

LONGER AND HEALTHIER LIFE THROUGH WEIGHT CONTROL: A REVIEW

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ABSTRACT

This is the era of technology, speed and globalization. Even though these have made our life easy and comfortable, they have lead to series of life style disorders across the globe. Obesity is emerging as the leading non communicable disease affecting the major proportion of population in their productive period even though there are dozens of treatments modalities available to manage obesity. The food and life style have major role in combating the problem of obesity. Hence an effort has been done in this review article to summarize the valuable suggestions given by the ancient Ayurvedic scholars along with glimpses of modern dietetics with special reference to obesity. Incorporating necessary life style changes like regular exercise, Pranayama, Yogasana and taking balanced diet should be the overriding goal for longer and healthier life.

Keywords: Obesity, Diet, Exercise, Ayurveda.

INTRODUCTION

Lack of physical exercise, unhealthy food habits, defective life style, addictions and competitive life for materialistic life has lead to plethora of morbidity in health. Most leading among them is Obesity. It has become a major challenge and need for the health authorities across the globe to create an awareness for the control of obesity in order to avert the high risk conditions like dyslipedemia, hypertension, coronary artery disease, type 2 diabetes mellitus, osteoarthritis, infertility, impotency, as well as psychological disorders like stress, anxiety, depression, etc. Most adolescents fail to meet the five health recommendations regarding diet and physical activity (having breakfast, eating fruit and vegetables,

consumption of milk/yoghurt, performing moderate to vigorous physical activity and limiting television watching). Male gender and excessive television watching were associated with abdominal obesity^[1]. Many perspectives and treatments are described to get control over the *Sthaulya*, right from ancient period to recent research scholars. Still the problem is not resolved and therefore multidimensional approach towards this ailment becomes necessary.

Cause of obesity:

The causes of obesity are mostly exogenous or hereditary but now a day due to change in lifestyle it comes under metabolic disorders. Ayurveda explains *sthaulya* (obesity) is caused due to the absence of

physical activity, sleeping during day, ingestion of more quantity fatty and sweet food^[2].

Clinical features:

An obese always lands up in one or the other of the following which are termed as “Ashta Doshas” in Ayurvedic literatures^[3]. They are *Javoparodha* (hampered movement), *Krichravayava* (difficulty in sexual intercourse), *Daurbalya* (debility), *Daurgandhya* (foul smell), *Atisweda* (excessive sweating), *Atikshuda* (excessive hungry), *Atitrishna* (excessive thirst)^[4]. *Ayushohrasha* (shortening of life span) is the major complication among these. *Klaibya* (impotency), *Budhimoha* (delusion of mind) and *Pramilika* (dropsy) are few major Complication of obesity^[5].

Complication:

Complication of obesity are Rashes, Itching, Anemia, Fever, different type of skin disorder, dysuria, anorexia, stupor, impotency, profound obesity, laziness, heaviness of body, coating of sense organ and body channel, delusion of mind, dropsy^[6].

Aim & Objective: Restoration of Longer and Healthier life through Weight control. Incorporation of principles of Ayurved, Yoga and dietetics for control of obesity.

Materials & Methods: Ayurved compendia, modern textbooks, research papers and literature from internet related to topic was thoroughly reviewed.

Prevention of obesity:

***Nidana Parivarjana* :**

The most important determinants of good health are what we eat and how active we are. Eating a plant based diet rich in fruits, vegetables and whole grains, choosing foods with healthy fats, reducing red meat and foods that are high in saturated fat and trans fat would be ideal. Calories intake can be monitored to avoid weight gain. Exercise makes a key partner for healthy living. *Nidana Parivarjana* is first line of treatment according to Ayurveda which acts on root source of any pathology. In case of obesity it is of prime importance without which its management is impossible.

Ayurvedic dietetics:

According to Ayurved Diet is said to be ‘*Mahabheshaj*’ means it is great medicine. Most of the diseases can be treated by maintaining the right dietary habits and constituents as per the disease concerned. The basic principles of prevention of obesity mentioned in various Ayurvedic texts are mainly aimed at adoption of ideal food habits. One should take food after proper digestion of the previous meal^[7]. The consumer of food should divide the belly in three portions such as one portion of the space for solid food items, one for liquid and one for *air*^[8]. While taking food in such quantity, one is not inflicted with any harmful effect caused by food taken in inappropriate quantity. Food should be taken after the sunrise and before the sunset at two times^[9].

Ayurveda with its holistic approach can help in this condition with its unique way of life style management and diet. It is told that there is no other medicine than diet. Whole day diet plan is more helpful in prevention and management of obesity. *Kulatha*, *Mudga*, *Yava* and *Vrikshamla* are the routine dietary elements which mitigate *Kapha*, *Slesma*, *Meda*^[10]. These are also mentioned as *pathya* in the disease obesity^[11]. Nutritional requirement should be fulfilled through diet plan.

Diet should contain minimum nutrient to maintain lean body mass and to fulfill vitamins and minerals requirement in the body. Fresh food which is rich in protein and other nutrients is required as food quantity is less.

***Sukadhanya varga* (Cereals and millets):**

Wheat, maize, *Sawa* millet and barley which are mention in Ayurvedic classic for weight reduction are less in carbohydrate and rich in dietary fibre. Low carbohydrate diet helps to regulate insulin production and decrease circulating insulin, less insulin results in less fat storage and fewer food cravings^[12]. Dietary fiber prevents absorption of glucose from intestine and helps to increase peristalsis movement.

***Samidhanya varga* (Pulses):**

Green gram, horse gram, bengal gram and other pulses can be taken as a source of protein. Pulse-

derived fibre and resistant starch have been shown to alter energy expenditure, substrate trafficking and fat oxidation as well as visceral adipose deposition. Evidence suggests that pulse-derived fibres, trypsin inhibitors and lectins may reduce food intake by inducing satiety via facilitating and prolonging cholecystokinin secretion. Pulses could be useful as functional foods and food ingredients that combat obesity^[13].

Shaka varga (Vegetables):

Green leaves are rich sources of calcium and iron. They are also fairly good sources of riboflavin, folic acid and many other micronutrients. Leaf proteins are good source of lysine^[14]. Leafy vegetable are high in water content and dietary fibre. Other vegetable brinjal, bitter gourd, tomato etc are fairly good sources of mineral and vitamin. Salad, salad dressing and raw vegetable consumption can be an effective strategy for enhancing nutritional adequacy and reduction of body weight in the population at large scvale^[15].

Phala varga(Fruits):

Fruits are rich sources of antioxidants include orange, grapes, musk melon, guava, mango. These likely reduce LDL oxidation in the blood stream and thus slow LDL uptake into scavenger cells. Fruits and vegetables are rich in such antioxidants as the various carotinoids and vitamin C and vitamin E. Eating fruits and vegetables regularly is one positive step we can take to reduce cholesterol build up and slow the progression of cardiovascular disease^[16].

Dugdha varga (Milk and milk product):

Milk is a good source of proteins, vitamin and minerals. For vegetarian diet milk is the good source of vitaminB₁₂. Skimmed milk should be the choice to reduce saturated fat. After milk is boiled and allow to cool, a thick layer of fat and coagulate proteins collects at the surface and can be skimmed off; by repeating the process twice, most of the fat is removed^[17]. Those who have lactose intolerance, they can take *Takra* (butter milk). *Takra* rasa is *Kashaya* and *Amla*. *Kashaya Rasa* reduces vitiation of *Kapha* and *Amla Rasa* reduces the vitiation of *Vata*^[18].

Taila varga (Oil):

The findings are suggestive of a small but potentially important reduction in cardiovascular risk on modification of dietary fat, but not reduction of total fat, in longer trials. Lifestyle advice to all those at risk of cardiovascular disease and to lower risk population groups, should continue to include permanent reduction of dietary saturated fat and partial replacement by unsaturates^[19]. Vanaspati ghee should be totally avoided. Reheating of oil used for frying is harmful and should be avoided. Foods rich in fat-likes nuts and oil seeds should be avoided^[20].

Pranayama:

Anuloma-viloma pranayama, *Bhrastrika pranayama*, *Kapalbhati pranayama* strengthen heart and lungs. *Bhramari pranayama* stimulate endocrine gland activity. Several studies in Yogic science had proved that the Pranayamic breathing has beneficial effects in metabolic disorders^[21]. The balancing of body physiology through autonomic nervous system is maintained here. *Pranayama* are also helpful for reduction of stress which is again a triggering factor for metabolic disorders.

Yogasana:

Trikonasana, *Ardhakoti chakrasana*, *Padahasthasana*, *Tadasana*, *Surya namaskara*, *Ardha ustrasana*, *Ardha halasana*, *Pavanamuktasana*, *Salbhasana*, *Bhujangasana*, *Noukasana*, *Dhanurasana*, *Chakrasana* improve muscle tone and reduce fat deposition in body. *Aasana* are having several physiological and psychological effects on our body. The *Aasana* that exerts pressure over abdomen, massage internal organs and blood flow to these organs is increased which results in their normal functioning. Many calories are burned during *Aasana* and are helpful for reducing increased BMI.

Atapa sevana (sun bath):

Vitamin D is synthesized in the body by the action of UV rays of sunlight on 7-dehydrocholesterol, which is abundant in the skin. Vitamin D promotes intestinal absorption of calcium. Calcium may depress certain hormones which consequently improve the body's ability to break down fat in cells and slow fat production^[22].

Management of obesity:***Langhana Chikitsa:***

Langhana is that which make the body light. *Shodhana* (purification therapy) is that which expels the *Doshas* out of the body; it is applicable for those persons who have great accumulation of *Sleshma*, *Pitta*, *Rakta*, *Mala* and obstruction in movement of *Vata*, who are very stout and very strong. Those who have diseases of poor strength can be given only diet therapy. Moderate strength person should do exercise regularly. The diet and lifestyle modification in *Langhana* is such that it prevents the excess deposition of fat or similar substances in the body which ultimately helps for reduction of body weight.

Diet therapy:

The treatment principle of obesity is reduced calorie intake and increase regular exercise. The patient should be made to understand that obesity is caused by consumption of excess calorie than that required to meet the calorie needs. The aim of reduced calorie intake is to produce a calorie deficit in the body which will result in the fat stored in the adipose tissue being used to meet the calorie needs. It has been observed in obese adults a diet providing 1000 kcal (about half of the daily requirements leading sedentary lives) will help to reduce the body weight by 1 to 1.5 kg a week. The reducing diets should provide adequate amounts of protein, vitamins and minerals^[23]. The proportion of energy dense foods such as simple carbohydrate and fats should be reduced; the fiber content in the diet should be increased through the consumption of common unrefined food^[24].

Suggested recipes (1100 kcal)^[25]

- 7AM- Sprouted bengal gram/green gram/horse gram(100gm)
- 11AM- Skimmed milk/butter milk(250ml)
- 1pm- chapatti(2), boiled mixed vegetable(150gm), mixed salad (100gm)
- 4pm- seasonal fruit (100gm)
- 7pm- chapatti(2),thin dal (200ml), mixed vegetable/ Boiled Chowli (200gm)
- 8pm- Skimmed milk-250ml

Physical exercise:

Exercise helps to maintain lean tissue and promote loss of fat tissue (such as abdominal fat stores), assists in better control of appetite and increases energy expenditure. Helps to prevent or reverse development of diseases associated with obesity, including type 2 diabetes, hypertension and cardiovascular disease, even if one doesn't attain a healthier weight^[26].

RESULTS AND DISCUSSION

Weight is initially lost on very low calorie diets (<800 kcal), more is usually regained. Rapid weight reduction does not teach behavior changes. The weight that is lost consists of combination of lean body mass and adipose tissue. Lean body mass includes organs such as brain, muscles, liver, as well as blood and other body fluids. Patients on very low calorie diets have increased risk for developing gallstones^[27]. Very low calorie diets can be used safely in extremely obese individuals (greater than 50% overweight) when under the care of physician and registered dietitian because patients may developed ketoacidosis which is characterized by nausea, headache, vomiting and even unconsciousness. Low calorie diet significantly improves anthropometric and body composition measurements^[28].

Exercise lasting more than a few minutes, greater amounts and used at lower exercise intensities e.g., long distance running, long distance cycling and much of the fuel used in brisk walk are fat burning^[29]. The more trained a muscle, the greater its ability to use fat as a fuel. After a period of aerobic training, muscle cells contain more and larger mitochondria^[30]. The more fatty acids that are released from adipose tissue store in the blood stream, the more fat will be used by the muscle.

CONCLUSION

Obesity is a Global problem which alters the lifespan of individual and may results in partial debility of subject. Less meals during weight reduction plan results in energy and nutrient deficiency. Diet should contain minimum nutrient to maintain lean body mass

and to fulfill vitamins and minerals requirement in the body. Fresh food which is rich in protein and other nutrients is required as food in less quantity. Rather than worrying about weight loss, individuals should be focusing on a healthy lifestyle that allow for weight maintenance. Incorporating necessary life style changes like *Nidana Parivarjana*, *Langhana Chikitsa*, *Pranayama*, *Yogasana* and learning to accept one's particular body characteristics should be the overriding goal for longer and healthier life.

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