



## Review Article

www.ijrap.net



### MANAGEMENT OF STHAULYA (OBESITY) THROUGH KUNJAL KRIYA

Kanchan Chowdhury<sup>1\*</sup>, Nilanjan Datta<sup>2</sup>, Mangalagowri V. Rao<sup>3</sup>

<sup>1</sup>SSR, Dept. of Swasthavritta and Yoga, Faculty of Ayurveda, IMS, Banaras Hindu University, Varanasi, India

<sup>2</sup>Medical Officer (Ayurveda), Agartala, Tripura

<sup>3</sup>Assistant Professor, Dept. of Swasthavritta and Yoga, Faculty of Ayurveda, IMS, Banaras Hindu University, Varanasi, India

Received on: 29/05/13 Revised on: 27/06/13 Accepted on: 12/07/13

#### \*Corresponding author

E-mail: dr.kanchan.chowdhury@gmail.com

DOI: 10.7897/2277-4343.04430

Published by Moksha Publishing House. Website www.mokshaph.com

All rights reserved.

#### ABSTRACT

In modern sedentary society, obesity (Sthaulya) is the most hazardous factor which is the main underlying cause of life threatening disease like Diabetes Mellitus, Atherosclerosis, Cardio vascular disease etc. The accumulation of excess body fat, not simply excess weight that can be muscle or fat, is called obesity. Adipocytes show an adaptation to starvation, in exercise energetic and in the immune defense against pathogens. Excessive accumulation of adipocyte is the result of sustained positive energy balance in abdomen, leading to chronic inflammation. The highly palatable foods with hidden fats and sugar can cause metabolic syndrome and obesity. Ayurveda and Yoga are the collection of principles of life that took birth with the world itself and is not liable to changes at anytime and anywhere. Both Shastras have mentioned purificatory processes to maintain healthy life. The purification through Shatkarma (also known as Shatkriya like Dhauti, Basti, Neti, Tratak, Lauliki and Kapalbhathi) is mentioned first in Hath Yoga Pradipika and Kunjal Kriya is one of them. Kunjal is a type of Antardhauti, also known by the name "Gajakarani". Kunjal Kriya alleviates the Kapha Doshha and increased Medo Dhatu in obese individuals and controls the Sthaulya.

**Keywords:** Obesity, Sthaulya, Kunjal Kriya, Gajakarani.

#### INTRODUCTION

Sthaulya (Obesity) is one among the major diseases of Modern era. Produced due to changing life styles and environment, accompanied with faulty diet which lead to many diseases and Obesity is one of them. Obesity is a result of the Modern age of Machines and Materialism. The industrialization, stress during the work, lack of exercise and various varieties of the daily diet e.g. fast food, freeze fruits, increased amount of soft drinks and beverages, canned foods result into the clinical entity called as Obesity. Obesity is acquiring more attention of scientists at global level. Many institutions and Medical schools are making efforts to find a perfect remedy for this burning problem. The Obesity is a physical state where Hypertension, Osteoarthritis, Diabetes Mellitus, Cardio Vascular accidents, impotency and many other grave complications frequently converge. The long term dangers of Obesity are like a sword hanging over one's head tied in a weak thread which can strike at any time and create numerous difficulties and boundless miseries.

#### Problem Statement

According to the Center for Disease Control and Prevention (CDC), more than 72 million adults are obese and no state has an obesity rate less than 15 % - the national goal. Among U.S. adults, obesity has ballooned exponentially from forty-six percent to sixty-four percent of the population between 1980 and 2000.

#### Vyutpatti (Etymology) of Word Sthaulya

The word Sthaulya is delivered from root "Sthu" with suffix "Ach", which stands probably for thick or solid or strong or big or bulky. According to Vachaspathyam, the word Sthaulya means heaviness of the body.<sup>1</sup> According

to Amarakosha, it stands for excessive growth of the body.<sup>2</sup> As per Hemachandra, Sthaulya indicates the state of over nutrition of body or dullness of intellect. According to Kautilya, the word "Sthulata" means largeness or bigness or bulkiness or stoutness of body.

#### Nirukti of Sthaulya

A person having heaviness and bulkiness of the body due to extensive growth especially in Udaradi region is termed as "Sthula" and the state (Bhava) of Sthula is called "Sthaulya".<sup>3</sup>

#### Paribhasha of Sthaulya

Atisthula 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 increase bulk is not matched by a corresponding increase in energy".<sup>4</sup> Sthaulya can be correlated to obesity. Excess deposition of adipose tissue is obesity. A body weight 20 % or more than the desirable weight for age, sex and height is regarded as obesity. A recent National Institute of Health consensus conference defined obesity as BMI > 27 kg / m<sup>2</sup>. Now a day's obesity is defined as BMI > 25 kg / m<sup>2</sup>.

$$\text{BMI} = \text{Actual weight in kg.} / (\text{Height in meter})^2$$

According to Parks, obesity may be defined as an abnormal growth of the adipose tissue. It is in three ways

- Enlargement of fat cell in size i.e. Hypertrophic obesity.
- Increase in the number of fat cell i.e. Hyperplastic obesity.
- A combination of both.

Hence, the modern terminology obesity can be used satisfactorily for the disease Sthaulya.

### Nidana (Causative Factors) of Sthaulya

Several etiological factors of Sthaulya related to different aspects of life that affect the body from outside and inside are described in Samhitas. The hereditary (Bija Dosha), dietetic, regimen and psychological factors cause Sthaulya as per Charaka Samhita.<sup>5</sup> These are mostly of exogenous type and vitiate Vata, Meda and Sleshma resulting is Sthaulya. Dhatwagni-mandya is the main cause besides other components in etio-pathology of Sthaulya according to Vagbhata.<sup>6</sup> All the causative factors described in Ayurvedic classics can be classified into four groups:

#### Aharatmaka Nidana

Atibhojana (Overeating), Guru Aharasevana (Consumption of heavy food), Madhura Aharasevana (Sweet food), Sheeta Aharasevana (Consumption of cold diet), Snigdha Aharasevana (Consumption of unctuous food), Navanna Sevana (Usage of fresh grains), Nava Madhyasevana (Usage of fresh alcoholic preparation), Gramya Rasa sevana (Usage of domestic animal's meat and soups), Paya Vikara Sevana (Usage of milk and its preparations), Dadhi Sevana (Use of curd), Sarpi Sevana (Use of ghee), Sleshmala Aharasevana (Kapha increasing food), Ikshu Sevana (Usage of sugarcane), Guda Vikara Sevana (Usage of Jaggery preparations), Mamsa Sevana (Use of meat), Shali sevana (Use of rice), Masha Sevana (Use of black gram), Godhuma Sevana (Use of wheat), Audak Rasa Sevana (Usages of aquatic animal's meat and soups).

#### Viharatmaka Nidana

Avyayama (Not exercising), Avyavaya (Avoiding sex), Divaswapa (Day sleep), Sukha Shaiya (Comfortable bed), Snana Sevana (Bathing), Gandhamalyanu Sevana (Anointment with fragrant unctuous and wearing of garlands), Swapna Prasangat (Excessive sleep)

#### Manas Nidana

Harshanityavat (Always in the state of happiness), Achintan (Devoid of worries), Manasonivritti (Relaxed state of mind), Priyadarshana (Meeting with loved ones), Saukhyena (Good health)

#### Anyana Nidana

Amarasa (improperly digested Rasa), Snigdha-Madhura Basti (Sweet unctuous enema), Tail abhyanga (Oil Massage), Snigdha udvartana (Unctuous Udvartana), Bijadoshasvabhavat (Hereditary)

The causes of obesity are distributed in three main groups according to modern medicine.

**Exogenous:** Where the chief causes are excessive appetite or over eating, dietary habits, drinking habits and smoking.

**Endogenous:** Where endocrine factors are important.

**Miscellaneous:** A number of factors are known to be associated with obesity like age, sex, occupation, socioeconomic factors, psychogenic factor, environment factors, constitution, drugs, hypothalamic trauma, physical activity, caloric balance and heredity.

### Purvarupa of Sthaulya

The Purvarupa of Sthaulya is not mentioned in our classics. As per general principles of Charaka, the weak manifestation of Rupa should be considered as Purva rupa of the concerned disease.<sup>7</sup> Based on this view, features of Kapha vriddhi like Alasya, Angashaithilya, Madhurasyata, Atinidra, Atipipasa etc. may be considered as Purvarupa.

### Rupa of Sthaulya Roga

Acharya Charaka has described 8 specific Rupas which are as follows:<sup>8</sup>

**Table 1: Rupa of Sthaulya**

|   |
|---|
| 1. Aayushohrasa (Decreasing life span)  |
| 2. Javoparodha (Slowness in movement)   |
| 3. Kricchavyavayata (Difficulty in sex) |
| 4. Daurbalya (Weakness)                 |
| 5. Daurghandhyam (Bad odour)            |
| 6. Svedabadha (Excessive sweating)      |
| 7. Kshudatimatra (Excessive hunger)     |
| 8. Atipipasa (Excessive thirst)         |

According to different Acharyas, Rupas of Sthaulya are Chala Sphika (Excess fat on buttocks), Chala Udara (Excess fat on abdomen), Chala Stana (Excess fat on chest), Ayatha Upachaya (Disproportionate body), Anutsaha (Lack of enthusiasm), Kshudra shwasa (Dyspnoea), Nidradhikya (Excessive sleep), Gatrasada (Numbness of limbs), Gadgadadhvani (Slurred speech), Krathana (Sudden catch of breath), Alpaprana (Less energy), Sarvakriyasu Asamarthata (Incapable of doing any work), Alpavyavaya (Lack of sexual urge), Kasa (Cough), Shvasa (Asthma), Snigdhangata (Unctuousness in body), Udaraparshva vriddhi (Excess accumulation on abdomen and chest), Alasya (Laziness), Ama, Moha (Delusion), Saukumarata (Cannot sustain difficulty), Anga saithilya (Looseness in parts) and Albabala (Lack of power).<sup>9</sup>

### Signs of Obesity

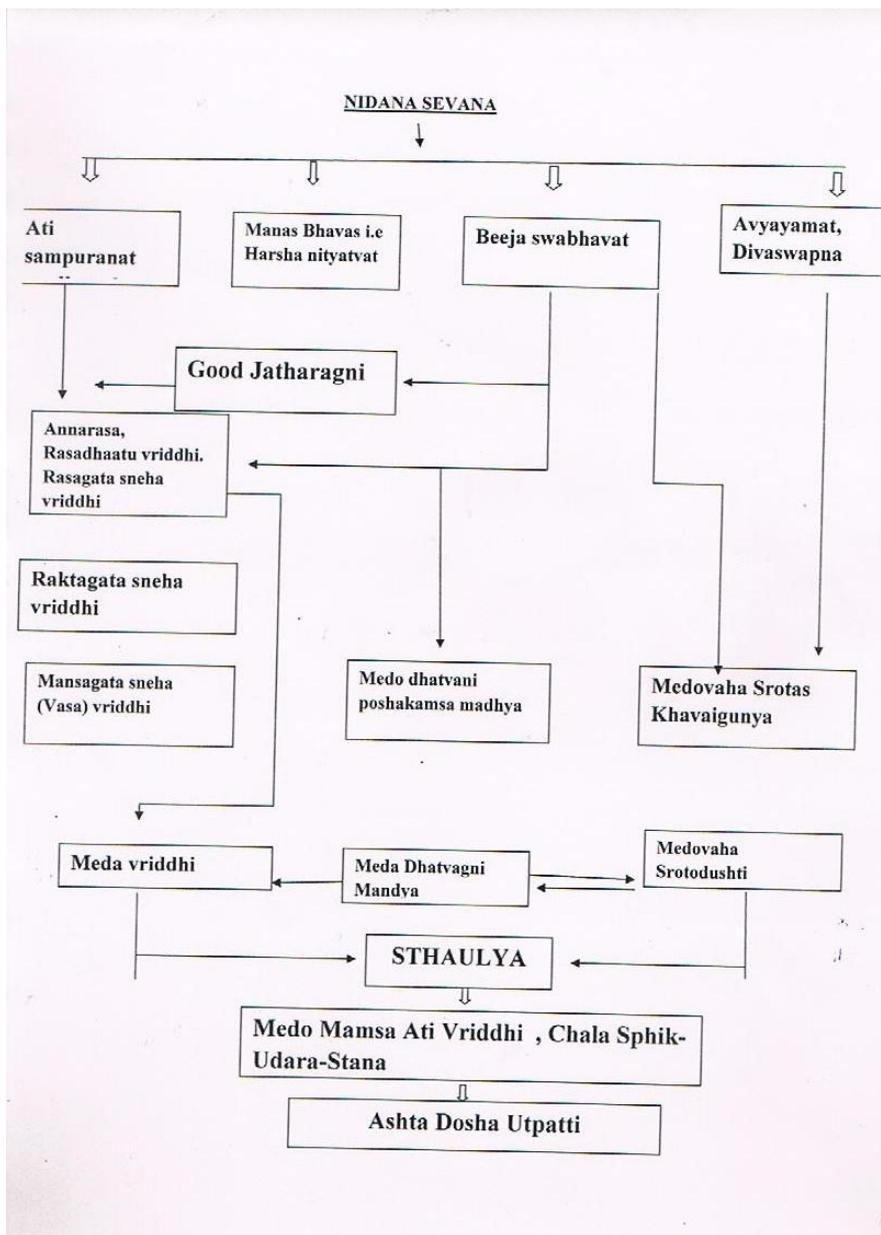
- Weight – 20 % increased above desired weight.
- B.M.I. – above 30 in males and above 28.6 in females are called obese.
- Skin fold thickness – Obesity is indicated by a reading above 20 mm in a man, and above 28 mm in a woman.
- Waist hip ratio – When W.H.R. is above 1.0 in males and above 0.8 in females, the type of obesity is android; i.e. man pattern obesity and when W.H.R. is below this it suggest ganoids type i.e. female pattern obesity.
- In obese person possibility of fungal infection is greater in the skin fold areas.
- In fatty women menstrual disturbance and sterility is also observed.

**Symptoms of Obesity**

General lassitude, day time hypersomnolism and dyspnoea on exertion are the symptoms of obesity.

**Samprapti of Sthaulya**

The whole process of the manifestation of disease is being given diagrammatic form.



**Pathogenesis of Obesity**

Obesity is a state of excessive accumulation of adipose tissue; it is difficult to draw sharp demarcating line between the physiological and pathological states. Obese individuals have an increase in number and / or size of adipose cells which suggests hyperplasia and / or hypertrophy of adipocytes either due to functional demand in particular age or sex or due to increase in energy intake or decrease in energy expenditure influenced by hypothalamic, genetic, endocrine, behavioral, psychological or iatrogenic component. Adult onset obesity is predominantly characterized by adipose cell hypertrophy with minimum hyperplasia. Apart from

the increase in size of normal depots like the subcutaneous tissue the omentum retroperitoneal tissues and epicardium and adipose tissue, the fat may get deposited in the tissues, where it is normally absent. Excessive lipid deposition, diminished lipid mobilization and diminished, lipid utilization are the three main components in pathogenesis of Obesity.

**Samprapti Ghataka of Sthaulya Roga**

The following factors play an important role in Samprapti of Sthaulya-

**Table 2: Samprapti ghatakas of Sthaulya**

|               |  |
|---------------|--|
| Dosha:        | Kapha - Kledaka<br>Pitta - Pachaka<br>Vata - Samana, Vyana                     |
| Dushya:       | Rasa, Meda Dhatu   |
| Agni:         | Jatharagni Tivrata<br>Parthiva, Apya Bhutagni<br>Rasa and Meda Dhatvagni       |
| Ama:          | Dhatvagni Mandyajanita Ama   |
| Srotas:       | Medovaha Srotas  |
| Srotodusti:   | Sanga<br>Margavarodha <sup>10</sup><br>Ama Annarasa Atipravritti <sup>11</sup> |
| Adhithana:    | Whole Body<br>Particularly Vapavahana and Medo Dharan<br>Kala                  |
| Udbhavasthana | Amashaya   |
| Prasara:      | Rasayani   |
| Roga marga:   | Bahya  |
| Vyaktisthana: | Sarvanga Specifically Sphik, Udara, Stana<br>and Gala.                         |

**Classification of Sthaulya**

The classification is essential for diagnosis, prognosis and easy management of disease but no clear classification of Sthaulya is found in the classics. In Astanga Hridaya and Astanga Sangraha three types of Sthaulya i.e. Adhika, Madhya and Hina have been mentioned in the context of indications of Langhana upakrama.<sup>12</sup> As per Charaka and Susruta, Vaman is contraindicated in AtiSthaulya.<sup>13,14</sup>

Charaka: Sthula

Atisthula

Sushruta: Sthaulya

Medoroga

**Vagbhatas classification can be correlated with modern in the following way-**

**Table 3: Classification of Sthaulya**

|  |  |
|--|--|
| <b>1.Hina Sthaulya</b><br>(Over weight)              | -BMI 25 to 29.90 Kg / m <sup>2</sup><br>-Without any complications or secondary diseases with less than four undesirable effects.<br>-Duration of less than 1 year.                |
| <b>2.Madhyam Sthaulya</b><br>(Obesity Class 1 and 2) | -BMI - 30 to 34.99 kg / m <sup>2</sup><br>-With least complications without any secondary diseases.<br>-With less than 8 undesirable effects.<br>-Within duration of 1 to 5 years. |
| <b>3.Ati Sthaulya</b><br>(Severe or morbid obese)    | -BMI > 40 kg / m <sup>2</sup><br>-With systemic complications or secondary disease.<br>-With all eight undesirable effects.<br>-With more than 5 years duration.                   |

**Upadrava of Sthaulya**

Even though Acharya Charaka has not described the Upadravas separately, he mentions that untreated Sthaulya can lead to many diseases. Other Acharyas also have mentioned different complications like Prameha (Diabetes), Pramehapidika (Carbuncles), Jvara (Fever), Bhagandara (Fistula), Vidradhi (Abscess), Vatavikara (Diseases due to Vata dosha), Udara roga (Ascitis), Urustambha (Stiffness of thigh), Shwasa (Asthma), Apachi (Tumour), Kasa (Cough), Sanyasa (Coma), Kushtha (Skin disorders), Visarpa (Erysipelas), Atisara (Diarrhoea), Arsha (Piles), Shlipada (Filariasis), Kamala

(Jaundice), Mutrakricchra (Dysurea) and Ajirna (Indigestion).<sup>15</sup> According to modern, three most potent risk factors for coronary artery diseases are hypertension, adult onset diabetes, and hyper-lipidaemia. They are more prevalent among the obese than slim objects. A common problem in obesity is impaired glucose tolerance and fasting hyperglycemia. Obesity is associated with marked resistance to the action of insulin, increasing insulin requirements and resulting in hyper insulinism. Further these conditions are markedly improved by weight reduction, suggesting that obesity plays a role in their genesis. Obesity may produce orthopedic disturbances like low back-pain, osteo-arthritis of knees and ankles and often huge calluses on feet and neck. Obesity adversely affects morbidity and mortality through cardiovascular complications. It varies more or less in proportion to the degree of obesity. Sudden death is also more common in obese patients.

**Sadhya – Asadhyata (Prognosis) of Sthaulya**

Sahaja Sthaulya is considered incurable. Charaka has also emphasized that the treatment of Sthaulya is more difficult than Karshya.<sup>16</sup> As per modern, the prognosis is poor, if untreated it tends to progress. It is easy for an obese person to loose up to 5 kg of weight, (this accounts for temporary success of numerous popular slimming cures) it is difficult to achieve further losses. The studies in many clinics have shown that it is difficult for the patients to maintain their reduced weight. Since this requires some restriction of energy intake on a long term basis.

**Pathya Ahara**

- **Shuka dhanya (Cereals)** - Yava (Barley), Venuyava (Bamboo seed), Kodrava (Kodo millet), Nivara (Wild rice), Jurna (Jowar)
- **Shami dhanya (Pulses)** - Mudga (Green gram), Rajmasha (Cow pea), Adhaki (Pigeon pea), Kulattha (Horse gram), Chanaka (Bengal gram), Masura (Lentil)
- **Shaka Varga (Vegetables)** - Vruntak (Brinjal), Patrashaka (Leafy vegetable), Patola (Snake gourd)
- **Phala Varga (Fruits)** - Kapitha (Wood apple), Jamun (Jambu fruit), Amalaki (Indian gooseberry), Ushnodaka (Luke warm water), Til Tail (Sesame oil), Sarshap Tail (Mustard oil), Arishtha (Alcoholic preparation), Asava (Wine), Jirnmandya (Old alcoholic drink), Rohit Matsya (Rohu fish)

**Apathya Ahara**

- **Shuka dhanya (Cerels)** - Navanna (Newly harvested grains), Shali (Rice)
- **Shami dhanya (Pulses)** -Masha (Black gram)
- **Drava Dravya (Liquids)** - Dugdha (Milk), Ikshu (Sugar cane), Navnita (Butter), Ghrita (Ghee), Dadhi (Curd), Anupa (Meat soup of animals living in marshy places), Audaka (Meat soup of aquatic animals),

Gramya (Domestic animals)

### Pathya-Apathya Vihara

Table 4: Pathya- Apathya in Sthaulya

| Pathya                              | Apathya                              |
|-------------------------------------|--------------------------------------|
| Shrama (Labour)                     | Sheetala Jala Snana<br>(Cold bath)   |
| Jagarana (Night awakening)          | Divaswapa (Day sleep)                |
| Vyavaya (Intercourse)               | Avyayama (Not exercising)            |
| Nitya Bhramana<br>(Regular walking) | Avyavaya (Avoiding sex)              |
| Chintana<br>(Worry)                 | Svapna Prasanga<br>(Excessive sleep) |
| Shoka<br>(Grief)                    | Sukha Shaiya<br>(Comfortable bed)    |
| Krodha (Anger)                      | Nityaharsha (Always happy)           |
|                                     | Achintana (No worries)               |

### Sthaulya Chikitsa

Actions which bring the equilibrium of Dhatus, constitute the treatment of diseases. According to Charaka, "Chikitsa" aims not only at the radical removal of the causative factors of the disease, but also at the restoration of the Doshik equilibrium".<sup>17</sup> The first line of treatment for Sthaulya is to avoid the causative factors of Sthaulya. Nitya Langhana therapy and Langhana even in Shishira Ritu is advised for the patients of Sthaulya by Vagbhata<sup>18</sup>. The types of Langhana therapy i.e. Vamana, Virechana etc. are advised for practice according to Vyadhibala and Dehabala by Charaka<sup>19</sup>. Amongst Shadvidha Upakramas, Langhana and Rukshana therapies are more suitable for the management of Sthaulya. Langhana, the line of treatment for Sthaulya is divided into Samshodhana and Samshamana<sup>20</sup>. Shodhana Chikitsa expels the vitiated Doshas from the body and maintains the equilibrium state<sup>21</sup>. Body should be trained by seven means (Sapta Sadhana) like Shodhana, Drihata, Sthairya, Dharya, Laghav, Pratyaksha and Nirlipta. Among these seven

means Shatkarma is essential for Shodhana, asana for Dridhata, Mudra for Sthairya, Pratyahara for Dhairya, Pranayam for Laghuta, Dhyana for direct perception of Dhyeya and Samadhi for Nirliptata. Shatkarma (Dhauti, Vasti, Neti, Lauliki, Tratak and Kapalbhata) are meant for purification<sup>22,23</sup>. They should be practiced in the predominance of Medadhatu and Shleshma Dosha. Among Shatkarma Kunjal Kriya is included in Dhautikarma. It is also known as "Gajakarani" in Hatha Yoga Pradipika<sup>24</sup>. Kunjal Kriya is not a mere stomach cleansing procedure, apart from that, it also has systemic effects. Kunjal Karma has been considered as one of the best treatments for the Kaphaja disorders like Sthaulya.

### Etymology of Kunjal

The word, "Kunjal" is derived from the word "Kunjar". According to rule of nirukti 'r' is converted into 'l'. The word Kunjal is one of the synonyms of elephant as per different classic like Shabdakalpadruma, Amarakosha, Sanskrit Hindi Kosha etc.<sup>25-28</sup> The elephant drinks water by its trunk and again eliminates it by its trunk to maintain itself healthy. Similarly in the process of Kunjal the individual drinks water and eliminates it from the mouth. Hence this process is known as Kunjal Kriya. By the administration of this process the person can maintain his health.

### Process of Kunjal Kriya

- **Requirement:** Luke warm clean filtered water added with common salt should be taken.
- **Position:** Sit in Kagasana with the elbows fixed on knee joint.
- **Time:** Before sunrise but after evacuation of natural urges and taking a bath, Kunjal Kriya should be done.

### METHOD OF KUNJAR KRIYA:-

About six glasses of warm salty water are drunk to completely fill the stomach

either a squatting or a bent forward position

Three fingers (tarjani, madhyama and anamika) are used to

press the root of the tongue

Stimulate the vomiting reflex

This makes a quick and easy gushing out of the water held in the stomach

Jala Neti is then done to clear out the sinuses.

### Probable Mode of Action of Kunjal Kriya

Vagbhatacharya in Sutrasthana 14/21 suggests that the main aim for treatment of Sthaulya is to balance the aggravated Kapha, Vata and to reduce the increased Medo Dosh. This can be better achieved through Kunjal Kriya. In human body majority of diseases are caused by Ama Dusti. The process Kunjal mainly acts on Amashaya and Annava Srotas. Amashaya is the prime seat of Kapha and Annava Srotas. Kunjal neutralizes the acid balance in the stomach, thus helpful in counteracting Tivra Jatharagni. This helps in reducing the excessive hunger and thirst intern the obesity. Luke warm water pacifies Vata, salt helps in liquefaction of Achadit and Avalipt Dhatugata Ama. Dhatugata Ama is expelled and as a result Dhatvagnimandya homeostasis rectified, resulting in proper metabolic-process. On account of proper, logical and rational application of Kunjal, Samana Vayu in Amashaya regains its normal physiological power causing adequate Annavechana (assimilation) and Munchan (excretion). Hence the proper formation and expulsion of mala occurs with help of other Vayus. This ultimately causes a genesis of all Dhatus restricting excessive generation of Medo Dhatu.

### CONCLUSION

Sthaulya or obesity is a predominant metabolic disorder. Now a day's W.H.O. has undertaken obesity in 10 selected risks factors to the health in "The World Health Report - 2002". Sthaulya is a condition due to Medo-Dhatvagnimandya leading to excessive formation of Meda-Dhatu and improper formation of other Dhatus. "Kunjal kriya" is first mentioned in Hatha Yoga as a type of Antardhauti, which is also known as "Gajakarani". The process Kunjal mainly acts on Amashaya (prime seat of Kapha) and Annava Srotas. It rectifies Jatharagni and Dhatugata Ama gets expelled resulting in halting of pathogenesis of Sthaulya.

### REFERENCES

1. Shri Taranath Tarak Vaschaspati Bhattacharya, Vachaspatyam 6/5358, Chaukhambha Ayurved Pratishtan; Reprint; 2006.
2. Amarasimha With Commentary of Bhanuji Diksita, Amarkosha Nanartha Varga-204 Edited With Notes By MM Pandit Sivadatta Dadhimtha.
3. Mishra Bramhashankar. Bhavaprakasha Vidyotini Tika, Madhya Khanda 39, 11 edition, Varanasi, Chaukhambha Sanskrit Sansthan; 2004.
4. Vd HS Khushvaha. Agniveshakrita Charaka Samhita Sutrasthana 21/8-9, Varanasi, Chaukhambha Orientalia; 2009.
5. Yadavji Trikamji Acharya. Agniveshakrita Charaka Samhita Chakrapani Commentary, Sutrasthana 21/3, Varanasi, Chaukhambha Sanskrit Sansthan; 2009.

6. Prof KP Moorthy Srikanta. Ashtang Sangraha, Sutrasthana, 24/23 vol 1<sup>st</sup>, 6<sup>th</sup> edition, Varanasi, Chaukhambha Orientalia; 2002.
7. Vd HS Khushvaha. Agniveshakrita Charaka Samhita, Chikitsasthana 28/19 and 11/12, Varanasi, Chaukhambha Orientalia; 2009.
8. Shastri Rajeshwar Dutta et al editor, Agnivesha, Charak Samhita Sutrasthana 21/30, Published by chaukhambha Baharti Academy, reprinted; 2001.
9. Charaka Samhita Sutrasthana 21, Susruta Sutrasthana 15, Ashtang Hridaya 14, Ashtang Sangraha sutrasthana 24, Madhav Nidana 34, Bhava Prakasha madhya khanda-39, Yoga Ratnakara- Medo Roga nidana
10. Vd HS Khushvaha. Agniveshakrita Charaka Samhita, Sutrasthana 21/3-4, Varanasi, Chaukhambha Orientalia, 2009.11. Dalhana's commentary on Susruta Samhita, Nibandha Sangraha Vyakhya, Sutra Sthana 15/37, Varanasi, Chaukhambha Orientalia; 2007.
11. Prof KP Moorthy Srikanta. Ashtang Sangraha Sutrasthana 24/13-16, vol 1<sup>st</sup> 6<sup>th</sup> edition, Varanasi, Chaukhambha Orientalia; 2002, Ashtang Hridaya.Su.14/14 by Pandit Hari Sadashiva Shastri Paradakar, Chaukhambha Orientalia, Varanasi; 2002.
12. Vd HS Khushvaha. Agniveshakrita Charaka Samhita, Vimanasthana 2/8, Varanasi, Chaukhambha Orientalia; 2009.
13. Dalhana's commentary on Susruta Samhita, Nibandha Sangraha Vyakhya, Chikitsa Sthana, 33/14-18, Varanasi, Chaukhambha Orientalia; 2007.
14. Susruta Sutrasthana 15, Ashtanga Hridaya Sutrasthana 14, Bhavaprakash Madhya khanda 39, Madhava Nidana chapter 34, Yogaratnakar – Medoroga Nidana
15. Vd HS Khushvaha. Agniveshakrita Charaka Samhita, Sutrasthana 21, Varanasi, Chaukhambha Orientalia; 2009.
16. Vd HS Khushvaha. Agniveshakrita Charaka Samhita, Sutrasthana 9/5, Varanasi, Chaukhambha Orientalia; 2009.
17. Prof KP Moorthy Srikanta. Ashtanga Sangraha. Sutrasthana 24/13, Ashtang Hridaya Sutrasthana 14/13, vol 1<sup>st</sup>, 6<sup>th</sup> edition, Varanasi, Chaukhambha Orientalia; 2002.
18. Vd HS Khushvaha. Agniveshakrita Charaka Samhita, Sutrasthana 22/18, Varanasi, Chaukhambha Orientalia; 2009.
19. Prof KP Moorthy Srikanta. Ashtanga Sangraha Sutrasthana 24/13-16, vol 1<sup>st</sup>, 6<sup>th</sup> edition, Varanasi, Chaukhambha Orientalia; 2002.
20. Prof KP Moorthy Srikanta. Ashtanga Sangraha Sutrasthana 24/7, vol 1<sup>st</sup>, 6<sup>th</sup> edition, Varanasi. Chaukhambha Orientalia; 2002.
21. Dr Chamanlal Goutam. Gheranda Samhita 9-11, Bareli, Published By Sanskriti Samsthan; 1982.
22. Dr Chamanlal Goutam. Gheranda Samhita 12, Bareli, Published By Sanskriti Samsthan; 1982.
23. Dr Chamanlal Goutam. Hath Yoga Pradipika, Dwitiya Upadesh 38, Bareli, Published By Sanskriti Samsthan,
24. Shabdakalpadruma 2<sup>nd</sup> Part, Published By Nag Publishers.
25. Amarasimha With Commentary of Bhanuji Diksita, Amarkosh, Dwitiya Kanda Varga 8, Slok-34, Edited With Notes By MM Pandit Sivadatta Dadhimtha.
26. Sivasdas Aapte, Sanskrit Hindi kosh, Published by Motilal Banarasi Das; 1973. p. 28
27. Mukundilal Srivastava, Jnan Shabdakosh, Banaras Jnanmandal Limited; 1973.
28. Dheerendra Brahmachari, Yogic Sukshma Vyayam, New Delhi, Published by Dheerendra Yoga Publisher; 1980.

### Cite this article as:

Kanchan Chowdhury, Nilanjan Datta, Mangalagowri V. Rao. Management of Sthaulya (obesity) through Kunjal kriya. Int. J. Res. Ayurveda Pharm. 2013; 4(4): 599-604 <http://dx.doi.org/10.7897/2277-4343.04430>