Effects of fatigue on ankle stability and proprioception in university sportspersons

Objectives
To assess the effect of fatigue from sporting activity on ankle stability and proprioception in university sportspersons at the University of Southampton. A wide range of sporting activity was included from taekwon-do to indoor football.

Methods
Subjects were recruited from Southampton University Sports facilities. They agreed to perform two dynamic tests before and after they undertook sport. (1) A horizontal 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.

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 increase in afferent/efferent nerve impulses to and from muscle spindles around the ankle leading to improved joint position sense?

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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 sportsperson 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 exerted pain fully possible, and this 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.

“training does not appear to affect growth and maturation.” 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 by 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. We reported that the increased magnitude of the delay in skeletal maturation with training in gymnast female gymnasts may provide protection 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.

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References

Intense training in elite female athletes: evidence of reduced growth and delayed maturation

In their recent article Intense training in elite young female athletes, Baxter-Jones and Maffulli reviewed 18 studies and concluded “training does not appear to affect growth and maturation.” 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 by 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. We reported that the increased magnitude of the delay in skeletal maturation with training in gymnast female gymnasts may provide protection through peripheral vasoconstriction. At the 5% level, the data are insignificant, although all it contained was a mobile small backpack carried during the whole 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 increase in afferent/efferent nerve impulses to and from muscle spindles around the ankle leading to improved joint position sense?

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References
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.
Further details BASICS Education Ltd; tel: +44 (0) 870 165 4999; fax: +44 (0)870 165 4949; email: educ@basics.org.uk
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24–27 October 2002, Seoul, South Korea
Further details: AFSMC 2002 Seoul Secretariat, Hanlim Travel Service Ltd, (c/o 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: ychang@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, OX 3 7LD, UK; tel: +44 (0)1865 227765; fax: +44 (0)1865 227347; email: alison.davies@noc.angloix.nhs.uk
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4–7 February 2003, University of Port Elizabeth, South Africa
Further details: Dr Richard Stetch, 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

Vth World Congress on Science & Football
April 2003, Lisbon, Portugal
Further details: Dr J Cabri; email: J.cabri@fmh.ull.pt
Web site: http://www.fmh.ull.pt/wesf

3rd Québec 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 Renstrom (SWE), Professor Peter Joki (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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