Effects of fatigue on ankle stability and proprioception in university sportspeople

Objectives
To assess the effect of fatigue from sporting activity on ankle stability and proprioception in university sportspeople.

Methods
Subjects were recruited from Southampton University sports facilities. They agreed to perform two dynamic tests before and after they took part in a sport. (1) A horizontal hop starting and finishing on the same foot. The best distance from three attempts was recorded. (2) A hexagonal hop test: the subjects hopped around a hexagon marked on the ground in either a clockwise or anticlockwise direction as quickly as possible. The quickest attempt out of three was recorded.

Results
The means before and after exercise were compared using a Student’s t-test. Both tests were set at the 5% significance level.

Hexagonal hop test (n = 40)
A Student’s t-test was used to compare the best time for the hexagonal hop test, before and after exercise. The t-value was 3.95, indicating a significant improvement in hop time after exercise.

Horizontal hop test (n = 25)
At the 5% level, the data are insignificant, with a t-value of 0.1107. A general trend of increased distance after exercise was observed (mean of 1.746m before against 1.775m after).

Conclusions
The results show that the subjects made significant improvements in hexagonal hop times with no difference in the distance hopped. This leads to the conclusion that, despite muscular fatigue, ankles appear to be more stable after exercise. Does exercise induce an increment in afferent/efferent nerve impulses to and from muscle spindles around the ankle leading to improved joint position sense?

J P Brown, G W Bowyer
University of Southampton Medical School, Southampton General Hospital, Tremona Road, Southampton SO16 6YD, UK, job298@soton.ac.uk

Centripetal skater’s manual oedema
This doctor’s indulgence in rigorous physical activity led to the realisation of a novel clinical entity. As an active sportsman and ex-ice hockey player, currently living in a hot climate, I have had to sublimate my sporting activities to infrequent inline roller skate street journeys. Recently, on a day of a very pressed schedule, I attempted to concentrate a week’s exercise into one concise session. After an hour and fifteen minutes of intense exertion, rapidly skating up and down hills and valleys, over good and not so good paved surfaces, I experienced an unexpected heaviness and tightness in the tips of my fingers. Later I noticed that the simple task of clenching my fists was not fully possible, and this phenomenon was more accentuated in the right hand (the more dominant of the two). Within the course of a couple of hours the whole condition spontaneously subsided.

I had never suffered such events, no concurrent pathology existed in any body system, and I have remained healthy since. The working hypothesis to explain this phenomenon must be that the rhythmic swaying and waving of the outstretched arms in a circular arc resulted in increased centripetal force of hydrostatic pressure in the distal parts of the upper limbs. This overwhelming pressure overcame the compensation mechanism of the lymphatic system to drain the hands. Axillary pressure from the straps of a small backpack carried during the whole journey may have compounded the effect, although all it contained was a mobile telephone and a small bottle of water.

Bizarre and not always innocent diagnoses have been made in the pathogenesis of limb oedema.1 2 The resulting hydrostatic effects of physical exertion of the lower limbs are well documented.1-3 Possible reasons why this problem does not occur during ice skating are the fact that long distances without any stops are uncommon and the cold environment may provide an option through peripheral vasoconstriction.

Thus heavy roller skating is a thought to entertain a doctor’s mind when confronted with a patient with acute unexplained bilateral hand oedema.

S Naimer
Department of Emergency Medicine, N eva Dekalim, G oosh Kaf, Israel 79779; sodby@hecmp.com

References

Intense training in elite female athletes: evidence of reduced growth and delayed maturation?
In their recent article Intensive training in elite young female athletes, Baxter-Jones and Maffulli reviewed 18 studies and concluded that training does not appear to affect growth and maturation.1 2 We have two concerns about this conclusion. Firstly, we agree that analyses of cross sectional and cohort data in this population are confounded by sampling bias; gymnasts who are successful at an elite level are likely to be self selected by their small stature and delayed maturation. Furthermore, data from cross sectional and cohort studies are often averaged. This “group” approach provides little information about individual growth patterns. Thus, in the review of Baxter-Jones and Maffulli, and the literature at large, an important basic question has been overlooked: is there any evidence that growth and/or maturation are adversely affected in some athletes and if so, what is the frequency of this condition?

Secondly, in contrast with their findings, our analysis of over 35 clinical reports (cross sectional, historical, and prospective cohort studies) indicates that elite level gymnasts may be at risk of adverse effects on growth.2 3 We reported that the increased magnitude of the delay in skeletal maturation with training in adolescent female gymnasts coincided with the occurrence of catch up growth during periods of reduced training or retirement, provides evidence that growth and maturation may be affected in some instances.2 3 Furthermore, in contrast with the interpretation made by Baxter-Jones and Maffulli of our data, we did report an association between reduced growth and years of gymnastic training, and that the deficits were greater at the growth spurt.3 As a result, we also reported that gymnasts who restricted energy intakes appeared to be at greatest risk.

We agree with Baxter-Jones and Maffulli that a cause-effect relation between gymnastics training and inadequate growth of girls has not been shown; there have been no randomised controlled trials. However, this does not mean there is “no evidence for inadequate growth among female gymnasts”. Although gymnasts are coerced by group means and ignore variability about the mean, then gymnasts who are at increased risk of reduced growth may be overlooked. We recommend that the growth of all young female gymnasts who are at increased risk of reduced growth should be monitored regularly. Any gymnast who falls behind in growth—that is, across two major centiles of the growth chart—should undergo a complete evaluation for underlying pathology, even when height is below the fifth centile. This may be normal short stature, but the clinical criterion warrants assessment.

S Bass, R Daly
School of Health Sciences, Deakin University, Burwood, Australia; sbonab@deakin.edu.au

D Caine
Department of Physical Education, Health and Recreation, Western Washington University, Bellingham, Washingon, USA

References

www.bjsportmed.com
Spoilsports (understanding and preventing sexual exploitation in sport)


The book is targeted at everyone involved in sport: coaches, doctors, scientists, administrators, parents, and participants.

Celia Brackenridge is internationally acclaimed for her work in uncovering the story of sexual exploitation in sport and offering explanations about why it occurs. She is uniquely qualified by her professional expertise as a scholar in the sociology of sport and by her own experience as coach and athlete at elite level in the sport of lacrosse. It is very brave to pursue a line of research that almost always creates immediate resistance from the audience (“... that can’t be happening in our sport/profession”). It is also personally harrowing to investigate this issue with the victims and to find support to cope with what is heard. The production of this book is therefore a culmination of several years of difficult research. It is clear to me that all of us involved in sport must read this book and be aware of the issues. Those of us in higher education must also put this book on the reading list for “ethical issues” topics in curricula for all sport related degrees.

The title is great. Sport should be fun and run within a set of rules that are clear to all. But sexual exploitation within sport is a breach of rules and most certainly will spoil sport (and lives) for many (and who knows how many) individuals. The first two parts of the book provide evidence for the complex issue of sexual exploitation in sport and reasoning about why it may occur. If anyone reads this and continues to think that sexual exploitation cannot be happening in their sport or profession because there are no specific examples, then they must think again. Evidence suggests that exploitation will be happening in all areas of sport, and Brackenridge challenges us to become aware of that and then to take steps to prevent it. The third and fourth parts of the book offer a challenge to change the way sport is managed and how researchers can assist in this change in order that sexual exploitation is dealt with. This book is a brilliant example of “building bridges between theory and practice” (page 236) and utilises the feminist perspective of “praxis”. (A definition of feminist praxis is “... the coming together of theory and practice in action, and in the reflecting upon these processes to generate new ideas and ways of working”). The major message is that gender/power relations need to be examined in sport, and an empowerment based approach to sports leadership promoted.

Sports Medicine Course
3–10 August 2002, Vancouver, Canada

Further details: Cathy Means; tel: +1 608 263 6637; fax: +1 608 262 8421; email: cmeaneas@factstaff.wisc.edu

XVI IEA World Congress of Epidemiology
18–22 August 2002, Montreal, Canada

Further details: Conference Secretariat, Events International Meeting Planners, 759 Square Victoria, Suite 300, Montreal, Quebec, H2Y 2J7, Canada; tel: +1 514 286 0855; fax: +1 514 286 6066; email: info@eventsinl.com

Web site: www.iea2002.com

Kinesiology—New Perspectives:
3rd International Scientific Conference
25–29 September 2002, Opatija, Croatia

Further details: Conference Office, Faculty of Kinesiology, 10,000 Zagreb, Horvacsanski zavoj 15, Croatia; tel: +385 1 3658 666; fax: +358 1 3634 146; email: natalija.babic@ffk.hr

Evening Tutorials II: The ankle, anatomy, examination, biomechanics, surgical procedures, and rehab, with practical sessions

Autumn 2002, Edinburgh

Further details: Dr Faith Gardner, 73a London Rd, Kilmarnock, Ayrshire; tel: (0)1563 573706

The Queen’s Golden Jubilee and Post Commonwealth Games
BASEM Congress 2002

Keynote lectures
Professor Stuart M Mc Gill (Canada), will lecture on “Low back exercise: the foundation for building the best programme” and present a workshop on “a programme to enhance spine stability”. Assistant Professor Karim Khan (Canada), will lecture on “Better management of tendinopathies” and “Physical activity and bone health”. Other speakers include: Dr Thomas Helfrich (Germany) lecturing on “Current concepts in knee ligament reconstruction following sports injuries” and “Rehabilitation after cruciate ligament reconstruction”; Mr Peter Hamlyn (United Kingdom), Chairman of the Government Ministerial Working Group. Report on

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Sports Medicine of Australia 2002 Australian Conference
12–16 October 2002, Carlton Crest Hotel, Melbourne, Australia

Keynote speakers include Dr Bill Evans, Professor Tom Rowland, and Dr Glenn Singleman.

Further details: Kate Gulliver, Sports Medicine Australia, PO Box 237, Dickson ACT 2602; tel: +02 6230 4650; fax: +02 6230 5908; email: sma.conf@smar.org.au; Carlton Crest Hotel contact details: 62 Queens Road, Melbourne VIC 3004, Australia; tel: +61 3 9526 7470; fax: +61 3 9526 7400.

Celebrating 50 years of Orthopaedics in Singapore
13–16 October 2002, Singapore

In conjunction with the 25th Singapore Orthopaedic Association Meeting, 22nd Asian Orthopaedic Association Meeting, 5th Combined Meeting of Spinal and Paediatric Sections—APOA, 7th Meeting of Sports Medicine Section—APOA, 3rd Meeting of Asia-Pacific Orthopaedic Society for Sports Medicine

Further details: 2002 COM Secretariat, c/o Dept of Orthopaedic Surgery, National University Hospital, 5 Lower Kent Ridge Road, Singapore 119074, Republic of Singapore; tel: +65 772 4340; fax: +65 778 0720; email: secretariat@soa.org.sg


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Web site: www.basics.org.uk

The 5th Asian Federation of Sports Medicine Congress
24–27 October 2002, Seoul, South Korea
Further details: AFSMC 2002 Seoul Secretariat, Hanlim Travel Service Co. Ltd, 111 Young CHANG Marine Center New Bldg 5th Fl, #51, Sogong-dong, Chung-gu, Seoul 100–770, South Korea; tel: +822 726 5555; fax: +822 778 2514; email: y.chang@kaltour.com
Web site: http://www.afsmc2002.or.kr

Australian College of Sports Physicians (ACSP) 2002 Conference in conjunction with the New Zealand Sports Medicine Conference
30 October–3 November 2002, Christchurch, NZ
Keynote speaker will be Assistant Professor Karim Khan from Vancouver, Canada.
Further details: Rob Campbell; email: rcampbell@sportsmed-nz.co.nz
Web site: www.acsp.com.au

Skills Course in Musculoskeletal Ultrasound
6–8 January 2003, Oxford, UK
Further details: Alison Davies, Department of Radiology, Nuffield Orthopaedic Centre, Headington, Oxford, OX3 7LD, UK; tel: +44 (0)1865 227765; fax: +44(0)1865 227347; email: alison.davies@noc.anglox.nhs.uk
Web site: www.bjsportmed.com

BASICS Refresher course
28–29 November 2002, Madingley Hall, Cambridge, UK
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Web site: www.basics.org.uk

2nd World Congress of Science and Medicine in Cricket
4–7 February 2003, University of Port Elizabeth, Port Elizabeth, South Africa
Further details: Dr Richard Stretch, University of Port Elizabeth, PO Box 1600, Port Elizabeth 6000, South Africa; tel: +27 41 5042584; fax: +27 41 5832605; email: sparas@upe.ac.za
Web site: www.fmh.utl.pt/wesf

3rd Québéco International Symposium on Cardiopulmonary Rehabilitation Evidence Based Interventions: Science to the Art of Cardiopulmonary Rehabilitation
11–13 May 2003, Québec City Convention Center, Québec, Canada
Call for abstracts deadline is 1 November 2002. The abstract submission form and complete programme can be printed from the web site.
Further details: email: jean JOBIN@med.ulaval.ca
Web site: www.ulaval.ca/symp-rehab

The 6th STMS World Congress on Medicine and Science in Tennis in conjunction with the LTA 2004 Sports Science, Sports Medicine and Performance Coaching Conference
Keynote speakers include Professor Per Rønstrom (SWE), Professor Peter Jokl (USA), Professor Savio Woo (USA), Dr Carol Otis (USA), Dr Mark Safran (USA), Dr Ben Kibler (USA), Prof Bruce Elliott (AUS), and Professor Ron Maughan (UK).
Further details: Dr Michael Turner, The Lawn Tennis Association, The Queen’s Club, London W14 9EG, United Kingdom; email: michael.turner@lta.org.uk

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www.basem.co.uk
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Further details: Sports Medicine Programs, UNSW Sydney 2052, Australia; tel: +612 9385 2557; fax: +612 9313 8629; email: sportmed@unsw.edu.au
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