Tackling the obesity crisis in the UK

Yaso Shan presents a review of available treatment and management strategies for obesity within conventional medicine. She also explores the safety and effectiveness of the many popular commercial diet pills available to those seeking to lose weight.

Much has been written about our ever-expanding waistlines and the constant reminder that we should lose weight. Given the current statistics on obesity in Britain, this persistent advice from GPs, healthcare practitioners, health educators and the government is understandable.

A 2003 survey by the Department of Health and the Scottish Executive showed that, in the UK, more than one in five people are clinically obese, with morbid obesity being twice as common in women, at around 3 per cent, compared with men (NHS Information Centre 2008).

Increasing trend

More recent findings show that obesity is on the increase. The number of obese children has tripled over the past 20 years. At least 10 per cent of six-year-olds and 17 per cent of 15-year-olds are now clinically obese. Obesity now carries a higher risk in advanced liver disease such as cirrhosis than alcohol, which was thought previously to be the only risk factor (NHS Information Centre 2008).

In 2005, almost 871,000 prescription items were dispensed for the treatment of obesity compared with just over 127,000 in 1999 (an increase of 686 per cent); in 2007, this rose to more than one million prescriptions (Simpson 2008). Explaining this expenditure to patients who have been denied access to anti-cancer medication or drugs to slow the effects of Alzheimer’s disease may be difficult, given that obesity is largely preventable and seen as a ‘lifestyle’ disease.

The term ‘morbidly obese’ is a relatively new subclass of obesity. It has only been used significantly in the past decade, owing to the increasing number of people who no longer fit the criteria for ‘clinical’ obesity.

Morbid obesity and clinical obesity are a major challenge for the NHS; current estimates put expenditure on treating the health problems associated with both clinical and morbid obesity at over £1 billion per year, which is projected to rise to £45 billion by 2050 (Wintour 2007). Clinical and morbid obesity also compromise the health of the population as a whole, not to mention the many health consequences for the individual and the impact on carers and families.

Obesity is not confined to the UK. In the United States, the statistics are far higher; more than two thirds of adults in the US are overweight and almost one third are obese, according to data from the National Health and Nutrition Examination Survey (NHANES), which examined obesity trends from 1985 to 2006 (Centers for Disease Control and Prevention 2007). This is unsurprising given that the US is the birthplace of fast-food culture.

But even in countries such as Japan, China and India, whose traditional diets have been espoused as highly nutritious, there are worrying early signs of an obesity epidemic. Many experts have blamed fast-food outlets and the opening of American chain restaurants in these countries. The largest rises in obesity prevalence observed across the globe in the past decade have been in Japan, Brazil, England, the US and the Seychelles (Jeffery and Sherwood 2008).

Treating obesity

No matter what the cause, the current obesity epidemic is a problem that must be addressed urgently. The social, economic and psychological impact is profound, and includes loss of self-esteem, absence from work, incapacity and many other health-related issues.

This article aims to explore some of the treatment strategies being adopted by healthcare services and supported by the government, and reviews their effectiveness as long-term remedies. It also reviews some popular commercial products, including herbal supplements that are being marketed for weight loss, and examines their clinical usefulness from a patient’s perspective in the light of concerns about their potential health risks.

Some of the national strategies for tackling the obesity epidemic will also be...
discussed and the fundamental causes of this health crisis will be examined.

**Measuring body weight**

The body mass index (BMI) is the standard method used to calculate whether a person’s weight falls within acceptable or normal limits for their height. It is the ratio of body weight in kilogrammes to the square of their height in metres:

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\text{BMI} = \frac{\text{weight (in kg)}}{\text{height}^2 \text{ (in m}^2\text{)}}
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The categories used to determine obesity are listed in Table 1.

Although a significant percentage of the UK population is overweight, it is clinically obese and morbidly obese individuals who are at the greatest risk and who pose the biggest challenge to the health service.

Related health problems include breathing difficulties, back and joint symptoms, heart disease and various other physical ailments. The psychological impact is immense, leading to conditions such as depression and low self-esteem. Emotional wellbeing is also severely compromised. Table 2 highlights the various problems associated with obesity.

**Conventional treatment strategies**

The government has invested significant funding in drug treatment strategies and surgical interventions but predominantly these are confined to those who fall within the category of morbid obesity. As a result, those who fall short of this category often try to gain weight to be eligible for treatment, especially surgery.

Conventional drugs used in the treatment of obesity fall into three main groups: those that reduce energy intake by acting like appetite suppressants; those that alter fat metabolism and therefore fat absorption; and those that increase metabolism or thermogenesis. All of these drugs have some adverse effect(s). Many drugs such as amphetamines and their derivatives have been withdrawn from use due to the severity of their risks. However, despite strict controls and regulations in the UK (monitored by the Medicines and Healthcare products Regulatory Agency), many drugs are still entering the market illegally, such is the desire for weight loss and making a profit.

**Appetite suppressants**

Appetite suppressants have a long history of use in tackling clinical obesity but many of the drugs have been modified, refined or removed from the market due to their health risks. In current use in clinical practice are drugs such as sibutramine (marketed as Meridia™ in the US and as Reductil™ in Europe) and phentermine (marketed under various names).

Appetite suppressants work by increasing serotonin levels, promoting a feeling of wellbeing commonly referred to as a ‘feel-good factor’. Importantly in obesity, they produce a feeling of fullness or satiation by inhibiting the reuptake of the neurotransmitters serotonin, noradrenaline and dopamine.

Drugs such as sibutramine do not stimulate the secretion of serotonin, instead they inhibit the reuptake of key neurotransmitters such as serotonin, noradrenaline and dopamine, and encourage weight loss by their anorexic effect and possibly by stimulating thermogenesis or increased metabolic rate (Weiser et al 1997).

Sibutramine, a noradrenaline-serotonin reuptake inhibitor, is approved for long-term use but the noradrenaline drug phentermine is approved only for short-term use (Bray 1999). However, recent research shows that these drugs continue to pose serious health risks such as heart attacks (Azarisman et al 2007). Other adverse effects include raised blood pressure, constipation and insomnia (Berke and Morden 2000).

**Altering fat metabolism**

The second class of drugs commonly prescribed for obesity is those that alter fat metabolism. In effect they inhibit pancreatic lipase, thereby reducing fat absorption. These include drugs such as orlistat (marketed as Xenical™). The drug itself is not absorbed but instead inhibits pancreatic and gastric lipases, thereby reducing fat metabolism and its subsequent absorption, and increasing fat excretion (Finer 1997). Side effects include faecal incontinence, oily spotting and malabsorption of fat-soluble vitamins.
Table 3 shows other common adverse effects of anti-obesity drugs used in clinical practice. The mental health risks of obesity drugs should always be considered. A systematic review and meta-analysis of a newer anti-obesity drug, rimonabant, showed increased risk of low mood/depression, suicidal thoughts, anxiety, irritability, nervousness and sleep disorders (Christensen et al 2007).

**Thermogenic agents**
The third class of drugs is classified as a thermogenic agent. This is, in effect, a metabolic stimulant. Thermogenesis is the generation of heat and can be achieved artificially by taking agents (herbs or drugs) that increase the activity of the thyroid gland, which controls the resting metabolic rate.

Thermogenic agents speed up the rate at which energy is released, so less fat is stored. The metabolic rate can be at the heart of any weight gain since it declines with age and can become sluggish due to a sedentary lifestyle, a poor diet and lack of exercise.

Examples of drugs in this category include ephedrine and the xanthine compounds such as caffeine and theophylline. Studies have demonstrated their efficacy in the short term but the risk of cardiac complications such as hypertension, increased heart rate (tachycardia, increased myocardial oxygen consumption and increased cardiac output) limit their clinical use (Finer 1997).

**Surgery**
Surgical intervention is now increasingly necessary given the health risks of some anti-obesity drugs and the extent of the obesity epidemic. Procedures such as jaw wiring (though not strictly speaking a surgical procedure) and stomach stapling (gastroplasty) are still in use today, although in some cases they have been replaced by more popular and effective procedures such as gastric banding, gastric bypass, liposuction and tummy tucks. The newer procedures are increasingly being used for cosmetic reasons rather than because the patient meets the criteria for surgery in clinical or morbid obesity.

Gastric banding is a procedure that makes the stomach smaller so patients feel full for longer after a meal. The procedure involves inserting an adjustable band around the stomach to limit the amount of food leaving the stomach. With time, the patient grows accustomed to eating less through feeling satiated for longer. Food consumption is reduced so weight loss can be dramatic.

Unlike other stomach operations for obesity, gastric banding does not involve cutting the stomach or intestines. The band can also be taken off if there are problems and weight loss is not desirable. Such procedures have been made more popular by celebrity endorsements and the unhealthy obsession with weight and body image. Despite their popularity, procedures such as liposuction and tummy tucks are not strictly considered part of any surgical procedure for obesity and are merely cosmetic. This is because they are not sufficiently effective at reducing weight in the clinically or morbidly obese. Patients should always be advised of the risks of any surgery, and consultations should always be supported by dietary advice and lifestyle modifications. Comorbidity such as sleep apnoea, cardiovascular disease or diabetes warrants surgery in some cases, particularly if drug treatment has failed in the past and more radical measures are necessary.

In such instances, clinicians often assess the advantages of surgery and the long-term benefits to the patient against any risks. New research indicates that the pill equivalent of gastroplasty could be on the market in about ten years’ time (King and Townsend-Nicholson 2008) and this could reduce some of the current risks associated with surgery. Other treatments such as leptin, thyroid hormone and cholecystokinin have been used in the past but with limited success.
At least 10 per cent of six-year-olds and 17 per cent of 15-year-olds are now clinically obese

Natural strategies
Many people have taken pills in an attempt to combat obesity and there are many untested substances that manufacturers claim, possibly falsely, will help people to lose weight. These may pose dangerous consequences for an unsuspecting public that can readily purchase potentially harmful substances without getting proper advice from qualified and regulated practitioners such as medical herbalists and nutritionists (Corns and Metcalfe 2002).

Herbal medicines by themselves will not enable the body to lose weight. Herbalists prescribe remedies as part of a holistic approach and will recommend lifestyle and dietary changes that will be far more effective in weight loss than any herbal medicine alone.

In some instances, prescribing a course of herbs will improve the circulation and the function of certain organs that can assist in weight loss, such as the liver and kidneys. Combined with proper advice about healthy eating and exercise regimens, weight loss in patients is far more effective and long term than radical diets or from taking herbs indiscriminately.

Herbal formulas
Commercial herbal formulas usually contain a combination of herbs that have desirable effects in weight loss such as increasing the metabolism (thermogenesis), water loss (diuretic effect), increasing circulation, boosting energy, increasing bowel movement (laxative effect) and appetite suppression.

Taking stimulants in general, such as caffeine or ephedra, and boosting circulation by taking cayenne pepper or ginger, can often achieve thermogenesis. Ephedra is not available over the counter but it has potentially dangerous effects if taken without proper consultation with a registered herbalist, so purchasing it online or from other non-regulated sources is potentially unsafe. However, the main active ingredient in this herb—ephedrine—can be sold over the counter and is found in many pharmaceutical preparations such as nasal decongestants. Thermogenesis is often referred to as ‘fat burning’ but herbs that generally stimulate body systems and improve circulation will undoubtedly burn fat in the course of energy release.

It is because of this that many of the herbs that stimulate and increase metabolism are popular with dieters. Some of the actions of the herbs often used either as single or combination preparations are described below.

Natural metabolic stimulants
Popular and common herbal stimulants include the ginsengs (Siberian and Korean), caffeine (found in coffee and tea but also present in some cocoa, chocolate and fizzy drinks), ephedra and guarana.

Some of these herbs can pose serious health risks, and this is particularly true of ephedra. Although this is not available over the counter in any UK health food store, there are many unlicensed and unregulated products containing ephedra that can be obtained via the internet. These must always be viewed with caution. Although it is an effective bronchodilator and is particularly useful in conditions such as asthma, ephedra should not be taken by anyone with conditions such as high blood pressure, heart disease or glaucoma (among many others). Side effects can include restlessness, insomnia and tremors. It can also induce high blood pressure in some cases. Only qualified medical herbalists are licensed to dispense ephedra.

Another popular herb is guarana, a stimulant made from the seeds of a vine found in Brazil and the jungles of the Amazon. It is popular because it has a flavour similar to chocolate and so is used in many foods and drinks. The caffeine levels found in guarana are stronger than those in coffee or tea and it is therefore harnessed for its stimulating properties.

Taken orally as an extract, guarana curbs the appetite and excites the nervous system. These qualities have led companies to include guarana in diet and weight-loss pills, helping people maintain energy levels while not eating. Long-term effects or excessive consumption of any stimulant is not good for the body because it becomes increasingly reliant on the stimulant and is not encouraged to make more efficient use of food or increase the metabolic rate through natural methods such as exercise.

Another popular herb is kelp (seaweed), a natural thyroid stimulant that may boost the metabolic rate in sluggish systems. Effectively, it boosts the rate at which energy is released from food and reduces the body’s desire to store unwanted food reserves.
Other notable stimulants include green tea, damiana and yerba mate. Herbs can be extremely useful in a weight-loss regimen but only with proper care and advice. They cannot exert their full effect by themselves with little change to poor diet and lifestyle choices.

**Circulatory stimulants**
A good example of this category is chilli (cayenne pepper or capsicum), which has the effect of increasing the heart rate, encouraging sweating and increasing core body temperature. This, in turn, boosts energy release from food and therefore boosts the metabolic rate. Other benefits include stimulating digestion, improving the immune system and increasing fat burning (thermogenesis).

Another circulatory stimulant is ginger, which, in a similar manner, increases body temperature. Both herbs have little impact on weight loss, being more effective in the whole process of aiding digestion. They are more likely to benefit the body by improving the delivery of nutrients to cells and by making better use of food through an improved digestive function. In the long term, this may prevent overeating and regulate body weight through proper use of food.

**Herbal laxatives**
Many people who diet regularly use, and sometimes misuse, laxatives in the mistaken belief that doing so will prevent them gaining weight. What it does instead is mistreat the body and encourage the bowels to become heavily reliant on laxatives.

This is one of the reasons why herbalists rarely prescribe herbal laxatives on any long-term basis, preferring to use them sparingly in the first instance and introducing dietary changes that train the lower gut to become more active. The build-up of toxins due to sluggish bowel movement can sometimes result in weight gain but the use of laxatives is never the answer to weight gain either in the short or long term.

Herbal laxatives fall into two categories: those that add bulk to food eaten, so making it easier for the bowels to work properly; and those that increase gut motility so that the transit of food is quicker. The former is the preferred choice of herbalists, particularly in weight loss, because these products encourage patients to introduce fibre to their diet and to retrain their bowels into functioning more effectively.

Good bulk laxatives are psyllium husks (which can be sprinkled on cereals or added to juices or smoothies) and flaxseeds (which can be sprinkled on cereals or added to salads). Flaxseeds also provide essential fatty acids as they are high in natural omega oils.

Common herbal laxatives of decreasing strength that stimulate bowel movements include senna, butternut, rhubarb, yellow dock and dandelion root.

**Herbal diuretics**
Many of the commercial brands for dieting (prepared either as teas, pills or tinctures) contain one or more herbal diuretics. Water retention is a real problem for some people but many do not realise that poor dietary habits have probably caused the situation in the first place. In the short term, herbal diuretics can be of benefit only to the very few who have genuine water retention problems.

For the vast majority, diuretics have limited long-term value and simply trick the body into thinking it has lost weight when it has merely shed a few pounds of water. Diuretics can be addictive and can deplete the body of important nutrients and electrolytes such as sodium and potassium. Paradoxically, the best way to remedy the problem of water retention is to drink plenty of purified water because this will flush out the toxins that cause the retention of water. Water retention caused by poor dietary habits can be remedied through herbal diuretics. However, water retention caused by heart failure requires a different treatment/management regimen and cannot be discussed fully here.

A lack of water causes the body to retain as much water as possible, much the same as crash dieting and not eating very much in order to lose weight will trigger the body to go into ‘starvation mode’. Therefore fat is retained much more as the body responds to a lack of food and prepares itself for a lengthy stint of starvation by holding on to its energy reserves (fat stores).

Water is an essential component of our diet and, though it is not strictly classified as a nutrient, we are dependent on it for our survival. It ensures that all our body systems work efficiently and prevents toxic build-up, which is the cause of so many illnesses and poor health. Effective herbal diuretics include dandelion, nettle and celery.

**Natural appetite suppressants**
Given the many health risks of conventional appetite suppressants discussed earlier, it is unsurprising that the natural plant substance...
extracted from the plant *hoodia gordonii* and marketed simply as hoodia (in various formulations and preparations) has widespread appeal as a natural appetite suppressant and has had much press attention.

Traditionally, it is used by the San tribe bushmen of the Kalahari desert who consume only the inner portion and drink the white latex to suppress hunger when out on their long hunting expeditions. Research has revealed that the active constituent in this plant responsible for appetite suppression is a substance labelled P57, and so far only one company has the exclusive rights to develop and market this active ingredient.

Given this, it is surprising how many commercial brands of hoodia extract are available and freely marketed. Nevertheless, the only clinical trial (results of which are yet to be published) shows promise and so far there have been no reported adverse effects from taking this herb. Other studies also show favourable results, with subjects losing over four pounds in two weeks (Keville 2006).

However, it is important to buy the right product of reputable quality and while many of the brands are sold as whole plant preparations, others have been found to contain very little of the specific species of hoodia, being mixed with other varieties and, worse still, synthetic ingredients, which may pose health risks if unregulated and unlicensed for sale.

**Conclusion**

To tackle the obesity epidemic, it is important to understand why it has arisen. Many point to the years of neglect in education about food, nutrition and cooking. This, combined with a lack of playing fields and curtailing physical education classes in favour of more sedentary pursuits such as computing classes, has contributed to childhood obesity.

The UK government has started to re-introduce cookery lessons in schools, which will teach the importance of nutrition to health, although these need to be more widespread.

Food manufacturers and businesses that place profit above health have played a significant part in the quality of our diet. A leading American professor in paediatrics has suggested that food manufacturing practices have created a ‘toxic environment’ that condemns children to being overweight (Lustig 2006).

To some extent this is being addressed, although it remains the responsibility of the discerning consumer to check labelling and ingredients and to be vigilant about their own intake of food as well as that of children.

Good quality food should not be expensive, and there are campaigns to make food cheaper so that families are not forced to buy less nutritious options instead of whole foods because of constraints on their budget.

The merits of organic foods have long been debated, representing a small but significant step in the campaign for better education on quality of food and nutrition.

**Solutions**

Much can be done to remedy the obesity crisis. The government has begun the process in schools through home economics and physical education. However, further funding is required to make this a truly co-ordinated, integrated approach at all levels, from schools to parents, from policy-makers to food manufacturers and supermarkets, if it is to have long-term benefits for future generations.

The solution lies in changing attitudes. Many people blame their glands or genes for their obesity but only an extremely small percentage of the population has a genuine metabolic ‘glandular’ problem or genetic disorder that can be attributed to excessive weight gain.

Getting people to change dietary habits is a huge challenge for nutritionists, dieticians and other healthcare practitioners. In cases of obesity, patients should be encouraged to examine their relationship with food as it may be a coping strategy for long-repressed emotions such as anger, frustration, sadness and pain. An effective referral system involving counsellors and psychotherapists is vital when tackling obesity.

Examining our concept of body image is also vital given the extremes in our society; while obesity is on the increase, paradoxically so too are conditions such as anorexia, bulimia and other eating disorders. More fundamental issues that govern body image must be examined.

Measures to tackle obesity must start with children. Obesity has a devastating and long-lasting effect, physically, psychologically and emotionally. To eradicate this problem requires major change – in policy and legislation, in adequate funding, education, information, and practical help and support.

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**References**