



Integrative Management Of Sthaulya (Obesity) With Special Reference To Hyperlipidemia: Evidence –Based Ayurvedic & Contemporary Approaches

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Abstract :

Background: Obesity (*Sthaulya*) is a chronic, multifactorial lifestyle disorder associated with excessive accumulation of body fat and hyperlipidemia, leading to significant morbidity and mortality worldwide ¹. The prevalence of obesity has risen dramatically in recent decades due to urbanization, sedentary lifestyle, dietary transitions, and genetic predisposition ².

Objective: To review the Ayurvedic and modern scientific perspectives on obesity, its pathogenesis, clinical features, complications, and integrative management strategies, including *Shodhana*, *Shamana*, *Pathya-Vihara*, and modern lifestyle intervention.

Methods: Literature review was conducted using classical Ayurvedic texts (*Charaka Samhita*, *Sushruta Samhita*, *Bhavaprakasha Nighantu*)³⁻⁵, WHO reports, NFHS-5 data², and contemporary research articles on obesity and hyperlipidemia⁶⁻¹³. The review included etiological factors, pathogenesis, *lakshanas* (clinical features), and both Ayurvedic and modern management strategies.

Results: Obesity is highly prevalent in urban populations and middle-aged adults, with women being more prone². Pathogenesis involves *Kapha Dosha* aggravation, *Meda Dhatu* accumulation, *Vata* obstruction, and modern correlates of adipocyte hypertrophy, lipid deposition, and impaired lipid metabolism^{6,7}. Ayurvedic therapies such as *Vamana*, *Virechana*, *Lekhana Basti*, *Udwartana*, combined with dietary control, exercise, *yoga*, and behavioral therapy, show significant efficacy in reducing weight and improving lipid profiles^{8,14}.

Conclusion: Integrative management combining Ayurvedic therapies and modern interventions offers a holistic, sustainable approach to obesity and hyperlipidemia⁶⁻⁹. Early detection, lifestyle modification, and patient education are essential for long-term health benefits and prevention of complications.

Keywords: *Sthaulya*, Obesity, Hyperlipidemia, *Meda Dhatu*, *Vrikshamla*, *Shodhana*, *Shamana*, *Charaka*, *Bhavaprakasha Nighantu*, *Ayurveda*

Definition:

Obesity, termed *Sthaulya* in Ayurveda, is characterized by an abnormal accumulation of body fat, resulting in a body mass index (BMI) of 25 or higher³. It is a multifactorial metabolic disorder influenced by dietary, lifestyle, genetic, hormonal, and environmental factors. In *Ayurveda*, *Sthaulya* arises primarily due to *Kapha Dosha* aggravation and *Meda Dhatu* accumulation, leading to metabolic imbalance and obstruction of other *Dhatus* (tissues)³⁻⁵. Hyperlipidemia is a common metabolic consequence, contributing to cardiovascular risk⁶⁻⁹.

Introduction:

Obesity, or *Sthaulya* in Ayurvedic terminology, is one of the most prevalent lifestyle-related metabolic disorders in the modern era⁶. It is no longer restricted to high-income countries;

developing nations like India are witnessing a sharp increase in obesity prevalence due to rapid urbanization, dietary transitions, sedentary lifestyles, and psychosocial stressors^{2,7}. Globally, over 2.5 billion adults are overweight, and nearly 890 million are obese, according to WHO (2022), making obesity a critical public health challenge¹.

In Ayurveda, *Sthaulya* is primarily attributed to the aggravation of *Kapha Dosha* and accumulation of *Meda Dhatu*, which causes obstruction (*Avarana*) in *Vata* and other *Dhatus*, resulting in metabolic imbalance and systemic dysfunction³⁻⁵. The pathophysiology in modern medical science aligns closely, emphasizing energy imbalance, hypertrophy of adipocytes, impaired lipid metabolism, chronic low-grade inflammation,

insulin resistance, and hyperlipidemia ^{6,9}.

Obesity is associated with numerous comorbidities, including type 2 diabetes, dyslipidemia, hypertension, cardiovascular diseases, musculoskeletal disorders, and certain cancers ^{6,9,12}. Moreover, childhood obesity is increasing alarmingly, which predisposes the next generation to chronic diseases at an earlier age ².

In contemporary society, obesity has multifactorial causation: dietary excess, excessive sugar and fat consumption, sedentary behavior, technological dependence, and psychological factors like stress and emotional eating. The increasing prevalence of hyperlipidemia, a common metabolic consequence of obesity, further accentuates the risk for cardiovascular and cerebrovascular diseases.

Given these challenges, there is an urgent need for comprehensive, integrative approaches that combine Ayurvedic interventions such as *Shodhana*, *Shamana*, and *Pathya-Vihara* with modern lifestyle modification strategies ^{8,14}. Such approaches aim not only to reduce weight and lipid levels but also to restore metabolic balance, improve quality of life, and prevent complications.

Prevalence

Global Perspective ¹

According to WHO (2022):

- **1 in 8 people** globally are living with obesity.
- **43% of adults** aged 18 years and over are overweight.
- **16% of adults** are obese.
- **2.5 billion adults** are overweight, with **890 million** obese.

Indian Scenario ²

- **Nearly 25% of Indian adults** are obese (NFHS-5, 2019–21).
- Urban populations show higher prevalence than rural.
- Punjab and Delhi report the highest obesity rates among men and women.
- Childhood obesity is rising and may double in the next 20 years.
- Hyperlipidemia often coexists with obesity, increasing cardiovascular risk ⁹.

Types of Obesity (*Sthaulya*) and Classification:

Obesity is a multifactorial disorder characterized by excessive accumulation of body fat¹⁰. In both Ayurvedic and modern perspectives, obesity is classified based on etiology, fat distribution, and dosha involvement.

A. Modern Classification of Obesity

1. Exogenous (Primary or Simple) Obesity Cause: Excess caloric intake and sedentary lifestyle

Characteristics: Uniform fat distribution; common accumulation under chin (double chin), abdomen, and thighs

Usually reversible with lifestyle modifications ^[6]

2. Endogenous (Secondary or Glandular) Obesity

Cause: Hormonal or endocrine disorders such as hypothyroidism, Cushing's syndrome, polycystic ovary syndrome (PCOS), and insulin resistance

Characteristics: Fat deposition may be localized (abdomen, face, or trunk) depending on the hormonal imbalance

Requires both medical and lifestyle interventions ^[6,7]

3. Visceral vs. Subcutaneous Obesity

Visceral ("Apple-shaped"): Fat predominantly around the abdomen and internal organs; higher risk of cardiovascular disease, insulin resistance, and metabolic syndrome ^[6].

Subcutaneous ("Pear-shaped"): Fat mainly in hips, thighs, and buttocks; relatively lower metabolic risk.

4. Childhood vs. Adult Obesity

Childhood obesity is increasing globally due to sedentary lifestyle and high-calorie diets, which often persists into adulthood and increases long-term disease risk ^[2].

B. Ayurvedic Classification of *Sthaulya* :

Ayurveda recognizes obesity as *Sthaulya Roga*, primarily caused by *Kapha Dosha* aggravation and *Meda Dhatu* accumulation. *Acharyas* classified *Sthaulya* based on *dosha* predominance, physical characteristics, and fat distribution.

1. *Kapha Pradhan Sthaulya* ³

Characteristics: Heaviness, lethargy, excessive sleep, accumulation of fat around the trunk and limbs.

Etiology: Excessive intake of *Madhura Rasa*, *Snigdha* (unctuous) foods, sedentary lifestyle.

2. *Vata-Kapha Sthaulya* ^{3,4}

Characteristics: Uneven fat distribution, flabbiness, constipation, tendency to develop joint pains.

Etiology: Combination of over-nutrition (*Kapha*) and impaired movement or *Vata* obstruction.

3. *Pitta-Kapha Sthaulya* ⁴

Characteristics: Moderate fat accumulation, prone to hyperlipidemia, inflammatory tendencies, and heat intolerance.

Etiology: Intake of *Snigdha-Madhura* foods along with *Pitta* aggravating lifestyle (stress, irregular meals, alcohol).

4. Meda-Vridhi (Fat Accumulation) ^{3,5}

Meda Dhatu is the primary *dhatu* involved in *Sthaulya*.

Imbalance leads to *Avarana of Vata* and improper nourishment of other *Dhatus*, contributing to systemic metabolic dysfunction ^[3-5].

C. Contemporary Observations in the Present Era

Urbanization and Sedentary Lifestyle: Increased prevalence of exogenous obesity due to processed foods, reduced physical activity, and stress ^[1,2].

Childhood Obesity: Rising trends due to early exposure to fast food and screen time ^[2].

Visceral Fat Accumulation: Predominant in modern adults due to sedentary work and metabolic syndrome, increasing cardiovascular risk ^[6,9].

Gender Differences: Women are more prone to subcutaneous fat accumulation (hips/thighs), while men often develop visceral fat (abdomen), contributing to differential risk profiles ^[2].

Summary:

Understanding the types of obesity and its Ayurvedic counterpart *Sthaulya* helps tailor management strategies. While modern classification focuses on etiology and fat distribution, Ayurvedic classification emphasizes *dosha* involvement and *dhatu* imbalance, which guides therapeutic approaches like *Shodhana*, *Shamana*, and *Pathya-Vihara*.

Classification of Hyperlipidemia:

Hyperlipidemia is a metabolic disorder characterized by elevated levels of plasma lipids, including cholesterol, triglycerides, and lipoproteins, which increases the risk for atherosclerosis, coronary artery disease, and other cardiovascular complications ^[6,9].

1. Modern (Biochemical) Classification

a. Primary (Familial) Hyperlipidemia:

➤ Caused by genetic mutations affecting lipid metabolism. Includes:

- ❖ Familial hypercholesterolemia (high LDL-C)
- ❖ Familial combined hyperlipidemia
- ❖ Familial hypertriglyceridemia ^[6,9]

b. Secondary (Acquired) Hyperlipidemia:

Resulting from underlying conditions or lifestyle factors:

- ❖ Obesity and sedentary lifestyle
- ❖ Diabetes mellitus
- ❖ Hypothyroidism
- ❖ Chronic kidney disease
- ❖ Excessive alcohol consumption [6,9]

c. Fredrickson's Classification (Phenotypic / Lipoprotein-based):

- ❖ Type I: Familial hyperchylomicronemia (elevated chylomicrons)
- ❖ Type IIa: Familial hypercholesterolemia (elevated LDL-C)
- ❖ Type IIb: Combined hyperlipidemia (elevated LDL + VLDL)
- ❖ Type III: Dysbetalipoproteinemia (elevated IDL)
- ❖ Type IV: Hypertriglyceridemia (elevated VLDL)
- ❖ Type V: Mixed hyperlipidemia (chylomicrons + VLDL) [6,9]

2. Ayurvedic Perspective

Although classical Ayurveda does not describe “hyperlipidemia” explicitly, the accumulation of *Meda* Dhatu (adipose tissue) and *Ama* (metabolic toxins) can be correlated with lipid disorders. Conditions arising from *Kapha and Meda Prakopa* resemble modern lipid imbalance.

- **Meda Vriddhi:** Excessive *Meda* production due to *Santarpana* (over-nutrition)
- **Medoroga:** Diseases caused by abnormal *Meda* metabolism, which may predispose to cardiovascular disorders and metabolic syndromes [3–5]

Clinical Relevance

Hyperlipidemia often coexists with obesity (*Sthaulya*) and contributes to metabolic syndrome. Early identification using lipid profile testing (total cholesterol, LDL, HDL, triglycerides) is crucial for prevention of cardiovascular disease [6,9].

Integrative management includes Ayurvedic therapies (*Virechana*, *Medohara* preparations), dietary modification, exercise, and modern pharmacotherapy (statins, fibrates, omega-3 fatty acids) [6–8].

Etiology (Nidana) ^{3,4}

Ayurvedic Perspective

1. *Aharaja Nidana* (Dietary Causes):

➤ *Santarpana Guna Pradana Ahara* –

Guru, Manda, Seta, Snigdha, Slakshna, Sandra, Sthula, Picchila And Abhishyandhi Ahara Etc

➤ *Rasapradana Ahara* – *Madhura Rasa*

➤ *Dravya Pradana Ahara* – *Navanna, Gorasa, Dadhi, Mamsa, Atimeda, Gaudika, Varuni.*

➤ *Ahara Karma* - *Adhyashana, Atimatra Ahara* (Overeating).

- excessive intake of sweet, oily, and fatty foods,
- consumption of food before previous meal digestion (*Ama*).

2. *Viharaja Nidana* (Lifestyle Causes):

➤ Sedentary lifestyle

➤ lack of exercise (*Avyayama*)

➤ daytime sleep (*Divaswapna*)

➤ *Shyasanasukha*

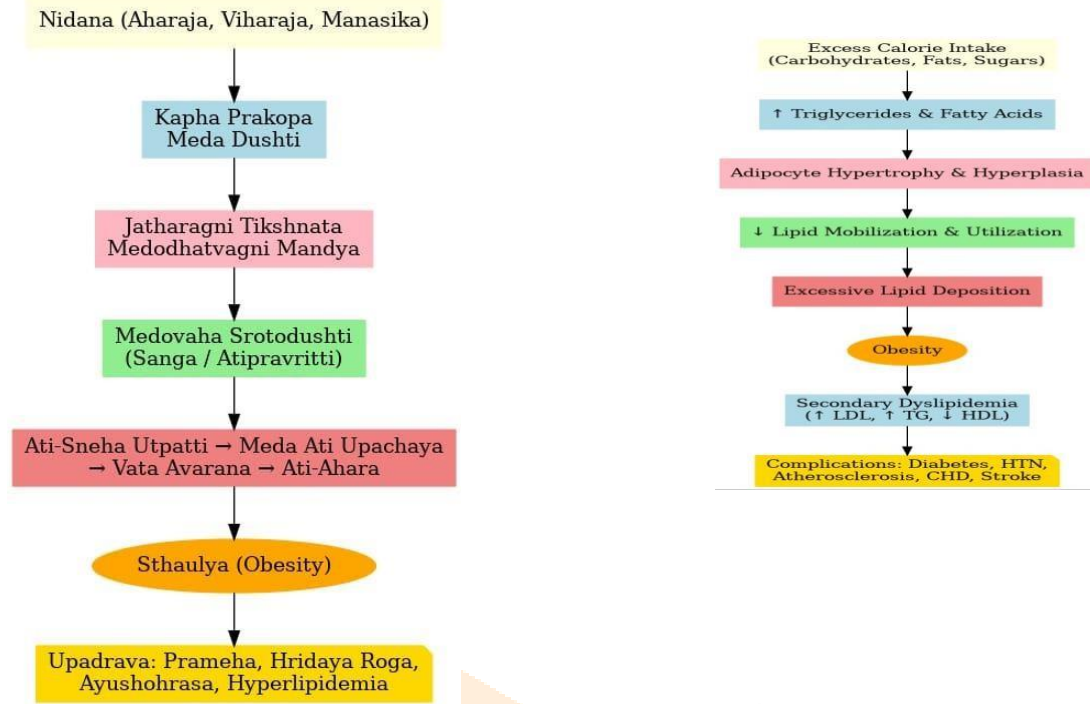
3. *Manasika Nidana* (Psychological Causes): Stress, anxiety, emotional eating.

Modern Perspective ^{6,7}

1. High-calorie diet and refined carbohydrates
2. Physical inactivity
3. Genetic predisposition
4. Endocrine disorders (hypothyroidism, PCOS, Cushing's syndrome)
5. Environmental and socioeconomic factors
6. Pathogenesis (*Samprapti*) :

Ayurvedic View ³⁻⁵

Overconsumption of *Madhura Rasa* and *Sneha* increases *Meda Dhatu*. *Meda* accumulation causes *Avarana* (obstruction) of *Vata* and other *Dhatus*. Increased *Koshta Vata* accelerates appetite, creating a vicious cycle of overeating and further *Meda* accumulation.



Modern View ^{6,9}

- Adipocyte hypertrophy and impaired lipid metabolism
- Reduced lipolysis, defective thermogenesis, and chronic low-grade inflammation
- Hyperlipidemia, insulin resistance, and metabolic syndrome

Clinical Features (Lakshanas) of Sthaulya ^{3,6}

1. Lethargy and physical inactivity (*Daurbalya*)
2. Excessive sweating (*Sveda Ati*)
3. Breathlessness and exertional dyspnea
4. Sexual dysfunction (*Krechravyavaya*).
5. Excessive hunger (*Kshudhatimatra*) and thirst (*Pipasatiyogha*).
6. Heaviness of body, sluggish movement, and difficulty in daily activities.
7. Obstruction of metabolic pathways causing further Dhatu imbalance.

Classical Ayurvedic Shlokas on Lakshanas

Charaka Samhita – Sutrasthana, Chapter 21 (Ashtauninditiya Adhyaya) ³

"अत्याहारप्रयासाश्च प्रजाः सन्तर्पयन्त याः।

स एव सन्तर्पणं याः सन्तर्पणं याः सन्तर्पणं याः॥"¹⁵

Sthoulya is characterized by excessive body weight, sluggishness, and tendency to overeat.

Sushruta Samhita, Sutrasthana 14.13: ⁴

"मेदोवृद्धि च यः कर्तुं शरीरि सन्तर्पयेत्।

स एव सन्तर्पणी यः सन्तर्पणी यः सन्तर्पणी यः ॥"

Obesity leads to accumulation of *Meda*, causing heaviness, lethargy, and difficulty in movement.

Complications^{6,9,12}

- Type 2 Diabetes Mellitus
- Hypertension
- Stroke and Coronary Heart Disease
- Hyperlipidemia
- Osteoarthritis and Joint Disorders
- Gallstones and Liver Disorders
- Sleep Apnea and Infertility
- Depression and Psychosocial Issues
- Cancers: Breast, endometrial, ovarian

Management of *Sthaulya* (Obesity) with Hyperlipidemia :

The management of obesity and associated hyperlipidemia involves a holistic approach targeting the underlying pathophysiology, dosha imbalance, lifestyle habits, and metabolic disturbances. Both Ayurvedic interventions and modern strategies play synergistic roles.

1. Ayurvedic Management

A. *Shodhana* (Bio-purification therapies) :

Shodhana therapies aim to eliminate accumulated *Doshas* and *Meda Dhatu*, restore metabolic balance, and optimize *Agni* (digestive fire)^[3,4].

1. *Vamana* (Therapeutic Emesis):

- Specifically indicated for *Kapha*-dominated obesity
- Mechanism: Expels *Kapha* and excess *Meda* from the gastrointestinal tract, indirectly reducing lipid deposition and improving metabolism
- Benefits: Weight reduction, improved digestion, decreased heaviness, and better lipid profile. Classical reference: *Charaka Samhita, Sutrasthana* 21.55
- "अत्याहारप्रयासाश्च प्रजाः सन्तर्पयन्त याः।"

("Excessive intake of food leads to *Meda* accumulation.")^[3]

2. *Virechana* (Purgation therapy) :

- Primarily for *Pitta*-Predominant and combined *Dosha* obesity
- Mechanism: Removes toxins (*Ama*) and excess *Pitta*, improves liver function, enhances lipid metabolism

- Benefits: Reduces hyperlipidemia, improves digestion, and clears *srotas* (channels) ^[4]

3. **Raktamokshana (Bloodletting) :**

- Applied selectively in cases with *Rakta Dushti* or associated dermatological manifestations. Helps in clearing metabolic waste and improving circulation.

B. **Shamana (Pacification therapies) :**

- *Shamana* therapies aim to balance *Doshas* without major purificatory procedures, and can be applied continuously for prevention and long-term management ^[5,6].

1. **Lekhana Basti (Scraping Enema) :**

- Acts at the root level of *Vata* and *Meda* accumulation.
- Removes excess *Meda* and clears *srotas*, improving metabolism.

2. **Udwartana (Dry Herbal Powder Massage) :**

- Herbal powders (e.g., *Triphala*, *Yava*, *Vrikshamla*) rubbed over the body in upward strokes. Benefits: Reduces subcutaneous fat, tones muscles, improves circulation, strengthens skin, and stimulates metabolism.

3. **Medohara Churna / Rooksha Annapana :**

- Examples: *Vrikshamla Churna*, *Haritaki* with honey, *Mustadi Churna*.
- Mechanism: Reduces *Kapha* and *Meda*, promotes fat metabolism, and regulates appetite.

C. **Pathya-Vihara (Diet and Lifestyle Recommendations) :**

Ayurveda emphasizes preventive measures and lifestyle modifications:

1. **Dietary control (Ahara) Include:**

- Barley (*Yava*), Millets (*Kodrava*), Legumes (*Kulatha*, *Mudga*), seasonal vegetables, and fruits ³.
- Avoid: Excess sweets (*Madhura Rasa*), fried foods, heavy oils, alcohol, and overprocessed foods.
- Principle: Reduce *Santarpana* (nourishing) foods, favor light, dry, and easily digestible foods

2. **Daily Routine (Vihara)**

- Morning exercise (*Vyayama*), *yoga*, and walking
- Avoid daytime sleep (*Divaswapna*) and sedentary habits (*Sukha Shayya*)
- Stress management: Meditation, *pranayama*, and mindful eating

3. **Behavioral modifications (Manasika Vihara)**

- Maintain a regular eating schedule
- Avoid emotional eating
- Keep a food diary to monitor calorie intake

Discussion:

Obesity (*Sthaulya*) represents a complex metabolic and lifestyle disorder, and its increasing prevalence in the modern era has emerged as a critical public health challenge [1,2,6]. Both Ayurvedic and modern paradigms recognize that the disorder is multifactorial, encompassing dietary excess, sedentary behavior, psychological stress, and genetic predisposition [3-7]. In Ayurveda, *Sthaulya* primarily arises due to *Kapha Dosha* aggravation and *Meda Dhatu* accumulation, leading to *Avarana* (obstruction) of *Vata* and impaired nourishment of other *Dhatus*, ultimately resulting in systemic metabolic dysfunction [3-5]. Modern medicine aligns with this view, describing the pathophysiology as an energy imbalance, adipocyte hypertrophy, lipid accumulation, insulin resistance, chronic inflammation, and hyperlipidemia [6,7,9].

The clinical features of *Sthaulya*, including lethargy, heaviness, dyspnea, excessive sweating, and excessive appetite, correlate closely with modern symptoms of obesity and metabolic syndrome [3,6]. Classical Ayurvedic texts emphasize early recognition of these symptoms for timely intervention, which is particularly relevant in the present era of rapid urbanization and lifestyle transitions [3,4].

Hyperlipidemia, commonly associated with obesity, exacerbates cardiovascular risk and contributes to the global burden of non-communicable diseases [6,9,15]. Contemporary epidemiological studies confirm that visceral fat accumulation, prevalent in urban sedentary populations, is a significant risk factor for dyslipidemia, insulin resistance, and coronary artery disease [6,9]. This observation underscores the importance of early lifestyle interventions, dietary modifications, and holistic therapies to prevent progression of metabolic complications [1,2,6].

From a therapeutic standpoint, integrative management combining Ayurvedic *Shodhana* (bio- purification), *Shamana* (dosha pacification), *Pathya-Vihara* (diet and lifestyle), and modern strategies (calorie restriction, exercise, behavioral therapy, pharmacotherapy) is highly effective [5-8,14].

Vamana and *Virechana* remove excess *Kapha*, *Meda*, and *Pitta*, enhancing lipid metabolism, while *Lekhana Basti* and *Udwartana* directly target *Meda Dhatu* to reduce fat accumulation and improve circulation [3-5,8]. Simultaneously, adherence to modern lifestyle measures, including structured physical activity, balanced diet, stress reduction, and monitoring of lipid profiles, complements Ayurvedic interventions, thereby improving metabolic outcomes and reducing cardiovascular risk [6-8,14].

The present era introduces unique challenges, including increased intake of processed and high- calorie foods, prolonged sedentary behavior due to technology dependence, and psychosocial stressors, all contributing to both childhood and adult obesity [2,6]. Integration of Ayurvedic preventive strategies with public health measures—such as nutrition education, community exercise programs, and policy-driven interventions—can potentially curb this epidemic [8,14,15].

In addition, Ayurvedic principles offer a personalized approach by considering *dosha* predominance, metabolic constitution, and digestive capacity (*Agni*), which aligns well with the modern concept of precision medicine. By tailoring therapeutic interventions to the individual's constitution and metabolic profile, both fat accumulation and lipid abnormalities can be managed more effectively, ensuring

Conclusion:

Obesity (*Sthaulya*) and its metabolic complication, hyperlipidemia, represent a growing health concern worldwide, with increasing prevalence in urban and childhood populations [1,2]. The integrative approach, combining Ayurvedic therapies with modern lifestyle modifications, offers a holistic, sustainable, and individualized management strategy.

Ayurvedic interventions, including *Shodhana*, *Shamana*, and *Pathya-Vihara*, effectively target the root cause by balancing *Kapha Dosha*, reducing *Meda Dhatu*, and restoring metabolic harmony [3–5,8]. When complemented with modern interventions—such as dietary control, structured exercise, behavioral therapy, and pharmacotherapy—the integrative model demonstrates significant potential in reducing body weight, improving lipid profiles, and preventing cardiovascular and metabolic complications [6–9,14].

Early detection, personalized treatment planning, patient education, and community-level preventive strategies are critical for long-term success in managing obesity and hyperlipidemia. The synergy of traditional Ayurvedic wisdom and contemporary scientific insights not only addresses the physiological and biochemical aspects of the disease but also enhances patient adherence, well-being, and quality of life. Future research should focus on standardized protocols for integrative management, longitudinal studies on efficacy, and mechanistic exploration of Ayurvedic therapies to further strengthen the evidence base for clinical practice.

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