

Book Reviews

Physiology of the Human Body

By A. C. Guyton

W. B. Saunders, Philadelphia, 1979, 520 pages, £ 9.50

Previously published under the title “Functions of the Human Body”, this new fifth edition, now *Physiology of the Human Body*, has been retitled to “indicate that the text is used widely, as was intended, in physiology courses in a variety of schools throughout the world”. The author has wished “to choose those aspects of human physiology that will lead the reader to understand basic principles and concepts . . . a strong effort has been made to distinguish fact from theory but not to burden the reader with intricate and insignificant details that more properly belong to a reference textbook”.

This book is a well presented, carefully summarised version of Guyton’s widely known ‘Textbook of Medical Physiology’ and reflects the author’s enthusiasm and interests in physiology. It is divided into 10 sections, of 38 chapters, covering cell physiology; blood and immunity; nerve and muscle; the cardiovascular system; the body fluids and the urinary system; respiration; the central nervous system; the special senses; the gastrointestinal and metabolic systems; and endocrinology and reproduction. Unlike many physiology textbooks, the author includes discussion of the physiology of teeth as well as aviation, space and diving physiology. He also gives some short accounts of equipment, (e.g. oscilloscope, blood pressure and flow equipment, artificial kidney).

The layout of the book is especially clear. Each chapter is split into short subsections by (coloured) headings and these are further subdivided to form short ‘digestible’ paragraphs. The text is readable and the author’s enthusiasm for physiology is apparent. Illustrations are plentiful and helpful and are given in two colours, also with differential shading, which is certainly an advantage to the reader. At the end of each chapter a series of useful basic questions is set and a range of references for further reading given.

Right from the beginning, the author attempts to explain terms and ideas as they are encountered. This is generally well done but some areas seem rather condensed and in parts further explanation would be useful (e.g. respiration). On the whole, the amount of experimental work presented is not very great. A range of references is always given after each chapter but the inclusion also of a few ‘classic’ short texts, (such as ‘Katz-Nerve, Muscle and Synapse’ and ‘West-Respiratory Physiology’) would be helpful. There is a general tendency to omit from the text the names of distinguished physiologists, to hear of whom, therefore, the new physiologist would have to undertake further reading. (We now seem to have lost Starling’s name – as well as Frank’s – from the ‘Law of the Heart’).

The book is certainly a useful introduction to physiology; its intentional summarised approach means it would not, by itself, be adequate for medical or physiology undergraduates, who would require a more detailed, experimental textbook.

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Review of Human Physiology

By H. F. Winter and M. L. Shourd

W. B. Saunders, Philadelphia, 1978, 563 pages, £ 8.50

As its secondary title suggests, this book is a “Companion to Guyton’s Textbook of Medical Physiology and Basic Human Physiology”. Its purpose is “to provide a systematic means of review and self evaluation of the student’s comprehension of major concepts of Arthur C. Guyton’s Textbook of Medical Physiology”.

Its format consists of a series of learning objectives followed by content review statements for each objective, arranged in the form of multiple choice questions. Answers to these are given in a separate section at the back of the book, which provides also a page reference for the relevant section in Guyton. The book follows Guyton chapter by chapter and throughout the 83 sections, numbers relate to the corresponding numbered chapters in Guyton. Within each section there are 4–20 learning objectives and between 18–141 review statements/multiple choice questions (MCQ), with an average number of about 60. The total number of questions approaches almost 5000. This format of objectives and listed review statements is generally well set out. However the method of presenting the MCQ alternatives is, at first, off-putting in that abbreviations are often used (e.g. N nervous, I increase, C contract). This is not a major problem, although the questions where the alternatives are written out in full are easier to read. The diagrams given are useful, but they are not abundant and greater use could have been made of these in the review. Many of the questions also tend to test simply factual knowledge, although there is an attempt in some questions to get the student to test his power of reasoning. The inclusion of graphs giving experimental data or more use of simple calculations might have helped the student in interpretation of data. However it is appreciated that some constraint is placed on the type of MCQ set, by the plan that, on completion, they should provide a useful set of review statements. The aim of the book is certainly to be of more use than a simple list of MCQ and the provision of the learning objectives is helpful. The listing of the answers at the back of the book as “abc” etc plus a page reference to Guyton, is less easy to use than the system used in many MCQ books, that of writing on the opposite page “true” or “false” with a sentence explaining the answer. For the student who uses Guyton the page references are undoubtedly helpful. The authors’ aim is for the student to use the book as a self assessment manual after reading the relevant Guyton chapter and by giving the precise page references the student can then go back quickly to those areas which he found difficult.

No provision of any marking scheme is included and some students find a (+1, -1, 0) method of scoring helpful in self assessment. No guidance is given about what proportion of the question a good or average student can be expected to get right.

As far as the scope of the book is concerned, it is really a comprehensive coverage of physiology, following Guyton paragraph by paragraph. Thus the range and number of questions is greater than in a normal MCQ book. The emphasis on topics

parallels Guyton. The largest number of sections are on Blood, Heart and Circulation (22) and Nervous System, including basic nerve and muscle and Special Senses (20), with sections also on cell and general physiology (4), Kidney and Body Fluids (9), Respiration (5), Aviation Space and Diving (2), Gastrointestinal Tract (4), Metabolism and Temperature Regulation (8), Endocrinology and Reproduction (9). As Guyton includes clinical references the "Review" may be of value to others besides preclinical medical students and physiology undergraduates.

This book is certainly a new approach to student/individual self instruction and, by providing learning objectives and MCQ which when completed provide useful review statements, the book is of wider scope than an ordinary MCQ book. Some parts could be used for tutorial sessions as well as individual study. However the value to students and teachers depends to some extent on how much they use Guyton's Textbook of Medical Physiology 5th edition. For the student who uses Guyton as his physiology textbook, this book could be an extremely useful supplement to his reading and provide a valuable method of self assessment. Students using other books may find this of lesser, but still of reasonable, assistance in their studies.

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Handbook of Total Parenteral Nutrition

By J. P. Grant

W. B. Saunders, Philadelphia, 1980, £ 10.00

Knowledge and experience in the art of parenteral nutrition has increased rapidly over the last few years. Dr. J. P. Grant has undertaken to summarise the correct state of the art and has succeeded admirably. He has reviewed literature on the subject and has added to this the experience gained by his team at Duke University Medical Centre.

The book is put into perspective by a brief historical review followed by a chapter on the team approach to parenteral nutrition. This is to be encouraged, an experienced team 'maximising benefits and minimising complications'. The chapter on patient selection contains a clear and much needed section on nutritional assessment and as stressed must be carefully interpreted and utilised as supportive information – not as definitive criteria for patient selection. A detailed chapter is included on subclavian catheter insertion and its complications. Unfortunately, internal jugular vein catheter insertion is only mentioned briefly – the route being preferable in a patient on a volume cycled ventilator – the incidence of pneumothorax being less. Routine changing of the catheter is not advocated – this is reasonable provided the line is not being used for intravenous drug therapy – under such circumstances it is wise to change the line once every 7–10 days.

The chapter reviewing principles of human metabolism related to intravenous feeding is written succinctly, covers an extensive field and is supported by a full and up to date reference list.

It is unfortunate that S.I. units are not used (or it is a pity that we do) since a calculator and knowledge of the conversion factors is needed in certain chapters.

Parenteral nutrition in the U.S.A. seems complex, each solution being made up from a basic solution with multiple ingredients added. Such multiple additives may lead to incompatibility and the usual system in the U.K. of adding 1 or 2 additives to a solution

made up by the manufacturer, leads to simpler therapy. In Britain, for instance, Electrolyte Solution A and B (Travenol Laboratories) 500 ml of each, generally caters for the calcium, magnesium and phosphate requirements of an adult, whilst simultaneously giving carbohydrate calories. No mention is made of the considerable advantage in assessing glucose tolerance and assessing insulin requirements according to capillary blood glucose analysis.

Transition to oral feeding is often facilitated by initial supplemental nutrition via a gastric feeding tube – the authors suggest that this technique should only be tried after offering small oral feeds. However, many patients during the stage of intestinal recovery are semicomatose or being ventilated and feeding via a narrow bore tube is necessary.

The chapter on septic and metabolic complications, their recognition and management, is excellent. Sensible advice is given about the use of antibiotics in catheter sepsis. No mention is made about a developing metabolic alkalosis being commonly related to total body potassium depletion. The final two chapters are devoted to trace element requirements, vitamin requirements and deficiency syndromes. The section on trace element deficiency states is of particular value, summarising the literature on the complex and rather esoteric problem.

In summary, the book is an excellent guide to the practical aspects of parenteral nutrition – is practical and easy to read. Unfortunately, the actual preparations used do not relate to practice in the U.K. but much literature is easily obtainable on this topic. The main value of the text is the practical guidance on the important and poorly reviewed aspects, of patient selection, catheter management, metabolic care and sequential and nutritional assessment. It is a text that I can highly recommend to any staff with particular interest in clinical nutrition.

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ARDS. Akutes Atemnotsyndrom des Erwachsenen. Adult Respiratory Distress Syndrome

Edited by G. Wolff, R. Keller and P. M. Suster

Springer-Verlag, Berlin, Heidelberg, New York, 1980, illus.
DM 49.50, \$ 29.20 (approx), published in german

Based upon the author's own experience, this book reviews and summarizes the present knowledge about adult respiratory distress syndrome (clinical symptoms and findings, pathology, pathophysiology, etiology and therapy). The work is edited by well-known experts in intensive care medicine, who have written a considerable part of the book themselves.

Results of personal investigations as well as illustrative case descriptions are included in most chapters. Nevertheless, the book can be read as a coherent monograph, in contrast to other publications which merely compile manuscripts of symposia presentations. The book is to be recommended to all physicians and investigators involved in intensive therapy.

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