



## Role of Panchakarma Treatment in Sthaulya (Obesity) – A Critical Review

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(Received: 14 April 2024

Revised: 1 May 2024

Accepted: 18 June 2024)

### KEYWORDS

*Sthaulya,*  
*Medovridhhi,*  
Obesity, *Vamana,*  
*Virechna,* *Basti,*  
*Sarvanga Snehana,*  
*Sarvanga Swedana,*  
and *Udvaartana*

### ABSTRACT:

Sthaulya (obesity) is a predominant metabolic disorder described by Charaka in Ashtanindita Purusha. Sedentary life, lack of exercise, faulty food habits, urbanization, psychological factors, along with genetic predisposition play major roles in the development of Sthaulya. It has reached epidemic proportions in India in the 21st century, affecting 5% of the population. Untreated, it can lead to diabetes mellitus, high blood pressure, atherosclerosis, heart conditions, arthritis, obstructive apnea, erectile dysfunction, infertility, etc., reducing quality of life. Excessive calorie intake and reduced energy expenditure are major causes. Ayurvedic texts discuss metabolic disorders in the context of Sthaulya. Panchakarma, the five major therapies of Ayurveda including Shodhana (purification) therapy, aim to expel accumulated toxins, creating an optimal environment for the body. Panchakarma is crucial as both a preventive and curative treatment for conditions like Sthaulya. Ayurvedic classics detail various treatments, including Panchakarma procedures like Vamana (therapeutic vomiting), Virechana (therapeutic purgation), Nasya (nasal administration), and external therapies such as Udvaartana (dry powder massage) and Abhyanga (oil massage). Numerous clinical and pilot studies substantiate the efficacy of these procedures. This study critically reviews and analyzes information from various Clinical studies highlighting the role of Panchakarma in managing Sthaulya.

### Introduction:

Sthaulya (Obesity) is a major health issue in today's world. The evolving lifestyle and environmental changes, combined with altered eating habits, have led to a surge in diseases related to poor nutrition, with obesity being a leading concern. This condition is a byproduct of the modern era marked by mechanization and materialism. Obesity arises from decreased physical activity along with increased food consumption. Factors like industrialization, job-related stress, unhealthy eating

patterns, lack of exercise, and the widespread availability of fast food, frozen fruits, soft drinks, and canned foods all contribute to the rise of obesity.

A disease known as "Sthaulya" is characterized by the vitiation and aggravation of the *Meda Dhatu*, which prevents *Srotasagat* from nourishing the other *Dhatu* improperly and only causes the *Meda* to increase.<sup>1</sup> *Acharya Charaka* mentioned it in *Santarpanjanya Vyadhi*.<sup>2</sup> As well as *Shelsmaja vikar* <sup>3</sup> And *Ashtonindita Purusha*.<sup>4</sup> Which is distinguished by weight gain and



bulkiness throughout the body, particularly in the hip and abdominal regions.<sup>5</sup>

According to *Acharya Susruta*, excessive *Medo Dhatu* deposition in the body can result in extreme greasiness, which gives off a highly unpleasant odour, as well as enlargement of the abdomen and flanks (pendular hanging), coughing, and dyspnoea, among other symptoms.<sup>6</sup>

Along with this, *Acharya Vagbhatta* listed the following as signs and symptoms of *Medovridhi*: exhaustion and shortness of breath even after minimal exercise, Due to an overabundance of *Meda Dhatu*, the buttocks, breast, and abdomen dangle pendulously.<sup>7</sup>

*Nidana* of *Medoroga*, according to *Yogarataka*, include not moving enough, resting throughout the day, and eating foods high in the *Kapha Dosha Vardhaka*. The sweet liquids that turn into *Sneha* and cause *Meda Dhatu* to build up. When *Meda Dhatu* builds up and blocks *Srotas*, other *Dhatu*s are not properly fed, which causes *Meda Dhatu* to grow even more. The person with *Medo Roga* will have *Kshudra Shwasa* (breathlessness), *Trisha* (excessive thirst), *Moha*, *Swapna* (excessive sleep), *Krathana* (Sudden obstruction of breath), *Sadana* (looseness of the body) *Kshuta* (Excessive hunger), *Sweda* (excessive sweating), *Daurgandhya* (foul body smell), *Alpa Prana* (Fatigue), *Alpa Maithuna* (loss of libido).<sup>8</sup>

In Ayurvedic texts, *Apatarpana chikitsa* alone is insufficient for managing *sthaulya* (obesity). The primary causes aggravate the *meda dhatu*, causing *kapha* and *vata doshas* to become obstructed by excess fat. Using only *Apatarpaka dravyas* (emaciating drugs) can increase *vata dosha*. *Sthaulya* is characterized by a condition where *tikshnagni* coexists with *medodhatvagni mandya*, indicating a significant imbalance between the two levels of *Agni* (digestive power). Therefore, treatment should be carefully planned, considering these factors.<sup>9</sup>

*Charaka* stated that while diseases treated with shaman therapy have a chance of recurrence, *Shodhana therapy* cures the disease from its root, eliminating the possibility of recurrence.<sup>10</sup>

Appropriate *Ayurvedic* internal medicines along with *Shodhana* procedures gives effective results. *Pathya*

*Apathya* and lifestyle modifications play an important role in the management of *Sthaulya*.

In Modern science obesity is defined as an excessive build-up of body fat that is above 25% in men and over 30% in women. It is an issue for global health.<sup>11</sup> Obesity has been linked to the emergence of several serious concomitant conditions, including the metabolic syndrome, type 2 diabetes, high blood pressure, dyslipidaemia, and heart disease. Approximately 30% of all deaths worldwide are still caused by cardio vascular diseases.<sup>12</sup> Large-scale epidemiological studies indicate that all metabolic, cancer, and cardiovascular morbidity start to increase when BMI > 25, hence they recommend that the threshold for obesity be lowered in order to prevent these diseases. About 80% of type 2 diabetes, about 70% of cardiovascular disease, and 42% of breast and colon cancers are caused by obesity.<sup>13</sup>

In a statistically significant difference, females (28.8%) had a higher prevalence of obesity than males (13.3%). With age, abdominal obesity became more and more in both genders.<sup>14</sup>

Additionally, according to another WHO estimate from 2014, more than 1.9 billion persons aged 18 and older were overweight. Over 600 million of these people were fat. In general, 11% of men and 15% of women in the adult population of the world were obese in 2014. Between 1980 and 2014, the prevalence of obesity more than doubled globally.<sup>15</sup>

## Aims and objectives

The aim is to analyze and review the existing clinical research studies and pilot studies conduct on *sthaulya*.with a specific focus on assessing the information regarding the effectiveness of *panchakarma* can be understood if analyzed under role of *purvakarma* and *Pradhan karma*.

## Material And Methodology

### Inclusion criteria for studies:

This review includes randomized controlled trials (RCTs) and pilot studies published in English between 2014 and 2023. Studies must involve *Panchakarma* (including *purvakarma* and *pradhan karma*) and be available in full text with detailed information necessary for comprehensive review.

**The exclusion criteria were:**

1. Reviews, editorials, and commentaries.
2. Non-English publications.
3. Non Rct , Case Study ,and Case Report

**Information sources and search strategy**

The relevant information for this study was gathered from previous research studies, including clinical trials and randomized trials that involved various Panchakarma modalities. These studies were sourced from peer-reviewed journals and multiple databases such

as Google Scholar, ResearchGate, PubMed, Ayush Research Portal, and Ayushdhara This version succinctly summarizes where the information for the study was sourced from, including the types of studies and the platforms used for accessing them.

**Selection and data collection process:**

This information was gathered from a total of 15 Clinical studies, which were critically analyzed and reviewed to assess the role of Panchakarma chikitsa and Bahya chikitsa in treating Sthaulya . Initially, 26 studies on Sthaulya were identified. After excluding 11 duplicate articles.

**Observation and Result:**

Author	Study design and sample size	Medicine dosage and duration	Results
1.Antiwal M SinghJP,TiwariSK (2014) <sup>16</sup>	Randomized controlled stratified, open level study Total patient: 70 Group 1-35 Group 2-35	<i>Lekhaniya Kashaya Basti</i> preparation:• Saindhava Lavana-10g Madhu(Honey)-10 g, <i>Gomutra</i> (Cow urine)-100 ml <i>Tila Taila</i> (Sesame oil)-100 ml procedure was repeated once in every month consecutively for period of 3 months Group II - <i>Pathyas ahara</i> group	Significant Improvement in BMI, Waist hip ratio, breathlessness, and excessive Sleep in Group 1. Trial drug combination in Group 1 has significant Medhogna (fat reducing) effect.
2.Amrutha Chaitanya Ch.Sadanandam(2014) <sup>17</sup>	Pilot study Total number of patient :10	2 cycles of Lekhana Basti:9 days 1 Anuvasana in between 3 Lekhana Basti with gap of 10 days in between two cycles.	Subjective Improvement: Moderate Relief: 7 patients, Mild Relief: 3 patients, No Relief: 0 patients, Marked Relief: 0 patients. Objective Improvement: For all 10 patients, the following percentage improvements were observed in various physical measurements: Weight:



			5.044% relief, BMI: 5.096% relief, Chest Circumference: 1.646% relief, Abdomen Circumference: 3.09% relief, Hip Circumference: 2.446%
3. Dr. Yogesh Deole (2015) <sup>18</sup>	Total number of patient: 110	The <i>Virechana</i> schedule for average 15 days. For <i>Deepana-Pachana</i> , <i>Chitrakadi vati</i> , <i>Trikatu churna</i> were administered. For <i>Snehapana</i> , <i>Tiktaka Ghrita</i> , <i>Mahatiktaka Ghrita</i> or <i>Panchatiktaka Ghrita purgation Triphala kashayam</i> with <i>Eranda taila</i> and <i>Avipattikara churna</i> .	The observations indicate a steady pattern of weight loss throughout the treatment process: after <i>Deepana pachana</i> (average 3 days, 1.41 kg), further reduction following <i>Snehapana</i> (after an average of 5 days, 1.24 kg), and continued decrease post- <i>Virechana</i> (including a 4-day period with 3 days of rest, 1.47 kg). Overall, after completing the approximately 15-day <i>Virechana</i> schedule, an average weight loss of 4.61 kg was observed.
4. Yogeshwari Suple, Gaurav Sawarkar (2015) <sup>19</sup>	Clinical trial Group A (trial group, n=20) Group B (control group, n=20)	<i>Lekhana basti</i> Dose 960 ml, <i>Anuvasna basti</i> dose -240 ml, 16 days (Kala basti)	Group A i.e. Trial group treated with <i>Lekhana basti</i> with <i>katu taila</i> and control Group B <i>Lekhana Basti</i> With <i>Tila Taila</i> . Group A demonstrated superior effectiveness in alleviating symptoms such as <i>Daurgandhya</i> and <i>Kruchchvyavayata</i> , whereas Group B achieved greater reductions in weight and BMI. Specifically, Group A significantly reduced abdominal circumference, with 25% showing marked improvement, 70% improvement, and 5% unchanged. In contrast, Group B exhibited 20% marked improvement, 75% improvement, and 5% unchanged.



<p>5.Rajan N Munzni Santosh kumar Bhatted Chetan N Gulhane Swapnil Auti (2016)<sup>20</sup></p>	<p>Clinical study Total No. of patient 90. Number of group -3 Each group has 30 patient.</p>	<p>Group A undergoes Vamana karma with Trphaladi taila for Snehpana. Drugs include Madanphala Pippali,vacha churna Saindhava Lavana, Yastimadhu Phanta, milk, and honey. Group B opts for Virechana karma using Panchakola Churna, Triphaladya Taila. Group C receives daily Udvardtan with Triphala Churna for 15 days.</p>	<p>These results suggest that all three groups experienced significant improvements in weight, BMI, and BFP, with Group A showing the highest reduction in BMI and Group B showing the highest reduction in BFP. Group C showed the smallest percentage reductions across all parameters but still achieved highly significant results.</p>
<p>6.Palak Purohit, Rajdip Rao,K.S Patel (2017)<sup>21</sup></p>	<p>Pilot Study Total No. of patient 10.</p>	<p>Gudhuchi-Bhadramustadi Basti is administered for 16 days with the following components: Niruhbasti(cleansing enema) Makshika (Honey): 120 gm Saindhava (Rock Salt): 6 gm Guduchi-Bhadramustadi Oil:80 ml Putiyavani Kalka (Paste): 40 gm Guduchi-Bhadramustadi Kwatha (Decoction): 240 ml Anuvasana Basti (Oil Enema) Guduchi-Bhadramustadi Oil: 80ml</p>	<p>Guduchi-Bhadramustadi Basti has shown 11.76% decrease in the Visible movement in hip-abdomen-breast: Decreased by 11.76%, Dyspnoea on exertion: Decreased by 77.78%, Excess thirst: Decreased by 65%, Excess hunger: Decreased by 50%, Heaviness in body: Decreased by 77.78% Loss of libido: Decreased by 27.27%.</p>
<p>7.Ranjip kumar Dass, Pradip kumar Panda, (2018)<sup>22</sup></p>	<p>Clinical trial Total No. of patients 66 No. of Group-2 Group-A 32patients Group -B 34 patients</p>	<p>Group A underwent Vamana karma with Kutki churna, followed by Snehapan using Til Tail and approximately 3 liters of Yastimadhu Kwath. Group B received Lekhan Basti with Kutki churna, Triphala Kwatha (200-300 ml), Honey (80 gms), Rock Salt (5 gms), Sesame Oil (90 ml), and a paste (Kalka) of <i>Shilajit</i>, <i>Tuttha Bhasma</i>, <i>Kasis Bhasma</i>, <i>Hingu</i>, <i>Yavakshara</i> (2 gms each, total 10 gms), along with 100 ml of Cow's Urine.</p>	<p>In Group A, there was a 3.4% reduction in body weight and a 3.83% reduction in BMI, both statistically significant (<math>p &lt; 0.001</math>). In Group B, a 6.3% reduction in body weight and a 6.02% reduction in BMI were observed. The Basti group showed better overall therapeutic effects compared to the Vaman group.</p>
<p>8.Tabassum, Uma A. Patil (2018)<sup>23</sup></p>	<p>Clinical Study Total No. of patients 30. Group -2 Each has group 15 patients.</p>	<p>Group A: 15 patients received <i>Triphala Choorna Udvardhana</i> for 14 days. Group B: 15 patients received <i>Triphaladi Taila Abhyanga</i> for 14 day Duration -45 min</p>	<p>Group B (<i>Triphaladi Taila Abhyanga</i>) may be more effective in improving physical health markers, while Group A (<i>Triphala Choorna Udvardhana</i>) may excel in enhancing patient-perceived quality of life and symptom relief.</p>



9.Rajan N.M. Dr. Santosh kumar Bhatted(2019) <sup>24</sup>	Pilot study Total No. of patients -30	"Snehpana" is conducted using <i>Triphaladi Taila</i> . For <i>Virechana</i> , the following drugs are used: <i>Triphala Yavakuta</i> (2 parts), <i>Trivritamoola Churna</i> (1 part), <i>Katuki Churna</i> (1 part), <i>Ichhabhedi Ras</i> (as needed), and <i>Castor oil</i> (as required)."	(Group B) <i>Triphaladi Taila</i> in <i>Abhyanga</i> may be more effective in improving physical health markers, while <i>Triphala Choorna udvartana</i> (Group A) may excel in enhancing the perceived quality of life and symptoms of the patient.
10.Sarvesh Kumar, Preeti swami, Kshipra Rajoria (2020) <sup>25</sup>		<i>Lekhana Basti</i> was administered in a <i>Karma Basti</i> manner for 30 days. <i>Anuvasana Basti</i> involved a 120 mL dose of <i>Triphaladi Taila</i> , while <i>Asthapana Basti</i> used approximately 960 mL of <i>Triphaladi Kwath</i> , etc. <i>Nasya</i> was administered every alternate day for 28 days with 0.5 mL of <i>Triphaladi oil</i> per nostril.	The <i>Basti</i> group showed superior relief with lower intergroup variability across most variables, except for lipid profiles, suggesting more consistent effects of <i>Basti</i> therapy. Developing <i>Nasya Karma</i> as a more effective approach in obesity management should focus on refining its application to address variability, especially in lipid profiles
11.Sweta parwe, Manju Mohan Piyush Bhagwat,Milind Nisargandha (2021) <sup>26</sup>	Open label Single arm interventional clinical study Total No. of patients -15	<i>Rodhradigana Churna Udavartana</i> (100 gm) was applied for 45 minutes, alongside a prescribed <i>Pathya</i> (dietary regimen). This was followed by a one-month follow-up period, resulting in a total study duration of 45 days.	The study demonstrated significant results ( $p < 0.001$ ), showing that <i>Udavartana</i> therapy using <i>Rodhradigana Churna</i> effectively reduced symptoms of <i>Sthaulya</i> (obesity). It notably improved objective measures including weight, BMI, and lipid profile, highlighting <i>Udavartana's</i> efficacy in managing obesity symptoms and improving overall health outcomes.
12.Shweta parwe, Poonam Ashtanker Piyush Bhagwa, Milind Nisargandha (2021) <sup>27</sup>	Open Label single arm interventional study Total No. of patients -15	<i>Rodhradigan Basti</i> was administered at a dose of 885 ml, and <i>Anuvasna Basti</i> at a dose of 60 ml, over a duration of 45 days.	Patients showed significant improvement in symptoms related to <i>Sthaulya</i> (obesity) such as breast size ( <i>stana</i> ), abdomen ( <i>udara</i> ), appetite ( <i>kshudrashwasa</i> , <i>atipipasa</i> ), weakness ( <i>dourbalya</i> ), perspiration ( <i>swedadhikyata</i> ), and others, with a highly significant p-value ( $p < 0.001$ ). Objective parameters including weight, BMI, chest



			and abdomen circumference also showed marked improvements.
13. Amiya bhonsle, Sweta Parwe, Milind Nisargandha(2021) <sup>28</sup>	Comparative Study Total No. of patient Group-2	Group A received <i>Lekhana Basti</i> (a form of <i>Yoga Basti</i> ) for 16 days, followed by Navak Guggul 500 mg for 2 months, totaling 3 months. Group B underwent Modified <i>Vachadi Gan Basti (Yoga Basti)</i> for 16 days, followed by Navak Guggul 500 mg for 2 months, also totaling 3 months.	Group B, which received Modified <i>Vachadi Gan Basti</i> , showed better results compared to Group A. It effectively reduced weight and improved lipid profile values.
14. Ritu Wadhwa, shraddha Umesh Nayak, Nimisha Patel, Hina alim (2022) <sup>29</sup>	Clinical Study Total No. of patient. 62 Group-2 Each group has taken 31 patients.	Group A received Pippalyadi Basti and Group B received <i>Lekhana Basti</i> as <i>NiruhBasti</i> . The trial included two sittings of nine consecutive <i>Basti</i> , with six <i>Niruha Basti</i> and three Anuvasan <i>Basti</i> using <i>TriphaladiTail</i> , administered with an 18-day gap.	<i>Pippalyadi Basti</i> was found to be equally effective as <i>Lekhana Basti</i> in treating signs and symptoms and reducing total body weight.
15. Ankit Dabas, Arun Gupta, Swati, Mansi,(2023) <sup>30</sup>	Comparative Clinical Study Group-2 Each group has taken 30 patients	The study involved <i>Madhutailik Basti / Lekhana Basti (Kala Basti)</i> with a quantity of 640 ml, and <i>Murchita Tila Taila Anuvasana Basti</i> with a quantity of 120 ml, administered once a day for 24 days.	Changes in objective and subjective parameters were greater in Group B than in Group A, indicating that <i>Lekhana Basti</i> is more effective than <i>Madhutailik Basti</i> .

### Discussion:

**Panchakarma in Sthaulya:** Ayurvedic classics highlight the effectiveness of *Panchakarma* in treating obesity (Sthaulya). This effectiveness can be comprehended by examining the roles of *Purvakarma* and *Pradhana Karma*.

**Purvakarma:** Before the actual purification process, essential procedures known as *Purvakarma* are performed. *Purvakarma* prepares the body and makes the doshas suitable for elimination. Ayurvedic acharyas have mentioned external purification therapy for managing obesity (*Sthaulya*). Although *Purvakarma* procedures like *Snehana* and *Swedana*, as well as *Pradhana Karma* including *Vamana*, *Virechana*, *Nasya*, *Anuvasana Basti*, are generally contraindicated for severely obese patients according to most Ayurvedic texts, the specifics can be understood as follows.

**Rukshana:** *Rookshana* is a specialized *Purvakarma* procedure recommended before treatment in specific conditions such as *masala* (muscular build), *medura* (obesity), *bhurishlehma* (excessive kapha), and *vishamagni* (altered digestive strength).<sup>31</sup> In all classical Ayurvedic texts, *Udavartana* is described as part of the daily regimen and is specifically recommended by the Acharyas for managing *Sthaulya* (obesity). The benefits of *Udavartana* are noted to include the reduction of Kapha, the breakdown of fat, and the firming of the body. Charaka has specifically mentioned the use of "*Teekshna Rooksha Udavartana*" for addressing *Sthaulya*.<sup>32</sup>

### Udvartana -probable mode of action:

*Udavartana* is characterized by its *Kapha-hara* (reducing Kapha) and *Medovilayana* (breaking down fat) properties in Ayurveda.<sup>33</sup> Due to the Ushna (hot) and Tikshna (sharp) qualities of the herbs used and the vigorous massage during *Udavartana*, the potency of the



treatment penetrates into the body. This action opens the *Siramukha* (openings of veins), facilitating the digestion of *Kapha* (mucous) and *Medas* (fat). As a result, *Kapha* and *Meda* liquefy.

*Swedana* (sweating therapy) administered after *Udavartana* further aids in the digestion of *Kapha* and *Medas*. It also initiates sweating, which alleviates stiffness, heaviness, and cold sensations from the body. During *Udavartana*, the rubbing of medicinal substances on the skin causes a rapid increase in local temperature due to vessel dilation. This process opens circulatory channels, promotes metabolic activity, and the deep pressure massage enhances the exchange of tissue fluids by expanding the flow in superficial veins and lymphatics.<sup>34</sup> The pressure exerted during *Udavartana* facilitates the movement of substances within vessels towards the heart. When applied vigorously and swiftly, it has a stimulating effect, enhancing overall nutrition intake. By causing cutaneous vasodilation, it increases the elimination of metabolic waste and improves the condition of sensory nerves by stimulating cutaneous receptors. *Udavartana* also affects general metabolism when applied over a large area, aiding in the breakdown of inflammatory products and the digestion of fat in adipose tissue. Consequently, *Udavartana* contributes to reducing subcutaneous fat deposition. Jayashankar et al. noted in their study that *Udavartana* opens minute channels and improves both blood and lymphatic circulation<sup>35</sup>. During *Udvaratana*, *Bhrajaka Pitta* in the skin absorbs the potency of *Triphala*, causing drying and dissolution of *Kapha* and fat tissues. *Triphala*, with its dry properties, absorbs waste materials through sweat pores, confirming *Udvaratana's* efficacy in locally reducing excess fat in areas like thighs, abdomen, and chest. *Triphala Udvaratana* is considered the best external purification therapy for moderate obesity.<sup>36</sup>

#### Probable mode of action of Udvaratana on Lipids:

*Udavartana* effectively manages lipid levels by breaking down subcutaneous triglycerides into fatty acids through vigorous rubbing, facilitating their transport to the liver for conversion into bile. With a low-calorie diet and vigorous physical activity, fats are used for energy in the absence of carbohydrates. Purgation during treatment expels excess bile, reducing reabsorption and enhancing lipid utilization. Pandit MA et al. (2013) highlight *Udavartana's* molecular-level action, increasing skin

heat production to balance mucus (*Kleda*), clear channel blockages, and correct digestive impairment (Metabolic Agnimandya), thereby regulating fat absorption<sup>37</sup>.

#### Effect of Snehana Karma.

In *Ayurveda*, *Snehana Karma* (oleation therapy) is generally contraindicated for patients with *Sthaulya* (obesity). However, in urgent situations, the use of *Taila* (oil) is recommended.<sup>38</sup> *Taila* is known for its *Lekhana* (scraping) and *Medohara* (fat-reducing) properties, as well as its *Sthulatvahara* (anti-obesity) action.<sup>39</sup> *Ayurvedic* classics specifically recommend the use of certain oils like *Swarasa*, *Tuvaraka*, and *Bhallataka* for therapeutic purposes.<sup>40</sup>

#### Probable mode of action of Abhyang:

According to *Sushruta*, the four *dhatu*s (channels) are divided into numerous networks spanning the body, connecting to hair follicles (*Roma Kupas*) through which oils penetrate, nourishing specific body parts. Commentator *Dalhana* elaborates that during *Abhyanga*, oils follow principles similar to milk and yogurt: they sequentially reach different tissues over time. Through *Bhrajaka Pitta* and *Dhatvagni*, oils are absorbed, facilitated by *Triphaladi Taila's* properties like warming and penetrating characteristics. This process induces liquefaction of *Kapha* and fat tissues, promoting their elimination via the gastrointestinal tract, thereby lightening the body.<sup>41</sup>

#### Effect of Swedana:

*Charaka Acharya* mentions *Swedana* as a treatment for diseases caused by excessive nourishment.<sup>42</sup> *Vagbhata* indicates the use of *Pinda Sweda* in extreme cases,<sup>43</sup> while suggesting *Mridu Sweda* for obese patients as needed.<sup>44</sup> Through *Swedana* therapy, toxins are eliminated from the body. *Snehan* (oleation) softens deeply embedded doshas, while *Swedana* (sudation) liquefies these doshas and moves them into the gastrointestinal tract (*koshtha*). *Swedana* also separates impurities from peripheral tissues, facilitating the removal of blockages (*Srotorodha*) in the channels related to fat metabolism (*Meda Dhatu*).

#### Effect of Vamana karma:

*Sthaulya*, being a condition primarily caused by *Kapha*, is ideally treated with *Vamana*, especially *Mrudu Vamana*<sup>45</sup>. Herbs like *Madanaphala*, *Pippali*, *Nimba*, and





*Yashti Phant* are recommended for this purpose. *Vamana* is effective in managing disorders related to *Shlesma* and *Meda*,<sup>46</sup> emphasizing its role in alleviating *Kapha dosha*<sup>47</sup>.

#### **Vamana -probable mode of action :**

In the *Samprapti* of *Sthaulya*, the primary involvement of *Kapha* and *Meda* is observed. *Vamana* is always induced on a full stomach to ensure the pyloric end is closed. The *Vamaka dravya*, with its *Ushna* and *Tikshna* properties, causes mild gastric irritation and inflammation, increasing blood vessel permeability and drawing the vitiated doshas to the stomach. Its *Ashukāri*, *Yavāyī*, and *Vikāsi* properties stimulate the brain's vomiting center, sending impulses through cranial nerves (5th, 7th, 9th, 10th, 12th) and spinal nerves. This triggers contractions in the diaphragm and abdominal muscles, increasing stomach pressure and forcefully ejecting gastric contents through the mouth. Thus, *Vamana* expels the vitiated doshas (*Kapha*, *Meda*) from the body, potentially alleviating *Sthaulya* (obesity)<sup>48</sup>.

#### **Effect of Virechana :**

*Acharya Charaka* has discussed *Virechana Karma* for treating *Santarpanjanya Vyadhi*.<sup>49</sup> Clear indications for *Virechana* in *Sthaulya* are mentioned. *Virechana* formulations such as *Triphala*, *Aragvadha*, and

*Katukarohini* can be used. Other options include *Pippalyadi choorna*, *Hareetakyadi choorna*, and *Trivrutadigutika/Leha*.<sup>50</sup>

#### **Mode of action Virechana:**

The Mechanism of *Virechana* in reducing weight involves addressing *Sthaulya*, classified by *Sushruta* as a *Rasaja Vikara*<sup>51</sup> and by *Charaka* as a *Medoja Vikara*.<sup>52</sup> In the pathology of obesity, impaired *Agni* metabolism due to obstructed *Vata* by excessive *Medas* leads to metabolic changes. *Virechana*, a cleansing procedure, corrects *Agni* at both gross and tissue levels. *Deepana Pachana* medications help clear these obstructions, improving *Agni* at the level of *Rasa* and *Meda Dhatus*. *Snehapana* enhances metabolism of these tissues, while *Snehana-Swedana* mobilizes and *Virechana* eliminates the excess *Mala rupa Meda Dhatu*, thus aiding weight reduction. This process involves dissolving *Meda Dhatu dosha* through *Snehapana* and eliminating it via *Virechana*. Further mobilization of fats through practices like *Abhyanga* and *Swedana* is crucial for effectiveness. Purgation expels these waste products, enhancing *Agni* function and cleansing body channels. Additionally, *Virechana* provides benefits such as improved sensory well-being, *dosha* elimination, better sleep, and enhanced appetite and digestion<sup>53</sup>.

Procedure	Action	Effect of Body
<i>Deepan -pachana</i>	Correct <i>Rasa-medo Dhatwagnimandya</i> (metabolic impairment of plasma and fat tissue)	Improves metabolic function
<i>Snehpan</i>	Improves metabolism of <i>Rasa</i> and <i>Meda</i> dhatu	Enhances digestion and tissue metabolism
<i>Snehan - Swedana</i>	Mobilizes <i>malarupa meda dhatu</i> (abnormal fatty tissue)	Facilitates movement of excess fat tissue
<i>virechana</i>	Reduces <i>Mala rupa meda dhatu</i> ( abnormal fatty tissue)	Promotes elimination of excess fat leading to weight reduction.

This table outlines how each procedure (*Deepana-Pachana*, *Snehapana*, *Snehana-Swedana*, and *Virechana*) contributes to addressing *Meda dhatu*-related issues and facilitates weight reduction through specific action.<sup>54</sup>

#### **Effect of Basti :**

*Niruha Basti* plays a significant role in managing *Sthaulya*. *Rookshan Tikshna Basti* is considered highly suitable for chronic and complicated disorders like *Sthaulya*.<sup>55</sup> *Charaka* highlights the role of *Ruksha*, *Ushna*, and *Tikshna Basti* in managing *Sthaulya*. *Sushruta* also recommends *Basti therapy*, emphasizing



the importance of considering the patient's Agni and Bala while administering *Lekhana dravya*, which combines the dominance of *Vata* and *Teja Mahabhuta*.<sup>56</sup>

Sushruta describes *Lekhana Basti* as being prepared with *Triphala Kwatha*.<sup>57</sup> This *Basti* helps remove obstructions of *Meda*, *Kapha*, and *Kleda* from the *Srotas*, alleviates vitiated *Vata*, and normalizes the functions of Agni and Vayu.<sup>58</sup>

*Basti* composed of *Taila*, *Gomutra*, *Kanji*, and *Saindhava*, along with *Erandamooladi Niruha Kaphanasaka Basti*, *Lekhana Basti*, and *Madhutailik Basti*.

### Probable mode of action of Basti:

*Ama* is often present at the *Dhatu* level. Initiating a *Basti* schedule with *Anuvasana Vasti* can increase *Ama*. To prevent *Ama* formation and maintain *Samaagni*, *Deepana-Pachana* therapy was administered.<sup>59</sup>

Overall, the effect of *Basti* includes encolic action (acting on the tissue of the colon), endcolonic action (acting inside the colon), and diacolic action (providing systemic effects).<sup>60</sup>

Therefore, when *Basti Dravyas* reach the large and small intestines, they are absorbed through the intestinal mucosa. Due to the light (*Laghu*), hot (*Ushna*), and sharp (*Tikshna*) properties of the *Basti* substances, they break down obstructions in the channels and expel morbid materials from throughout the body. This process disrupts the pathogenesis of diseases like *Sthaulya* (obesity).<sup>61</sup>

*Basti* helps in *Vatanulomana* by the presence of *Tikta* (bitter) and *Katu* (astringent) tastes, as well as *Tikshna Guna* (sharp property) in the medicinal formulation. These qualities aid in correcting the passage of *Apana Vayu*. They irritate the intestines, leading to increased intestinal contractions, which reduces the absorption time for fats from the intestine. *Basti* therapy may stimulate various functions within the intestines, the luminal environment, and the body as a whole.<sup>62</sup>

Sesame oil possesses *Katu* (pungent) and *Tikta* (bitter) tastes, which help in reducing excess fat (*Meda*) in the body. It also has *Agnideepaka* (enhancing digestive fire) and *Vata Nashak* (alleviating *Vata*) properties. The *Agnideepaka* property boosts both *Jathragni* (digestive fire) and *Dhatwagni* (metabolic fire). When *Jathragni* is

enhanced significantly, excessive *Abaddha Meda* (adipose tissue) transforms into *Baddha Meda* (compact fat) relatively quickly.<sup>63</sup>

*Tikshna Guna* quickly affects the channels (*Srotas*), penetrating the tiniest cells of the vessels and clearing blockages caused by lipids.<sup>64</sup>

The bitter (*Tikta*) and pungent (*Katu*) tastes, along with their light (*Laghu*) and hot (*Ushna*) properties found in *Basti* ingredients, are highly beneficial for digesting toxins (*Ama Pachana*). These properties help restore digestive fire (*Agni*) at the tissue (*Dhatu*) level and eliminate excess *Kledaka Kapha*. *Tikta* and *Katu* tastes also act as reducers of excess moisture (*Kleda*) and fat (*Meda*).<sup>65,66</sup>

*Tikta* and *Kashaya* tastes possess scraping (*Lekhana*) properties that help remove excessive *Kapha* and fat (*Meda*) from the body's channels (*srotas*). Additionally, *Kashaya* taste also has the drying (*Shoshana*).<sup>67,68</sup>

The quality of lightness (*Laghu Guna*) acts to alleviate *Kapha*, decreases tissue mass (*Langhana*), and clears the body's channels (*Srotoshodhana*).<sup>69,70</sup> All substances are hot in potency (*Ushna in Virya*), which counteracts any increase in *Kapha* and fat (*Medas*) due to their dissolving property (*Vilayan*).<sup>71</sup>

### Effect of Nasya:

In the Treatment of obesity (*Sthaulya Chikitsa*), *Acharya Chakrapani* suggested the use of *Nasya Karma* with *Triphaladi Taila* as a corrective measure.<sup>72</sup> Therefore, this study aims to explore the role of *Nasya* in managing obesity. The *Triphaladi Taila* possesses *Ushana*, *Tikshana*, *Katu*, *Tikta* and *Kapha-Vata Shamaka* (pacifying) properties.<sup>73</sup> When administered through the nostrils, the potency of the drugs reaches the *Shringataka* (a vital point at the base of the nose) and spreads to the brain (*Murdha*), eyes (*Netra*), ears (*Shrota*), throat (*Kantha*), and the openings of the vessels (*Siramukhas*), thereby aiding in the expulsion of morbid *Doshas* from the body.<sup>74</sup>

### Conclusion:

The Essence of enrolled critical reviews of clinical study and pilot studies on *Sthaulya* can be concluded by suggesting the significance of therapeutic *Panchakarma* procedures such as *Vamana*, *Virechana*, *Basti* and *Nasya* along with *Udavartana*, *Abhyanga*. *Vamana* is the most



effective method for eliminating vitiated Kapha and the Medas (fat tissue), which serves as the dwelling place for Kapha. It helps remove excess moisture (*Kleda*) from the body, thereby aiding in weight reduction. Virechana is important among *Shodhana* therapies because it acts not only on Pitta but also on Kapha, Vata, and Meda. It clears blockages of Vayu in the gastrointestinal tract (*Koshta*) and corrects digestive imbalances (Agni Vaigunyata). Therefore, Virechana eliminates blockages of Vata, thereby rectifying its passage and promoting Vata

regulation (Vatanulomana). In Basti procedure, Lekhan Basti significantly reduces BMI, WHR, and weight, making it highly effective for *Medoghna* (fat-reducing) activity. In clinical findings, Lekhana Basti has been observed to be marginally more effective than *Madhutailik Basti* in reducing parameters associated with obesity (Sthaulya). *Triphaladi Taila Abhyanga* significantly reduces objective variables, while *Triphala Choorna Udvartana* significantly reduces subjective variables.

## Reference

- 1 Shastri K.N. Ashtoninditiya Sutra 21/4. In: Charaka Samhita of Agnivesha. Varanasi: Chaukhambha Bharti Academy; 2013. p.no.408.
- 2 Shastri K.N. Santarpaniya Sutra 23/6. In: Charaka Samhita of Agnivesha. Varanasi: Chaukhambha Bharti Academy; 2013. p.no.436.
- 3 Agnivesh, Charak, Dridhabala, Charaka Samhita: Edited with 'Charaka Chandrika' Hindi commentary by Dr. Brahmanand Tripathi, 5 Edition, Sutrasthan 20/17, Dr. Brahmanand Tripathi, 5 Edition, Sutrasthan 20/17, Chaukhambha Surbharati Prakashan, Varanasi, 1997, Vol-I, P.395.
- 4 Shastri K.N. Ashtoninditiya Sutra 21/3. In: Charaka Samhita of Agnivesha. Varanasi: Chaukhambha Bharti Academy; 2013. p.no.407.
- 5 Shastri K.N. Ashtoninditiya Sutra 21/9. In: Charaka Samhita of Agnivesha. Varanasi: Chaukhambha Bharti Academy; 2013. p.no.411.
- 6 Sushruta Samhita of Maharshi Sushruta, Edited by Dr. Ananta Ram Sharma, forwarded by Acharya Priyawat Sharma Sushruta Sutrasthan 15 Doshadhatumala KshayaVridhhi Vigyaniam Adhyaya, Shloka no 18 page no 122, Publishers-Chaukhamba Surbharati Prakashana.
- 7 Vagbhata's Ashtanga Hridayam translated by professor K.R Shrikant Murthy, volume 1, Ashtanga Hridaya sutrasthana doshadhavigyaniam Adhyaya 11, Shloka no 10 page no 157, publishers-Chaukhamba Krishnadas Academy Varanasi, Reprint 2018.
- 8 Yogaratnakar part 2, edited and translated by Dr. Ashakumari and Dr. Premavati Tiwari Medoroga Adhikara 40, Shloka no 3 page no 771, published by Chaukhamba Vishwabharti.
- 9 Dass RK, Panda PK. A comparative study of Vaman Karma and Lekhana Basti in the management of Sthaulya (obesity). Joinsysmed 2017, vol 5(3), pp 187-195.
- 10 Agnivesh, Charak, Dridhabala, Charaka Samhita: Edited with 'Charaka Chandrika' Hindi commentary by Edited with 'Charaka Chandrika' Hindi commentary by Dr. Brahmanand Tripathi, 5 Edition, Sutrasthan 16/20, Chaukhambha Surbharati Prakashan, Varanasi, 1997, Vol-I, P.323
- 11 National institute for health and clinical excellence. Clinical guideline 43: Obesity: The prevention, identification, assessment and management of overweight and obesity in adults and children. London, 2006.
- 12 Chandola H M. Lifestyle disorders: Ayurveda with lots of potential for prevention. AYU 2012; 33: 327.
- 13 Haslam DW, James WP "Obesity". Lancet (Review), 2005; 366(9492): 1197- 209. Doi: 10.1016/S0140-6736(05)67483-1. PMID 16198769
- 14 Singh Shavinder, et al. "Prevalence and Association of Physical Activity with Obesity: An Urban, Community- Based, Cross- Sectional Study." Indian journal of community medicine: official publication of Indian Association of Preventive & Social Medicine Year : 2015 | Volume : 40 | Issue : 2 | Page : 103-107
- 15 Last cited on available from, 2017; 15. <http://www.who.int/mediacentre/factsheets/fs311/en/>



- 
- 16 Antiwal M, Singh JP, Tiwari SK. Clinical evaluation of Lekhaniya Kashaya vasti in the management of Sthaulya(obesity).Ayu,2014;35;28-34.
  - 17 Amrutha Chaitanya, CH. Sadanandam. Role of Lekhana Vasti with Varaadi Kwatha in Sthaulya w. s. r to Obesity-A Pilot Study. Int. J. Ayur. Pharma Research. 2014;2(3):74-80.
  - 18 Dr Yogesh Deole. Clinical study on effect of Virechana karma in the management of over Weight And Obesity.Rasamrut,7;4 march 2015.
  - 19 Suple, Gaurav Sawarkar. A clinical study on the effect of Lekhana Basti (with & without katu taila) in the management of sthauilya with refrence to obesity. Int. J Res Ayurveda Pharm 2015;6(2):238-240.
  - 20 Rajan Munzni, Santosh kumar bhatted , Chetan M. Gulhane, Swapnil auti. Clinical study to evaluate the effect of the Vaman karma, Virechana karma and udvartana in the management of Sthaulya W.s.r to obesity.Rajan et .al/IJIPSR/4(2), 2016,174-188
  - 21 Palak purohit , Rajdip Rao, K.S.Patel. effect of Guduchi Bhadramustadi Basti in Sthaulya (Obesity). Pharmascience monitor 8 (4), OCT-DEC 2017.
  - 22 Dass RK, Panda PK. A comparative study of Vaman Karma and Lekhana Basti in the management of Sthaulya (obesity). Joinsysmed 2017, vol 5(3), pp 187-195.
  - 23Tabassum, Uma A. Patil. A Comparative Clinical Study of Triphaladi Taila Abhyanga and Triphala Choorna Udhvartana in the management of Sthaulya. J Ayurveda Integr Med Sci 2018;2:15-22.
  - 24Dr. Rajan N. M., Dr. Santosh Kumar Bhatted. Effect of Virechana Karma on Sthaulya w.s.r. to Obesity. J Ayurveda Integr Med Sci 2019;4:27-32.
  - 25Sarvesh Kumar Singh , Preeti Swami b, Kshipra Rajoria. Effect of medicated enema and nasal drop using triphaldi oil in the management of obesity A-pilot study. Journal of Ayurveda and Integrative Medicine 11 (2020) 173-176.
  - 26Shweta Parwe, Manju Mohan, Piyush Bhagwat, Milind Nisargandha , Effect of Rodhradi Gana Udavartana in the Management of Sthaulya (Overweight) with Special Reference to Obesity.(2021).Int. J. Life Sci. Pharma Res.11(3), L30-37.
  - 27 Shweta Parwe, Poonam Ashtankar, Piyush Bhagwat and Milind Nisargandha, Study the Efficacy of Rodhradigana Vasti in the Management of Sthaulya (Overweight) 33(34B): 158-166, 2021; Article no.JPRI.70576.
  - 28 Amiya Bhonsle, Shweta Parwe, and Milind Nisargandha, A Comparative Study to Evaluate the Efficacy of Lekhana Basti and Modified Vachadi Gana Basti in Combination with Navaka Guggulu in Sthaulya Obesity) -A Study Protocol. 33(30A): 154-161, 2021; Article no.JPRI.68567
  - 29Ritu Wadhwa, Shraddha Umesh Nayak, Nimisha Patel and Hina Alim, Clinical study to evaluate the efficacy of Pippalyadi basti and Lekhan basti in the management of obesity. Annals of Phytomedicine 11(1): 260-265, 2022.
  - 30 Ankit Dabas, Arun Gupta ,Swati,Mansi, Comparative study to evaluate the efficacy of Madhutailik Basti in comparison to Lekhana Basti in the management of Sthaulya (Obesity). Journal of Ayurveda and Integrated Medical Sciences | October 2023 | Vol. 8 | Issue 10.
  - 31 Kaviraja Atrideva Gupta & Vaidya Yadunandana Upadhyaya editor. Vidyotini Hindi Commentary on Ashtanga Hridayam of Vagbhata, Sutrasthana, chapter 16, verse no.37, 13th edition, Varanasi; Choukhambha Sanskrit Sansthan; 2014: 251.
  - 32 YadavajiTrikamaji, editor. Commentary-Ayurveda Deepika of Chakrapani on Charaka Samhita of Charaka, Sutrasthana, chapter 21, verse no.21, Reprint 2014 edition, New Delhi; Chaukhambha Publications; 2014:117.
  - 33Sharma N. Int J Med Sci Diagn Res. 2018;30:2(6).
  - 34 Ryan TJ. Structure and function of lymphatics. J Invest Dermatol. 1989;93(2);Suppl:18S-24S. doi: 10.1111/1523-1747.ep12580899. PMID 2666518.
  - 35 Mund J, Dwivedi R. Role of Udvartan Chikitsa and Navak Gugullu in obesity: A case study. J Mol Pharm Regul Aff. 2019;2(1):01-5. doi: 10.5281/zenodo.3522674.
  - 36 Comparative Clinical Study of Triphaladi Taila Abhyanga and Triphala Choorna Udhvartana in the management of Sthaulya. J Ayurveda Integr Med Sci 2018;2:15-22.



- 
- 37 Pandit MA, Ojha SN. Clinical evaluation of Guduchyadi Yoga and its combination with Udvartana by Haritaki in the management of Sthaulya with special reference to obesity. Pharm BiolSciences. 2013;1.
- 38 Yadavaji Trikamaji, editor. Commentary-Ayurveda Deepika of Chakrapani on Charaka Samhita of Charaka, Sutrasthana, chapter 13, verse no.44-46, Reprint 2014 edition, New Delhi; Chaukhambha Publications; 2014:84.
- 39 Kaviraj Ambika Dutta Shastri, editor. Sushruth Samhita of Sushruth, Chikitsasthana, chapter 31, verse no.16, Reprint 2015 edition, Varanasi: Choukhambha Sanskrit Sansthan.2015:510. 5.
- 40 Kaviraj Ambika Dutta Shastri, editor. Sushruth Samhita of Sushruth, Sutrasthana, chapter 45, verse no.112, Reprint 2015 edition, Varanasi: Choukhambha Sanskrit Sansthan.2015:205.
- 41 Comparative Clinical Study of Triphaladi Taila Abhyanga and Triphala Choorna Udhvartana in the management of Sthaulya. J Ayurveda Integr Med Sci 2018;2:15-22.
- 42 Yadavaji trikamaji editor Commentory- ayurveda Deepika of chakrapani on Charaka Samhita of Charka, Sutrasthan chapter .21, Verse no 17, reprint 2014 edition, Newdelhi, chaukhmambha publication ;2014;2017.
- 43Kaviraj Atrideva Gupta & Vaidya Yadunandana Upadhyaya editor. Commentory: Vidyotini hindi on Ashtang sangraha of Vagbhata, sutrasthan, chapter 26, Verse no.8 13th edition , Varanasi; chaukhamba Sanskrit sansthan,2014:251.
- 44 Brahma Shankara Mishra, editor. Commentary: Vidyotini Hindi on Bhavaprakasha of Bhava Mishra, chapter 29, verse no.70, 9th edition, Varanasi; Chaukhambha Sanskrit Sansthan; 1999:306.
- 45 Kaviraj Ambika Dutta Shastri, editor, Sushurth Samhit ,Chikitsa Sthan, chapter 33, Verse no. 18 reprint 2015 edition , Varanasi; chaukhamba Sanskrit sansthan 2015:518.
- 46 Shivprasad Sharma , editor Commentry Shasilekha of indu on Ashtang Sangrah of Vagbhatt, Sutrasthan chapter, 19 Verse no.13 1st edition Varanasi, chaukhambha Sanskrit Series, 1991:150.
- 47 Yadav Trikamaji, editor Commentary: Ayurveda Deepika of chakrapani on charaka Sahinta of Charaka, sutrasthan chapter 25, verse no 40, Reprint 2014 edition Newdelhi , Chaukhambha publications,2014 ;132.
- 48 Rajan N. Munzni, Santoshkumar Bhatted,Chetan M. Gulhane, Swapnil Auti. Clinical Study to evaluate the effect of vamana karma,Virechana karma,Udvartana in the management of Sthaulya w.s.r to Obesity. Rajan et.al / IJIPSR / 4 (2), 2016, 174-188 ISSN (online) 2347-2154.
- 49 Dr. Brahmanand Tripathi and Dr. Ganga Sahay Pandey editor, Agnivesha, "Charak Samhita", with Charak Chandrika Hindi commentary, Sutra Sthana Chapter 23, Verse 8 Chaukhamba Surbharti Prakashan, 2007.page No. 421
- 50 Chakradatta, Jagadish Prasad Tripathi, editor. Commentary: Bhavarthsandipani on Chakradatta of Chakrapanidatta, Kalpa sthana, chapter 71, verse no. 4, 13th edition, Varanasi; Choukhambha Sanskrit Sansthan;2014,p.603.
- 51Sushruta, 'Sushruta Samhita' with 'Nibandha Sangrha ' commentary by Dallhanacharya, edited by Vaidya Jadavaji Trikamaji Acharya and Narayana Rama Aachrya, ,eigth edition, Chaukhamba Orientalia, post box. no. 1032, Gopal Mandir Lane, Varanasi -221001, (India) Sutra sthana 15/32. Pp.73.
- 52 Agnivesha ,'Charaka Samhita', revised by Charaka and Dridhbala with 'Ayurveda Dipika' commentary,by Chakrapanidatta, edited by Vaidya Jadavaji Trikamaji Acharya Krishnadas Academy, Gopal Mandir Lane,Varanasi - 221 001, (India), reprint 2000. Sutra sthana 28/15 pp.179.
- 53 Agnivesha ,'Charaka Samhita', revised by Charaka and Dridhbala with 'Ayurveda Dipika' commentary,by Chakrapanidatta, edited by Vaidya Jadavaji Trikamaji Acharya Krishnadas Academy, Gopal Mandir Lane,Varanasi - 221 001, (India), reprint 2000. Siddhi sthana 1/17 pp.680.
- 54 Dr.Yogesh Deole. Clinical study on effect of Virechana Karma [Purgation therapy] in management of Overweight and Obesity. Rasamruta , 7:4 March, 2015
- 55 YadavajiTrikamaji editor. Commentary: Ayurveda Deepika of Chakrapani on Charaka Samhita of Charaka, Siddhisthana, chapter 10, verse no.17, Reprint 2014 edition, New Delhi; Chaukhambha Publications; 2014:725.
- 56 Kaviraj Ambika Dutta Shastri editor. Sushruth Samhita of Sushruth, Chikitsasthana, chapter 41, verse no.10, Reprint 2015 edition, Varanasi: Choukhambha Sanskrit Sansthan.2015:179.



- 
- 57 Kaviraj Ambika Dutta shastri Editor. *Susshruta Sahita Chikitsasthan Chapter 38*, Reprint 2020 edition, Varanasi Chaukhambha Sanskrit sansthan 2020:214
- 58 Murthy KRS. *Niruhabasti Vidhi Uttarakhand 6/21*. In: *Sharangdar Samhita by Sharangadhara*. Varanasi: Chaukhambha Orientalia; 2017. p.no.218
- 59 Antiwal M, Singh JP, Tiwari SK. Clinical evaluation of Lekhaniya Kashaya Vasti in the management of Sthaulya (obesity). *Ayu*2014;35:28-34.
- 60 Antiwal M, Singh JP, Tiwari SK. Clinical evaluation of Lekhaniya Kashaya Vasti in the management of Sthaulya (obesity). *Ayu*2014;35:28-34.
- 61 Sharma PV. *Dravya Guna Vijnana*. Maulik Sidhanta, Vol. I. 1st ed., Reprint. Varanasi: Chaukhambha Bharti Academy; 2003. pp. 140-1.
- 62 Ibidem. *Dravya Guna Vijnana*. Maulik Sidhanta. pp. 180.
- 63 Bhavaprakash, Bhavaprakash Nighantu, Dhanya Varga, 63-65, Commentary (Hindi) by Chunekar KC. In: Pandey GS, 1sted., reprint. Chaukhamba Vidyabhavan, Varanasi, 2003; 639.
- 64 Sharma PV. *Dravya Guna Vijnana*. Maulik Sidhanta, Vol. I, 1st ed., Reprint. Varanasi: Chaukhambha Bharti Academy; 2003. pp. 145.
- 65 Ibidem. *Charaka Samhita, Sutra Sthana, Annapanavidhi Adhyaya*, 26/44; 505.
- 66 Vagbhata. *Astanga Hridayam, Sutra Sthana, Rasavidhi Adhyaya*, 10/15, Vidyodinihindi commentary with Commentary by Kaviraj Atrideva Gupta, Upadhyay Vaidya Yadunandan, 3rd ed. Chowkhambha Prakashan, Varanasi, 2006; 83.
- 67 Agnivaesha, *Charaka, Dridhabala. Charaka Samhita, Sutra Sthana, Annapanavidhi Adhyaya*, 26/45, Hindi Commentary by Shastri K, Chaturvedi GN. 1st ed., Reprint. Chaukhambha Bharati Academy, Varanasi 2003; 506.
- 68 Sushruta, *Sushruta Samhita, Sutra Sthana, Rasavisheshavigyaniya Adhyaya*, 42/8-11, *Sushruta Vimarshini-Hindi Commentary* by Ananta Ram Sharma, 1st ed., Reprint. Chowkhambha Surbharati Prakashan, Varanasi, 2004; 328.
- 69 Ibidem. *Charaka Samhita, Sutra Sthana, Annapanavidhi Adhyaya*, 26/44; 505.
- 70 Sharangdhara, *Sharangadhara Samhita, Bhaishajyavyakhya*, 2/16, English translation by Murthy, Srikantha KR, 6th ed. Chowkhambha Orientalia, Varanasi, 2006; 112.
- 71 Sushruta, *Sushruta Samhita, Sutra Sthana, Rasavisheshavigyaniya Adhyaya*, 42/8-11, *Sushruta Vimarshini-Hindi Commentary* by Ananta Ram Sharma, 1st ed., Reprint. Chowkhambha Surbharati Prakashan, Varanasi, 2004; 328.
- 72 Datta C. *Sthaulyadhikara.in Chakradatta*. 2010th Edition. Varanasi Chaukhambha p.223
- 73 Sarvesh Kumar Singh a, Preeti Swami b, Kshipra Rajoria. Effects of medicated enema and nasal drops using Triphaladi oil in the management of obesity - A pilot study *Journal of Ayurveda and Integrative Medicine* 11 (2020) 173e176.
- 74 Kaviraja Gupta A. Hindi commentary, *Ashtanga Sangraha, Sutrasthana 29/3vol. 1*. Varanasi: Chaukhamba Krishanadas Academy; 2005. p. 216.