



Diet and Digestion

# How is Rising Obesity Tackled in China and Europe?

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## ABSTRACT

Overweight and obesity are a growing problem in China but their causes may be differently viewed as a consequence of globalisation and the development of an obesogenic environment or as a consequence of an individual's wellbeing. This paper explores these different explanations and the ways that the problem is addressed in Sino and European policy and TCM practice. The diagnosis of obesity and its treatment by herbs, acupuncture and auricular acupuncture are described but there is a lack of evidence for their efficacy. This paper argues that at an individual level, obesity can be linked to an unhealthy diet and eating practices and a lack of activity. Behavioural changes as well as TCM treatments that address the gastrointestinal digestive function may be effective. Obesity is, however, a complex and global issue that also needs to be recognised as a social problem where the environments in which people live and work will influence their ability to adopt healthier lifestyles.

## INTRODUCTION

Overweight and obesity have become a major public health problem in China and it is common now to see problems of underweight, stunting and micronutrient deficiencies alongside obesity. In 2012 the Ministry of Health estimated that 300 million Chinese people are obese in a population of 1.2 billion. Although the proportion of the population classed as obese in China is still lower than in some Western countries such as the USA, it is the rapid increase especially among children that is a particular concern. Data from the China national surveys on the constitution and health of school children showed that the prevalence of obesity in children aged 7-18 years had increased four times in twenty years (Wang Yi et al, 2007).

The Global Burden of Disease analysis (Yang et al, 2013) of the health and ill health of nations identified the changing burden of disease in China towards non-communicable diseases (NCDs) such as stroke, ischaemic heart disease, cancers, and chronic obstructive pulmonary disease and the leading risk factors as dietary risks (including high consumption of sodium), high blood pressure, tobacco, and air pollution. One consequence is that diabetes has become a major public

health crisis in China, with an annual projected cost of 360 billion RMB (almost 60 billion USD) by 2030 and 1:4 people worldwide with diabetes are in China. In addition to affecting the growing elderly population, type 2 diabetes increasingly affects young people, with the combined effect being enormous tolls on productivity and healthcare systems.

The explanations for China's recent epidemic of overweight and obesity include changes to the traditional diet, reduced levels of physical activity, and increased sedentary lifestyles. It is commonly described as having a nutrition transition. Recent data from the national surveys of nutrition indicate noticeable changes in the proportions, and sources, of dietary macronutrients over the past twenty years. Energy intake from animal sources has increased by a third and that of cereals decreased by a third in twenty years, and the average energy intake from dietary fat among urban Chinese has increased from 25 per cent to 35 per cent (which is above the upper limit of 30 per cent recommended by the World Health Organization (WHO)). As with all transitions, there are positive and negative effects. On the one hand, there is improved food security: for poor individuals a few extra grams of animal-source foods can significantly improve the micronutrient profile of food consumed. On the other hand, excessive consumption of animal-source foods is linked with excessive saturated fat intake and increased mortality. This is often described as the dual burden for nutrition and may be apparent even in households where high quality foods may be given preferentially to adult males or to children in the wake of the one-child population control strategy.

China's modernisation has meant changes to food supply with globalised food production, transportation and marketing and consequent access to many new empty calorie foods and beverages. There are reductions in physical activity and labour intensity in both urban and rural areas. People are expending less energy on traditional forms of transportation such as walking and cycling, and the popularity of cars, buses, and motorcycles is increasing.

The number of cars produced in China increased from 5,400 in 1980 to over 2 million in 2003 and 14 million in 2014.

#### How is the problem being addressed?

Obesity is a global pandemic with a range of levels of determinants that recognise that the physiology of energy balance is determined primarily by behaviour and, more generally, by environment. Many EU countries have made efforts to tackle the root causes of obesity, principally through lifestyle change. Informing the public, increasing the availability of healthy food options in schools and workplaces, encouraging physical activity through cheap leisure opportunities and active travel such as walking or cycling to work, and a focus on vulnerable groups such as pregnant women are some of the fields for action. In the UK, local care pathways for obesity have been developed from screening patients to identify those who would benefit from an intervention, to offering brief interventions in primary care, before referring to a specific weight management or physical activity service. The lack of success of these approaches has meant a new interest in the use of interventionist approaches to control food supply with taxes on foods rich in fat and sugar, with several governments (Denmark, Finland, France, Hungary) passing legislation aiming to change eating habits.

In China, the rising problem has been recognised: there are numerous policies and guidelines but few evaluated interventions of, for example, physical activity in schools or guidelines on school lunches. Policy interventions such as that which requires students to exercise or play sports for an hour a day at school are not consistently implemented. A new Nutrition and Food Plan 2014-20 focuses on food quantity, food quality and nutrition development. There are incentives to food growers to both produce healthier foods such as soya beans and to improve production and hygiene: for example it is now recommended to drink more milk (a cause of contamination a few years ago) but there is no mention of obesity (Wang and Zhai, 2013). There are no policies regarding the marketing of food via television and all other media, packaging or other labelling systems to encourage healthier foods in the supermarkets and convenience stores that dominate the Chinese food system, and little has been done to control the rapid increase in the consumption of sugary drinks. The limited commentary and academic work on this topic highlights a reluctance to use regulation and fiscal taxation to shift consumption towards healthier foods (Zhai et al, 2002).

*‘ In China the epidemic of NCDs can also be seen as the result of rapid social transition that has led to an obesogenic environment against a backdrop of traditional lifestyle and periods of famine ’*

#### How do health practitioners address this problem?

In the Western world obesity is seen as a consequence of an obesogenic environment and individual lifestyle choices shaped by that environment. In China the epidemic of NCDs can also be seen as the result of rapid social transition that has led to an obesogenic environment against a backdrop of traditional lifestyle and periods of famine. Social determinants for NCDs in China include social disparity and psychosocial stress together with factors such as low-grade infection, environmental pollution, care fragmentation, health illiteracy and lack of self-care, and insufficient community support. All of these determinants need to be addressed for what may appear a personal health challenge (See ‘Diabetes in China’, The Lancet, 11 September 2014). In TCM obesity is addressed at the level of the individual with an initial diagnosis and then a treatment with Chinese herbs, acupuncture or auricular acupuncture.

#### Diagnosis of obesity in TCM

The risk factors are well understood as an individual's undesirable eating habits, under-exercising, body constitution and mental state. The *Yellow Emperor's Classic of Internal Medicine (Huangdi Neijing)* holds that obesity is mainly caused by abnormal endowments, improper diet, excessive ease and emotional disorders. In TCM, abnormal endowment is seen as having a significant genetic predisposition. The differences of excess energy intake, storage, and consumption in different individuals are closely related to genetic differences. ‘Fat people are greedy in taking food, must often eat a lot of sweet and greasy food’ according to the *Yellow Emperor's Classic*. ‘With excessive spleen and stomach qi, people can eat and gain weight; with deficient spleen and stomach qi, people eat

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less but still gain weight, which is probably because although spleen qi is sufficient, pathogenic qi is too strong' (*Treatise on the Spleen and Stomach*).

Most TCM practitioners will thus describe obesity as an exterior sign of excessive Phlegm and Dampness with deficiency of *zang* organs, especially Spleen and Kidney. For people who eat too much, Spleen and Stomach fail in transporting and transforming food into essence, which is then accumulated, forming Phlegm and Dampness; thus obesity will gradually occur. Blood stasis is considered another important factor in obesity. Body fluid and Blood share the same source and they supplement each other. With body fluid retention and accumulation, Blood circulation is also slowed down, having a similar effect to Phlegm and Dampness on the human body. *Qi* movement carries body fluid circulation. *Qi* stagnation and *qi* deficiency lead to body fluid retention: thus people will become overweight. Insufficient *yang qi* with inner Cold fails to transport and transform Water, so body fluid accumulates and forms into Dampness and Phlegm; thus obesity will gradually occur.

The approach in Western medicine and TCM are therefore different: TCM does not treat 'excess weight'; rather it deals with the underlying sluggish constitution that may have led to the excess weight.

### Treatment principles

TCM theory has two distinct approaches in the diagnosis and treatment of diseases. One approach is that the human body is considered as an organic whole, it is united with the natural and social environment and changes according to seasons and time. The other approach is that the TCM diagnosis and treatment plan should be based on the combination of disease identification and syndrome differentiation. For treating obesity then, the treatment principles include tonifying deficiency by strengthening the Spleen, supplementing *qi*, warming Spleen and Kidney *yang*, and reducing excess by removing Phlegm, resolving Dampness, regulating *qi* stagnation, promoting Blood circulation to remove stasis, thus to regulate *yin* and *yang*, so removing fat to lose weight.

### Treatment by Chinese herbs

There are numerous Chinese herbs that can reduce body weight, which can be categorised as follows:

- Resolving Phlegm and Dampness to reduce weight: including *ze xie* (*Alismatis orientalis Rhizoma*), *jīn yīn huā* (*Lonicerae japonica Flos*) *he ye* (*Nelumbinis nuciferae Folium*), *yī yī rén* (*Coicis lachryma-jobi Semen*)

- Promoting Blood circulation and removing stasis to reduce weight: including *dān shēn* (*Salviae miltiorrhizae Radix*), *yī mǔ cǎo* (*Leonuri heterophilli Herba*), *shān zhā* (*Crataegi Fructus*), *bái zhī* (*Angelicae dahuricae Radix*), *chuān xiōng* (*Ligusticum wallichii Radix*)

- Nourishing *yin* and Blood to reduce weight, including *nú zhēn zǐ* (*Ligustri lucidi Fr.*), *shū dì hāng* (*Rehmanniae glutinosae conquitae Radix*), *gōu qǐ zǐ* (*Lycii Fr.*) and *jū huā* (*Chrysanthemi morifolii Fl.*).

Compound Chinese herbal formula treatment for obesity is based on disease identification and syndrome differentiation, and the following four types of syndromes are the most common ways of syndrome differentiation:

- for Dampness and *qi* stagnation, formulas for warming the middle *jiao* to resolve Dampness or clearing away Heat to remove Dampness should be used

- for deficiency of *yang* in both Spleen and Kidney, formulas for supplementing Spleen and consolidating Kidney, warming *yang* to resolve Dampness should be used

- for Liver Heat combined with Dampness, formulas for dredging the *qi* of the Liver, clearing away Heat and removing Dampness should be used

- for Wind Heat combined with Dampness, formulas for expelling Wind, removing Wind, promoting Blood and regulating channels should be used.

### Treatment by acupuncture

Based on a clear syndrome differentiation, an acupuncture prescription should be made under the principles of selecting points by combining local and distal points on the relevant meridian, assisted by using some points from experience. For local points, mainly use the points in large parts of fat accumulation, and for distal points, mainly use the lower *he* points and back *shu* points. As an example of the selection of points from experience, LI 11 *qu chi* and St 36 *zu san li* should always be used for the syndrome of Heat accumulation in the Stomach and intestines.

A number of acupoint prescriptions for reducing body weight have been made by many Chinese acupuncturists through clinical experience, including St 36 *zu san li*, Sp 6 *san yin jiao*, St 37 *shang ju xu*, St 25 *tian shu*, Ren 4 *guan yuan*, and Bl 20 *pi shu*. For cases of refractory, electric acupuncture treatment can be adopted. Low frequency and continuous wave is commonly used; stimulus intensity should be according to patients' tolerance.

### Treatment by auricular acupuncture

Auricular point-pressing therapy can also be used for reducing body weight. External nose (hunger point), endocrine, sympathetic, subcortical, Stomach, and Spleen are the most commonly used auricular points. According to the characteristics of the syndrome, select three to four auricular points to press every time, use both ears alternately. Ask the patient to massage each point for two or three minutes when feeling hungry, before eating and before bedtime. A combination of body acupuncture and auricular point-pressing therapy is recommended.

### CONCLUSION

The holistic approach of TCM that incorporates patient involvement, their sense of self-efficacy and their ability to take responsibility to care for themselves are core principles of health promotion and very much part of approaches to

behaviour change in Europe. So there are synergies between Western approaches and TCM. The evidence base is, however, scant for TCM benefits for addressing obesity. There are research studies of TCM, acupuncture and herbal medicine for weight loss that describe the methods outlined above. Whilst some studies report longer-term efficacy, all reviews question the validity of the results due to the small size of the studies and the diversity entailed in individualised treatments, a drawback of most research on TCM efficacy (Lacey et al, 2003; Cho et al, 2009; Sui Yi et al, 2012). Any approach to weight management needs to pay attention to the individual's appetite, whether in the approach to portion control, or the approach of TCM in addressing the hyperactivity of the gastrointestinal digestive function, promoting energy metabolism and lipolysis, or adjusting nervous and endocrine function. At an individual level, the understanding of obesity as being linked to an unhealthy diet and eating practices and a sluggishness associated with a lack of activity is well understood. Behavioural changes as well as TCM treatments may be effective.

Obesity is a complex and global issue that also needs to be recognised as a social problem where the environments in which people live and work will influence their ability to adopt healthier lifestyles.

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