PostScript

LETTER

Heat stroke and 10K "fun runs": new safety measures are called for

On Sunday 11 June 2006, 8000 people undertook a "fun run" in Hyde Park, the BUPA Capital 10K. During the course of the afternoon, St Mary's Hospital emergency department received four, and another local hospital received three, collapsed adult runners.

All collapsed at 7-10 km, were confused, and showed signs of severe heat stroke (with core temperatures of 40-41°C). Three patients required intubation, and three required sedation and high dependency unit care. One patient was admitted to the intensive care unit for 72 hours. Happily all survived, but there are some important lessons to be learnt for future similar events.

No official temperatures were recorded at the scene, but reports varied from 30 to 33°C with a high humidity.

Australia and America have experience in organising events for amateur athletes in high temperatures, and guidance from these countries is available. A consensus document in 1984¹ suggested that we should use the American College of Sports Medicine (ACSM) guidelines for events of 16 km or over. These rely on temperatures recorded at the scene and the use of a wet bulb globe temperature (WBGT) in humid conditions.

The WBGT is a way of assessing risk of heat illness. It is a method of combining temperature and humidity in a single number using a thermometer with three bulbs.²

On humid days in Australia or America, under their guidelines, a WBGT of above 30°C may lead to postponement of the event to a cooler part of the day or to cancellation. A WBGT of 26-29°C would result in limiting continuous exercise to 60 minutes. On less humid days, ambient temperatures of 31-35°C would also lead to a limit on exercise, and a temperature of 36°C and above would lead to postponement or cancellation of the event.³

When interviewed after they had recovered, it was clear that these runners had little knowledge or experience of running in the heat. None had received or read any advice on exercising in the heat or on optimising hydration.

None of the runners had identification on them or details of next of kin. It took several hours for their anxious relatives to find them, as they were not able to identify themselves because of their confusion.

Participants in races of this nature are predominantly amateur with limited understanding of the risk of heat stroke and its preventive measures. Organisers of such events must be aware of this and ensure that a full risk assessment of the event is carried out, which must include temperature readings.

Events such as the London Marathon have clear guidelines and also send out information to runners. Heat stroke carries significant mortality and has now been shown to be

a real risk in events of 10 km in the United Kingdom. We would like to suggest the following measures for all fun runs.

- ACSM guidelines regarding WBGT should be applied.
- Each runner should be sent an advice sheet including advice on running in the heat and how to achieve optimal hydration.
- Each runner should be instructed to write their name, next of kin, and someone to contact on the day on the back of their race number.

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References

- 1 **Recommendations of a consensus conference.** Popular marathons, half marathons, and other long distance runs: recommendations for medical support. *BMJ* 1984;**288**:1355-9.
- 2 **Gardner JW**, Kark JA, Karnei K. Risk factors predicting exertional heat illness in Marine Corps recruits. *Med Sci Sports Exerc* 1996;**28**:939-44.
- 3 **Australian Sports Medicine Federation.** South Australian Branch. Revised hot weather guidance, November, 2005. www.sma.org.au/pdffdocuments/Hot_Weather_Guidelines.pdf (accessed 21 Aug 2006).

BOOK REVIEWS

Human physiology: the basis of medicine

Edited by Gillian Pocock, Christopher D Richards. Published by Oxford University Press, 2004, softcover, £35.00 (paperback) £69.95 (hardback), pp 714. ISBN 0198585276

For a simply written introduction to physiology, this addition to the *Oxford core texts* covers a lot of ground. It takes the reader from virtual biological ignorance to an appreciation of the workings of life, particularly as they relate to the human model. *Human physiology* then goes further using physiological norms to explain pathological conditions as the due consequence of failure of the main body systems to function in their normal or regular way.

The text is intended for pre-clinical students in medicine and other health related professions including nursing, physiotherapy, and exercise physiology. Following the tradition of Oxford University Press and Samson Wright's *Textbook of applied physiology*, the book is instructive as well as facilitative.

The authors are very experienced teachers and obviously understand students' needs. It is pleasing to find that there are still some academics who appreciate that instruction of

the next generation ranks with research in importance.

The user friendly format accords with the current method of problem based learning. The text is readily appreciated as a whole and is easy to read from cover to cover. However, this does not preclude its use as a reference. Each of the 31 chapters starts by listing learning objectives that the student should achieve. Throughout the text there are summaries or take away messages. Most chapters conclude with a number of true or false questions with answers and a short explanation of the answer provided.

As is the manner of most physiology text books, the authors subsume information under various systems, but they help to consolidate knowledge by integration with liberal cross referencing throughout each chapter.

There is some variance in the information level of the different chapters. Cardiovascular, respiratory, digestive, and renal systems are predictably well covered. The concept of homeostasis and the body's ways of maintaining a consistent internal environment is always the pervading theme.

Neurophysiology is covered in more detail than might be expected in a general introductory textbook. There are separate chapters for the motor systems and sensory systems, the latter covering not only sight, hearing, taste, and smell, but the somatic sensations of touch, temperature, vibration, itch, and pain are also all well explained.

Excellent illustrations, diagrams, and flow charts abound. They are all relevant and placed proximal to the corresponding text. Photos of patients showing the typical clinical presentations of nutritional and hormone deficiency disorders are a reminder of the rarity of these conditions in developed countries in the 21st century.

Although this is a personal viewpoint, I was sorry to find in a British textbook that adrenaline has become epinephrine and haemoglobin has lost its diphthong. Still ECG is continued rather than EKG.

Rating

• Presentation	18/20
• Comprehensiveness	16/20
• Readability	18/20
• Relevance	16/20
• Evidence basis	20/20
• Total	88/100

V Higgins

Brain and body in sport and exercise

Edited by Boria Blumenstein, Michael Bar-Eli, Gershon Tenenbaum. Published by John Wiley and Sons, 2002, £19.99, softcover, pp 133. ISBN 0471499072

Don't be fooled by the initial title of a book. With Professor Noakes and his research team challenging the traditional model of peripheral fatigue in exercise, I was interested in