Jenny Radcliffe

ROUTLEDGE

Cut Down to Size

Achieving success with weight loss surgery

Cut Down to Size

Cut Down to Size covers everything you need to know about bariatric surgery, from referral through to the challenges you may face after surgery. Most people who seek weight loss surgery have struggled for many years to control their eating, and have experienced increasing ill health, self-consciousness and discrimination. People see weight loss surgery as their last chance for a better, more normal, life. While hopeful fantasies about an alternative future make it hard to contemplate the risk of failure, some patients experience considerable emotional or physical problems.

This book offers insight into the realities of living with weight loss surgery, and practical exercises help you think through your emotional readiness, social circumstances and eating habits that could determine the success of surgery. Active preparation for surgery by making psychological and lifestyle changes puts you in the best position to achieve better health and emotional well-being.

Cut Down to Size is the first book to focus on the psychological and social aspects of weight loss surgery and will be of interest to health professionals as well as anyone contemplating weight loss surgery. By sharing the experiences of other bariatric patients, the reader can appreciate the nature of life after surgery and make a judgement about their capacity to cope with these demands.

Jenny Radcliffe is a Consultant Clinical Health Psychologist. Since completing her training at University College London she has specialised in working with people with physical health problems. For the past eight years her primary interest has been in the psychological impact of obesity and weight loss surgery.

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This book is dedicated to my wonderful daughters Niamh and Molly.

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Preface

When I first started working with bariatric patients in 2003, I was struck by the complexity of the decision they faced; whether to undergo potentially life-threatening surgery for the elusive promise of a happier life. In my previous work, patients suffering from chronic back pain, cancer and heart disease had also faced immense social and emotional challenges as the result of ill-health and disability, their family and work lives often devastated by their health problems. But somehow the patients I was now seeing, referred by surgeons to determine whether they were 'psychologically suitable' for weight loss surgery, seemed to confront a quite different trial, raising issues of personal control and responsibility, the power of medicine and the nature of our relationship with food as a source of pleasure and comfort.

Media representations of obesity and weight loss surgery present a mix of joy and horror. A celebrity's shrinking form documented by the weekly magazines; a woman who sells her house to pay for surgery to remove excess skin; a man finding love after losing half his body weight; a woman charging men to watch her eat online so she can raise the money for bariatric surgery; whether portrayed as a magical cure or medically endorsed mutilation designed to force people into a socially acceptable norm, weight loss surgery is rarely viewed objectively. For many patients surgery is seen as offering hope of escape from a life defined by their weight. It is seen as something that can be attained only if you can prove yourself worthy; so patients make supplication to those who hold the key – the primary care trust (PCT) fund-holders and surgeons who decide who will, and who will not, be granted this new beginning. With the promise of a magical cure, patients often close their eyes to the reality of living with weight loss surgery; what it can offer, what it can't and what they must do to achieve success.

After seeing someone for assessment I would often feel they simply didn't know enough about the pros and cons to make a reasoned

decision. As driven as they were to change their lives, patients put little thought into what this would involve or how they might feel as they see themselves shrinking in size. They would often talk about avoiding any 'negative' information – the risks and complications that might cause them to reconsider their decision – and rarely reflected on any emotional downside. I would find myself at the end of the meeting encouraging my client to go away, do more research and think hard about the commitment they were making – that they would never again be able to rely on food for commiseration or celebration in a way they took for granted. Understandably my clients asked me where they should look for this information and that's where I got stuck. There didn't seem to be a straightforward comprehensive guide that could lead them through this process. Many of the books already available were from the USA and had a strong state-side slant, including lots of information about how to persuade your health insurer to pay. While some of these books covered the procedures and the medical risks well, they paid little attention to the psychological side of weight loss surgery. Many of the books were little more than cookery books and offered no advice to those patients who continued to struggle to control their eating. None seemed to mention the possibility of failure. The internet wasn't much better; hundreds of websites offered information about surgery of variable quality and often with a strong positive bias (particularly in those selling weight loss surgery services). On the other hand, there were chat rooms with accounts of people's individual experiences but these were polarised, often either very positive or very negative. I'm very much in favour of would-be patients hearing about the lives of people who have had surgery and always encourage them to attend a support group before they make a final decision, but these personal stories needed to be balanced against a robust understanding of the facts of surgery – the knowledge that has been amassed from hundreds of scientific studies.

So I decided to write this book to fill the gap for a guide to the physical and emotional impact of bariatric surgery. Knowing what life will be like after weight loss surgery is rather like knowing what life will be like after you have a child. You've heard the warnings of sleepless nights and restrictions on your freedom, but you focus on the upsides – of which there are many – hoping the rest will work itself out. This book is like a book about parenthood; it will not enable you to avoid all challenges, but at least you'll be better at recognising them when they come along and may have some strategies in hand for coping with them. I hope this book will be a helpful guide as you take your weight loss surgery, enabling you to bypass some of the stumbling blocks and navigate those that you can't dodge. I wish you well in your journey and hope you arrive where you want to be.

Acknowledgements

I would like to offer my heartfelt gratitude to my colleagues in the bariatric services at St George's Healthcare NHS Trust, Ashford and St Peters Hospitals NHS Foundation Trust with particular thanks to Mr Marcus Reddy and Mr Samer Humadi, Dr Tom Stevens and Scott Lonnee. Also to Adrian Weston for his generously offered professional advice; Gary Rimmer for his robust feedback and tenacious encouragement; Leo Estall and Sophie Doswell for their time, thoughts and encouragement; Guy Brown for his guidance and being a lovely brother-in-law; Carol Bowen Ball for putting me in touch with the weight loss surgery patients who shared their experiences with me so generously; Imperial College Healthcare NHS Trust for kindly giving permission to use their illustrations; Joanne Forshaw at Routledge for offering me this opportunity; Versha Talati for tolerating my occasional distractedness; Richard Stantiford for his input on the role of exercise; Ernie Govier for his faith, support and encouragement over many years; Donald and my daughters for their endless patience; and finally to the bariatric patients who I have worked with over the years – I wish you all well.

Abbreviations

BMI	body mass index
BPD/DS	biliopancreatic diversion/duodenal switch
CBT	cognitive-behavioural therapy
CPAP	continuous positive airway pressure
DVT	deep-vein thrombosis
EWL	excess weight loss
GORD	gastro-oesophageal reflux disease
LAGB	laparoscopic adjustable gastric band
NAFLD	non-alcoholic fatty liver disease
NES	night eating syndrome
NICE	National Institute for Health and Clinical Excellence
NPY	neuropeptide Y
NSAIDs	non-steroidal anti-inflammatory drugs
OSA	obstructive sleep apnoea
PCOS	polycystic ovary syndrome
PCT	primary care trust
PE	pulmonary emboli
RMR	resting metabolic rate
RYGB	Roux-en-Y gastric bypass
TIA	transient ischaemic attack
VPAP	variable positive airway pressure

1

The obesity epidemic and weight loss surgery

People seeking weight loss surgery are at the end of the line. They have tried all the conventional means of losing weight; they have attended Weight Watchers, Slimming World, Rosemary Conley; they have eaten cabbage, eggs and grapefruits, high protein, low fat, low carbs, no carbs; they have bought CDs from Paul McKenna, milkshakes from LighterLife and tablets over the internet. Many have spent thousands of pounds on their attempts to lose weight but remain obese. They might have lost a substantial amount of weight before it creeps back on and the cycle of hope and despair continues. At some point, when they cannot face another diet failure, they ask their GP to be referred for weight loss surgery, seeing it as a foolproof means of controlling the uncontrollable. Once they have funding and are sitting in front of the surgeon, they face an avalanche of medical information. Heightened anxiety, poor understanding, denial of risks and hopeful fantasies about their alternative future all contribute to people's difficulty in making a thoughtful decision.

Do you recognise yourself or a loved one in the description above? Have you been referred or are you thinking about weight loss surgery as an option? This book is written to help you make the best decision you can. It will provide you with detailed information about the process from referral to post-surgery lifestyle changes. Over the course of this book you will be able to build up a clear picture of the challenges of weight loss surgery, embracing practical information about the different procedures, their risks and difficulties and the real experiences of weight loss surgery patients, both successful and unsuccessful. Practical exercises assess your suitability for surgery, help you reflect on your social and emotional resources and prepare you for the changes you will face. By working through this book, hearing about the lessons learnt by others and considering your own situation, you will be in the best position to make an informed decision.

Obesity is not an individual problem, it is a global problem. Worldwide more than *one and a half billion* people[1] are overweight or obese. However much you feel yourself alone with your problem, surrounded by slim people who have no difficulty managing what they eat or controlling their weight, the reality is that obesity is an issue facing increasing numbers of people.

When did the obesity epidemic begin? Scientists differ in their views on this.[2] Was it with the onset of the motor car, TVs and the new supermarkets in the 1940s; the rise of fast food restaurants in the 1970s; or the advent of daytime TV and cheap processed food in the 1980s? Whatever the answer, we are now faced with a problem of obesity at a level never seen before and as you're reading this book, I assume that you or a loved one, or perhaps a client, are part of this epidemic and are wondering whether weight loss surgery is the answer. This book will not only provide you with all the information you need to make an informed decision about weight loss surgery, but will also prepare you for the pitfalls and problems you could encounter after surgery.

The numbers of obese people rose spectacularly between 2000 and 2005. Over this time, in the USA, there was an overall increase in obesity of almost 25 per cent, but a 75 per cent increase in people who are super-morbidly obese. In 2011 the Health and Social Care Information Centre[3] published a report stating that almost a quarter of adults in England are obese (that is, they have a body mass index (BMI) of 30 or more) and another 44 per cent of men and 33 per cent of women are overweight (having a BMI of 25–29). Over a third of the adult population have a raised waist size; when a lot of your weight is carried around your middle it is called *central obesity* and is associated with an increased risk of developing heart problems, metabolic syndrome and diabetes (you can read more about these health problems in Chapter 3). The problem is not restricted to adults; approximately 15 per cent of children between the ages of 2 and 15 are now obese. A government commissioned report by Foresight in 2007[4] predicted that, if no effective action is taken to deal with overweight and obesity, 60 per cent of men, 50 per cent of women and 25 per cent of children would be obese by 2050.

Up to 15 per cent of the population are thought to be at greatly increased risk of health problems, such as diabetes and coronary heart disease, due to their BMI and raised waist measurement[3] and this is why severe overweight is termed morbid obesity. *Morbidity* means health problem so when doctors talk about *morbid obesity* they are not making a judgement about your weight, they are saying that your weight is such that it's likely to affect your health.

The increasing weight of the population, or rather the health problems associated with it, is placing ever greater demands on the health

service and the wider economy. It has been estimated that obesity and its health consequences cost the NHS £4.2 billion a year and the economy up to £15 billion in lost productivity.[5] The number of admissions to NHS hospitals of patients with a *primary diagnosis* of obesity (in other words where the doctor felt weight was the main problem) increased over 800 per cent between 1998 and 2009 and almost one and a half million prescriptions for obesity medication were dispensed in 2009, more than 11 times the number of prescriptions in 1999.[3]

Despite growing numbers, severely overweight people are increasingly stigmatised and denigrated. People who are very overweight are seen as deviating from social *rules* about being able to control urges.[6] They have become *the other*, the people it's okay to shout at in the street; seen as weak, even morally deficient, if they just tried harder they could be *thinner, better people*. Obese people are discriminated against socially, educationally and in the workplace[7] and anti-fat attitudes are pervasive across western society. As the average slim person is able lose a kilo or two without too much difficulty, it is assumed that severely overweight people should be able to do the same. Of course losing and maintaining a loss of 10kg is very different from losing 1kg; everyone can hold their breath for one minute, but who can hold it for ten?[8]

Sadly, many obese people internalise these negative attitudes and experience intense distress about their weight and appearance. You may have started to believe these things about yourself – to feel you are weak and out of control and shameful. You may receive little compassion from others and have little sympathy for yourself, making you vulnerable to destructive cycles of over-controlled and uncontrolled eating. The good news is a recent poll in the USA suggested that most people think there should be laws to prevent discrimination on the grounds of weight.[9]

The more a disease is seen as being under the person's control the more social rejection people face.[10] Obesity is viewed by the public as being highly under personal control, and this affects the public view of weight loss surgery. As the disease of obesity is stigmatised, the public do not necessarily want to support and fund medical or surgical treatment for people who are obese.[11] In the context of fat as a *moral failure*, a sign of weak will, people demand that treatments for obesity are harsh and punishing – boot camps and starvation diets. In comparison, weight loss surgery is seen as a *cheat* – an easy way out – and too expensive to be deserved by this devalued group.

The provision of weight loss surgery, both within the NHS and through private health services, has risen dramatically in recent years in response to increasing numbers of people suffering severe weight problems and the failure of current behavioural and dietetic approaches to offer significant and sustained weight loss. As a result

of technological advances in surgery, such as keyhole surgery, and improved opportunities for training of surgeons, the balance between the risks of weight loss surgery and the potential benefits has altered dramatically in past decades. As people watch the apparently miraculous changes in the appearance of celebrities who have had weight loss surgery, it's easy to get the impression that the surgeon's knife is a pain-free route to a new life. The reality is that weight loss surgery is not risk free as it can carry considerable physical and psychological challenges, but for some people it can be life changing.

Bariatric surgery

In the 1950s surgeons at the University of Minnesota in the USA, faced with rising numbers of severely overweight patients, wondered whether the weight loss shown after bowel resection could be harnessed as a direct treatment for obesity. The first attempts with intestinal bypass were highly risky, but over the years safe and effective procedures have been developed. Bariatric surgery, from the Greek word *baros* meaning weight, was established. By the 1980s it had become clear that rather than simply producing weight loss, these surgeries also had great benefit for the management of diseases such as type 2 diabetes, high blood pressure and sleep apnoea and, in the USA, the procedures became known as *metabolic and bariatric surgery* to reflect these outcomes.[8]

Bariatrics is the branch of medicine that deals with the causes and treatment of obesity and includes diet, exercise and psychological therapy, as well as medication and surgery. You will hear weight loss surgery called bariatric surgery and the two terms are used interchangeably through this book. Somewhere in the region of 7,000 people had weight loss surgery in the UK in 2009 and 2010,[8] just under 70 per cent through the NHS, 30 per cent privately self-funded and a small proportion paid for through private health insurance. The National Institute for Health and Clinical Excellence (NICE)[12] plan for future services based on the assumption that over a million people have a BMI of over 40 or over 30 with comorbidities, that 60 per cent of these would be considered eligible, and that 40 per cent of these would take up surgery if offered. Within this group it is suggested that around 4,800 could be provided surgery each year, a three-fold increase compared with pre-2007 NHS figures. The same report acknowledged that in 2007 there were almost 50,000 people in England who had a BMI of over 50 and who were, therefore, potentially eligible for weight loss surgery as a *first-line treatment* and that there would be an annual growth in rates of severe obesity of 5 per cent.

The registry of UK bariatric surgery found that a quarter of all bariatric surgery patients had a high level of comorbid disease,

including type 2 diabetes and sleep apnoea, and three-quarters had impairment in their day-to-day activities prior to surgery[8] and that these were resolved for around half of all patients one year post-surgery. There is increasing recognition that weight loss surgery can offer savings for the health service. One Canadian study showed that health care costs (including the cost of surgery) were 25 per cent lower in weight loss surgery patients compared with obese people who had not had surgery.[13] It also showed that sick leave and retirement on health grounds decreased five years after surgery.[14]

Given the physical, emotional and social impact of severe overweight, it's understandable that people are increasingly looking to weight loss surgery. With celebrity magazines showing the yo-yoing weight of the rich and famous and revelations that for some the weight was lost through a gastric band or bypass, bariatric surgery has become mainstream. While diets continue to come and go – Dukan, acai berry diet, detox diet, zone diet – people are more aware of the dangers and pitfalls of dieting, with its inbuilt vulnerability to weight cycling and binge eating. Even specialist weight treatments struggle to show good results in the long term. With a conventional weight management programme, 90–95 per cent of participants will have regained all the weight lost within five years.[15] In one study comparing a group of weight loss surgery patients with patients who had been through a weight management programme, the conventional diet and exercise group had an average *gain* of 0.5kg, while the surgery group showed an average 28kg loss over two years[16] together with better outcomes in social and psychological functioning.[17]

Measuring overweight and obesity

The first criterion for weight loss surgery is your weight. When most doctors and scientists talk about weight and obesity they talk about a person's *body mass index* and you will see this referred to throughout the book. The BMI is felt to be the best way to define overweight and obesity, as it is simple to measure and is a reliable way of judging how much body fat people are carrying. Though it has limitations, such as overestimating body fat in people who are very muscular or underestimating body fat in elderly people, it is the most commonly used measure.

Your BMI is a measure of your weight and your height. It can be calculated as weight in kilograms divided by the square of height in metres (kg/m^2). For those of us not numerically gifted, it is easy to find online calculators that will give you your BMI. Doctors may also look at your waist measurement; waist measurement, or the ratio of your waist to your hip (WHR), is sometimes used in combination with BMI as it is a good indicator of elevated health risk.

Table 1.1 Classification of weight by body mass index for adults

BMI score	*Classification*	*Risk of health problems*
Less than 18	Underweight	Low
18–24	Healthy weight	Average
25–29	Overweight	Increased
30–34	Obese I	Moderate
35–39	Obese II	Severe
Over 40	Obese III	Very severe

You can see from this chart that people are considered overweight if their BMI is between 25 and 29 and obese if it is over 30. Health risks due to weight increase significantly with a BMI over 35 though even being somewhat overweight is associated with reduced life expectancy.[18]

When it comes to talking about weight a number of different terms are used. People tend to prefer terms such as 'excess weight' and 'weight problem' over excess fat or obesity.[19] *Overweight* and *obese* are *technical* terms based on your BMI; although people sometimes find the word *obese* insulting or upsetting (at times mishearing it as their doctor describing them as 'a beast'), it is a medical term meaning that your weight is such that it carries health risks and is the description most commonly used in medical settings. Other people favour *fat* as it feels more honest or straightforward, but it is not used in this book, except in direct quotes from patients or when talking about fat tissue in the body, as it is often employed in a denigrating or insulting way. The terms very overweight, obese, severe overweight and excessive weight are used largely interchangeably through this book.

Metabolism, eating behaviour and the brain

In the next chapter we will consider some of the factors associated with weight gain in modern day life and you will be able to reflect on your own weight journey, but before you can think about *why* people gain weight, you need to consider *how* people gain weight. You need to know a little about how energy is used by the body and how our brain controls how much you eat.

We all get our energy from food and the energy content in food is measured in terms of *food calories* (kcal). Technically one calorie is the amount of energy required to raise the temperature of one kilogram of water by one degree Celsius. Food – fats, proteins, and carbohydrates and fibre – all release energy during *respiration*, the process by which nutrients are converted into useable energy in the body. Fats and alcohol generate the greatest amount of food energy, followed by proteins and most carbohydrates. Carbohydrates high in fibre are not

so easily absorbed and contribute less food energy. The calorie count written on food packaging is calculated by estimating the constituent parts making up the product (protein, carbohydrate, fat and so on) and then converting this to an energy value using standardised tables.

Your resting metabolic rate (RMR) is the amount of energy used for the functioning of vital organs, such as the heart, lungs, kidneys, nervous system, digestive system and so on, while you are at rest. About 70 per cent of calories used each day provide energy for the basic functions of the body. Illness, environmental temperature, exercise and stress levels can affect your RMR. Despite popular belief, people who are overweight do not generally have a slower metabolism than normal weight individuals.

How the brain controls eating[20]

In order to function and stay healthy the body needs to maintain equilibrium between appetite, food intake, energy storage and energy employment. Eating behaviour and energy balance are controlled by a part of the brain called the hypothalamus. Complex interacting signals from the body converge in the hypothalamus, which acts to maintain a state of balance and sustain basic bodily functions.

Although theoretically you can survive for many days or even weeks without food, the reality is that most people tend to think about eating after a few hours without food, and once you've eaten you generally forget about food for a while. Your experience of feeling hungry and feeling full (*satiety*) is the conscious aspect of a series of processes occurring in the body and leading your eating behaviour.

At its most simple, you want to eat when you feel hungry (or possibly before if tempted by the sight or smell of food). Why do you feel hungry? You feel hungry when your stomach and upper intestine are empty; the stomach releases a hormone called *ghrelin* a *hunger hormone* that makes you want to eat. The hypothalamus also detects a fall in insulin levels; decreasing insulin levels are another signal for a need for food. In response to these signals the hypothalamus produces hormones that stimulate hunger and reduce metabolic rate to preserve energy.

Once you've started eating, why do you stop? Again it may seem obvious, but generally you stop eating when you feel full. However the way you feel full is pretty complicated. You get feedback about the nutritional value of food from the mouth and nose as you take in sensory information from tasting and smelling the food. Hormones are released that are sensitive to the nutritional and calorie content of the meal. As you eat your stomach starts to feel distended and the liver sends messages to your brain to say that it is receiving nutrients. Insulin levels rise and ghrelin levels fall, which in turn suppress the

production of neurohormones such as *neuropeptide Y* (NPY). Other neurohormones, including peptide YY (PYY), glucose-like peptide-1 (GLP-1) and cholecystokinin (CCK) are released which promote a feeling of fullness and inhibit eating.[21] The chemical messages to keep eating start to be outnumbered by messages to stop eating and you feel full.

Control mechanisms also work to maintain a stable weight over time. When you are well fed, fat cells in the body produce a hormone called *leptin*, which acts on the hypothalamus to suppress the release of hunger hormones. It's the opposite of ghrelin; it acts to inhibit eating and also helps the body use energy to stay warm. When leptin was first discovered, in the 1990s, it was hoped that it could be developed into a medicine to help people lose weight, but most obese people already have high levels of leptin in their system. Instead of having inadequate amounts of leptin it seems that they are *leptin resistant*, the brain is not registering the signal loudly enough. It may be that evolutionary pressure has ensured that rising leptin production in response to increasing fat reserves has only a limited effect on food intake so that people don't restrict their eating to the point of starvation.

So why are so many people becoming overweight? What's happening with these complex mechanisms that should be maintaining a balance between food intake and energy need and keeping our body weight stable? Unfortunately the brain evolved to have a strong mechanism to encourage eating and a disappointingly weak mechanism to inhibit eating. As our ancestors experienced periods of famine, there was always uncertainty about where the next meal would come from, so it made sense that the control mechanisms encouraged people to eat a lot when food was available. Nowadays, when high calorie food is accessible 24/7, many people struggle to control their eating. In the face of high calorie, high reward food the central regulation of energy homeostasis (where energy intake is matched to energy expenditure over time to ensure stability of body fuel) is disrupted. While eating behaviour remains primarily cued by the experience of hunger, there exists on top of this a 'complex network of memories related to eating' (Schweitzer *et al*. 2007: 534)[22] which can compromise the goal of eating to replenish our energy stores (eating to live) and create an urge to eat for pleasure (live to eat).

Tipping the scales

In the real world, away from the laboratory, it is difficult to study the relationship between food intake and energy expenditure in an individual; the number of calories you burn depends on your age, sex, metabolism and activity levels. The recommended daily energy intake values are 2,500 kcal for men and 2,000 kcal for women. Children,

older people and people who live sedentary lives need fewer calories and physically active people more. If you eat more calories than you need on a regular basis, you gain weight. Each pound of body fat is made up of around 3,500 calories; if you eat 3,500 calories more than you can use, you'll gain one pound. If you want to lose a pound over one week you need to consume 3,500 calories (about 500 calories a day) less than you need.[23] You don't need to overeat a great deal to be at risk of gaining weight; if you eat just 100 extra calories a day (that is 100 calories that your body doesn't need), the equivalent of a slice of bread or two Jaffa cakes, it adds up to a gain of 4kg in one year.[24]

Fortunately, we are beginning to understand more about the science of obesity. Rather than seeing weight gain as caused simply by uncontrolled greed, there is recognition of the role that modern life and genetics play in the escalating weight of the population. In the next chapter the factors that impact on our ability, or otherwise, to maintain our calorie intake at the correct level will be discussed. These factors, whether environmental, social, psychological or biological invariably affect an aspect of the balance of energy consumed vs. energy expended. You will see how relatively minor alterations in this equilibrium – for example, a satiety signal turned down too low, a genetic tendency to snack, a desire to escape painful feelings, the decision to give up smoking, the start of a new relationship or one more failed diet – can lead to a disruption to the system and the relentless accumulation of additional pounds. By understanding the factors that have contributed to your weight problem you are in the best position to make decisions about how to manage your weight in the future.

As you read this book I hope you will feel more able to understand your personal struggle with weight and the effect on your health and well-being. Chapter 3 outlines the physical and emotional health impact of obesity. Chapter 4 covers the practical aspects of accessing weight loss surgery, as well as helping you think about your personal readiness to make the changes required for successful weight loss. Chapter 5 covers the assessment for surgery; the surgical, dietetic, medical and psychological issues that will be considered by the bariatric team; your expectations of surgery; and the dietary and lifestyle changes you can make to prepare for surgery. Chapter 6 focuses on emotional and practical skills to cope with the demands of surgery, while Chapter 7 provides detailed information about the different surgical procedures including expected weight loss and their risks and benefits. In Chapter 8 the dietary and lifestyle changes you will need to make after surgery are discussed and Chapters 9 and 10 look at people's positive and less happy experiences of surgery respectively. Chapter 11 covers frequently asked questions about weight loss surgery and lists the organisations and websites where you can access support, resources and information. The Further Reading section provides additional

information for those of you who wish to follow up any of the studies referred to.

Throughout the book there are practical exercises designed to help you consider your personal suitability for surgery and to support you in developing skills in stress management, self-monitoring, increasing physical activity, assertiveness and problem solving that will help you cope with the demands of surgery and increase the likelihood of a positive outcome. I would encourage you to spend some time on these exercises as you go through the book; they are intended to help you work through the issues of informed consent and access to social and personal resources that are known to play a central role in the success or otherwise of surgery. Remember the decision to proceed with weight loss surgery is only a valid decision if it is likely to lead to a positive outcome for you, that is, the weight loss and improvements in health and emotional well-being need to balance positively against the potential surgical and psychological risks. I hope that, having read this book, you will feel in a better position to be able to judge that balance thoughtfully and realistically.

2

Obesity: a normal response to an abnormal situation?

In Chapter 1 we discussed the complex mechanisms by which the body controls and regulates the balance of energy in (food) and energy out. For thousands of years this delicate system of checks and balances worked pretty well; the majority of the population stayed within healthy weight boundaries. However, in the past 20 years this hard-wired system appears to have stopped functioning effectively. It no longer prevents many of us from regularly consuming too many calories, so more people are becoming overweight or obese and the incidence of weight-related health problems has spiralled upwards. So what's gone wrong?

There are many factors that can affect the balance between energy consumed in calories and energy expended in activity. The factors that influence your vulnerability to becoming overweight (Figure 2.1) work at different levels – environmental, social, psychological and biological – and all these levels can affect each other. For example, hormones released during stress can cause you to gain weight – the psychological level affecting the biological level. If you are depressed you are less likely to motivate yourself to exercise regularly – the psychological level affecting the social level. Or if you have a certain genetic make-up you may have difficulty resisting high calorie foods – the biological level affecting your behaviour.

The following factors can influence your vulnerability to becoming overweight:

- The *obesogenic* (literally obesity-creating) environment we live in today makes you vulnerable to becoming obese because it supplies easily available, cheap and plentiful calories. The environment has also changed in terms of how much physical work you are required to do.

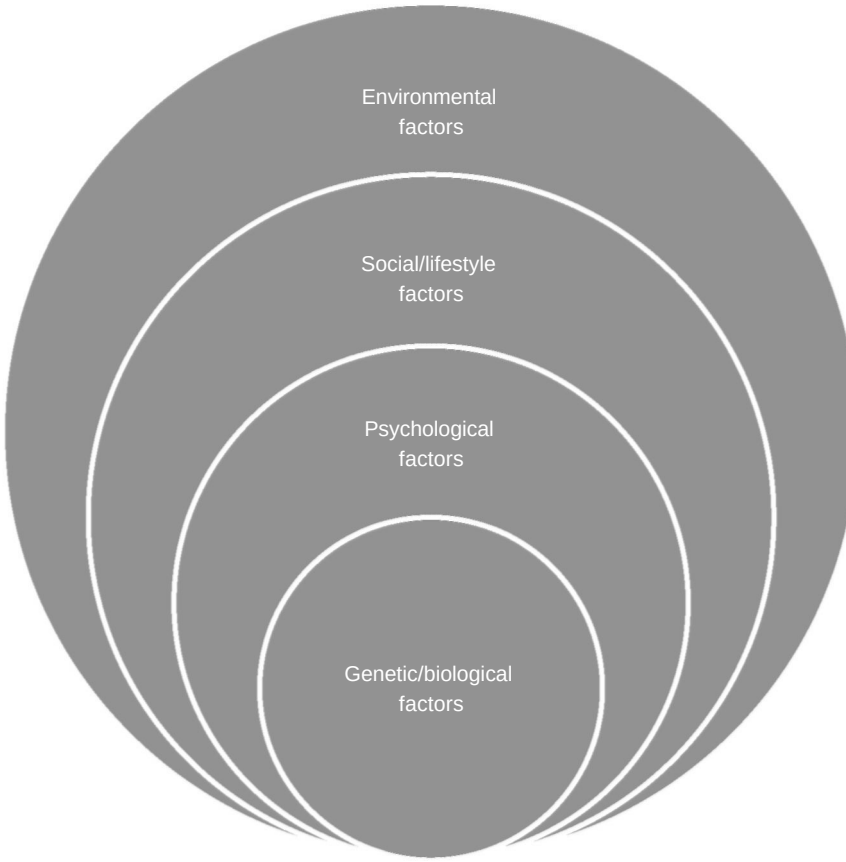

Figure 2.1 Factors that influence your vulnerability to becoming overweight

- Social factors that can impact on weight include changes in lifestyle, life events, the impact of family and relationships, holidays, giving up smoking and opportunity for exercise.
- Psychological factors such as stress, emotional eating, early childhood experiences, eating habits and the impact of failed diet attempts.
- Biological factors, including genetic influences in obesity, the impact of medication, ill health and life stage, are now known to have a major role in weight gain.

This is called a *biopsychosocial* model and it can be used to understand how many different factors act together to alter eating behaviour and vulnerability to obesity. In this chapter you will learn about some of these factors and the ways they have contributed to the increasing weight of the population. You may some recognise some of these from your own life.

Environmental factors: the calorie bonanza

Humans are by nature predisposed to put on weight in response to high availability of energy dense foods and an environment that promotes minimal physical activity. Getting fat has been described as 'a result of a normal response, by normal people, to an abnormal situation' (Swinburn *et al.* 2011).[1]

The most obvious change in the environment over the past 20 years or so is the availability of energy dense (that is, high calorie) and processed foods. In the western world it has never been easier or cheaper to buy calories. You can walk into any supermarket, corner shop or fast food restaurant and buy huge amounts of discounted food. You get to *super-size*, *bogof* and it's all *rolled back*. Supermarkets are so confident in their ability to tempt you to buy more than you need they'll advertise food and drink at a loss just to get you through the door.

As portion sizes have become steadily larger we have become more dependent on external cues when deciding how much to eat. In one great study[2] a *bottomless soup bowl* was designed to refill itself without participants being aware, to show how people use external cues to tell them when to stop eating (*My bowl is empty*) rather than internal cues (*I feel full*). People with the bottomless soup bowl ate more than twice as much as the people eating from normal bowls, but despite this both groups estimated that they had eaten the same number of calories and the bottomless bowl group did not rate themselves as any fuller.

It's not just the cost or availability of food that has changed over the years. There has also been a dramatic change in the *type* of food you can access and the way you eat. We are now able to purchase food 24 hours a day in a variety unknown to previous generations. We lead busy lives with conflicting demands and it's easy to get into the habit of eating on the run or relying on processed, pre-prepared foods. People eat less fresh fruit and vegetables than in their parents' generation and few have the recommended 'five a day'.

If you're anything like the majority of people, you eat on the go and have more snacks. You struggle to keep track of the amount you're eating and may underestimate the calories in the food you eat. Try standing in the queue at the supermarket and picking up some of the snacks on display to check out their calorie count. Some of these small snacks can contain over 500 calories, a quarter of the daily energy need of an adult woman.

Processed foods are often high in fat or sugar (or both) and food manufacturers are well aware of what makes food palatable. Eating foods high in fat, sugar and salt is highly rewarding and the biological goal to replenish energy stores is overridden by a desire to eat for its hedonic (pleasure) value. The stronger the memory of the pleasure value of the food, the stronger the demand for it and the more we want