

# PostScript

## LETTER

### Paediatric sport related concussion pilot study

A study was undertaken to determine the degree to which paediatric neurosurgeons agreed on the optimum management of sport related concussion in children. At the present time, a paradigm for management of concussion in children has not been defined, and the management of such patients largely relies on expert advice from neurosurgeons. This pilot study aimed to establish current consensus neurosurgical practice for management of children with sport related concussion.

#### Methods

For the purposes of this study, we defined sport related concussion as a head injury occurring during sport or play in children aged 5–15 years of age with a Glasgow coma score of 15 at admission and a normal neurological examination. A standardised questionnaire was sent to 20 neurosurgeons throughout Australia who were identified as having specific expertise in paediatric neurosurgery. There were three parts to the questionnaire. The first related to the routine management of uncomplicated sport related concussion in children. The second involved the role of follow up neuroimaging, neuropsychology, protective equipment recommendations, and return to school advice. The third examined the degree of importance placed on a number of clinical prognostic indicators by the neurosurgeons.

#### Results

Thirteen paediatric neurosurgeons responded to the study (65% response rate). With respect to general management of paediatric concussion, only three respondents said that they would routinely use skull radiographs, and two would routinely use computed tomography in uncomplicated sport related concussion. The disposition of concussed patients varied among respondents with some recommending hospital admission, some discharging the patient home with the parents, and others recommending a period of observation in the emergency department.

There was a complete lack of consensus among the respondents as to whether a specialist neurosurgeon needs to follow up the patient up. Among those who thought that follow up was necessary, the time to follow up varied from one to six weeks. None of the respondents stated that they would routinely perform neuroimaging or neuropsychological testing at follow up. Similar variable results were found for return to school and return to sport time frames, with ranges of 1–6 weeks.

Six of the 13 respondents would routinely advise the use of a helmet, and three of the 13 would recommend the use of a mouthguard after such injuries.

With respect to clinical prognostic indicators, the following symptoms and signs were examined: headache, vomiting, scalp haematoma, scalp laceration, loss of consciousness, pallor, dry tongue, tiredness or

sleepiness, irritability or restlessness, refusal to eat, abusiveness or aggressiveness, withdrawn, amnesic, and parental concern. There was no consensus on which of these symptoms or signs are of prognostic importance.

#### Discussion

In children aged 15 years and under, traumatic brain injury is a common cause of presentation to emergency departments and general practitioners. In the United States, it has been estimated that more than 1 million children sustain a traumatic brain injury annually (of which 85% are mild injuries) and that traumatic brain injury accounts for more than 250 000 paediatric hospital admissions as well as more than 10% of all visits to emergency service settings.<sup>1</sup> In this setting neurosurgeons are often asked to provide expert opinion on the management of such patients.

After the First International Conference on Concussion in Sport in Vienna 2001, guidelines were drafted on management of concussion in sport.<sup>2</sup> The scientific data on which these recommendations were based relates specifically to adults and not to children. The American Academy of Paediatrics published guidelines on the management of mild closed head injury in children in 1999; however, these guidelines were more concerned with predicting which children would subsequently develop intracranial complications than the issues of return to sport and neuropsychological recovery.<sup>3</sup> The American Academy of Paediatrics guidelines state that there is no indication for routine use of skull radiographic examination in paediatric concussion and “no data are available that demonstrate that children who undergo CT scanning early after minor closed head injury with loss of consciousness have different outcomes compared with children who receive observation alone after injury”.<sup>3</sup>

It is not surprising given the paucity of literature on this subject that considerable differences exist, even among experts, as to the management of sport related concussion in children. This has a number of important implications over and above the acute management of the injury given the potential for concussive injuries to have detrimental effects on the child's development and scholastic performance. After this pilot study, we plan to undertake a larger study examining the neurological and neuropsychological management of children with sport related concussion.

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Conflict of interests: none declared

doi: 10.1136/bjism.2004.014803

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## BOOK REVIEWS

### Sports injuries: recognition and management, 3rd edn

M A Hutson. Oxford University Press, 2001, £34.50, soft cover, pp 251. ISBN 0192632728

*Sports injuries: recognition and management* is now in its third edition. It has a single major author and some specialist chapters written by other authors either independently or in collaboration with the major author.

According to the preface: “This book is not an encyclopaedia of medical conditions associated with sport. It is designed primarily for the clinician who requires a method of learning a suitable approach towards the musculoskeletal problems encountered in sport”. Unfortunately this approach means the book has come out “neither fish, flesh nor fowl”. On one hand it does not provide a comprehensive listing of possible pathologies, and at times the lists given neglect some important and relatively common problems such as labral tears of the hip joint, while giving prominence to rather more obscure diagnoses. On the other hand, although the basic diagnostic and management bases are covered, there is little room for discussing the subtleties of history, examination, and investigation required in more difficult cases. I was disappointed with the coverage of some of the broader areas of sports medicine such as the implications for public health, doping, or sports psychology.

Several chapters cover some areas of a topic comprehensively but fail to address other key issues. For instance the section on head injury does not effectively deal with the topic of concussion for the club doctor, neglecting such areas as the neuropsychology testing routines now in common use. Indeed there is no reference to concussion in the index of the book. Although there is a discussion of the principles of assessing head injury, most of the information offered to the reader is more relevant to the neurosurgical admission suite than the dressing room, which may be the chapter author's point but does not reflect clinical needs.

The illustrations are generally clear, although some are showing their age, as are a number of the references in the text. Some of the management suggestions probably do not match what is commonly done (or indeed in some instances what research has confirmed as giving best outcomes). Some assertions are incorrect—for example, in the context of trauma “A normal MRI examination of the knee almost totally excludes significant abnormality in the knee”.

This book would provide an introduction to the field of sports medicine; indeed the author suggests that it is targeted at the general practitioner who is interested in the area. However, it has deficiencies and could not be used as a sole text. Its role may be that of rounding out a library for health practitioners interested in basic sports medicine. As a specialist sports medicine clinician, I found aspects of this book disappointing.

### Rating

● Presentation	12/20
● Comprehensiveness	12/20
● Readability	13/20
● Relevance	15/20
● Evidence basis	11/20
● Total	63/100

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## 20 common problems in sports medicine

Edited by J C Puffer. McGraw Hill, 2002, AUD\$114.95, softcover, pp 451. ISBN 0070527202

Professor Puffer and his collaborators have produced a very helpful resource and contribution for clinicians in sports medicine. *20 common problems in sports medicine* is ideal as a textbook for the medical practitioner starting sports medicine practice, for those completing sports medicine training, or for the subspecialist who desires an exposure to areas outside of their usual expertise. The text may also be helpful to physiotherapists who are seeking a greater understanding of sports medicine problems and a rationale for investigations.

The text is divided into regions and separate medical and paediatric problems. There is a different emphasis on each body region—for example, the physical examination of the shoulder is presented more comprehensively than ankle examination. The graphics for examination of body areas, in particular the shoulder and hip regions, are good. However, the text would be strengthened by more extensive examples of sports imaging—for example, MR arthrography for rotator cuff pathology or labral pathology.

Concussion explanation and management is a helpful overview for those who are new to team care and clinical sports medicine. This section could be strengthened in the area of newer neuropsychometric testing tools and the context of their use.

Acute wrist injuries, always a personal challenge in my clinical practice, are very well covered. The authors have presented an excellent explanation of the functional anatomy and clinical assessment.

Clinical testing and screening for dynamic pelvic function, often controversial at sports medicine meetings, is accompanied by excellent photography. This could be a helpful tool for explaining the condition and problems to patients.

Anterior knee pain is presented concisely with a helpful rehabilitation progression chart. The authors present the imaging sometimes used in some specificity, but without examples. I believe that this could be

presented in the context of what imaging is indicated in different clinical settings. This would also provide an opportunity to offer an introduction to anatomical variations, which is clinically relevant. On the other hand, the management flow charts for the acutely injured knee are very good. They follow a sound description of clinical assessment.

Orthotics and gait analysis are skimmed over, despite good thorough reviews of shin pain and foot pain. Readers would need to be aware of the clinical relevance of this.

Paediatric problems are very well presented. The presentation of exercise for apophysitis and the appropriate graphics is particularly good. This again could be helpful in the consulting room to demonstrate problems to patients and parents.

The final two chapters on low back pain and stress fractures complete the text. The chapter on low back pain is an uncomplicated overview, and the one on stress fracture is well referenced with information on bone biology. It is always good to return to basic science to understand clinical problems.

I enjoyed reviewing *20 common problems in sports medicine* and have already recommended it to medical colleagues.

### Rating

● Presentation	13/20
● Comprehensiveness	14/20
● Readability	18/20
● Relevance	18/20
● Evidence basis	16/20
● Total	79/100

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## Assessment of the lower limb, 2nd edn

Edited by L M Merriman and W Turner. London: Churchill Livingstone, 2002, £39.99, pp 502, hardcover. ISBN 0443071128

The presentation and layout of the book is very nice and appealing. The content covers a broad range of lower limb disorders and stresses the importance of a thorough clinical examination to provide a correct clinical diagnosis. Important laboratory and other investigations that are essential are well outlined.

The book is targeted mainly at general practitioners, dermatologists, and podiatrists, although it could also be helpful for other physicians who treat problems related to the lower limb. With a broad base, it introduces the views of a variety of specialties. It is easy to read and grasp. This could be particularly beneficial to students as well as other paramedical staff. The first few pages have a coloured atlas mainly covering dermatology and vascular problems.

With the wide range of areas covered, this is not the book for a specialist seeking comprehensive details in that particular field. There are a number of arguable citations where the authors have tried to explain complicated details in a simplified way, which may confuse the reader. I pick out a few examples from the orthopaedic chapter to illustrate this.

p 184, Drawer test: “More than 2–3 cm displacement of the tibia is considered abnormal and may be painful”

My comment: before drawing any conclusion of what is abnormal or not, it must be stressed that the examiner must make a comparison with the other knee. In a general joint lax person, even a 2–3 cm translation may be found in a “normal” patient without knee injury. A positive anterior drawer test is defined as an increased translation of the tibia compared with the contralateral knee (if uninjured) with no firm end point! Furthermore, the start position should be neutral. Thus, a rupture of the posterior cruciate ligament causes a posterior sagging of a few centimetres from the start. When the examiner performs the anterior drawer test, he/she may feel that there is an increased laxity corresponding to a rupture of the anterior cruciate ligament, but in that case there is a firm end point. Finally, if the test is painful for the patient, this is not a sign of ligament injury at all but rather indicates other injuries to the joint.

Lachmann test: “If there is displacement of the tibia this is indicative of a weak anterior cruciate ligament”

My comment: a positive Lachmann test indicates the absence of a ruptured anterior cruciate ligament, with high sensitivity and specificity. A weakened or partially ruptured ligament will per definition not have a positive Lachmann test.

p 185, Apleys compression test: “A noisy and painful response suggests meniscus damage”

My comment: the Apleys compression rotation test, if positive—that is, causing pain for the patient—indicates that there is mechanical damage causing impingement in the knee which could be due to injuries to the cartilage, osteoarthritis, loose bodies, or meniscal damage. Before such specific diagnoses are made, further information should be gathered such as the presence of an effusion of the knee and subjective symptoms of locking, pseudo-locking, clicking, or crunching.

p 188, Talocrural joint

Compared with the knee chapter, where a number of clinical tests are presented with illustrations, the authors do not demonstrate the as commonly used clinical tests for ligament insufficiency of the ankle. As an example, the anterior drawer (anterior talofibular ligament rupture) and the talar tilt tests (calcaneofibular ligament rupture) should be the first tests a medical student learns because inversion ankle sprains, affecting these ligaments, are among the most common injuries in sport and daily activities.

The chapter entitled “Stability” (p 188) refers in my view to tests of “laxity”. The chapter is confusing in the sense that it does not mention that functional instability of the ankle is a subjective feeling reported by the patient, whereas the examiner can objectively find laxity by clinical tests. It also says directly after the title “Stability” that the ligaments can be stressed and any tenderness noted. This is even more confusing in the context of stability of a joint, as a ruptured ligament causes increased laxity with no firm end point and possibly recurrent instability for the patient, but not tenderness unless it is an acute injury or partial injury where the laxity tests are normal. If pain or tenderness is the main symptoms in a chronic case, underlying damage to talar dome cartilage or

soft tissues causing synovitis should be considered.

Even though these details may sound very critical from an orthopaedic specialist point of view, reflecting weaknesses of this book for specialists, the book is still an excellent edition, with up to date knowledge of the assessment of the lower limb, well worth recommending for students, podiatrists, and other people working with patients with lower limb disorders.

### Rating

● Presentation	18/20
● Comprehensiveness	15/20
● Readability	20/20
● Relevance	17/20
● Evidence basis	15/20
● Total	85/100

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### Drugs for pain

Edited by H S Smith. Hanley and Belfus, 2002, £28.99, softcover. ISBN 1560535113

The practice of clinical medicine is challenging. This is so, even when the clinician has both a reasonable grasp of the pathophysiology underlying a patient's presenting symptoms and an understanding and knowledge of the therapeutic tools available to manage these conditions. Pain provides a major challenge for the clinician then, as we often fall at both these hurdles. We are challenged by patients presenting with distress of long standing, where pain is often a major component, and the symptom complex does not comply with a medical science based, recognisable distribution and pattern. Yet the patient is genuinely distressed, and this distress is often transferred to the clinician through the feeling of therapeutic impotence. With insecurities about what is being treated, we can either stick to drug regimens with which we are familiar, but that do not adequately assist the patient, or dabble superficially with therapeutic options that are poorly understood.

Dr Howard Smith, Director of Pain Medicine and Professor of Anaesthesia at Albany Medical Centre, New York has sought to meet these needs by putting together a tome outlining types of pain and the underlying mechanisms, with an in depth discussion of available drugs. He has personally contributed a significant portion of the book and has assembled a team of like minded clinical and academic contributors providing discourse in their unique areas of expertise and excellence.

The book includes chapters on the pathophysiology of pain, with a discussion of agents available including simple analgesics and anti-inflammatories. There is detailed discussion of opioid use and adjunct drugs—anti-epileptics, psychotropics, and more recent receptor antagonists. There is description of regional blocks, topical analgesics, and

recent novel drug delivery options. The clinically challenging areas of headache, migraine, and metastatic pain are specifically addressed, with chapters devoted to each. The content for each topic is in depth and accompanied by a very comprehensive reference and bibliography listing.

Personally, as my introduction implies, I needed a book such as this to assist in my clinical practice. This need is more than met in terms of explanations underpinning the physiology of pain and pharmacological options for treatment. However, possibly there could be a little more concrete direction in terms of specific algorithms for clinical scenarios, such as is addressed in the headache and migraine sections. For instance, the book refers to opioid stinging and opioid heavy practitioners, yet did not assist in the non-malignant area—in outlining a middle of the road, clinically applicable path. On the other hand, this possibly reflects the subjective nature of the condition being managed, the fact that there will be differences in clinical practices, and the fact that this science is still very much in evolution.

I found this book an excellent outline of where pain science is today, and a useful aid to the understanding of this complex area. I hope that there will be a sequel directed to clinical application based on the principles outlined in this very complete tome.

### Rating

● Presentation	15/20
● Comprehensiveness	15/20
● Readability	15/20
● Relevance	15/20
● Evidence basis	15/20
● Total	75/100

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## CALENDER 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