

# PostScript

## LETTER

### Effects of cold-water immersion of legs after training session on serum creatine kinase concentrations in rugby players

The use of methods other than passive recovery for improving recovery after intense training and competitions in sports is growing. In particular, in rugby, the use of cold water, possibly associated with active recovery (cycling), and the use of cold and hot water immersion are quite popular. In our experience, the perception of muscle soreness after heavy exercise in top-level rugby players decreases when cold-water immersion of legs is performed during recovery period, as also quantified by a semiquantitative scale.<sup>1</sup>

Gill and coworkers described the effectiveness of contrast water therapy (CWT) for improving the post-match recovery in elite rugby players.<sup>2</sup>

CWT was performed by immersion of the body to the level of the anterior superior iliac spine in one of two temperature-controlled water baths, alternating between 1 min in cold water (8–10°C) and 2 min in hot water (40–42°C) for 9 min. The CWT, as well as low-impact exercise postcompetition and wearing compression garments, promoted better recovery than classical passive recovery in athletes, as demonstrated by modifications in creatine kinase (CK) activity in the interstitial fluid collected from the ventral forearm. We tested the use of active recovery together with cold-water immersion of the body to the level of the anterior superior iliac spine (5°C) after an intense training session. The session on the field started with a speed agility warm-up followed by step work with ballistic stretching (15 min), on-field practice (90 min) with play starts, general movement sequences (up to 8 sequences) and, finally, intense accelerations. Thus, it was a mixed-fuel energy session, with cardiominance and lactacid peaks, divided into phases of a 10 min work-out, with the rest of 3 min between two consecutive phases, when the players had contacts and were in various play situations.

Three groups of 10 athletes from the Italian National team were subjected, respectively, to passive recovery, active recovery (cycling at 180 W) for 10 min followed by cold-water immersion of the legs for 10 min, and cold-water immersion of the legs for 10 min followed by

active recovery. We measured CK in serum obtained from venous blood, drawn at 08:00 h, at rest after 18 h of physical activity, on the same day, immediately after the training session, and, finally, after passive or active and cold-water recovery period of 20 min. We found no significant differences among the three groups when compared at rest, after training, and after passive or active and cold-water recovery (analysis on MedCalc software). The serum CK activities found were similar to those described in the interstitial fluid before competition,<sup>2</sup> but higher than those reported in plasma after a match in Japanese rugby players.<sup>3</sup>

The statistical evaluation of CK activity in each group during the three different steps (rest, after training, after recovery) by one-way analysis of variance gave significant differences ( $p < 0.001$ ) in the two groups with passive recovery and with cold-water immersion followed by cycling. In the athletes who performed active recovery followed by cold-water immersion, the statistical analysis gave a non-significant result ( $p = 0.09$ ; table 1).

We conclude that cold-water immersion, after training and active recovery, stabilises CK activity in top-level rugby players and can be effective for improving recovery.

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Competing interests: None declared.

## References

- 1 Nieman DC, Dumke CL, Henson DA, et al. Muscle damage is linked to cytokine changes following a 160-km race. *Brain Behav Immun* 2005;19:398–403.
- 2 Gill ND, Beaven CM, Cook C. Effectiveness of post-match recovery strategies in rugby players. *Br J Sports Med* 2006;40:260–3.
- 3 Takarada Y. Evaluation of muscle damage after a rugby match with special reference to tackle plays. *Br J Sports Med* 2003;37:416–19.

**Table 1** Serum CK activity in rugby players subjected to different recovery treatment after a training session

	CK at rest (U/l)	CK immediately after training session (U/l)	CK after active recovery and cold-water immersion (U/l)
Passive recovery (n = 10)	339	1028	1077
Active recovery followed by cold-water immersion (n = 10)	248	1240	992
Cold-water immersion followed by active recovery (n = 10)	310	1146	1230

CK, creatine kinase.

## BOOK REVIEW

### Sport psychology: the key concepts

Edited by Ellis Cashmore. Andover: Published by Taylor and Francis, 2002, £13.99 (softcover), pp 304. ISBN 0-415-25322-5

For those involved in sports and exercise medicine, sport psychology principles and interventions are well recognised in providing advantage among physically equal competitors. A book that seeks to provide the key concepts of sport psychology, rather than be encyclopaedic, is welcome to the non-specialist caring for a sporting team and individuals.

Does this book achieve its goal of providing the key concepts of sport psychology? In brief, no. There is an unevenness in the coverage of topics, which is surprising. Depression is dealt with in two paragraphs, which is inadequate for a condition that is under-recognised in sports participants and affects their performance and role in society. Transexuality is discussed in terms of individuals but not in terms of the psychology underlying the condition. There is an interesting discussion of left-handedness, but I am unsure why this is a key concept in sport psychology.

These criticisms may reflect the author's stated consideration of sport as a social activity with historical and cultural influences. Such a multifactorial approach does not seem to be compatible with the aim of elucidating "key concepts". These deficiencies reflect negatively on the author's attempt to consider psychological terms in general use and provide a more concise technical meaning consistent with academic theory and research. Detailed "further readings" and relevant bibliography are positive features of this book, but not the failure to paginate the "list of concepts".

When first viewing this book, I was perplexed by the failure of the publisher to list the author's formal qualifications, which is fundamental in allowing a reader to assess the author's credibility to contribute to the discipline of sport psychology. Luckily, the author has a website! Professor Cashmore has a bachelor's and a master's degree in sociology, and his PhD was on the Rastafarian movement in England.

The French philosopher Paul Ricoeur observed that "enigma does not block understanding but provokes it". Professor Cashmore's book is not a source of such insight and cannot be recommended.

## Ratings

● Presentation	11
● Comprehensiveness	5
● Readability	10
● Relevance	6
● Evidence basis	11
● Total	43/100

G J Winter

## CALENDAR OF EVENTS

### Expedition Medicine Ltd (EML) courses for 2007

- 17–23 June 2007, EML jungle course
- 10–13 September 2007, EML UK course
- February 2008, polar course

Expedition Medicine is the leading provider of wilderness medicine courses, both here in the UK and in a number of carefully selected overseas locations. EML provides quality training for expedition, wilderness, high altitude, mountain, remote, polar, jungle and desert medicine practitioners. Suitable for doctors, wilderness EMTs, first responders, nurses and individuals providing medical cover in remote or inhospitable environments far from help.

*Further details:* website [www.expeditionmedicine.co.uk](http://www.expeditionmedicine.co.uk); Email [luci@acrossthedivide.com](mailto:luci@acrossthedivide.com)

### Amsterdam Foot and Ankle Course 2007

21–22 June 2007, Amsterdam, The Netherlands  
*Further details:* [www.anklecourse.com](http://www.anklecourse.com)

### ISHPES and ISSA Joint World Congress

“Sport in a Global World – Past, Present and Future”

31 July–5 August 2007, Copenhagen, Denmark  
*Further details:* website [www.ifi.ku.dk/congress2007](http://www.ifi.ku.dk/congress2007); Email: [congress2007@ifi.ku.dk](mailto:congress2007@ifi.ku.dk)

### VeniceArrhythmias2007

7–10 October 2007, Giorgio Cini Foundation, Venice, Italy  
*Further details:* website: [www.venicearrhythmias.org](http://www.venicearrhythmias.org); Email: [scientific@venicearrhythmias.org](mailto:scientific@venicearrhythmias.org)

### 5th European Sports Medicine Congress

10–14 October 2007, Hotel Diplomat, Prague, Czech Republic  
Conference topics:

- Applied exercise physiology
- Molecular biology and exercise
- Sports cardiology

- Medical care in athletes
- Nutrition, supplementation and sports
- Physical activity as health enhancing measures
- Chronic diseases and exercise
- Injuries in sports: diagnosis management and treatment
- Imaging methods in sports medicine
- Doping
- Interdisciplinary approach in sports medicine
- Case studies

Abstract submission deadline 30 June 2007.

*Further details:* website: [www.efisma2007.org](http://www.efisma2007.org); Email: [efisma2007@czech-in.cz](mailto:efisma2007@czech-in.cz)

### 11<sup>th</sup> Central European Congress on Osteoporosis and Osteoarthritis

XIV Congress of Polish Osteoarthritis Society and Polish Foundation of Osteoporosis 11–13 October 2007, Krakow, Poland

*Further details:* website: [www.osteoporozoza.org](http://www.osteoporozoza.org); Email: [krakow@osteoporozoza.org](mailto:krakow@osteoporozoza.org)

### German Congress of Orthopedics and Trauma Surgery

- 71st Annual Meeting of the German Society of Trauma Surgery (DGU)
- 93rd Annual Conference of the German Society of Orthopedic Surgery (DGOOC)
- 48th Annual Conference of the Professional Association of Orthopedic Specialists (BVO)

24–27 October 2007, Messe/ICC Berlin, Germany

*Further details:* website: [www.orthopaedie-unfallchirurgie.de](http://www.orthopaedie-unfallchirurgie.de); Email: [info@intercongress.de](mailto:info@intercongress.de)

### 17th Annual Meeting of the International Association for Dance Medicine & Science (IADMS)

25–29 October 2007, Canberra and Melbourne, Australia

Co-hosted by three of Australia's elite institutions—The Australian Ballet School, Australian Dance Council (Ausdance) and the Australian Sports Commission—IADMS works to improve dancers' health, well being and performance through the encouragement and promotion of dance medicine and science.

Outstanding international researchers, practitioners and educators will offer insight into the latest developments in dance medicine and science. Activities of relevance to dancers, dance teachers and health professionals will include presentations and movement sessions on topics such as:

- Training efficiency
- Nutrition
- Dance wellness programmes
- Psychology
- Scientific research
- Practitioner wisdom
- Injury prevention, treatment and rehabilitation
- Surgical and non-surgical interventions

*Further details:* Email: [janetkarin@australianballetschool.com.au](mailto:janetkarin@australianballetschool.com.au)

For information about other IADMS conferences and publications contact: [ConferenceDirector@iadms.org](mailto:ConferenceDirector@iadms.org) or [www.iadms.org](http://www.iadms.org).

### 6th Interdisciplinary World Congress on Low Back & Pelvic Pain

7–10 November 2007, Barcelona, Spain

This global congress invites practitioners, academics, researchers and policy makers from all continents and from clinical areas as wide ranging as medicine, physiotherapy, chiropractic, biomechanics, osteopathy, manual therapy, exercise therapy and exercise science, myotherapy, orthopaedic and neurosurgery and sports medicine.

*Further details:* Call for papers: [www.worldcongresslbp.com](http://www.worldcongresslbp.com); Information: [info@worldcongresslbp.com](mailto:info@worldcongresslbp.com)

### The sixth international conference on Sport, Leisure and Ergonomics

14–16 November 2007, Burton Manor, Burton, Wirral, Cheshire, UK

*Further details:* Congress Secretariat: Tel: 0151 231 4249; Email: [G.Atkinson@ljmu.ac.uk](mailto:G.Atkinson@ljmu.ac.uk)

### 2007 World Conference on Doping in Sport

15–17 November 2007, Madrid, Spain

*Further details:* Online registration: [www.wada-ama.org](http://www.wada-ama.org)