



ROLE OF WATER BEFORE MEAL IN OVERWEIGHT PERSON-A CLINICAL STUDY

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ABSTRACT

The traditional text of Ayurveda mentioned Nindaniyapurush (despicable person) and Sthaulya (Obesity) is one of them. It is described as “Medoroga” (diseases of fat) in which excess fat accumulates in body. Sthaulya may results various adverse effects such as; Krichavyavayata (difficulty in spreading/movement), Swedadhikya (excess sweating), Mandotsaham (lack of enthusiasm) and Madhumeha (diabetes) etc. As per medical science and WHO if body mass index is 30 kg/m² or more then person considered as obese. There are various factors responsible for obesity; irregular life style is one of them. The ancient science of medicine described various Ahara-Vidhi (procedure of taking food) to acquire maximum beneficial effects of ingested food; drinking of water also comes under such Ahara-Vidhi, considering this aspect present investigation described role of water before meal in Sthaulya. Study strongly supports the ancient concept of Ayurveda that consumption of water before meal help significantly in Sthulvyakti (overweight person).

KEY-WORDS: Ayurveda, Sthaulya, Obesity, Medodhatu.

INTRODUCTION

Sthaulya described as disgraceful conditions by *Acharya Charaka*. Accumulation of *Meda* and *Mamsa* leads *Sthaulya* which is characterized as excessive growth of hips, abdomen and breast. The *Guna* (qualities) of *Medas* are *Snigdha* (viscous), *Sthula* (massive), *Guru* (heavy), *Picchila* (lubricous), *Mridu* (soft) and *Sandra* (viscous); while *Medodhatu* perform important vital functions like; *Sneha* (lubrication), *Drudhatva* (stiffness) and *Asthipushti* (nurture bones). Ayurveda mentioned that balance between *Medas* & *Dhatu*s help to restore compact body but excessive consumption of *Guru* (heavy), *Snigdha* (viscous) and *Madhuradi Ahara* (sweet diet) along with indiscipline life style increases disproportionately *Medas* & deprived *Dhatu*s; this misbalancing accountable for several serious consequences like; *Sthaulyam* as mentioned in **Figure 1**. As per modern science an increased intake of foods (fat, salt, and sugars) and decrease consumption of nutrients such as; vitamins and minerals may be considered as responsible factor of obesity along with decrease physical activity (irregular daily routines). The balance between consumed & utilized calories maintained overall body weight and when consumption of calories increased than those burned this resulted obesity. Obesity leads many other diseases like; cardiovascular disease, diabetes and blood pressure, etc.

Ayurveda believed that consumption of water before meal and after meal may leads *Karshya Sharira* & *Sthula*

Sharira respectively and prevention is better than cure; according to *Samhitas* a wise man should maintain body is called *Prashanshaniyapurush Madhyasharir* based on this fact present investigation was planned to explore significance of water before meal in *Sthulvyakti* (overweight) person to prevent *Sthaulya*.^[1-5]

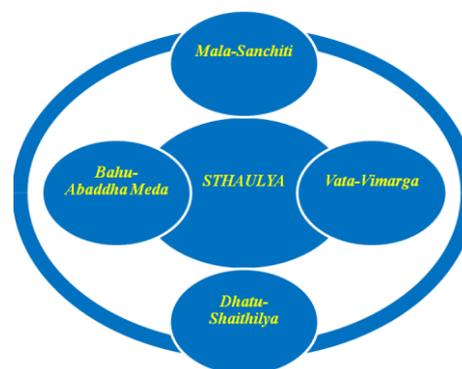


Figure 1. Ayurveda perspective of obesity.

MATERIAL AND METHODS

The presented investigation was performed at “Shri Ayurved Mahavidyalaya”, Nagpur, India.

Aim: To study the role of water before meal in overweight persons.

Selection of Subjects

Subjects were selected those are under regular investigation, wished to be fit and having no serious consequences of obesity.

Inclusion criteria

- Male female both.
- Age grouped between 20-40 years.
- BMI (Body Mass Index) more than 25 kg/m² to less than 30Kg/m²(According to WHO overweight BMI is 25 to 29 and obesity BMI is greater than or equal to 30).
- Waist more than 80 c.m. in female and 100 c.m. in male.

Exclusion criteria

- Patients possess obesity due to the consequences of other disease.

- Age groups below 20 year and more than 40 year.
- BMI less than 25 kg/m².
- Waist less than 80 c. m. in female and 100 c. m. in male.

Duration of Treatment & Follow up Period

Study carried out for 90 days. After screening of subjects according to inclusion criteria their weight was measured and BMI calculated. The size of chest and waist were also measured along with average body weight. Follow up taken after interval of 15 days, physical examination and symptomatic relief were observed after the period of 30 days.

Assessment Criteria

Following objective and subjective assessment criteria were adopted as mentioned in **Table 1** on the basis of intensity of symptoms associated with obesity.

Table 1. Assessment criteria and ranking of descriptive symptoms.

Selected Symptoms		
Weight, BMI, <i>Laghav</i> , <i>Sham-shwas</i> , <i>Swed-pravriddhi</i> , <i>Kshudh-pravriddhi</i> , <i>Pipasa</i> , etc.		
Assessment of obese condition based on above symptoms		
S. No.	Description	Rank
1	Sever intensity of obese symptoms	++++
2	Moderate intensity of obese symptoms	+++
3	Mild intensity of obese symptoms	++
4	Low intensity of obese symptoms	+

METHODOLOGY

Total 60 overweight persons were selected and studied for the designed experiments for 90 days. Written consents along with demographic information were taken from the patients. Patients were divided into two groups (30 in each group). Patients of experimental group were advised to follow design experiment (drinking of approx. 250 ml water before meal in morning and evening) while patients of control group were advised not to take water before meal.

CAUTIONS

- Patients were advised not to take impure, cold and hot water.
- Patients were also informed not to take water after meal for 1 hour.

Statistical test

For the assessment of the result by statistical analysis, paired t-test and sign test were applied. Paired t-test was used to analyze effect of treatment on individual parameters while sign test to analyze overall effect of treatment on each *Sthulvyakti*.

RESULTS AND DISCUSSION

The results of study suggested significant reduction in body weight & BMI after the treatment, however no significant changes were observed in overall circumferences, chest size and waist. *Laghav* (feeling of lightness) was observed along with reduction in *Guruta*

(heaviness). The BMI reduced significantly inpatients of treatment group with the 63 % of positive response (19subjectsout of 30). Study observed that most of patients reduced their weight by 1 Kg while average value of weight reduction was observed between 1-2.5 Kg. The feeling of immensity reduced 100 % which may be due to the fact that drinking of water before meal improves *Agni* & thus reduces *Meda*. Study suggested that drinking of pure water before meal significantly reduces *Kshudh-apravritti* (appetite) which is most common problem associated with obesity which may be due to the fact that drinking of water opens all the *Srotas* (channels) and natural physiological functions of body restored leads relief in *Kshudh-apravritti* (*Appetite*). Study also observed that the patients of experimental group acquired significant relief in symptoms such as; *Shram-shwas* (breathlessness after exertion) & *Swed-pravriddhi* (sweating) since reduction in *Meda* (fat) brings normal *Swasa* (normal breathing).

Present research investigation suggested that the female are more susceptible to be obese than male, obesity increases with age & stress. The study advised that lack of *Medo-agni* (fat digestion), increases *Medodhatu* which may cause obesity while drinking of water before meal improve *Medo-agni* (digestion of fat) which digest excess of *Meda* resulted relief in overweight person. Study also supports the fact of modern medical science that water consumption help in overall metabolism process including fat metabolism which leads compact

body structure. The results of investigation confirmed overall relief in symptoms associated with *Sthulata* as mentioned in **Table 2**.

Table 2. Results of study on selected parameters.

S. No.	Signs and symptoms	X	SD	SE	P	Inference				
1	BMI	0.721	0.442	0.082	< 0.001	Significant				
2	<i>Sham-shwas</i>	0.811	0.413	0.071	< 0.001	Significant				
3	<i>Swed- pravritti</i>	0.621	0.342	0.062	< 0.001	Significant				
4	<i>Kshudh-apravritti</i>	0.751	0.532	0.055	< 0.001	Significant				
5	<i>Pipasa</i>	0.812	0.553	0.067	< 0.001	Significant				
% Relief in Severity of Obese Symptoms										
S. No.	Signs and Symptoms	% of Patients Before Treatment			% of Patients After Treatment			% Relief		
		++	+++	++++	++	+++	++++	++	+++	++++
1	<i>Shram-shwas</i>	40	54	10	20	13	05	50	75	50
2	<i>Swed- pravritti</i>	34	60	15	30	33	05	12	45	67
3	<i>Kshudh-apravritti</i>	55	47	10	53	26	03	4	45	70
4	<i>Pipasa</i>	26	60	20	16	33	10	38	45	50
+ Low intensity of obese symptoms, ++ Mild intensity of obese symptoms +++ Moderate intensity of obese symptoms, ++++ Sever intensity of obese symptoms										

CONCLUSION

The traditional text of Ayurveda mentioned that consumption of water before *Ahara* (meal) help to reduce body fat and literature survey revealed that no previous investigation was performed to prove the same, considering this fact a research plane was designed in current experiment to investigate effect of water before meal in overweight persons. Total 60 patients were selected suffered with common mild to moderate symptoms of obesity, and investigated for the designed experiments for 90 days. The results of study suggested statistically significant reduction in body weight & BMI after the treatment. Study also observed overall relief in symptoms associated with obesity; thus current investigation proved the fact that drinking of water before meal along with rule of *Ahara-Vihara* help in symptoms of obesity in overweight persons.

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