

Book reviews

M. Freer and H. Dove (editors). *Sheep Nutrition*. Wallingford, Oxon. CABI Publishing and Collingwood, Australia: CSIRO Publishing 2002. £75 (US\$140) (hardback). pp. 385. ISBN 0 85199 595 0

This is a very useful text pulling together a wide range of topics relating specifically to sheep nutrition and physiology, which makes it almost unique. The order of chapters is logical, starting with nutritional value of foodstuffs (roughages), continuing on through the regulation of food intake and food choice to rumen microbial ecology, digestion, metabolism and nutritional requirements for various physiological processes. The later chapters then relate to effects of changes in environment, food availability and parasites and lastly the more practical aspects of nutritional management. All of this is neatly covered in less than 400 pages. As well as including the important practical information on how to feed sheep at different developmental or physiological stages, there are also aspects of biochemical and molecular mechanisms relating both to the nutritional requirements and the physiological processes.

One of the best features of the text is the fact that the nutrition is not split into energy, protein and micronutrients, but that the importance of each of these is discussed in relation to physiology. For example, the chapter entitled 'Nutrition during lactation' includes descriptions of the processes involved, effects of genotype, numbers of lambs and milking, as well as considering the metabolisable energy, protein and micronutrient requirements and nutritional management. Similar chapters cover nutrition for maintenance, wool growth, meat production, and conception and pregnancy. I particularly enjoyed the chapters relating to conception and pregnancy and wool production, which included aspects of molecular, cellular and endocrine regulatory processes.

My only negative comment in terms of content would be that in some cases the references and information provided could have been more up-to-date. But this only applies to a minority of chapters. In terms of the potential target audience for the book, I will be recommending it for our undergraduate courses on Animal Nutrition, but have also recommended it to research colleagues interested in using sheep as models for man in terms of fetal (nutritional) programming. One of the main competitors to this text would be *Animal Nutrition* (6th edition) by McDonald, Edwards, Greenhalgh and Morgan, also published in 2002. This is structured in terms of nutrients rather than physiological processes, which I think is a negative aspect, but it does cover most animal species in approximately 650 pages. The main advantage is the fact that it is available in paperback format and therefore costs less (approximately £50 or US\$90). I would recommend to the publishers of

Sheep Nutrition that they consider publishing in paperback and thereby reduce the cost and make it more affordable to undergraduate students in Animal and Veterinary Sciences.

John Brameld

*Division of Nutritional Biochemistry
University of Nottingham
Sutton Bonington Campus
Loughborough LE12 5RD, UK
john.brameld@nottingham.ac.uk*

DOI: 10.1079/BJN20041037

Tom Sanders and Peter Emery. *Molecular Basis of Human Nutrition*. London: Taylor & Francis 2002. £16.99 (paperback). pp. 176. ISBN 0748407537

Overall, this is a well-written and informative book. Factual information is well described and representative of current opinion. The book is short but certainly not lacking in content. This is attributable to the use of a concise style but which succeeds in containing a mass of information in a very readable form. Throughout the book the authors consistently supplement core material with information that serves to illustrate the importance and relevance of the subject matter. Furthermore, snippets of interesting information add to the book's appeal. For example, few may be aware that vitamin A poisoning may occur after the consumption of seal's liver or that the phrase 'mad as a hatter' owes its origin to the Hg compound used to blacken top hats!

The book begins with a useful chapter outlining some general concepts in human nutrition including basic definitions. The chapter also considers the toxicity of food components and the ways that this can be quantified. The second chapter provides a concise overview of the function of macronutrients as energy sources. Energy balance is considered with respect to obesity but the section is somewhat brief. The chapter does, however, provide worked examples of calculations of energy expenditure by the various available methods including the use of doubly labelled water. These may well be welcomed by students in understanding these methodologies, as such calculations are rarely included in other nutrition texts. The book proceeds to provide a good overview of protein, carbohydrate, fat, minerals and vitamins within distinct chapters each ending with a summary consisting of bulleted points. A chapter entitled 'Deficiency and toxicity disorders' expands on information of previous chapters to consider the diseases caused by malnutrition. In contrast, the

toxicity of the fat-soluble vitamins A and D and the minerals K and Fe is discussed. The harmful effect of chronic exposure to the heavy metals Hg, Pb and Cd provides an interesting end to this chapter.

The use of numerical data within the textbook is plentiful, but given the concise nature of the book readers should not expect any extensive tables of data and there are relatively few illustrations. The book lacks any of the classical illustrations depicting the clinical symptoms of nutrient deficiency but, more surprisingly, structural formulae of the vitamins are also absent. The penultimate chapter in the book entitled 'Diet related diseases' focuses on obesity, diabetes, heart disease, cancer and dental caries. Consistent with previous chapters, this is certainly commendable with respect to its concise nature. However, some readers may regard the chapter as somewhat brief in not providing sufficient discussion given the current focus in this area. The final chapter of the book entitled 'Food' outlines the contemporary and controversial issues within the food industry. Recombinant DNA technology, food additives, aspects of food safety and the development of functional foods are addressed. The chapter adds value to the book in terms of providing interesting reading but some readers may consider the content as simply a 'bolt-on' afterthought and perhaps not consistent with the theme of the book.

The authors have intended this book for use by first- or second-year undergraduate students studying nutrition as part of a degree in molecular life sciences, health sciences or medicine. The book is aimed as a supplementary text to support larger textbooks. An assumption is made by the authors that readers have studied general biochemistry and mammalian physiology. Where appropriate, the authors provide some useful supplementary information within the text such as a description of Na balance by the renin-angiotensin-aldosterone system. However, some biochemical and medical terminology is used in the absence of sufficient explanation. One might be sceptical in assuming that first-year undergraduates have encountered a ' β -ionone ring with a isoprenylated side chain' or are familiar with type IV hyperlipidaemia. Given the concise style of the book, the authors seldom engage in discussion of the scientific evidence pertaining to the factual content. However, where information is provided it serves well to stimulate interest in the subject matter. References for further reading occur at the end of each chapter but these are at a minimum, which some readers may see as somewhat of a weakness of the book. However, given the concise style and rich factual content, this book provides a useful text for all those with an interest in human nutrition.

James O'Reilly

Centre for Healthcare Education
University College Northampton
Northampton NN2 7AL
UK

James.oreilly@northampton.ac.uk

DOI: 10.1079/BJN20041038

Ronald J. Maughan and Louise M. Burke. *Sports Nutrition*. Oxford: Blackwell Science Ltd 2002. £25.95 (paperback). ISBN 0 632 05814 5

In writing *Sports Nutrition*, the authors have collated the ever-growing body of data regarding the major aspects of nutritional status and intervention and presented a clear and concise review of past and present literature. The book contains a useful preface outlining the importance of correct nutritional strategy in sports performance and is thereafter divided into three major parts. These discuss aspects of nutritional needs for training, competition and the practicalities of sports nutrition.

Part one contains chapters dealing with energy demands, macro- and micronutrients, fluids and electrolytes and alcohol. An initial overview of aerobic and anaerobic energy production is well written and accessible to those without specialist knowledge. Of particular interest are the chapters explaining the use of carbohydrate and fats in energy production and the demands and use of protein. These sections set out the basic principles of metabolism and help to dispel many of the myths concerning energy production and muscle hypertrophy. The clever use of expert comments and case studies after each chapter helps the reader by giving practical examples of nutritional problems encountered in a variety of different sports, whether they involve the increase in energy intake, the reduction of body fat or the balance of macro- and micronutrients. Each chapter also contains a brief introduction and summary that provide the reader with a clear aim and overview of the text.

The second part of the book deals with preparation for competition, the use of fluid and food during exercise and the importance and principles of post-exercise recovery. This will be one of the most important areas of text for potential readers and the first chapter in this part provides a concise account of hydration status, carbohydrate-loading strategies and the use and recommended composition of pre-exercise meals. This is followed by advice on hydration and energy intake during exercise. The examples of previous research in these sections allow for the easy dissemination of data and the practical intervention of feeding and fluid strategies, whilst stressing the point that individual variation is common and variation to these protocols may be necessary. Further common-held beliefs propagated by many sports drinks manufacturers are also laid bare in this section. Particular attention is paid to the osmolality of these drinks and the ability to provide effective re-hydration and electrolyte balance. These data are tempered by the additional influences of ambient temperature and exercise duration, as these two factors play a significant role in the fluid and nutritional requirements. The second part of the text ends with a chapter on post-exercise recovery. The importance of this area of nutrition is explained well, with reference to previous chapters, and highlights the aims and objectives of fluid and macronutrient replacement. Throughout this section, attention is paid to the practicalities and availabilities of foodstuffs and advice on the correct choice and quantity of fluid and food.

The final part of this book contains information and advice on the practical aspects of sports nutrition.

These include nutritional status assessment, diet and monitoring techniques, all of which will be of importance to both the athlete and training staff. As many sports involve the use of weight classes, such as most combat sports, and there are those for which a lean physique is required such as gymnastics, a chapter is given over to the safe and effective attainment of these goals and the potential dangers of a deficiency of macro- and micronutrients. Specific emphasis is given to female athletes, for whom a restrictive diet can have a detrimental effect upon menstrual function and bone density. Again, the use of case studies is used effectively to demonstrate the effects of poor nutritional status and the benefits of an effective intervention plan. The use of nutritional ergogenic aids is discussed and provides useful information on their use and possible side effects. This chapter also highlights the use of many compounds by athletes, the effectiveness of which has not been proved, but which continue to be used in the belief that they are of benefit. Further nutritional strategies are discussed which include effects of travelling, special populations and different environments.

In summary, *Sports Nutrition* provides the reader with a concise and accessible body of information in all of the major nutritional requirements of athletes and recreational enthusiasts. The text is organized in a logical manner and is enhanced by the use of figures and tables. As mentioned, the comments and case studies at the end of each chapter are of particular benefit in helping to understand the data given in the text. This book will be of interest and use to athletes and interested parties with a basic knowledge of biological principles and undergraduates taking courses in sport science.

Dean Sculley

*Division of Nutritional Biochemistry
University of Nottingham
Sutton Bonington Campus
Loughborough, LE12 5RD, UK
dean.sculley@nottingham.ac.uk*

DOI: 10.1079/BJN2003928