

Book Review

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Ruth Ayling and William Marshall, *Nutrition and Laboratory Medicine*. London: ACB Venture Publications. Price £30.00. pp. 212. ISBN 978-0-902429-44-4.

The foreword to the book discusses the problems of over- and undernutrition and asks ‘how can the laboratory contribute to nutritional care?’. The authors attempt to show the scope of laboratory measurement in determining specific nutrient deficiencies. We all know that nutrition assessment covers a wide range of settings and conditions. In any clinical context, a diagnostic sieve would use simpler methods to identify risk areas which can then be investigated with specific (and more expensive) tests. Thus, in community medicine, it is better to identify individuals who have increased risk of nutritional deficiency by a process of defining those characteristics which are known to be associated with poor diet or poor tolerance to an adequate macronutrient intake⁽¹⁾. Common examples would be patients known to abuse alcohol (for example, B vitamin deficiency, muscle wasting) or elderly individuals with poor dentition and periodontal disease who are at higher risk of developing systemic infections or vascular disease^(2,3) or vitamin B₁₂ deficiency⁽⁴⁾. Clearly, measurement of B vitamin status in all patients would be an expensive exercise which would only bring marked benefit to a minority, whereas asking about false teeth might help narrow the search.

In this context, the book provides a thorough review of nutrition which is relevant not only to medically qualified clinical practitioners, but also to biomedical scientists who are medical laboratory scientific officers and work in hospital laboratories. The authors believe that ‘no medical speciality “owns” nutrition’, presumably meaning that it is not the sole domain of gastroenterologists or anaesthetists.

The opening chapter sets out the scope of clinical nutrition by considering simple starvation, chronic undernutrition and the added burden of disease on nutrition status. Muscle wasting, as a common theme, is then linked, in a brisk fashion, to disorders of excess eating and a nice description of other harmful effects of food (for example, food sensitivity and food poisoning). Two subsequent chapters, which account for nearly half of the book, describe the metabolism of individual nutrients and intestinal uptake and malabsorption. The description of each nutrient is presented in a uniform way (i.e. function, sources, homeostasis, deficiency and excess). This is particularly helpful because it allows the reader to get a snapshot view, especially when considering naturally grouped nutrients such as Ca and P or F, iodine and Se. The chapter on ‘Digestion Absorption and Malabsorption’ is excellent and provides a good overview of intestinal function. In some senses it is rather too brief in places and could have benefited from a couple more tables to summarise water and electrolyte handling and major sites of assimilation of macronutrients. There is now such a wealth of knowledge on transporters that this could also have been incorporated in order to avoid general statements that

solutes cross membranes by passive diffusion. The section on causes and consequences of malabsorption is particularly thorough. I liked the chapter on ‘Nutritional Assessment’ because the authors have provided a very wide-ranging review of the hotch-potch of methods and give clear guidance on those which, they believe on grounds of cost, specificity or sensitivity, are useful and those which are not. The chapter covers nutrition screening tools (for example, the malnutrition universal screening tool (MUST) and subjective global assessment (SGA)), dietary and clinical assessment, anthropometry, laboratory investigations, calorimetry and body composition measurements. This is a wide scope indeed and I liked the fact that they also like my favourite, the prognostic inflammatory and nutritional index (PINI)⁽⁵⁾ but disliked another favourite, N balance^(6,7) on the grounds that it is so often done badly as to yield unusable results. The chapter on ‘Nutrition Support’ covers enteral and parenteral feeding in some detail and describes the complications of both modes of feeding clearly. Obesity is considered in one chapter which gives an up-to-date overview of the differing views on causes of weight gain. The sections on complication of and treatment of obesity are well balanced because they give a clear idea of the efficacy of each treatment (in terms of excess weight loss) and the complications which may arise. The reader might consider that, in terms of sheer effectiveness, Roux-en-Y gastric bypass is hard to beat because it leads to significant and sustained weight loss⁽⁸⁾, cures type 2 diabetes in 70 % of cases within weeks and will pay for itself within 4 years (when reduced long-term complications of obesity are factored in). However, Ayling & Marshall provide a clear view on the emerging incidence of nutritional deficiencies which can develop if treatment is not supported by a team approach, which includes dietitians⁽⁹⁾.

Chapter 7 is introduced by the statement about the ‘numerous conditions in which dietary interventions have been proven to have a beneficial role, either alone or in conjunction with other forms of treatment’. The alphabetical order of treatments puts CVD before nutrionics and nutrigenetics. I was surprised at the shortness of the section on liver disease, but on inspection, it clearly summarised what is helpful (feed enough protein but mitigate colonic ammoniogenesis), what is speculative (branched-chain amino acid supplements may help) and what is difficult (reduce salt intake to help manage ascites but the patients may not stick to such a bland diet).

Overall, the authors have succeeded in their aim by writing a well-structured and concise book which is clearly aimed at clinical biochemists and doctors who, they feel, are often woefully ignorant about nutrition. This is quite a limited audience and on this reading, the Association for Clinical Biochemistry must clearly take their educational and charitable responsibilities seriously. However, I predict that this book will prove to be very useful in two other settings. It would be generally useful for any nutritionist who has not been exposed to the ‘dark side’ of the subject in their undergraduate studies.

An unbalanced focus on public health nutrition can lead to a knowledge gap about the effect of disease on nutrition status, mainly because it considers the converse, that is the effect of nutrition status on disease progression. The book would be an excellent adjunct, especially for undergraduate and postgraduate students whose courses may not run alongside those for dietetics. I would therefore recommend the book to undergraduate and postgraduate tutors on straight nutrition courses. The summary on nutrition treatment of liver disease (see above) alone is worth the book's cost and indicates Ayling & Marshall's great expertise in this area. Lastly, the book is nicely written and very readable.

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