PostScript

LETTER

Anatomical location of athletic injuries during training: a prospective two year study in 2701 athletes

In a review of risk factors for lower extremity injury,[1] it was said that alignment of the hip, knee, and ankle has received substantial interest as a potential risk factor. We aimed to quantify the anatomical location of athletic injuries produced during training in order to confirm whether lower extremity injuries are the most common. A second aim was to detect if the knee was the most commonly injured anatomical site in the lower extremity.

We recorded the anatomical location of the training injuries of 2701 athletes in a prospective study (from January 2003 to January 2005). Written informed consent was obtained from the subjects. We studied athletes who trained a minimum of 10 hours a week. The mean (SD) age of the subjects was 39.62 (12.98) years (range 14–63).

We recorded the anatomical location of the injuries suffered exclusively while training; these numbered 781. The injuries were most often found in the lower extremities (n = 660; 84.5%), followed by the vertebral column (n = 58; 7.4%), the upper extremities (n = 44; 5.6%), the trunk (n = 14; 1.8%), and the head (n = 5; 0.6%).

In the lower extremities, the injuries were most often found in the knee (n = 234; 35.4%), followed by the ankle (n = 169; 25.6%), the foot (n = 124; 18.8%), the thigh (n = 70; 10.6%), the iliac region (n = 40; 6.1%), and the leg (n = 23; 3.5%). The injuries in the vertebral column were most often found in the lumbar region (n = 30; 51.7%), followed by the thoracic (n = 17; 29.3%) and cervical (n = 11; 19.0%) regions. In the upper extremities, the injuries were most often found in the shoulder (n = 19; 43.2%), followed by the forearm (n = 17; 38.6%), the arm (n = 13; 29.5%), and the hand (n = 4; 9.1%).

Therefore this study confirms that the knee is the most commonly injured anatomical site during athletic training.

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Reference

1 **Murphy DF**, Connoly DAJ, Beynnon BD. Risk factors for lower extremity injury: a review of the literature. *Br J Sports Med* 2003;**37**:13–29.

BOOK REVIEWS

Joint motion: clinical measurement and evaluation

Roger Soames. 182 illustrations: Published by Churchill Livingstone, 2003, £16.99, pp 216. ISBN 443058083

Over the past five years more than a dozen books have appeared on how to measure joint range of motion. One of the least expensive but most enjoyable of these is Roger Soames' handy guide to measuring joint motion aimed at the student, clinician, therapist, trainer, or anyone interested in measuring range of joint motion. Introductory chapters cover joint structure and function, joint flexibility and motion, and the principles of measurement. The main chapters describe how to measure the range of motion of the temporomandibular articulation and the joints of the pectoral girdle, vertebral column, and upper and lower extremities, including the hand and foot.

I enjoyed the many helpful line drawings and photographs that illustrate this small book and found them helpful. The drawings are usually self explanatory and make their points well. I admit, however, that even after 30 years of biomechanics research, I did occasionally have to puzzle over an occasional view until I spotted the salient anatomical clues. There are a few graphical inconsistencies. Cartilage surfaces are often, but not always, shown diagrammatically in colour. Likewise, joint motion is usually depicted by self explanatory arrows, but sometimes by an unexplained dash-dot line. The composition and quality of the many photographs are excellent. Indeed, some seem to burn themselves into one's visual memory, which should be helpful for students trying to remember the main points. Joint range of motion is, of course, measured clinically using a goniometer. Instead of cluttering his photographs with this unsightly device, the author wisely chose to describe how the goniometer is used to make the measurement in the accompanying text. As a practical point, I wondered how many different sizes of goniometer he feels he needs to measure motion accurately in joints varying in size from the distal interphalangeal joint to the hip joint.

I found the descriptions of the anatomical structures resisting movement of a joint in its end range useful, as were the tables showing the ranges of joint motion needed for different activities of daily living. A weakness, easily remedied, was the incomplete literature review describing how age affects joint range of motion in the elderly. A minor quibble involves the omission of age units throughout the text. An example is the section that first reports the knee range of motion in newborn children and then informs us that "by age 2 full extension is possible"—I had to guess whether that meant two weeks, months, or years. In summary, the strengths far outweigh any weaknesses, and this book should prove especially popular with students and those who measure joint range of motion on a daily basis.

Rating

• Presentation	16/20
• Comprehensiveness	14/20
• Readability	18/20
• Relevance	17/20
• Evidence basis	11/20
• Total	76/100

J A Ashton-Miller

The five minute sports medicine consult

Edited by Mark D Bracker. Published by Lippincott Williams & Wilkins, 2001, £53.00 (hardcover), pp 631. ISBN 0781730457

The idea for this book grew out of a weekly didactic lecture series on the Fellowship programme at the University of California, San Diego. Mark Bracker is the director of the programme, and he has assembled some 200 contributing authors to provide a potted summary of virtually all the common conditions seen in sports medicine practice.

Each chapter is in a stereotyped format; most occupy a two page spread. The entry includes basic definitions, epidemiological data, and mechanism of injury. Diagnostic aspects are logically divided into history, examination, and imaging. Then follows a brief description of acute and long term treatment, plus commonly asked questions. Each chapter concludes with a listing of the ICD-9 code plus a brief bibliography.

What about the content? I chose several common topics to check on this. Patellofemoral pain is the most common clinical problem in most sports medicine practices. The entry in this book tends to overemphasise imaging (most cases require absolutely none and this should be stated). It mentions McConnell taping and exercises, but also mentions surgery. Most experts in this part of the world would only consider surgery if there was an associated patellar instability problem. The entry on concussion still mentions grading, which reflects the fact that it was compiled before the 2001 Vienna consensus conference, which abandoned this concept. There is no mention of the specific Maddock's questions that have been well validated in evaluation of acute concussion. Adductor strains are common in many sports. There is no mention of ultrasound or MRI scans in the evaluation of complex groin problems, in which adductor tendinopathy may be only part of the problem. Navicular stress fractures are covered in a succinct and accurate manager, incorporating standard management guidelines. Plantar fascia problems are generally well covered, but there is