Tackling the Obesity Crisis

David Benton

Tackling the Obesity Crisis

Beyond Failed Approaches to Lasting Solutions



David Benton Faculty of Medicine, Health and Life Science Swansea University Swansea, UK

ISBN 978-3-031-48196-3 ISBN 978-3-031-48197-0 (eBook) https://doi.org/10.1007/978-3-031-48197-0

© Springer Nature Switzerland AG 2024

This work is subject to copyright. All rights are solely and exclusively licensed by the Publisher, whether the whole or part of the material is concerned, specifically the rights of translation, reprinting, reuse of illustrations, recitation, broadcasting, reproduction on microfilms or in any other physical way, and transmission or information storage and retrieval, electronic adaptation, computer software, or by similar or dissimilar methodology now known or hereafter developed.

The use of general descriptive names, registered names, trademarks, service marks, etc. in this publication does not imply, even in the absence of a specific statement, that such names are exempt from the relevant protective laws and regulations and therefore free for general use.

The publisher, the authors, and the editors are safe to assume that the advice and information in this book are believed to be true and accurate at the date of publication. Neither the publisher nor the authors or the editors give a warranty, expressed or implied, with respect to the material contained herein or for any errors or omissions that may have been made. The publisher remains neutral with regard to jurisdictional claims in published maps and institutional affiliations.

This Springer imprint is published by the registered company Springer Nature Switzerland AG The registered company address is: Gewerbestrasse 11, 6330 Cham, Switzerland

Paper in this product is recyclable.

Preface: Tackling The Obesity Crisis

Having for over fifty years studied the relationship between the body's biology, diet, and behaviour, I became increasingly aware there was a major problem that I had ignored. Obesity.

It was apparent that the incidence of obesity had increased steadily for over fifty years, while a multitude of initiatives had aimed to deal with the problem. In fact, workers at Cambridge University counted 689 initiatives in the United Kingdom over the last thirty years. However, given the progressive increase in obesity, and the government projection that it is expected to increase even further, a safe conclusion is that these initiatives failed.

Given the enormous consequences of obesity, and the failure to deal with it, there were obvious questions. Why had attempts to reduce obesity failed? Is it possible to distinguish those approaches that do, or do not, have a chance of making a difference?

It became clear that it is a problem influenced by many aspects of biology, nutrition, and psychology that are affected by aspects of society. The number of calories consumed is so many more than is needed that it is inconceivable that most interventions could do more than scratch the surface. It was rapidly apparent that there are no easy answers, and it was inevitable that most of the approaches taken to date were bound to fail.

Given the thousands of people who have studied the topic over many decades, it would have been delusional and arrogant to suggest I had the answer. Rather the aim was to stimulate debate. Can a consensus be established that the approaches taken to date are not going to have the desired effect? Do we need a new approach?

vi Preface: Tackling The Obesity Crisis

It may be asked, why is this a book written for a general rather than an academic audience? It was apparent that there are two groups that, in the past, have been reluctant to act. The food industry has a vested interest in maintaining a very profitable business model. Politicians have looked for a quick fix, when major and complex long-term changes are required. The view taken was that both these groups were unlikely to change their behaviour unless it was in their interest.

Thus, the book is aimed at the public, with the hope that obesity becomes a hot topic with extensive media exposure, to the extent that it cannot be ignored. It is scandalous that so many are condemned to an early death, following decades of ill-health: obesity must be given a high priority.

Swansea, UK David Benton

Acknowledgement

Obesity is not the study of one scientific discipline but draws on a wide range of approaches that interact in complex and often unpredictable ways; so basic biology is modified by psychological, social, cultural, and economic factors. I am therefore indebted to the many colleagues, with whom I have worked over the decades, who have introduced me to yet another perspective on the topic. I must in addition offer an apology to friends and family, as the time taken when writing has inevitably resulted in them being neglected. Particular thanks are due to Tanja Weyandt, who as editor, continually offered encouragment and good advice, with the result that the book benefited greatly from her knowledge and experience.

Contents

Part		
2	The Obesity Epidemic	7
	How to Measure Obesity	8
	BMI and Health	10
	Extent of the Problem	11
	Health Policy	12
	References	14
3	The Problem Is Fat	17
	Government Dietary Recommendations	18
	The Fat Hypothesis	19
	Types of Fat	20
	Ancel Keys	21
	Minnesota Coronary Experiment [4]	21
	Response to the Low Fat Theory	22
	Unintended Consequences	24
	Implications for Health Policy	27
	References	27
4	Is Sugar the Problem?	29
	Is It Really Sugar?	31
	Energy Compensation	32

	_		
•	\mathbf{r}	nte	ntc

	Long-Term Influences	35
	An Australian Paradox	36
	Norway	38
	United States.	38
	Drawing Approaches Together	
	Implication for Health Policy	41
	References.	41
5	Is Fructose the Problem?	45
	Sugars	46
	Glucose	46
	Fructose	46
	High-Fructose Corn Syrup	48
	Robert Lustig	49
	The Sugar Showdown	50
	The Lustig Theory	50
	What Is the Evidence?	51
	Data from NHANES	51
	Where Does Fructose End Up?	53
	Is Fructose Any More Than Additional Calories?	54
	Fruit	55
	Sugar or Glycaemic Load?	55
	Glycaemic Index	56
	Study the Amount of Fructose Consumed	57
	Implications for Health Policy	58
	References	58
6	A Sugar Conspiracy	61
	Pressure Groups	
	Assessing the Evidence	64
	The Scientific Approach	66
	A Conspiracy?	67
	Yudkin's Interaction with the Food Industry	68
	Is Behaviour 50 Years Ago Relevant?	69
	Implications for Health Policy	69
	References	70
7	Think About Calories	71
•	Let's Move Initiative	72
		75

		Contents	хi
	A Bitter-Sweet Outcome		78
	Implication for Health Policy		79
	References		79
Par	t II Changes in Society		
1 ai	th Changes in obelety		
8	Society Is to Blame		83
	Urban Design		84
	Poverty		85
	Changes Over Time		
	Extent of the Problem		89
	Portion Size		89
	More to Portion Size Than Calories		92
	Fast Food		94
	Changes Over Time		97
	Society Shares the Blame		99
	Implications for Health Policy		99
	References		100
	m - n - t - t		
9	The Food Industry		
	Historical Background		
	Convenience Foods		
	No More Slaving Over a Hot Stove		
	Consequences of Industrialization		
	Colours		109
	Preservatives		109
	Antioxidants		110
	Emulsifiers/Stabilisers		110
	Processing Aids		111
	Flavourings		111
	Vanilla		111
	Costs and Benefits		113
	The Industrial Approach to Food		114
	Sight		114
	Sound		115
	Smell		116
	Texture		117
	Public Health v the Food Industry		

	•	_						
Х	I	C	o	n	t	e	n	ts

	Implications for Health Policy119
	References
10	Attitudes Towards Food
	Is It Marketing Rather Than the Message?124
	Marketing Approaches
	The Climate in Which We Live
	If It Is Natural, Is It Healthy?
	The Importance of Being Natural
	A Good Natural Meal
	Negative Attitudes to Food
	Additives
	What Can We Learn from Marketeers?
	So How Is Food Perceived?
	Implications for Health Policy
	References
11	Ultra-processed Foods
	What Is Ultra-processed Food?
	Group 1: Unprocessed or Minimally Processed Foods 137
	Group 2: Processed Culinary Ingredients
	Group 3: Processed Foods
	Group 4: Ultra-processed Food and Drink Products 137
	Are Ultra-processed Foods a Problem?
	Ultra-processing and Obesity
	Is It Ultra-processing That Is Important?140
	Energy Density
	Where Does This Leave Ultra-processed Foods?
	The Way Forward
	Implications for Health Policy143
	References
Part	III Biological Influences
1 411	211 Diological Illianico
12	Genetics
	Twin Studies
	How Does Genetics Effect Obesity? Check Calulation Below150
	Implications for Health Policy
	References

		Contents	xiii
13	Fighting Your Biology		.153
	Controlling Calories in the Diet		
	Longer-Term Weight Control		
	Set Point Theory		156
	The 3500-Calorie Rule		157
	Response to Dieting		.158
	Minnesota Starvation Study		
	Adaptations to Weight Loss		159
	Metabolic Adaptation		161
	Non-Exercise Adaptive Thermogenesis (NEAT)		161
	Hunger and Hormones		
	What Can Be Done		
	Implications for Health Policy		.164
	References		.164
14	Food Addiction		167
•	It Depends on What You Mean by Addiction		
	Manual of Mental Disorders		
	Symptoms or Cause		
	Behavioural Addictions		
	A Real Addiction.		
	Brain Imaging		
	Evolution		
	Is Sugar Addictive		
	Tolerance		
	Withdrawal		
	Cravings		
	Sweet-Tooth Hypothesis		
	Emotional or Comfort Eating		
	Psychological Rather Than Biological Responses		
	Addiction and the Obesity Epidemic		
	Implications for Health Policy		
	References		
15	Bacteria and Obesity		102
1)	Controlling Energy.		
	Germ-Free Mice		
	Effect of Diet		
	Differences in Response		
	Gut Hallott Hille		.10/

	Contents
XIV	

	Microbiota and Obesity187
	Other Factors That Influence the Microbiota
	Caesarean Section
	Breastfeeding
	Antibiotics
	Antibiotics and Weight Gain in Animals 191
	Do Not Worry
	Food and Antibiotic Residues
	The Importance of Diet
	Implications for Health Policy194
	References
16	Obesity in Childhood
	Diabetes
	Pre-natal Influences of Obesity
	A Bridge Too Far
	Smoking
	Mothers Gain in Weight
	Postnatal Influences
	Sleep
	Adiposity Rebound
	The Role of Your Mother's Mother
	Has Children's Life Expectancy Declined? 211
	Implications for Health Policy212
	References
Par	t IV Attempts to Reduce Obesity
1.7	
17	Can Government Influence What We Eat?
	How Do You Know If You Have a Healthy Diet?
	Limit Food Advertising
	Grazing and Snacking
	Activity
	What Happens in the Real World?
	Does Banning Advertising Make a Difference?
	Advertising Ban in Quebec
	Calories on the Menu
	Nutrition Labelling

		Contents	χV
	Nanny State		
	References		
18	Sin Taxes		235
	Does Taxing Food Decrease Obesity?		235
	Sugar Tax		
	Mexico		
	The United Kingdom Experience		239
	Does a Sugar Tax Work?		
	Fact Checking		
	Reaction of the Customer		
	Timescale		
	Is It Sugar or the Whole Diet?		
	Sugary Drinks and Lifestyle		
	Implications for Health Policy		
	References		
19	Ban Advertising?		249
	Children's Vulnerability		251
	Ethics		253
	A Changing World		254
	How Can We Deal with Advertisements?		255
	Do These Bans Work?		256
	The American Approach		257
	Self-Regulation		259
	Final Comments		261
	Implications for Health Policy		262
	References		262
20	Dieting and Other Ways to Control Weight		
	The History of Trying to Control Weight		
	The Vinegar Diet		
	Fletcherism		
	The Tapeworm Diet		
	The Cigarette Diet		
	Changing What You Eat		
	The Ketogenic Diet		
	Zero Carb or Carnivore Diet		
	Paleo or Caveman Diet		273

xvi	Contents

	Mediterranean Diet	273
	Does It Matter Which Diet You Follow?	273
	What to Do	
	Implications for Health Policy	
	References	
		, ,
Par	t V The Future of Public Health Policy Concerning Obesity	
21	Government Obesity Policy	279
	An Australian Framework	279
	Canadian Obesity Policy2	281
	Treating Those with Obesity	282
	United Kingdom Obesity Policy	284
	United States Obesity Policy	285
	Overview	286
	References	288
22	Who Duble Health Delian Fellad	001
ZZ	Why Public Health Policy Failed	
	Eat Less Move More	.92 293
		.93 294
	Failure to Acknowledge the Size of the Problem	
	•	.96 296
		.90 297
	, 0	.97 297
		.97 297
	Failure to Address the Complexity of the Problem	
	± •	.)) 302
	±	302 302
		302 302
		303
	How Successful Are Attempts to Control Obesity?	
	References	
	References	104
23	The Elephant in the Room	807
	Making Dietary Decisions	808
	Self-Efficacy	
	Is There a Solution	311

	Contents	xvii
	Who Is to Blame.	312
	References	
24	What Can We Do?	315
	The Way Forward	
	We Need a New Approach	
	Insights from Previous Chapters	
	The Greatest Influence	
	Prevention Is Better Than Cure	
	Exploit Good Will	
	Nutrition Education	
	Do We Need a Trojan Horse?	
	Go and See Your Doctor	
	Self-Help.	
	Responding to Obesity	
	References	
25	Cutting Calories	335
	The Task	
	The Food Industry	
	The Consumer	
	Energy Density	
	We Need an Integrated Approach	
	References	
26	Prospect	2/15
	What Does the Future Hold?	
	The Food Industry	
	Is There Hope	
	References	349

About the Author



David Benton PhD, DSc, is Professor of Psychology at Swansea University, UK. His interest in the influence of diet on brain functioning and cognition has resulted in over 200 research articles and an H Index to 57 (Scopus).

The acceptance of over 200 invitations to speak on six continents, and the widespread interest from multi-national food and ingredient companies, illustrates his impact. His work is quoted by the governments in the USA and UK when making public health recommendations. Invitations have been accepted to give evidence to the House of Commons and House of Lords in the UK.

The theme of the proposed book is that obesity cannot be understood without the perspectives of nutrition, physiology, biochemistry, psychology as well as societal viewpoint. His research reflects this range and has included papers on portion size, genetics, food addiction, sugar addition and non-nutritive sweeteners. A paper on calorie intake and the control of weight has been downloaded 35,000 times.