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 students 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 took part in sport. (1) A horizontal hop test (n = 40). A Student’s t test was used to compare the best time for the horizontal hop test before and after exercise. The t value was 3.95, indicating a significant improvement in hop time after exercise.

Hexagonal 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 (fatigue) 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 increase in afferent/efferent nerve impulses 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 greater resistance 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.

I had never before 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 I 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. The resulting hydrostatic effects of physical exertion of the lower limbs are well documented. 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 protection against peripheroconstriction.

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 Intensive 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 article 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 aesthetic gymnasts coincides 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. 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 than appendicular skeletons. 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 in gymnastics.” As all athletes 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 falls behind in growth—that is, across the 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.

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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.

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Further details: Conference Secretariat, Events International Meeting Planners, 759 Square Victoria, Suite 300, Montreal, Quebec, H2Y 2J7, Canada; tel: +1 514 286 0655; fax: +1 514 286 6066; email: info@eventsintl.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, Horvacanski zavoj 15, Croatia; tel: +385 1 3658 666; fax: +351 1 3634 146; email: natalija.babic@ffk.hr

Evening Tutorials II: The ankle, anatomy, examination, biomechanics, surgical procedures, and rehab, with practical sessions
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Further details: Dr Faith Gardner, 73a London Rd, Kilmarrock, Ayrshire; tel: (0)1563 537306

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10–13 October 2002, The Low Wood Hotel and Conference Centre, Windermere, Cumbria, UK

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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 Karin Khan (Canada), will lecture on “Better management of tendinopathies” and “Physical activity and bone health”. Other speakers include: Professor Dr med Hans H Paessler (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 Safety and Medicine in Sport, will open and Chair a discussion on progress one year on from the report.

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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
19-20 June 2004, London, UK
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 Kilber (USA), Prof Bruce Elliott (AUS), and Professor Ron Magahan (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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