

## Appendix 6.4 Physical therapy

| Study  | Inclusion/exclusion criteria and diagnosis of FS  |  |                | Participant characteristics (age, sex, diabetes)  | Condition-related characteristics (duration and stage of FS, previous treatments, secondary FS)   |
|--|---|--|----------------|---|---|
| <p><b>Diercks 2004</b><sup>73</sup><br/>Controlled trial<br/><i>Country, setting and treatment provider:</i><br/>Netherlands; NR</p>   | <p><i>Inclusion criteria:</i> Idiopathic FS diagnosed between January 1997 and January 2001; the Lundberg criteria were used (&gt;50% motion restriction of the glenohumeral joint in all directions for at least 3 months)</p> <p><i>Exclusion criteria:</i> Patients with significant injury to the ipsilateral shoulder or arm, with surgical procedures on the shoulder, arm, cervical spine, thorax or breast within the previous 2 years or with intra-articular deformities, degenerative arthritis, inflammatory arthritis or diabetes mellitus were excluded</p> <p><i>Method of diagnosis:</i> Glenohumeral joint movement was measured using a Cybex inclinometer</p> <p><i>Terminology used:</i> FS</p> |  |                | <p><i>Age (years), mean (SD):</i> Supervised neglect: 50 (6); PT: 51 (7)</p> <p><i>Female:</i> 61%</p> <p><i>Any participants with diabetes?</i> No</p> | <p><i>Duration of FS at baseline (months), ?mean (range):</i><br/>Supervised neglect: 5 (3 to 12); PT: 5 (3 to 10)</p> <p><i>Stage of FS at baseline:</i> NR</p> <p><i>Previous treatments for FS:</i> NR</p> <p><i>Participants with secondary FS:</i> None reported</p> |
| <b>Intervention 1</b>  | <b>Intervention 2</b>   | <b>Intervention 3</b>  | <b>Control</b> | <b>Concomitant treatment and details of home exercise</b>   |   |
| <p><i>PT:</i> Patients were prescribed a standardised treatment protocol, carried out by a physical therapist, of active exercises up to and beyond the pain threshold, passive stretching and manipulation of the glenohumeral joint and home exercises aimed at stretching and maximal reaching. Duration was not reported</p> <p><i>Home exercise</i></p> |   | <p><i>Supervised neglect:</i> Patients were provided with an explanation of the natural course of the disease and were instructed not to exercise in excess of their pain threshold and to carry out pendulum exercises and active exercises within this painless range and resume all activities that were tolerated. Duration was not reported</p> <p><i>Home exercise</i></p> |                | <p>NSAIDs or analgesics were prescribed to both groups where necessary</p>  |   |

| Study   | Inclusion/exclusion criteria and diagnosis of FS   |                       |                | Participant characteristics (age, sex, diabetes)   | Condition-related characteristics (duration and stage of FS, previous treatments, secondary FS)  |
|---|--|-----------------------|----------------|--|--|
| <p><b>Dogru 2008</b><sup>51</sup></p> <p>RCT</p> <p><i>Country, setting and treatment provider:</i><br/>Turkey; outpatient clinic</p>   | <p><i>Inclusion criteria:</i> Shoulder pain of at least 3 months' duration and no major trauma; at least 25% loss of shoulder motion in all planes; pain on motion of at least 40 mm on VAS; normal findings on radiograph of the glenohumeral joint; absence of arthritis, malignancy and conditions such as cardiac disease, infection and coagulation disorders</p> <p><i>Exclusion criteria:</i> Secondary adhesive capsulitis due to rotator cuff tears, fractures, dislocations and reflex sympathetic dystrophy</p> <p><i>Method of diagnosis:</i> Routine systemic and neurological examination and measurement of active and passive range of movement. Passive range of movement was measured in all planes with a long-arm goniometer while patient supine. Complete blood count, erythrocyte sedimentation rate and routine biochemical analysis for exclusion of secondary factors. Shoulder radiographs were taken</p> <p><i>Terminology used:</i> Adhesive capsulitis</p> |                       |                | <p><i>Age (years), mean (?SD):</i> Total: 55.4 (7.6); ultrasound + PT: 53.9 (7.8); sham ultrasound + PT: 56.8 (7.3)</p> <p><i>Female:</i> 57%</p> <p><i>Any participants with diabetes?</i><br/>Yes. Total: n = 18 (37%); ultrasound + PT: n = 8 (32%); sham ultrasound + PT: n = 10 (42%)</p> | <p><i>Duration of FS at baseline (months), mean (?SD, range):</i><br/>Total: 5.7 (3.3, 3 to 12); ultrasound + PT: 6.3 (3.5); sham ultrasound + PT: 5.2 (2.9)</p> <p><i>Stage of FS at baseline:</i> NR</p> <p><i>Previous treatments for FS:</i> NR</p> <p><i>Participants with secondary FS:</i> None</p> |
| <b>Intervention 1</b>   | <b>Intervention 2</b>  | <b>Intervention 3</b> | <b>Control</b> | <b>Concomitant treatment and details of home exercise</b>  |  |
| <p><i>Ultrasound + PT:</i> 10 daily sessions of 50 minutes over 2 weeks (no treatment at weekends). Each session consisted of 20 minutes of superficial heat (heat packs at 60°C), 10 minutes of ultrasound (3MHz frequency and 1.5W/cm<sup>2</sup> intensity) and a 20-minute exercise programme (Codman's exercises and wall climbing followed by glenohumeral joint stretching exercises to the patient's tolerance)</p> <p><i>Home exercise</i></p> | <p><i>Sham ultrasound + PT:</i> Same as ultrasound intervention except the ultrasound machine was not switched to 'on'</p> <p><i>Home exercise</i></p>   |                       |                | <p>Paracetamol, maximum of 1000 mg/day</p> <p><i>Home exercise:</i> A daily exercise programme consisting of Codman's exercises, active ROM and stretching exercises</p>   |  |

| Study   | Inclusion/exclusion criteria and diagnosis of FS  |                              |                       | Participant characteristics (age, sex, diabetes)   | Condition-related characteristics (duration and stage of FS, previous treatments, secondary FS)  |
|---|---|------------------------------|-----------------------|--|--|
| <p><b>Dundar 2009<sup>74</sup></b><br/>RCT<br/><i>Country, setting and treatment provider:</i> Turkey; ?hospital</p>  | <p><i>Inclusion criteria:</i> FS patients with gradually increasing shoulder pain and stiffness (painful phase and stiff phase)</p> <p><i>Exclusion criteria:</i> Patients with rotator cuff pathology or those with secondary FS or stiff shoulder associated with a fracture, arthritis, abnormal shoulder radiographs or any significant trauma were excluded</p> <p><i>Method of diagnosis:</i> Diagnosis was made on the basis of history, physical examination, radiography findings and, occasionally, magnetic resonance imaging, by specialists in physical medicine and rehabilitation. All patients had radiography of the shoulder joint</p> <p><i>Terminology used:</i> FS</p> |                              |                       | <p><i>Age (years), mean (SD):</i> Continuous passive motion: 56.3 (7.8); conventional PT: 57.1 (8.3)</p> <p><i>Female:</i> 68%</p> <p><i>Any participants with diabetes?</i> Unclear/NR</p>  | <p><i>Duration of FS at baseline (months), mean (SD):</i> Continuous passive motion: 6.3 (4.2); conventional PT: 5.9 (4.0)</p> <p><i>Stage of FS at baseline:</i> Patients with phase 1 and/or phase 2 FS were included</p> <p><i>Previous treatments for FS:</i> NR</p> <p><i>Participants with secondary FS:</i> None reported</p> |
| <p><b>Intervention 1</b></p> <p><i>Continuous passive motion:</i> Treatments involved a gradual increase in motion for 1 hour per day for 20 days over 4 weeks (5 days per week) using an external motorised device</p> <p><i>Home exercise</i></p> | <p><b>Intervention 2</b></p> <p><i>Conventional PT:</i> Daily physiotherapy by a physiotherapist involving active stretching and pendulum exercises for 1 hour per day for 20 days over 4 weeks (5 days per week)</p> <p><i>Home exercise</i></p>   | <p><b>Intervention 3</b></p> | <p><b>Control</b></p> | <p><b>Concomitant treatment and details of home exercise</b></p> <p>No NSAIDs or other analgesics allowed. A 1-week washout period was required before therapy</p> <p><i>Home exercise:</i> A standardised home exercise programme of passive range of movement and pendulum exercise every day until week 12. This was demonstrated by a physiotherapist on one occasion and written advice was given</p> |  |
| Study   | Inclusion/exclusion criteria and diagnosis of FS  |                              |                       | Participant characteristics (age, sex, diabetes)   | Condition-related characteristics (duration and stage of FS, previous treatments, secondary FS)  |
| <p><b>Leung 2008<sup>75</sup></b><br/>RCT<br/><i>Country, setting and treatment provider:</i> Hong Kong; NR</p>   | <p><i>Inclusion criteria:</i> Patients with idiopathic FS who experienced shoulder pain and limited shoulder movement for at least 8 weeks</p> <p><i>Exclusion criteria:</i> Patients with history of trauma to the shoulder, acute signs of shoulder inflammation and intrinsic shoulder pathology; patients with impaired sensation of hot and cold; pregnant patients; patients taking analgesic or anti-inflammatory drugs, with metal implants or with a cardiac pacemaker</p> <p><i>Method of diagnosis:</i> Diagnosis made by orthopaedic surgeon</p> <p><i>Terminology used:</i> FS</p>   |                              |                       | <p><i>Age (years), mean (SD):</i> SWD + stretching: 59.8 (12.9); heat pack + stretching: 62.5 (12.1); stretching only: 57.3 (13.1)</p> <p><i>Female:</i> 70%</p> <p><i>Any participants with diabetes?</i> Unclear/NR</p>  | <p><i>Duration of FS at baseline:</i> NR</p> <p><i>Stage of FS at baseline:</i> Stiff phase</p> <p><i>Previous treatments for FS:</i> NR</p> <p><i>Participants with secondary FS:</i> None reported</p>   |

| Intervention 1   | Intervention 2   | Intervention 3  | Control   | Concomitant treatment and details of home exercise                                      |
|--|--|---|---|---|
| <p><i>SWD + stretching:</i> Treatment was 3×20-minute sessions per week for 4 weeks. SWD machine with an operating frequency of 27.12 MHz was used. Patients sat on a wooden chair with back and affected arm supported and a pair of disc electrodes were placed on the affected glenohumeral joint. The intensity of the current was adjusted according to the patient's subjective feeling of warmth and to maintain the feeling of comfortable warmth throughout. Immediately after heat treatment four stretching exercises were performed in a fixed sequence (stretching in external rotation and in flexion followed by stretching hand behind back and cross-body adduction). Each stretch was sustained for 30 seconds with a 10-second rest between stretches</p> <p><i>Home exercise</i></p> | <p><i>Heat pack + stretching:</i> Superficial heat was delivered using an electrical heat pack (35.5×68.5 cm). The temperature was set to 63°C but patients were informed that heating was to produce a feeling of comfortable warmth and if the heat was felt to be excessive this was adjusted. Stretching exercises as for SWD</p> <p><i>Home exercise</i></p>  |   | <p><i>No intervention:</i> Home exercise only</p>   | <p><i>Home exercise:</i> Patients were asked to perform stretches at home every day</p> |
| Study  | Inclusion/exclusion criteria and diagnosis of FS   | Participant characteristics (age, sex, diabetes)  | Condition-related characteristics (duration and stage of FS, previous treatments, secondary FS)   |   |
| <p><b>Maricar 1999<sup>76</sup></b></p> <p>RCT</p> <p><i>Country, setting and treatment provider:</i> Singapore; NR</p>  | <p><i>Inclusion criteria:</i> Major complaint of limitation in shoulder range of movement with secondary complaint of pain; able to place arms behind head and back reaching vertebral column; 90-degree abduction</p> <p><i>Exclusion criteria:</i> History of previous shoulder trauma or previous episode of FS; existing or previous diagnosis of several other conditions (detailed in paper) including uncontrolled diabetes</p> <p><i>Method of diagnosis:</i> Diagnosis (late stage 2 to stage 3) determined by the research physiotherapist. Radiographs were also reviewed</p> <p><i>Terminology used:</i> FS; shoulder capsulitis</p> | <p><i>Age (years), mean (SD):</i> Manual therapy + exercise: 57.9 (9.5); exercise only: 54.9 (5.4)</p> <p><i>Female:</i> 41%</p> <p><i>Any participants with diabetes?</i> Unclear/NR</p> | <p><i>Duration of FS at baseline:</i> Average duration for both groups: 3 months (two patients in each group had onset between 6 months and &lt; 2 years)</p> <p><i>Stage of FS at baseline:</i> Late stage 2 or stage 3</p> <p><i>Previous treatments for FS:</i> NR</p> <p><i>Participants with secondary FS:</i> None reported</p> |   |

| Intervention 1  | Intervention 2   | Intervention 3   | Control   | Concomitant treatment and details of home exercise  |
|---|--|--|---|---|
| <p><i>Manual therapy + exercise:</i> Manual therapy (mobilisation of the shoulder quadrant, shoulder capsular stretch, shoulder flexion, shoulder abduction, shoulder external and internal rotation using Maitland grade III+ and IV) for eight weekly sessions. A 15-minute exercise circuit of nine exercises was also performed (including a strengthening regime for the rotator cuff muscles from week 5 onwards)</p> <p><i>Home exercise</i></p>   | <p><i>Exercise only:</i> A 15-minute exercise circuit of nine exercises (including a strengthening regime for the rotator cuff muscles from week 5 onwards)</p> <p><i>Home exercise</i></p>  |  |   | <p><i>Home exercise:</i> Home exercises were taught by a research physiotherapist and exercise sheets issued</p>  |
| Study   | Inclusion/exclusion criteria and diagnosis of FS   | Participant characteristics (age, sex, diabetes)   |   | Condition-related characteristics (duration and stage of FS, previous treatments, secondary FS)   |
| <p><b>Pajareya 2004<sup>77</sup></b><br/>RCT</p> <p><i>Country, setting and treatment provider:</i> Thailand; hospital based; therapy delivered by three physiotherapists whose performance had been standardised</p>   | <p><i>Inclusion criteria:</i> Shoulder pain and limitation of a passive range of shoulder motion in all directions that interfered with activities of daily living; attendance at the orthopaedic and rehabilitation clinic at Siriraj Hospital</p> <p><i>Exclusion criteria:</i> Secondary adhesive capsulitis; intrinsic or extrinsic causes of shoulder problems; generalised arthritis; bilateral involvement; contraindications for NSAIDs; bleeding tendencies</p> <p><i>Method of diagnosis:</i> NR</p> <p><i>Terminology used:</i> Adhesive capsulitis</p> | <p><i>Age (years), mean (SD):</i> PT: 56.3 (10.6); standard care: 57.7 (10)</p> <p><i>Female:</i> 68%</p> <p><i>Any participants with diabetes?</i><br/>Yes. Total: <i>n</i> = 20; PT: <i>n</i> = 10 (16.7%); standard care: <i>n</i> = 10 (16.7%)</p> |   | <p><i>Duration of FS at baseline:</i> PT: &lt; 6 weeks: <i>n</i> = 13; 6 to &lt; 12 weeks: <i>n</i> = 20; at least 12 weeks: <i>n</i> = 27; standard care: &lt; 6 weeks: <i>n</i> = 6; 6 to &lt; 12 weeks: <i>n</i> = 20; at least 12 weeks: <i>n</i> = 33</p> <p><i>Stage of FS at baseline:</i> NR</p> <p><i>Previous treatments for FS:</i> NR</p> <p><i>Participants with secondary FS:</i> Unclear/NR; 47% reported history of minor trauma before onset</p> |
| Intervention 1  | Intervention 2   | Intervention 3   | Control   | Concomitant treatment and details of home exercise  |
| <p><i>PT:</i> Three times per week for 3 weeks consisting of SWD (20 minutes), mobilisation and passive glenohumeral joint stretching exercises to the patient's tolerance. On non-PT days patients were advised to perform pulley exercises (actively assisted exercises for 5 minutes) and active non-assisted exercises using a towel and wall (5 minutes after applying a heat pack for 20 minutes). The exercise guideline was based on Cyriax. Exercise was contraindicated if the patient felt pain with the passive movements before the end of the range</p> |  |  | <p><i>No intervention:</i> Information only</p> | <p>Ibuprofen (400 mg, three times daily, for 3 weeks)</p> <p>Patients were asked not to have any adjuvant therapy except oral paracetamol (up to 6 g/day)</p> <p>An information sheet advising on protection of the shoulder from vigorous activities was also given. Patients were encouraged to use their arms in a normal fashion for other activities of daily living</p>   |

| Study   | Inclusion/exclusion criteria and diagnosis of FS   |                       |   | Participant characteristics (age, sex, diabetes)   | Condition-related characteristics (duration and stage of FS, previous treatments, secondary FS)   |
|---|--|-----------------------|---|--|---|
| <p><b>Stergioulas 2008<sup>16</sup></b><br/>RCT<br/><i>Country, setting and treatment provider:</i> Greece; Peania Physical Therapy Centre; physiotherapists performed treatment</p>  | <p><i>Inclusion criteria:</i> Painful and limited passive glenohumeral mobility; more restricted lateral rotation (&lt; 8%) relative to abduction and medial rotation; no clear signs that shoulder pain was caused by another condition</p> <p><i>Exclusion criteria:</i> Insulin-dependent diabetes; bilateral symptoms; systemic inflammatory joint disease; corticosteroid or physiotherapy treatment in preceding 6 months; surgery, dislocation or fracture/s of shoulder; calcification of the shoulder joint; complete rotator cuff tear</p> <p><i>Method of diagnosis:</i> History of limited movement of glenohumeral joint, with pain at the available range of motion. Clinical history</p> <p><i>Terminology used:</i> FS</p>   |                       |   | <p><i>Age (years), mean (SD):</i> Laser: 55.5 (5.8); sham laser: 56.8 (6.8)</p> <p><i>Female:</i> 37%</p> <p><i>Any participants with diabetes?</i> Unclear/NR</p>   | <p><i>Duration of FS at baseline (weeks/months??), mean (?SD):</i> Laser: 26.5 (12.8); placebo: 27.1 (13.6)</p> <p><i>Stage of FS at baseline:</i> NR</p> <p><i>Previous treatments for FS:</i> NR</p> <p><i>Participants with secondary FS:</i> Unclear/NR</p>   |
| <b>Intervention 1</b>   | <b>Intervention 2</b>  | <b>Intervention 3</b> | <b>Control</b>  | <b>Concomitant treatment and details of home exercise</b>  |   |
| <p><i>Laser therapy:</i> 3B Laser M1 1000 (a Ga-Al-As laser) applied around shoulder joint (810 nm, continuous mode, 60 mW, spot size 0.5 cm<sup>2</sup>, duty cycle 50%, 3.6 J/cm<sup>2</sup>) for 30 seconds over 8 weeks (12 sessions; two per week in the first 4 weeks, then one per week). Dose per point was 1.8 J; total dose/session 14.4 J.</p> <p><i>Home exercise</i></p> |  |                       | <p><i>Placebo laser:</i> Placebo laser that appeared identical to active laser was used for the same regimen as active laser (12 sessions over 8 weeks; two per week in the first 4 weeks, then one per week)</p> <p><i>Home exercise</i></p> |  | <p>Not reported</p> <p><i>Home exercise:</i> Patients were instructed to perform pendulum and pain-free active exercises at home</p>  |
| Study   | Inclusion/exclusion criteria and diagnosis of FS   |                       |   | Participant characteristics (age, sex, diabetes)   | Condition-related characteristics (duration and stage of FS, previous treatments, secondary FS)   |
| <p><b>Vermeulen 2006<sup>40</sup></b><br/>RCT<br/><i>Country, setting and treatment provider:</i> Netherlands; outpatient clinic of Department of Physical Therapy at Leiden University Medical Centre; physical therapists performed treatment</p>   | <p><i>Inclusion criteria:</i> ≥ 50% loss of passive movement of shoulder joint relative to non-affected side, in one or more of three movement directions (abduction in frontal plane, forward flexion or external rotation); duration of complaints of ≥ 3 months; ability to complete questionnaires in Dutch</p> <p><i>Exclusion criteria:</i> Previous MUA of the affected shoulder; other conditions involving the shoulder (e.g. rheumatoid arthritis, osteoarthritis, damage of the glenohumeral cartilage, Hill–Sachs lesion, osteoporosis, malignancies in the shoulder region); neurological deficits affecting shoulder function in normal daily activities; pain or disorders of the cervical spine, elbow, wrist or hand; and injection with corticosteroid in the affected shoulder in the preceding 4 weeks</p> <p><i>Method of diagnosis:</i> NR</p> <p><i>Terminology used:</i> Adhesive capsulitis</p> |                       |   | <p><i>Age (years), mean (SD):</i> HGMT: 51.6 (7.6); LGMT: 51.7 (8.6)</p> <p><i>Female:</i> 66%</p> <p><i>Any participants with diabetes?</i> Yes. Total: <i>n</i> = 16; HGMT: <i>n</i> = 8 (16%); LGMT: <i>n</i> = 8 (16%)</p> | <p><i>Duration of FS at baseline (months), mean (range):</i> HGMT: 8 (5 to 14.5); LGMT: 8 (6 to 14)</p> <p><i>Stage of FS at baseline:</i> NR</p> <p><i>Previous treatments for FS:</i> Previous PT: HGMT: <i>n</i> = 39 (79%), LGMT: <i>n</i> = 42 (82%); previous steroid injections: HGMT: <i>n</i> = 32 (65%), LGMT: <i>n</i> = 29 (57%); previous surgery: HGMT: <i>n</i> = 3 (6%), LGMT: <i>n</i> = 3 (6%)</p> <p><i>Participants with secondary FS:</i> No</p> |

| Intervention 1  | Intervention 2   | Intervention 3 | Control | Concomitant treatment and details of home exercise  |
|---|--|----------------|---------|---|
| <p><i>HGMT</i>: One 30-minute session twice weekly for a maximum of 12 weeks consisting of 5-minute assessment of range of movement by performing all three physiological movements of the glenohumeral joint passively. At each position of the shoulder, the end-feel movement was assessed in order to apply the mobilisation technique into the stiffness zone. Mobilisation techniques were applied with intensities according to Maitland grades III and IV. The duration of prolonged stress on the shoulder capsule in the end-range position varied according to the participant's tolerance. Participants were instructed to inform the therapist about the degree and nature of the pain during and after treatment. If the pain influenced the execution of mobilisation techniques by increasing the reflex muscle activity, then the therapist altered the direction or degree of mobilisation. If pain worsened or continued for more than 4 hours the intensity of the mobilisation technique was decreased in the next session</p> | <p><i>LGMT</i>: One 30-minute session twice weekly for a maximum of 12 weeks consisting of 5-minute assessment of range of movement by performing all three physiological movements of the glenohumeral joint passively. At each position of the shoulder, the end-feel movement was assessed in order to apply the mobilisation technique within the pain-free zone. Participants were informed that all techniques should be performed without causing pain in the shoulder. Mobilisation techniques were performed according to Maitland grades I and II. Reflex muscle activity was monitored for indications of joint pain. If joint mobility increased, then mobilisation techniques were adjusted, and the amplitudes of movements were increased without reaching the limits of range of movement. For the last 3 minutes of each treatment passive proprioceptive neuromuscular facilitation patterns within the pain-free zone in the supine position were applied. Codman pendular exercises were performed for 2 minutes in a prone position</p> |                |         | <p>Pain medication, prescribed and non-prescribed, was allowed. No other concomitant treatments for FS, including intra-articular corticosteroid injections into any joint, were allowed in the first 3 months</p> <p><i>Home exercise</i>: Neither treatment group received a home exercise programme but both were advised to use the affected shoulder in daily activities whenever possible</p> |

| Study   | Inclusion/exclusion criteria and diagnosis of FS  | Participant characteristics (age, sex, diabetes)  | Condition-related characteristics (duration and stage of FS, previous treatments, secondary FS)  |  |
|---|---|---|--|--|
| <p><b>Yang 2007<sup>78</sup></b><br/>RCT</p> <p><i>Country, setting and treatment provider:</i> Taiwan; therapy delivered by a single physical therapist with 8 years' experience in manual therapy</p> <p><i>Note:</i> Because of limitations in the study design and data reported, only data comparing ERM + MRM with MWM + MRM at 6 weeks were extracted</p>  | <p><i>Inclusion criteria:</i> Painful stiff shoulder for at least 3 months; range of movement losses of at least 25% compared with the non-involved shoulder in at least two of glenohumeral flexion, abduction or medial or lateral rotation</p> <p><i>Exclusion criteria:</i> Diabetes mellitus, history of surgery on relevant shoulder, rheumatoid arthritis, painful stiff shoulder after severe trauma, fracture of shoulder complex, rotator cuff rupture, tendon calcification</p> <p><i>Method of diagnosis:</i> NR</p> <p><i>Terminology used:</i> FS</p> | <p><i>Age (years), mean (SD):</i><br/>ERM + MRM: 53.3 (6.5);<br/>MWM + MRM: 58 (10.1)</p> <p><i>Female:</i> 86%</p> <p><i>Any participants with diabetes?</i> No</p>                          | <p><i>Duration of FS at baseline (weeks), mean (SD):</i><br/>ERM + MRM: 18 (8); MWM + MRM: 22 (10)</p> <p><i>Stage of FS at baseline:</i> Stiff phase</p> <p><i>Previous treatments for FS:</i> NR</p> <p><i>Participants with secondary FS:</i> None reported</p> |  |
| <p><b>Intervention 1</b></p> <p><i>ERM + MRM:</i> Mobilisation techniques were given in the following order: MRM (Maitland<sup>809</sup> and Kaltenborn<sup>810</sup>) 10–15 repetitions, ERM (Vermeulen <i>et al.</i><sup>811</sup> and Maitland<sup>809</sup>) 10–15 repetitions, MRM (Maitland<sup>809</sup> and Kaltenborn<sup>810</sup>), MWM (Mulligan<sup>812</sup>) 3 sets of 10 repetitions. There were 3 weeks in each phase. Mobilisation techniques were performed twice per week for 30 minutes. A simple exercise programme comprising pendular exercises and scapular setting (isometric scapular retraction) was also given</p> | <p><b>Intervention 2</b></p> <p><i>MWM + MRM:</i> Mobilisation techniques were given in the following order: MRM (Maitland<sup>809</sup> and Kaltenborn<sup>810</sup>), MWM (Mulligan<sup>812</sup>), MRM (Maitland<sup>809</sup> and Kaltenborn<sup>810</sup>), ERM (Vermeulen <i>et al.</i><sup>811</sup> and Maitland<sup>809</sup>). Technique as for other group</p>   | <p><b>Intervention 3</b></p>  | <p><b>Control</b></p>  | <p><b>Concomitant treatment and details of home exercise</b></p> <p>No other interventions allowed (including other physical therapies)</p> <p><i>Home exercise:</i> Home exercise was discouraged</p> |
| Study   | Inclusion/exclusion criteria and diagnosis of FS  | Participant characteristics (age, sex, diabetes)  | Condition-related characteristics (duration and stage of FS, previous treatments, secondary FS)  |  |
| <p><b>Yan 2005<sup>72</sup></b><br/>RCT</p> <p><i>Country, setting and treatment provider:</i> China; primary care</p>  | <p><i>Inclusion criteria:</i> 'Standard shoulder peri-arthritis diagnostic criteria in "Clinical pain therapy"'</p> <p><i>Exclusion criteria:</i> Patients with functional disability due to neural-, muscle- or bone-related diseases</p> <p><i>Method of diagnosis:</i> Clinical examination</p> <p><i>Terminology used:</i> FS</p>   | <p><i>Age (years), mean (SD):</i> Dumb-bell gymnastics: 56.6 (12.4); bare-handed exercise: 54.2 (11.6)</p> <p><i>Female:</i> 20%</p> <p><i>Any participants with diabetes?</i> Unclear/NR</p> | <p><i>Duration of FS at baseline (years), mean:</i> Dumb-bell gymnastics: 6.8; barehanded exercises: 5.8</p> <p><i>Stage of FS at baseline:</i> NR</p> <p><i>Previous treatments for FS:</i> NR</p> <p><i>Participants with secondary FS:</i> None stated</p>      |  |



| Intervention 1  | Intervention 2  | Intervention 3  | Control  | Concomitant treatment and details of home exercise  |
|---|---|---|--|---|
| <i>Dumb-bell gymnastics:</i> Exercises performed 5–10 minutes, two to three times a day for 3 months using dumb-bells weighing 2–5 kg | <i>Barehanded exercises:</i> Bare-handed exercises performed for 3 months   |   |  | NR  |
| Study   | Inclusion/exclusion criteria and diagnosis of FS  |   | Participant characteristics (age, sex, diabetes)   | Condition-related characteristics (duration and stage of FS, previous treatments, secondary FS)   |
| <b>Wies 2003</b> <sup>1</sup><br>RCT<br><i>Country, setting and treatment provider:</i> UK; NR  | <i>Inclusion criteria:</i> NR (all patients had been diagnosed with primary FS; confirmed through correspondence with author)<br><i>Exclusion criteria:</i> NR<br><i>Method of diagnosis:</i> NR<br><i>Terminology used:</i> FS |   | <i>Age:</i> NR<br><i>Female:</i> NR<br><i>Any participants with diabetes?</i> Unclear/NR | <i>Duration of FS at baseline:</i> NR<br><i>Stage of FS at baseline:</i> NR<br><i>Previous treatments for FS:</i> NR<br><i>Participants with secondary FS:</i> No |
| Intervention 1  | Intervention 2  | Intervention 3  | Control  | Concomitant treatment and details of home exercise  |
| <i>PT:</i> Physiotherapy consisting of manual therapy and therapeutic exercise for 9 weeks. No further details reported               | <i>Osteopathy technique:</i> The Niel-Asher technique, consisting of a progression of deep-tissue manipulation, for 9 weeks   | <i>Control:</i> Breathing exercises, effleurage massage and pain-free range of movement exercises for 9 weeks |  | NR  |

FS, frozen shoulder; NR, not reported; PT, physiotherapy.