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## RESEARCH ARTICLE

### AN OBSERVATIONAL STUDY BETWEEN MEDASAAR AND STHAULYA PURUSHA

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#### ABSTRACT

**Introduction:** A balanced or equilibrium condition of Dosha, Dhatu, Mala, agni and happy state of Atma, indrya, and Mana constitutes Swastha purusha. In this context Dhatu is an essential constituent of the body. In the course of Saptadhatus, Meda dhatu is the fourth dhatu of the body which is in semisolid form and lies in the free space of the muscle tissue, below the skin or a subcutaneous fat. As the saar is used to evaluate the status of the dhatu and satva in the body, the vishuddhameda dhatu expresses itself with certain characters in an individual. On the other side Sthaulya is the disorder of improper Meda dhatu metabolism. **Objectives:** This research is an attempt to assess the Medasaar purusha along with the Sthaulya purusha by the cardinal symptoms given in Samhita. Objective parameters and Anthropometric measurements to clear the doubts and confusion regarding the two states of Meda dhatu is done to form a standard criteria to establish the two healthy and diseased conditions of Meda dhatu. **Method:** The study was conducted on a sample of 60 individuals divided into two groups on the basis of BMI. For this purpose, the study was conducted after careful clinical history, examination and laboratory investigations as per proforma, volunteers were selected and screened for their suitability of getting enrolled as per specific inclusion and exclusion criteria. **Results:** In between Medasaar and Sthaulya purusha study various differences were found in the normal and diseased condition. There is significant difference in Anthropometric measurements, body fat percentage, visceral fat as well as muscle fat percentage. **Conclusion:** The results found were highly significant and further studies can be performed taking a large sample size so that more accurate results can be seen to prove the hypothesis and giving a standard criterion in understanding of Medasaar and Sthaulya.

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#### INTRODUCTION

Health as it is evident is an outcome of multifactorial, multilevel organism having a balanced state of consciousness, senses, mind and body. These factors continuously interact in different planes so as to produce different quantum and quality of magnitude of experiences, hence, the nonexistence of "dis" from the word disease will ultimately lead to a condition of ease. To approach this aim, Ayurveda has been there since ages and also emerging as a dominant tool creating favourable circumstances to increase the chance of benefits towards mankind by application of its scientific yet rational based basic principles.

In the course of Saptadhatus Meda Dhatu is the fourth dhatu of body which is in a semisolid form and lies in the free space of the muscle tissue, below the skin or as a subcutaneous fat. Acharya Charaka has propounded many clinical interpretations for assessing different attributes of the body. It includes ten multidimensional assessment parameters among which *Saar Pariksha* is one of the most reliable and practical examination for assessing the excellent status of Dhatu and *BalaPramana* of an individual. Saar is said to be the purest form of Dhatu or essence of dhatu which is expressed as Physical and Physio-psychological characteristics in an individual. As the Saar is used to evaluate the status of Dhatu and Satva in the body, the *Vishuddha Medadhatu* expresses itself in the form of physical characteristics like Vishesh Snigdhatva in Varna, Swara, Netra, etc. and the individual will be endowed with Aishwarya, Sukha etc. These factors differ from person to person as Saar has been categorized into Pravara, Assar, and Madhya on the basis of its

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characteristics. On caused by the excessive accumulation of Meda Dhatu owing to the derangement of Kapha Dosha. In modern the other hand, Sthaulya is the disorder of improper Meda dhatu metabolism. It is caused by ineffectiveness mobilization of fat from adipose tissue beyond physiological limits while synthesis and storage of fat continues normally.

**MATERIALS AND METHODS**

The ethical clearance for the study was obtained from the institutional ethical committee (No.IEC/AYM-021/2015). For clinical study a sample of 60 individuals were taken divided into two groups on the basis of Body Mass Index. In Group A healthy subjects who were not affected by any physical or mental disorders and whop came under the normal BMI i.e. 18-24.9 kg /m<sup>2</sup> have been taken for the assessment of Medasaar Purusha.

In Group B 30 subjects has been taken for Sthaulya who came under the BMI i.e. >25 kg/m<sup>2</sup>, grade 1 and grade2 obesity. An informed consent form was signed by all the subjects. The subjects were between the age group 16-60 years. The subjects below 16 years and above 60 years were excluded. The volunteers were selected from the OPD/IPD of State Ayurvedic College and Hospital, Lucknow. It is supposed to be Observational and Cross-Sectional study. Following parameters. The volunteers were selected on the basis of following parameters.

**Parameters Measured**

- Body Weight(Kg)
- Height(meters)
- BMI measurement (weight in kg/heightinmeters2)
- Waist Hip Ratio: W.H.R. i.e. >1.0 in men and > 0.85 in females which indicates abdominal fat accumulation.
- Body Fat analysis: It is done by body fayanalyser which indicates the total body fat composition in percentage along with skeletal muscle fat and visceral fat.

**INVESTIGATIONS**

- **Blood Examination:** Hb%, TLC, DLC, ESR, LFT (Liverfunctiontest) Bloodsugar (Fasting and Post Parential) (if required) Thyroid Profile (T3,T4,TSH,) (if required), Montoux test (if required).
- **Urine Examination:** Routine, Microscopic
- **Stool:** for Ova and cyst

**Criteria for Examination**

**Subjective Criteria:** For Medasaar Purusha, the subjective parameters given in different Samhitas were implied on subjects and they were assessed through a validated software tool “Ayusoft for Dhatusaartaparikshan”.

**Symptoms of Atisthaulya**

- Chalsphikudarstana (Pendulous buttocks, belly, and breasts)
- Javoprodha (Sluggishness in movement)
- Krichhavyavayata (difficulty in intercourse)
- Swedabadha (excessive sweating)

- Kshudhatimatram (excessive appetite)
- Daurbalyam (Weakness)
- Pipasatiyogam (excessive thirst)
- Daurgandhyam (Foul smell)

**Objective Criteria**

**1. BMI (Body Mass Index)**

BMI	WHO Classification	Description
<18.5 kg / m <sup>2</sup>	Underweight	Thin
18.5-24.9 kg /m <sup>2</sup>	-----	Healthy, Normal
25.0-29.9 kg /m <sup>2</sup>	Grade 1 overweight	Overweight
30.0-39.9 kg/m <sup>2</sup>	Grade 2 overweight	Obesity
≥ 40.0kg/m <sup>2</sup>	Grade 3 overweight	Morbid Obesity

B.M.I. = Weight (Kilogram)/metre2

**Waist Hip Ratio:** W.H.R. i.e. >1.0 in men and > 0.85 in females which indicates abdominal fat accumulation.

**Body Fat analysis:** It is done by body fay analyser which indicates the total body fat composition in percentage along with skeletal muscle fat and visceral fat.

**Observations**

**Subjective Parameters Observation:**

**Table 1. Distribution of Characteristics of Medasaar Group A**

Physical Characteristics	Yes	%	No	%
ViseshaSnigdhta				
Varna	25	83.3	5	16.7
Swara	23	76.7	7	23.3
Netra	16	53.3	14	46.7
Kesha	21	70.0	9	30.0
Lomkupa	21	70.0	9	30.0
Nakha	18	60.0	12	40.0
Danta	18	60.0	12	40.0
Ostha	19	63.3	11	36.7
Mutra	15	50.0	15	50.0
Purisha	19	63.3	11	36.7
Physical Appearance				
BrihatSharir		56.7	13	43.3
Physical Exertion				
AyasAsahishnuta		66.7	10	33.3

**Physio-psychological Characteristics**

Vitta	Yes	%	No	%
Vitta	16	53.3	14	46.6
Aishwarya	16	53.3	14	46.6
Sukha	18	60.0	12	40.0
Upbhog	17	56.7	13	43.3
Pradana	15	50.0	13	50.0
Arjava	20	66.7	10	33.3
Sukumara	22	73.3	8	26.7
Upcharta	15	50.0	15	50.0

**Table 2. Distribution of Sign and Symptoms in Group B (Sthaulyata)**

Sign and Symptoms	Yes	%	No	%
Chal Sphik Udar Stana	22	73.3	8	26.7
Javoprodha	19	63.3	11	36.7
Kricchavyavayata	12	40.0	18	60.0
Swedabadha	20	66.7	10	33.3
Kshudatimatram	21	70.0	9	30.0
Daurbalyam	19	63.3	11	36.6
Pipasatiyogam	17	56.7	13	43.3
Daurgandhyam	16	53.3	14	46.7

## Objective Parameters Observations

**Table no.1. Distribution of Age between the groups**

Age in years	Group B (n=30)			
	No.	%	No.	%
16-24	4	13.3	4	13.3
25- 33	15	50.0	3	10.0
34-43	7	23.3	13	43.3
44-53	3	10.0	9	30.0
54-60	1	3.3	1	3.3
Mean±SD	33.00±9.01		38.63±9.25	

**Table no.2: Distribution of Socioeconomic Status between the groups**

Socioeconomic Status	Group A (n=30)		Group B (n=30)	
	No	%	No	%
Lower middle	16	53.3	8	26.7
Upper middle	11	36.7	13	43.3
Upper	3	10.0	9	30.0

**Table No. 3. Comparison of Anthropometric parameters between the Groups**

Anthropometric Parameters	Group A	Group B	p-Value
Height in cms	164.06 ± 9.67	156.70 ± 8.59	0.003
Weight in kg	61.48 ± 7.37	78.53 ± 13.39	0.0001
BMI in kg/m <sup>2</sup>	22.43 ± 1.50	32.05 ± 3.75	0.0001
WHR			
Female	0.79 ± 0.05	0.89 ± 0.07	0.0001
Male	0.88 ± 0.11	0.99 ± 0.13	0.0001

**Table No 4. Comparison of Visceral Fat (%) between the Groups**

Gender	Group A	Group B	p-value
Male	7.38 ± 2.17	15.08 ± 3.52	0.0001
Female	6.89 ± 1.36	13.67 ± 3.86	0.0001

**Table No.5: Comparison of Muscle Fat (%) between the Groups**

Gender	Group A	Group B	p-value
Male	38.86 ± 4.01	34.73 ± 3.23	0.005
Female	33.99 ± 3.83	28.84 ± 2.56	0.0001

**Table No.6. Comparison of Lipid profile between the Groups**

Lipid Profile	Group A	Group B	p-value
Cholesterol	137.02 ± 17.94	204.55 ± 67.10	0.0001
TG	110.56 ± 12.43	159.67 ± 41.56	0.0001
HDL	48.79 ± 5.16	31.73 ± 3.94	0.0001
LDL	65.38 ± 8.19	131.26 ± 45.19	0.0001
VLDL	19.38 ± 2.34	31.78 ± 12.21	0.0001

## RESULTS

- In Group A mostly were males which belonged to lower middle class were not associated with any illness. In Group B mostly were females and belongs to upper middle class were normal and with associated illness.
- All subjective parameters in Group A assessed were above 50% with maximum VisheshSnigdhta in Varna in (83%) and Sukumarta was seen in (73.3%) which indicates Medasaarta was in MadhyamPramana in the subjects.

- The subjective Parameters of Group B assessed were above 50% with maximum ChalShhik, Udar, Stana (73.3%) which indicates Meda dhatu vriddhi.
- In Group A the mean height was 164.06 with SD± 9.67 where as in Group B the mean was 156.70 with SD± 8.59. In Group A the BMI was 22.34 with SD± 1.50 whereas in group B the mean was 32.05 with SD ± 3.75. There was significant (p<0.01) difference in height, weight and BMI between the groups.
- The Skeletal muscle fat was higher in Group A (38.86% in males, 33.99% in females) while it is found within normal range in Group B (34.73% in males and 28.84% in females).
- The main investigatory parameter lipid profile indicates that in Group A the levels of serum cholesterol (137.02mg/dl), Triglycerides (110.56mg/dl), were in normal range whereas in Group B Serum Cholesterol (204.55mg/dl) and Triglycerides (159.67mg/dl) were approximately borderline high.

## DISCUSSION

MedaDhatu is the Snehatmaka dhatu formed from Mamsa Dhatu having Guru, snigdha property mainly responsible for providing Snehana, Poshana, and Drivatva to the body. In Medasaar individual the Meda dhatu would be present in its purest form and show its excellence which could be spectacular, as the individual would be endowed with ViseshSnigdhta in Varna, Swara, Netra, Kेशha, Nakha, Loma. They have proportionate body and could not be able to perform strenuous work. It indicates the healthy state of dhatu. Sthaulya has been mentioned under the heading "Asthavirupa" in Veda and as a "Kaphananatmajavyadhi" by Acharya Charaka. According to the Ayurvedic principles, Sthaulya is a Medadushya dominant disorder and a syndromic entity.

In Group A, all the anthropometric measurement was in proportion to each other which indicates the Medasaar purusha though have Brihat Sharir but they would have proportionate body on the other hand, the data depicted that in Group B all the anthropometric measurements were disproportionate to each other. Hence in Sthaulya due to excess Meda dhatu. Visceral fat is an intraabdominal fat stored around the internal organs. On the basis of the data it is clear that Medasaar subjects would have normal visceral fat in comparison to the subjects of Sthaulya where the visceral fat exceeds the normal limits leading to abdominal adiposity causing morbidity in the form of several associated diseases. There was significant (p=0.0001) difference in all the lipid parameters between the groups. The above data revealed that subjects of Group A has a normal lipid profile while the subjects of Group B found with disturbed lipid profile. Triglycerides level may be due to its increase formation or release or due to decreased utilization. It was seen that certain triggering factors that showed mark differences in both groups like physical exercise in Group A while lack of exercise in Group B etc.

## Conclusion

The present research work correlates the classical facts with the present scenario by scientific studies and course of clinical investigations to frame a standard criterion for Medasaar and Sthaulya.

This study will frame a better pathway in understanding both healthy and diseased condition of Meda dhatu in relation to an individual respectively.

**Conflict of Interest:** Nil

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