



## Review Article

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### **PANCHAKARMA PERSPECTIVES FOR THE MANAGEMENT OF OBESITY (STHAULYA): A REVIEW**

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#### ABSTRACT

*Acharya Charaka* enumerates obese individuals in eight types of condemned (*Ashta-ninditiya*) individuals in the context of treatment. Overweight and obesity are abnormal or excessive fat accumulation that presents a health risk. Though not considered a disease due to the lack of a universal concomitant group of symptoms or signs and the impairment of functions that characterize disease according to traditional definitions, it holds a competitive threat to human well-being. Where different efforts and treatments prove futile and the need to combat obesity increases, *Panchakarma* is a very effective and non-invasive treatment modality at best. The different procedures focus on the purification and correction of the metabolism at the molecular level. Various studies have shown immunological and metabolic changes associated with weight loss after the treatment. *Panchakarma* therapies aim towards not only reduction of body weight but also the correction of digestive fire and eliminate of waste products like free radicals causing various diseases, thus correcting the whole cycle of metabolism and bringing rejuvenation along with the correction of disease.

**Keywords:** *Ashta-ninditiya*, obesity, *Panchakarma*, purification, rejuvenation.

#### INTRODUCTION

According to *Vachaspathyam*, the word *Sthaulya* means heaviness of the body. *Acharya Charaka* has described *Ati-sthula* (obese) among eight undesirable body constitutions (*Ashta-ninditiya Purusha*)<sup>1</sup>. *Ati Sthula* (obese) has been defined as a person who, on account of the inordinate increase of fat and flesh, is disfigured with pendulous buttocks, belly and breasts and whose increased bulk does not match any corresponding increase in energy.<sup>2</sup> It is a prominent *Dushya* (vitiated by aggravated *Dosha*) disorder, *Meda dhatu* being a principal vitiating factor. The *Poshya* (stable) *Meda dhatu* is immobile and is stored in *Medo dharakala* (omentum and lining of the medullary canal). The site of *Medo dharakala* is the abdomen (*Udara*) and small bones (*Anu Asthi*). *Sphik* (hips), *Stana* (breasts), and *Gala* (neck region) are also depots of *Poshya Meda*.

Obesity is an abnormal accumulation of body fat, usually 20% or more over an individual's ideal body weight and is associated with an increased risk of illness, disability, and death. When calories are consumed more than the body can burn, these extra calories are deposited as adipose tissue. The World Health Organization (WHO) and the National Institute of Health (NIH) have defined overweight as having a BMI between 25.0 and 29.9 kg/m<sup>2</sup>: and obesity as having a BMI greater than 30.0 kg/m.<sup>2,3</sup>

Obesity usually results from a combination of causes and contributing factors, including, genetics, lifestyle, medical problems, certain medications like some- antidepressants, anti-seizure medications, diabetes medications, antipsychotic medications, steroids and beta-blockers, social and economic issues, age, pregnancy, lack of sleep etc. Obesity has been associated with many general body complications including- Asthma, several types of cancer including bowel cancer, breast

cancer and womb cancer, gastro-oesophageal reflux disease, gallstones, reduced fertility, osteoarthritis, sleep apnoea syndrome, liver disease and kidney diseases, pregnancy complications such as- gestational diabetes or pre-eclampsia<sup>4</sup>. Metabolic complications of obesity are prevalent and are covered under the heading of metabolic syndrome, characterized by plasma lipid disorders (atherogenic dyslipidaemia), raised blood pressure, elevated plasma glucose, and a prothrombotic state. Abdominal obesity, ectopic lipid accumulation, hepatic steatosis, and sleep apnoea can also be included in the metabolic complications of obesity.<sup>5</sup> Adipose tissue has been recognized as an active endocrine organ and a central energy store of the body.<sup>6</sup> Excess adiposity and adipocyte dysfunction result in dysregulation of a wide range of fatty tissue-derived secretory factors, referred to as adipokines, which may contribute to the development of various metabolic diseases via altered glucose and lipid homeostasis as well as inflammatory responses.<sup>7</sup> The adipose tissue can affect many other tissues, including the liver, skeletal muscle and heart, via the production of free fatty acids and many pro-inflammatory and anti-inflammatory factors.

According to a report by WHO, obesity has reached epidemic proportions globally, with at least 2.8 million people dying each year due to being overweight or obese.<sup>8</sup> In individuals with a BMI between 25 and 50 kg/m<sup>2</sup>, every 5 kg/m<sup>2</sup> increase in BMI is found to be associated with increased mortality from diabetes mellitus (DM), chronic kidney disease (CKD), ischemic heart disease (IHD), stroke, respiratory disease, and neoplasms.<sup>9</sup>

*Panchakarma* treatment provides various options for managing obesity and related disorders. The treatment is not only described in our scriptures, but its effect has been proven practically. Some widely used treatment modalities and their scope and action area are reviewed here.

### Panchakarma Therapies in *Sthaulya* (Obesity)

**Dipana Pachana:** *Dipana-Pachana* is a pre-procedure for most *Samshodhana* (purification) therapies. The *Vayu* and *Agni guna* dominancy in *Dipana-pachana* drugs make them contrary (nullifying) to *Meda* and *Kapha*, which are *Jala* and *Prithvi Mahabhuta* dominant. These drugs help in the digestion of *Ama* (unripe or undigested food), which is responsible for the malfunctioning of *Agni* and obstruction in micro-channels (*Srotavarodha*), thus by correcting the *Jatharagni* and *Meda dhatu agni* it breaks the pathophysiology of *Sthaulya* (obesity). Some *Dipana-pachana* drugs like- *Musta* (*Cyperus rotundus*),<sup>10</sup> *Jeerak* (*Cuminum cyminum*), *Hingu* (*Ferula narthex*), *Shunthi* (*Zingiber officinale*), *Methika* (*Trigonella foenum-graceum*), *Ajmoda* (*Apium graveolens*),<sup>11,12</sup> *Trikatu*<sup>13</sup> are mentioned in texts as *Lekhana* drugs (drugs causing therapeutic scrapping), their anti-obese and hypolipidemic action are also observed clinically.

**Udvardana (Therapeutic powder massage):** *Udvardana* is massaging in the direction opposite to the orientation of hair with some pressure with the help of herbal powder, paste or oil. *Acharya Charak* has mentioned the term *Sharir-parimarjana* (body scraping) for *Udvardana*. *Udvardana* is counted among *Rukshana* (dryness inducing) therapies, and due to its dryness inducing, *Kapha* alleviating and *Meda* melting properties,<sup>14</sup> it is specially indicated for an obese person. In *Sthaulya*, *Udvardana* removes the foetid odour, restricts the process of excessive sweating and alleviates the aggravated *Doshas*.<sup>15</sup> The friction produced by *Udvardana* drugs causes dilatation of vessels which facilitates metabolic activity and increases the elimination of waste products. It also helps reabsorption of inflammatory products and absorption of fat in fatty tissue. Thus, *Udvardana* helps in the reduction of subcutaneous fat depots. It reduces the abdomen and waist circumference by reducing the skinfold thickness. As 50% of total body fat is deposited subcutaneously, its reduction reduces the body's overall weight.<sup>16</sup> Drugs like- *Kolkulathadi churna*,<sup>17</sup> *Shailayadi churna*,<sup>18</sup> *Triphala churna*, *Haritaki churna*,<sup>19</sup> *Vachaharidradi gana*<sup>20</sup> have shown significant results in reducing BMI, reducing skinfold thickness, improving symptoms of obesity and normalizing lipid levels.

**Svedana Karma (Therapeutic fomentation):** *Svedana* procedure is restricted to obese patients by most *Ayurvedic* texts, but some scholars have told the use of therapeutic fomentation in obesity.<sup>21</sup> The methods counted among *Niragni Sveda* (fomentation without the use of fire) like- *Vyayama* (exercise), hunger, and carrying weight seem very beneficial for an obese person. *Ruksha Sveda*, like – *Baluka Svedana* (fomentation with sand), can be performed in these patients. *Vashpa Svedana* (fomentation with steam) with *Dashmoola kwath* provided a statistically significant reduction in BMI and body fat content.<sup>22</sup> Therapeutic fomentation possesses *Vata* and *Kapha* pacifying properties, *Medohara* (fat reducing) and *Srotoshodhana* (channel cleaning action). It improves the digestive fire and thus increases the body's metabolic rate, causes lipolysis and mobilisation of fat and finally excreting the waste products in the form of sweat. Recent studies have revealed an impaired vascular endothelial function in subjects with lifestyle-related diseases, such as hypertension, hyperlipidaemia, diabetes mellitus, obesity, and smoking.<sup>23</sup> Generalized steaming improves endothelial dysfunction in these subjects, suggesting its preventive role.<sup>24</sup>

**Vamana Karma (Therapeutic emesis):** *Vamana* is the best treatment for *Kapha dosha*. As *Kapha* and *Meda* possess similar properties, they may prove helpful in an obese person. Though contraindicated in an extra obese person, it can be carried out with special care in many instances and specially indicated in obese

patients where *Kapha* has prominent symptoms like- Fatigue (*Gatrasada*), heaviness in the body (*Anga gaurava*), breathlessness (*Kshudra shwasa*), excessive sleep (*Ati nindra*) and laziness (*Alasya*) are dominant. Therapeutic emesis is preceded by therapeutic oleation and fomentation procedures. For external oleation, sesame oil can be used preferably in obesity as it is said to reduce fat in obese patients. In clinical studies, the *Vamana* procedure effectively reduces subjective symptoms and significantly reduces objective parameters- BMI, chest, abdomen, and waist circumference and other associated complaints like raised lipid levels, increased blood pressure, and sugar.<sup>25,26</sup> The procedure should be carried out with exceptional care for associated comorbidities like- cardiac problems, severe hypertension, and asthma.

**Virecana Karma (Therapeutic purgation):** Therapeutic purgation is not only effective in eliminating *Pitta dosha* but also effective for *Kapha*, *Meda*, and *Vata*. It helps remove *Vata's* occlusion, thus helping in correcting *Jatharagni* (metabolic factors located in the digestive tract), which converts *Medo dhatu agni* (metabolic factors located in *meda dhatu*), and the proper amount of *Meda dhatu* is formed. It helps in flushing excessive *Ambu dhatu*, which is a content of *Meda dhatu*. It proves to be much beneficial in alleviating *Pitta's* prominent symptoms of *Sthaulya* like- extreme hunger (*Ati-kshudha*), excessive thirst (*Ati-pipasa*), and excessive sweating (*Swedadhikya*), and foetid odour (*Daurgandhya*). Among purgative medicines mentioned in *Ayurvedic* texts, *Haritaki* (*Terminalia chebula*), *Katuki* (*Picrorhiza kurroa*), *Aragvadha* (*Cassia fistula*), *Trivrutta* (*Operculina turpethum*), *Danti* (*Baliospermum montanum*), *Dravanti* (*Chlorophytum tuberosum*), *Snuhi* (*Euphorbia nerifolia*), etc. are attributed having additional *Meda* alleviating property. Hence, the *Virecana* procedure using these drugs may bring some extra benefits. Clinically, the *Virecana* procedure has significantly reduced parameters like BMI, weight, chest circumference, abdomen, waist, hip, mid-thigh, and mid-arm.<sup>27</sup>

**Basti (Medicate enema):** *Asthapana Basti*, particularly *Lekhana Basti*, is highly recommended for the management of *Sthaulya*.<sup>28</sup> The role of *Ruksha*, *Ushna* and *Tikshna Basti* in the management of *Sthaulya* is mentioned by *Acharya Charak*.<sup>29</sup> *Lekhana Basti* helps to remove the obstruction of *Meda*, *Kapha* and *Kleda* from microchannels by its potency and helps to alleviate vitiated *Vata* and normalize the function of *Agni* and *Vayu*. *Basti* prepared with *Taila*, *Gomutra*, *Kanji*, *Saindhava*<sup>30</sup>, *Erandamuladi Niruha*<sup>31</sup>, *Kaphanasaka Basti*<sup>32</sup>, *Lekhana Basti*<sup>33</sup>, etc. can be practised for management of *Sthaulya*. *Basti* being the best *Vata* alleviating treatment, the reduction in excess thirst (*Atipipasa*) and excess hunger (*Atikshudha*) may be attributed to the correction of vitiated *Vayu*.<sup>34</sup> *Anuvasana Basti* using *Triphala Taila* has been prescribed in *Medo Roga Adhikara* in *Yogaratanakara*.<sup>35</sup> *Lekhana Bastis* have a significant effect in reducing the symptoms of *Medodushti* and in reduction of objective parameters like weight, BMI, body fat percentage, body circumferences such as chest, abdomen, hip, pelvis, mid-thigh circumferences, and skinfold thickness as biceps, triceps, mid-arm and abdominal skinfold thickness.<sup>36</sup> *Lekhana Bastis* reduce BMI, waist and abdominal circumference in obese individuals. The mean weight loss at the end of *Basti* treatment (day 48 from baseline) was comparable to the various pharmacological interventions like sibutramine, orlistat, phentermine, diethylpropion or bupropion and fluoxetine in obesity.<sup>37</sup> Elevated serum levels of IL-6 and IFN- $\gamma$  of these obese patients reduced significantly after *Basti*.<sup>38</sup> Adipokines/cytokines released from activated immune cells contribute to insulin resistance associated with obesity.<sup>39</sup> Serum cortisol levels decreased after the 48 days treatment period, which decreased after 90 days. The primary reason for endocrine malfunction in human obesity is

hypersensitivity and/or hyper-responsiveness of the hypothalamic-pituitary-adrenal (HPA) axis. The decrease in cortisol levels observed in the study suggests normalizing the HPA axis. The Ayurvedic *Basti* (enema) treatment modulates immune responses by regulating pro-inflammatory cytokines, immunoglobulins, and functional properties of T-cells. These changes were associated with a reduction in body weight, which was maintained even after three months.<sup>40</sup>

**Nasya (Medication through nasal route):** Due to its scraping property, *Rechana Nasya* (cleansing type of *Nasya*) can be used in obesity. *Acharya Susruta* has indicated *Triphaladi tail Nasya* in *Medovridhi*.<sup>41</sup> To date, not much research has been done evaluating the role of *Nasya* in conditions like obesity. A study comparing the effects of medicated enema and nasal drops using *Triphaladi* oil in obesity revealed a slight decrease in weight and chest circumference post using *Rechana Nasya* by *Triphaladi* oil.<sup>42</sup> Intranasal doses of oxytocin can reduce caloric intake, increase fat oxidation, and improve insulin sensitivity in men.

Furthermore, a pilot study of 8 weeks of oxytocin treatment in adults with obesity or overweight led to substantial weight loss.<sup>43</sup> *Nasya* therapy may affect the hypothalamus in the same way. Thus, it can be used as single therapy or adjuvant to other treatments in managing obesity.

**Rakta Mokshana (Bloodletting):** *Raktamokshana*, along with purification therapies, is mentioned as one of the best therapies for obese patients, especially for obese midwives (*Medasvi Dhatri*)<sup>44</sup>. *Bhavaprakasha* has also indicated *Raktamokshana* as a line of treatment for *Sthaulya*<sup>45</sup>. *Acharya Charak* has also mentioned *Raktamokshana* as a treatment for diseases due to overnutrition (*Sanatarpana janya Vyadhi*).<sup>46</sup> Bloodletting may be applied for patients of *Sthaulya*, specifically those with excessive *Meda* in *Rakta dhatu*, which can be correlated with dyslipidemia. Increasing evidence indicates that higher ferritin levels are observed in obesity (associated with an increase in multiple markers of low-grade inflammation).<sup>47</sup> In patients with metabolic syndrome (METS), phlebotomy with moderate reduction of body iron stores lowered BP and improved cardiovascular risk markers and glycaemic control. A decrease in iron stores resulted in a significant reduction of BP and improvement in glycaemic management, LDL/HDL ratio, and resting HR at six weeks.<sup>48</sup> This trial supports that bloodletting by venepuncture method may benefit obese patients, esp. those having raised lipid levels.

## DISCUSSION

Various studies provide a clear picture of the efficacy of different *Panchakarma* procedures in obesity. Studies have concluded that *Vamana* has a better role in preventing NIDDM and is also capable of maintaining long-lasting glycaemic control and weight loss in obese individuals.<sup>49</sup> *Virecana* procedure has shown efficacy in decreasing fatty acids in the liver, kidney, heart, and muscle adipose tissue storage, decreasing faecal fat content, fasting blood glucose, and serum triglycerides.<sup>50</sup> *Lekhana Basti* not only helps in reduction of body weight but also reduces serum lipid profile.<sup>51</sup> *Udvartana* and *Vashpa sweda* remove the blockage in microchannels due to their dryness causing property (*Ruksha guna*), causing liquefaction of *Meda* and mobilizing it.<sup>52</sup> *Rechana Nasya* and *Raktamokshana* therapy may also deliver promising results when used as an adjuvant therapy with other purification therapies, though the result needs to be verified clinically. Purification allows the biological systems to return to normalcy and rejuvenate rapidly and facilitates the desired pharmacokinetic

effect of therapeutic remedies. Hence, the approach through *Panchakarma* has much better results.

## CONCLUSION

Obesity indeed poses serious health threats which may also end in morbidity. The risk of death from diabetes or heart attack is five to seven times greater for those who are obese. However unfair, the social, psychological, and economic effects of morbid obesity are authentic and can be especially difficult. *Panchakarma* is not merely bio-purificatory therapy but also has a wide range of therapeutics such as replenishing, depleting, rejuvenating therapies, etc. A person with disturbed metabolism resulting in impaired excretion of waste products leads to the collection of metabolic waste. All these factors lead to the formation of free radicals, causing tissue damage, and the outcome is metabolic disorders, including obesity. In such conditions, purification is necessary, which is effectively done by *Panchakarma*, and the results are also evident from various studies.

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