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0521652375 - Child and Adolescent Obesity: Causes and Consequences, Prevention and Management
Edited by Walter Burniat, Tim J. Cole, Inge Lissau and Elizabeth M. E. Poskitt
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Child and Adolescent Obesity

This book addresses the ever-increasing problem of obesity in children and adolescents, the long-term health and social problems that arise from this, and approaches to prevention and management. This comprehensive survey of an important and growing medical problem will help inform, influence and educate those charged with tackling this crisis. It covers all aspects of obesity from epidemiology and prevention to recent developments in biochemistry and genetics, and to the varied approaches to management which are influenced by social and clinical need. A Foreword by William Dietz and a forward-looking 'future perspectives' conclusion by Philip James embrace an international team of authors, all with first-hand experience of the issues posed by obesity in the young. Aimed at doctors, and all health-care professionals, it will be of interest to all those concerned about the increasing prevalence of obesity in children and adolescents.

'The epidemic of obesity is not yet viewed with the urgency that it demands . . . The questions and challenges that the epidemic provokes provide us with an exciting and unique opportunity to shape a new field.'
William H. Dietz
From the Foreword

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Causes and Consequences, Prevention and Management

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Foreword

Childhood obesity has now become the most prevalent nutritional disease in developed countries. For example, the prevalence of obesity, defined as a body mass index (BMI) equal to or above the 95th centile for children of the same age and sex, now affects 10–15% of children and adolescents in the United States (Flegal et al., 1998). When the prevalence of obesity in the United States is compared across nationally representative surveys conducted over the last 30 years, the most rapid increases in prevalence occurred between 1980 and 1994. The greatest increases in body weight have occurred in children and adolescents in the upper half of the BMI distribution (Troiano & Flegal, 1998). Stated another way, the mean BMI for children of the same age and sex has increased more than the median. These observations suggest at least two possibilities. They may suggest that the genes that predispose to obesity occur in approximately 50% of the population. Alternatively, these observations suggest that the factors that influence the development of obesity are discrete, and act only on half of the population.

Elsewhere in the world, obesity is also increasing rapidly. Nevertheless, the world-wide prevalence of obesity is generally lower than the prevalence observed among children and adolescents in the United States.

The factors that account for the rapid changes in prevalence remain unclear. The rapidity of the changes in prevalence clearly excludes a genetic basis for the changes, because the gene pool remained unchanged between 1980 and 1994. Because obesity can only result from an imbalance of energy intake and expenditure, it may be useful to review the changes in diet and activity that occurred synchronously with the changes in prevalence. It should be clear throughout this discussion that no data yet exist that link obesity to any of the following behaviours. Nevertheless, these behavioural shifts offer reasonable and testable hypotheses. For example, in the 1970s, the advent of the microwave oven made it possible for children to select and prepare their own meals without parental oversight. Likewise, substantial increases have occurred in food consumption outside the home. Currently, 35% of a family's food expenditure in the United States is spent

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on food consumed outside the home. Between 7% and 12% of children and adolescents skip breakfast. Few children consume a dietary pattern consistent with the food guide pyramid. The consumption of soft drinks has almost doubled in the last 15 years. Over 12 000 new food products are introduced annually in the United States. All of these dietary factors may increase the difficulty associated with the establishment and maintenance of a healthy body weight.

Activity deserves equal attention. Marked declines in vigorous physical activity occur in adolescent girls, at a time when susceptibility to obesity is heightened (Heath et al., 1994). In the United States, the number of schools that offer daily physical education has declined by almost 30% over the past decade. In addition, the percentage of children who watch five or more hours of television daily has increased to 30%. Increased numbers of working mothers and a perceived lack of neighbourhood safety may contribute further to increased levels of inactivity.

Until quite recently, obesity in children was viewed as a cosmetic problem. The major risks associated with obesity in children and adolescents were those consequences that resulted when obesity persisted into adulthood. However, more recent experience indicates that significant health risks are associated with obesity in childhood. For example, we have recently shown that 65% of overweight 5- to 10-year-olds have at least one cardiovascular disease risk factor, such as elevated blood pressure or lipid levels, and 25% have two or more risk factors (Freedman et al., 1999). Furthermore, type II diabetes mellitus now accounts for up to 30% of new diabetes cases in some paediatric clinics, and up to 3% of some paediatric populations, such as Native Americans, now suffer from this problem. The overwhelming majority of type II paediatric diabetic cases occur in obese patients.

To summarize, obesity is prevalent, it appears to be increasing and significant effects are demonstrable in childhood. Effective treatment of affected children, and prevention of obesity in children who are susceptible must become a priority. The challenge is how to accomplish both goals. Care for mildly to moderately overweight patients will require the service of primary care practitioners, and guidelines now exist to enhance these services (Barlow & Dietz, 1998). Effective treatment for severely obese children is essential and will probably require care in speciality clinics. However, effective prevention of obesity in nonoverweight children may also help reduce body weight in children who are already overweight. As with nutritional deficiency diseases, where the addition of iodine to salt reduces goitre, or the addition of fluoride to water reduces dental decay, environmental modification may represent the most durable, effective and cheapest intervention. Nevertheless, until the causes of obesity are better understood, the target of the environmental dietary intervention must be based on logic rather than science.

In contrast to dietary interventions, efforts that increase physical activity or

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reduce inactivity appear warranted. Although we lack data to demonstrate that such measures effectively reduce the incidence of obesity in the population, increased physical activity has demonstrated benefit for the comorbidities of obesity, such as hypertension, diabetes and hyperlipidaemia.

Prevention presents additional challenges. The epidemic of obesity is not yet viewed with the urgency that it demands. Paediatricians are poorly equipped to treat obesity, and methods that help primary-care providers target specific behaviours, like computer-based interactive questionnaires, are still in a developmental phase. Effective means to maintain weight in those who are gaining weight too rapidly or to reduce weight in those who are overweight must be established. Finally, the environmental infrastructure necessary to promote physical activity in the many settings that affect children must be developed and evaluated.

Rarely have we had the opportunity to observe an epidemic of chronic disease occur before our eyes. The questions and challenges that the epidemic provokes provide us with an exciting and unique opportunity to shape a new field. As Winston Churchill once said:

> Now this is not the end. It is not even the beginning of the end. But it is, perhaps, the end of the beginning.

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William H. Dietz

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Preface

Overnutrition in the form of unusual fatness has been recognized over the ages and in all societies. In the past, fatness was usually seen as a sign of health, opulence and/or fertility. Today we know that obesity tends to be accompanied by a number of adverse health risks, and obese individuals are too often viewed as figures either of fun or of dislike. Yet, for all the health disadvantages and social opprobrium, obesity and overweight are developing in epidemic proportions in the westernized developed world. We recognize this epidemic in the need to enlarge and reinforce seats in theatres and aeroplanes and in the need for change in clothing styles and sizes, for example. Even in less affluent countries, the fat 'little Emperors' of small families amongst the urban well-to-do are becoming legendary.

The extent to which the high prevalence of adult obesity has its origins in childhood obesity is widely debated. The question remains unanswered but it is clear that, along with increasing obesity in adults, there is increasing obesity in children at all ages. We are not short of theories for the development of obesity in children but we seem powerless to control the increase – leading to great concerns for future adult health.

Two of us met in 1988 because of a shared concern that too few of those speaking for obesity in childhood were clinically involved with children and their health. From this meeting arose the European Childhood Obesity Group, perhaps still the only international group of paediatric health professionals working with obese children. Many of our authors are members of this group and relate their varied clinical experiences, making the book not only a source of research information but also an emporium of practical expertise.

In the book we attempt to examine the epidemiology, sociology and pathology behind childhood obesity. Having presented the current situation regarding childhood obesity, we go on to discuss approaches to prevention and management. Throughout, we have tried to be practical and realistic whilst recognizing that there are no simple answers nor easy treatments for obesity, whether in children or adults.

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As we compiled the book we were conscious that there were common issues and themes running through many chapters. We have tried to avoid unnecessary repetition by frequent textual references to other chapters but we recognize the book is not likely to be read at one sitting. Each chapter should 'stand by itself' and be complete in itself. Thus some topics do feature in several sections of the book, albeit in relation to different aspects of childhood obesity and overweight.

It is our belief that Society needs to have more sympathy and understanding for the problems of the obese. However, Society also needs to create communal environments that facilitate lifestyles which discourage the development of obesity. Unless we can achieve changes at national and community as well as at individual levels, the present epidemic of obesity and overweight seems likely to continue until overweight is the norm. The complications of excess weight will then become the accepted consequences of a lifetime of inappropriate nutrition and inactivity. It is our hope that this book will go some way to raising the issue of child obesity to a wider circle than the health workers and research workers for whom it is primarily written.

The Editors
Cambridge, January 2002

Walter Burniat
Tim J. Cole
Inge Lissau
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