 2012	263	4.2 (16.2)	237	5.6 (15.4)		24.49%	-0.09[-0.26,0.09]
Subtotal ***	**450**		**379**			**100%**	**0.21[-0.08,0.49]**
Heterogeneity: Tau^2=0.08; Chi^2=15.22, df=6(P=0.02); I^2=60.58%							
Test for overall effect: Z=1.41(P=0.16)							
18.14.2 Unclear/high risk of bias							
Mustian 2004	9	0.2 (1.9)	10	0.7 (2.5)		24.63%	-0.2[-1.1,0.71]
Mehnert 2011	30	6.6 (13.7)	28	3.2 (19.7)		75.37%	0.2[-0.32,0.71]
Subtotal ***	**39**		**38**			**100%**	**0.1[-0.35,0.55]**
Heterogeneity: Tau^2=0; Chi^2=0.55, df=1(P=0.46); I^2=0%							
Test for overall effect: Z=0.44(P=0.66)							



Analysis 18.15. Comparison 18 Sensitivity analysis: outcomes by risk of bias, Outcome 15 Overall sexual function (follow-up values).

Study or subgroup	Physical activity N	Physical activity Mean(SD)	Control N	Control Mean(SD)	Std. Mean Difference Fixed, 95% CI	Weight	Std. Mean Difference Fixed, 95% CI
18.15.1 Low risk of bias							
Schmitz 2005	39	-51 (7.5)	40	-53.5 (8)		40.67%	0.32[-0.12,0.76]
Schmitz 2009	57	-27.3 (5.3)	57	-28.1 (6.2)		59.33%	0.14[-0.23,0.51]
Subtotal ***	**96**		**97**			**100%**	**0.21[-0.07,0.49]**
Heterogeneity: Tau^2=0; Chi^2=0.38, df=1(P=0.54); I^2=0%							
Test for overall effect: Z=1.46(P=0.14)							
18.15.2 Unclear/high risk of bias							
Pinto 2005	12	42.8 (9.2)	6	43.7 (6.1)		7.48%	-0.11[-1.09,0.87]
Pinto 2003	39	42.5 (9.2)	43	40.1 (6.3)		37.86%	0.29[-0.14,0.73]
Duijits 2012	53	0.6 (0.8)	65	0.6 (0.8)		54.66%	0.01[-0.35,0.38]
Subtotal ***	**104**		**114**			**100%**	**0.11[-0.16,0.38]**
Heterogeneity: Tau^2=0; Chi^2=1.16, df=2(P=0.56); I^2=0%							
Test for overall effect: Z=0.81(P=0.42)							



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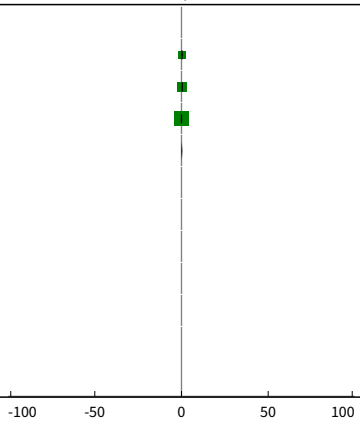
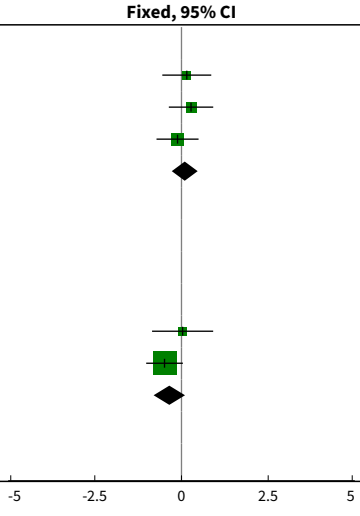
Analysis 18.16. Comparison 18 Sensitivity analysis: outcomes by risk of bias, Outcome 16 Overall sexual function (change values).

Study or subgroup	Physical activity N	Physical activity Mean(SD)	Control N	Control Mean(SD)	Std. Mean Difference Random, 95% CI	Weight	Std. Mean Difference Random, 95% CI
18.16.1 Low risk of bias							
Schmitz 2005	39	1.7 (4.8)	40	0.2 (5.2)		24.77%	0.3[-0.15,0.74]
Schmitz 2009	57	7.2 (14.6)	57	-0.2 (16.7)		29.51%	0.47[0.1,0.84]
Saarto 2012	263	4.3 (25.4)	237	3.8 (24.4)		45.72%	0.02[-0.16,0.2]
Subtotal ***	**359**		**334**			**100%**	**0.22[-0.08,0.52]**
Heterogeneity: Tau²=0.04; Chi²=5.22, df=2(P=0.07); I²=61.69%							
Test for overall effect: Z=1.45(P=0.15)							
18.16.2 Unclear/high risk of bias							
Subtotal ***	**0**		**0**				**Not estimable**
Heterogeneity: Not applicable							
Test for overall effect: Not applicable							



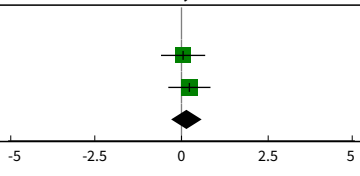
Analysis 18.17. Comparison 18 Sensitivity analysis: outcomes by risk of bias, Outcome 17 Overall sleep (follow-up values).

Study or subgroup	Physical activity N	Physical activity Mean(SD)	Control N	Control Mean(SD)	Std. Mean Difference Fixed, 95% CI	Weight	Std. Mean Difference Fixed, 95% CI
18.17.1 Low risk of bias							
Bower 2011	16	8.1 (2.5)	15	7.7 (2.6)		28.01%	0.15[-0.55,0.86]
Rogers 2009	20	6.7 (4.2)	18	5.5 (4)		34.03%	0.28[-0.36,0.92]
Rogers 2014	20	6.7 (3.7)	22	7.1 (3.2)		37.96%	-0.11[-0.72,0.49]
Subtotal ***	**56**		**55**			**100%**	**0.09[-0.28,0.47]**
Heterogeneity: Tau²=0; Chi²=0.79, df=2(P=0.67); I²=0%							
Test for overall effect: Z=0.49(P=0.62)							
18.17.2 Unclear/high risk of bias							
Rogers 2013	11	6.3 (2.7)	9	6.2 (3.2)		26.44%	0.03[-0.85,0.91]
Mehnert 2011	30	23.8 (27)	27	38.3 (31.6)		73.56%	-0.49[-1.02,0.04]
Subtotal ***	**41**		**36**			**100%**	**-0.35[-0.8,0.1]**
Heterogeneity: Tau²=0; Chi²=0.99, df=1(P=0.32); I²=0%							
Test for overall effect: Z=1.52(P=0.13)							



Analysis 18.18. Comparison 18 Sensitivity analysis: outcomes by risk of bias, Outcome 18 Overall sleep (change values).

Study or subgroup	Physical activity N	Physical activity Mean(SD)	Control N	Control Mean(SD)	Std. Mean Difference Random, 95% CI	Weight	Std. Mean Difference Random, 95% CI
18.18.1 Low risk of bias							
Rogers 2009	20	0.5 (2.1)	18	0.3 (4.7)		47.66%	0.05[-0.59,0.68]
Rogers 2014	20	-1.3 (3.2)	22	-2.2 (4.4)		52.34%	0.23[-0.38,0.84]
Subtotal ***	**40**		**40**			**100%**	**0.14[-0.3,0.58]**



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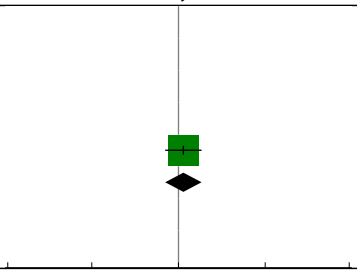
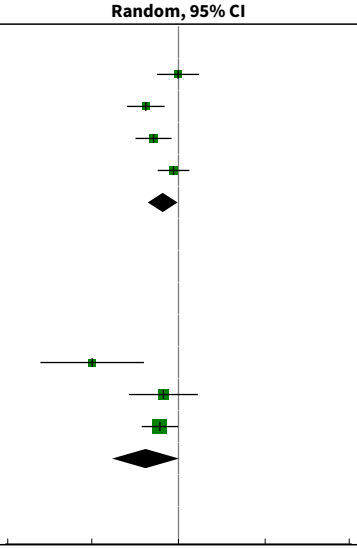
Study or subgroup	Physical activity N	Physical activity Mean(SD)	Control N	Control Mean(SD)	Std. Mean Difference Random, 95% CI	Weight	Std. Mean Difference Random, 95% CI
Heterogeneity: Tau²=0; Chi²=0.16, df=1(P=0.69); I²=0%							
Test for overall effect: Z=0.63(P=0.53)							
18.18.2 Unclear/high risk of bias							
Mehnert 2011	29	-5.4 (29.9)	27	-9.9 (33.3)		100%	0.14[-0.38,0.67]
Subtotal ***	**29**		**27**			**100%**	**0.14[-0.38,0.67]**
Heterogeneity: Not applicable							
Test for overall effect: Z=0.53(P=0.6)							



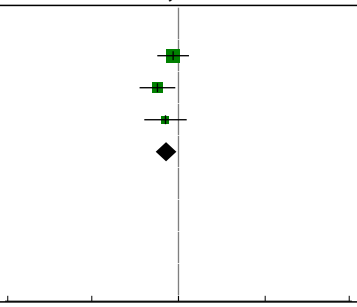
Analysis 18.19. Comparison 18 Sensitivity analysis: outcomes by risk of bias, Outcome 19 Overall anxiety (follow-up values).

Study or subgroup	Physical activity N	Physical activity Mean(SD)	Control N	Control Mean(SD)	Std. Mean Difference Random, 95% CI	Weight	Std. Mean Difference Random, 95% CI
18.19.1 Low risk of bias							
Rogers 2014	20	45.6 (8.9)	22	45.7 (8)		22.41%	-0.01[-0.62,0.59]
Milne 2008	29	15.3 (6.2)	29	21 (5.7)		24.48%	-0.94[-1.49,-0.4]
Cantarero-Villanueva 2013	32	42.5 (8.6)	29	49.9 (11.7)		25.38%	-0.72[-1.24,-0.2]
Cadmus 2009	37	32.1 (12.3)	37	34.1 (15.4)		27.73%	-0.14[-0.6,0.31]
Subtotal ***	**118**		**117**			**100%**	**-0.46[-0.89,-0.03]**
Heterogeneity: Tau²=0.12; Chi²=7.96, df=3(P=0.05); I²=62.29%							
Test for overall effect: Z=2.08(P=0.04)							
18.19.2 Unclear/high risk of bias							
Segar 1998	10	28.5 (3)	5	39.5 (6)		22.92%	-2.49[-3.98,-1]
Pinto 2003	12	7.6 (7.3)	6	10.5 (3.7)		32.99%	-0.43[-1.43,0.56]
Mehnert 2011	30	4.8 (3.5)	28	7.1 (5)		44.09%	-0.54[-1.06,-0.01]
Subtotal ***	**52**		**39**			**100%**	**-0.95[-1.92,0.02]**
Heterogeneity: Tau²=0.48; Chi²=6.16, df=2(P=0.05); I²=67.55%							
Test for overall effect: Z=1.93(P=0.05)							



Analysis 18.20. Comparison 18 Sensitivity analysis: outcomes by risk of bias, Outcome 20 Overall anxiety (change values).

Study or subgroup	Physical activity N	Physical activity Mean(SD)	Control N	Control Mean(SD)	Std. Mean Difference Fixed, 95% CI	Weight	Std. Mean Difference Fixed, 95% CI
18.20.1 Low risk of bias							
Cadmus 2009	37	-0.7 (9.2)	37	0.5 (5.8)		42.67%	-0.15[-0.61,0.3]
Cantarero-Villanueva 2013	32	-4.2 (9.8)	29	0.8 (5.5)		33.55%	-0.61[-1.12,-0.09]
Rogers 2014	20	-4 (6.5)	22	-1.8 (5)		23.78%	-0.37[-0.99,0.24]
Subtotal ***	**89**		**88**			**100%**	**-0.36[-0.66,-0.06]**
Heterogeneity: Tau²=0; Chi²=1.67, df=2(P=0.43); I²=0%							
Test for overall effect: Z=2.36(P=0.02)							
18.20.2 Unclear/high risk of bias							



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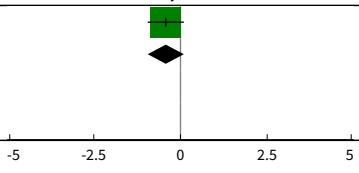
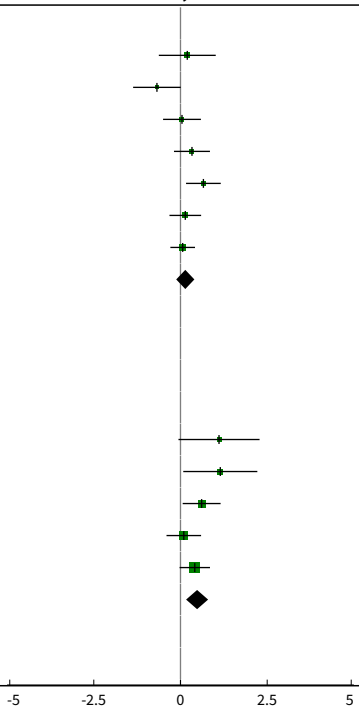
Study or subgroup	Physical activity N	Physical activity Mean(SD)	Control N	Control Mean(SD)	Std. Mean Difference Fixed, 95% CI	Weight	Std. Mean Difference Fixed, 95% CI
Mehnert 2011	30	-1.7 (3.7)	28	0.2 (4.9)		100%	-0.42[-0.95,0.1]
Subtotal ***	**30**		**28**			**100%**	**-0.42[-0.95,0.1]**
Heterogeneity: Not applicable							
Test for overall effect: Z=1.59(P=0.11)							



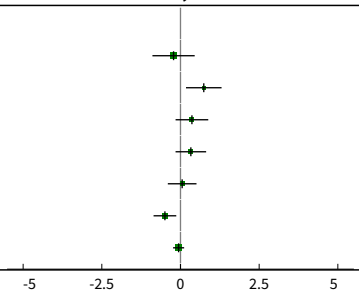
Analysis 18.21. Comparison 18 Sensitivity analysis: outcomes by risk of bias, Outcome 21 Overall self-esteem/body image (follow-up values).

Study or subgroup	Physical activity N	Physical activity Mean(SD)	Control N	Control Mean(SD)	Std. Mean Difference Random, 95% CI	Weight	Std. Mean Difference Random, 95% CI
18.21.1 Low risk of bias							
Loudon 2014	12	-1.4 (0.3)	11	-1.6 (0.9)		7.87%	0.2[-0.62,1.02]
Musanti 2012	30	23.8 (3.5)	12	26.3 (3.9)		10.25%	-0.68[-1.37,0.01]
Courneya 2003	24	34.8 (4.7)	28	34.6 (4.4)		13.85%	0.04[-0.5,0.59]
Milne 2008	29	-17.9 (6.8)	29	-20.1 (6.3)		14.69%	0.33[-0.19,0.85]
Daley 2007	33	2 (0.8)	32	1.6 (0.5)		15.3%	0.66[0.16,1.16]
Cadmus 2009	37	34.2 (5.5)	37	33.4 (5.9)		16.88%	0.14[-0.32,0.6]
Schmitz 2009	59	-70.4 (16.3)	63	-71.5 (18)		21.16%	0.06[-0.29,0.42]
Subtotal ***	**224**		**212**			**100%**	**0.14[-0.12,0.4]**
Heterogeneity: Tau^2=0.05; Chi^2=10.46, df=6(P=0.11); I^2=42.66%							
Test for overall effect: Z=1.04(P=0.3)							
18.21.2 Unclear/high risk of bias							
Segar 1998	10	33 (1.8)	5	30.5 (2.7)		6.81%	1.11[-0.06,2.28]
Pinto 2003	12	32.3 (4.3)	6	25.3 (8.2)		8.04%	1.15[0.08,2.22]
Mehnert 2011	27	-5.5 (1.7)	27	-6.8 (2.6)		24.41%	0.61[0.06,1.16]
Do 2015	32	37.9 (18.9)	30	36.1 (18.3)		27.81%	0.1[-0.4,0.59]
Pinto 2005	39	30.3 (7.8)	43	27.2 (6.8)		32.93%	0.41[-0.03,0.85]
Subtotal ***	**120**		**111**			**100%**	**0.48[0.16,0.8]**
Heterogeneity: Tau^2=0.03; Chi^2=5.17, df=4(P=0.27); I^2=22.63%							
Test for overall effect: Z=2.96(P=0)							



Analysis 18.22. Comparison 18 Sensitivity analysis: outcomes by risk of bias, Outcome 22 Overall self-esteem/body image (change values).

Study or subgroup	Physical activity N	Physical activity Mean(SD)	Control N	Control Mean(SD)	Std. Mean Difference Random, 95% CI	Weight	Std. Mean Difference Random, 95% CI
18.22.1 Low risk of bias							
Musanti 2012	30	-0.4 (4.5)	12	0.6 (3.9)		9.77%	-0.22[-0.89,0.45]
Courneya 2003	24	2.6 (3.7)	28	-0.1 (3.5)		11.77%	0.74[0.18,1.3]
Milne 2008	29	1.5 (3.7)	29	0.1 (3.9)		12.75%	0.36[-0.16,0.88]
Daley 2007	33	1.8 (0.7)	33	1.6 (0.7)		13.51%	0.33[-0.16,0.82]
Cadmus 2009	37	0.4 (4.4)	37	0.2 (2.9)		14.23%	0.05[-0.4,0.51]
Schmitz 2009	59	-12 (15.5)	63	-4.1 (16.2)		16.66%	-0.49[-0.86,-0.13]
Saarto 2012	263	10.7 (21.5)	237	12 (22)		21.31%	-0.06[-0.24,0.12]



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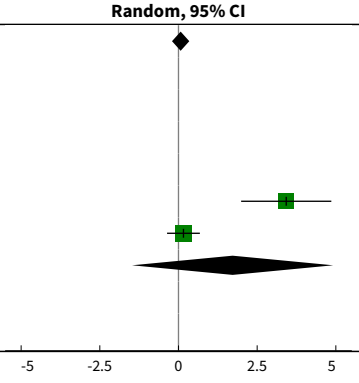
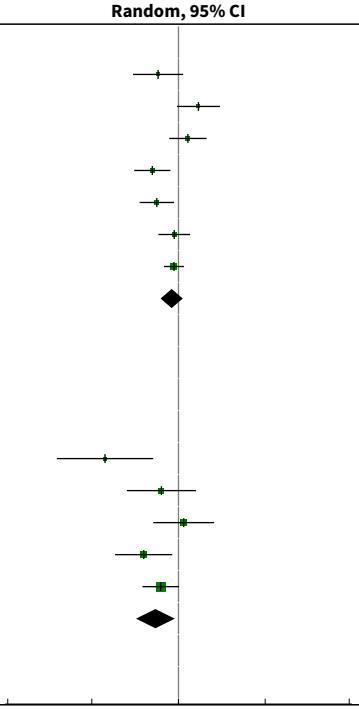
Study or subgroup	Physical activity N	Physical activity Mean(SD)	Control N	Control Mean(SD)	Std. Mean Difference Random, 95% CI	Weight	Std. Mean Difference Random, 95% CI
Subtotal ***	**475**		**439**			**100%**	**0.07[-0.21,0.34]**
Heterogeneity: Tau²=0.08; Chi²=18.32, df=6(P=0.01); I²=67.25%							
Test for overall effect: Z=0.49(P=0.62)							
18.22.2 Unclear/high risk of bias							
Mustian 2004	11	3 (1)	10	-1.5 (1.5)		47.83%	3.42[1.99,4.86]
Mehnert 2011	30	0.7 (2.1)	27	0.4 (2.1)		52.17%	0.16[-0.36,0.68]
Subtotal ***	**41**		**37**			**100%**	**1.72[-1.48,4.92]**
Heterogeneity: Tau²=5.03; Chi²=17.62, df=1(P<0.0001); I²=94.33%							
Test for overall effect: Z=1.05(P=0.29)							



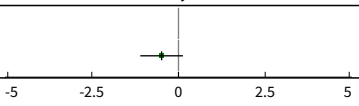
Analysis 18.23. Comparison 18 Sensitivity analysis: outcomes by risk of bias, Outcome 23 Overall depression (follow-up values).

Study or subgroup	Physical activity N	Physical activity Mean(SD)	Control N	Control Mean(SD)	Std. Mean Difference Random, 95% CI	Weight	Std. Mean Difference Random, 95% CI
18.23.1 Low risk of bias							
Bower 2011	16	7.7 (5.8)	15	11.6 (7.1)		10.51%	-0.59[-1.31,0.13]
Rogers 2014	20	44.2 (8.6)	22	25.1 (44.2)		12.24%	0.58[-0.04,1.19]
Ergun 2013	40	6.9 (6.8)	20	5.2 (5.2)		13.77%	0.27[-0.27,0.81]
Cantarero-Villanueva 2013	32	45.6 (9.7)	29	53.7 (11.6)		14.14%	-0.75[-1.28,-0.23]
Daley 2007	33	6 (6.5)	33	10.3 (7.2)		14.68%	-0.63[-1.12,-0.13]
Cadmus 2009	37	9.6 (9.3)	37	10.8 (10.1)		15.51%	-0.12[-0.58,0.33]
Kiecolt-Glaser 2014	96	8.1 (8.6)	90	9.2 (8.2)		19.16%	-0.13[-0.42,0.16]
Subtotal ***	**274**		**246**			**100%**	**-0.2[-0.52,0.12]**
Heterogeneity: Tau²=0.12; Chi²=17.59, df=6(P=0.01); I²=65.89%							
Test for overall effect: Z=1.21(P=0.23)							
18.23.2 Unclear/high risk of bias							
Segar 1998	10	5.5 (2)	5	10 (2)		11.53%	-2.12[-3.51,-0.73]
Pinto 2003	12	6.2 (7.2)	6	9.8 (6.8)		17.59%	-0.49[-1.49,0.5]
Payne 2008	10	12.7 (8.7)	10	11.4 (7.9)		20.09%	0.15[-0.73,1.03]
Kaltsatou 2011	13	16.5 (1.7)	13	22.3 (7.7)		21.35%	-1[-1.83,-0.18]
Mehnert 2011	30	2.7 (3)	28	4.6 (4.4)		29.43%	-0.51[-1.04,0.01]
Subtotal ***	**75**		**62**			**100%**	**-0.67[-1.23,-0.11]**
Heterogeneity: Tau²=0.21; Chi²=8.45, df=4(P=0.08); I²=52.69%							
Test for overall effect: Z=2.33(P=0.02)							



Analysis 18.24. Comparison 18 Sensitivity analysis: outcomes by risk of bias, Outcome 24 Overall depression (change values).

Study or subgroup	Physical activity N	Physical activity Mean(SD)	Control N	Control Mean(SD)	Std. Mean Difference Random, 95% CI	Weight	Std. Mean Difference Random, 95% CI
18.24.1 Low risk of bias							
Rogers 2014	20	-1.7 (6.9)	22	1.1 (4.2)		13.12%	-0.49[-1.1,0.13]



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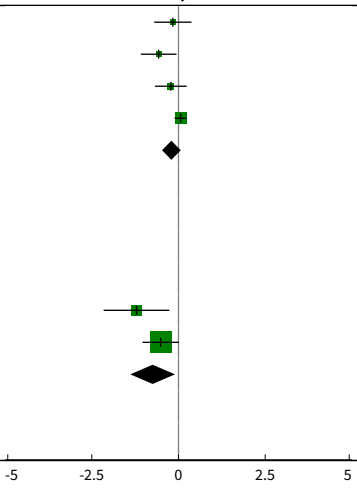
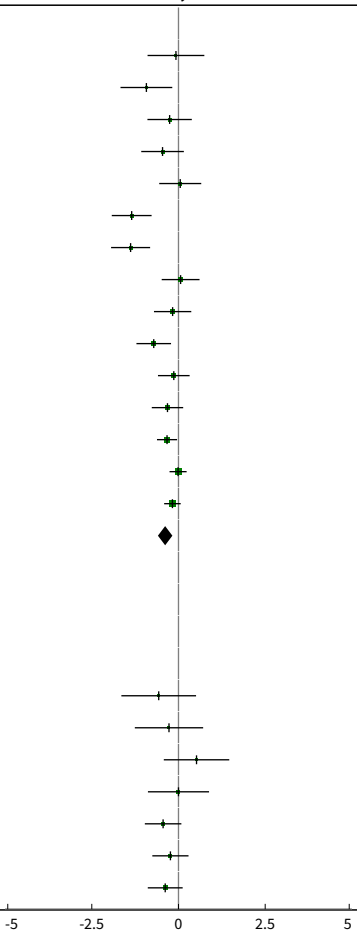
Study or subgroup	Physical activity N	Physical activity Mean(SD)	Control N	Control Mean(SD)	Std. Mean Difference Random, 95% CI	Weight	Std. Mean Difference Random, 95% CI
Ergun 2013	40	1.2 (6.2)	20	2.4 (8)		15.67%	-0.16[-0.7,0.37]
Cantarero-Villanueva 2013	32	-2.9 (7.8)	29	1.5 (7.4)		16.59%	-0.57[-1.09,-0.06]
Cadmus 2009	37	0.3 (6.4)	37	1.7 (6.3)		18.97%	-0.22[-0.68,0.24]
Saarto 2012	263	-0.3 (3.3)	237	-0.5 (3.4)		35.64%	0.06[-0.12,0.24]
Subtotal ***	**392**		**345**			**100%**	**-0.2[-0.47,0.06]**
Heterogeneity: Tau^2=0.04; Chi^2=8.05, df=4(P=0.09); I^2=50.33%							
Test for overall effect: Z=1.49(P=0.14)							
18.24.2 Unclear/high risk of bias							
Naumann 2012	11	-3.6 (4.3)	10	2 (4.6)		33.36%	-1.21[-2.16,-0.26]
Mehnert 2011	30	2.7 (3)	28	4.6 (4.4)		66.64%	-0.51[-1.04,0.01]
Subtotal ***	**41**		**38**			**100%**	**-0.75[-1.39,-0.1]**
Heterogeneity: Tau^2=0.09; Chi^2=1.6, df=1(P=0.21); I^2=37.42%							
Test for overall effect: Z=2.26(P=0.02)							



Analysis 18.25. Comparison 18 Sensitivity analysis: outcomes by risk of bias, Outcome 25 Overall fatigue (follow-up values).

Study or subgroup	Physical activity N	Physical activity Mean(SD)	Control N	Control Mean(SD)	Std. Mean Difference Random, 95% CI	Weight	Std. Mean Difference Random, 95% CI
18.25.1 Low risk of bias							
Loudon 2014	12	1.9 (2.2)	11	2.1 (2.5)		4.1%	-0.07[-0.89,0.75]
Bower 2011	16	3.4 (1.8)	15	4.9 (1.3)		4.58%	-0.93[-1.67,-0.18]
Rogers 2009	20	-12.4 (10.4)	18	-10.1 (6.6)		5.43%	-0.26[-0.9,0.38]
Cuesta-Vargas 2014	22	4 (1.8)	20	5.2 (3.2)		5.65%	-0.46[-1.07,0.15]
Rogers 2014	20	4.1 (2.1)	22	4 (1.8)		5.73%	0.05[-0.56,0.66]
Milne 2008	29	11.9 (3.2)	29	17.4 (4.7)		6.02%	-1.35[-1.92,-0.78]
Cantarero-Villanueva 2013	32	3.8 (1.8)	29	6.2 (1.7)		6.13%	-1.38[-1.94,-0.82]
Courneya 2003	24	-8.3 (7.9)	28	-8.8 (8.1)		6.3%	0.06[-0.48,0.61]
Ergun 2013	40	2.9 (2.2)	20	3.3 (1.8)		6.38%	-0.17[-0.71,0.37]
Daley 2007	33	2.1 (1.8)	33	3.4 (1.9)		6.78%	-0.71[-1.21,-0.21]
Cadmus 2009	37	-51.9 (9)	37	-50.6 (10)		7.24%	-0.14[-0.59,0.32]
Pinto 2015	39	-43.8 (7.8)	37	-41.2 (8.5)		7.28%	-0.32[-0.77,0.14]
Kiecolt-Glaser 2014	96	6.3 (19.6)	90	12.7 (19)		9.12%	-0.33[-0.62,-0.04]
Vallance 2007	250	-42.7 (8.4)	85	-42.6 (8.7)		9.59%	-0.01[-0.26,0.23]
Short 2014	195	-41.5 (9.3)	104	-39.8 (10.4)		9.67%	-0.17[-0.41,0.06]
Subtotal ***	**865**		**578**			**100%**	**-0.38[-0.59,-0.18]**
Heterogeneity: Tau^2=0.1; Chi^2=42.98, df=14(P<0.0001); I^2=67.43%							
Test for overall effect: Z=3.61(P=0)							
18.25.2 Unclear/high risk of bias							
Banasik 2011	7	1 (0.9)	7	1.6 (1)		3.33%	-0.57[-1.65,0.51]
Pinto 2003	12	7.2 (6.4)	6	9 (6.4)		3.94%	-0.27[-1.26,0.71]
Payne 2008	9	4.7 (2.6)	9	3.5 (1.7)		4.27%	0.52[-0.42,1.46]
Rogers 2013	11	4.2 (1.8)	9	4.2 (1.6)		4.86%	0[-0.88,0.88]
Mehnert 2011	30	28.5 (25.6)	27	39.9 (25.1)		12%	-0.44[-0.97,0.08]
Littman 2012	30	-45 (5.3)	27	-43.1 (10.3)		12.18%	-0.23[-0.75,0.29]
Do 2015	32	16.8 (13.3)	30	22.3 (15.1)		12.93%	-0.38[-0.89,0.12]



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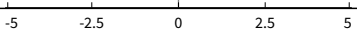
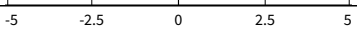
Study or subgroup	Physical activity N	Physical activity Mean(SD)	Control N	Control Mean(SD)	Std. Mean Difference Random, 95% CI	Weight	Std. Mean Difference Random, 95% CI
Winters-Stone 2011	36	45 (5.3)	31	43.1 (10.3)		13.84%	0.23[-0.25,0.72]
Pinto 2005	39	27.1 (21.4)	43	42.3 (26.2)		15.7%	-0.63[-1.07,-0.18]
Fillion 2008	44	2.7 (0.7)	43	2.9 (0.8)		16.95%	-0.27[-0.69,0.15]
Subtotal ***	**250**		**232**			**100%**	**-0.25[-0.45,-0.05]**
Heterogeneity: Tau²=0.02; Chi²=10.64, df=9(P=0.3); I²=15.4%							
Test for overall effect: Z=2.43(P=0.02)							



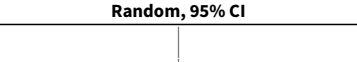
Analysis 18.26. Comparison 18 Sensitivity analysis: outcomes by risk of bias, Outcome 26 Overall fatigue (change values).

Study or subgroup	Physical activity N	Physical activity Mean(SD)	Control N	Control Mean(SD)	Std. Mean Difference Random, 95% CI	Weight	Std. Mean Difference Random, 95% CI
18.26.1 Low risk of bias							
Herrero 2006	8	-4.2 (19.6)	8	6.4 (14.5)		7.88%	-0.58[-1.59,0.43]
Loudon 2014	12	1.9 (2.2)	11	2.1 (2.5)		9.65%	-0.07[-0.89,0.75]
Rogers 2009	20	1.9 (9.6)	18	4.2 (12.3)		11.64%	-0.21[-0.84,0.43]
Courneya 2003	24	9.3 (10.2)	28	2 (7.5)		12.47%	0.81[0.24,1.38]
Cantarero-Villanueva 2013	32	-2 (1.8)	29	0.3 (1.4)		12.47%	-1.45[-2.02,-0.88]
Daley 2007	33	2.1 (1.8)	33	3.4 (1.9)		13.31%	-0.71[-1.21,-0.21]
Vallance 2007	250	2.5 (8.2)	85	1.2 (6.6)		16.03%	0.17[-0.08,0.42]
Saarto 2012	263	-2.4 (9.1)	237	-2.4 (8.6)		16.56%	0[-0.18,0.18]
Subtotal ***	**642**		**449**			**100%**	**-0.22[-0.61,0.16]**
Heterogeneity: Tau²=0.22; Chi²=43.73, df=7(P<0.0001); I²=83.99%							
Test for overall effect: Z=1.14(P=0.25)							
18.26.2 Unclear/high risk of bias							
Payne 2008	9	-0.9 (2)	9	0.5 (1.4)		15.09%	-0.82[-1.79,0.15]
Naumann 2012	11	-3.6 (4.4)	10	2 (4.6)		15.53%	-1.21[-2.16,-0.26]
Rogers 2013	11	4.2 (2)	9	3.9 (1.5)		16.76%	0.16[-0.72,1.04]
Mehnert 2011	30	-0.7 (20.7)	27	-2.9 (25.3)		25.34%	0.09[-0.43,0.61]
Pinto 2005	39	-14.9 (23.5)	43	1.8 (23.5)		27.28%	-0.7[-1.15,-0.26]
Subtotal ***	**100**		**98**			**100%**	**-0.45[-0.95,0.05]**
Heterogeneity: Tau²=0.19; Chi²=10.24, df=4(P=0.04); I²=60.92%							
Test for overall effect: Z=1.77(P=0.08)							



Analysis 18.27. Comparison 18 Sensitivity analysis: outcomes by risk of bias, Outcome 27 Overall pain/disability (follow-up values).

Study or subgroup	Physical activity N	Physical activity Mean(SD)	Control N	Control Mean(SD)	Std. Mean Difference Random, 95% CI	Weight	Std. Mean Difference Random, 95% CI
18.27.1 Low risk of bias							
Loudon 2014	12	0.8 (1.5)	11	1.4 (2.2)		14.07%	-0.33[-1.15,0.5]
Portela 2008	25	-20.6 (20.2)	9	-20.8 (15.5)		16.48%	0.01[-0.75,0.77]
Rogers 2009	20	-3 (3)	18	-2.3 (2.8)		23.39%	-0.26[-0.89,0.38]
Cadmus 2009	37	50.3 (9.1)	37	50.8 (9)		46.06%	-0.05[-0.51,0.4]



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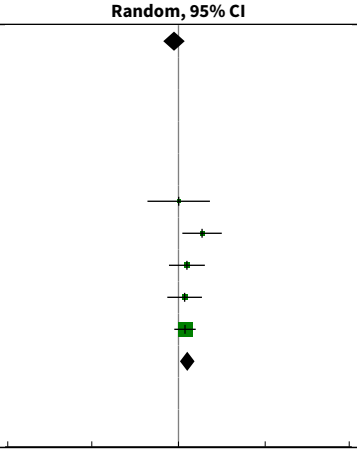
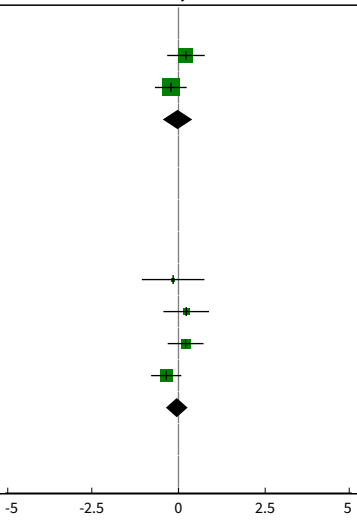
Study or subgroup	Physical activity N	Physical activity Mean(SD)	Control N	Control Mean(SD)	Std. Mean Difference Random, 95% CI	Weight	Std. Mean Difference Random, 95% CI
Subtotal ***	**94**		**75**			**100%**	**-0.13[-0.44,0.18]**
Heterogeneity: Tau²=0; Chi²=0.6, df=3(P=0.9); I²=0%							
Test for overall effect: Z=0.82(P=0.41)							
18.27.2 Unclear/high risk of bias							
Mustian 2004	9	9.1 (1.4)	10	9.1 (1.7)		5.46%	0.01[-0.89,0.91]
Basen-Enquist 2006	28	79.7 (10.6)	23	72.1 (11.5)		13.71%	0.68[0.11,1.25]
Mehnert 2011	30	79.4 (23.1)	28	73.5 (24.8)		16.57%	0.24[-0.27,0.76]
Do 2015	32	21.1 (24.6)	30	16.5 (26.7)		17.78%	0.18[-0.32,0.68]
Duijits 2012	79	79.1 (23.4)	83	74.6 (23.7)		46.47%	0.19[-0.12,0.5]
Subtotal ***	**178**		**174**			**100%**	**0.25[0.04,0.46]**
Heterogeneity: Tau²=0; Chi²=2.71, df=4(P=0.61); I²=0%							
Test for overall effect: Z=2.35(P=0.02)							



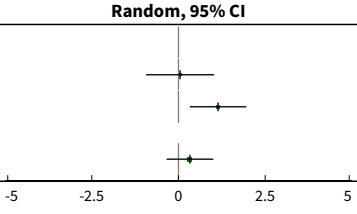
Analysis 18.28. Comparison 18 Sensitivity analysis: outcomes by risk of bias, Outcome 28 Overall pain/disability (change values).

Study or subgroup	Physical activity N	Physical activity Mean(SD)	Control N	Control Mean(SD)	Std. Mean Difference Random, 95% CI	Weight	Std. Mean Difference Random, 95% CI
18.28.1 Low risk of bias							
Cormie 2014	43	3.4 (6.5)	19	2 (6.2)		44.26%	0.22[-0.33,0.76]
Cadmus 2009	37	-2.2 (11.3)	37	-0.1 (7)		55.74%	-0.22[-0.68,0.24]
Subtotal ***	**80**		**56**			**100%**	**-0.03[-0.45,0.4]**
Heterogeneity: Tau²=0.03; Chi²=1.46, df=1(P=0.23); I²=31.47%							
Test for overall effect: Z=0.13(P=0.9)							
18.28.2 Unclear/high risk of bias							
Mustian 2004	9	-0.2 (1.3)	10	0 (1.4)		11.15%	-0.15[-1.06,0.75]
Rogers 2009	19	-0.8 (1.4)	17	-1.8 (6.2)		19.85%	0.22[-0.43,0.88]
Mehnert 2011	30	-2.4 (25)	28	-7.6 (25.2)		29.86%	0.21[-0.31,0.72]
Irwin 2015	45	-6 (19)	38	0.7 (18.6)		39.14%	-0.35[-0.79,0.08]
Subtotal ***	**103**		**93**			**100%**	**-0.05[-0.36,0.26]**
Heterogeneity: Tau²=0.02; Chi²=3.51, df=3(P=0.32); I²=14.64%							
Test for overall effect: Z=0.31(P=0.75)							



Analysis 18.29. Comparison 18 Sensitivity analysis: outcomes by risk of bias, Outcome 29 Overall cardiorespiratory fitness (follow-up values).

Study or subgroup	Physical activity N	Physical activity Mean(SD)	Control N	Control Mean(SD)	Std. Mean Difference Random, 95% CI	Weight	Std. Mean Difference Random, 95% CI
18.29.1 Low risk of bias							
Herrero 2006	8	25.9 (4.5)	8	25.7 (3.7)		3.82%	0.05[-0.93,1.03]
Portela 2008	25	3007 (410.8)	9	2416.1 (718.6)		5.28%	1.14[0.33,1.96]
Musanti 2012	30	24.6 (4.9)	12	23 (4.3)		7.25%	0.33[-0.34,1]



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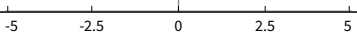
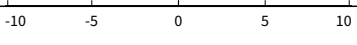
Study or subgroup	Physical activity N	Physical activity Mean(SD)	Control N	Control Mean(SD)	Std. Mean Difference Random, 95% CI	Weight	Std. Mean Difference Random, 95% CI
Rogers 2014	20	30.9 (6.3)	22	25.1 (5)		7.75%	1.01[0.36,1.65]
Rogers 2009	20	29.5 (6.6)	18	27.6 (6.1)		7.86%	0.29[-0.35,0.93]
Courneya 2003	24	21.3 (3.7)	26	18.2 (3.9)		9.2%	0.8[0.22,1.38]
Milne 2008	29	1.5 (0.3)	29	1.5 (0.4)		10.92%	0.03[-0.49,0.54]
Murtezani 2014	30	875.1 (86.7)	32	823.5 (87.1)		11.08%	0.59[0.08,1.1]
Daley 2007	33	35 (4.4)	69	33.1 (5.3)		14.38%	0.38[-0.04,0.8]
Rogers 2015	105	23.6 (4.8)	108	22.7 (0.3)		22.46%	0.27[-0,0.54]
Subtotal ***	**324**		**333**			**100%**	**0.44[0.24,0.65]**
Heterogeneity: Tau²=0.03; Chi²=12.55, df=9(P=0.18); I²=28.29%							
Test for overall effect: Z=4.3(P<0.0001)							
18.29.2 Unclear/high risk of bias							
Cerulli 2014	10	31.3 (5)	10	32.3 (10.1)		4.59%	-0.12[-0.99,0.76]
Mustian 2004	11	636.1 (50.6)	10	610.3 (75.9)		4.69%	0.39[-0.48,1.25]
Rogers 2013	12	23.9 (6.2)	10	23.9 (3.8)		4.93%	0[-0.84,0.84]
Kaltsatou 2011	14	483.3 (86)	13	403.1 (71.9)		5.24%	0.98[0.17,1.78]
Rahnama 2010	14	20.7 (5.7)	15	13.9 (5.2)		5.28%	1.21[0.41,2.01]
Nikander 2007	14	-17.6 (1.3)	14	-17.2 (1.4)		5.9%	-0.29[-1.03,0.46]
Kim 2015	20	424.8 (55.8)	19	394.4 (54)		7.31%	0.54[-0.1,1.18]
Mehnert 2011	27	26.9 (4.4)	23	25.7 (4.7)		8.73%	0.26[-0.3,0.82]
Basen-Enquist 2006	35	1643 (122.5)	25	1546 (127.5)		9.25%	0.77[0.24,1.3]
Do 2015	30	31.7 (12.4)	30	24.5 (6.6)		9.44%	0.72[0.19,1.24]
Pinto 2005	39	-16.3 (2.1)	43	-17.8 (2.2)		11.21%	0.69[0.24,1.14]
Irwin 2015	45	24.6 (5.5)	38	23 (4.7)		11.53%	0.31[-0.13,0.74]
Fillion 2008	44	27 (4.4)	43	26.5 (5.8)		11.9%	0.1[-0.32,0.52]
Subtotal ***	**315**		**293**			**100%**	**0.44[0.23,0.65]**
Heterogeneity: Tau²=0.05; Chi²=18.66, df=12(P=0.1); I²=35.69%							
Test for overall effect: Z=4.06(P<0.0001)							



Analysis 18.30. Comparison 18 Sensitivity analysis: outcomes by risk of bias, Outcome 30 Overall cardiorespiratory fitness (change values).

Study or subgroup	Physical activity N	Physical activity Mean(SD)	Control N	Control Mean(SD)	Std. Mean Difference Random, 95% CI	Weight	Std. Mean Difference Random, 95% CI
18.30.1 Low risk of bias							
Musanti 2012	30	1 (3.1)	12	0.9 (3.4)		22.33%	0.03[-0.64,0.7]
Courneya 2003	24	2.7 (2.6)	26	-0.6 (1.7)		23.07%	1.49[0.86,2.12]
Rogers 2014	20	2.8 (4.9)	22	1.1 (4.2)		23.52%	0.37[-0.24,0.98]
Saarto 2012	262	0.9 (1.2)	236	0.7 (1)		31.07%	0.16[-0.02,0.33]
Subtotal ***	**336**		**296**			**100%**	**0.49[-0.09,1.06]**
Heterogeneity: Tau²=0.27; Chi²=16.41, df=3(P=0); I²=81.72%							
Test for overall effect: Z=1.65(P=0.1)							
18.30.2 Unclear/high risk of bias							
Nieman 1995	6	60.8 (8.4)	6	12 (17.8)		6.74%	3.24[1.29,5.18]
Naumann 2012	11	3.1 (2.9)	10	-0.1 (3.1)		17.9%	1.03[0.1,1.95]
Dolan 2016	23	12.2 (10.2)	10	-6 (7.2)		18.61%	1.88[0.99,2.77]



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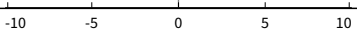
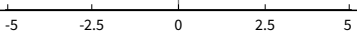
Study or subgroup	Physical activity N	Physical activity Mean(SD)	Control N	Control Mean(SD)	Std. Mean Difference Random, 95% CI	Weight	Std. Mean Difference Random, 95% CI
Irwin 2015	45	1.5 (2.1)	38	-0.4 (2.7)		28.33%	0.79[0.34,1.24]
Pinto 2005	39	1.4 (2.4)	43	-0.2 (2.5)		28.42%	0.65[0.2,1.09]
Subtotal ***	**124**		**107**			**100%**	**1.16[0.6,1.72]**
Heterogeneity: Tau²=0.24; Chi²=11.81, df=4(P=0.02); I²=66.14%							
Test for overall effect: Z=4.04(P<0.0001)							



Analysis 18.31. Comparison 18 Sensitivity analysis: outcomes by risk of bias, Outcome 31 Overall self-reported physical activity (follow-up values).

Study or subgroup	Physical activity N	Physical activity Mean(SD)	Control N	Control Mean(SD)	Std. Mean Difference Random, 95% CI	Weight	Std. Mean Difference Random, 95% CI
18.31.1 Low risk of bias							
Cadmus 2009	34	161.7 (114.7)	33	55.6 (101.9)		9.76%	0.97[0.46,1.47]
Kiecolt-Glaser 2014	96	11.2 (7.6)	90	9.1 (6.1)		13.93%	0.3[0.01,0.59]
Pinto 2015	36	70.3 (65.9)	32	16.5 (31.9)		9.77%	1.01[0.5,1.52]
Rogers 2009	20	121.4 (73.2)	18	114.3 (131.5)		7.79%	0.07[-0.57,0.7]
Rogers 2015	110	169 (119)	112	74 (107)		14.22%	0.84[0.56,1.11]
Schmitz 2009	131	3348.8 (9019.4)	133	2339.8 (6213.7)		14.85%	0.13[-0.11,0.37]
Short 2014	195	217.9 (222.9)	104	180.3 (206.9)		14.91%	0.17[-0.07,0.41]
Vallance 2007	253	207.6 (169)	85	163 (121)		14.76%	0.28[0.03,0.53]
Subtotal ***	**875**		**607**			**100%**	**0.45[0.21,0.68]**
Heterogeneity: Tau²=0.08; Chi²=30.5, df=7(P<0.0001); I²=77.05%							
Test for overall effect: Z=3.66(P=0)							
18.31.2 Unclear/high risk of bias							
Basen-Enquist 2006	35	428 (254.4)	25	404 (265)		11.75%	0.09[-0.42,0.61]
Guinan 2013	16	38.7 (26.9)	10	19.9 (11.3)		7.67%	0.81[-0.01,1.64]
Hatchett 2013	38	3.5 (2.2)	36	1.4 (1.7)		12.15%	1.04[0.55,1.53]
Irwin 2015	45	222.1 (118.6)	38	103.6 (104.6)		12.56%	1.04[0.58,1.51]
Kim 2015	20	17.6 (16)	19	11.8 (11.6)		9.98%	0.4[-0.23,1.04]
Littman 2012	32	19.2 (19.1)	31	12.1 (13.6)		11.96%	0.42[-0.08,0.92]
Matthews 2007	22	54.2 (34.1)	14	27.2 (22.7)		9.08%	0.87[0.17,1.58]
Pinto 2005	39	202.4 (161.7)	43	78.4 (86)		12.59%	0.96[0.5,1.42]
Winters-Stone 2011	36	430.8 (281.4)	31	461.7 (346.4)		12.26%	-0.1[-0.58,0.38]
Subtotal ***	**283**		**247**			**100%**	**0.61[0.31,0.91]**
Heterogeneity: Tau²=0.14; Chi²=22.6, df=8(P=0); I²=64.6%							
Test for overall effect: Z=3.93(P<0.0001)							



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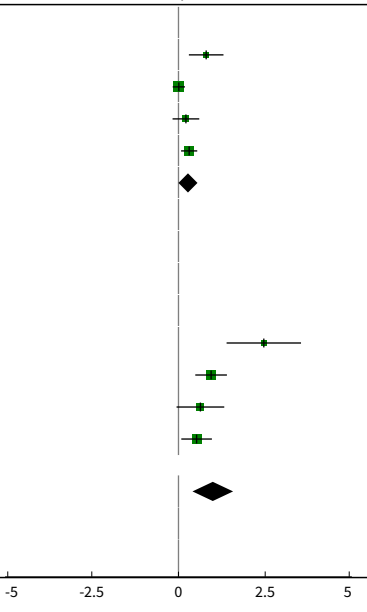
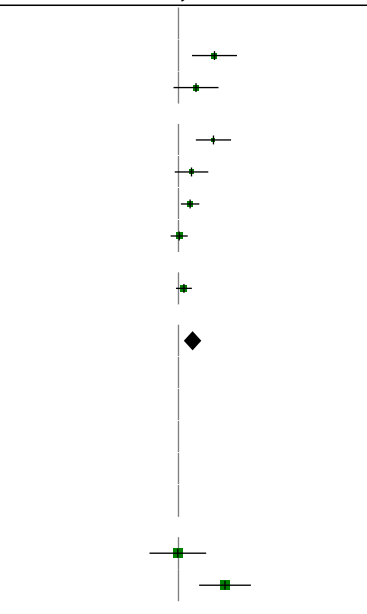
Analysis 18.32. Comparison 18 Sensitivity analysis: outcomes by risk of bias, Outcome 32 Overall self-reported physical activity (change values).

Study or subgroup	Physical activity N	Physical activity Mean(SD)	Control N	Control Mean(SD)	Std. Mean Difference Random, 95% CI	Weight	Std. Mean Difference Random, 95% CI
18.32.1 Low risk of bias							
Cadmus 2009	34	129 (117.9)	33	44.3 (89.4)		16.71%	0.8[0.3,1.3]
Saarto 2012	262	3.5 (18.3)	236	3.3 (21.5)		32.36%	0.01[-0.17,0.19]
Schmitz 2009	48	2.8 (16.8)	57	-0.8 (16.6)		21.51%	0.21[-0.17,0.6]
Vallance 2007	281	82 (168.7)	96	30 (167.8)		29.42%	0.31[0.08,0.54]
Subtotal ***	**625**		**422**			**100%**	**0.27[-0,0.55]**
Heterogeneity: Tau^2=0.05; Chi^2=10.67, df=3(P=0.01); I^2=71.9%							
Test for overall effect: Z=1.95(P=0.05)							
18.32.2 Unclear/high risk of bias							
Guinan 2013	16	15.6 (11.4)	10	-8.3 (4.2)		16.33%	2.46[1.39,3.53]
Irwin 2015	45	159 (136)	38	49 (86)		29.61%	0.94[0.48,1.4]
Matthews 2007	22	21.5 (30.6)	14	5 (13.8)		24.1%	0.63[-0.06,1.32]
Pinto 2005	39	84.7 (189.2)	43	-18.3 (200.7)		29.96%	0.52[0.08,0.96]
Subtotal ***	**122**		**105**			**100%**	**0.99[0.4,1.58]**
Heterogeneity: Tau^2=0.25; Chi^2=11.28, df=3(P=0.01); I^2=73.4%							
Test for overall effect: Z=3.31(P=0)							



Analysis 18.33. Comparison 18 Sensitivity analysis: outcomes by risk of bias, Outcome 33 Overall objective physical activity (follow-up values).

Study or subgroup	Physical activity N	Physical activity Mean(SD)	Control N	Control Mean(SD)	Std. Mean Difference Random, 95% CI	Weight	Std. Mean Difference Random, 95% CI
18.33.1 Low risk of bias							
Rogers 2014	20	294 (175)	22	154 (75)		9.17%	1.04[0.39,1.69]
Rogers 2009	20	252191 (91893)	18	210917 (64078)		9.18%	0.51[-0.14,1.15]
Pinto 2015	36	70.3 (65.9)	32	16.5 (31.9)		11.99%	1.01[0.5,1.52]
Cadmus 2009	33	6738 (2958)	34	5537 (3352)		12.55%	0.38[-0.11,0.86]
Rogers 2015	110	246 (153)	112	197 (138)		18.52%	0.34[0.07,0.6]
Vallance 2007	253	8110.5 (4133.9)	85	8028 (3457)		19.06%	0.02[-0.23,0.27]
Short 2014	219	9363.1 (7922.8)	111	8301.2 (3373.4)		19.53%	0.16[-0.07,0.39]
Subtotal ***	**691**		**414**			**100%**	**0.41[0.15,0.66]**
Heterogeneity: Tau^2=0.07; Chi^2=19.34, df=6(P=0); I^2=68.97%							
Test for overall effect: Z=3.16(P=0)							
18.33.2 Unclear/high risk of bias							
Rogers 2013	12	198.4 (111.7)	10	0 (0)			Not estimable
Guinan 2013	16	30.7 (15.6)	9	31 (15.6)		29.42%	-0.02[-0.84,0.8]
Matthews 2007	22	330.8 (114.7)	14	198.5 (55.4)		31.23%	1.34[0.6,2.09]
Pinto 2005	39	37.5 (14.3)	43	33.6 (19.4)		39.35%	0.22[-0.21,0.66]
Subtotal ***	**89**		**76**			**100%**	**0.5[-0.24,1.25]**
Heterogeneity: Tau^2=0.32; Chi^2=7.75, df=2(P=0.02); I^2=74.18%							



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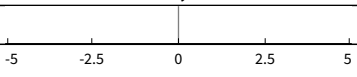
Study or subgroup	Physical activity N	Physical activity Mean(SD)	Control N	Control Mean(SD)	Std. Mean Difference Random, 95% CI	Weight	Std. Mean Difference Random, 95% CI
Test for overall effect: Z=1.32(P=0.19)							

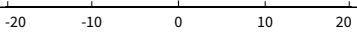


Analysis 18.34. Comparison 18 Sensitivity analysis: outcomes by risk of bias, Outcome 34 Overall objective physical activity (change values).

Study or subgroup	Physical activity N	Physical activity Mean(SD)	Control N	Control Mean(SD)	Std. Mean Difference Random, 95% CI	Weight	Std. Mean Difference Random, 95% CI
18.34.1 Low risk of bias							
Rogers 2014	20	114 (109)	22	10 (70)		29.73%	1.13[0.47,1.78]
Cadmus 2009	33	1621 (2108)	34	-60 (2341)		33.04%	0.75[0.25,1.24]
Vallance 2007	253	-150 (5173.3)	85	91 (5155.4)		37.23%	-0.05[-0.29,0.2]
Subtotal ***	**306**		**141**			**100%**	**0.56[-0.18,1.3]**
Heterogeneity: Tau^2=0.37; Chi^2=16.13, df=2(P=0); I^2=87.6%							
Test for overall effect: Z=1.49(P=0.14)							
18.34.2 Unclear/high risk of bias							
Guinan 2013	16	-1.1 (6.2)	9	-7.9 (5.3)		39%	1.11[0.23,2]
Matthews 2007	22	72.2 (114.6)	14	-16.8 (51.5)		61%	0.91[0.2,1.62]
Subtotal ***	**38**		**23**			**100%**	**0.99[0.44,1.54]**
Heterogeneity: Tau^2=0; Chi^2=0.12, df=1(P=0.72); I^2=0%							
Test for overall effect: Z=3.52(P=0)							

Analysis 18.35. Comparison 18 Sensitivity analysis: outcomes by risk of bias, Outcome 35 Mass (follow-up values).

Study or subgroup	Physical activity N	Physical activity Mean(SD)	Control N	Control Mean(SD)	Mean Difference Fixed, 95% CI	Weight	Mean Difference Fixed, 95% CI
18.35.1 Low risk of bias							
Courneya 2003	24	78.2 (20.5)	26	80.1 (16.2)		0.33%	-1.9[-12.2,8.4]
Cadmus 2009	36	80.7 (16.9)	33	78.5 (20.6)		0.43%	2.22[-6.72,11.16]
Herrero 2006	8	65.6 (8.7)	8	67.3 (8.9)		0.47%	-1.7[-10.32,6.92]
Daley 2007	33	74.3 (12.5)	69	75.6 (12.5)		1.29%	-1.34[-6.52,3.84]
Murtezani 2014	30	71.7 (9.5)	32	72.6 (10.8)		1.36%	-0.9[-5.94,4.14]
Schmitz 2009	131	76.2 (15.7)	133	77.2 (17)		2.22%	-1.04[-4.98,2.9]
Schmitz 2005	39	69.5 (2.2)	40	69.2 (2.2)		36.43%	0.3[-0.67,1.27]
Kiecolt-Glaser 2014	96	75.2 (2.8)	90	75.2 (2.6)		57.47%	0[-0.78,0.78]
Subtotal ***	**397**		**431**			**100%**	**0.05[-0.54,0.64]**
Heterogeneity: Tau^2=0; Chi^2=1.5, df=7(P=0.98); I^2=0%							
Test for overall effect: Z=0.17(P=0.86)							
18.35.2 Unclear/high risk of bias							
Matthews 2007	22	74.9 (15.2)	14	78.9 (20.3)		5.81%	-4[-16.39,8.39]
Mustian 2004	11	67.1 (10.4)	10	68.6 (13.8)		7.99%	-1.5[-12.06,9.06]
Nikander 2007	14	73.5 (13.3)	14	75.5 (12)		10.12%	-2[-11.38,7.38]
Rahnama 2010	14	69.4 (13.5)	15	71.6 (9.2)		12.43%	-2.2[-10.67,6.27]



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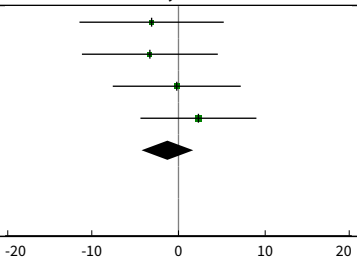
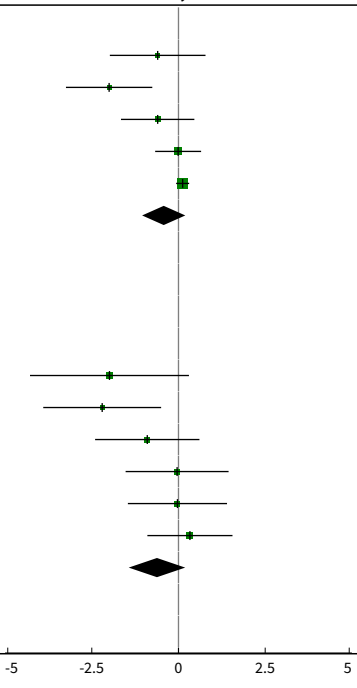
Study or subgroup	Physical activity N	Physical activity Mean(SD)	Control N	Control Mean(SD)	Mean Difference Fixed, 95% CI	Weight	Mean Difference Fixed, 95% CI
DeNysschen 2011	30	69.3 (14.2)	34	72.4 (19.6)		12.87%	-3.1[-11.42,5.22]
Ligibel 2008	40	80 (17.5)	42	83.3 (18.7)		14.51%	-3.3[-11.14,4.54]
Littman 2012	28	81.1 (13.6)	27	81.3 (14.3)		16.36%	-0.2[-7.58,7.18]
Winters-Stone 2011	36	76.5 (15.6)	31	74.2 (12.3)		19.92%	2.3[-4.39,8.99]
Subtotal ***	**195**		**187**			**100%**	**-1.28[-4.26,1.7]**
Heterogeneity: Tau^2=0; Chi^2=1.88, df=7(P=0.97); I^2=0%							
Test for overall effect: Z=0.84(P=0.4)							



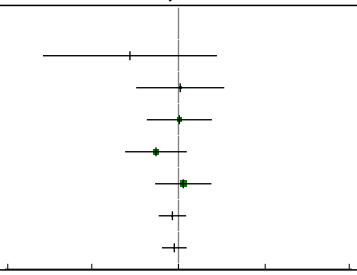
Analysis 18.36. Comparison 18 Sensitivity analysis: outcomes by risk of bias, Outcome 36 Mass (change values).

Study or subgroup	Physical activity N	Physical activity Mean(SD)	Control N	Control Mean(SD)	Mean Difference Random, 95% CI	Weight	Mean Difference Random, 95% CI
18.36.1 Low risk of bias							
Schmitz 2009	65	-1 (3.7)	65	-0.4 (4.3)		12.62%	-0.6[-1.98,0.78]
Murtezani 2014	30	-2.3 (2.4)	32	-0.3 (2.6)		14.25%	-2[-3.24,-0.76]
Courneya 2003	24	0.1 (2)	26	0.7 (1.8)		16.93%	-0.6[-1.66,0.46]
Saarto 2012	262	0.7 (3.7)	236	0.7 (3.8)		24.08%	-0.01[-0.67,0.65]
Schmitz 2005	39	0.3 (0.4)	40	0.2 (0.4)		32.12%	0.12[-0.07,0.31]
Subtotal ***	**420**		**399**			**100%**	**-0.43[-1.05,0.2]**
Heterogeneity: Tau^2=0.31; Chi^2=13.27, df=4(P=0.01); I^2=69.87%							
Test for overall effect: Z=1.34(P=0.18)							
18.36.2 Unclear/high risk of bias							
Dolan 2016	23	-0.5 (5)	10	1.4 (1.6)		9.76%	-1.99[-4.28,0.3]
Irwin 2015	45	-2.1 (4.3)	38	0.1 (3.6)		14.96%	-2.2[-3.9,-0.5]
Mustian 2004	9	-0.3 (1.9)	10	0.6 (1.4)		17.41%	-0.9[-2.4,0.6]
Ligibel 2008	22	0 (2.3)	14	0 (2.2)		17.68%	-0.04[-1.52,1.44]
Matthews 2007	22	0 (2.1)	14	0 (2.2)		18.47%	-0.03[-1.46,1.4]
Naumann 2012	11	0.5 (1.3)	10	0.1 (1.5)		21.72%	0.33[-0.9,1.56]
Subtotal ***	**132**		**96**			**100%**	**-0.62[-1.44,0.19]**
Heterogeneity: Tau^2=0.4; Chi^2=8.28, df=5(P=0.14); I^2=39.59%							
Test for overall effect: Z=1.49(P=0.14)							



Analysis 18.37. Comparison 18 Sensitivity analysis: outcomes by risk of bias, Outcome 37 BMI (follow-up values).

Study or subgroup	Physical activity N	Physical activity Mean(SD)	Control N	Control Mean(SD)	Mean Difference Fixed, 95% CI	Weight	Mean Difference Fixed, 95% CI
18.37.1 Low risk of bias							
Portela 2008	25	29.1 (5.5)	9	34.7 (15)		0.04%	-5.6[-15.63,4.43]
Rogers 2009	20	30.6 (7.6)	18	30.4 (8.3)		0.17%	0.2[-4.88,5.28]
Courneya 2003	24	29.4 (7.4)	26	29.3 (6)		0.31%	0.1[-3.65,3.85]
Rogers 2014	20	29.6 (5)	22	32.2 (6.7)		0.34%	-2.6[-6.16,0.96]
Cadmus 2009	36	30.5 (6)	33	29.9 (7.6)		0.41%	0.55[-2.7,3.8]
Murtezani 2014	30	25.1 (2.9)	32	25.8 (3.5)		1.72%	-0.7[-2.29,0.89]
Schmitz 2009	131	28.5 (5.6)	133	28.9 (6.3)		2.13%	-0.48[-1.91,0.95]



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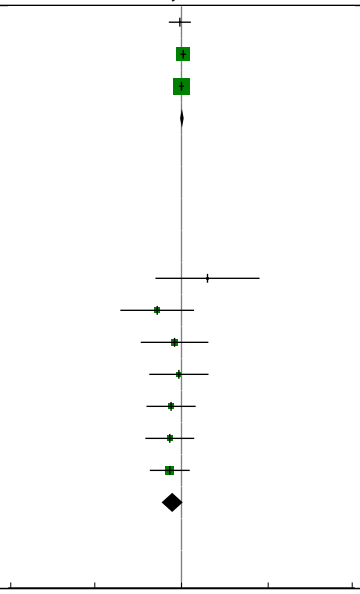
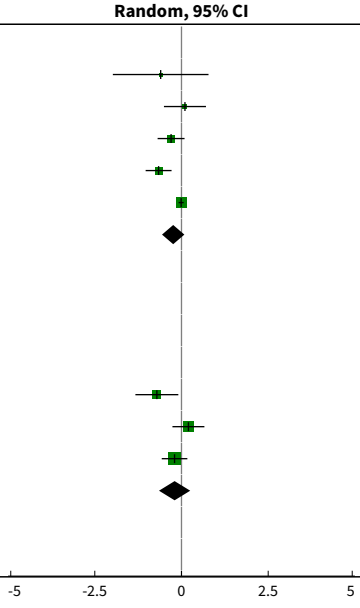
Study or subgroup	Physical activity N	Physical activity Mean(SD)	Control N	Control Mean(SD)	Mean Difference Fixed, 95% CI	Weight	Mean Difference Fixed, 95% CI
Vallance 2007	253	27 (5.2)	85	27.2 (5.2)		2.69%	-0.19[-1.46,1.08]
Schmitz 2005	39	26 (0.7)	40	25.8 (0.7)		41.27%	0.2[-0.12,0.52]
Kiecolt-Glaser 2014	96	27.8 (1.1)	90	27.8 (1)		50.92%	0[-0.29,0.29]
Subtotal ***	**674**		**488**			**100%**	**0.05[-0.16,0.26]**
Heterogeneity: Tau^2=0; Chi^2=5.9, df=9(P=0.75); I^2=0%							
Test for overall effect: Z=0.44(P=0.66)							
18.37.2 Unclear/high risk of bias							
Rogers 2013	12	33.6 (7)	10	30.6 (7.3)		4.12%	3[-3,9]
Mustian 2004	11	23.9 (4.2)	10	26.7 (5.6)		8.21%	-2.8[-7.05,1.45]
Nikander 2007	14	26.9 (5.6)	14	27.7 (4.9)		9.77%	-0.8[-4.7,3.1]
Rahnama 2010	14	27.7 (4.8)	15	28 (4.6)		12.72%	-0.3[-3.71,3.11]
Ligibel 2008	40	30.3 (6.3)	42	31.5 (6.8)		18.45%	-1.2[-4.04,1.64]
Littman 2012	28	27.7 (5)	27	29 (5.6)		18.7%	-1.35[-4.17,1.47]
Pinto 2005	39	27.7 (5)	43	29 (5.6)		28.03%	-1.35[-3.65,0.95]
Subtotal ***	**158**		**161**			**100%**	**-1.07[-2.29,0.14]**
Heterogeneity: Tau^2=0; Chi^2=2.72, df=6(P=0.84); I^2=0%							
Test for overall effect: Z=1.73(P=0.08)							



Favours physical activity — Favours control

Analysis 18.38. Comparison 18 Sensitivity analysis: outcomes by risk of bias, Outcome 38 BMI (change values).

Study or subgroup	Physical activity N	Physical activity Mean(SD)	Control N	Control Mean(SD)	Mean Difference Random, 95% CI	Weight	Mean Difference Random, 95% CI
18.38.1 Low risk of bias							
Schmitz 2009	65	-1 (3.7)	65	-0.4 (4.3)		4.71%	-0.6[-1.98,0.78]
Rogers 2014	20	-0.2 (0.9)	22	-0.3 (1.1)		15.48%	0.1[-0.51,0.71]
Courneya 2003	24	0 (0.7)	26	0.3 (0.7)		22.83%	-0.3[-0.69,0.09]
Murtezani 2014	30	-0.8 (0.7)	32	-0.1 (0.8)		23.41%	-0.66[-1.03,-0.29]
Schmitz 2005	39	0.1 (0.2)	40	0.1 (0.2)		33.57%	-0.01[-0.08,0.06]
Subtotal ***	**178**		**185**			**100%**	**-0.24[-0.56,0.08]**
Heterogeneity: Tau^2=0.08; Chi^2=13.79, df=4(P=0.01); I^2=70.99%							
Test for overall effect: Z=1.45(P=0.15)							
18.38.2 Unclear/high risk of bias							
Mustian 2004	9	-0.4 (0.8)	10	0.3 (0.6)		26.55%	-0.71[-1.33,-0.09]
Naumann 2012	11	0.1 (0.5)	10	-0.1 (0.6)		34.21%	0.2[-0.26,0.66]
Ligibel 2008	40	0 (0.9)	42	0.2 (0.8)		39.23%	-0.2[-0.57,0.17]
Subtotal ***	**60**		**62**			**100%**	**-0.2[-0.65,0.25]**
Heterogeneity: Tau^2=0.1; Chi^2=5.43, df=2(P=0.07); I^2=63.14%							
Test for overall effect: Z=0.86(P=0.39)							



Favours physical activity — Favours control

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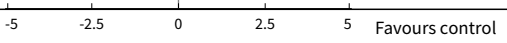
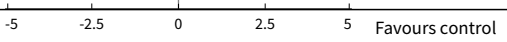
Analysis 18.39. Comparison 18 Sensitivity analysis: outcomes by risk of bias, Outcome 39 Overall body fat (follow-up values).

Study or subgroup	Physical activity N	Physical activity Mean(SD)	Control N	Control Mean(SD)	Std. Mean Difference Random, 95% CI	Weight	Std. Mean Difference Random, 95% CI
18.39.1 Low risk of bias							
Herrero 2006	8	22 (5)	8	22 (4)		4.11%	0[-0.98,0.98]
Musanti 2012	30	34.1 (6.6)	12	33.7 (5.7)		7.29%	0.07[-0.6,0.74]
Rogers 2009	20	44.3 (7.4)	19	43.5 (7.5)		7.93%	0.11[-0.52,0.73]
Rogers 2014	20	38.6 (6.4)	22	41.5 (7.4)		8.2%	-0.41[-1.02,0.2]
Courneya 2003	24	131.9 (46.4)	26	137.1 (44.4)		9.25%	-0.11[-0.67,0.44]
Saarto 2012	37	39.9 (7.5)	30	40.2 (8)		10.84%	-0.04[-0.52,0.44]
Cadmus 2009	36	40.5 (6.6)	33	39.6 (6)		11.04%	0.15[-0.33,0.62]
Schmitz 2005	39	40.9 (1.3)	40	42.3 (1.3)		11.07%	-1.05[-1.52,-0.58]
Daley 2007	33	39.4 (4.7)	69	40.1 (7.4)		12.52%	-0.1[-0.52,0.31]
Schmitz 2009	130	38.5 (5.9)	132	39.7 (5.9)		17.74%	-0.21[-0.46,0.03]
Subtotal ***	**377**		**391**			**100%**	**-0.19[-0.41,0.03]**
Heterogeneity: Tau²=0.06; Chi²=17.33, df=9(P=0.04); I²=48.08%							
Test for overall effect: Z=1.66(P=0.1)							
18.39.2 Unclear/high risk of bias							
Cerulli 2014	10	26.7 (5.3)	10	30.6 (4.4)		5.8%	-0.75[-1.66,0.16]
Mustian 2004	11	38.5 (4.5)	10	41.7 (4.9)		6.15%	-0.66[-1.54,0.23]
Rogers 2013	10	44.2 (6.7)	12	42.3 (7.7)		6.7%	0.25[-0.59,1.09]
Matthews 2007	22	39.7 (6.3)	14	43.1 (6.9)		9.69%	-0.51[-1.19,0.17]
DeNysschen 2011	30	36.9 (8.4)	34	38 (10.2)		16.27%	-0.12[-0.61,0.38]
Winters-Stone 2011	36	40.5 (6.2)	31	38.5 (5.8)		16.65%	0.33[-0.16,0.81]
Pinto 2005	39	37.5 (4.8)	43	38.6 (4.8)		19.36%	-0.21[-0.64,0.22]
Ligibel 2008	40	42.9 (7.4)	42	44.7 (8)		19.37%	-0.23[-0.67,0.2]
Subtotal ***	**198**		**196**			**100%**	**-0.17[-0.4,0.07]**
Heterogeneity: Tau²=0.02; Chi²=8.84, df=7(P=0.26); I²=20.77%							
Test for overall effect: Z=1.41(P=0.16)							



Analysis 18.40. Comparison 18 Sensitivity analysis: outcomes by risk of bias, Outcome 40 Overall body fat (change values).

Study or subgroup	Physical activity N	Physical activity Mean(SD)	Control N	Control Mean(SD)	Std. Mean Difference Random, 95% CI	Weight	Std. Mean Difference Random, 95% CI
18.40.1 Low risk of bias							
Musanti 2012	30	-0.2 (2.8)	12	1.4 (1.6)		19.49%	-0.63[-1.32,0.05]
Schmitz 2005	39	-1.1 (0.5)	40	0.2 (0.4)		19.61%	-3.07[-3.73,-2.41]
Rogers 2014	20	-1.1 (2.2)	22	-0.6 (2.4)		19.88%	-0.21[-0.82,0.39]
Courneya 2003	24	-4.9 (15.7)	26	5.1 (24.4)		20.09%	-0.48[-1.04,0.09]
Schmitz 2009	65	-0.3 (5.7)	63	-0.1 (3.3)		20.93%	-0.04[-0.39,0.3]
Subtotal ***	**178**		**163**			**100%**	**-0.87[-1.86,0.12]**
Heterogeneity: Tau²=1.19; Chi²=65.49, df=4(P<0.0001); I²=93.89%							
Test for overall effect: Z=1.72(P=0.08)							
18.40.2 Unclear/high risk of bias							
Mustian 2004	9	-0.2 (2.9)	10	0.3 (1.6)		12.24%	-0.18[-1.09,0.72]
Naumann 2012	11	-0.3 (2.4)	10	0.8 (2.8)		13.26%	-0.41[-1.28,0.46]



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Study or subgroup	Physical activity N	Physical activity Mean(SD)	Control N	Control Mean(SD)	Std. Mean Difference Random, 95% CI	Weight	Std. Mean Difference Random, 95% CI
Matthews 2007	22	-0.2 (1.6)	14	0.4 (1.9)		21.88%	-0.34[-1.02,0.33]
Ligibel 2008	40	-0.2 (1.7)	42	0.3 (1.7)		52.62%	-0.29[-0.73,0.14]
Subtotal ***	**82**		**76**			**100%**	**-0.3[-0.62,0.01]**
Heterogeneity: Tau²=0; Chi²=0.14, df=3(P=0.99); I²=0%							
Test for overall effect: Z=1.89(P=0.06)							

Analysis 18.41. Comparison 18 Sensitivity analysis: outcomes by risk of bias, Outcome 41 Lower body strength (follow-up values).

Study or subgroup	Physical activity N	Physical activity Mean(SD)	Control N	Control Mean(SD)	Std. Mean Difference Random, 95% CI	Weight	Std. Mean Difference Random, 95% CI
18.41.1 Low risk of bias							
Rogers 2009	20	80.3 (27)	18	64.9 (19.7)		16.28%	0.63[-0.02,1.29]
Schmitz 2005	23	296.6 (48.9)	22	238.9 (46.4)		16.65%	1.19[0.55,1.83]
Milne 2008	29	66.2 (10.2)	29	61.7 (11)		19.66%	0.42[-0.1,0.94]
Saarto 2012	37	136 (23)	30	136 (29)		20.74%	0[-0.48,0.48]
Schmitz 2009	113	223.4 (59.6)	119	175.1 (53.5)		26.67%	0.85[0.58,1.12]
Subtotal ***	**222**		**218**			**100%**	**0.61[0.22,1]**
Heterogeneity: Tau²=0.13; Chi²=12.62, df=4(P=0.01); I²=68.31%							
Test for overall effect: Z=3.1(P=0)							
18.41.2 Unclear/high risk of bias							
Cerulli 2014	10	114.9 (17.1)	10	79.1 (17.8)		13.78%	1.96[0.85,3.07]
Rogers 2013	11	68.4 (15.5)	9	67.1 (16.2)		17.26%	0.08[-0.8,0.96]
Nikander 2007	14	1305 (177)	14	1393 (275)		19.65%	-0.37[-1.12,0.38]
Do 2015	32	13 (1.6)	30	13.2 (1.6)		24.49%	-0.09[-0.59,0.41]
Winters-Stone 2011	36	201.3 (57.4)	31	191 (51.7)		24.82%	0.19[-0.3,0.67]
Subtotal ***	**103**		**94**			**100%**	**0.23[-0.32,0.79]**
Heterogeneity: Tau²=0.26; Chi²=13.05, df=4(P=0.01); I²=69.34%							
Test for overall effect: Z=0.83(P=0.41)							

Analysis 18.42. Comparison 18 Sensitivity analysis: outcomes by risk of bias, Outcome 42 Lower body strength (change values).

Study or subgroup	Physical activity N	Physical activity Mean(SD)	Control N	Control Mean(SD)	Std. Mean Difference Random, 95% CI	Weight	Std. Mean Difference Random, 95% CI
18.42.1 Low risk of bias							
Schmitz 2005	23	81.8 (48.9)	22	20.3 (46)		16.3%	1.27[0.63,1.92]
Cormie 2014	43	37.6 (25.5)	19	6.7 (25.7)		19.64%	1.19[0.61,1.78]
Schmitz 2009	113	33.2 (33.9)	119	7.9 (26.6)		64.06%	0.83[0.56,1.1]
Subtotal ***	**179**		**160**			**100%**	**0.97[0.7,1.25]**
Heterogeneity: Tau²=0.01; Chi²=2.39, df=2(P=0.3); I²=16.21%							
Test for overall effect: Z=6.95(P<0.0001)							
18.42.2 Unclear/high risk of bias							

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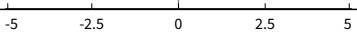
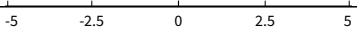
Study or subgroup	Physical activity N	Physical activity Mean(SD)	Control N	Control Mean(SD)	Std. Mean Difference Random, 95% CI	Weight	Std. Mean Difference Random, 95% CI
Nieman 1995	6	28.9 (13.7)	6	3.5 (22.5)		8.38%	1.26[-0.03,2.55]
Naumann 2012	11	7.7 (12.6)	10	3.5 (13.9)		14.73%	0.3[-0.56,1.17]
Dolan 2016	23	11.8 (8.9)	10	0.3 (11.1)		16.09%	1.17[0.37,1.97]
Do 2015	32	0.9 (0.7)	60	1 (0.6)		27.47%	-0.08[-0.51,0.35]
Waltman 2010	110	4.4 (11.5)	113	0.2 (8.4)		33.32%	0.42[0.15,0.69]
Subtotal ***	**182**		**199**			**100%**	**0.46[0.04,0.88]**
Heterogeneity: Tau^2=0.12; Chi^2=10, df=4(P=0.04); I^2=59.99%							
Test for overall effect: Z=2.13(P=0.03)							



Analysis 18.43. Comparison 18 Sensitivity analysis: outcomes by risk of bias, Outcome 43 Upper body strength (follow-up values).

Study or subgroup	Physical activity N	Physical activity Mean(SD)	Control N	Control Mean(SD)	Std. Mean Difference Random, 95% CI	Weight	Std. Mean Difference Random, 95% CI
18.43.1 Low risk of bias							
Portela 2008	25	39.3 (12.3)	9	35.6 (13.1)		12.44%	0.29[-0.48,1.05]
Musanti 2012	30	52.1 (21)	12	36.8 (20)		13.22%	0.73[0.04,1.42]
Schmitz 2005	23	83 (13.4)	22	63 (12.7)		13.43%	1.5[0.84,2.17]
Rogers 2009	20	27.9 (5)	18	24.3 (6.2)		13.59%	0.63[-0.03,1.28]
Milne 2008	29	7.6 (2.9)	29	9.4 (2.6)		14.87%	-0.64[-1.17,-0.12]
Saarto 2012	37	32.7 (5.3)	30	30.8 (5.7)		15.31%	0.34[-0.14,0.83]
Schmitz 2009	113	52.9 (15.3)	119	40.9 (11.8)		17.14%	0.88[0.61,1.15]
Subtotal ***	**277**		**239**			**100%**	**0.53[0.04,1.01]**
Heterogeneity: Tau^2=0.33; Chi^2=34.25, df=6(P<0.0001); I^2=82.48%							
Test for overall effect: Z=2.14(P=0.03)							
18.43.2 Unclear/high risk of bias							
Mustian 2004	11	29.6 (3.3)	10	26.7 (5.7)		13.66%	0.6[-0.28,1.49]
Cerulli 2014	10	16.1 (5.4)	10	17.2 (8.1)		13.68%	-0.16[-1.03,0.72]
Nikander 2007	14	131 (20)	14	129 (28)		15.64%	0.08[-0.66,0.82]
Kaltsatou 2011	28	59.6 (8.5)	26	47.6 (9.8)		17.96%	1.29[0.7,1.88]
Do 2015	32	9.7 (1.7)	30	10.1 (1.7)		19.38%	-0.24[-0.74,0.26]
Winters-Stone 2011	36	63.3 (15.3)	31	61.1 (16.8)		19.68%	0.14[-0.34,0.62]
Subtotal ***	**131**		**121**			**100%**	**0.29[-0.21,0.78]**
Heterogeneity: Tau^2=0.26; Chi^2=17.44, df=5(P=0); I^2=71.34%							
Test for overall effect: Z=1.14(P=0.25)							



Analysis 18.44. Comparison 18 Sensitivity analysis: outcomes by risk of bias, Outcome 44 Upper body strength (change values).

Study or subgroup	Physical activity N	Physical activity Mean(SD)	Control N	Control Mean(SD)	Std. Mean Difference Random, 95% CI	Weight	Std. Mean Difference Random, 95% CI
18.44.1 Low risk of bias							
Schmitz 2005	23	32.3 (11.5)	22	6.9 (10.8)		22.13%	2.24[1.48,2.99]
Musanti 2012	30	7.7 (10.6)	12	0.8 (12.7)		23.39%	0.6[-0.08,1.29]

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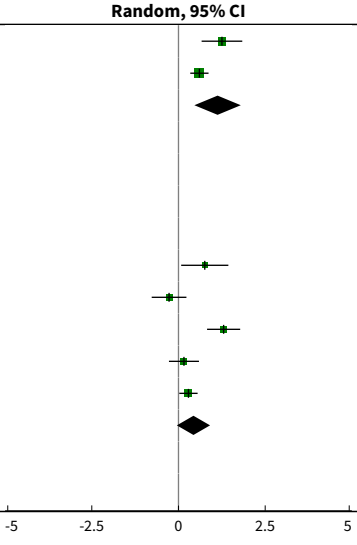
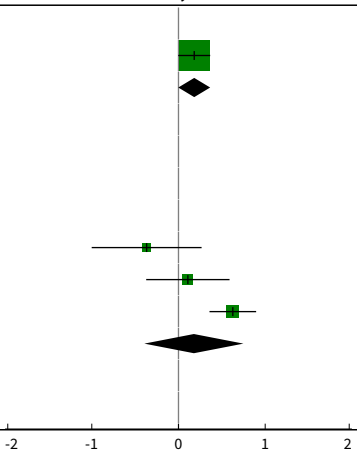
Study or subgroup	Physical activity N	Physical activity Mean(SD)	Control N	Control Mean(SD)	Std. Mean Difference Random, 95% CI	Weight	Std. Mean Difference Random, 95% CI
Cormie 2014	43	5.7 (3.7)	19	1 (3.8)		24.99%	1.25[0.67,1.84]
Schmitz 2009	113	33.2 (40.8)	119	7.6 (43.7)		29.49%	0.6[0.34,0.87]
Subtotal ***	**209**		**172**			**100%**	**1.13[0.46,1.8]**
Heterogeneity: Tau²=0.38; Chi²=18.46, df=3(P=0); I²=83.75%							
Test for overall effect: Z=3.3(P=0)							
18.44.2 Unclear/high risk of bias							
Rogers 2009	19	1.5 (2.3)	17	-0.3 (2.4)		16.58%	0.76[0.08,1.44]
Do 2015	32	0.3 (0.5)	30	0.6 (1.2)		19.58%	-0.27[-0.77,0.23]
Mustian 2004	45	4.5 (4.7)	38	-0.8 (3.2)		19.97%	1.3[0.82,1.78]
Irwin 2015	45	0.4 (1.9)	38	0.1 (1.9)		20.7%	0.16[-0.27,0.59]
Waltman 2010	110	1.9 (4.9)	113	0.8 (2.9)		23.16%	0.29[0.02,0.55]
Subtotal ***	**251**		**236**			**100%**	**0.43[-0.05,0.91]**
Heterogeneity: Tau²=0.24; Chi²=23.51, df=4(P=0); I²=82.99%							
Test for overall effect: Z=1.77(P=0.08)							



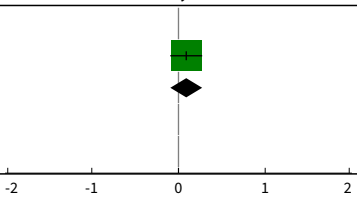
Analysis 18.45. Comparison 18 Sensitivity analysis: outcomes by risk of bias, Outcome 45 Bone mineral density - femoral neck (follow-up and change values).

Study or subgroup	Physical activity N	Physical activity Mean(SD)	Control N	Control Mean(SD)	Std. Mean Difference Random, 95% CI	Weight	Std. Mean Difference Random, 95% CI
18.45.1 Low risk of bias							
Saarto 2012	239	-0 (0)	218	-0 (0)		100%	0.18[-0,0.37]
Subtotal ***	**239**		**218**			**100%**	**0.18[-0,0.37]**
Heterogeneity: Not applicable							
Test for overall effect: Z=1.93(P=0.05)							
18.45.2 Unclear/high risk of bias							
Kim 2015	20	0.8 (0.1)	19	0.8 (0.1)		28.05%	-0.37[-1,0.27]
Winters-Stone 2011	36	0.7 (0.1)	31	0.7 (0.1)		32.86%	0.11[-0.37,0.59]
Waltman 2010	110	0.9 (0.5)	113	0.6 (0.4)		39.09%	0.63[0.36,0.9]
Subtotal ***	**166**		**163**			**100%**	**0.18[-0.39,0.75]**
Heterogeneity: Tau²=0.2; Chi²=9.77, df=2(P=0.01); I²=79.54%							
Test for overall effect: Z=0.61(P=0.54)							



Analysis 18.46. Comparison 18 Sensitivity analysis: outcomes by risk of bias, Outcome 46 Bone mineral density - lumbar spine (follow-up and change values).

Study or subgroup	Physical activity N	Physical activity Mean(SD)	Control N	Control Mean(SD)	Std. Mean Difference Random, 95% CI	Weight	Std. Mean Difference Random, 95% CI
18.46.1 Low risk of bias							
Saarto 2012	239	-0 (0)	218	-0 (0)		100%	0.09[-0.09,0.27]
Subtotal ***	**239**		**218**			**100%**	**0.09[-0.09,0.27]**
Heterogeneity: Not applicable							
Test for overall effect: Z=0.95(P=0.34)							



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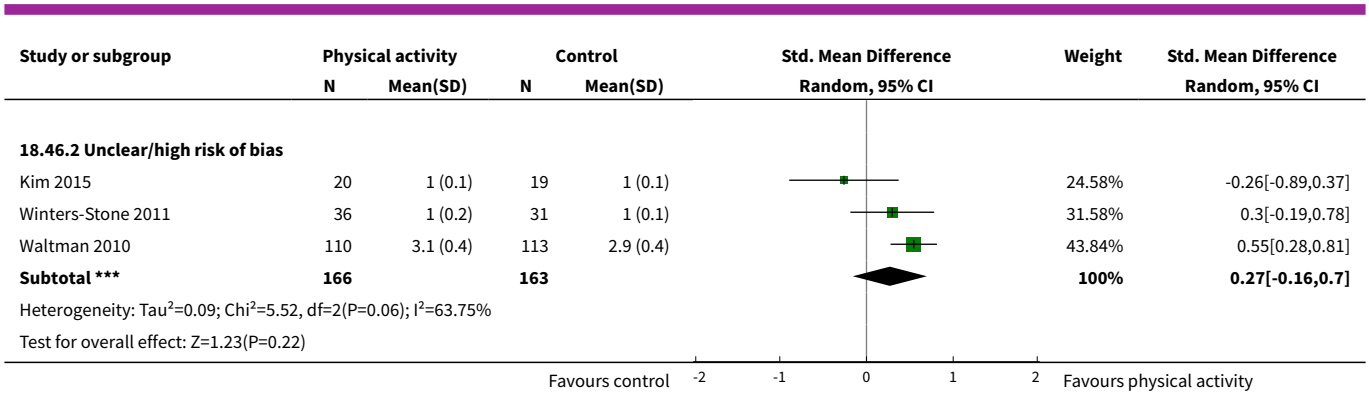

ADDITIONAL TABLES

Table 1. HRQoL subscales and HRQoL-related instruments used by investigators

QoL domain and instrument name	Direction of response	Trials using this scale
Cognitive function		
Cognitive problems - Breast Cancer Prevention Trial (BCPT) Symptom Checklist	Higher score indicates worse status.	Kiecolt-Glaser 2014
Cognitive function - European Organization for Research and Treatment of Cancer Quality of Life Questionnaire-C30 (EORTC QLQ-C30)	Higher score indicates better status.	Herrero 2006; Mehnert 2011; Saarto 2012
Cognitive function - Functional Assessment of Cancer Therapy-Cognitive (FACT-C)	Higher score indicates worse status.	Rogers 2009
Confusion - Profile of Mood States (POMS)	Higher score indicates worse status.	Cantarero-Villanueva 2013; Pinto 2003
Emotional function/mental health		
Psychosocial global score - Cancer Rehabilitation Evaluation System Short Form (CARES-SF)	Higher score indicates worse status.	Schmitz 2005
Emotional function - EORTC QLQ-C30	Higher score indicates better status.	Do 2015; Herrero 2006; Mehnert 2011; Saarto 2012
Emotional well-being - FACT-General (FACT-G)	Higher score indicates better status.	Banasik 2011; Cadmus 2009; Courneya 2003; Daley 2007; Littman 2012; Loh 2014; Milne 2008; Murtezani 2014; Naumann 2012; Rogers 2009; Rogers 2015; Vallance 2007
Emotions - Lymphedema Quality of Life Tool (LYMQOL)	Higher score indicates worse status.	Loudon 2014
Mental composite - Medical Outcomes Study Short Form-12 (MOS SF-12) and MOS SF-36	Higher score indicates better status.	SF-12: Cuesta-Vargas 2014; Fillion 2008

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Table 1. HRQoL subscales and HRQoL-related instruments used by investigators *(Continued)*

		SF-36: (Cormie 2014; Kiecolt-Glaser 2014; Pinto 2015; Schmitz 2009
Mental health - MOS SF-12	Higher score indicates better status.	Baruth 2013; Basen-Enquist 2006; Cadmus 2009; Cormie 2014; Duijits 2012; Kiecolt-Glaser 2014; McKenzie 2003; Mehnert 2011; Pinto 2015
Role emotion - MOS SF-36	Higher score indicates better status.	Baruth 2013; Basen-Enquist 2006; Cadmus 2009; Cormie 2014; Duijits 2012; Kiecolt-Glaser 2014; McKenzie 2003; Mehnert 2011
Positive and Negative Affect Scale (PANAS)	Higher score indicates better status.	Pinto 2003
Total mood disturbance score - POMS	Higher score indicates worse status.	Cantarero-Villanueva 2013; Pinto 2003; Pinto 2005
Anxiety and depression - POMS	Higher score indicates worse status.	Fillion 2008
Anger - POMS	Higher score indicates worse status.	Cantarero-Villanueva 2013; Pinto 2003
General health perspective		
Global health - EORTC QLQ-C30	Higher score indicates better status.	Do 2015; Ergun 2013; Herrero 2006; Mehnert 2011; Saarto 2012
Current health - International Breast Cancer Study Group (IBCSG)	Higher score indicates better status.	Baruth 2013
General health - MOS SF-36	Higher score indicates better status.	Baruth 2013; Basen-Enquist 2006; Cadmus 2009; Cormie 2014; Duijits 2012; Kiecolt-Glaser 2014; McKenzie 2003; Mehnert 2011; Mustian 2004
Single question on perceived general health	Higher score indicates better status.	Rogers 2009
Perceived physical function		
Physical condition - Body Esteem Scale (BES)	Higher score indicates better status.	Pinto 2003; Pinto 2005
Physical strength - Body Image and Relationships Scale (BIRS)	Higher score indicates worse status.	Schmitz 2009
Physical global - CARES-SF	Higher score indicates worse status.	Schmitz 2005
Physical function - EORTC QLQ-C30	Higher score indicates better status.	Do 2015; Herrero 2006; Mehnert 2011; Saarto 2012
Physical well-being - FACT-G	Higher score indicates better status.	Banasik 2011; Cadmus 2009; Courneya 2003; Daley 2007; Littman 2012; Loh 2014; Milne 2008; Murtezani 2014; Naumann 2012; Rogers 2009; Rogers 2015; Vallance 2007
Physical well-being - IBCSG	Higher score indicates better status.	Baruth 2013

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Table 1. HRQoL subscales and HRQoL-related instruments used by investigators *(Continued)*

Physical function - MOS SF-12	Higher score indicates better status.	Cuesta-Vargas 2014; Fillion 2008
Physical function composite score - MOS SF-36	Higher score indicates better status.	Baruth 2013; Cormie 2014; Duijits 2012; McKenzie 2003; Mehnert 2011; Mustian 2004; Schmitz 2009; Winters-Stone 2011
Role function		
Marital global score - CARES-SF	Higher score indicates worse status.	Schmitz 2005
Role function - EORTC QLQ-C30	Higher score indicates better status.	Do 2015; Herrero 2006; Mehnert 2011; Saarto 2012
Functional well-being - FACT-G	Higher score indicates better status.	Banasik 2011; Cadmus 2009; Courneya 2003; Daley 2007; Littman 2012; Loh 2014; Milne 2008; Murtezani 2014; Naumann 2012; Rogers 2009; Rogers 2015; Vallance 2007
Function - LYMQOL	Higher score indicates worse status.	Loudon 2014
Physical role function - MOS SF-36	Higher score indicates better status.	Baruth 2013; Basen-Enquist 2006; Cadmus 2009; Cormie 2014; Duijits 2012; Kiecolt-Glaser 2014; McKenzie 2003; Mehnert 2011; Mustian 2004
Sexuality		
Sexual attractiveness - BES	Higher score indicates better status.	Pinto 2003; Pinto 2005
Appearance and sexuality - BIRS	Higher score indicates worse status.	Schmitz 2009
Sexual function and sexual enjoyment - EORTC QLQ-C30	Higher score indicates better status.	Saarto 2012
Sexual global - CARES-SF	Higher score indicates worse status.	Schmitz 2005
Sexual functioning - Sexual Activity Questionnaire	Higher score indicates better status.	Duijits 2012
Sleep		
Pittsburgh Sleep Quality Index (PSI)	Higher score indicates worse status.	Bower 2011; Carson 2009; Kiecolt-Glaser 2014; Payne 2008; Rogers 2009; Rogers 2013; Rogers 2014
Sleep disturbance (0 to 9 scale)	Higher score indicates	Carson 2009

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Table 1. HRQoL subscales and HRQoL-related instruments used by investigators *(Continued)*

	higher disturbance.	
Sleep objectively via accelerometers	Higher sleep time and efficiency indicate better status.	Rogers 2013; Rogers 2014
Social function		
Social functioning - BIRS	Higher score indicates worse status.	Schmitz 2009
Body Image Questionnaire (BIQ)	Higher score indicates worse status.	Mehnert 2011
Social function - EORTC QLQ-C30	Higher score indicates better status.	Herrero 2006; Mehnert 2011; Saarto 2012
Social well-being - FACT-G	Higher score indicates better status.	Banasik 2011; Cadmus 2009; Courneya 2003; Daley 2007; Littman 2012; Loh 2014; Milne 2008; Murtezani 2014; Naumann 2012; Rogers 2009; Rogers 2015; Vallance 2007
Social support - IBCSG	Higher score indicates better status.	Baruth 2013
Social functioning - MOS SF-36	Higher score indicates better status.	Baruth 2013; Basen-Enquist 2006; Cadmus 2009; Cormie 2014; Duijits 2012; Kiecolt-Glaser 2014; McKenzie 2003; Mehnert 2011; Mustian 2004
Social Barriers Scale	Higher score indicates better status.	Mehnert 2011
Other psychological outcomes		
Anxiety		
Depression and Anxiety Stress Scale-21 (DASS-21)	Higher score indicates worse status.	Loh 2014
Hospital Anxiety and Depression scale (HADS)	Higher score indicates worse status.	Duijits 2012; Heim 2007; Mehnert 2011; Musanti 2012
Tension-anxiety - POMS	Higher score indicates worse status.	Cantarero-Villanueva 2013; Fillion 2008; Pinto 2003
Anxiety - Patient Reported Outcomes Measurement Information System (PROMIS)	Higher score indicates worse status.	Rogers 2014
Social Physique Anxiety Scale-7 (SPAS-7)	Higher score indicates worse status.	Milne 2008
State-Trait Anxiety Index (STAI)	Higher score indicates	Cadmus 2009; Segar 1998

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Table 1. HRQoL subscales and HRQoL-related instruments used by investigators *(Continued)*

	worse status.	
Cohen's 10-item perceived stress scale	Higher score indicates worse status.	Bower 2011; Cadmus 2009
Symptoms of Stress Inventory (SOSI)	Higher score indicates worse status.	Mehnert 2011
Depression		
Beck Depression Inventory (BDI)	Higher score indicates worse status.	Bower 2011; Daley 2007; Ergun 2013; Kaltsatou 2011; Naumann 2012; Saarto 2012; Segar 1998
Centres for Epidemiological Studies Depression scale (CES-D)	Higher score indicates worse status.	Cadmus 2009; Kiecolt-Glaser 2014; Payne 2008; Schmitz 2005
DASS-21	Higher score indicates worse status.	Loh 2014
HADS	Higher score indicates worse status.	Duijits 2012; Heim 2007; Mehnert 2011; Musanti 2012
Depression subscale - POMS	Higher score indicates worse status.	Cantarero-Villanueva 2013; Fillion 2008; Pinto 2003
Depression - PROMIS	Higher score indicates worse status.	Rogers 2014
Fatigue		
Brief Fatigue Inventory	Higher score indicates worse status.	Ergun 2013
Fatigue subscale - FACT-F	Higher score indicates better status.	Baruth 2013; Courneya 2003; Littman 2012; Loh 2014; Peppone 2015; Rogers 2009; Saarto 2012; Short 2014; Vallance 2007
Likert scale responses to fatigue-related items (0 to 4)	Higher score indicates worse status.	Banasik 2011
Linear visual analogue scale (VAS) for fatigue (0 to 10)	Higher score indicates worse status.	Loudon 2014; Pinto 2005
Multidimensional Fatigue Symptom Inventory (MFSI)	Higher score indicates worse status.	Bower 2011; Fillion 2008; Heim 2007; Peppone 2015; Rogers 2013; Rogers 2014
Fatigue subscale - POMS	Higher score indicates worse status.	Cantarero-Villanueva 2013; Pinto 2003

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Table 1. HRQoL subscales and HRQoL-related instruments used by investigators *(Continued)*

Fatigue - PROMIS	Higher score indicates worse status.	Rogers 2014
Revised Piper Fatigue Scale (PFS)	Higher score indicates worse status.	Cantarero-Villanueva 2013; Cuesta-Vargas 2014; Daley 2007; Musanti 2012; Naumann 2012; Payne 2008
Schwartz Cancer Fatigue Scale (SCFS)	Higher score indicates worse status.	Milne 2008; Winters-Stone 2011
Fatigue 0 to 9 scale	Higher score indicates worse status.	Carson 2009
Happiness/satisfaction with life		
2-Item Fordyce Happiness Measure	Higher score indicates better status.	Cadmus 2009
Happiness measure	Higher score indicates better status.	Courneya 2003
Life Satisfaction Inventory (LSI)	Higher score indicates better status.	Kaltsatou 2011
Satisfaction With Life Scale (SWLS)	Higher score indicates better status.	Daley 2007
Pain/disability		
Brief Pain Inventory (BPI)	Higher score indicates worse status.	Cormie 2014; Fillion 2008; Irwin 2015
Disabilities of the Arm, Shoulder, and Hand (DASH)	Higher score indicates worse status.	Cormie 2014; Irwin 2015; Portela 2008
Pain subscale - EORTC QLQ-C30	Higher score indicates worse status.	Do 2015; Mehnert 2011
Pain scale - MOS SF-36	Higher score indicates better status.	Baruth 2013; Basen-Enquist 2006; Cadmus 2009; Cormie 2014; Duijits 2012; Mehnert 2011; Mustian 2004
University of Rochester Cancer Center Symptom Inventory (URCC SI)	Higher score indicates worse status.	Peppone 2015
Pain VAS 0 to 10	Higher score indicates worse status.	Loudon 2014

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Table 1. HRQoL subscales and HRQoL-related instruments used by investigators *(Continued)*

5-Point Likert scale version of 24-item Western Ontario and McMaster Universities Osteoarthritis Index (WOMAC)	Higher score indicates worse status.	Irwin 2015; Rogers 2009
Pain 0 to 9 scale	Higher score indicates worse status.	Carson 2009
Self-esteem		
BES	Higher score indicates better status.	Pinto 2003; Pinto 2005
Body Image Questionnaire (BIQ)	Higher score indicates worse status.	Mehnert 2011
Body Image and Relationships Scale (BIRS)	Higher score indicates worse status.	Schmitz 2009
Body image - EORTC QLQ-Breast-Related 23	Higher score indicates better status.	Do 2015; Duijits 2012; Saarto 2012
Physical Self-Perception Profile	Higher score indicates better status.	Daley 2007; Musanti 2012
Rosenberg Self-Esteem Scale (RSE)	Higher score indicates better status.	Cadmus 2009; Courneya 2003; Musanti 2012; Mustian 2004; Segar 1998
Social Physique Anxiety Scale 7 (SPAS-7)	Higher score indicates worse status.	Milne 2008
Vitality/vigour		
Vitality scale - MOS SF-36	Higher score indicates better status.	Baruth 2013; Basen-Enquist 2006; Cadmus 2009; Cormie 2014; Duijits 2012; Kiecolt-Glaser 2014; Mehnert 2011; Mustian 2004
Vigour subscale - POMS	Higher score indicates better status.	Cantarero-Villanueva 2013; Fillion 2008; Pinto 2003; Pinto 2005
Other psychological measures		
Basic Psychological Needs Satisfaction Scale (BNS)	Higher score indicates better status.	Milne 2008
Behavioral Regulation for Exercise Questionnaire 2 (BREQ-2)	Higher score indicates higher status of each subscale.	Milne 2008
Endocrine symptoms - FACT-Endocrine symptoms	Higher score indicates worse status.	Duijits 2012; Rogers 2009

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Table 1. HRQoL subscales and HRQoL-related instruments used by investigators *(Continued)*

Exercise role identity - 9-item, 5-point Likert-type instrument (Anderson and Cychosz)	Higher score indicates greater exercise role identity.	Hatchett 2013
Exercise self-efficacy - 14-item Steinhardt and Dishman Questionnaire	Higher score indicates better status.	Hatchett 2013
Hot flashes and night sweats - Hot Flush Rating Scale	Higher score indicates worse status.	Duijits 2012;
Outcome expectancy value - 19-item Steinhardt and Dishman Self-Report Questionnaire	Higher score indicates higher outcome expectancy.	Hatchett 2013
Menopausal symptoms 0 to 9 scale	Higher score indicates worse status.	Carson 2009
Menopausal symptoms - Women's Health Questionnaire (WHQ)	Higher score indicates worse status.	Saarto 2012
Self-regulation - 20-item, 5-point Likert-type instrument	Higher score indicates better status.	Hatchett 2013
Symptom Checklist-90 Revised (SCL-90R)	Higher score indicates worse status.	DeNysschen 2011; Mehnert 2011
Urinary symptoms - Bristol Female Lower Urinary Tract Symptoms Questionnaire (BFLUTS)	Higher score indicates worse status.	Duijits 2012

Table 2. Physical fitness, physical activity, and body composition measurement instruments used by investigators

Instrument or test name	Outcome	Measurement units	Trials using this instrument or test
12-Minute walk test	Cardiorespiratory fitness	Distance covered in metres	Murtezani 2014; Portela 2008
2-Kilometre walking test	Cardiorespiratory fitness	Time to complete in minutes	Nikander 2007; Saarto 2012
6-Minute walk test	Cardiorespiratory fitness	Distance covered in metres	Basen-Enquist 2006; Kaltsatou 2011; Kim 2015; Mustian 2004; Nieman 1995
Aerobic Power Index cycle test	Cardiorespiratory fitness	Relative power output in W/kg	Milne 2008
Astrand-Rhyming cycle test	Cardiorespiratory fitness	Estimated maximal oxygen uptake	Cerulli 2014

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Table 2. Physical fitness, physical activity, and body composition measurement instruments used by investigators *(Continued)*

		(VO_2max) in mL/kg/min	
Ebbeling 8-minute single-stage walking treadmill test	Cardiorespiratory fitness	Distance covered in metres	Daley 2007; Fillion 2008
Graded exercise treadmill test	Cardiorespiratory fitness	Direct VO_2max in mL/kg/min	DeNysschen 2011; Dolan 2016; Irwin 2015
Graded exercise cycle ergometer test	Cardiorespiratory fitness	Direct VO_2max in mL/kg/min	Courneya 2003; Herrero 2006; Mehnert 2011
Harvard step test	Cardiorespiratory fitness	Heart rate in beats per minute (bpm) post test	Heim 2007
Modified Bruce protocol	Cardiorespiratory fitness	Estimated VO_2max in mL/kg/min	Musanti 2012; Naumann 2012; Rahnama 2010
Naughton submaximal treadmill test	Cardiorespiratory fitness	Estimated VO_2max in mL/kg/min	Do 2015; Rogers 2009; Rogers 2013; Rogers 2014; Rogers 2015
Rockport 1-mile walk test	Cardiorespiratory fitness	Time to complete in minutes	Pinto 2005
7-Day Physical Activity Recall (PAR)	Self-reported physical activity	Minutes/week	Basen-Enquist 2006; Cadmus 2009; Hatchett 2013; Pinto 2005; Pinto 2015
Community Health Activities Model Programme for Seniors (CHAMPS)	Self-reported physical activity	Metabolic equivalent (MET)-h/week	Baruth 2013; Kiecolt-Glaser 2014; Matthews 2007; Winters-Stone 2011
International Physical Activity Questionnaire (IPAQ)	Self-reported physical activity	MET-h/week	Schmitz 2009
Physical activity questionnaire	Self-reported physical activity	Minutes/week	Irwin 2015; Kriska 1990
Leisure Score Index (LSI) of Godin Leisure-Time Exercise Questionnaire	Self-reported physical activity	Minutes/week	Courneya 2003; Guinan 2013; Kim 2015; Rogers 2009; Rogers 2015; Short 2014; Vallance 2007
Modifiable Activity Questionnaire	Self-reported physical activity	MET-h/week	Littman 2012
Physical Activity Recall Questionnaire	Self-reported physical activity	MET-h/week	Saarto 2012
Accelerometer	Objective physical activity	Counts per minute/d	Guinan 2013; Matthews 2007; Pinto 2005; Pinto 2015; Rogers 2009; Rogers 2013; Rogers 2014; Rogers 2015
Pedometer	Objective physical activity	Steps/d	Cadmus 2009; Nikander 2007; Short 2014; Vallance 2007
Body fat via bioelectrical impedance analysis (BIA)	Body composition	% and/or kg	Cerulli 2014; Daley 2007; Guinan 2013; Ligibel 2008; Matthews 2007; Musanti 2012; Mustian 2004; Rogers 2013; Rogers 2014

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Table 2. Physical fitness, physical activity, and body composition measurement instruments used by investigators *(Continued)*

Body fat and lean mass via dual-energy X-ray absorptiometry (DEXA)	Body composition	% and/or kg	Cadmus 2009; DeNysschen 2011; Matthews 2007; Rogers 2009; Saarto 2012; Schmitz 2005; Schmitz 2009; Winters-Stone 2011
Body fat and muscle mass via multi-slice magnetic resonance imaging (MRI)	Body composition	% and kg	Herrero 2006
Body mass index (BMI)	Anthropometric	kg/m^2	Basen-Enquist 2006; Cadmus 2009; Courneya 2003; Daley 2007; Kiecolt-Glaser 2014; Ligibel 2008; Littman 2012; Murtezani 2014; Mustian 2004; Naumann 2012; Nikander 2007; Pinto 2003; Portela 2008; Rahnama 2010; Rogers 2009; Rogers 2013; Rogers 2014; Schmitz 2005; Schmitz 2009
Body mass	Anthropometric	kg	Cadmus 2009; Courneya 2003; Daley 2007; DeNysschen 2011; Dolan 2016; Guinan 2013; Herrero 2006; Irwin 2015; Kiecolt-Glaser 2014; Ligibel 2008; Littman 2012; Matthews 2007; Murtezani 2014; Musanti 2012; Naumann 2012; Nikander 2007; Pinto 2003; Rahnama 2010; Saarto 2012; Schmitz 2005; Schmitz 2009; Winters-Stone 2011
Skinfold thickness	Body composition	mm and/or %	Courneya 2003; Herrero 2006; Naumann 2012
Hip circumference	Anthropometric	cm	Basen-Enquist 2006; Cadmus 2009; Dolan 2016; Ligibel 2008; Littman 2012; Rahnama 2010; Rogers 2009
Waist circumference	Anthropometric	cm	Basen-Enquist 2006; Cadmus 2009; Dolan 2016; Guinan 2013; Ligibel 2008; Littman 2012; Rahnama 2010; Rogers 2009; Schmitz 2005
Waist-to-hip ratio	Anthropometric	NA	Ligibel 2008; Rahnama 2010; Rogers 2009; Rogers 2013; Rogers 2014
Handgrip strength	Muscular strength	kg	Irwin 2015; Kaltsatou 2011; Kim 2015; Mustian 2004; Portela 2008; Rogers 2009; Saarto 2012; Winters-Stone 2011
Repetition maximum (RM) bench/chest press	Muscular strength	kg	Cormie 2014; Milne 2008; Musanti 2012; Naumann 2012; Schmitz 2005; Schmitz 2009; Winters-Stone 2011)
RM leg press	Muscular strength	kg	Cerulli 2014; Cormie 2014; Dolan 2016; Milne 2008; Musanti 2012; Naumann 2012; Schmitz 2005; Schmitz 2009; Winters-Stone 2011
Total bone mineral content (BMC)	Bone-related outcomes	g/cm	Cadmus 2009; Saarto 2012
BMC of distal tibia, tibial midshaft, and femoral neck	Bone-related outcomes	g/cm	Saarto 2012
Bone mineral density (BMD) via DEXA	Bone-related outcomes	g/cm^2	Cadmus 2009; Kim 2015; Rogers 2009; Saarto 2012; Waltman 2010; Winters-Stone 2011
BMD of femoral neck and lumbar spine	Bone-related outcomes	g/cm^2	Kim 2015; Rogers 2009; Saarto 2012; Waltman 2010; Winters-Stone 2011

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Table 2. Physical fitness, physical activity, and body composition measurement instruments used by investigators *(Continued)*

BMD greater trochanter via DEXA	Bone-related outcomes	g/cm²	Winters-Stone 2011
BMD total hip via DEXA	Bone-related outcomes	g/cm²	Kim 2015; Waltman 2010; Winters-Stone 2011
BMD total radius and 33% radius via DEXA	Bone-related outcomes	g/cm²	Waltman 2010
Bone Remodeling Index (BRI)	Bone-related outcomes	NA	Mustian 2004
Serum bone-specific alkaline phosphatase (BSAP)	Bone-related outcomes	µg/L	Mustian 2004; Waltman 2010
Serum*N*-telopeptides of type I collagen (NTx)	Bone-related outcomes	nm bone collagen equivalent (BCE)	Kim 2015; Mustian 2004; Waltman 2010
Serum osteocalcin	Bone-related outcomes	nmol	Winters-Stone 2011

Table 3. Meta-analysis findings for each HRQoL subscale and secondary outcome

Outcome	Immediate postintervention estimate (95% CI)	≥ 3-Month postintervention estimate (95% CI)	Change from baseline to end of intervention estimate (95% CI)	Change from baseline to ≥ 3-month postintervention estimate (95% CI)
QoL subscale domain				
Cognitive function	SMD: 0.40 (0.11 to 0.69) N women (trials): 189 (5) I^2 = 0%	SMD: 0.31 (-0.09 to 0.71) N women (trials): 97 (2) I^2 = 0%	SMD: -0.00 (-0.27 to 0.26) N women (trials): 672 (5) I^2 = 35%	SMD: 0.20 (-0.20 to 0.60) N women (trials): 97 (2) I^2 = 0%
Emotional function/mental health	SMD: 0.21 (0.10 to 0.32) N women (trials): 2102 (26) I^2 = 27%	SMD: 0.20 (0.03 to 0.36) N women (trials): 655 (7) I^2 = 10%	SMD: 0.31 (0.09 to 0.53) N women (trials): 1579 (15) I^2 = 72%	SMD: 0.06 (-0.29 to 0.41) N women (trials): 179 (3) I^2 = 27%
General health perspective	SMD: 0.18 (-0.08 to 0.45) N women (trials): 456 (1) I^2 = 47%	NA	SMD: 0.17 (-0.07 to 0.40) N women (trials): 906 (9) I^2 = 49%	NA
Perceived physical function	SMD: 0.33 (0.18 to 0.49) N women (trials): 2129 (25)	SMD: 0.21 (0.06 to 0.37)	SMD: 0.60 (0.23 to 0.97) N women (trials): 1433 (13)	NA

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Table 3. Meta-analysis findings for each HRQoL subscale and secondary outcome *(Continued)*

	I^2 = 61%	N women (trials): 637 (6) I^2 = 0%	I^2 = 89%	
Role function	SMD: 0.29 (0.07 to 0.51) N women (trials): 1370 (18) I^2 = 69%	SMD: 0.13 (-0.12 to 0.38) N women (trials): 249 (2) I^2 = 0%	SMD: 0.14 (-0.05 to 0.33) N women (trials): 1315 (12) I^2 = 50%	NA
Sexual function	SMD: 0.16 (-0.04 to 0.35) N women (trials): 411 (5) I^2 = 0%	NA	SMD: 0.22 (-0.08 to 0.52) N women (trials): 693 (3) I^2 = 62%	NA
Sleep	SMD: -0.09 (-0.37 to 0.20) N women (trials): 188 (5) I^2 = 0%	NA	SMD: 0.14 (-0.20 to 0.48) N women (trials): 136 (3) I^2 = 0%	NA
Social function	SMD: 0.19 (0.08 to 0.30) N women (trials): 1557 (18) I^2 = 11%	NA	SMD: 0.52 (0.16 to 0.87) N women (trials): 1384 (12) I^2 = 87%	NA
Other psychological outcomes				
Anxiety	SMD: -0.57 (-0.95 to -0.19) N women (trials): 326 (7) I^2 = 60%	NA	SMD: -0.37 (-0.63 to -0.12) N women (trials): 235 (4) I^2 = 0%	NA
Depression	SMD: -0.34 (-0.62 to -0.05) N women (trials): 657 (12) I^2 = 63%	SMD: -0.28 (-0.51 to -0.05) N women (trials): 340 (4) I^2 = 9%	SMD: -0.34 (-0.63 to -0.05) N women (trials): 816 (7) I^2 = 62%	NA
Fatigue	SMD: -0.32 (-0.47 to -0.18) N women (trials): 2020 (26) I^2 = 54%	SMD: -0.43 (-0.60 to -0.26) N women (trials): 536 (7) I^2 = 0%	SMD:-0.30 (-0.61 to 0.00) N women (trials): 1289 (13) I^2 = 80%	SMD: -0.47 (-0.84 to -0.11) N women (trials): 178 (4) I^2 = 23%
Happiness/satisfaction with life	SMD: 0.61 (-0.16 to 1.37) N women (studies): 209 (4) I^2 = 85%	NA	SMD: 0.28 (-0.05 to 0.62) N women (studies): 182 (3) I^2 = 23%	NA
Pain/disability	SMD: 0.08 (-0.09 to 0.25)	NA	SMD: -0.08 (-0.33 to 0.16)	NA

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Table 3. Meta-analysis findings for each HRQoL subscale and secondary outcome *(Continued)*

	N women (trials): 535 (9) I^2 = 0%		N women (trials): 296 (5) I^2 = 5%	
Self-esteem	SMD: 0.27 (0.05 to 0.48) N women (trials): 667 (12) I^2 = 42%	NA	SMD: 0.23 (-0.11 to 0.58) N women (trials): 992 (9) I^2 = 80%	NA
Vigour/vitality	SMD: 0.36 (0.21 to 0.50) N women (trials): 762 (10) I^2 = 0%	SMD: 0.26 (0.04 to 0.48) N women (trials): 454 (4) I^2 = 24%	SMD: 0.23 (0.00 to 0.45) N women (trials): 359 (6) I^2 = 10%	SMD: 0.20 (-0.06 to 0.46) N women (trials): 233 (2) I^2 = 0%
Cardiorespiratory fitness outcomes				
Overall cardiorespiratory fitness	SMD: 0.44 (0.30 to 0.58) N women (trials): 1265 (23) I^2 = 30%	SMD: 0.36 (0.03 to 0.69) N women (trials): 362 (3) I^2 = 53%	SMD: 0.83 (0.40 to 1.27) N women (trials): 863 (9) I^2 = 82%	SMD: 0.42 (0.05 to 0.79) N women (trials): 115 (2) I^2 = 0%
Directly assessed VO_2peak (mL/kg/min)	MD: 1.89 (0.65 to 3.13) N women (trials): 199 (4) I^2 = 0%	NA	MD: 1.31 (0.66 to 1.96) N women (trials): 166 (3) I^2 = 68%	NA
Peak power output (W)	MD: 18.92 (9.64 to 28.20) N women (trials): 66 (2) I^2 = 0%	NA	NA	NA
Resting heart rate (bpm)	MD: -4.47 (-7.94 to -1.00) N women (trials): 82 (2) I^2 = 0%	NA	MD: -1.05 (-2.22 to 0.11) N women (trials): 86 (2) I^2 = 81%	NA
Resting systolic blood pressure (mmHg)	MD: -0.83 (-3.72 to 2.05) N women (trials): 134 (4) I^2 = 0%	NA	MD: -1.12 (-7.74 to 5.50) N women (trials): 143 (3) I^2 = 73%	NA
Resting diastolic blood pressure (mmHg)	MD: 0.66 (-2.89 to 4.21) N women (trials): 106 (3) I^2 = 22%	NA	MD: 0.53 (-1.61 to 2.68) N women (trials): 144 (3) I^2 = 23%	NA
Physical activity outcomes				
Self-reported physical activity	SMD: 0.52 (0.33 to 0.71) N women (trials): 2012 (17)	SMD: 0.44 (0.17 to 0.72)	SMD: 0.57 (0.25 to 0.90) N women (trials): 1274 (8)	SMD: 0.51 (0.08 to 0.93)

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Table 3. Meta-analysis findings for each HRQoL subscale and secondary outcome *(Continued)*

	I^2 = 72%	N women (trials): 683 (4) I^2 = 53%	I^2 = 82%	N women (trials): 521 (4) I^2 = 67%
Meeting recommended physical activity guidelines	OR: 8.44 (2.41 to 29.56) N women (trials): 819 (6) I^2 = 89%	OR: 3.11 (1.50 to 6.46) N women (trials): 280 (2) I^2 = 28%	NA	NA
Objective physical activity	SMD: 0.43 (0.19 to 0.66) N women (trials): 1248 (10) I^2 = 67%	SMD: 0.22 (-0.21 to 0.66) N women (trials): 305 (3) I^2 = 58%	SMD: 0.71 (0.14 to 1.29) N women (trials): 508 (5) I^2 = 83%	SMD: 0.23 (-1.00 to 1.46) N women (trials): 61 (2) I^2 = 81%
Objective sedentary behaviour	SMD: -1.45 (-3.68 to 0.78) N women (trials): 103 (3) I^2 = 95%	NA	SMD: -0.01 (-0.63 to 0.60) N women (trials): 103 (3) I^2 = 57%	NA
Anthropometric outcomes				
Mass (kg)	MD: 0.00 (-0.57 to 0.58) N women (trials): 1210 (16) I^2 = 0%	NA	MD: -0.50 (-0.98 to -0.01) N women (trials): 1047 (11) I^2 = 59%	NA
BMI (kg/m^2)	MD: 0.01 (-0.19 to 0.22) N women (trials): 1481 (17) I^2 = 0%	NA	MD: -0.22 (-0.45 to 0.01) N women (trials): 485 (8) I^2 = 65%	NA
Body fat	SMD: -0.18 (-0.34 to -0.03) N women (trials): 1162 (18) I^2 = 35%	NA	SMD: -0.62 (-1.19 to -0.06) N women (trials): 499 (9) I^2 = 88%	NA
Lean mass	MD: 0.05 (-0.11 to 0.21) N women (trials): 612 (8) I^2 = 0%	NA	MD: 0.80 (-0.13 to 1.72) N women (trials): 760 (5) I^2 = 95%	NA
Waist-to-hip ratio	MD: -0.03 (-0.06 to 0.01) N women (trials): 213 (5) I^2 = 54%	NA	MD: 0.00 (-0.01 to 0.01) N women (trials): 124 (2) I^2 = 0%	NA
Waist circumference (cm)	MD: -0.50 (-3.18 to 2.18) N women (trials): 330 (6)	NA	MD: -1.71 (-2.56 to -0.86) N women (trials): 285 (5)	NA

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Table 3. Meta-analysis findings for each HRQoL subscale and secondary outcome *(Continued)*

	I^2 = 0%		I^2 = 48%	
Hip circumference (cm)	MD: -0.97 (-3.96 to 2.01) N women (trials): 249 (4) I^2 = 0%	NA	MD: -2.37 (-3.31 to -1.44) N women (trials): 115 (2) I^2 = 5%	NA
Muscular strength outcomes				
Lower body strength	SMD: 0.44 (0.09 to 0.78) N women (trials): 637 (10) I^2 = 74%	NA	SMD: 0.72 (0.38 to 1.07) N women (trials): 720 (8) I^2 = 73%	NA
Upper body strength	SMD: 0.42 (0.08 to 0.76) N women (trials): 13 (768) I^2 = 79%	NA	SMD: 0.72 (0.30 to 1.14) N women (trials): 832 (8) I^2 = 86%	NA
Grip strength	MD: 2.37 kg (0.20 to 4.55) N women (trials): 320 (7) I^2 = 68%	NA	SMD: 0.24 (-0.09 to 0.58) N women (trials): 145 (2) I^2 = 0%	NA
Bone health outcomes				
Bone mineral content (change and postintervention values)	SMD: 0.04 (-0.20 to 0.27) N women (trials): 525 (2) I^2 = 22%	NA	NA	NA
Bone mineral density – femoral neck (change and postintervention values)	SMD: 0.21 (-0.13 to 0.55) N women (trials): 786 (4) I^2 = 75%	NA	NA	NA
Bone mineral density – lumbar spine (change and postintervention values)	SMD: 0.22 (-0.09 to 0.53) N women (trials): 786 (4) I^2 = 70%	NA	NA	NA
Bone mineral density – total hip (change and postintervention values)	SMD: 0.58 (-0.02 to 1.18) N women (trials): 329 (3) I^2 = 97%	NA	NA	NA
Bone formation - Alkaline phosphatase (change and postintervention values)	SMD: -0.25 (-1.81 to 1.31) N women (trials): 239 (2) I^2 = 89%	NA	NA	NA

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Table 3. Meta-analysis findings for each HRQoL subscale and secondary outcome *(Continued)*

Bone resorption - serum NTx (change and postintervention values)	SMD: 0.38 (-1.58 to 2.34) N women (trials): 278 (3) I^2 = 97%	NA	NA	NA

CI: confidence interval.
MD: mean difference.
NA: not applicable.
OR: odds ratio.
SMD: standardised mean difference.

APPENDICES

Appendix 1. MEDLINE

PubMed search:

1. (randomized controlled trial[pt] OR controlled clinical trial[pt] OR randomized[tiab] OR placebo[tw] OR drug therapy[sh] OR randomly[tiab] OR trial[tiab] OR groups[tiab])

2. (((Breast neoplasms[mh] OR ((breast[mh] OR breast diseases[mh]) AND neoplasms[mh])) AND humans[mh]) OR DCIS[tiab] OR LCIS[tiab] OR ductal carcinoma in situ[tiab] OR lobular carcinoma in situ[tiab] OR (breast[tiab] AND (ductal carcinoma*[ti] OR lobular carcinoma*[ti])) OR ((Breast[ti] OR mammary[ti]) AND (cancer*[ti] OR neoplas*[ti] OR tumor*[ti] OR tumour*[ti] OR carcinoma*[ti] OR malignan*[ti] OR sarcoma[ti] OR lymphoma[ti])))

3. (((Breast neoplasms[mh] OR ((breast[mh] OR breast diseases[mh]) AND neoplasms[mh])) AND humans[mh]) OR DCIS[tiab] OR LCIS[tiab] OR ductal carcinoma in situ[tiab] OR lobular carcinoma in situ[tiab] OR (breast[tiab] AND (ductal carcinoma*[ti] OR lobular carcinoma*[ti])) OR ((Breast[ti] OR mammary[ti]) AND (cancer*[ti] OR neoplas*[ti] OR tumor*[ti] OR tumour*[ti] OR carcinoma*[ti] OR malignan*[ti] OR sarcoma[ti] OR lymphoma[ti]))) AND (Neoplasm Metastasis[Mh] OR secondary[sh] OR Neoplasm Recurrence, Local[mh] OR metast*[tiab] OR advanced[tiab] OR recurren*[tiab] OR HER-2*[tiab] OR HER2*[tiab] OR N1[tiab] OR N2[tiab] OR N2a[tiab] OR N2b[tiab] OR N3[tiab] OR N3a[tiab] OR N3b[tiab] OR N3c[tiab] OR M1[tiab] OR pN1*[tiab] OR pN2*[tiab] OR pN3*[tiab] OR stage IV[tiab] OR stage four[tiab] OR stage 4[tiab] OR local*[tiab] OR loco*[tiab] OR region*[tiab] OR LABC[tiab] OR T3[tiab] OR T4[tiab] OR Stage III*[tiab] OR Stage three*[tiab] OR stage 3*[tiab])

4. #2 NOT #3

5. (Exercise [mh] OR exercis*[tiab] OR Motor activity[mh] OR Sports[mh] OR sport*[tiab] OR Resistance training[mh] OR training[tiab] OR fitness[tiab] OR physical activity[tiab] OR physical activities[tiab] OR physical activity intervention*[tiab] OR exercise intervention* OR active[tiab])

6. #1 AND #4 AND #5

7. Animals [MH] NOT Humans [mh]

8. #6 not #7

Appendix 2. Embase

Embase.com search:

1. random* OR factorial* OR crossover* OR cross NEXT/1 over* OR placebo* OR (doubl* AND blind*) OR (singl* AND blind*) OR assign*OR allocat* OR volunteer* OR 'crossover procedure'/exp OR 'double blind procedure'/exp OR 'randomized controlled trial'/exp OR'single blind procedure'/exp

2. 'breast cancer'/exp OR 'breast cancer'

3. 'breast neoplasm'

4. 'breast carcinoma'/exp OR 'breast carcinoma'

5. 'breast tumour'

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6. 'breast tumor'/exp OR 'breast tumor'

7. 'mamma carcinoma'/exp OR 'mamma carcinoma'

8. 'mammary neoplasm'

9. 'mammary carcinoma'/exp OR 'mammary carcinoma'

10. 'mammary gland carcinoma'

11. #2 OR #3 OR #4 OR #5 OR #6 OR #7 OR #8 OR #9 OR #10

12. (metastatic OR advance) AND ('breast cancer'/exp OR 'breast neoplasm' OR 'breast carcinoma'/exp OR 'breast tumour' OR 'breast tumor'/exp)

13. #11 NOT #12

14. 'exercise'/exp OR 'exercise'

15. exercis*

16. 'sport'/exp OR 'sport'

17. sport*

18. 'resistance training'/exp OR 'resistance training'

19. 'training'/exp OR training

20. 'fitness'/exp OR fitness

21. 'physical activity'/exp OR 'physical activity'

22. 'physical activities'

23. physical NEAR/6 activit*

24. 'physical activity intervention'

25. 'physical activity interventions'

26. 'exercise interventions'

27. 'exercise intervention'

28. #14 OR #15 OR #16 OR #17 OR #18 OR #19 OR #20 OR #21 OR #22 OR #23 OR #24 OR #25 OR #26 OR #27

29. #1 AND #13 AND #28

30. #29 NOT ([animals]/lim NOT [humans]/lim)

31. #30 AND [embase]/lim

Appendix 3. CENTRAL

The Cochrane Library search:

1. MeSH descriptor: [Breast Neoplasms] explode all trees

2. breast near cancer* or breast near neoplasm* or breast near carcinoma* or breast near tumour* or breast near tumor*

3. #1 or #2

4. (metastatic or advance) and (breast cancer or breast neoplasm or breast carcinoma or breast tumour or breast tumor)

5. #3 not #4

6. MeSH descriptor: [Exercise] explode all trees

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7. exercis*

8. MeSH descriptor: [Motor Activity] explode all trees

9. MeSH descriptor: [Sports] explode all trees

10. sport*

11. MeSH descriptor: [Resistance Training] explode all trees

12. training

13. fitness

14. physical activit*

15. physical activity intervention*

16. exercise intervention*

17. active

18. #6 or #7 or #8 or #9 or #10 or #11 or #12 or #13 or #14 or #15 or #16 or #17

19. #5 and #18

Appendix 4. WHO ICTRP

Basic searches:

1. Physical activity for women with breast cancer after adjuvant therapy

2. Breast cancer AND physical activit*

3. Breast cancer AND physical activity intervention*

4. Breast cancer AND exercise intervention*

Advanced searches:

1. Title: Physical activity for women with breast cancer after adjuvant therapy

Recruitment: ALL

2. Condition: breast cancer

Intervention: physical activit*

Recruitment: ALL

3. Condition: breast cancer

Intervention: physical activity intervention*

Recruitment: ALL

4. Condition: breast cancer

Intervention: exercise intervention*

Recruitment: ALL

Appendix 5. Clinicaltrials.gov

Basic searches:

1. Physical activity for women with breast cancer after adjuvant therapy

2. Breast cancer AND physical activity

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3. Breast cancer AND physical activities

4. Breast cancer AND physical activity intervention

5. Breast cancer AND physical activity interventions

6. Breast cancer AND exercise intervention

7. Breast cancer AND exercise interventions

Advanced searches:

1. Title: breast surgery for metastatic breast cancer

Recruitment: All studies

Study Results: All studies

Study Type: All studies

Gender: All studies

2. Condition: breast cancer NOT (advanced breast cancer OR metastatic breast cancer)

Intervention: physical activity intervention OR exercise intervention physical activity interventions OR exercise interventions

Recruitment: All studies

Study Results: All studies

Study Type: All studies

Gender: All studies

3. Condition: breast cancer NOT (advanced breast cancer OR metastatic breast cancer)

Intervention: physical activity OR physical activities

Recruitment: All studies

Study Results: All studies

Study Type: All studies

Gender: All studies

Appendix 6. CINAHL

EBSCOhost search:

S1. (MH "Clinical Trials+")

S2. PT Clinical trial

S3. TX clinic* n1 trial*

S4. TX ((singl* n1 blind*) or (singl* n1 mask*)) or TX ((doubl* n1 blind*) or (doubl* n1 mask*)) or TX ((tripl* n1 blind*) or (tripl* n1 mask*)) or TX ((trebl* n1 blind*) or (trebl* n1 mask*))

S5. TX randomi* control* trial*

S6. (MH "Random Assignment")

S7. TX random* allocat*

S8. TX placebo*

S9. (MH "Placebos")

S10. (MH "Quantitative Studies")

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S11. TX allocat* random*

S12. S1 or S2 or S3 or S4 or S5 or S6 or S7 or S8 or S9 or S10 or S11

S13. (MH "Breast Neoplasms+")

S14. "breast cancer"

S15. "breast neoplasm"

S16. "breast carcinoma"

S17. "breast tumour"

S18. "breast tumor"

S19. S13 OR S14 OR S15 OR S16 OR S17 OR S18

S20. "metastatic breast cancer"

S21. "metastatic breast neoplasm"

S22. "metastatic breast carcinoma"

S23. "metastatic breast tumour"

S24. "metastatic breast tumor"

S25. "advanced breast cancer"

S26. "advanced breast neoplasm"

S27. "advanced breast carcinoma"

S28. "advanced breast tumour"

S29. "advanced breast tumor"

S30. S20 OR S21 OR S22 OR S23 OR S24 OR S25 OR S26 OR S27 OR S28 OR S29

S31. S19 NOT S30

S32. (MH "Exercise+")

S33. "exercis*"

S34. (MH "Motor Activity+")

S35. (MH "Sports+")

S36. "sport*"

S37. (MH "Resistance Training")

S38. "training"

S39. "fitness"

S40. (MH "Physical Activity")

S41. "physical activit*"

S42. "physical activity intervention*"

S43. "exercise intervention*"

S44. "active"

S45. S32 OR S33 OR S34 OR S35 OR S36 OR S37 OR S38 OR S39 OR S40 OR S41 OR S42 OR S43 OR S44

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S46. S12 AND S31 AND S45

Appendix 7. PEDro

1. Abstract & Title: breast cancer AND physical activity

Method: clinical trial

2. Abstract & Title: breast cancer AND exercise

Method: clinical trial

3. Abstract & Title: breast cancer AND physical activity intervention

Method: clinical trial

4. Abstract & Title: breast cancer AND exercise intervention

Method: clinical trial

5. Abstract & Title: breast cancer AND resistance training

Method: clinical trial

6. Abstract & Title: breast cancer AND strength training

Method: clinical trial

7. Abstract & Title: breast cancer AND weight lifting

Method: clinical trial

Appendix 8. SPORT Discus

EBSCOhost search:

S1. randomized

S2. placebo

S3. randomly

S4. randomized controlled trial

S5. controlled clinical trial

S6. random*

S7. S1 OR S2 OR S3 OR S4 OR S5 OR S6

S8. breast cancer OR breast neoplasm OR breast carcinoma OR breast tumour OR breast tumor

S9. (metastatic or advance) AND (breast cancer OR breast neoplasm OR breast carcinoma OR breast tumour OR breast tumor)

S10. S8 NOT S9

S11. exercis* OR sport* OR training OR fitness OR physical activit* OR physical activity intervention* OR exercise intervention* OR active OR resistance training OR strength training OR weight lifting

S12. S7 AND S10 AND S11

Appendix 9. PsycINFO

	Searches
1	exp Treatment Effectiveness Evaluation/

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(Continued)

2	exp Treatment Outcomes/
3	exp Placebo/
4	exp Followup Studies/
5	placebo*.mp.
6	random*.mp.
7	comparative stud*.mp.
8	(clinical adj3 trial*).mp.
9	(research adj3 design).mp.
10	(evaluat* adj3 stud*).mp.
11	(clinical adj3 trial*).mp.
12	(research adj3 design).mp.
13	(evaluat* adj3 stud*).mp.
14	(prospectiv* adj3 stud*).mp.
15	((singl* or doubl* or trebl* or tripl*) adj3 (blind* or mask*)).mp.
16	1 or 2 or 3 or 4 or 5 or 6 or 7 or 8 or 9 or 10 or 11 or 12 or 13 or 14 or 15
17	exp Breast Neoplasms/
18	(breast adj6 cancer$).mp.
19	(breast adj6 neoplasm$).mp.
20	(breast adj6 carcinoma$).mp.
21	(breast adj6 tumour$).mp.
22	(breast adj6 tumor$).mp.
23	17 or 18 or 19 or 20 or 21 or 22
24	((metastatic or advance*) and (breast cancer* or breast neoplasm* or breast carcinoma* or breast tumour* or breast tumor*)).af.
25	23 not 24
26	(exercis* or resistance training or training or fitness or physical activit* or physical activity intervention* or exercise intervention* or active).mp.
27	exp Exercise/ or exp Aerobic Exercise/ or exp Physical Activity/ or exp Training/ or exp Physical Fitness/
28	26 or 27

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(Continued)

29	16 and 25 and 28
30	Animals/ not Humans/
31	29 not 30

CONTRIBUTIONS OF AUTHORS

- Drafting the protocol: IML, GSM, ANM, ARC.
- Selecting studies: IML, GSM.
- Extracting data from studies: IML, GSM.
- Entering data into RevMan: IML.
- Carrying out the analysis: IML, GSM, ANM.
- Interpreting the analysis: IML, GSM, ANM.
- Drafting the final review: IML, GSM, ANM, ARC.
- Resolving disagreements: ANM, ARC.
- Updating the review: IML, GSM.

DECLARATIONS OF INTEREST

None known.

SOURCES OF SUPPORT

Internal sources

- No support provided, UK.

External sources

- No support provided, UK.

DIFFERENCES BETWEEN PROTOCOL AND REVIEW

Review authors did not perform planned analysis of effects of physical activity on blood biomarkers because we considered these outcomes to be beyond the scope of the current review, and because the prognostic value of blood biomarkers for breast cancer populations remains uncertain (Ballard-Barbash 2012). We originally planned to conduct a subgroup analysis by treatment regimen (chemotherapy vs no chemotherapy). However, the numbers of trials conducted with patients who had not undergone chemotherapy were insufficient for performance of this analysis.

INDEX TERMS

Medical Subject Headings (MeSH)

*Exercise; *Resistance Training; Anxiety [therapy]; Breast Neoplasms [psychology] [*therapy]; Chemotherapy, Adjuvant; Depression [therapy]; Fatigue [etiology]; Physical Fitness; Prognosis; Quality of Life; Radiotherapy, Adjuvant

MeSH check words

Female; Humans

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