

PostScript

LETTER

Quadriceps assessment in professional soccer players

Clinical examination of the knee involves eliciting certain signs that may indicate the presence of knee pathology. One such is quadriceps wasting. This occurs most commonly as the result of disuse or from a painful or unstable lesion of the knee.

Comparing the circumference of the thighs at a set level above the patella is the standard method of testing for atrophy.^{1,2} This, however, assumes that the thighs are normally of equal circumference.³

It has been noted by the senior author (GCB) that, in children, the non-kicking leg seemed often to be larger than the other. We aimed to test this observation in a prospective study of a group of professional soccer players.

Patients and methods

A population of 38 players took part in the study, all from professional clubs in Edinburgh. None had a recent injury.

All the participants had both thigh circumferences measured at a point 15 cm above the proximal pole of the patella. In each case the subject was standing and the quadriceps relaxed. The trial was blinded in that the investigator making the measurements did not know which foot was predominant. To minimise error, all measurements were carried out by one investigator. The foot preference of each player was recorded on a sliding scale and later converted into a percentage. All expressed a preference for one foot over the other.

Results

Complete data were available for 38 players. Of those with a preference for their right foot, 95% (n = 20) had a larger left thigh (range 1.5–2 cm). The difference was less striking in the group with left foot preference, with 62.5% (n = 8) having a larger right thigh (range 1.5–2 cm).

These differences were analysed using the Wilcoxon signed rank test (Minitab Release 12.21: www.minitab.com). The test showed that the differences were significant (p = 0.001) with a 95% confidence interval for the median difference in thigh circumference (non-dominant) of 0.5 to 1.0 cm.

Discussion

We conclude that there is strong statistical evidence that the thigh circumference of the non-dominant leg is significantly greater than that of the dominant leg by between 0.5 and 1 cm. This supports the hypothesis that professional soccer players have larger quadriceps in their non-kicking legs.

This should be taken into account when examining the legs of sportsmen and women.

There is much scope for further investigation into this trend, particularly as to whether it occurs in other sports, and at what level of participation this effect becomes apparent.

Acknowledgements

We would like to thank the players of Heart of Midlothian and Hibernian Football Clubs who kindly took part in the study.

S J Bennet, P B O'Donohoe

Edinburgh University Medical School, Edinburgh, Scotland, UK

D Young

Research and Development Office, Royal Hospital for Sick Children, Glasgow, Scotland, UK

G C Bennet

Department of Orthopaedic Surgery, Royal Hospital for Sick Children, Glasgow

Correspondence to: S J Bennet, Edinburgh University Medical School, Edinburgh, Scotland, UK; simonbennet@hotmail.com

No formal ethical approval was required for this study.

doi: 10.1136/bjism.2004.015933

Competing interests: none declared

References

- 1 **McRae R.** *Clinical orthopaedic examination*, 3rd ed. Edinburgh: Churchill Livingstone, 1990.
- 2 **Salter RB.** *Textbook of disorders and injuries of the musculoskeletal system*, 3rd ed. Baltimore: Williams and Wilkins, 1999:65–8.
- 3 **Robben SG, Lequin MH, Meradi M, et al.** Atrophy of the quadriceps muscle in children with a painful hip. *Clin Physiol* 1999;19:385–93.

BOOK REVIEWS

Exercise physiology: people and ideas

Edited by Charles M Tipton. Oxford University Press, 2003, £69.50, pp 510, hardcover. ISBN 0195125274

It is not often that one finds a systematic review of science history that reads like an exciting non-fiction novel, but *Exercise physiology* is just that. In fewer than 500 pages, a surprisingly in-depth story of the growth in the understanding of exercise physiology science is told. The authors trace the exciting journey of discovery—a journey that at times was painfully slow when centuries passed by in which no contributions to the field were made, and at other times when discovery and new ideas emerged with breath taking speed.

The splendid introductory chapter, Ancient and early influences, traces the development of the thought, ideas, and study of exercise physiology from Hippocrates to Austin Flint.

The physiological concepts of Galen, the first sports medicine physician (he was physician to the gladiators at Pergamum), are described in depth—concepts that governed medical practice for nearly 1500 years. Among others whose ideas are described are Vesalius, Avicenna, Descartes, Willis, and Boyle. Early thoughts on the training of athletes and of exercise physiology were confirmed or disproved and discarded. The chapter author skillfully fleshes out concepts and elucidates controversies.

As edifying the reading of the introduction is, the reader will find the chapters organised around major body systems physiology just as enlightening. Editor Charles Tipton, who also contributed the chapter on the autonomic nervous system, brought together 19 other distinguished scientists as chapter authors, several of whom have received the Olympic Prize in Sports Sciences and several others the ACSM Honor Award. The chapters trace the development of the science of exercise in the neuromuscular, cardiovascular, respiratory, autonomic, oxygen transport, aerobic metabolic, anaerobic metabolic, endocrine, temperature regulation, renal, and gastrointestinal systems. Among the scientists whose work is discussed in these later chapters are Henneman, Burke, A V Hill, Fick, Starling, Guyton, Asmussen, Astrand, Cannon, Zuntz, Selye, Ingle, Costill, and Lambert.

Each chapter includes a frank discussion of controversy and ideas with a skilful distillation of various conclusions. A bonus is the nearly encyclopaedic list of references, 1876 in all, a treasure of literature review.

The latest in the *People and ideas* series of the American Physiological Society, *Exercise physiology* is a superbly organised and splendidly written history of exercise physiology. The text will be a useful addition to the library of those sports medicine professionals interested in the history of the science of exercise.

Rating

● Presentation	18/20
● Comprehensiveness	18/20
● Readability	18/20
● Relevance	20/20
● Evidence basis	20/20
● Total	94/100

T W Allen

McMinn's colour atlas of human anatomy

Edited by P H Abrahams, S C Marks Jr, R T Hutchings. London: Mosby, £38.99, pp 378, softcover. ISBN 0723432120

Back in the late 70s, when Gray's and Grant's anatomy atlases ruled supreme for my

vintage going through medical school, this text would have been a hit on the medical bookshop shelves: over 350 pages of layered real photo images of cadavers beautifully numbered, indexed, and with useful undergraduate level clinical text at the end of each chapter.

For students of medicine and other undergraduate areas, this is a whole atlas of human anatomy, not just limited to the musculoskeletal system. So for those looking purely for a musculoskeletal anatomy text, this would not be the most appropriate; a lot of pages—for example, those covering abdominal viscera—might never be perused.

Bony anatomy is, however, well covered, including muscle attachments, although illustrated drawings without descriptive text has its drawbacks; in many cases, one has to look at more than one page to follow a whole muscle group from origin to insertion. In areas of very complex anatomy especially, such as the axilla/brachial plexus region, more text would have helped the reader to understand the anatomical relations of structures to each other. But the CD ROM comes into its own here: seven regions in detail where one can scroll through the images from superficial to deep layers (including the detailed courses of arteries, veins, and nerves), rotate the images to view at all angles, enlarge them, add and remove muscle layers off the models, and rotate limbs around to follow dermatomal distributions on surface anatomy. It certainly would have made learning clinical anatomy for exam purposes a whole lot easier 20 years ago and will now become a very useful teaching aid in my office for patients and visiting students alike.

Who is the book pitched at? In the preface, the authors say that it is aimed at students of human anatomy including medicine, dentistry, physiology, and occupational therapy students, but postgraduate students in orthopaedic surgery and sports medicine would find aspects of this very useful.

The clinical notes at the end of each chapter tend to be pitched very much at an undergraduate level—for example, defining “olecranon bursitis” and “rotator cuff tear” in the “Upper Limb clinical notes”. The atlas pictorial pages along with the CD ROM would be extremely useful in any clinician’s office, however. You will have your patients “wowing” at this representation of human anatomy. “Archibald”, the full skeleton who’s been camped in my office for the past 15 years, might be moving out! The CD ROM occupies much less space and comes with the ability to show off much more than just bony anatomy!

Rating	
● Presentation	14/20
● Comprehensiveness	15/20
● Readability	14/20
● Relevance	16/20
● Evidence basis	Not applicable
● Total	59/80

R Highest

Rehabilitation of sports injuries: scientific basis

Edited by Walter R Frontera. London: Blackwell, 2003, £65.00, pp 326, hardcover. ISBN 0632058137

Do not buy this book if you are seeking the latest word on hamstring rehabilitation or current concepts in the management of multi-directional instability of the shoulder in athletes. As the title implies, this book addresses the scientific basis of the rehabilitation of sports injuries. As such it is relatively dry and will not have wide appeal for those seeking guidance in their practice of rehabilitation of the injured athlete. It does, however, provide a good review of the scientific basis of tissue healing and addresses the sound underpinning principles of rehabilitation and commonly used modalities.

As with any multiauthor edited text, the quality of individual chapters is variable. I was particularly surprised, and indeed disappointed, that the chapter addressing tissue healing and repair of bone and cartilage barely mentioned stress fractures and instead concentrated on the healing and management of traumatic and long bone fractures, which is perhaps of greater interest to orthopaedic trainees than practicing sports medicine physicians or physiotherapists. With the notable exception of a chapter addressing flexibility and joint range of motion, this book is short on presenting the evidence base for rehabilitation. Having read the book, I found myself longing for the follow up volume to this addition (should they choose to publish one) entitled *Rehabilitation of sports injuries: practical guidance and the evidence base*. As a practicing sports medicine physician, my interest is in the practical issues of rehabilitation and cutting edge techniques as it is these that will help my patients, albeit underpinned by good scientific principles. This book does provide a comprehensive review of scientific principles, but I fear its readership will be limited as there is only a single chapter addressing functional rehabilitation.

Rating	
● Presentation	15/20
● Comprehensiveness	12/20
● Readability	13/20
● Relevance	10/20
● Evidence basis	10/20
● Total	60/100

M E Batt

Clinical application of neuromuscular techniques: volume 1 the upper body

Edited by Leon Chaitow, Judith Walker Delaney. Churchill Livingstone, 2000, £45.99, pp 469, hardcover. ISBN 0443062706

As stated on page 2, imagine removing all the organs of the body, leaving only the connective tissue. What would remain would still resemble the human form, and its function could be readily appreciated, whereas doing the opposite would leave an unrecognisable collection of organs, devoid of form or function. Although

there is little scientific evidence presented, such as controlled therapeutic trials, as to why these techniques are effective, this impressive first volume lights the way for practitioners of muscle energy techniques (METs), well known here in Australia, and neuro-muscular technique or NMT (Europe)/neuro-muscular therapy (America). It covers in great detail the entire background to the collection of manual techniques concerned with changes to the connective tissue, including fascia, muscle, joint, bone, and nerve, due to injury and disease. The first volume begins with chapters describing the function and dysfunction of the connective tissue and fascial system, muscles, reporting systems and the brain, patterns of dysfunction, myofascial trigger points, inflammation and pain, assessment, treatment and rehabilitation, modern NMT and associated modalities. Text boxes interspersed in the chapters summarise the broad range of previous authors’ work in these areas. This is followed by a regional consideration of clinical assessment and treatment techniques in the cervical region, cranium, shoulder/arm/hand, and thorax.

NMT is described in both European (Lief’s techniques, which are fundamentally “manual application of specialised pressure and strokes ...applied by finger or thumb contact”) and American versions (manual glides and pincer compression assessing for taut tissue bands and treatment using glides and flat or pincer compression).

Associated modalities include myofascial release (MFR), MET, and other positional release techniques (PRTs), strain-counterstrain, proprioceptive neuromuscular facilitation (PNF) and other stretching, which have in common the concept of moving the limb or affected tissues “...away from the resistance barriers towards a position of comfort...” as follow up to the manual treatment.

In the clinical applications chapters, the functional anatomy is described, as are common causes of dysfunction, such as whiplash. Every muscle of the region is described systematically in terms of attachments, innervation, muscle type, function, synergists, antagonists, trigger point locations, and patterns of complaint. This is followed by a description of NMT, MFR, and MET treatment options.

There are very few good references on MET, Chaitow having written or co-written most of them previously, and this text helps to integrate MET with the other manual techniques in a logical way. Impossible to summarise in a book review because of its depth of detail and scope, this book could serve the neuro-musculo-skeletal practitioner as both a reference text and practical technique manual. It is formulaic in its approach, which makes it simple to use despite its size. Although there are few specific details on sports injury, sports medicine practitioners and physical therapists would be well advised to have this book in their professional library.

Rating	
● Presentation	17/20
● Comprehensiveness	18/20
● Readability	15/20
● Relevance	15/20
● Evidence basis	8/20
● Total	73/100

H Wajswelner

Physical therapies in sport and exercise

Edited by G S Kolt, L Snyder-Mackler. Published by Churchill Livingstone, 2003, £60.00, hardcover, pp 623. ISBN 0443071543

Physical therapies in sports and exercise, as the name suggests, is sports medicine from a physical therapy perspective. As with all of these types of book, it tries to cover everything, draws on clinicians and researchers from around the globe, and succeeds well in giving a general guide. It is a mix of strong and concise anatomical review, general concepts within sports and exercise, regional injury management, other active groups, and a section on medical issues.

The editors make the point early on that there is a dearth of evidence for the techniques and approaches we use in physical therapies within sport. The stated aim is to "provide a logical approach to the management of sport and exercise injuries that considers the available evidence for the efficacy of a variety of management approaches." This book tries to use supporting evidence to develop the ideas presented, but despite this, often draws on the anecdotal clinical experience of the authors. How else would they get the notion that short runners tend to overstride (p 250)? If the book had stuck to the stated aim of evidence based statements, we would only have a book half the size and a lot more short athletes with facet joint problems.

This approach is demonstrated beautifully in the chapter on patellofemoral pain syndrome (PFPS). Sections outlining the theory, evidence, and practice of this condition provide a well structured layout. The authors of this chapter are able, in this way, to present the anecdotal evidence, the clinical findings, and acknowledge where further research needs to be done. It highlights that the evidence based techniques we now use for PFPS are the same techniques we used in our clinics 5–10 years ago which were then not evidence based! Without wishing to delve too much into the debate of "evidence based sports medicine", I found that this chapter, in general, rides the line well between providing the evidence for the management and acknowledging that other areas used within the overall program need to be further investigated.

There was quite a discrepancy in the layout and structure of the other chapters. It was difficult to know the focus. The clinician looking for prescriptive rehabilitation techniques and programmes would do well to look in the elbow chapter, but if looking for similar protocols for hamstring injuries, the clinician would be disappointed.

Similarly, the amount of space allocated to a region was inconsistent, and this was probably due to how much evidence was available or the interest/knowledge of the author. Whereas there were 20 pages devoted to patellofemoral joint pain, there was a page and a half on groin pain in its entirety, including just a few paragraphs on osteitis pubis. The multifactorial nature of hamstring pain and the management of this condition were given cursory consideration, despite the fact that these conditions often present the biggest challenge to the practitioner.

The last chapter makes an interesting read and attempts valiantly to roll years of

academic and clinical sports physician training into a few short pages. Within sports medicine, it is all too easy to get caught up in addressing the musculoskeletal issues, and forget the impact of common (and not so common) medical issues on the elite athlete. As primary contact practitioners, we have to ensure we have a strong multidisciplinary team around us. I would have liked to see a bit more attention paid to the multidisciplinary team and the physical therapists role within it.

There is some really useful information and up to date evidence based thinking within this text. For the primary clinician on the field of play, however, to rely on the knowledge in this book as the sum total of his/her arsenal would be to be left wanting. On balance, I can recommend *Physical therapies in sport and exercise* as an invaluable adjunct to the sports clinician's library.

Analysis

● Presentation	17/20
● Comprehensiveness	14/20
● Readability	18/20
● Relevance	18/20
● Evidence basis	16/20
● Total	83/100

D B Kenneally

CALENDAR OF EVENTS

UK Radiological Congress 2005 (UKRC 2005)

6–8 June 2005, Manchester, UK

The UK Radiological Congress (UKRC) meeting will encompass the medical, scientific, educational, and management issues that are of interest and relevance to all those involved in the diverse fields of radiological sciences and oncology.

The UKRC provides a forum in which to bring together clinicians, scientists, radiographers, technicians, and other professionals to present and discuss the latest developments and challenges in diagnostic imaging, radiotherapy, and allied radiological sciences.

Key subjects to be covered include: diagnostic radiology; ultrasound; nuclear medicine; interventional radiology; veterinary radiology; emerging technologies; image analysis; computer applications; PACS; radiobiology; radiological physics; management & audit; computed tomography; magnetic resonance; equipment development.

Expected attendance (conference and exhibition): 4000

Further details: UKRC 2005 Organisers, PO Box 2895, London W1A 5RS, UK; Website: www.ukrc.org.uk; Fax: +44 (0)20 7307 1414; Conference tel: +44 (0)20 7307 1410, Email: conference@ukrc.org.uk; Exhibition tel: +44 (0)20 7307 1420, Email: exhibition@ukrc.org.uk

1st World Congress on Sports Injury Prevention

23–25 June 2005, Oslo, Norway

This congress will provide the world's leading sports medicine experts with an opportunity to present their work to an international audience made up of physicians, therapists, scientists, and coaches. The congress will present scientific information on sports injury epidemiology, risk factors, injury mechanisms and injury prevention methods with a multidisciplinary perspective. Panel discussions will conclude symposia in key areas providing recommendations to address the prevention issue in relation to particular injuries and sports.

Further details: Oslo Sports Trauma Research Centre and Department of Sports Medicine, University of Sport and Physical Education, Sognsveien 220, 0806 Oslo, Norway. Email: 2005congress@nih.no; website: www.ostrc.no

Osteosynthese International 2005

15–17 September 2005, Curiohaus, Hamburg
Congress-Chairman: Johannes M. Rueger, M.D., Professor and Chair

Topics:

- Innovations in intramedullary osteosynthesis
- New frontiers in osteoporosis and fracture treatment
- Current trauma research
- Special topic: Recent development in pelvic and acetabular fractures

Abstract submission deadline: 31 March 2005

Further details: INTERCONGRESS GmbH, Martin Berndt, Düsseldorf Str. 101, 40545 Düsseldorf-Germany. Tel: +49 211 585897-80; fax: +49 211 585897-99; email: martin.berndt@intercongress.de; website: www.osteoint2005.de

4th European Sports Medicine Congress

13–15 October 2005, Lemesos, Cyprus

Further details: Email: pyrgos.com@cytanet.com.cy

BASEM Conference 2005

10–12 November 2005, Edinburgh, Scotland

Further details: Email: basemoffice@compuserve.com

BASEM Conference 2006

5–7 October 2006, Oxford, UK

Further details: Email: basemoffice@compuserve.com

CORRECTION

doi: 10.1136/bjism.2004.009886corr1

Elliott K J, Cable N T, Reilly T. Does oral contraceptive use affect maximum force production in women? (*Br J Sports Med* 2005; **39**:15–9). The correspondence and affiliation details were published incorrectly in this paper. The correct address is: Dr Kirsty J Elliott, Applied Biomedical Sciences Research Group, GKT School of Biomedical Sciences, Shepherds House, Guys Campus, London SE1 1UL; email: kirsty.elliott@kcl.ac.uk

We apologise for this error.