

ASSESSMENT OF THE EFFICACY OF SPECIFIC YOGASANAS IN MANAGEMENT OF STHAULYA

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Article Received on
15 August 2021,

Revised on 06 Sept. 2021,
Accepted on 27 Sept. 2021

DOI: 10.20959/wjpr202112-21931

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ABSTRACT

Clinical trial on 116 patients was carried out to study the efficacy of *specific asanas* on the patients of Sthaulya. The effect of Yogasanas, Diet, Lifestyle and Diet, Lifestyle in the groups A & B respectively was assessed on the basis of criteria designed for assessment. The observations were recorded periodically in case record form for 60 days. Observations were recorded on the basis of before and after treatment and results were statistically analysed by using paired and unpaired t test in objective criteria and with the help of Wilcoxon Signed Ranks Test and Mann Whitney in subjective criteria.

KEYWORDS: Sthaulya, Yogasanas, Obesity.

INTRODUCTION

Sthaulya (obesity) is one of the major metabolic disorder of modern era. In modern era with continuous changing lifestyle & environment, changing diet habits, man has become the victim of many diseases caused by unwholesome dietary habits & obesity is one of them. According to Ayurveda, Sthaulya is defined as a condition in which there is an accumulation of excessive amount of meda in sphik, stana and udarapradesha, which can be co-related to obesity. Sthaulya is widely regarded as a pandemic with potential consequences for human health. Obesity is basically a lifestyle disorder. As BMI increases, the life longevity/expectancy decreases.^[1]

Commonly obesity is due to excessive eating and lack of adequate exercise. Acharya Charaka has quoted a Sthaulya under the eight varieties of impediments which designated as Astha-Nindita Purusha, Ati-Sthaulya comprises one of them (Ch. Su. 21/2). Acharya Charaka also lists this problem under Samtarpanajanita Vyadhi (Ch. Su. 23). He listed eight defects underlying- Sthaulya Purusha, Ayuharsa, Javoprodha, Alpa-vyavayita, Daurbalya, Daurgandhya, Swedabadha, Ati-trisha, Ati-kshudha (Ch. Su. 21/3).

AIM: To study the efficacy of selected Yogasanas in Sthaulya.

OBJECTIVES

- To review literature and research done on yogasanas in sthaulya.
- To study the effect of Yogasanas on weight and associated symptoms of sthaulya.
- To study the effect of the selected Yogasanas on overall improvement in health of the sthaulya patients.

MATERIALS AND METHODS

Selection of Cases: The study recruited a population of 116 clinically diagnosed patients of Sthaulya selected from O.P.D. unit of. Department of Swasthavritta Tarachand Hospital Pune, Maharashtra, India. A regular record of the assessment of all patients was maintained according to form prepared for the purpose. Following inclusion and exclusion criteria were used for registration of the patients for present clinical trial. Ethical clearance from ethical committee was taken regarding synopsis from TAMV, Pune

Inclusion criteria

- Age between 30 yrs to 50 yrs.
- Patients were included irrespective of sex and economical status.
- Diagnosed cases of Sthaulya were included.
- Standard height and weight chart, BMI were considered. BMI exceeded than 30% were included.

Exclusion criteria

- Age below 30yrs and above 50 yrs.
- Pregnant women were excluded.
- Patient with severe illness.
- Patient suffering from any other systemic disorder were excluded.

- Patient with secondary causes of Sthaulya were excluded.
- Those having a history of active sports training, yoga practice was excluded.
- Patient with secondary causes of Sthaulya were excluded.

STANDARD OPERATIVE PROCEDURE (SOP)

1. Subjects were divided in two groups in Group A and Group B.

Group A – Diet, lifestyle, Yogasanas

Group B – Diet, lifestyle

2. Session started with

- Omkara (5 to 10 sec – 5 times)
- Conditioning Exercises –(5 counts each)
- Yogic postures along with yogic breathing (1/2 to 1 min each)

All the following were performed for minimum 5 counts to one's capacity.

Asanas selected were: Pashchimottasana, Pawanmuktasana, Bhujangasana, Hastapadasana

Case control form was specially prepared for observation and follow ups of the subjects at 15 days interval for 60 days. Follow up was done periodically for total duration of 60 Days on 15th, 30th, 45th, 60th day.

Criteria for assessment

The following criteria were used to evaluate improvement.

Subjective parameters

Relevance of symptoms were graded as.

- **Daurbalya (General weakness)**

0	No feeling of weakness.
1	feeling of weakness at moderate exertion.
2	Feeling of weakness at day to day work.
3	Always feeling of fatigue or weakness without physical exertion.

- **Daurgandhya**

0	No foul body smell.
1	Occasional foul body smell.
2	Always foul body smell.
3	Always foul body smell to person near physical contact.

- **Swedabadha**

0	Normal sweda.
1	Perspiration in all seasons at physical exertion.
2	perspiration in all seasons at day to day work.
3	Excess perspiration in all seasons on physical exertion.

- **Kshudhatimatra**

0	Normal Kshudha.
1	Mild increase in daily food intake.
2	Moderate increase in daily food intake.
3	Double the food intake compared to normal daily intake

- **Pipasatimatra**

0	Normal pipasa
1	Mild increase in daily water intake.
2	Moderate increase in daily water intake.
3	Double the water intake compared to normal daily intake.

OBJECTIVE PARAMETERS

- **Body weight** measurement. ISI mark weighing machine.
- **BMI:** Standing height was measured BMI calculation (Quetelet's index) wt. in kg / (Ht. in meters).
- **Waist Circumference:** Measured in mid-point between lower border of ribcage and iliac Crest in cm.

OBSERVATIONS AND RESULTS

In the present study 116 patients were studied. After completion of the clinical study, observations in Sthaulya. were recorded in the form of charts and tables. Observations related to age, sex, diet, occupation, marital status, education were recorded as follows. It was observed that 50.84% of patients were from 30 to 40 years age group, 47.45% patients from 40 to 50 years age group. Male patients were registered for study i.e. 47.45% and female patients were 50.84% In the present study 50.86% were of mixed diet group and 25.86% were of vegetarian diet group. So maximum numbers of patients were from "mixed diet" group. Out of 116 patients, major patients were service duty person i.e. 42.24% followed by 34.48% of Students and housewives of 34.48% and 10.33% farmer. Obesity was found maximum in-service person. It is observed that married persons were 87.06% and unmarried were 12.93%, which show that obesity more prone to married person rather than unmarried.

It is observed that 38.79% subjects were graduate, 24.13% were school, and 37.06% were post graduate.

The results were drawn with the help of paired and unpaired t test in objective criteria and with the help of Wilcoxon Signed Ranks Test and Mann Whitney in subjective criteria.

The effect of selected Yogasanas was good on Weight, B.M.I, hip circumference, WHR Ratio

A. Effect of Diet and Yogasanas on Weight

Table 1: Effect of Diet and Yogasanas on Weight.

Weight(Kg)	Day-0		Day-60		Paired T	P
	Mean	Sd	Mean	Sd		
Group-A	78.76	11.54	75.561	11.38	19.84	<0.001 HS
Group-B	76.29	7.223	75.388	7.2189	9.333	<0.001 HS

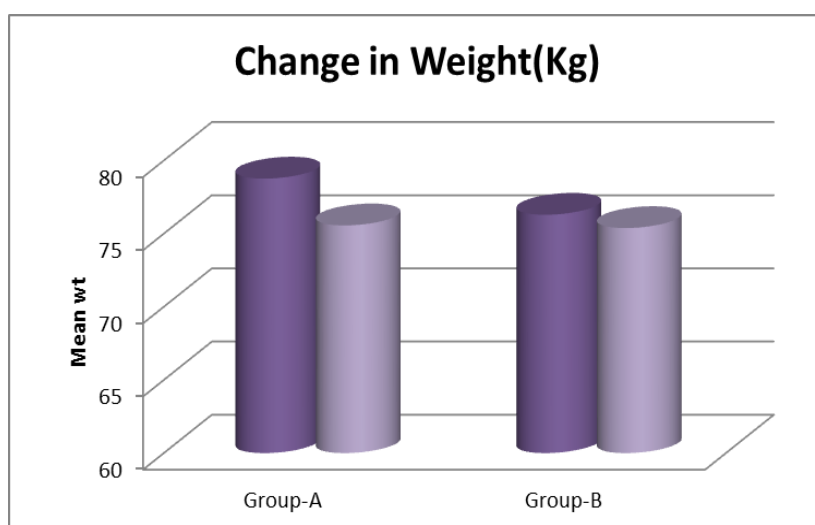


Chart 1: Effect of Diet and Yogasanas Weight.

B. Effect of Diet and Yogasanas on BMI

Table 2: Effect of Diet and Yogasanas on BMI.

BMI	Day-0		Day-60		Paired T	P
	Mean	Sd	Mean	Sd		
Group-A	30.75	2.23	29.50	2.25	18.41	<0.001 HS
Group-B	29.86	1.43	29.50	1.49	7.054	<0.001 HS

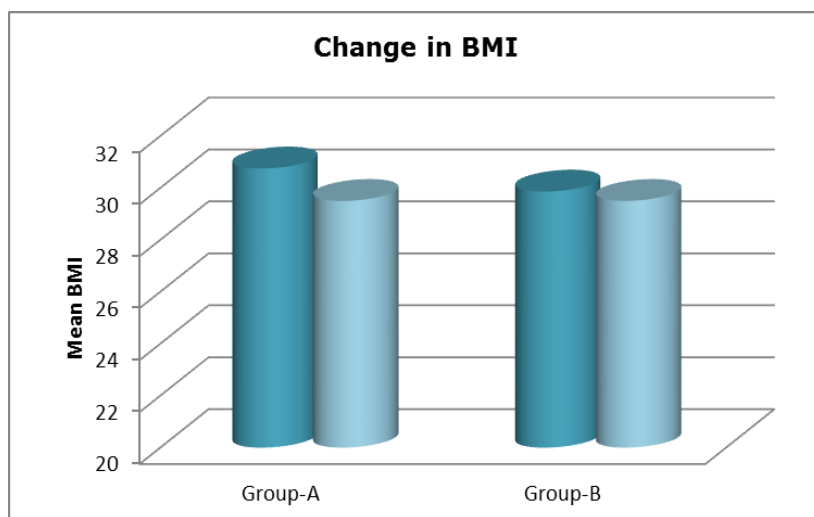


Chart 2: Effect of Diet and Yogasanas BMI.

C. Effect of Diet and *Yogasanas* On HIP CIRCUMFERENCE

Table 3: Effect of Diet and Yogasanas on HIP CIRCUMFERENC.

Hip circumference	Day-0		Day-60		Paired T	P
	Mean	Sd	Mean	Sd		
Group-A	102.42	4.35	102.00	4.42	4.856	<0.001 HS
Group-B	101.97	4.03	101.61	4.13	4.062	<0.001 HS

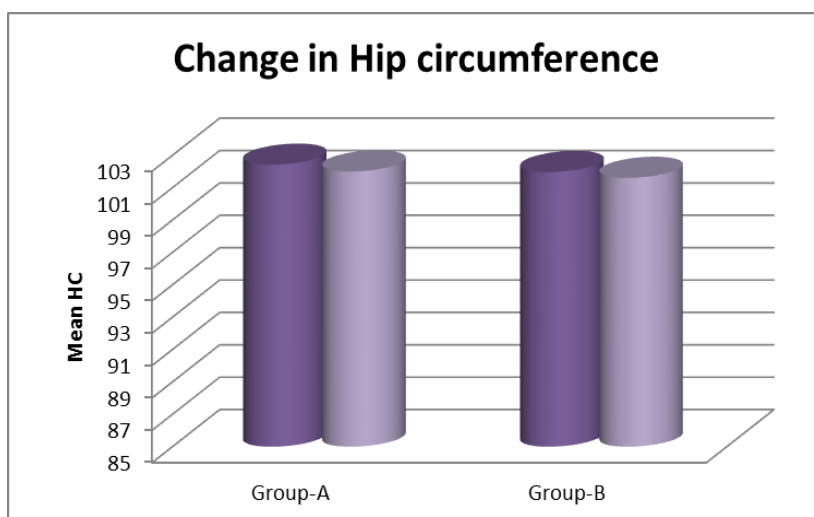


Chart 3: Effect of Diet and Yogasanas HIP CIRCUMFERENCE.

D. Effect of Diet and *Yogasanas* on WHR RATIO

Table 4: Effect of Diet and Yogasanas on WHR RATIO.

WHR	Day-0		Day-60		Paired T	P
	Mean	Sd	Mean	Sd		
Group-A	0.97	0.03	0.93	0.03	14.856	<0.001 HS
Group-B	0.95	0.04	0.94	0.04	8.805	<0.001 HS

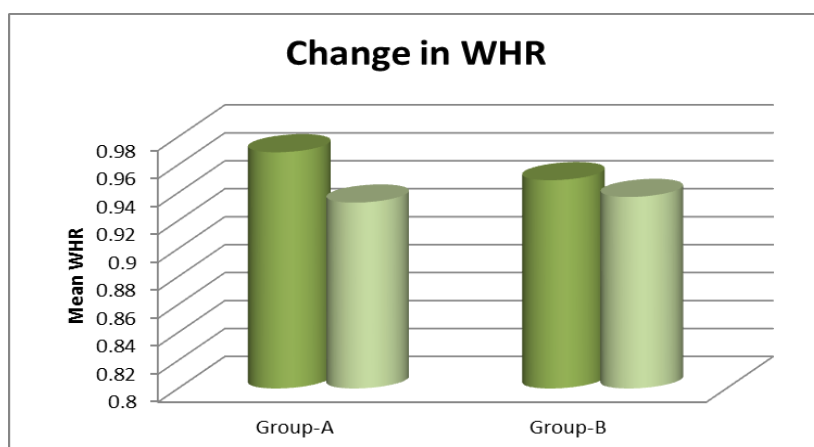


Chart 4: Effect of Diet and Yogasanas HIP CIRCUMFERENCE.

E. Effect of Diet and Yogasanas on Gatradaurgandhya

Table 5: Effect of Diet and Yogasanas on Gatradaurgandhya.

Gatradaurgandhya	Day-0		Day-60		% Relief	Wilcoxon Signed Ranks Test Z	P
	Mean score	Sd	Mean score	Sd			
Group-A	2.09	.631	.67	.692	67.9	4.842	<0.001 HS
Group-B	1.71	.529	.35	.551	79.5	4.853	<0.001 HS

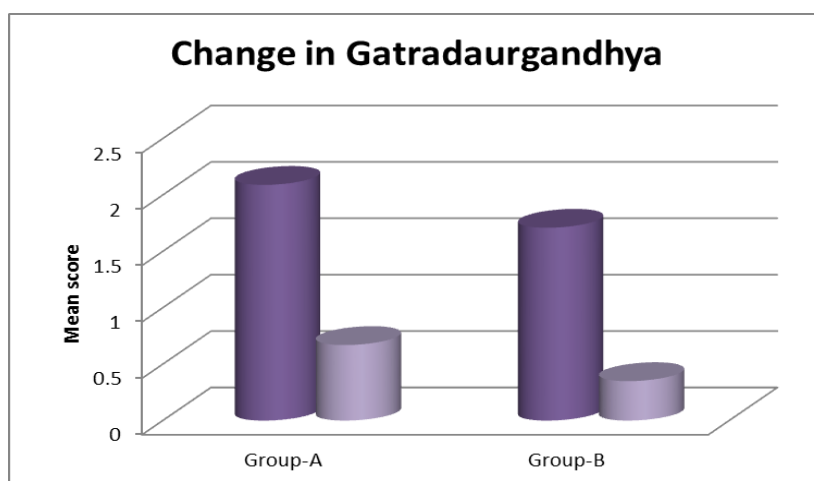


Chart 5: Effect of Diet and Yogasanas Gatradaurgandhya.

F. Effect of Diet and Yogasanas on Swedadhikya

Table 6: Effect of Diet and Yogasanas on Swedadhikya.

Swedadhikya	Day-0		Day-60		% Relief	Wilcoxon Signed Ranks Test Z	P
	Mean score	Sd	Mean score	Sd			
Group-A	1.97	.728	.76	.663	61.4	5.097	<0.001 HS
Group-B	1.90	.652	.48	.627	74.7	4.932	<0.001 HS

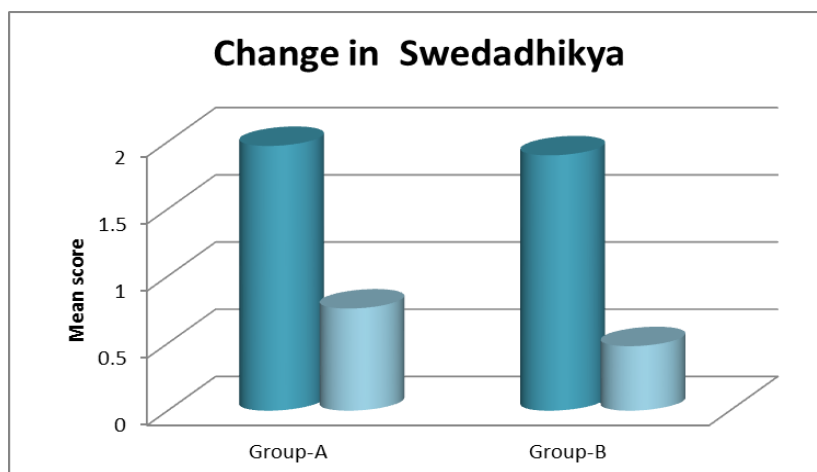


Chart 6: Effect of Diet and Yogasanas ON Swedadhikya.

G. Effect of Diet and *Yogasanas* on Atikshudha

Table 7: Effect of Diet and Yogasanas on Atikshudha.

Atikshudha	Day-0		Day-60		% Relief	Wilcoxon Signed Ranks Test Z	P
	Mean score	Sd	Mean score	Sd			
Group-A	1.97	.529	.55	.617	72.2	4.997	<0.001 HS
Group-B	1.58	.502	.45	.506	71.5	4.755	<0.001 HS

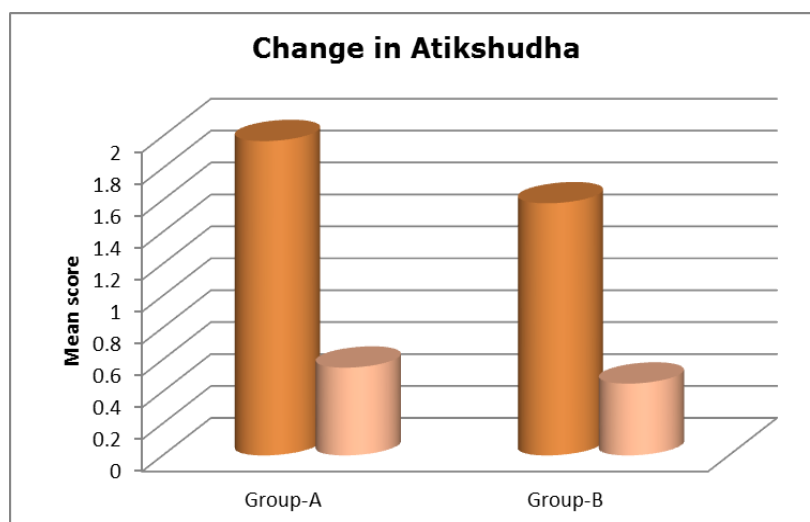


Chart 7: Effect of Diet and Yogasanas ON Swedadhikya.

H. Effect of Diet and *Yogasanas* on Pipasavrudhi

Table 8: Effect of Diet and Yogasanas on Pipasavrudhi

Pipasavrudhi	Day-0		Day-60		% Relief	Wilcoxon Signed Ranks Test Z	P
	Mean score	Sd	Mean score	Sd			
Group-A	1.48	0.80	1.12	0.82	24.4	3.207	0.001 Sig
Group-B	1.13	.619	1.10	.651	2.8	1.00	0.317 NS

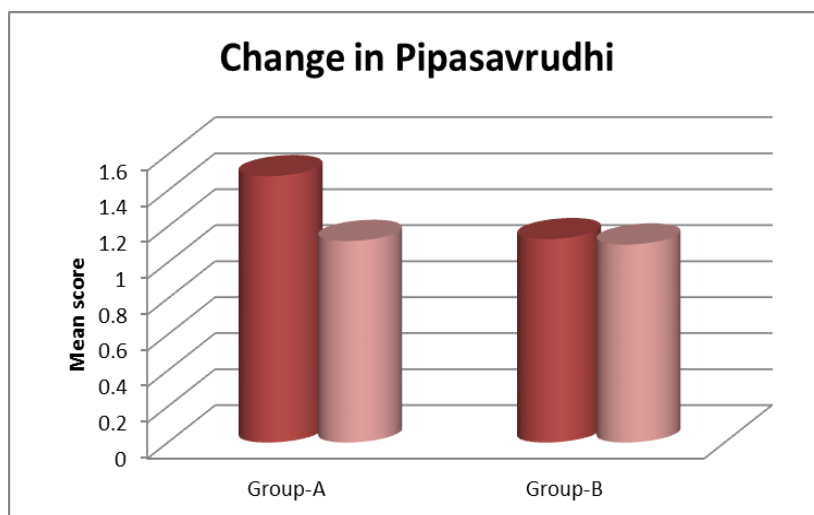


Chart 8: Effect of Diet and Yogasanas On Pipasavrudhi.

I. Effect of Diet and *Yogasanas* on Daurbalya

Table 9: Effect of Diet and Yogasanas on Daurbalya.

Daurbalya	Day-0		Day-90		% Relief	Wilcoxon Signed Ranks Test Z	P
	Mean score	Sd	Mean score	Sd			
Group-A	2.00	.661	.61	.658	69.5	5.097	<0.001 HS
Group-B	1.35	.486	.61	.494	54.8	4.235	<0.001 HS

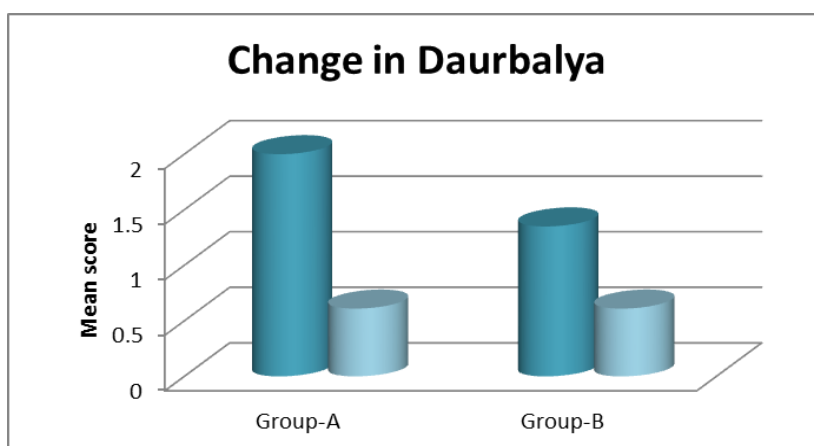


Chart 8: Effect of Diet and Yogasanas On Daurbalya.

J. Effect of Diet and *Yogasanas* on Kshudrashwas

Table 9: Effect of Diet and Yogasanas on Kshudrashwas

Kshudrashwas	Day-0		Day-90		% Relief	Wilcoxon Signed Ranks Test Z	P
	Mean score	Sd	Mean score	Sd			
Group-A	1.94	.557	.55	.666	71.5	5.098	<0.001 HS
Group-B	1.32	.474	.35	.486	73.6	4.524	<0.001 HS

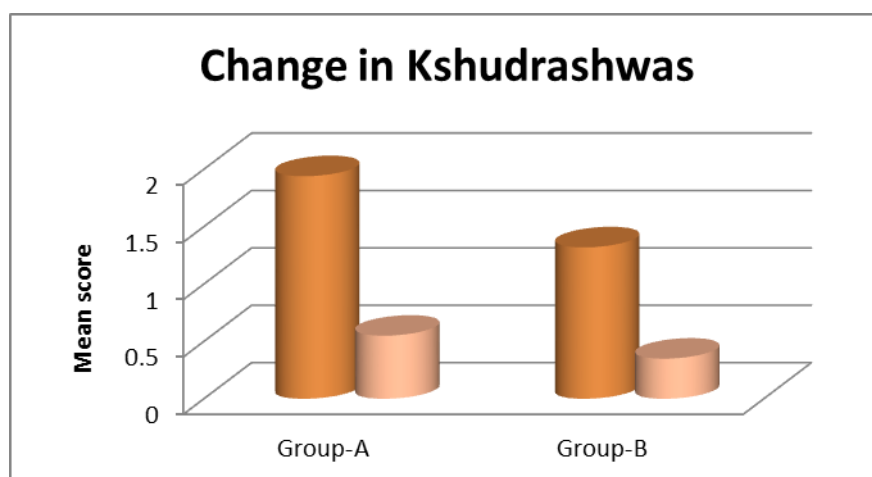


Chart 9: Effect of Diet and Yogasanas On Kshudrashwas.

All the above findings strongly suggest that *selected Yogasanas* have potent effect on the management of Sthaulya. Various scientific parameters in the current study confirmed this observation which showed significant and highly significant improvement respectively.

DISCUSSION

Effect On Gatradargandhya, Swedadhikya

On Gatradargandhya Yogasanas, Diet, Lifestyle showed 67.9% and Diet, Lifestyle only showed 79.5% improvement, which is statistically highly significant ($p < 0.001$).

On swedadhikya Yogasanas, Diet, Lifestyle showed 61.4% and Diet, Lifestyle showed 74.7% improvement, which is statistically highly significant. Effect of Yogasanas, Diet, Lifestyle showed that increases microcirculation of channels which reduces deposited medas so prakrut medas are produced. Prakrut meda is produces prakrut updhatu sweda i.e. decreases Gatradargandhya and Swedadhikya. EFFECT ON ATIKSHUDHA: Atikshudha was assessed with the help of intake of amount of food (QUANTITY). The overall, intake of food by amt. showed effect 72.1% in Yogasanas, Diet, Lifestyle and 71.5% in Diet, Lifestyle. Excess movement of abdominal muscles and Stretching of muscle in Yogasana produces Prakrut jatharagni deepan in stomach. These Jatharagni deepan reduces unwanted deposited medas so there is no obstruction to Vat dosha and no more excess kshudhavridhi. EFFECT ON DAURBALYA: When assessed for Daurbalya both group's showed statistically high significance ($p < 0.001$). On an average Yogasanas, Diet, Lifestyle are effective in 69.5% and Diet, Lifestyle are effective in 54.8% Daurbalya. EFFECT ON PIPASAVRIDHI: The effect of Yogasanas, Diet, Lifestyle are effective in 24.5% in pipasavridhi, which significant

($P < 0.05$) and gets decreased. If Exercise of abdomen is done well and proper timely diet is observed then the prakrut ras dhatu is produced in body, which decreases pipasavridhi.

EFFECT ON KSHUDRASHWAS: On an average, both groups showed 71.5% and 73.6% improvement in above symptoms respectively i.e. Diet & Lifestyle are more effective to reduce kshudrashwas. **EFFECT ON WEIGHT:** This was the basic assessed factor for study. In first group Yogasanas, Diet, Lifestyle, weight was from 78.76 kg to 75.56 kg at end of 60 days. In second group Diet, Lifestyle average weight was from 76.25 kg to 75.387 kg at end of 60 days improvement in symptom i.e. reduction in weight, which was statistically highly significant ($p < 0.001$). Yogasanas, Diet, Lifestyle are more effective to reduce weight because mean difference is more ($3.197 > 1.726$). **EFFECT ON BMI:** Effect of Yogasanas, Diet, Lifestyle group on BMI was 30.75 to 29.50 at end of 60 days and in the Diet, Lifestyle group BMI was 29.86 to 29.50 at end of 60 days improvement in symptom i.e. reduction in BMI, which was statistically highly significant ($p < 0.001$). **EFFECT ON HC/WHR:** The reduction in HC/WHR due to Yogasanas, Diet, Lifestyle was found highly significant ($p < 0.001$). Yogasanas, Diet, Lifestyle reduces HC from 102.42 to 102 and Diet, Lifestyle reduces from 101.97 to 101.61.

The diet chart advised for study also contains above-mentioned type of ahar dravya.

SHUKA DHANYA- Bajra, jwar, yava, nachni etc. dravyas are kashaya rasa pradhan, katu vipaki, and ruksh-ushna guna pradhan; so gives kaphagna action. **SHIMBI DHANYA, SHAK VARGA, PHALA VARGA** are advised as pathya. Kashaya rasa is superior in ruksh guna; vayu mahabhut pradhan. Shoshana and apatarapana are properties of ruksh guna and vayu mahabhuta. Thus lekhan karma takes place in obesity.

Thus Yogasanas and pathyakara ahara showed synergistic action to decrease abdominal girth in obesity. Yogasanas, Diet, Lifestyle group was more effective than Diet, Lifestyle group in obesity.

CONCLUSION

Yogasana & diet together works more effectively as compared to only diet and lifestyle modification in obesity of many parameters. The effect of yogasana & diet together was better on weight, BMI, WHR, Atikshudha, Daurbalya, Swedadhikya, kshudrashwas. I can be stated that, Yogasanas, diet and lifestyle modification works more effectively in the

management of Sthaulya (obesity). Sthaulya is dushyadominant vyadhi, Multiple factors are involved in obesity, Changing Life Style is the major reason of the obesity, Sedentary life style and faulty dietary habits and lack of exercise are causative factors of obesity, Kapha dosha plays major role in sthauilya and Medodhatwagni mandya leads to excessive formation of medodhatu.

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