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Research Article

CLINICAL STUDY TO EVALUATE THE EFFICACY OF YOGIC *SHUDDHIKRIYA* (CLEANSING PROCEDURE) AND *MADHUDAK* (HONEY AND WATER) IN THE MANAGEMENT OF *STHAULYA* (OBESITY)

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ABSTRACT

Life in today's materialistic era, has become miserable. As a matter of fact, human life is becoming luxury oriented day by day despite all the odds. According to ecological approach, disease is nothing but a mal-adjustment of human being to his environment. The disruption in environment brings about lifestyle disorders. The sedentary lifestyle of today's era leads to the non-communicable epidemic of Obesity. Hence for the management of Obesity the therapy which offers modification in the lifestyle will be selected from *Yogic Shat-shuddhikriyas i.e. Kapalbhati* in comparison with dietary therapy of *Madhudak* (Honey and Water) as mentioned by Ayurvedic sages. In the present study, 60 patients with features of obesity as per Ayurvedic classics and body mass index more than 25 kg/m^2 were selected. This patients will be randomly divided into experimental and control group, containing thirty subjects in each. In experimental group patients were made to perform *Kapalbhati yogic shuddhikriya* daily at morning whereas in comparison for control group dietary therapy of *Madhudak*. The study reveals that there was a remarkable decrease in subjective and objective parameters in both the groups, *but Kapalbhati* therapy is found more effective in every aspects of obesity. Average percentage of relief in experimental group is 27.85% and in control group is 9.93%. Hence to prevent this smoldering problem of present era the 'Sciences of life' i.e. *Yoga* offers the lifestyle modifying, time effective, free of cost, objective therapy (*Adravyabhoot chikitsa)* through its basic principles.

INTRODUCTION

Sciences of Ayurveda and Yoga have emerged since ancient time and both were developed and practiced in similar circumstances with similar objective in the same land. Ayurveda and Yoga both are based on similar concept of human existence.

Today, Yoga has become more popular because of its potential to rejuvenate body-mind complex, to maintain the healthy condition of body i.e. preventive aspect and acts as therapy in many diseases i.e. curative aspect as like Ayurveda.[1] The sedentary lifestyle of today's era leads to the non-communicable epidemic of obesity.

Ayurveda is one of such sciences that can always match up with the contemporary sciences. This unique quality of Ayurveda as a "Science of Life" eventually paved the way for free transaction between Ayurveda and other sciences of life that include Yoga, which in turn brings about eradication of diseases, prevents early aging,

decreases mortality and promotes the health as quoted in *Shwetashwatar Upanishada*[2]. *"Sthaulya"* (Obesity) is an increasing lifestyle related disorder now a day. Pandemic of Obesity is rapidly spreading all over the world and is a major factor for rising incidence of chronic diseases like diabetes and hypertension. Obesity and overweight together constitute as one of the top 10 global health problems as per the surveys conducted by World Health Organization (WHO).[3] Lack of physical activity, increase in convenience and frequent intake of food, industrialization, labor-saving devices, motorized transport, stress during work, more sedentary jobs, various types of junk food i.e. fast food, bakery items, increased amount of soft drink result into manifestation of obesity.

The non-communicable epidemic of obesity is found to be the pioneer of Diabetes Mellitus (Type II), Heart diseases, depression, infertility, osteoarthritis, etc. The diseases are very hard to be treated and the treatments like angioplasty, knee transplantation, life- long anti-diabetic drugs etc. happen to be highly expensive which is not affordable to common man. Hence to prevent root cause namely "Obesity" is the easiest remedy to counter the consequences. *Ayurveda* has considered Obesity as one of eight condemnable conditions (*Ashtounindit*).[4] Though aetiology, symptoms, management of *Sthaulya* have been described in detail by *Acharya Charaka*, no medicine is believed to be existent to get rid of *Sthaulya* as per *Acharya Vagbhata*.[5] Nevertheless, it is well known fact that, in *Ayurveda* management of disease is not all about merely taking the medicine. It is a collective operation of medicine, *Nidan-parivarjan* (avoid causative factor), lifestyle modification regarding *Pathya-apathya* (wholesome-unwholesome diet) and *Vihara* (daily schedule). Also to undertake the management of *Sthaulya* Yogic ways of lifestyle modification offers the objectless therapy (*Adravya-bhoot chikitsa*) of "*Kapalbhati"* through *Shat-shuddhikriyas* (purifying procedure) mentioned in *Hatha Yoga Pradipika* [6,7] and *Gheranda samhita*.[8]

So,to evaluate the efficacy of *Yogic shuddhikriya* (purifying procedure) in *Sthaulya*, *Kapalbhati shuddhikriya* is chosen for present study for experimental group as a free of cost, viable, easy to do, time effective and lifestyle modification objectless therapy in comparison with a control dietary therapy of *Madhudak (Madhu* and *Swangsheet* water) (old honey and lukewarm water) in control group as quoted by Acharya Charaka, Sushrut and Vagbhat. [9,10,11]

MATERIAL AND METHODS

Material

In the present study, on the basis of history and clinical examinations 60 patients with features of *Sthaulya* as per Ayurvedic classics[12] and body mass index equal to or more than 25 kg/m^2 having age 25 to 55 years were selected.[13] The patients were selected irrespective of sex, religion, occupation, education, marital and economical status. These patients will be randomly divided into 2 groups namely experimental and control group containing 30 subjects in each group.

In experimental group, patients were made to perform *Kapalbhati Shuddhikriya* daily at morning whereas in comparison for control group dietary therapy of *Madhoodak (Puran madhu* and *Swangsheet* water) was given.

Methods

A] Experimental group

In this group patients were made to perform *Kapalbhati* (*Yogic shuddhikriya*) daily morning under the supervision of investigator for 2 months, excluding 10 days of initial study trial with empty stomach.

Method of performing *"Kapalbhati"* procedure [14]

1) Sit in comfortable Asana (Pose), preferably as *Padmasana* (Lotus pose) or *Sukhasana* (Comfort pose).
2) At the time of *Rechaka* (expiration) give sudden jerk, do active forceful expiration, followed by passive effortless *Puraka* (inspiration), counted as one *Aavartane* (stroke).
3) Initially 3-4 repetitions of 10-20 strokes are to be performed in each setting, without holding breath, and then 20 to 30 strokes are gradually increased per day to reach the maximum strokes, 120 per 2 minutes.
4) Then these maximum strokes are to be performed daily 3 times in a single setting for 2 months with empty stomach.

B) Control group

In control group, 30 patients were given *Madhudak*, for 2 months at morning.[15]

Method of *Madhoodak Paan*

10 ml of *Puran madhu* (one year old honey) as stated by *Acharya Bhavprakasha,*[16] with one glass of *Swangsheet (*lukewarm) water mixed thoroughly and will be given to each patient, every morning on empty stomach for two months.

Pathya **(wholesome) –** ***Apathya (unwholesome)*** **advice of** ***Ahara (diet)*** **and** ***Vihara (day schedule)*** **as per** ***Ayurvedic*** **principals** [17,18,19]

Every patient in each group was advised to follow the *Pathya-apathya* regiment given below.

A] ***Ahara***

Dietary recommendations were made taking into account Ayurvedic concepts of *Ashto Aharvidhi visheshayatan*[20] (Eight factors determining the utility of food), *Dwadashashan pravichar*[21] (rules regarding diet in special conditions of patients) and *Trividh kukshiya*[22] (quantity of food).

a) ***Pathya ahara –***

1) Include *Puran dhanya* (old grains) in daily diet e.g. *Yava* (*Hordeum vulgare*), *Kulattha* (*Dolichos biflorus*), wheat, jowar, millet.
2) Include roughage food in daily diet.
3) Drink *Koshna Jala* (lukewarm water).

b) ***Apathya ahara***

1) Avoid *Ushna, Tishna, Abhishyandi* food (spicy food, junk food, bakery products).
2) Avoid *Mansaahara* (non-veg diet).
3) Avoid *Adhyashana* (frequent meals and over dieting).
4) Avoid *Atisnigdha, Guru food* (oily food, sugar and milk products).
5) Avoid drinking water immediate after meals.

B) ***Vihara***

a) ***Pathya–vihara***

1) Practice *Vyayam* (slight exercise) daily for 10 minutes.
2) Morning or evening *Chankraman* (walk for 15 minutes).
3) Practice dry *Udavarten* ones a week.(unction therapy with ununctuous drugs).

b) ***Apathya–vihara***

1) Avoid sedentary lifestyle.
2) Avoid *Divaswap* (sleep during day).
3) Avoid alcohol consumption.
4) Avoid *Vegavarodh* (suppression of natural urges).

Duration of study

Two months for both the groups with prior consent of each patients in both groups.

Selection criteria for both groups

1) All the patients diagnosed as *Sthaulya* irrespective of sex having age in between 25 to 55 years.
2) Body Mass Index (BMI) > or = 25 kg/m^2
3) Waist: Hip Ratio (WHR) >1.0 in male, (WHR)>o.85 in female. [23]
4) Broca's Index [24]-
5) Patients having symptoms described in *Ayurvedic* and modern literature.
6) Co-operative, obedient patients willing to undergo the prescribed therapy.

Rejection criteria for both groups

1) Age less than 25 years and more than 55 years.
2) Any other systemic disorder and complications like Hypertension, Diabetes Mellitus (DM), Coronary artery diseases, Endocrinal disorders etc.
3) Patients having Deviated Nasal Septum (DNS), nasal polyps, appendicitis, pharyngitis, hepatomegaly, acute abdomen.
4) Having obesity as a secondary disorder to any other major disorder, consider on the basis of history taking and clinical examinations only, without any laboratory investigations.
5) Ante Natal Care (ANC) & Post Natal Care (PNC) patients.

Assessment criteria -

1) Subjective parameters

2) Objective parameters

All the subjective and objective parameters were noted in each patient of each group, before starting therapy, after 30 days, and after 60 days of therapy.

1) Subjective parameters

Subjective parameters have been graded as : 0, 1,2, 3 on the basis of severity of Ayurvedic symptomatology.[25]

A) Lack of *Karya-anutsaha* (Enthusiasm)

B) *Daurbalya* (Weakness)

C) *Swedadhikya* (Excessive sweating)

D) *Kshudhadhikya* (Excessive appetite)

E) *Trushnadhikya* (Excessive thirst)

F) Nidradhikya (Excessive sleep)

G) *Kshudrashvasa* (Tachypnoea)

H) *Daurgandhya* (Body odour)

2) Objective parameters

1) Weight in kilograms

2) Height in meters

3) Body Mass Index (BMI)

Put above obtained value in following formula & Calculate BMI,

$$BMI = \frac{\text{Weight (kg)}}{\text{Height(m)}^2}$$

4) Broca's Index for ideal body weight

Brocas Index = Height (in cm) minus 100.

5) Waist : Hip Ratio (WHR) [26,27,28]

Waist circumference (WC) is measured in horizontal plane with the subjects standing, at midpoint between the lower border of the rib cage and the iliac crest, which is the level of abdominal girth at umbilicus. While hip circumference (HP) measured over the widest part of the buttocks. Both measurements were taken by measuring tape in centimetres. The ratio of the former to the later gives WHR.

6) Abdominal girth

By using measuring tape abdominal girth will be taken at the level of umbilicus, 4 cm above and below the umbilicus in centimeters.

7) Mid arm circumference (MAC)

It was measured with tape at midpoint between acromian and olecranon prominence of hand in centimeters.

RESULTS AND DISCUSSION

Before treatment (BT) and after treatment (AT) all subjective parameters were evaluated statistically with help of 'Wilcoxon signed rank test' for both the groups separately and afterwards, difference between BT score and AT score of both groups was compared by 'Wilcoxon Mann-Whitney test'.

Before treatment (BT) and after treatment (AT) all objective parameters were evaluated statistically with the help of 'Paired t-test' for both the groups separately and afterwards difference between BT and AT score of both groups was compared by unpaired t-test''.

Experimental group

In experimental group the symptoms were significantly relieved after treatment and p value was found out to be less than 0.05. Thus we can say that *Kapalbhati* therapy is beneficial in symptoms of *Sthaulya.*

Table 1: Showing Wilcoxon Signed Rank Test of Symptom Score in Experimental Group

Sr.No	Symptom	Mean		Medium	S.D.	SE	z value	p value	Significance
1	*Karya Anutsaha*	BT	1.46	1	0.77	0.141	4.583	0.000	Highly Significant
		AT	0.76	1	0.72	0.132			
2	*Daurbalya*	BT	0.76	0	1.04	0.189	2.236	0.0253	Significant
		AT	0.6	0	0.89	0.163			
3	*Swedadhikya*	BT	1.06	1	1.639	0.116	2.828	0.0047	Highly Significant
		AT	0.86	1	1.664	0.121			
4	*Kshudhadhikya*	BT	1.76	2	0.773	0.141	4.243	0.000	Highly Significant
		AT	1.16	1	0.746	0.136			
5	*Trushnadhikya*	BT	0.96	1	0.614	0.112	2.449	0.0143	Significant
		AT	0.766	1	0.626	0.114			
6	*Nidradhikya*	BT	1.73	2	0.739	0.135	4.796	0.000	Highly Significant
		AT	0.96	1	0.614	0.112			
7	*Kshudrashvasa*	BT	1.33	1	0.884	0.161	3.317	0.0003	Highly Significant
		AT	0.96	1	0.808	0.147			
8	*Daurgandhya*	BT	0.76	1	0.568	0.103	2.828	0.0047	Highly Significant
		AT	0.5	0.5	0.508	0.928			

Control Group

In control group it was found that some symptoms relieved significantly at 5% level of significance, p value was < 0.05 except for symptoms *Daurbalya, Swedadhikya, Trushnadhikya, Kshudrashvasa, Daurgandhya.*

Table 2: Showing Wilcoxon Signed Rank Test of Symptom Score in Control Group

S. No.	Symptom		Mean	Medium	S.D.	SE	z value	p value	Significance
1	*Karya Anutsaha*	BT	1.13	1	0.571	0.104	2.449	0.0143	Significant
		AT	0.93	1	0.583	0.106			
2	*Daurbalya*	BT	0.1	0	0.305	0.55	–	1.0000	Not Significant
		AT	0.1	0	0.305	0.55			
3	*Swedadhikya*	BT	0.86	1	0.507	0.926	1.00	0.3173	Not Significant
		AT	0.83	1	0.461	0.841			

4	*Kshudhadhikya*	BT	1.43	1	0.626	0.114	3.00	0.0027	Highly Significant
		AT	1.13	1	0.507	0.926			
5	*Trushnadhikya*	BT	0.3	0	0.466	0.085	1.00	0.3173	Not Significant
		AT	0.26	0	0.449	0.082			
6	*Nidradhikya*	BT	1.36	1	0.614	0.112	3.606	0.0003	Highly Significant
		AT	1.07	1.5	0.794	0.14			
7	*Kshudrashvasa*	BT	0.533	0	0.681	0.124	1.732	0.0833	Not Significant
		AT	0.433	0	0.568	0.103			
8	*Daurgandhya*	BT	0.4	0	0.723	0.132	0.399	0.6899	Not Significant
		AT	0.4	0	0.674	0.123			

Paired t-test - Objective parameters of Experimental group

After applying paired t-test to the objective parameters of experimental group BT and AT, there was highly significant improvement in weight, BMI, WC, HC, WHR and all abdominal girths. But there was no change in Broca's index and mid-arm circumference.

Table 3: Showing Paired T-Test of Objective Parameters in Experimental Group

S. No.	Objective parameter		Mean	Medium	S.D.	SE	t value	p value	Significance
1	Broca's index	BT	57.78	57.2	8.769	1.601	–	1.0000	Not Significant
		AT	57.78	57.2	8.769	1.601			
2	Weight	BT	74.36	72	11.874	2.167	8.0722	0.0000	Highly Significant
		AT	72.46	70.5	11.081	2.023			
3	Body mass index	BT	29.61.	29.2	3.065	0.559	8.2	0.0000	Highly Significant
		AT	28.89	28.41	2.833	0.517			
4	Waist circumference	BT	102.2	102	12.828	2.342	12.68	0.0000	Highly Significant
		AT	99.68	99	12.158	2.219			
5	Hip circumference	BT	104.5	102.5	10.197	1.861	4.3227	0.0002	Highly Significant
		AT	104.1	102.5	9.920	1.811			
6	Waist : Hip ratio	BT	0.976	0.952	0.563	0.010	5.0	0.0000	Highly Significant
		AT	0.956	0.936	0.053	0.009			
7	Abdominal girth 4 cm above umbilicus	BT	96.86	97	12.530	2.287	4.253	0.0002	Highly Significant
		AT	96.13	95.5	12.099	2.209			
8	Abdominal girth at umbilicus	BT	102.2	102	12.828	2.342	12.68	0.0000	Highly Significant
		AT	99.68	99	12.158	2.219			
9	Abdominal girth 4 cm below umbilicus	BT	105.8	105	13.312	2.430	4.784	0.0000	Highly Significant
		AT	105.3	104	13.050	2.382			
10	Mid arm circumference	BT	33.48	32.5	4.889	0.892	-	1.0000	Not Significant
		AT	33.48	32.5	4.889	0.892			

Paired t-test – Objective parameters of Control Group

In control group after applying paired t-test to parameters BT and AT, there was highly significant improvement in Weight, BMI, WC, WHR and abdominal girth at umbilicus and significant improvement in HC but, insignificant improvement in Broca's index, mid-arm circumference and abdominal girth 4 cm above and below the umbilicus.

Table 4: Showing Paired T-Test of Objective Parameters in Control Group

Sr. No.	Objective parameter		Mean	Medium	S.D.	SE	t value	p value	Significance
1	Brocas index	BT	58.2	60	8.360	1.526	–	0.8501	Not Significant
		AT	58.2	60	8.360	1.526			
2	Weight	BT	72.55	70	11.442	2.089	8.0258	0.0000	Highly Significant
		AT	71.43	69.75	11.237	2.051			
3	Body mass index	BT	28.83	28.12	2.447	0.446	8.2501	0.0000	Highly Significant
		AT	28.38	27.82	2.361	0.431			
4	Waist circumference	BT	99.75	96	12.710	2.320	4.7092	0.0001	Highly Significant
		AT	99.1	96	12.496	2.281			
5	Hip circumference	BT	102.7	103.5	8.768	1.600	2.1172	0.0434	Significant
		AT	102.6	103.5	8.720	1.592			
6	Waist : Hip ratio	BT	0.967	0.935	0.0636	0.011	4.3255	0.0002	Highly Significant
		AT	0.961	0.93	0.0617	0.011			
7	Abdominal girth 4 cm above umbilicus	BT	96.2	92.75	11.932	2.178	1.3605	0.1841	Not Significant
		AT	96.15	92.75	11.90	2.173			
8	Abdominal girth at umbilicus	BT	99.75	96	12.710	2.320	4.7092	0.0001	Highly Significant
		AT	99.1	96	12.496	2.281			
9	Abdominal girth 4 cm below umbilicus	BT	102.9	99	12.653	2.310	1.4392	0.3256	Not Significant
		AT	102.91	99	12.713	2.321			
10	Mid arm circumference	BT	32.266	31.75	3.8679	0.706	-	-	Not Significant
		AT	32.266	31.75	3.8679	0.706			

Comparison between two groups in Subjective parameters

Difference between before treatment and after treatment score of both group was compared by Wilcoxon Mann–Whitney test. After comparison both groups is statistically highly significant in *Karya-anutsaha* and *Nidradhikya* while significant in remaining symptoms; therefore *Kapalbhati shuddhikriya* in experimental group gives significant improvement in symptoms of *Sthaulya* than *Madhudak paan* in control group.

Table 5: Showing Comparison Between Two Groups in Subjective Parameters by Wilcoxon Mann-Whitney Test

Sr. No.	Symptom	Mean change Exp. Group mean ± SD	Mean change Control Group mean ± SD	z value	p value	Significance
1	*Karya Anutsaha*	0.7 ± 0.46	0.2 ± 0.41	3.860	0.0001	Highly Significant
2	*Daurbalya*	0.16 ± 0.38	No change	2.316	0.0206	Significant
3	*Swedadhikya*	0.26 ± 0.45	0.03 ± 0.18	2.510	0.0121	Significant
4	*Kshudhadhikya*	0.6 ± 0.49	0.3 ± 0.46	2.316	0.0206	Significant
5	*Trushnadhikya*	0.20 ± 0.46	0.03 ± 0.18	1.94	0.0462	Significant
6	*Nidradhikya*	0.77 ± 0.43	0.43 ± 0.50	2.613	0.0090	Highly Significant
7	*Kshudrashvasa*	0.36 ± 0.49	0.1 ± 0.3	2.421	0.0161	Significant
8	*Daurgandhya*	0.26 ± 0.45	0.0 ± 0.52	2.449	0.0143	Significant

Unpaired t-test Between Both Groups Of Objective Parameters

When unpaired t-test is applied to both groups for objective parameter, there was highly significant improvement in all parameters except Broca's index and mid arm circumference. This shows that there is significant decrease in weight, body mass index, waist circumference, hip circumference and abdominal girth of patients in experimental group than patients in control group.

Table 6: Showing Comparison Between Two Groups in Objective Parameters by Unpaired T-Test

Sr. No.	Symptom	Mean change Exp. Group mean ± SD	Mean change Control Group mean ± SD	t value	p value	Significance
1	Brocas index	No change	No change	_--	--_	Not Significant
2	Weight	1.9 ± 1.28	1.11 ± 0.76	2.8649	0.0052	Highly Significant
3	Body mass index	0.74 ± 0.49	0.46 ± 0.30	2.6734	0.0097	Highly Significant
4	Waist circumference	2.46 ± 1.33	0.86 ± 0.99	5.8174	0.0000	Highly Significant
5	Hip circumference	0.38 ± 0.48	0.13 ± 0.34	2.2967	0.0253	Highly Significant
6	Waist : Hip ratio	0.024 ± 0.02	0.008 ± 0.009	3.1533	0.0026	Highly Significant
7	Abdominal girth 4 cm above umbilicus	0.36 ± 0.47	0.05 ± 0.2	0.0013	0.0207	Significant
8	Abdominal girth at umbilicus	2.46 ± 1.13	0.86 ± 0.99	5.8174	0.0000	Highly Significant
9	Abdominal girth 4 cm below umbilicus	o.50 ± 0.57	0.06 ± 0.25	3.7911	0.0179	Significant
10	Mid arm circumference	No change	No change	--_	_---	Not Significant

Percentage of Relief in Symptoms Score:-

In experimental group, percentage of relief for *Karya-Anutsaha, Daurbalya, Swedadhikya, Kshudhadhikya, Trushnadhikya, Nidradhikya, Kshudrashvasa, Daurgandhya* was 47.9%, 22.1%, 24.5%, 34.1%, 20.8%, 44.5%, 27.8%, 34.2% respectively. In control group, percentage of relief for the symptoms *Karya Anutsaha, Daurbalya, Swedadhikya, Kshudhadhikya, Trushnadhikya, Nidradhikya, Kshudrashvasa, Daurgandhya* was 17.7%, 0%, 3.5%, 21%, 10%, 31.6%, 18.9%, 0% respectively.

Table 7: Showing Percentage of Relief in Symptoms of 60 Patients

Sr.No.	Symptoms	% Of Relief	
		Experimental group	Control group
1	*Karya Anutsaha*	47.9%	17.7%
2	*Daurbalya*	22.1%	0%
3	*Swedadhikya*	24.5%	3.5%
4	*Kshudhadhikya*	34.1%	21%
5	*Trushnadhikya*	20.8%	10%
6	*Nidradhikya*	44.5%	31.6%
7	*Kshudrashvasa*	27.8%	18.9%
8	*Daurgandhya*	34.2%	0%

Total effect of Therapy

In experimental group 3.3% patients show 50-75% of relief, 63.33%% patients show 25-50% of relief, and 33.33% patients show less than 25% of relief in symptoms of *Sthaulya.*

In control group 13.3% patients show 25-50% of relief, 86.67%% patients show less than 25% of relief, in symptoms of *Sthaulya.*

Table 8: Showing Overall Effect Of Therapy In Both Groups

% of Relief	Experimental Group		Control Group	
	No. of patients	Percentage %	No. of patients	Percentage %
Less than 25%	10	33.33	26	86.67
25-50%	19	63.33	04	13.33
50-75%	1	3.3	0	0
More than 75%	0	0	0	0
Total	30	100	30	100

Overall effect of Therapy

Average percentage of relief in Experimental Group is 27.85% and in Control Group is 9.93%. This shows that *Kapalbhati shuddhikriya* is more effective as compared to *Modhudak Paan* in *Sthaulya* patients.

Table 9: Showing Overall Effect of Therapy

Average % relief	
Experimental group	Control group
27.85	9.93

CONCLUSION

Sthaulya happens to be a disease of complex treatment. It poses a great threat to the general health of an individual. The available treatment is costly, non specific and has not been proved to be reliable. In this context, the experimental therapy i.e. *Kapalbhati* serves the purpose. In comparison with the control medicine i.e*. Madhoodak Paan*, the *Kapalbhati* therapy is found out to be more effective in every aspect. According to *Ayurveda, Sthaulya* is about a group of various life-disrupting symptoms. *Kapalbhati* relives about all those symptoms either in a significant or highly significant manner. There are two aspects of cure; one is being cured and the other is feeling cured. *Kapalbhati* proves to be symptomatically effective on *Sthaulya* on both the fronts.

It is observed that the obese patients are much more concerned about losing the inches than losing the unwanted weight. So, it was interesting to watch out for changes in anthropometric measurement of obese patients after availing *Kapalbhati* therapy. It is to mention that *Kapalbhati* has not brought about "inches loss" in mid-arm circumference. Having conceded this, one can never deny the overall efficacy of *Kapalbhati* on all other parameters. The study reveals that there was a remarkable decrease in abdominal girth, weight, body mass index, waist circumference, hip circumference, and waist hip ratio. Overall increase in enthusiasm is specially noted in the experimental group. In experimental group, highly significant results were obtained in other subjective parameters also.

Kapalbhati, being an objectless, non-pharmacological therapy, was very easy to adopt after a bit counselling irrespective of season and surrounding. *Yoga* is all about positive modification of lifestyle. So *Kapalbhati,* as a *Shuddhikriya* (Yogic cleansing procedure) is best suited for all sections of obese patients, be they prosperous or poor. Hence *Kapalbhati* is perfect choice for poor as well as middle income group as one has to spend not a single penny for practicing *Kapalbhati.* It is, therefore inferred that that *Kapalbhati shuddhikriya* is more effective and highly recommended as compared to *Modhudak Paan* in *Sthaulya* patients.

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