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A Clinical Study On The Impact Of Ahara And Vihara In The Management Of Sthoulya (Obesity)

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Abstract: An individual who gauges over 20% of the fitting load of his age and tallness is thought of as fat. The main component which prompts corpulence is powerlessness to control ones want to appreciate and indulge delectable dishes with the end goal that energy input surpasses the result and the abundance is put away as fat or aggregation of fat an overabundance for great wellbeing. An individual having greatness and massiveness of the body because of broad development particularly in *Udaradi* area is named as "*Sthoola"* and this Bhava (province) of *Sthoolata* is called as *"Sthoulya"*. *Sthoulya* has been characterized as an individual who by virtue of the excessive increment of fat and tissue is recognized with pendulous rear end, tummy and bosoms and whose expanded mass isn't matched by a comparing expansion in energy. **Aims & Objectives:** To assess the impact of diet and lifestyle in Obesity. **Materials and Methods**: The study was conducted to assess the weight, BMI and Anthropometric Measurements in obesity among the people of ILKAL city, Karnataka. The 20 subjects were selected for the study and advised *Ahara* and *Vihara* for 60days. **Results:** This study showed a good improvement in the reduction of weight and other anthropometric measurements. **Conclusion:** Diet *(Ahara)* and lifestyle *(Vihara)* change had an enormous improvement in Obesity subjects.

Index Terms **-** Obesity, *Sthoulya*, BMI, Diet, Lifestyle.

INTRODUCTION

The reasonable and functional system of *Ayurveda* is wide to the point of including all that is fundamental for make a man sound and cheerful. It incorporates the investigation of good lead, *dharma*, every day and occasional routine with *Ahara* and Vihara diet which is important for the solid development of society wherein the man lives. Further, it manages the philosophical part of life, the information on which incredibly adds to the solace and joy of every single person. (1)

Ayurveda has two targets. One is support of soundness of solid and second is treatment of infected yet the special objective of *Ayurveda* is to advance wellbeing, save wellbeing and to reestablish wellbeing when it is weakened. The contemporary science likewise clarifies these perspectives under avoidance. (2)

Sthaulya (obesity) is considered as one among the *Ashta Nindita Purusha*.(3) The basic symptoms of *Sthaulya* are *Meda mamsa Ati vriddhi* (excessive accumulation of fat), *Chalasphika* (buttocks), *Chalaudara*(abdomen), *Chalastana*(chest/breast), *Ayathaopachaya* (asymmetric /uneven accumulation of fat) and *Anutsaha*(weakness).(4) And also the *Ashtadosha* (eight complications) of *sthoulya* is mentioned in *Ayurveda*.(5)

Obesity is an etiological factor in metabolic disorders. Prevalence of obesity is increasing with epidemic proportions in general Indian population with higher incidence rate amongst urban areas. Among non-transferable sicknesses, Obesity is a preventable infection and is supposed to be a significant danger factor for advancement of other non-transmittable illness. [6]

Ayurveda underscore erring on the nature of the food than that of amount. As to *Pathya Ahara* of *Sthoulya*, it ought to be remembered that at whatever point *Ahara kalpa* is to be given, it ought to be *Guru* and *Atarpana* diet are to be recommended for the obesity. To control the expanded *Vata* and *Agni* the heavy eating routine is fundamental and to diminish the *Meda* and *Kapha* the *Atarpana* diet or medication is essential. What's more another precautionary measure must be taken when individual is the moving from an *Apathya* to a *Pathya*. This ought to be stepwise; any other way *Asatmyajaroga* can influence the individual. [7,8]

AIMS & OBJECTIVES: To assess the impact of diet and lifestyle in Obesity.

MATERIALS AND METHODS

To assess the impact of Diet and Lifestyle in the management of obesity. Patients diagnosed as a case of obesity as per the inclusion criteria, Age between 20 to 40 years, BMI between 30 to 35 kg/m2, Subjects with irrespective of gender and religion were selected for the study, from the OPD of SVM Ayurveda Medical college and R.P.K Ayurvedic Hospital ILKAL, Karnataka.

SAMPLE SIZE: 20 Subjects

INCLUSION CRITERIA:

- BMI between 30 to 35 kg/m2
- Age between 20 to 40 years
- Subjects with irrespective of gender and religion

EXCLUSION CRITERIA:

- Suffering with Systemic disorders
- Who were not willing to give consent
- Pregnant women
- Undergone with surgeries

Table 1# GROUPING AND PROCEDURE

PARTICULARS	Trial/Study Group
Sample size	20
Intervention	Diet and lifestyle modifications as per the Schedule.
Procedure	Patients are advised to follow the diet and lifestyle as per the schedule for the duration of 60 days.
Assessment **On 1st and 60th day**	The values were compared before the treatment on 1st day and after the completion of treatment on 60th day to assess the improvement of weight reduction and anthropometric measurements.

ASSESSMENT CRITERIA:

- Weight
- BMI
- W/H Ratio
- Anthropometry measurements

Table 2# DIET SCHEDULE

TIME	DIET[9-15]
At 7:30 am	*Amla Siddha Jala* OR *Jeera Siddha Jala*
At 9am	*Ragi* malt OR *Ganji* (Ragi, Wheat, Jowar)
At 1pm	Yava Chapati OR *Ragi* roti OR Phulka OR Jowar roti OR *Methi* paratha without oil Sabji like Brinjal, Bitter gourd, Beans, Drumstick with pulses such as Chickpea*(Chanaka)*, Green gram*(Mudga)*, Horse gram*(Kulatha)* thin dal OR Rasam Rice (unpolished red/brown rice) Thin buttermilk(without fat)
At 4pm	Vegetable salad(Raw/boiled) – Cucumber, Carrot, Cabbage, Cauliflower with little salt OR Tomato/Carrot Soup OR Kokum Juice OR Lemon Juice OR Fruits salad Apple/Pineapple/Orange/Pomegranate/Kiwi/Muskmelon
At 7pm	Yava Chapati OR Ragi roti OR Phulkas OR Jowar roti OR *Methi* Paratha without oil, thin dal OR Upma, Thin Buttermilk (without fat)

Table 3# LIFESTYLE MODIFICATION: 1 Hour/day

Brisk Walk	40 min
Warm up or loosening exercises	20 min

SCHEDULE OF THE RESEARCH WORK

The written consent is taken from the obese patients before starting the treatment. Before advising to follow the Diet & lifestyle modifications as per the schedule given and data is collected. After advising the Diet and Lifestyle, the weight, BMI and anthropometric measurements is assessed on 60^{th} day of the study.

STATISTICAL ANALYSIS

Statistical Package for the social science (SPSS) version was used for the data analysis. Paired t-test was used to analyze the significance of change in objective parameters normally distributed. The obtained results were interpreted as

Significant (S): $P < 0.05$ or $P < 0.01$

Highly significant: $P \leq 0.001$.

OBSERVATIONS:

In this study, majority of the subjects were between 21 to 25 years of age (55%), 18% were between 26 to 30 years of age, 15% were between 31 to 35 years of age, and 12% were between 36 to 40 years of age. The study comprised 15 (75%) females and 5 (25%) males.

Hindus were 15 (75%), 3 (15%) were Jain and 2 (10%) were Muslim. Majority of the subjects were unmarried 16 (80%) and 4 (20%) were married.

Education wise distribution shows that the Majority of the subjects were undergraduates 10 (50%), 6 (30%) had higher secondary education, 2 (10%) had primary education and 2 (10%) were postgraduates. Majority of the subjects were of upper middle-class background 12 (60%), 5 (25%) were rich class and 3 (15%) were middle class. Occupation wise distribution shows 14 (70%) were with sedentary lifestyle, 4 (20%) were student and 2 (10%) were housewife.

Subjects with Sound sleep were 16 (80%) and 4 (20%) were of disturbed sleep. Diet wise distribution shows that the majority of the subjects were of Mixed diet 18 (90%) and only 2 (10%) were of Vegetarian diet

Prakruti was distribution shows that 15 (75%) were of *Vata Kapha* and 5 (25%) were of *Pitta Kapha*. *Agni* wise distribution shows that majority of the subjects were of *Teekshnagni* 15 (75%), 3 (15%) were *samagni* and 2 (10%) were of *mandagni*.

Maximum patients of 13 (65%) were having BMI between 33 to 35 kg/m2 and 7 (35%) were having BMI between 30 to 32.9 kg/m2.

RESULTS: The results are obtained based on objective parameters.

TABLE 4# EFFECT OF DIET AND LIFESTYLE ON OBESITY

Variables	Interval	Mean	SD	SE	t	P	%	Remarks
Weight (Kg)	Pre	76.16	4.79	0.65	22.276	0.000	4.62	Sig
	Post	72.64	4.74	0.64				
BMI (Body Mass Index)	Pre	33.12	1.36	0.18	22.016	0.000	4.62	Sig
	Post	31.59	1.39	0.19				
Waist Circumference	Pre	96.78	5.65	0.76	18.762	0.000	2.91	Sig
	Post	93.96	5.58	0.75				
Hip Circumference	Pre	100.07	6.36	0.86	21.376	0.000	1.93	Sig
	Post	98.15	6.44	0.87				
W/H Ratio (Waist Hip Ratio)	Pre	0.97	0.02	0.00	1.632	0.109	0.22	NS
	Post	0.96	0.02	0.00				
Abdomen Circumference	Pre	102.02	6.02	0.81	21.579	0.000	2.17	Sig
	Post	99.80	6.13	0.83				
Mid Arm Circumference (Right)	Pre	29.65	1.60	0.22	18.086	0.000	6.81	Sig
	Post	27.64	1.97	0.27				
Mid Arm Circumference (Left)	Pre	29.62	1.65	0.22	15.494	0.000	5.83	Sig
	Post	27.89	1.94	0.26				
Mid-Thigh Circumference (Right)	Pre	49.53	2.04	0.28	19.744	0.000	3.93	Sig
	Post	47.58	2.19	0.30				
Mid-Thigh Circumference (Left)	Pre	49.24	2.05	0.28	15.170	0.000	3.40	Sig
	Post	47.56	2.17	0.29				

Abbreviations: NS, Not significant; S, Significant; SD, standard deviation; SE, Standard error; t, Student's t-test.

It was observed that after adopting the Diet and Lifestyle modification as per the schedule, there was a feeling of lightness in the body and along with that there was good improvement in the reduction in the signs and symptoms of obesity, with an average reduction of 4–6 kilogram. After adopting the advised diet and lifestyle changes, there was a decrease in the body weight by 4.62%, 4.62% in BMI, Waist circumference reduced by 2.91%, 1.93% reduction on Hip circumference, waist hip ratio was reduced by 0.22%, mid-arm circumference right by 6.81% & Left by 5.83%, mid-thigh circumference right was reduced by 3.93% & left by3.43% which were statistically Significant at P value <0.01, but only waist hip ratio was reduced by 0.22% which showed not significant.

PROBABLE MODE OF ACTION:

On *Ahara* (Diet): Appropriate *Ahara*(diet) assumes a significant part in counteraction of *Sthoulya*. *Ahara* has the properties like *vatahara, medahara, lekhana* and so forth *Ati santarpana* is one of the primary causes for *Sthoulya*. The *dravya* which right the *medadhatu agni*, they will help in lessens the expanded *meda* dhatu. In *sthoulya medadhatu* is one of the significant foundations for *samprapti* of *sthoulya*.[16]

Examination of *ahara* in *rasa* (taste) obviously shows that *Katu* (pungent) rasa is shown in *medoroga* and it decreases the *kapha, kleda* and *meda* by *its laghu, ushna* and *ruksha guna. Tikta* (bitter) *rasa* additionally has *ruksha* and *laghu guna* with *kledahara* and *medososhana* property. *Kashaya* (astringent) *rasa* balances the pitta and kapha dosha and evaporates the *kleda* and *meda* due to its *laghu* and *ruksha guna*. So *tikta, katu, kashaya rasa* are demonstrated in *sthoulya*.[17]

On *Vihara* (Physical exercise): *Vyayama* (exercise) has mentioned in *Dinacharya* to keep oneself healthy which gives lightness, stimulates the digestive power, *meda kshaya* (eliminates the fat), desire to do work. Everyday exercise is encouraged to defeat the obesity since practice of exercise breaks down the fatty acids During exercise activation of the unsaturated fat happens from the fat tissues is expanded and these free unsaturated fats are moved to the muscle mitochondria for oxidation. Some review displayed to further develop body creation (eg. through diminished stomach adiposity and further developed weight control). [18]

DISCUSSION:

This study was conducted to assess the improvement in the reduction of weight and Anthropometric Measurements in obesity conducted among the people of ILKAL city, Karnataka. The 20 subjects were selected for the study and advised *Ahara* and *Vihara* for 60 days.

In this study, I have selected the age group between 20 to 40 in light of the fact that the personal practices past diet (active work, rest, stationery and screen time, and stress) have likewise been freely connected with weight change and support in adulthood. Systemic disorders are common among above the age group of 40 years. The rate of thyroid dysfunction, PCOD, Menstrual abnormality, Premenopausal conditions are more common among the female above 40yrs of age.

The Diet plan depends on the impact of *Medohara, Kaphahara,* advances *Deepana, Paachana, guru atarpaka,* reduces the glucose level, low calories, high fiber, decreases the cholesterol level, rich in protein. The portion is settled upon the arrival of informing the eating regimen on the grounds that the amount regarding the individual depends on the *Agni bala*.

In objective parameters It is observed that after adopting the Diet and Lifestyle modification as per the schedule, there was a feeling of lightness in the body and alongside that there was great improvement in the decrease in the signs and symptoms of obesity (BT-AT) with a decrease of 4.62 % in weight, 4.62% in BMI is and also the other parameters like waist circumference, Hip circumference, mid-arm circumference, mid-thigh circumference were statistically significant at P value <0.001 and waist hip ratio showed not significant.

CONCLUSION:

Diet (*Ahara*) and way of life (*Vihara*) change had a huge enhancement for Quality of life in Obesity subjects. One ought to stay away from the *nidana(*cause) of *sthoulya*(obesity) in beginning phase of confusion. Have the food which is light to process and non-supporting with lesser calories and more filaments. Keep away from the Junk food sources/Bakery items which are high in calories. Follow the appropriate eating routine arrangement alongside a portion of the actual activities as per the condition by which one can lead their life solid and cheerfully.

Ayurvedic diet plan was viewed as more viable in diminishing the anthropometrical measurements. Further examination with long haul follow-up will decide if improvement proceeds long-term and works on personal satisfaction.

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