Book reviews

Nutrients as Ergogenic Aids for Sports and Exercise

Luke Bucci
CRC Press, 1993, 149 pp,
ISBN 0 8493 4223 6

Just over 100 pages of text, with nearly 1000 references, is an excellent start, although such a good reference list could have been even more useful had it been arranged alphabetically, while still being defined by number in the text. The topic is research on nutrients as ergogenic aids and the author notes that 'peer-reviewed scientific journal articles have been misinterpreted, misquoted, misunderstood and misused to promote products'.

The main division of the text is into the macronutrients and the micronutrients, with 16 pages devoted to the former, giving a good summary treatment to the whole of carbohydrates, proteins and fats, as well as fluid and electrolyte replacement.

Sixty pages are devoted to a consideration of micronutrient supplementation, divided into chapters on the vitamins, the minerals (including zinc, selenium and chromium), the amino acids (arginine, aspartic acid, BCAAs, glutamate, glycine, lysine, ornithine and tryptophan) and 'metabolic intermediates' (alkalinizers, antioxidants, aspartate salts, carnitine, coenzyme Q10, creatine, inosine, adenine, and methyl donors such as choline and lecithin).

However, in the sections on glutamine and on BCAAs I looked in vain for references to the seminal work of

Eric Newsholme and his Cellular Nutrition Group in the University of Oxford both regarding glutamine, lymphocyte function and possible immunosuppression and the overtraining syndrome in elite competitors, as well as regarding BCAAs in possible association with fatigue or mood enhancement in exercise. As this could be regarded as the major cellular nutrition unit in the UK, especially in terms of its sports interest and connections, this could be thought of as a worrying oversight for UK readers.

In Chapter 8 are discussed 'non-essential' human dietary substances such as alcohol, caffeine, ferulates, ginseng, gelatin, pollen and succinates, while the penultimate chapter presents a debate on research methods including subject variability and placebo effects.

The writing is tight, lean and professional – it is packed with data, and sustains a good critical approach overall. This is a worthwhile book for those who need to be reasonably and quickly informed regarding the micronutrient aspects of sports nutrition, and for those who want a quick lead-in to a particular topic in ergogenic aids. It does not supercede Malvin Williams' 1983 source textbook in the area, nor his 1991 handbook, especially for the beginner, but Bucci's taut volume does admirably complement them both.

Craig Sharp BVMS, FIBiol

Swimming

D. L. Costill, E. W. Maglischo and A. B. Richardson
Oxford, UK: Blackwell Scientific Publications, 1992, 207 pp,
ISBN 0 632 03027 7

One of the problems in teaching sports science concerns the selection of genuinely suitable texts, especially those relating to specific sports. The International Olympic Committee has begun to address this problem by initiating a series of publications under the generic title of *The Handbook of Sports Medicine and Science*, a series of texts relating the practical applications of medicine and science to specific sports, which includes *Swimming*, by Costill, Maglischo and Richardson.

Any book with a major input by Professor David Costill is an absolute must for myself and my students. The current volume also contains a major contribution from the renowned swimming coach, Ernest Maglischo of

California State University, and a succinct medical input from Dr A.B. Richardson of Honolulu, who starts by noting that the average competitive swimmer may make 750 000 strokes per arm per year over a career of 8–12 years. (Compare this with Bruce Tulloh's 'Four Million Footsteps' when he ran across America.)

The first of the book's four sections consists of 40 pages on basic physiological aspects of swimming, including muscle function and energetics, fatigue, and specific nutrition. Section 2 is 90 pages on the mechanical aspects of swimming, the first quarter of which discusses swimming biomechanics in terms of propulsion and resistance, followed by a chapter each on the major strokes, and ending with starts and turns.

Section 3 comprises 35 pages on training in which the controversy over 'how much training is enough' is interestingly explored. The final section covers physiological and biomechanical evaluation of swimmers, together with a short 12-page overview of medical aspects.

It is interesting that in a sport where, perhaps, the physiology laboratories can do least for the sport – because none in the UK has a swimming flume – its coaches are among the most scientific of all, as evidenced by the number who take lactate analysers to the pool deck and base training speeds on the results. Indeed my main criticism of this book, is that it does not go into enough detail on all aspects of lactate testing for swimmers. A whole chapter on lactate testing and the application of results would have been an ideal addition.

However, this is an excellent text which I would thoroughly recommend, especially in this cheaper paperback format, for the dedicated coach, the informed swimmer and all who are scientifically involved with swimming.

Craig Sharp BVMS, FIBiol

Current Issues in Biomechanics

Mark D. Grabiner
Champaign, IL, USA: Human Kinetics
Books, 1993, 254 pp,
ISBN 0 87322 387 X

This book meets its stated aims by using an interdisciplinary approach to provide up-to-date reviews, comments and references on a varied selection of biomechanics topics, and by providing speculative comments on future research. The emphasis of the book is not on sporting applications, but there is an underlying sporting theme throughout.

The book is divided into three parts, each containing a number of chapters written by specialists in each specific area of biomechanics. Part I describes sport and clinical applications of biomechanical methods, specifically concentrating on human locomotion

and skeletal muscle mechanics. Part III contains two chapters describing neuromotor elements of biomechanics. The first outlines neuromuscular factors which contribute to limitation of maximum muscular force. The second provides a review of research into the interaction between knee joint ligaments and skeletal muscle contraction.

Each of the three parts begins with a brief introduction and outline of the subjects to be covered. Despite each of the chapters having been compiled by different authors, the general style of the book is maintained throughout. A concise, logical summary of work in

the area is provided first, including recent references. Personal comments are then given on the state of research in the area, and directions suggested for future research.

This book will be particularly useful to undergraduate students requiring a brief and concise outline of the state of research in a particular field of biomechanics, with recent references available to direct future reading. This book will also be of great interest to anyone involved in biomechanics, with the comments on directions for future research being of particular interest.

Sharon Dixon

Physiotherapy Theory and Practice

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Edited by HILARY BADDELEY

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and lifting. Separate chapters consider distance running; the human foot; analysis of human gait, modelling and simulation; and biomechanics of the lower back during lifting. Part II continues the sporting theme, with chapters on ligament structure and function; the dynamic nature of bone;