

October 2011

Featured Article

Obesity

By Will Maclean, M.Sc. Chin. Med.

Obesity (fei pang 肥胖) is on the rise worldwide and is the most common nutrition related disorder in the developed world. Most commonly it is associated with an increase in the energy value and quantity of food



consumed, coupled with a decrease in activity. There are however, some diseases that can contribute to increased weight.

While there are no quick fixes, and no substitute for the basic therapeutic principle of eating less

and exercising more, Chinese medicine can play a valuable supportive role, and can improve some of the physiological components that contribute to obesity, specifically slow metabolism, digestive inefficiency, problems with insulin metabolism and the fatigue that prevents activity.

The line between a healthy weight and obesity is usually clear but there are standard parameters that can be useful in determining the progress of treatment. These are based on the body mass index (BMI), and the waist to hip circumference ratio (W/H ratio). The body mass index an adult using pounds and inches is calculated by dividing the weight (lb) by the square of the height (in²) and multiplying the result by 703 (This formula has been modified from the original presented in the text to reflect the use of pounds in the US).

$$\text{BMI} = \frac{\text{Weight in Pounds}}{(\text{Height in inches}) \times (\text{Height in inches})} \times 703$$

The waist to hip circumference ratio is derived by dividing the waist measurement by the hip measurement, for which a healthy range is less than 0.9.

BMI	Grade
<18.5	underweight
18.5 – 25	considered a healthy range
25 – 30	overweight
30 – 35	Grade 1 obesity
35 – 40	Grade 2 obesity
>40	Grade 3 obesity

In terms of the general health of obese individuals, the standard classification can be too rigidly applied, and the BMI should always be considered in the context of the individual concerned. There are many people with a BMI outside the consensus healthy range who are perfectly well. However, the risk levels for some chronic illnesses can increase significantly with increasing BMI. These include diabetes and metabolic syndrome, cardiovascular and gall bladder disease, osteoarthritis and infertility.

Obesity and insulin resistance

Rising in tandem with increasing frequency of obesity are disorders of sugar metabolism, specifically insulin resistance and diabetes mellitus.

Insulin resistance is a condition which occurs when somatic cells do not respond appropriately to insulin. Obesity and insulin resistance are clearly linked. The glucose that should be taken up by cells and consumed to power their metabolic activity, with the assistance of insulin, is instead routed into

Biomedical Causes of Weight Gain

Endocrine

- hypothyroidism
- Cushing's syndrome
- acromegaly
- hypogonadism
- hyperprolactinoma
- insulin secreting tumors
- polycystic ovarian syndrome

Other

- cardiac failure
- liver failure
- nephrotic syndrome
- hypothalamic tumors
- premenstrual syndrome
- early pregnancy
- depression

Drugs

- tricyclic antidepressants
- oral contraceptive pill, hormone replacement therapy
- corticosteroids

fat storage. Insulin resistance and diabetes are increasing because the makeup of the diet, availability of food and modern lifestyles have evolved too rapidly for our bodies to keep pace. We are still genetically programmed to live like our ancestors, whose diet, as far as we can tell, was low in refined carbohydrates and volume of food, and who sustained greater levels of movement and exercise. The insulin system evolved to deal with slowly digested food stuffs and periods of food scarcity. During periods of food abundance, the extra energy was stored as fat as insurance against the lean times. Obesity associated with insulin resistance tends to be central (abdominal) in its distribution. The more weight gained, the greater the insulin resistance and higher the compensatory insulin production, which leads to even more weight gain.

ETIOLOGY

The main cause of obesity is taking in more energy than is used by activity. Weakness and inefficiency in harvesting, transforming, distributing and utilizing the qi derived from food resulting from poor organ system function, can further compound weight gain.

Spleen and Stomach

Weakness of the Spleen and Stomach leads to inefficient digestion, causing a buildup of damp and phlegm in the form of fat and fluid in the tissues. The weakness and tendency to phlegm damp accumulation may be inherited, or acquired through poor eating habits. Patients with a real or perceived weight problem are often drawn to slimming diets of various types, many of which use bitter cold purgatives, diuretics and appetite suppressants as their main therapy. All of these can damage the Spleen; the patient loses appetite, some weight and fluid, but once the dieting stops the weight usually returns worse than before. This 'yo-yo' pattern of weight loss and weight gain can deplete Spleen and Kidney yang. Inactivity is another factor which weakens the Spleen. It was noted in Simple Questions (Huang Di Nei Jing Su Wen), Chapter 23, that 'too much laying down damages the qi and too much sitting damages the flesh'. Habitual overeating overloads the Spleen and Stomach and exceeds their processing capacity. Instead of being efficiently processed and moved quickly through the Intestines, unprocessed food accumulates, stagnates and produces heat. The heat causes an increase in appetite, and a vicious cycle occurs in which Spleen and Stomach are further weakened and digestion becomes increasingly inefficient. Damp is produced which combines with the heat to produce damp heat, or is further congealed into phlegm.

The damp, damp heat and phlegm so produced can accumulate in the tissues and internal organs, and have further ramifications for the health. For example, phlegm can accumulate in the cardiovascular and cerebrovascular systems causing chest pain, obstruction of blood vessels and peripheral circulation, wind-stroke, tremors, anxiety states and vertigo. Chronic heat or damp heat in the yangming system can injure Intestinal yin and damage

the intestinal lining. The local circulation of qi and blood is weakened, phlegm and blood stasis can accumulate and polyps, nodules and tumors may form.

Patterns of Obesity

Stomach heat and food stagnation
Phlegm damp
Spleen Qi Deficiency with damp
Spleen and Kidney yang deficiency
Liver and Kidney yin deficiency
Qi and blood stagnation

The Liver

Chronic Liver qi constraint can weaken the Spleen, retard fluid movement and lead to accumulation of damp and phlegm. Prolonged or severe Liver qi constraint can also generate heat, which may then combine with any damp present to form damp heat or phlegm, or may injure fluids and yin. Qi constraint also has an impact on the Gallbladder and the distribution of bile, and in combination with damp readily forms gallstones. Gallstones can further impair digestive efficiency and lead to the accumulation of more damp.

Kidneys

As we age and our Kidney yang declines, the metabolic fire that underpins the yang functions of the other organ systems diminishes. Spleen yang, the basis of efficient digestion is weakened, and damp, phlegm and blood stasis occur more readily. A decline in Kidney yin reduces yin fluids and leads to deficient heat, which causes thickening of fluids, accumulation of phlegm and blood stasis. In addition, the general decline of yang qi often leads to a decrease in overall activity and more sedentary habits.

There is a constitutional component to weight gain, with a tendency to obesity running through some families, however, whether this is learned behavior and poor eating habits imprinted from an early age, or part of an inherited template can be difficult to determine.

TCM PATTERNS

Stomach Heat with Food Stagnation

Stomach heat with food stagnation is seen primarily in younger people and in men. The results of overeating lead to accumulation of food in the middle burner, causing food stagnation, damp heat or phlegm heat. It is an excess pattern without too much damage to the organ systems involved. There are numerous variations depending on the individual concerned (see Variations), but the basic principles are the same: keeping all pathways of elimination open and clear, removing any blockages to elimination and supporting healthy digestive function. Treatment has to proceed carefully, as the herbs, in the process of clearing heat and stagnation, can damage Spleen yang. In the short term this is useful as it suppresses the appetite, but it has to be managed carefully to avoid pushing the patient into Spleen deficiency.

Phlegm Damp/Phlegm Heat

Phlegm damp type obesity can be the result of overeating, but can be constitutional. Patients with phlegm damp will

often note they were overweight from an early age. Phlegm damp is often complicated by constrained Liver qi, and the longer it persists, the more Spleen deficiency will develop. The guiding principle of treatment is not to simply resolve phlegm damp, but to maintain all passageways of elimination and ensure the Spleen and Stomach are working as efficiently as possible.

Prolonged obstruction by phlegm damp can produce heat. Heat may also occur in response to stress, qi constraint or over indulgence on heating food and alcohol. Phlegm heat has a propensity to affect the Heart and shen, so when phlegm heat is created (it can also be a constitutional tendency), there are shen symptoms in addition to the weight problem. In fact, overeating itself may be related to psychological states caused by phlegm heat, such as anxiety, nervousness and lack of self-confidence. It is further compounded by gnawing hunger that leads to frequent snacking. The tongue may be red with a greasy yellow coat, the pulse slippery and rapid.

When constitutional, phlegm damp obesity can be difficult to resolve to the satisfaction of the patient. Some weight can be lost, but patients often reach a point beyond which no more weight loss can be achieved regardless of dietary restrictions and amount of exercise. Their natural weight sits at the upper end of the bell curve, and the problem becomes one of perception rather than of health. Women with phlegm damp weight problems may be found to have polycystic ovarian syndrome. Heaviness and lethargy typical of phlegm damp can be impediments to getting started with exercise, but graded exercise in groups has a motivating effect and can achieve good results.

Spleen Qi Deficiency

Spleen qi deficiency is a common cause of weight problems, and can lead to either weight loss or weight gain. When weight is gained, it is due to the inefficient processing of food which leaves a residue of damp, phlegm and fluid that settles in the flesh.

Treatment to strengthen Spleen function and clear damp can result in rapid initial weight loss as urinary output increases and edema resolves. Patients may lose several pounds per week for the first few weeks. While the initial results are often dramatic and welcome, the real work of burning fat deposits is a much slower process and patients should be counseled to expect losses of no more than 2-4 pounds per month. Gradual weight loss combined with strengthening of Spleen function results in a much better long term outcome and sustained healthy weight. Exercise is essential, and is best performed in the morning, between 7 and 11 am, when qi is at its daily peak. It may be best to begin with some type of mild activity, such as gentle walking, yoga or tai ji quan, before gradually building up to a more aerobic regime.

Spleen and Kidney Yang Deficiency

This pattern is associated with weight gain from

both fluid and fat due to reduced metabolic rate. Some patients with this type of obesity may be diagnosed with hypothyroidism. The weight is accompanied by marked lack of energy and motivation. Damage to Spleen and Kidney yang is often the result of repeated crash or restrictive diets, or the use of slimming aids in an attempt to treat phlegm damp or damp heat with weight problems. In general, treatment initially focuses on restoring Spleen yang to improve digestive efficiency. If necessary, treatment addressing Kidney yang can follow.

This type of obesity may be the result of digestive damage from weight loss programs, or prolonged use of cold medications or herbs. The low energy level of patients with yang deficiency is a major impediment to increasing activity levels. In many cases, it is best to wait until the patient's yang qi is returning before embarking on any program. Once exercise is possible, it should be introduced gradually and in a graded fashion, starting with some type of mild and will supported activity, such as aquarobics in a heated pool. This is especially useful where there is lower back pain. As Spleen and Kidney yang recover, a more aerobic regime can be phased in.

Liver and Kidney Yin Deficiency

Liver and Kidney yin deficiency is a common pattern in overweight people, and is most commonly seen in women after menopause. It can also be the result of a chronic damp heat pattern that depletes yin, or excessive dieting and the use of bitter purgative and appetite suppressant slimming aids. Although the most characteristic feature of yin deficiency is weight loss and thinning of tissues, the deficiency can affect certain tissues preferentially, for example the tissues lining the genitourinary tract, leaving muscle and fat tissue unaffected. The weight loss is slower than in the Spleen deficiency and heat patterns, with none of the initial loss from improved fluids metabolism.

Even though building yin to treat weight gain may seem counter intuitive, improving the quality of the body's yin will restore homeostasis and assist in trimming down.

Qi and Blood Stagnation

Qi and blood stasis is the result of chronic obesity, and represents obesity with significant cardiovascular complications. Stagnation will gradually complicate all other patterns, and so this pattern will have features of phlegm, heat or deficiency.

The prognosis is relative to the degree of the blood stasis. If the patient is able to take part in more physical activity and aerobic exercise, even relatively severe blood stasis can be improved.

TREATMENT

The treatment of obesity can be challenging. In many cases the reasons for overeating are complex, and intertwined with social and emotional factors. For sustained success, treatment requires a substantial commitment from both patient and practitioner, and is usually prolonged. Initial

weight loss is often dramatic, but this is largely fluid. Real weight loss, i.e. decrease in fat deposits, should be gradual and ideally no more than .5 lbs per week. In this way, the metabolic changes necessary to keep the weight off can be embedded. During this process, regular support and encouragement, reinforcement of goals and monitoring of progress are the keys to success.

Food and activity diary

A food and activity diary is a useful way of assessing the nature and volume of food consumed and the relative energy expenditure. This can help not only in tailoring a rational plan, but creates an awareness in the patient of what is being ingested and what is being used. People generally underestimate, unintentionally or otherwise, the amount of food they eat. Be aware, however, that for patients with Spleen deficiency, a food diary may become a source of obsession and encourage a counterproductive preoccupation with food and diet.

Diet

A diet that reflects the pathology being treated should be advised and introduced gradually. Radical or sudden changes in diet are not advised since they generally do not last. See Clinical Handbook of Internal Medicine, Vol. 2, p. 862, for details on diets tailored to specific pathology.

Some simple dietary guidelines can apply to all people wishing to lose weight.

1. Cut down volume of food by 30%. Having small meals which include some protein at regular times throughout the day will regulate blood sugar levels and reduce appetite.
2. Avoid fatty or fried foods. Eat more fresh fruits and vegetables.
3. Avoid soft drinks and fruit juices.
4. High protein (or low Glycemic Index) meals are often recommended because they are relatively low calorie, don't raise blood sugar or produce so much insulin and they manage hunger better. However, any diet which reduces calories will help reduce weight.
5. Breakfast and lunch are the more important meals as their energy value will be consumed in daily activity, while the calories from a large evening meal will tend to be stored as fat. The old saying 'eat like a king at breakfast, a prince at lunch and a pauper at dinner' is excellent advice. Chinese medicine with its understanding of the flow of qi in the 12 channels has long recognized that it is in the early part of the day that the digestive organs are at their peak. The time of maximal energy available for digestion is between 7-11 am (Stomach and Spleen time).
6. Snacking between meals should be avoided.
7. Good digestion and regular bowel movements

are also an important part of weight control.

8. A disciplined and persistent approach is essential, but rigidity is counterproductive, especially so for those with Spleen deficiency.
9. The 80/20 rule could be applied here – do the right thing 80% of the time and 20% of the time you can get away with small indiscretions.

Exercise

A realistic and regular program of exercises is an essential part of any weight loss plan. Exercise consumes calories, but more importantly it makes muscle tissue more insulin sensitive, so the pancreas can reduce its output, and less sugar is shunted to fat deposits.

The goal should be for a minimum of 30-40 minutes of sustained aerobic activity every day or at least several times a week. This means getting the heart rate up to about 50% above the resting rate (i.e. to 120 beats per minute if the resting rate is 80) and keeping it there for 30-40 minutes. Walking is ideal. The benefits of regular aerobic activity are cumulative and become self-sustaining over time.

The Chinese medicine clinic is an ideal environment to provide such a framework. Regular appointments for acupuncture treatments provide a good forum for encouraging motivation and reviewing progress, as well as improving physiological function. A typical treatment course will run over 3-12 months, during which time acupuncture is given weekly.

For a breakdown by etiology of the clinical features, points and herbs to be used during treatment please see Obesity section in Will Maclean's Clinical Handbook of Internal Medicine, Vol. 3. ■

BIO: Will Maclean has been in full time practice since 1987 and is the author, along with Jane Lyttleton, of the Clinical Handbook of Internal Medicine series (Volume 3 was just released in May 2010), and the Clinical Manual of Chinese Herbal Patent Medicines. He has taught seminars in Australia, New Zealand, the US, UK and South Africa. His main clinical interests are in disorders of the immune and gastrointestinal systems, and in the critical assessment of the classics based on the practical realities of modern clinical practice.