

STHOULYA AND OBESITY: AN INTEGRATIVE APPROACH - REVIEW ARTICLE

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ABSTRACT

Obesity is a chronic metabolic disorder characterized by excessive accumulation of adipose tissue due to enlargement of fat cell size (hypertrophic obesity) or an increase in fat cell number (hyperplastic obesity), often exceeding 20% of ideal body weight.^[1] In *Ayurveda*, it is described as *Sthaulya* or *Medoroga*. The condition arises primarily due to overconsumption of calorie-dense foods, high fats and sugar foods, increased urbanization and a sedentary lifestyle. These factors lead to vitiation of *Kapha Dosha* and abnormal accumulation of *Meda Dhatu*. *Sthaulya* is classified under *Santarpanajanya Vikara*.^[2] *Sleshma Nanatmaja vikaras*.^[3] *Medopradoshaja vikaras*.^[4] and *kleda pradhana vyadhi* indicating diseases caused by over-nourishment. The pathogenesis involves *Medodhatvagni Mandya* and *Srotorodha*, resulting in impaired metabolism and obstruction of body channels. Clinically, patients present with symptoms such as excessive body growth, reduced physical activity, increased hunger, and excessive thirst. In addition, the thrifty gene concept provides a modern genetic perspective to obesity. This concept suggests that certain genes evolved to enhance efficient energy storage during periods of famine, promoting survival. Obesity acts as a predisposing factor for various complications like type II diabetes, hypertension, Osteoarthritis, Hyperlipidaemia, Coronary artery disease, Stroke, Polycystic ovarian syndrome and other metabolic disorders.^[5] It also contributes to psychological issues such as stress and reduced quality of life. *Ayurveda* emphasizes a holistic approach for its management. *Apatarpana Chikitsa* is considered the main line of treatment to counteract over-nutrition. Therapeutic interventions include *Shodhana Chikitsa* such as *Vamana*, *Virechana*, *Basti*, and *Udvartana*, selected based on *dosha* involvement. These procedures help in detoxification, improving metabolism, and reducing excess fat. In addition to *Shodana*, *Shamana* also plays a significant role in correcting metabolic imbalance. Dietary regulation i.e *Pathya-Apathya* is a key component in management, focusing on light, low-fat, and easily digestible foods. Lifestyle modifications, including regular physical activity and disciplined routines, are equally important. *Ayurveda* also highlights the importance of addressing the root cause rather than just symptomatic relief whereas, Early intervention can prevent the progression of complications. Thus, *Sthaulya* requires a comprehensive and individualized treatment approach. *Ayurvedic* management not only reduces body weight but also restores *Dosha* equilibrium. It ensures long-term health benefits without adverse effects. Therefore, integrating *Ayurvedic* principles can be highly Effective in the prevention and management of obesity.

KEYWORDS: Sthoulya, Obesity, Thrifty Gene.**INTRODUCTION**

Obesity is a medical condition characterized by excessive accumulation of body fat that adversely affects health. In *Ayurveda*, it is described as *Sthaulya* or *Medoroga*. In the *Charaka Samhita*, *Ati-Sthoulya* is included under *Ashtanindita Purusha*, indicating an undesirable body constitution. The *Sushruta Samhita* explains *Sthaulya Roga* with emphasis on *Dhatvagni*

Mandya (impaired tissue metabolism). *Sthaulya* is mainly caused by vitiation and excessive accumulation of *Meda Dhatu*. *Acharya Vagbhata* describes its pathogenesis through the formation of *Ama* and imbalance in *Dhatu Parinama*. *Madhava Nidana* explains the disease based on increased *Meda*, while *Yogaratanakara* uses the term *Medoroga* to denote this condition.^[6]

According to *Ayurveda*, good health is a state of equilibrium of *Dosha*, *Agni*, *Dhatu*, and *Mala*, along with mental and spiritual well-being. This concept is similar to the World Health Organization (WHO) definition of health as complete physical, mental, and social well-being.

With modernization, lifestyle changes such as reduced physical activity, sedentary habits, and unhealthy dietary practices have become common. The daily regimens described in *Ayurveda* are often neglected, leading to an increase in lifestyle disorders like *Sthaulya*. *Sthaulya* affects not only physical health but also mental and social well-being. It is characterized by abnormal and excessive accumulation of *Medo Dhatu*. Common causes include excessive intake of *Kapha*-promoting foods, lack of exercise, and sedentary lifestyle. *Sthoulya* can also occur due to *Beeja dosha* i.e., hereditary causes.

Etymological derivation of *Sthoulya*

In Sanskrit grammar each and every word is derived from *Moola Dhatu* i.e., Root word. Similarly *Sthoulya* word is derived from *Mula Dhatu* “*Sthu*” with “*Ach*” *Pratyaya*, which stands probably for bulky or big or thick.

Definition of *Sthoulya*

A person in whom abnormal and excessive increase of *Medo Dhatu* along with *Mamsa Dhatu* is seen, which result into pendulous appearance of buttocks, belly and breasts is called as *Sthula*. The increased bulk is not matched by corresponding increase in energy.

Obesity definition

Obesity is defined as a condition characterized by excessive accumulation of body fat or adipose tissue that poses a risk to health. It is typically used to describe individuals who are significantly overweight, whereas the term “overweight” denotes a comparatively milder degree of fat accumulation. Clinically, a body weight exceeding approximately 20% above the desirable or ideal weight is considered indicative of obesity and associated with increased health risk.

Synonyms of *Medo*

1. **Mamsaja and Mamsatej:** As *Medo dhatu* undergoes *Mamsa Agnipaka* from *Mamsa Dhatu*. So, it is known as *Mamsaja* or *Mamsatej*.
2. **Asthikrita:** As *Meda* is responsible for formation of *Asthi dhatu* so it is known as *Asthikrita*.
3. **Vasa and Vapa:** The fatty substance that which locates in *Mamsa* is called as *Vasa* and when it is deposited in *Abdomen*, it is termed as *Vapa*.
4. **Majja:** *Asthi Madhya Gata Sneha* is known as *Majja*.
5. **Goda:** “*Mastishka Gata Sneha*” is known as *Goda* or *Mastulunga*.

The total quantity of *Meda* is 2 *Anjali* and the *Vasa* is 3 *Anjali*. Thus, total *Meda* content of body is enumerated

as 5 *Anjali*. In *Sthoulya*, this proportion is found to be raised.

Formation of *Medo Dhatu*

रक्तमूष्मणा चाभिसन्युक्तं
स्थिरतां प्राप्य मांसं थयात् थवोष्मणा पक्वमेव तत्।
थवतेजोऽम्बुगुणस्थिगोन्द्रिक्तं मेदोऽभिजायते ॥
(Ch.Chi.15/29-30)

The *Ahara Rasa* which is absorbed from *Pakavashaya* reaches in the heart by the conduction of *Samana Vayu*. This *Rasa* is again being thrown into circulation from the heart to first through large channels and then through smaller and smaller ones by the help of *Vyana Vayu*. The *Rasa* ultimately reaches to the *Sthayidhatu*, This contains nutrition for all *dhatu*s. The nutrition thus accepted is acted upon by *Dhatvagni* to convert into *Medo Dhatu*.^[7]

Nidana Panchaka

NIDANA: All etiological factors described in *Ayurveda* can be classified into four groups as follows:

- *Aharatmaka Nidana*
- *Viharatmaka Nidana*
- *Manasa Nidana*
- *Anyana Nidana*

A. *Aharatmaka Nidana*

Based on the Principle of *Samanya Vriddhi Karana*, due to continuous intake of *Kapha vardhaka ahara*, *Meda Dhatu* is increased.

Ati-Guru ahara sevana- due to its *guru paki* and *sheeta veerya* property the time taken to digestion and increases the *kapha dosha* which affects the *dushya meda*.

Madhura ahara ati sevana- Very heavy and have *sheeta*, *guru*, *Snigdha* and *prathivapya* property and increase the *Madhura rasa* of *kapha* after digestion.

Sheeta ahara sevana – It has *guru*, *mridu*, *sthula*, *picchila*, *Snigdha*, *manda*, *sthira*, and *shlakshana* qualities which increases the *styanavta* of *kapha dosha* which in turn produces the obstruction in channels.

Ati-Snigdha.^[8], Shleshma bahula.^[9], and Pichhila Aahara- The *ahara* which is *guru*, *sheeta*, *sthula*, *picchila* properties which in turn affects the *meda dhatu* by increasing *kapha doshas* in quantam.

Ati Bhojana- Variation in *pachakagni* leading to delayed or improper digestion which results in production of *ama rasa* and which leads to increase in toxin levels in the body leading to obstruction in *medovaha strotas* and produces *medoroga* due to *medo sanchaya*.

Adhyasana.^[10] -Affect the *pachakagni* or *dhatwagni*.

Ati Pishtanna sevana.^[11] - They are difficult to digest and aggravate the *kapha dosha* and produce *ama* by affecting

the *pachakagni*, as a result *dhatwagni* especially *medo dhatwagni* becomes *manda*(dull) and there is accumulation of *ama* in *medo dhatu*.

Amla rasa ati sevana.^[12] - It causes obstruction in *medovaha strotas* by aggravating *kapha*.

Navanna sevana.^[13] - As *Navanna* is *Abhishyandi* in nature and produces *strotorodha* by aggravating the *kapha dosha*, ultimately increase in *meda dhatu* which result into *medoroga*.

Anupa Mamsa Sevana.^[14] - Consumption of excessive *anupa mamsa* aggravates the *kapha dosha* and vitiates the *medovaha strotas* causing *medo-dhatwati sanchaya*, which leads to *medoroga*.

B. Viharatmaka nidana.^[15]

A-vyavaya (lack of sexual intercourse) - Increases the *shukra dhatu* and produces the *strotorodha*, which leads in increase of *meda dhatu*.

A-vyayama (lack of exercise)- Increases the *meda dhatu* and (happy and comfortable living without any work) - It leads to *kapha vridhhi* and affects the *meda dhatu* which produces *medoroga*.

Diwaswapna (Day sleep)- *Diwaswapna* increase the *kapha* and affects the *meda dhatu* by obstructing the channels, which later on leads to the production.

C. Manasika hetu^[16]

Achinta (abstinence from anxiety) - Increases the *kapha dosha* and by obstructing the channels and due to similar properties the *meda dhatu*, which leads to *medoroga*.

Nitya harsha (Continuous joy)- It leads to increase in the *kapha dosha* which obstructs the channels and produces the *medoroga* later on by increasing the *medo dhatu*.

D. Other hetu

Acharyas have mentioned the *Beeja swabhavaja*^[17] as the causative factor of *medoroga*. If the sperm or ovum has the genetics of obesity producing factors then it affects to the future child.

2. PURVARUPA

None of Ayurvedic texts has described the *purvarupas* of *medoroga*. *Acharya Charaka*, in *nidana sthana*, has mentioned similar pathogenesis of *Prameha* and *medoroga*^[18] the reason being that in both of them there is vitiation of *kapha* and *meda*. Therefore *purvarupa* of *prameha* and *medovaha strotodushti lakshanas* can be considered as *purvarupa* of *medoroga*.

These are as follows.

- *Atinidra*
- *Tandra*

- *Alasya*
- *Visra sharira Gandha*
- *Anga gaurava*
- *Anga shaithilya*
- *Ati sweda*

3. RUPA

1. *Ayushohrasa* (Diminution of life span)
2. *Javoparodha* (Lack of enthusiasm)
3. *Kricchra Vyavaya* (Difficulty in sexual act)
4. *Daurbalya* (General debility)
5. *Daurgandhya* (Foul smelling of body)
6. *Swedabadha* (Distressful sweating)
7. *Kshudhatimatra* (Excessive hunger)
8. *Pipasatiyoga* (Excessive thirst).^[19]

Chala sphika udara stana.^[20] - *Chala sphika udara stana*(Pendulous movements of buttocks, abdomen and breasts) all the main symptom of *medoroga*. Excessive deposition of *meda* in buttocks, abdomen and breasts make them movable.

Aayushohrasa.^[21] - It is explain by *Acharya Chakrapani* that *meda dhatu* obstructs the *medovaha strotas*. So other dhatus can not grow properly and person feels *daurbalya* which affects the longevity.

Krichha vyavaya (Difficult intercourse)- Because of excessive formation of *meda dhatu* there less formation of *shukra dhatu* and there is obstruction of *shukravaha strotas* due to *meda*.

Javoparodha.^[22] - It is due to *medo vridhhi*. There is instability, lack of strength, flabbiness and heaviness which hamper the movement.

Daurgandhya- It is due to *meda dushti* as *sweda* is produced by *meda dhatu*. When sweat mixes with *kapha*, it results in *swedabadha* and *daurgandhya*.

Ayathopachaya- It means improper deposition of fat in abdomen, thigh and breast. It is due to the obstruction of *medovaha strotas* that *meda* accumulates in these organs disproportionately.

Daurbalya- It occurs due to improper nourishment of dhatus except *meda* because only *meda* is nourishes by *ahararasa*.

Kshudati Matra and Pipasatiyoga - Because of movement of aggravated *vata*, it is confined to *koshtha* resulting in the stimulation of *agni* and absorption of food. So person digest food very quickly and becomes a voracious eater and also drinks water frequently due to *tikshnagni*.^[23]

Kshudra Swasa.^[24] - It means increased respiratory movement after slight exertion which is relieved by rest. It occurs due to aggravation of *vata* and *kapha*. The process of respiration is mainly due to the contraction

and relaxation of diaphragm muscles but in *medoroga* due to the fat deposition to the contraction and relaxation of diaphragm muscles are decreased and as a result dyspnea occurs.

Shaithilya and Gatraseda- It means looseness of muscles and joints which occurs due to increase *kapha* and *meda*.

Gauravata- Due to *guru guna* of *kapha* and *meda*, increased *kapha* and *meda* produced *gauravata* (heaviness) in body.

Krathana- In *medoroga* the *kapha* obstructs the respiratory system as result of which stridor.

Gad-Gad Vakya- It means the stammering or stuttering voice. In *medoroga* due to the obstruction of aggravated *kapha* in the *pranvaha strotas* and also the deposition of fat in trachea, nostrils etc, the normal voice production is hampered as a results of which the person does not speak clearly.

Atinidra- Excess sleep is commonly observed in *medoroga*. Aggravated *kapha* obstructs the *strotas*. This *strotorodha* causes heaviness of the body, from heaviness follows laziness which in turned causes excess sleep.^[25]

Jadya- In *medoroga* *ama Rasa* is formed due to *agnimandhya* which affects both the mind and body. The *ama Rasa* along with the increased fat due to obstruction in *medo vaha strotas* increases the heaviness of the body as results the stiffness occurs.

Moha- It means delusion of mind. In *medoroga* the formation of *ama rasa* and increases bodily waste products affects the *raja* and *tama dosha* of mind which results in *moha*.^[26]

Samprapti

According to *Sushruta*, *Kaphavardhaka ahara*, *Adhyasana*, *Avyayama*, *Diwaswapna* etc. leads to formation of *ama rasa* i.e. *Apachita Adya Rasa Dhatu*. The *madhura bhavayukta ama rasa* moves within the body, the *snigdhamsa* of this *ama rasa* causes *srotosanga* which leads to *Sthoulya*.^[27]

Nidana sevana (kapha and meda sadharmi ansa)

Kapha bhuistha doshavridhhi

Jatharagni vikriti

Medo Dhatwagnimandhya

Medo vridhhi and sanchaya

Sanga in medo vaha strotas

Margavarodha janya vata prakopa and vimarga gamana of vayu

Sarvanga sharira gamana (vata) especially in koshta

Jatharagni sandhukshana

Leading to more hunger and thus consumption of more food (*atihara sevana* due to *sheeghra jarana*)

Due to constant in coming of *medo poshakamsa*

Meda sanchaya

Medoroga

Table 1: Samprapti ghataka.

Dosha	<i>Kapha – Kledaka</i> <i>Pitta - Pachaka</i> <i>Vata - Samana, Vyana</i>
Dushya	<i>Rasa, Meda</i>
Agni	<i>Jataragni, Dhatvagni(Medodhatvagni)</i>
Srotas	<i>Medovaha</i>
Srotodushti	<i>Sanga</i>
Adhisthana	<i>Sarvanga (Particularly Vapavahana and Medodhara kala)</i>
Udhbava sthana	<i>Amashaya</i>
Rogamarga	<i>Bahya</i>
Ama	<i>Jatharagni Vaigunyata janita,</i> <i>Dhatvagni Mandhya Janita</i>
Vyakta sthana	<i>Sarvanga (specially in Sphik,Udara and sthana)</i>

Chikitsa

Charaka Samhita.^[28]

To make a *sthula* person *krusha* he should be given *guru* and *aptarapaka ahara*. *Vataghna anupana* and *shleshma medohara chikitsa*, *ruksha* and *ushna dravya yukta teekshna basti*, *ruksha dravya udvartana*.

Dravyarupa chikitsa

- *Guduchi, Bhadramusta, Triphala*
- *Takrarishta*
- *Vidanga+ Nagara+ Kshara+ Loha*

- *Yava+ Amalaki churna*
- *Bilvadi panchmoola+ Madhu*
- *Shilajatu + Agnimantha rasa*

Adravaya chikitsa

- *Prajagrana*
- *Vyavaya*
- *Vyayama*
- *Chinta*

Sushrut Samhita^[29]**Dravya Chikitsa**

Shilajatu, Guggulu, Gomutra, Triphala, Loha, Rasanjana, Madhu, Yava, Mudga, Kordusha, Shyamat, Uddalaka etc. Virushana and Chhedaniya dravya should be used.

Adravya Chikitsa- Vyayama.

Panchakarma- Lekhana basti

Astanga Sangraha and Hridaya^[30]**Dravya Chikitsa**

- Shodhana
- Triphala or Guduchi or Abhaya or musta with honey.
- Rasanjana or Bilvadi panchmoola or Guggulu or shilajitu with Agnimantha swarasa.
- Vidangadi loha
- Madanphala, Triphala, Musta, Saptaparna, Nimba
- Kutaja, Patha, Aragwadha kwatha.
- Hingwadi churna
- Krimighnadi mantha

Adravya Chikitsa

- Chinta, Vyavaya, Vyayama, Aswapna, Ruksha snana, Udvartana.

Chakradatta

- Siddha peya- Shilajatu prayoga

Bhavprakasha^[31]

Amrutadi guggulu, Dashana guggul, Loha rasayana, Loharishtha, Vyoshadi saktu, Triphaladya taila etc.

Yogratnakara^[32]

Chavyadi yoga, Phalatrikadi yoga, Guduchyadi yoga, Navaka guggulu, Tryushanadya loha, Vividha lepa and udvartana, Rasa bhasma yoga, Trimurti rasa, Vadvagni rasa etc.

Sharangdhara^[33]

Bruhattpanchamoola qwatha + madhu, Shakhotaka qwatha.

PATHYA –APATHYA^[34]

Pathya is the most important treatment of Sthoulya and Charaka advices vata kapha and medahara anna pana in Sthoulya.

TABLE 2: Pathya -Apathya – AHARA.

AHARA VARGA	PATHYA	APATHYA
Shuka dhanya	Purana shali,yava,laja,priyangu	Naveenashali, godhuma
Shami dhanya	Mudga,rajamasha, kulatha, adhaki	Masha, Tila
Shaka varga	Patola, shigru, katutiktha,adraka	Kandashaka, madhura
Phala varga	Kapitha,jambu,amalaka,ela,haritaki	Madhura phala
Drava varga	Madhu, takra, ushnajala,tila,sarshapa taila,asava-arishtha	Dugdha varga
Mamsa varga	Rohita Matysa	Anupa, audaka, gramya mamsa

TABLE 3: Pathya -Apathya –VIHARA.

PATHYA	APATHYA
Shrama	Sheetha jala sevana
Jagarana	Diwaswapna
Nitya bhramana	Avyayama
Vyayama	Avyavaya
Vyavaya	Ati ashana

TABLE 4: Pathya-Apathya – MANASIKA.

PATHYA	APATHYA
Chinta	Achinta
Shoka	Nitya Harsha
Krodha	Manaso nivriti

MODERN REVIEW

Obesity has emerged as a formidable global health challenge in the 21st century, assuming epidemic proportions across both developed and developing nations. Worldwide, nearly 1.9 billion adults are categorized as overweight, reflecting the extensive burden of this condition. In India approximately 10% of the population is affected by morbid obesity, defined by a body mass index (BMI) exceeding 40 kg/m². Obesity is a complex medical disorder characterized by excessive adipose tissue accumulation that significantly impairs overall health and predisposes individuals to numerous

comorbidities. The regulation of body weight is governed by an intricate interplay of endocrine and neurophysiological mechanisms, which collectively modulate energy intake and expenditure. Even minimal perturbations in this finely balanced system can culminate in substantial alterations in body weight over time. Contemporary scientific evidence underscores that obesity is not merely a consequence of lifestyle choices but a multifactorial disease process.

According to the World Health Organization (WHO), obesity is recognized as a chronic, relapsing condition

arising from the dynamic interaction of genetic susceptibility, neurobiological pathways, behavioral patterns, and environmental determinants. Over recent decades, the prevalence of obesity has escalated dramatically, paralleling global transitions in socioeconomic status, dietary practices, and physical activity levels. The advent of globalization and industrialized food systems has facilitated increased accessibility to energy-dense, nutrient-poor foods, while simultaneously promoting sedentary lifestyles. These shifts have fostered the development of “obesogenic environments” that inherently favor weight gain. Consequently, obesity has evolved into a critical public health crisis, with over one billion individuals affected globally and a steadily rising prevalence across diverse populations.^[35]

Etiological Factors

a. **Physiological** – Observed temporarily during puberty, pregnancy

b. **Pathological** – It is again divided into three viz-

1. Exogenous – Caused due to overeating & physical inactivity
2. Endogenous – Due to Endocrine disorders i.e. Cushing's Syndrome, Hypothyroidism, Polycystic ovarian syndrome, Hypoglycaemia, Frohlich's syndrome, etc.
3. Idiopathic – When every possible causative factors of Obesity has been investigated and find out.

Pathogenesis of Obesity

There are three main factors in the pathogenesis of Obesity:

- 1) Excessive lipid deposition
- 2) Diminished lipid mobilization and
- 3) Diminished lipid utilization.

1. Excessive lipid deposition is due to rised food intake. Increased food intake in form of Carbohydrates, Proteins and Fats by metabolic process lastly converts in Fat and get stored at fat depots.

2. Diminished lipid mobilization is due to decrease lypolytic hormones or defective cells or abnormality of autonomous innervation. Thyroxin and Adrenaline stimulate mobilization of unsaturated fatty acids from adipose tissue, this abnormality causes diminished lipid mobilization and excessive lipid deposition, ultimately leading to Obesity.

3. Diminished lipid utilization is due to ageing, defective lipid oxidation, defective thermogenesis or physical inactivity. It is the main pathology in middle age Obesity.^[36]

THRIFTY GENE HYPOTHESIS?

In the 1962, J.V. Neel suggested that evolution has selected some populations for “Thrifty genes” to survive cycles of famine. Thrifty genes are the genes that help people hold onto body fat and keep it safely stored for times, when the the food supply is low. These genes

helped the organisms to improve energy efficiency and store excess energy safely as fat to survive period of famine, but in the present day obesogenic environmental, have turns detrimental.

In the past, this genotype would have been advantageous for puberty or child-bearing women during periods of famine. However, with the advent of high fat, high carbohydrate, and low fiber diets, and relative inactivity this genotype is no longer advantageous because it is too efficient. This has led to obesity and related health problems.

These days, thrifty genes, no longer an asset, kill people off prematurely not from famine but from excessive fat storage and obesity. In other words, the genes that helped humans survive during famines are still active even though the food supply is abundant.

SIGNS AND SYMPTOMS OF OBESITY SIGNS

1. Weight gain- more than 20% of normal body weight.
2. Body mass index- $>30 \text{ kg/m}^2$ called obese
3. Skin fold thickness - More than 20 mm in a man and 28 mm in a woman
4. Waist hip ratio –Waist hip ratio >1 in males and >0.8 in females, known as Obese.
5. Waist circumference- $>102\text{cm}$ in males and $>88 \text{ cm}$ in females.

Symptoms of Obesity^[37]

1. General lassitude
2. Day time hypersomnolism
3. Protuberant abdomen
4. Dyspnoea on exertion
5. General lassitude
6. Menstrual disturbance and sterility in fatty female
7. Depression
8. Snoring
9. Sleep apnoea.

Complications^[38]

Complications associated with Obesity are as below:

1. Cardiovascular system

- Coronary heart disease
- Myocardial infarction
- High blood pressure

2. Respiratory system

- Asthma
- Bronchitis

3. Gastro intestinal system

- Fatty liver disease
- Cholelithiasis

4. Reproductive system

- Menstrual disorders
- Infertility
- Polycystic ovarian syndrome
- Complication during pregnancy

Principals of Dietetic and Physical Management In Obesity

1. Diet therapy
2. Physical exercise

1. Diet therapy

Energy: For a sedentary worker, 20kcl/kg of body weight is preferred .while 25 kcal for moderately active worker.

Protein: There is about 0.8 – 1 gm /kg is prescribed for tissue repair and for specific dynamic function.

Carbohydrates: The Carbohydrate reach foods like potatoes, rice, sugar in empty stomach and fruits like banana should be avoided in meal.

Fat: For reduced weight, low fat less, should be given while nuts oil seed rich in fat should be avoided. Skimmed milk should be preferred as diet.

Vitamins: There is supplementation of fat-soluble, vitamin – A and D is necessary.

Fluid: A glass of water before meals helps to cut down food intake.

High fibre: The High fibre and low calorie foods like green leafy vegetable, fruits, vegetables salads, whole grain cereals and pulses can be included in the diet.^[39]

Type of Diet

1. High – fiber diets.
2. Low – colorie diet.
3. Very – low calorie diet.
4. Low carbohydrate and high protein diet.

2. Physical exercise

Most obese patients lead sedentary lives. A low calorie diet accompanied by moderate exercise will be effective in causing weight loss. Aerobic exercise directly increases the daily energy expenditure and is particularly useful for long-term weight maintenance. The simplest and most popular form of stimulating exercise is walking. The muscle consumed energy derived from both fat and glycogen.^[40]

DISCUSSION

Obesity (*Sthaulya/Medoroga*) is a complex, multifactorial metabolic disorder that is comprehensively explained in both Ayurvedic and modern medical paradigms. *Ayurveda* attributes its pathogenesis to *Kapha Dosha* vitiation, *Medodhatvagni Mandya*, and *Srotorodha*, which closely parallels modern concepts such as metabolic derangement, adipose tissue accumulation, and hormonal imbalance. The etiological factors described, including excessive intake of calorie-dense foods, sedentary lifestyle, psychological influences, and genetic predisposition (Beeja dosha), align well with the contemporary biopsychosocial model of obesity. The Ayurvedic *Samprapti* reveals a cyclic

pathological process involving *Agnimandya*, *Ama* formation, *Meda* accumulation, and obstruction of channels, which resembles the modern understanding of insulin resistance, leptin imbalance, and chronic low grade inflammation. Clinical features like excessive hunger, thirst, fatigue, and abnormal fat deposition correlate with biomedical manifestations such as hyperphagia, central obesity, and reduced physical efficiency.

In this context, the thrifty gene concept provides a significant bridge between Ayurvedic and modern views. This hypothesis suggests that certain individuals possess genetic adaptations that promote efficient energy storage during periods of food abundance, originally advantageous during famine but maladaptive in modern sedentary environments. This can be correlated with the Ayurvedic concept of Beeja dosha, where inherited traits predispose an individual to *Meda* accumulation and metabolic imbalance. Thus, individuals with such genetic predisposition are more susceptible to *Sthaulya* when exposed to *Kapha*-promoting diet and lifestyle factors.

Therapeutically, *Ayurveda* emphasizes *Apatarpana Chikitsa*, including *Shodhana* and *Shamana* modalities, along with strict adherence to *Pathya-Apathya*, aiming to reverse metabolic derangements and restore systemic balance. This approach is comparable to modern interventions focusing on caloric restriction, increased physical activity, and metabolic regulation. Importantly, *Ayurveda*'s holistic framework, incorporating genetic predisposition, lifestyle modification, and metabolic correction, offers a comprehensive and sustainable strategy for managing obesity in the present era.

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