Obesogenic Environments
Complexities, Perceptions
and Objective Measures

Edited by

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## Contents

Contributors xi
About the Editors xv
Dedication xvii
Acknowledgements xix

1 An International Perspective on Obesity and Obesogenic Environments 1
   W. Philip T. James, Rachel Jackson-Leach and Neville Rigby
   1.1 Introduction: the emergence of obesity 1
   1.2 The magnitude of the problem 2
   1.3 The basis for the current underestimated burden of obesity 2
   1.4 Individual susceptibility to weight gain and the persistence of obesity 4
   1.5 The environmental basis for the obesity epidemic 4

2 Towards Transdisciplinary Approaches to Tackle Obesity 11
   Tim G. Townshend, Louisa Ells, Seraphim Alvanides and Amelia A. Lake
   2.1 The focus on interdisciplinary research 11
   2.2 Defining modes of interdisciplinarity 12
   2.3 The complexity of obesity 13
   2.4 The challenge of interdisciplinary understanding 15
     2.4.1 Lessons from the field of sustainability 15
     2.4.2 Language as a barrier 16
     2.4.3 Academic positioning 16
     2.4.4 Summary of barriers 17
   2.5 Interdisciplinary policy and practice 17
   2.6 Discussion 18

3 Walkability, Neighbourhood Design and Obesity 21
   Jennifer Robertson-Wilson and Billie Giles-Corti
   3.1 Introduction 21
   3.2 What is walkability? 21
   3.3 Measuring walkability 23
   3.4 Linking neighbourhood design aspects of walkability to obesity 23
     3.4.1 Walkability and obesity 23
   3.5 Breaking down walkability 24
     3.5.1 Density 24
     3.5.2 Land use mix 26
     3.5.3 Street connectivity 26
3.6 Urban sprawl, geographic location and obesity 26
3.7 Other design features and obesity 27
3.8 Neighbourhood design as a moderator 28
3.9 Summary of findings and future directions in research on the impact of neighbourhood design and/or walkability and obesity? 28
  3.9.1 Study design 29
  3.9.2 Neighbourhood definition 31
  3.9.3 Measurement 32
3.10 Summary 34

4 Availability and Accessibility in Physical Activity Environments 41
Andy Jones and Jenna Panter
4.1 Introduction 41
4.2 The concept of availability and accessibility 41
4.3 Perceived and objective measures of the physical activity environment 45
  4.3.1 Perceived measures of the environment 45
  4.3.2 Objective measures of the environment 47
4.4 Comparing perceived and objective measures 49
4.5 Relationships with utilisation 50
4.6 Equity of access and facility provision 51
4.7 Conclusions 55

5 Defining and Mapping Obesogenic Environments for Children 63
Kimberley L. Edwards
5.1 Children’s obesogenic environments 63
5.2 Advantages of mapping obesogenic environments in children 65
5.3 How to map obesogenic environments – data representation 66
5.4 Problems with spatial data 69
5.5 Spatial analysis techniques 71
5.6 Conclusion 75
5.7 Acknowledgements 76

6 Objective Measurement of Children’s Physical Activity in the Environment: UK Perspective 81
Ashley Cooper and Angie Page
6.1 UK policy and research context 81
6.2 A brief review of current studies in the United Kingdom 82
  6.2.1 CAPABLE: Children’s Activities, Perceptions and Behaviour in the Local Environment 82
  6.2.2 SPEEDY: Sport, Physical activity and Eating behaviour: Environmental Determinants in Young people 82
  6.2.3 PEACH: Personal and Environmental Associations with Children’s Health 83
6.3 Objective measurement in physical activity research 84
  6.3.1 Motion sensors 84
  6.3.2 Use of GPS to investigate children’s spatial mobility 87
  6.3.3 Combining GPS and accelerometry 89
6.4 Conclusion 91
7 Physical Activity and Environments Which Promote Active Living in Youth (US) 97
    H. Mollie Greves Grow and Brian E. Saelens
    7.1 Introduction 97
    7.1.1 Background 97
    7.2 Case examples 98
    7.3 School and child care 100
    7.3.1 Active transport to school 100
    7.3.2 Within-school environments 102
    7.3.3 After-school programs 104
    7.3.4 Child care settings 104
    7.4 Community settings (home/neighbourhood) 105
    7.4.1 Young children 105
    7.4.2 School-age children and adolescents 106
    7.5 Conclusions and future research 109
8 Active Travel 117
    Roger L. Mackett
    8.1 The potential for active travel 117
    8.2 Trends in active travel 118
    8.3 Barriers to active travel 119
    8.4 Overcoming the barriers to active travel 123
    8.5 Policies and measures to increase the volume of active travel 126
    8.6 The effectiveness of policies and measures to increase the volume of active travel 127
    8.7 Conclusions 128
9 Greenspace, Obesity and Health: Evidence and Issues 133
    Caroline Brown
    9.1 Introduction 133
    9.2 Greenspace, health and obesity 133
    9.3 Greenspace, obesity and food 135
    9.4 Greenspace and physical activity 137
    9.4.1 Greenspace as a setting for exercise 137
    9.4.2 Greenspace as a motivation for exercise 139
    9.5 Greenspace and children’s health 140
    9.6 Greenspace provision and policy 141
    9.6.1 The historic context 142
    9.6.2 The institutional context 142
    9.6.3 The policy context 143
    9.7 Conclusions 145
10 Eating Behaviours and the Food Environment 149
    Kylie Ball, David Crawford, Anna Timperio and Jo Salmon
    10.1 Introduction 149
    10.2 Which eating behaviours influence obesity risk? 149
    10.3 What do we know about the influence of the food environment on eating behaviours? 150
10.4 Adults 150
  10.4.1 Observational studies 150
  10.4.2 Experimental studies 151
10.5 Children and adolescents 153
  10.5.1 Observational studies 153
  10.5.2 Experimental studies 154
10.6 Summary of evidence 155
10.7 How should we interpret existing evidence? 155
10.8 Defining the neighbourhood environment 155
  10.8.1 Should we assess subjective or objective food environments? 156
  10.8.2 The importance of understanding the behavioural context 157
  10.8.3 Are existing conceptual models adequate and appropriate? 157
10.9 Conclusions and future research directions 158

11 Food Policy and Food Governance – Changing Behaviours 165
Amelia A. Lake and Jane L. Midgley

11.1 Introduction 165
11.2 Dietary guidelines and recommendations with reference to obesity prevention 168
11.3 Individual versus the environment 168
11.4 Food policy 169
  11.4.1 The overarching food policy landscape 170
  11.4.2 Public health 171
  11.4.3 Agriculture 172
  11.4.4 Planning policy 173
11.5 Food provision and food access 175
11.6 Future for food policy 177

12 Neighbourhood Histories and Health: Social Deprivation and Food Retailing in Christchurch, New Zealand, 1966–2005 183
Jamie Pearce and Peter Day

12.1 Introduction 183
  12.1.1 Data and methods 186
12.2 Results 187
12.3 Discussion 193
12.4 Conclusion 194
12.5 Acknowledgement 195

13 Environmental Correlates of Nutrition and Physical Activity: Moving Beyond the Promise 199
Frank J. van Lenthe and Johnannes Brug

13.1 Introduction 199
13.2 Environmental correlates of physical activity and diet: underlying reasons for promising findings 199
13.3 Environmental correlates of physical activity 200
13.4 Environmental correlates of diet 202
13.5 Moving beyond the promise: a research agenda

13.5.1 Providing robust answers to the right questions

13.5.2 Development and application of a true socio-ecological theory

13.5.3 Integrating different elements of the environment

13.5.4 Improving the measurement of (physical) environmental characteristics

13.5.5 Exploring environmental–individual interactions

13.5.6 Improving statistical methods: beyond multilevel modelling

13.5.7 Improving causality

13.5.8 Taking the broader context into account

13.6 Concluding remark

14 Obesogenic Environments: Challenges and Opportunities

Seraphim Alvanides, Tim G. Townshend and Amelia A. Lake

14.1 Introduction

14.2 Complexities

14.3 Perceptions

14.4 Objective measures

14.5 Future directions

Index
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This book is dedicated to transdisciplinary working and international co-operation.
Acknowledgements

The editors would like to acknowledge the contribution of the chapter authors in developing this transdisciplinary volume. The international experts who have contributed to this volume are representative of a broad range of disciplines and illustrate the range of disciplines required to tackle the global issue of overweight and obesity.

In addition, the editors would like to acknowledge Carolyn Fahey who designed the front cover, the UK Government’s Foresight Programme (Foresight Government Office for Science, Department of Innovation Universities and Skills, Crown Copyright URN 07/1179) for permission to use the Foresight Obesity Systems Map in Chapter 2 of this book and the World Health Organisation for permission to use Table 7 from p. 63 of the WHO 916 Report in Chapter 1 of this book. Every attempt has been made to contact copyright holders of materials used in this book.
An International Perspective on Obesity and Obesogenic Environments

W. Philip T. James, Rachel Jackson-Leach and Neville Rigby

1.1 Introduction: the emergence of obesity

The obesity epidemic started becoming a serious public health issue in most western societies only in the early 1980s. The problem emerged later in lower income countries as they went through the extraordinary economic and societal changes accompanying what is known as the ‘nutritional transition’. Nevertheless, in countries emerging from extreme circumstances, for example, in post-war Germany or in the richer classes of poor countries, for example, Brazil, women characteristically put on weight first; then the business man’s ‘paunch’ became an index of success. The same persists in African countries where prevailing malnutrition is accentuated by the new fear of ‘slim disease’ – a consequence of HIV infection. Recent studies show that in affluent societies obesity emerged in children in the early 1980s and since then has become an intense societal concern because no longer could one ignore the fact that environmental pressures must be a major factor in determining this extraordinary development.

Obesity was first highlighted as a major global concern by World Health Organisation (WHO) in 1997, preliminary work having been undertaken by the newly formed International Obesity Task Force (IOTF). In its report the full range of complications from excess weight gain were set out. The WHO acceptance of ‘normal’ weights for a population was based on the body mass index (BMI) method for relating weight to height, that is, weight (kg)/[height (m)]². So people of normal shape and composition but of varying heights had the same BMI, with ‘healthy’ values being taken as between 18.5 and 25, for both men and women of all ages. These values were based on early US insurance figures. However, the ready acceptance of the importance of obesity came with the WHO millennium analyses of the major risk factors underlying the burden of premature death and disability from all the major diseases throughout the world. The IOTF’s contribution showed that the optimum average BMI for a population was only about 21 because the risk of diabetes, high blood pressure and coronary heart disease increased throughout the so called ‘normal’ range. Thus, the risk of diabetes was 5–6 times greater at a BMI of just under 25 than at BMIs of 21. Obese people – that is, with BMIs ≥30 – had more extreme risks.
1.2 The magnitude of the problem

The risks of weight gain include the development of diabetes, heart disease, strokes, high blood pressure, cancers of the breast (post-menopause), colon and rectum, kidney and gallbladder, together with physical handicaps, for example, arthritis. These effects made excess weight, that is, BMIs \( \geq 21 \), rank as the sixth greatest global risk factor for all illnesses accounting for sickness and early death throughout the world! Since then, further analyses in 2006 by WHO, the World Bank and the Centers for Disease Control and Prevention in the United States showed that excess weight is now the third highest risk factor in the affluent world and is within the top 10 risk factors in the regions of the world with the poorest people.\(^7\)

New IOTF analyses in 2008 showed that there were over 525 million obese adults, with over 1 billion already being overweight (BMIs 25–29.9). This problem is affecting ever younger adults; now in every region of the world, women aged 45–60 years have the maximum rates of overweight and obesity. In the Middle East over 80% of women are affected (of whom >40% are obese), these values exceeding the North American, Latin American, European and Oceania prevalences of >25–35% obesity, with a total prevalence for overweight and obesity of 50–70%. Only Africa and Asia have lower prevalences and even here the middle-aged have obesity rates of 8–15% with totals of 30–40% for BMIs \( \geq 25 \). Men in general have lower values, with North American men showing the greatest prevalence of obesity. In most countries, 50–70% of middle-aged men have BMIs \( \geq 25 \), with obesity rates of >30% in North America, and 15–20% in Latin America, Europe, Middle East and Oceania. Only Asia and Africa have significantly lower rates.

Within more affluent societies there is a strong relationship between the socio-economic circumstances of a group of children and adults and their susceptibility to gain weight. This also relates to their educational status, with the more affluent and educated groups having much lower obesity rates and a longer life expectancy.

1.3 The basis for the current underestimated burden of obesity

Childhood obesity rates now seem to be accelerating. Four years ago IOTF estimated that 10% of children in the world were overweight or obese\(^8\) when the internationally accepted IOTF criteria of overweight were used.\(^9\) Yet Figure 1.1 reveals that on average over 15% of the world’s children are now affected; over one-third of North American (including Cuban) children are overweight or obese. Only Africa has an overall prevalence of <10%. The rates are going up remarkably rapidly and now there is clear evidence in affluent societies that even modestly overweight children have a greater lifelong risk of early death and cardiovascular disease, i.e. with high blood pressure, heart disease and strokes.\(^10\) Thus, the current burden of ill-health from excess weight gain is an underestimate because the earlier an adult becomes overweight, the greater their future handicap. Current estimates of the burden of overweight and obesity have not included the future impact of such high proportions of overweight children now entering adult life.
The other underestimate of the impact of obesity relates to the fact that Asian communities are far more prone to developing type 2 diabetes and cardiovascular disease than Caucasian adults in western environments. This is ascribed to genetic differences, but this is probably incorrect because the body’s susceptibility to adult disease is often programmed by the health and nutritional status of the mother during pregnancy and the child’s growth and well-being in the first 2 years of postnatal life. Thus, European and North American children who are born small and/or grow slowly in the first 2 years of life are much more susceptible to developing selective abdominal obesity with its higher risks of diabetes, cardiovascular disease and some cancers, particularly if they put on excess weight after 2 years of age. This is also evident in India, China and several other developing countries. In India it is being linked to vitamin B12 deficiency and abnormalities of the body’s handling of folic acid metabolism probably exacerbated by low intakes of animal foods. Asian adults, at any BMI above 23 (now considered the upper ‘acceptable’ BMI limit for Asians), have a 2–5 fold increased risk of diabetes and high blood pressure. Mexicans are also more susceptible to diabetes and hypertension than US non-Hispanic Whites and acquire the problems rapidly as they gain weight in early adult life. So throughout the world the previously termed ‘maturity-onset’ diabetes is now being seen in early adult life and even in children, particularly in the poorer countries.

These data suggest that the majority of the world’s populations may well be more prone to the consequences of excess weight gain than we originally thought. Therefore, given the prevalences of childhood overweight and obesity in the poorer parts of the world (Figure 1.1) we are now confronting a huge global medical problem. Medical costs are rising rapidly; financial analysts show that the medical costs of treatment have increased by 2% per annum above the economic growth of both affluent and poor countries for many decades and about 50% of the increasing medical costs in the United States relate to increasing rates of overweight...