Book review

Introduction to Nutrition and Metabolism 2nd Edition. David A Bender. London: Taylor & Francis. 1997. £17.95 ISBN 0-7484-0781-2 (paperback)

The first edition of this book appeared in 1993. David Bender states his aim, in the Preface, thus: 'My aim … is both to explain the conclusions of the many expert committees which have deliberated on the problems of nutritional requirements, diet and health over the years, and also the scientific basis on which these experts have reached their conclusions'. At the beginning of the first chapter he states that an adult eats about one tonne of food per year, and that 'this book attempts to answer the question 'Why?' by exploring the need for food and the uses to which food is put in the body'. To these ends, the book provides a wide coverage, from a basic explanation of atoms, molecules and the chemical bond, through cellular biochemistry and the integrated metabolism of carbohydrate, fat and protein, to the more nutritional aspects of 'Why eat?', 'Diet and health: the diseases of affluence' and, as we might expect from an expert in the field, 'Micronutrients: the vitamins and minerals'. This is not the order in which topics are presented: in fact the book begins with 'Why eat?' and 'Diet and health', and later comes onto the basic biochemistry. Although this might not sound a logical arrangement, it works very well, and the first two chapters should help to whet the appetite of the student for a deeper insight into the intermediary processes of metabolism.

The back-cover material tells us that this book 'has been written primarily for undergraduate students of the health and human sciences and nursing, for whom there are still few textbooks of biochemistry written at an appropriate level'. The book is also intended for students in nutrition, dietetics, food science and medicine. It is certainly true that the standard textbooks of biochemistry on the whole fail to paint the integrated picture of biochemistry and metabolism that is appropriate for students outside mainstream biochemistry, and David Bender's book fills that need very well. Strangely enough, for a book written by a well-known figure in nutritional circles, this book is somewhat less satisfactory as a text on nutrition (which receives only three chapters) than as one on metabolism, although the author and publishers certainly do not claim that this is anything other than an introduction, and it would be a good companion to one of the more standard and substantial nutritional texts.

I reviewed the first edition of this book, and so it is interesting to look at how it has developed in this second edition. One obvious change is in the quality of production. The first edition was published by UCL Press, and I commented in my review on the rather home-drawn appearance of the many structural formulas. This edition is nicely presented, with high-quality diagrams, although colour is again not used. A short chapter on 'Inborn Errors of Metabolism' has been dropped from the second edition, perhaps wisely since this is a very specialized field and there is too much material to condense into one short chapter. Otherwise there has been some rearrangement of chapters, but mainly addition of new material. A section on free radicals and antioxidant nutrients is a welcome addition. A new chapter on 'The Role of ATP in Metabolism' brings in some quite detailed information on oxidative phosphorylation, muscle contraction and other aspects of ATP. A chapter on 'The Hormonal Control of Metabolism' that I found rather 'thin' last time has been completely rewritten and includes up-to-date information (albeit brief) on nuclear hormone receptors and regulation of gene expression. The new edition is also more liberally illustrated than the first. A point I like about the book is careful cross-referencing between sections. There are also useful appendices on SI units and nutrient contents of some selected foods, and a comprehensive glossary that students may well find useful for quick reference.

The sections on metabolism and its regulation are not without small errors such as a confusion between LDL and VLDL which occurs in a few places. I think also that the lack of any mention of leptin in a book with chapters on 'Why eat?' and 'Overweight and Obesity', and a section on 'The Hormonal Control of Metabolism', is a serious omission that should be rectified in a future edition. On the whole, however, these are minor criticisms and do not detract from the appeal of this very readable book.

I think this book will find a useful place as an undergraduate text in courses that require an understanding of biochemistry but are outside the detailed molecular understanding required by mainstream biochemistry students. The author and publishers have done a good job in producing this second edition, which has strengths that the first edition lacked, and which overcomes some of the (small) deficiencies of the first edition.

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