



Lifestyle Related Cause Of Obesity And Evidence-Based Applications Of Intensive Yoga Therapy In Weight Reduction

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Abstract:

Obesity is becoming a serious health issue especially in developed countries. India is also following a trend of other developing countries that are steadily becoming more obese. The main causes of obesity are overeating and decreased physical activity, which means imbalance between the amount of energy intake and the amount of energy expenditure. If someone is obese or overweight, he/ she may feel decreased level of energy, difficulties in breathing, excess sweating, have problem in sleeping and experience back and joint pains. They may have an increased risk of developing type-2 diabetes, hypertension, coronary heart disease, joints related problem, kidney disease and asthma etc. Individuals can also develop psychological problems. Yoga has an important role in the management of Obesity and the proven effects of yoga are available. Yogic management of obesity is based on controlled and balanced diet, yoga postures and breathing techniques. Yoga poses work on endocrine glands, improve blood circulation and improve body's metabolism. *Asanas* strengthens the muscles, deep breathing while doing yoga reduces fat for bringing body weight to optimal level. In this review article, evidence based therapeutic application of yoga therapy for managing obesity has been discussed.

Keywords: Obesity, Sedentary lifestyle, Yoga therapy, Self-awareness

Introduction:

Obesity is becoming a serious public health issue especially in developed countries [1]. Obesity can be defined as a condition where the body mass index (BMI) is higher than thirty [2]. People with BMI in the range between 25 and 30 are considered overweight while those with BMI above 30 are considered obese. Body mass index or Quetelet index is a number calculated from a person's weight and height. BMI can be considered an alternative for direct measures of body fat.

Obesity is an increasingly common problem, because many modern lifestyles often promote eating excessive amounts of high-calorie food and spending a lot of time sitting on sofas or on chairs [3]. India is also following a trend of other developing countries that are steadily becoming more obese [4]. It's a common problem, estimated to affect around one in every four adults and around one in every five children aged between 10 and 11 in the United Kingdom [5].

The main causes of obesity are related to lifestyle. The first cause is overeating and the second is decreased physical activity, which means there is an imbalance in the amount of energy intake and the amount of energy expenditure [6]. Apart from this, environmental factors, family influence, sedentary lifestyle and stress are the possible causes. If someone is obese or overweight, he/ she may feel decreased level of energy, difficulties in breathing, excess sweating, have problem in sleeping and experience back and joint pains [3]. Apart from this, they may have an increased risk of developing type-2 diabetes, hypertension, coronary heart disease, joints related problem, kidney disease and asthma etc. Individuals can also develop psychological problems because of being overweight or obese like low self-esteem, poor self-image; low confidence level, feelings of isolation and these feelings may affect the relationships with family members and peer groups and, if they become severe, may lead to depression [4].

Measurements of obesity:

Measurement of obesity is possible using following methods:

(A) Body Mass Index: - The WHO's definitions of 'overweight' and 'obese' are based on an individual's body mass index (BMI), which measures weight relative to height.

$$\text{B.M.I.} = \text{Weight (in kilogram)} / [\text{Height (in meter)}]^2$$

BMI according to WHO [7]

Less than 18.5 - Underweight
18.5–24.9 – Normal
25–29.9 - Overweight
More than 30 - Obese

BMI according to Indian Health Ministry [8]

Less than 18.4 - Underweight
18.5–22.9 - Normal
23–24.9 - Overweight
More than 25 - Obese

(B) Waist Circumference: - The waist circumference is measured at a level midway between the lowest rib and the iliac crest.

(C) Hip Circumference: - The hip circumference can be measured at the level of the great trochanters.

Proven effects of yoga in managing obesity:

Yoga has an important role in the management of Obesity. Yoga poses work on endocrine glands, improve blood circulation and improve body's metabolism. *Asanas* strengthens the muscles, deep breathing while doing yoga reduces fat for bringing body weight to optimal level. Previous study have shown that after six days of yoga and a vegetarian diet camp, there was a significant decrease in BMI, lean mass, water content, waist circumference, hip circumference, total cholesterol, high density lipoprotein (HDL), and serum leptin level [9].

In a recent study three weeks of yoga or walking program with control diet on obesity was studied. The participants (ages ranged between 20 and 55 years) were divided into two groups that are yoga and walking group [10]. Yoga group practiced *asanas* (*Trikonasana*, *Konasana*, *Padhastasana*, *Uttanpadasana*, *Markatasana*, and *Savasana/ Yoganindra*), *pranayama* (*Bhastrika*, *Kapalabhati*, *Anuloma – Viloma*, *Bhramari*, and *Udgeeth*), and loosening exercises (*Sukshma vyayama*) while the walking group practiced walking (with OM chanting) at the same time. Biochemical measurements (leptin, adiponectin, and lipid profile), body composition, hand grip strength, stability, heart rate variability, respiration rate and health related measures were assessed before and after the intervention. Both groups showed an average weight loss of 4.5 kg. They were also convinced about healthy eating habits. Also, increase in bilateral hand grip strength and postural stability had shown in the yoga group but not in the walking group.

Another study was done to investigate the impact of ten days yoga practice on self-control in obese women with average age of 39 years. The participants practiced yoga one and half hour daily for ten days and the practice included chanting, *asanas*, breathing practices, cleansing practice and meditation. After analysis

a non significant improvement was found but at the average it showed better impact of yoga on self-control. It also showed a satisfactory decrease in average 1.3 kilogram in weight. This finding indicates the beneficial effect of yoga for weight-reduction in obese women to improve their self control [11].

A comparative cross sectional study was conducted in rural community with 60 male and females (aged between 30 and 50 years) diagnosed with obesity according to the WHO criteria. Participants were divided into two groups by random sampling method and their B.M.I. and pulmonary functions were measured. Group I practiced aerobic exercise that is walking and group II practiced *pranayama* and physical postures for one year (one hour daily and five days per week). Statistical analysis showed the significant effect on all parameters in group II (Yoga group) and it means regular practice of yoga is really helpful in weight reduction as well as the improvement in pulmonary functions [1].

Yogic Management of Obesity

Yogic management of obesity is based on controlled and balanced diet, yoga postures or *asanas* and breathing techniques. Consuming only the amount of food that we really need, along with regular exercise, *pranayama*, and *asanas* can give relief to overweight and obese people. While using these methods one should have realistic weight loss expectations, as the process may take time, even months.

The obese people often have trouble with joint pain; yoga can help by improving the body's alignment to reduce strain on joints by allowing the frame to bear more of the body's weight. Yoga also develops the balance. People who are overweight often feel disconnected from their bodies - yoga helps to bring the mind-body connection, which can improve self-image and acceptance of the body. Most importantly, yoga can help to feel better, both improving physical fitness and elevating mood. Regular practice of yoga has different effect on obesity, which is permanent in nature than other techniques for obesity reduction.

The dynamic series known as *Surya namaskara* (salutation to the sun) is most important for the treatment of obesity. *Surya namaskara* is a complete practice in itself because it includes *asana*, *pranayama*, *mantra* and meditation. This practice has a unique influence on the endocrine and nervous system, helping to correct metabolic imbalances that cause and perpetuate obesity [12]. The *pranayama* practices recommended for obesity are also the more dynamic forms which stimulate the metabolism. These include: *bhastrika*, *kapalabhati* and *suryabhedan*, which are performed along with balancing practices like *nadishodhan* and *ujjayi* [12].

The other *hatha* yoga practices which are most helpful in obesity are the *shatkarmas*, or internal cleansing techniques. These include: *shankha prakshalana* (cleansing of the entire alimentary canal, *laghu* (short) *shankha prakshalana*, *kunjal* (cleaning practice for the stomach), and *neti* (cleansing of the nasal passages). These practices clean our body internally and keep it free from pollutants which are absorbed from the air, food and water.

One of the most important meditation practices for obesity is *antar mouna* or inner silence. This is a technique of *pratyahara* (withdrawal of the senses) that helps to clean the mind of extra weight in the form of toxic thoughts. These thoughts manifest physically in the form of passivity or lack of activity and food habits that sustain obesity, and create an imbalance in the energy-saving and accumulating system [6].

Yoga can help to develop long strong muscles, a flat stomach and a strong back along with improvement of posture [13, 14]. Of course, these physical changes are depends on other lifestyle factors, such as a well-balanced diet and regular physical activity. Most of the studies have shown significant weight loss by regular yoga practice. One study found that after three months, healthy adults lost an average of 6 kilograms. For weight loss program, all obese participants reached and sustained a normal weight with continued practice of yoga within one year and showed improvement in pulmonary function [15]. Yoga along with *pranayama* and sun salutations can be used as complementary intervention in obesity for reduces the weight [16-19]. Although yoga may help in manage conditions comorbid with overweight and obesity, such as low back pain [20].

In short, for managing obesity *Surya Namaskara* (Sun salutation), *Uttanpadasana* (Raising the legs), *Katichakrasana* (Hip twist), *Hastuttanpadasna* (Hands touching raised legs), *Sarvangasana* (Shoulder stand), *Dhanurasana* (Bow pose), *Shavasana* (Corpse pose), *Halasana* (Plough pose), *Naukasana* (Boat pose) can be recommended [21]. Each *asana* should be practiced 5 times with holding each position from 10-20 seconds. One should relax between two *asanas* and practice should be under expert supervision.

In yoga, the real therapy begins with self-awareness then only one can make the necessary changes in their internal environment, without external intervention. This is the only way we can modify our lifestyle and give it a new direction [22].

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