

# Impact of the Specific Ashtanga and Hatha Yogic Practices on The BMI And Abdominal Skinfold Thickness Among the Obese Women

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**Abstract-** The purpose of the study was to find out the impact of the specific Ashtanga and Hatha yogic practices on BMI and Abdominal Skin fold thickness among the obese women. Thirty obese women (aged 30 to 45 years) living in Kondapur, Hyderabad were selected. Subjects were randomly assigned into three experimental groups. Each group consists of 10 and were treated for a period of 12 weeks. The first group treated with the Specific Ashtanga Yogic Practices (AYP) and the second group with Specific Hatha Yogic Practices (HYP) and the third group was considered as the Control Group that did not receive any of the above treatment. BMI and Abdominal Skinfold Thickness (ASFT) were taken for all the three groups at the base line and after a week of the treatment. Students paired 't' test was applied for examining the hypothesis. There is a significant improvement in both the yogic practices in BMI and ASFT where the Control group did not show any improvement. HYP is more effective than AYP in reducing the BMI and ASFT. The results indicated the importance of practicing the yoga to reduce the BMI and ASFT in obese women.

**Keywords-** Ashtanga yogic practices, Hatha yogic practices, BMI and Abdominal Skinfold Thickness.

## I. INTRODUCTION

Obesity is the biggest problem in this competitive world. Obesity is a condition where a person accumulated so much of body fat that it might have a negative effect on the health. Especially the women are lot more obese than men. This is due to the fact that the women now are so use to the sophisticated life that offers everything at the door and preventing them doing any physical activities. Also, the addition of junk food in the daily diet made it more worst. Obesity leads to other complicated problems in the people ending up with medicines which might lead to the other side effects. People often get misguided with different obese treatments which might address the problem temporarily but are not the healthy options.

Body Mass Index (BMI) is derived from the body weight in kilograms divided by the body height in meters

squared. If Body Mass Index (BMI) is between 25 and 29.9 is considered as overweight. If BMI is 30 or above is considered as obese. . The abdominal skinfold site is one of the common location used for the assessment of the body fat using the skinfold calipers. If Abdominal Skinfold Thickness is 30 or over are considered over fat.

Yoga is the healthy and natural means of treating the obesity. It is a holistic approach to treat both the physical and mental state of a person by not only reducing the obesity and will also help to live a healthy and peaceful life. Yoga philosophy and practice were first described by Patanjali in the classic text, *Yoga Sutras*, which is widely acknowledged as the authoritative text on yoga. Today, many people identify yoga only with asana, the physical practice of yoga, but asana is just one of the many tools used for healing the individual; only three of the 196 sutras mention asana and the remainder of the text discusses the other components of yoga including the conscious breathing, meditation, lifestyle and diet changes, visualization and the use of sound, among many others. In *Yoga Sutras*, Patanjali outlines an eightfold path to the awareness and enlightenment called *Ashtanga*, which literally means "eight limbs".

Hatha yoga enhances the capacity of the physical body through the use of a series of body postures, movements (asanas), and breathing techniques (pranayama). The breathing techniques of Hatha yoga focuses on the conscious prolongation of inhalation, breathe retention, and exhalation. It is through the unification of the physical body, breath, and concentration, while performing the postures and movements the blockages in the energy channels of the body are cleared and the body energy system becomes more balanced.

## II.OBJECTIVES

1. To identify the comparative effects of the specific AYP and HYP on BMI and ASFT among the obese women.
2. To assess the differences in BMI and ASFT between the effective groups and control group through the yogic practices

3. To evaluate the differences in BMI and ASFT between the effective groups through the evidence.

### III. HYPOTHESIS

The AYP and HYP have a significant positive effect on BMI and ASFT among the obese women.

### IV. METHODOLOGY

The purpose of the study was to find out the impact of AYP and HYP on Physical variables among the obese women. Thirty obese women (aged 30 to 45 years) living in

Kondapur, Hyderabad were selected. Subjects were randomly assigned into three experimental groups. Each group of 10 were treated for a period of 12 weeks. The first group was treated with the AYP and second group with HYP and the third group was considered as a Control Group that did not receive any of the above treatment. BMI and ASF were taken as the physical variables for all the three groups at the baseline (pretest) and a week after the treatment (posttest).

### V. TRAINING SCHEDULE

The study window was planned for 12 weeks with the three phases and each phase had 1- 4 weeks of duration.

#### i.) AYP (MON-FRI,60MINS(10-11 AM),12WEEKS)

TABLE-1

1-4WEEKS	4-8WEEKS	8-12WEEKS
<b>WARMUP-5 Mins</b> Forward bend Backward bend Side bend Twist Mukha dhouti	<b>WARMUP-5 Mins</b> Forward bend Backward bend Side bend Twist Mukha dhouti	<b>WARMUP-5 Mins</b> Forward bend Backward bend Side bend Twist Mukha dhouti
<b>SURYA NAMASKAR-5 Mins</b>	<b>SURYA NAMASKAR-5 Mins</b>	<b>SURYA NAMASKAR-5 Mins</b>
<b>ASANAS-25 Mins</b> Tadasan, Trikonasan, piraiasan, uttanasan, bhujangasan, sarpasan, salabhasan, markatasan, uttanpadasan, matsyasan, vajrasan, vakrasan, paschimauttanasan.	<b>ASANAS-20 Mins</b> Trikonasan, piraiasan, uttanasan, bhujangasan, sarpasan, salabhasan, markatasan, sarvangasan, matsyasan, ustrasana, ardha matsyendrasana, paschimauttanasan, padmasana.	<b>ASANAS-15 Mins</b> Trikonasan, piraiasan, uttanasan, bhujangasan, sarpasan, salabhasan, markatasan, sarvangasan, matsyasan, ustrasana, ardha matsyendrasana, paschimauttanasan, padmasana.
<b>PRANAYAMA-10 Mins</b> Kapalabhati Bhastrika Nadisuddhi	<b>PRANAYAMA-10 Mins</b> Kapalabhati Bhastrika Nadisuddhi	<b>PRANAYAMA-10 Mins</b> Kapalabhati Bhastrika Nadisuddhi
<b>SOHAM MEDITATION-7 Mins</b>	<b>SOHAM MEDITATION-15 Mins</b>	<b>SOHAM MEDITATION-20 Mins</b>
<b>RELAXATION-8 Mins</b>	<b>RELAXATION-5 Mins</b>	<b>RELAXATION-5 Mins</b>

## ii.) HYP (MON-FRI, 60MINS, 12WEEKS)

TABLE 2

1-4WEEKS	4-8WEEKS	8-12WEEKS
<b>WARMUP-5 Mins</b> Forward Bend Backward Bend Side Bend Twist Mukha dhouti	<b>WARMUP-5 Mins</b> Forward Bend Backward Bend Side Bend Twist Mukha dhouti	<b>WARMUP-5 Mins</b> Forward Bend Backward Bend Side Bend Twist Mukha dhouti
<b>SURYA NAMASKAR-10 Mins</b>	<b>SURYA NAMASKAR-10 Mins</b>	<b>SURYA NAMASKAR-10 Mins</b>
<b>ASANAS-30Mins</b> Tadasan, Trikonasan, piraiasan, uttanasan, bhujangasan, sarpasan, Salabhasan, markatasan, uttanpadasan, matsyasan, vajrasan, vakrasan, paschimauttanasan.	<b>ASANAS-30 Mins</b> Trikonasan, piraiasan, Uttanasan, bhujangasan, sarpasan, salabhasan, markatasan, sarvangasan, matsyasan, ustrasan, ardhmatsyendrasan, paschimauttanasan, padmasan.	<b>ASANAS-30 Mins</b> Trikonasan, piraiasan, uttanasan, bhujangasan, sarpasan, salabhasan, markatasan, sarvangasan, matsyasan, ustrasan, ardhmatsyendrasan, paschimauttanasan, padmasan.
<b>PRANAYAMA-5 Mins</b> Kapalabhati, bhastrika, na disuddhi	<b>PRANAYAMA-5 Mins</b> Kapalabhati, bhastrika, na disuddhi	<b>PRANAYAMA-5 Mins</b> Kapalabhati, bhastrika, na disuddhi
<b>BANDHA-3 Mins</b> Uddiyana Bandha	<b>BANDHA-5 Mins</b> Uddiyana Bandha	<b>BANDHA-5 Mins</b> Uddiyana Bandha
<b>RELAXATION-7 Mins</b>	<b>RELAXATION-5 Mins</b>	<b>RELAXATION-5 Mins</b>
<b>KRIYAS: VAMANA DHAUTI &amp; SANGAPRAKSHALANA</b>	Practiced at the second and at the twelfth week of the treatment (early morning-empty stomach).	

## VI. STATISTICAL ANALYSIS

Data were statistically analysed by using paired t-test. Level of significance was set at  $p=0.05$ . Probability  $p$  value  $<0.05$  was considered as statistically significant.

a.) Mean, Standard Deviation (SD), Standard Error Mean Difference (SEMD), Mean Difference (MD) and its significance in BMI.

TABLE 3

AYP	TEST	MEAN $\pm$ SD	MD	SEMD	t-value	p-value
	Pre	28.32 $\pm$ 3.16	0.76	1.00	3.48	0.00(S)
	Post	27.56 $\pm$ 2.59		0.82		

TABLE 4

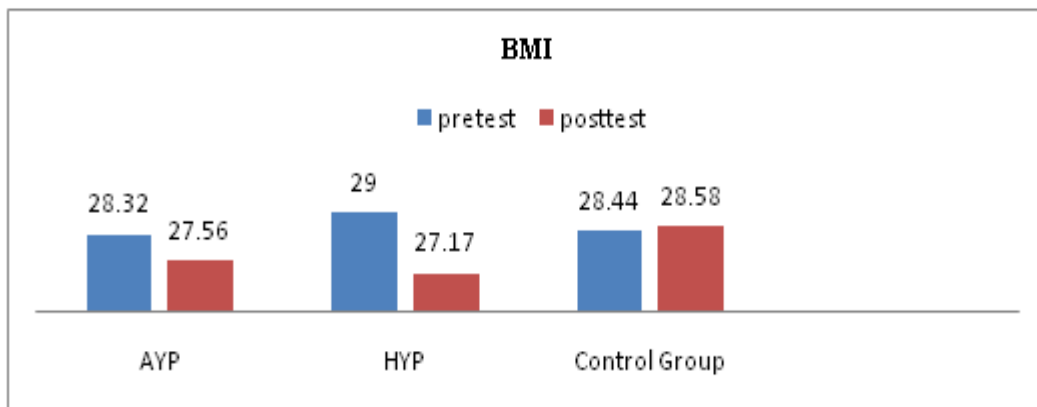
HYP	TEST	MEAN $\pm$ SD	MD	SEMD	t-value	p-value
	Pre	29 $\pm$ 2.61	1.83	0.82	17.85	0.00(S)
	Post	27.17 $\pm$ 2.51		0.79		

TABLE 5

Control Group	TEST	MEAN ±SD	MD	SEMD	t-value	p-value
	Pre	28.44±3.36	-0.14	1.06	0.92	0.37(NS)
	Post	28.58±3.45		1.09		

S-Significance, NS-Non significance

Bar diagram showing the Mean Difference among the yogic practices and control group on BMI among the obese women.



b.) Mean, SD, Mean Difference and its significance in ASFT .

TABLE 6

AYP	TEST	MEAN ±SD	MD	SEMD	t-value	p-value
	Pre	39.2±9.53	5.0	3.01	5.23	0.00(S)
	Post	34.2±7.08		2.24		

TABLE 7

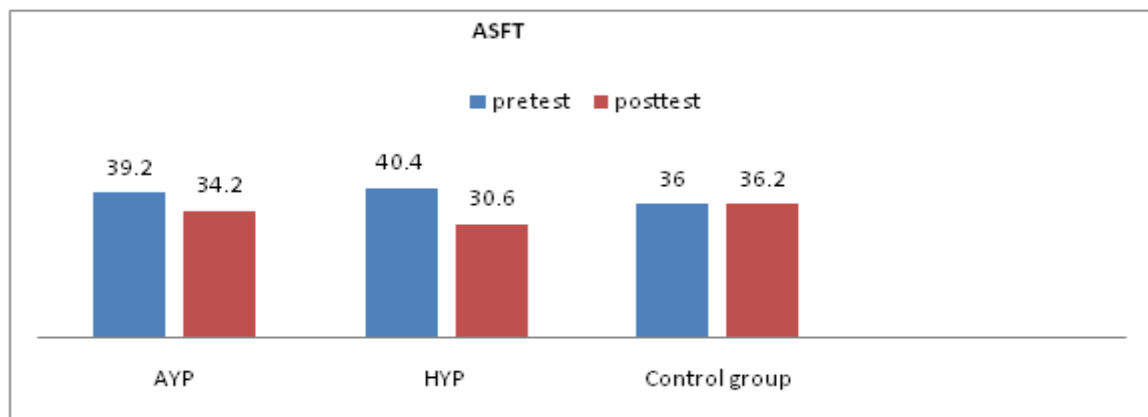
HYP	TEST	MEAN ±SD	MD	SEMD	t-value	p-value
	Pre	40.4±4.97	9.8	1.57	6.64	0.00(S)
	Post	30.6±3.53		1.11		

TABLE 8

Control Group	TEST	MEAN ±SD	MD	SEMD	t-value	p-value
	Pre	36±6.86	-0.2	2.17	0.28	0.78(NS)
	Post	36.2±6.89		2.17		

S-Significance, NS-Non significance

Bar diagram showing the Mean Difference among the yogic practices and control group on ASFT among the obese women.



## VII. RESULTS AND DISCUSSIONS

### 1. BMI

AYP (n=10, pretest mean  $\mu\text{g/dL} \pm \text{SD}$ -posttest mean  $\mu\text{g/dL} \pm \text{SD}$ , tvalue, pvalue:  $28.32 \pm 3.16 - 27.56 \pm 2.59$ ,  $t=3.48$ ,  $p=0.00$ ) and HYP (n=10,  $29.00 \pm 2.61 - 27.17 \pm 2.51$ ,  $t=17.85$ ,  $p=0.00$ ) have shown a significant ( $p < 0.05$ ) reduction in BMI over the Control group (n=10,  $28.44 \pm 3.36 - 28.58 \pm 3.45$ ,  $t=0.92$ ,  $p=0.37$ ) also the HYP has shown more significant ( $p < 0.05$ ) reduction than AYP among the obese women.

Similar study conducted by [N Moliver](#), et.al; studied the Increased Hatha yoga experience predicts the lower body mass index and reduced the medication use in women over 45 years.

### 2. ASFT

AYP (n=10, pretest mean  $\mu\text{g/dL} \pm \text{SD}$ -posttest mean  $\mu\text{g/dL} \pm \text{SD}$ , tvalue, pvalue:  $39.2 \pm 9.53 - 34.2 \pm 7.08$ ,  $t=5.23$ ,  $p=0.00$ ) and HYP (n=10,  $40.4 \pm 4.97 - 30.6 \pm 3.53$ ,  $t=6.64$ ,  $p=0.00$ ) have shown a significant ( $p < 0.05$ ) reduction in ASFT over the control group (n=10,  $36.0 \pm 6.86 - 36.2 \pm 6.89$ ,  $t=0.28$ ,  $p=0.78$ ) also the HYP has shown more significant ( $p < 0.05$ ) reduction than AYP among the obese women.

Another study conducted by [Ruby M, Repka CP, Arciero PJ](#) has shown the significant effect on the Body weight and Abdominal body fat through the practice of yoga/stretching training in the overweight women.

BMI is the generic indication of obesity. In baseline all the women were identical in their BMI (28-29). In post treatment there is a sequent reduction in both the Ashtanga and Hatha Yogic practices. However the control group has shown no change. Intense Hatha yogic practices like suryanamaskar, abdomen locks and holding the breath

(uddiyanabandha) are considered to be effective in reducing the central adiposity, stretches the muscle tones and fat in the sensitive area. To a large extent there is a distribute fat in the body. There by Body Mass Index came down. The rate of reduction is not very drastic, which can be dangerous. It is gradual. Approximately 1.75 kg to 4.7Kg reduction are a period of 12 weeks is desirable. Hence the yogic practices can be a safe approach to address the obesity.

## VII. CONCLUSION

The present study concludes the importance of yogic practices in reducing the BMI and ASF over the control group. AYP with less body oriented do not help much in treating the obese as the HYP focuses more on vigorous yogic practices which is more essential to reduce the physical variables among the obese women.

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