

**Science and Skiing.** Eds E Muller, H Schwameder, E Kornexi, C Raschner. (Pp 626; £52.00.) London: E and F Spon, 1996. ISBN 0 419 20850 X.

Anyone who has worked with competitive skiers will understand why I was excited at the prospect of reviewing this book. Publications that offer original ideas on the theory and practice of skiing are few and far between. When I did a literature search four years ago on skiing I came up with 24 papers only eight of which were on alpine skiing.

This book is a compilation of papers presented at the first International Conference on Science and Skiing, which was held in Austria in January 1996. It is divided into sections on Biomechanics, Fitness Testing and Training, Movement Control and Psychology, Physiology, and Sociology.

I did expect there to be a bias towards the Nordic events (ski-jumping and cross country skiing) but in fact out of 50 papers there were only 13 on these disciplines.

Although the chapters on the biomechanics of ski-jumping were fascinating, I got a little bogged down in the mathematics of good hill design, not to mention some slightly eccentric English translation.

In this country the vast majority of skiers take part in the alpine events and there are a number of chapters that will be of interest here. We are reliably informed that the load on the hip in controlled alpine and cross country skiing is comparable to that of walking and running, the suggestion being that we should be encouraging our total hip replacements to ski. I may reserve judgement on that. However chapter 15 does describe a technique of swing turns that reduces the load on the hip.

Some of the papers seem to just confirm already held beliefs such as the fact that taking a tighter line around poles gives the racer a faster time but there are many new ideas.

Computer models have been developed that simulate the movements of skiing taking into account a few variable parameters such as ski vibration. This can be run on a PC and may prove useful for coaches.

I was pleased to read confirmation of a fact that many of us already felt to be true that the skis are turning us and not us turning the skis. This new way of looking at techniques suggests that new methods of coaching may need to be developed.

These are also new ideas on training. It is suggested that ski racers should forget about aerobic turning and concentrate on speed endurance. (I know a few ski racers who would agree with that idea.)

This book not only has a lot in it for the coach and sports scientist but also for the sports physician and physiotherapist. The chapter on hydrotherapy was particularly good. The concept that the athlete is injured but still in training and that coming to realise that the injury is an integral part of their being may help the person to comply with their rehabilitation.

I found this book very stimulating and would recommend it as compulsory reading for all ski coaches, sports scientists involved

with skiers and highly recommend it to sports physicians and physiotherapists. I suspect that a few mathematicians and physicists may also find it stimulating.

ADRIENNE REES-JONES  
*Eastbourne*

**Antioxidants and Exercise.** J Karlsson. (Pp 209; £32.00.) Leeds: Human Kinetics, 1997. ISBN 0 87322 896 0.

There has been much concern regarding the role of free radical induced muscle damage in athletes and the possibility that they may require antioxidant supplementation to prevent such complications. This book attempts to deal with this issue and focuses particularly on the roles of vitamins Q (ubiquinone), E ( $\alpha$ -tocopherol), and F<sub>1</sub> (omega-3 fatty acid) and how they relate to exercise, sports, and general health. Evidence is presented of controlled studies in fitness and elite athletes, which show that nutrathrapy of these vitamins reduces signs of radical induced injury as well as improving physical performance. An interesting example relates to the 1994 Swedish World Cup Soccer Team who underwent a period of nutrathrapy with the above vitamins before and during the World Cup campaign in the United States. During this period, the rate of infections and overuse injuries were apparently reduced and the team returned with the bronze medal. However, the issue as to whether nutrients consumed in concentrated and artificial forms constitute a form of "doping" remains unresolved. In general, the book is clearly written and has a number of excellent illustrations. There is a thorough review of free radical biology and antioxidants that I found particularly informative. However the book was primarily concerned with professional athletes and how nutrathrapy would relate to the average person who takes regular or occasional exercise remains unknown. In conclusion, this book is an excellent and stimulating read, which will be of particular interest to those in sports medicine and free radical directed research.

PETER SHARPE  
*Belfast*

**ACSM's Exercise Management for Persons with Chronic Diseases and Disabilities.** Sian Partridge. (Pp 280; £32.00.) Leeds: Human Kinetics (Europe), 1997. ISBN 0 87322 798 0.

Having been involved with GP referral schemes and disabled sport for some years the arrival of this text immediately aroused my interest. However the eager anticipation was not fulfilled on examining the contents. The ACSM have assembled a large collection of authors for the 42 chapters but then have given them about five pages to describe exercise in conditions from Alzheimer's to valvular heart disease. In fairness, it is described as

a reference manual to use as a guide and that the reader should already have extensive knowledge of exercise testing and training. It also claims, however, to be an outline of how to effectively manage people with a condition outside the exercise professional's primary expertise and this is where it falls down for me. For those without a medical background involved in exercise testing it is too lightweight on the details of the conditions. For physicians the exercise advice is helpful but there is always this propensity for suggesting 12 lead exercise ECGs in conditions such as osteoporosis and epilepsy. While trying to promote increased levels of physical activity we should not be placing costly barriers to exercise unless clinically necessary. I am sure I will dip into this book from time to time but I think they have tried to cover too much in one book. There could quite easily be one book for each section.

A D J WEBBORN  
*Eastbourne*

**The Physiology and Pathophysiology of Exercise Tolerance.** Eds J M Steinacker, S A Ward. (Pp 333; \$95.00) New York: Plenum Publishing. ISBN 0 306 45492 0.

This book contains the manuscripts from the International Conference of the same name, which took place in Ulm in 1994. After a historic introduction, the physiological basis of muscular fatigue and systemic limitations to maximum exercise in healthy subjects are discussed. This is followed by papers on the pathophysiology of exercise intolerance, sports specific limitations to exercise in health and disease, and discussions on improving exercise tolerance in health and disease.

Most of the scientific chapters (over 40 in total) are adequately referenced and together they create a wide reaching overview of many aspects of the physiology and pathophysiology of exercise tolerance; some chapters do little more than give a broad overview of their topic but because this is done in a fairly brief way, with references for the interested reader to pursue the subject further, it is entirely acceptable.

A comprehensive index helps to make the publication suitable as a reference book of the area, but, because it is a record of conference proceedings, there are obviously some limitations to its effectiveness as a reference book. To provide a uniform coverage of all aspects of exercise physiology and pathophysiology is beyond the scope of a meeting of only a few days' duration. There are inevitably some gaps in the book that would have been filled if the book had been designed as a reference book. The book also has the advantages of conference proceedings, however, and this goes a long way to compensate: the chapter contributors are recognised experts in their fields, and the material is as close to being current as is possible.

SUSAN M SHIRREFFS  
*Aberdeen*