Book reviews

Regulation of Food Intake and Energy Expenditure, 1999. Margriet S. Westerterp-Platenga, Antony S. Steffens and Angelo Tremblay (editors). Euro 38

Food intake and energy expenditure, the central themes of this book, represent the entry and exit in the flux of energy transformations through which life exists. To what extent they can be considered the crucial 'regulated' variables in energy balance is debatable. One might argue that the true regulated variables are integrated entities that establish what system-physiologists refer to as 'set levels' or 'preferred levels' of energy balance, body weight and body composition, and which are defended through the operation of several highly interacting control systems which collectively alter food intake and energy expenditure. It is perhaps the absence of a framework built around more 'holistic' themes that renders the twenty-four chapters of this book somehow disconnected from each other and which dampens the objective set out in the preface, namely a book that reviews: 'The variability in food intake and expenditure … which apparently results in a particular homeostasis, called energy balance'. These short-comings are however largely compensated for by the compilation of mostly high-quality reviews in specific areas of food intake and energy expenditure, which are presented in an easy-to-read format that would be appealing to a wide audience. These review chapters are grouped together in five separate parts and are well referenced by more than 1300 articles which are all listed at the end of the book.

The first twelve chapters that constitute parts I and II address the sensorial, behavioural, and physiological aspects of food intake and feeding pattern. Whereas the first chapter focuses upon the way the brain may be processing taste and smell of food, the second chapter describes the highly complex (and highly redundant) neurohormonal control of meal initiation and its termination, and how socio-cultural, psychological, sensorial and cognitive factors may modify the manner in which an individual responds to the biologically-derived hunger and satiety signals. These are followed by overviews of the dominant topic of human nutrition and metabolism throughout much of this past decade, namely the control of appetite, satiety and metabolism from the perspective of macronutrient balance. Whereas chapter 3 discusses the physiological mechanisms by which the composition of fuel oxidized (carbohydrate, fat, protein, alcohol) are adjusted to match the composition of food ingested, chapter 4 examines how exercise could influence macronutrient intake and various other aspects of eating pattern such as meal size and meal frequency. The closing chapter of part I describes the clinical features of eating disorders, explores the factors which contribute to the aetiology of anorexia and bulimia, and proposes a theoretical framework based upon a psychobiological approach to appetite control and in which resynchronization of the psychobiological system is the goal of nutritional therapy. In part II, the focus is more on our understanding of short-term and long-term regulation of food intake and weight regulation from the use of animal models. This section consists of four chapters (6–9) which, taken together, attempt to integrate the large amount of animal data about the impact of neural and hormonal signals derived from the alimentary tract, adipose tissue, pancreas and liver onto central pathways that control food intake, and how endogenous time programs in circadian pacemakers serve to control feeding and drinking behaviour.

In part III, the focus is on the role of genes in the aetiology of human obesity. After dealing with chromosomal and Mendelian disorders related to food intake in humans (chapter 10), the importance of genetic *v.* environmental factors in the more common form of obesity (essential obesity) is reviewed from an analysis of studies based upon heritability traits from family, adoption and twin studies. It is terminated with a state-of-the-art review about the role of leptin in the link between adipose tissue fat stores and central neural network implicated in the control of feeding behaviour and energy balance regulation.

The second half of the book (parts IV and V) deals with more 'applied' topics in body weight and energy balance regulation in humans, such as the impact of obesity therapy, pregnancy, gender, the ageing process, exercise, high altitude and cancer on food intake and energy expenditure. Also included in this section are two chapters dealing specifically with the potential role of β_3 adrenoceptors and novel uncoupling proteins in human energy balance, and hence two potential targets for drug intervention for the stimulation of thermogenesis and substrate balance in obesity management. The last chapter addresses energy balance from a much broader perspective: that of evolutionary survival value. It reminds us how interesting insights into our understanding of 'adaptation' to food shortage might be gained from an analysis of strategies by which reptiles, birds, geese and iguanas adapt to their environments in order to optimize their survival and/or the survival of their offsprings.

Basically, this book covers a very wide area of interest in the field of energy balance and body weight regulation. It is nowadays rare to find such a compilation of reviews at such a low price.

Abdul G. Dulloo

Diet, Lipoproteins and Coronary Heart Disease, 1999. E. H. Mangiapane and A. M. Salter. Nottingham: Nottingham University Press. pp. 180. £20.00. ISBN 1-897676-81-6.

The book concentrates mainly on biochemical aspects of CHD with chapters on atherosclerosis, risk factors, and the roles of lipoproteins, dietary cholesterol, other macronutrients and micronutrients, as well as predisposing medical conditions such as obesity and diabetes. Probably the

most useful aspect of the book for the student is the clear and concise explanation of the biochemistry of lipoproteins and interactions with important micronutrients such as antioxidants. By and large the emphasis is on the influence of dietary factors on plasma lipoproteins and their roles in atherosclerosis: I feel there remains some scope for fuller explanation and discussion of influences on thrombosis as a pathological mechanism in coronary heart disease.

The authors invoke epidemiological studies to identify and substantiate the various risk factors in CHD and all of the key studies are included. The authors make the point, as the French paradox illustrates, that not all risk factors behave in the way we expect them to because of interactions with others. Perhaps more could be made of this when considering the preventive aspects of CHD: one of the issues largely ignored in this volume is the effectiveness of dietary and other interventions in controlling or preventing CHD, with only the Multiple Risk Factor Intervention Trial (MRFIT), Scandinavian Simvastatin Survival Study (4S) and the West of Scotland Study discussed in any detail.

All in all the book serves as a good introduction to dietary risk factors and their biochemistry in CHD, although I believe the practitioner dietitian may be a little disappointed by the lack of evidence presented for effective intervention strategies in the various risk and general populations.

Steven L. Mera