BOOK REVIEWS

Keeping in time with your body clock


The book was difficult to access as it was very broad based and general and tended to be repetitive. It was difficult to identify the most suitable audience. Although it contained examples from research studies, no referencing to source material was included.

Rating
- Presentation 8/20
- Comprehensiveness 7/20
- Readability 10/20
- Relevance 10/20
- Evidence basis 8/20
- Total 43/100

M O'Brien

The practical guide to range of motion assessment


This text has been written as additional instruction to the American Medical Association guides to the evaluation of permanent impairment (5th edition, 2000), and Master the Guides (5th edition, 2001). Primarily for physicians, this text is also relevant to other healthcare professionals. The authors, who have a long standing association with issues relating to measurement of joint range of motion, aim to achieve greater accuracy and reliability of measurement by the use of standardised protocols, instrumentation, and reporting. This is a laudable goal as the patient’s range of motion and the expected normal range of motion are used with other measures as a basis for evaluation of percentage permanent impairment (American Medical Association, 1993). In countries adopting these impairment ratings, such measurements form a substantial component of the permanent disability compensation award, which translates directly into the dollar amount paid to the patient by a compensatory body.

The book is divided into two main sections. Part 1 describes principles for measurement of joint range of motion. Part 2 provides instructions for range of motion measurement of individual joints and spinal regions. In Part 1, sound recommendations are made for preparing the subject, both physically and psychologically. Information on factors and conditions that may be associated with altered motion are tabulated, and a list of possible warm up exercises included. Instructions are also provided to facilitate reliable identification of relevant spinal landmarks such as the spinous processes of T1, T12, and S2. A comparison is made of the two instruments mainly used for measurement of joint range of motion: the two arm (universal) goniometer and the gravity based inclinometer. However, despite the authors’ preference for the inclinometer, the two measurement instruments appear to share sources of error more closely than suggested. In this respect, although the “step by step” pictures aim to facilitate understanding of the measurement technique, the examiner sometimes appears to have been photographed to maximise the view of the inclinometer layout rather than the optimal examiner position. It can be appreciated that because of the possible sources of error outlined, the difference between a valid measure and an exercise in futility may be small with either instrument.

The SFTR system of recording developed by these authors is well described in the text and illustrated in accompanying tables. There may be some confusion for readers where currently accepted conventions for naming movements have been changed “for practical purposes”—for example, “upper ankle” joint (hind foot) planter and dorsiflexion, and “lower ankle” joint (hind foot) inversion and eversion. As the movements of the foot are complex, and often misunderstood, an approach consistent with the current literature should preferably have been maintained.

Part 2 of this book provides descriptions and clear photographic illustrations of techniques for the measurement of the range of spinal and peripheral joint motion. One of the key principles in measurement of range of joint motion is to exclude, wherever possible, movement of adjacent joints, often termed “trick movement”.

Thus it is pleasing to see in this text that spinal motion is measured using two inclinometers and tangents to the curve over the limit vertebra of the curve of interest.

Relevant landmarks for each anatomical segment are listed at the top of each page. However, it is not always easy to determine which of the landmarks in the series is pertinent to a particular movement. For those less familiar with measurement these landmarks may be better described for each individual joint motion.

Aiming for reproducibility, the authors recommend establishing a neutral or zero starting position of the joint with reference to gravity. Although this recording method clearly allows a variety of possible movement limitations, no suggestions are provided for adapting the method when the subject cannot adopt the neutral position—for example, in the wrist after Colles fracture or in cases of knee flexion contracture. In addition, for the measurement of some lower limb joints, the method described is not entirely practical. For example, during hip extension, all but the most athletic may have difficulty in adopting the optimal technique.

Another disadvantage of a standardised technique is that errors may occur if the examiner fails to fully comprehend the underlying principles. For example, the examiner may need to be made aware that the accuracy of measurement from a single inclinometer relies on the adjacent body segment (usually proximal) being either vertical or horizontal and remaining stationary during the movement. Thus for the new examiner, some instructions in the text for preventing likely “trick” movements during the test may be beneficial.

References reporting the reliability of “inclinometry” have been provided. However, as a “stand alone” text on measurement of joint motion, it is disappointing that the results of research supporting the measurement techniques described have not been included.

The goal of obtaining reliable and valid measurement of joint range of motion continues to present a challenge to the clinician and researcher alike. Multiple possible sources of error remain to be overcome. Overall, the authors have attempted to minimise measurement variability by providing standardised measurement processes. Unfortunately improved reproducibility may not always guarantee the validity of the measurement, which is relevant when the patient’s range of motion is compared with normative data for evaluation of impairment. It is recognised that it is difficult to develop a standardised measurement technique that adequately addresses all issues and can be applied to all joints and regions. Nevertheless, this book represents another step in the right direction.

Analysis
- Presentation 16/20
- Comprehensiveness 15/20
- Readability 15/20
- Relevance 16/20
- Evidence basis 10/20
- Total 72/100

E Tully

Science and soccer, 2nd edition


The editors are to be congratulated for their work in the field over the years represented in this text which has arisen from a series of World Congresses of Science and Football which began in 1987 in Liverpool. Unfortunately this also reveals a weakness in the limited pool of authors from which the text draws, the majority of whom list their professional addresses as Liverpool. As an Aussie with an AFL background, it may be a bit presumptuous of me to criticise those from the birthplace of the game (and the current home of a champion Australian player). However, bearing in mind recent international results, it is fair to assume that some sports science knowledge in soccer may