

## Effect Of Yoga On Body Composition Among Obese Women

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### ABSTRACT:

Obesity is a very dangerous global health issue and conventional treatments demonstrate poor long-term efficacy. Number of studies has shown that yoga can control risk factors for cardiovascular disease, obesity, and psychosocial stress. The present study aimed to assess the effect of different series of asanas (Postures) i.e. suryanamaskara, on body composition of obese women. Thirty obese women in Panjab University, Chandigarh hostel age ranged 23-27 year were purposively selected for in this study. The participants were divided into 2 groups: the intervention group (n = 15), which undertook a suryanamaskara practice and the control group (n = 15). Body composition, including percent body fat (PBF) and body mass index (BMI) was evaluated using digital body composition analyzer. Our results showed that the mean percent body fat (PBF) and Body Mass Index (BMI) of the suryanamaskara intervention group were significantly decreased at week 12. In conclusion; a continuous suryanamaskara practice had a tendency to decrease PBF and BMI. These findings demonstrate intervention effectiveness similar to that observed in other clinical research and indicate that continuous suryanamaskara practice may be used as an alternative therapy for obesity prevention and health promotion in chubby women.

**Keywords:** Yoga, Suryanamaskara, Obesity, Body composition analyzer, Percent Body Fat, Body Mass Index

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### I. INTRODUCTION:

Obesity is a metabolic disorder with excessive fat accumulation in different parts of the body, and it is risk factors for cardiovascular disease, obesity, psychosocial stress and metabolic disorders. One-third of the world's population is now categorized as overweight, and all signs point to a further escalation of this situation in the years to come, this health problem is increasing worldwide, especially in developing countries and newly industrializing countries. Improvements in living standards and changes in lifestyle, physical inactivity, sedentary behaviour, and excessive energy intake have resulted in a rapid increase in overweight and obesity rates among children and adolescents. Once considered a high-income country problem, overweight and obesity are now on the rise in low- and middle-income countries, particularly in urban settings. In Africa, the number of obese children under 5 has increased by nearly 24% since 2000. Almost half of the children under 5 who were obese in 2019 lived in Asia. The Department of Health, Ministry of Public Health, Thailand, reported that 13.1% of school-aged children were on the verge of becoming overweight or obese in 2016, and 1 in 4 children and 3 in 4 teenagers were obese and may grow to become obese adults. Obesity increases the risk of developing chronic non-communicable diseases (NCDs). College and university students may be especially at risk for sedentary behaviour because much of their campus day consists of classroom lectures and studying while sitting still. However, young adults are typically in good health, and educational institutions and student welfare associations facilitate student's engagement in various forms of physical activity. Studies suggested that university students are highly sedentary and highly active.

### II. Definition of obesity:

Obesity has been defined as a person, who on account of inordinate of fat and flesh, is disfigured with pendulous, buttocks, belly and breasts and whose increase bulk is not matched by a corresponding increase in energy. Excess deposition of fat in adipose tissue is obesity. A body weight 20% or more than the desirable weight for age, sex and height is regarded as obesity.

Yoga is a practice that involves physical poses, focused breathing, mindfulness, and meditation (Cook-Cottone, 2015; 1966; Kraftsow, 2002). Yoga focuses on developing a positive relationship with one's body; the underlying tenets of yoga, including movement in accordance with the needs of one's body in the present

moment, enhanced body awareness, and promotion of self-compassion, suggest that yoga could be helpful in promoting greater body satisfaction. (Cook-Cottone, 2016; Daubenmier, 2005; Dittmann & Freedman, 2009; Douglass, 2011; Impett, Daubenmier, & Hirschman, 2006; Mahlo & Tiggemann, 2016). Cook-Cottone and Douglass (2017) have described the potential for yoga communities and the spaces in which yoga is practiced to enhance positive embodiment. Furthermore, the practice of yoga appears to be increasingly popular in the United States (Yoga Journal & Yoga Alliance, 2016), particularly among women, who are at high risk for body dissatisfaction (Bucchianeri et al., 2013; Lauche et al., 2017), suggesting its potential as a public health intervention to improve body satisfaction. An important question that remains to be addressed is whether yoga is associated with improvements in body satisfaction over time. A related question is whether yoga has the potential to benefit those in greatest need, i.e., those with lower levels of body satisfaction.

One of the primary goals of yoga is to help practitioners become more in tuned with their bodies, their thoughts, and their emotions. The Yoga Sūtras begin with these words by Maharshi Patanjali (Satchidananda, 2004):

योगस्चीत्तवृत्तत्तत्तत्तरोधः

Yoga scittavāttinirodhau (Yoga Sūtras 1:2)

### III. SURYANAMASKARA (sun salutations):

Suryanamaskara is a series of 12 energizing yoga poses (asanas) that offer a beneficial cardiovascular workout. These poses, which are also known as sun salutations, are beneficial for maintaining both a peaceful and healthy mind and a physically fit body. It is ideal to perform the Suryanamaskara in the morning on an empty stomach. Let's start our journey to wellness with these easy but powerful Sun Salutation moves. Two sets make up each round of the Sun Salutation. One Suryanamaskara set consists of these 12 yoga positions. You must perform the same series of postures again to complete the second half, however this time, move your left leg instead of your right leg. There are various ways to perform the Sun Salutation. To achieve the best results, it is best to stick to a single sequence and to practice it frequently.



Yoga is one such intervention, with studies reporting long-term adherence and benefits in various health conditions, including obesity. The various postures of yoga, especially forward bending, twisting and backward bending, help reduce fat near the abdomen, hips, and other areas. Therefore, yoga is a solution for a healthy lifestyle because the practice of yoga is a complete package with wonderful cardiovascular, dynamic workouts that do not require any machines or much space.

Therefore, yoga practice may be a way to prevent obesity in obese women. It is necessary to study forms of exercise that are appropriate and beneficial for weight. The present study examined the effect of yoga on body composition of obese women. This study provides new exercise knowledge on classic series of 12 asanas for decreasing body weight and increasing fat-burning in obese women.

### IV. METHODOLOGY:

To achieve this purpose a total of thirty (n=30) obese women students who are residing in Panjab University Chandigarh hostels were purposively selected as subjects for the study. Their age ranged from 23 to 27 years with no other pathological conditions. For the selection of the subjects digital Body Composition Analyzer was used, subjects having body fat percentage above 32 were considered as obese and selected as subjects for the present study.

The selected subjects were randomly divided into two groups. Group I served as the intervention group practiced Suryanamaskara training protocol for 12 weeks and group II was treated as a control group that didn't participate in any special exercises except their routine. The dependent variables for this study, Percent Body Fat (BFP) and Body Mass Index (BMI) were measured with the help of digital Body Composition Analyzer available at Department of Physical Education Panjab University Chandigarh. All the subjects were tested at

baseline (Pre-test) and after 12weeks of training protocol for post test scores on Percent Body Fat (BFP) and Body Mass Index (BMI). Random group pre-test and post-test design was used as an experimental design.

**V. INCLUSION CRITERIA:**

Obese women voluntarily wanted to join Yoga session for general physical mental wellbeing and not suffering from such chronic illness as well as not taking any kind of medicine.

**VI. TRAINING PROTOCOL:**

The subjects in the experimental group practiced Suryanamaskara training protocol for 6 days in a week except Sunday for 12weeks. The training protocol lasts for approximately 50 minutes including warming up and cooling down exercises. The Suryanamaskara training protocol consist of practice of Suryanamaskara at various pace on various signals, on counts, on asanas names and on mantras. The training sessions were scheduled in the morning from 6:00 AM to 7:00 AM and performed at girls hostel no-5 common room.

**VII. STATISTICAL ANALYSIS:**

Statistical Analyses were performed by using the statistical package for the social sciences v-23 (SPSS) software. Data is expressed as the mean & SD. Dependent ‘t’-test was utilized to compare the means of the pre and post-test. The level of significance was set at 0.05 level of significance.

**VIII. RESULTS:**

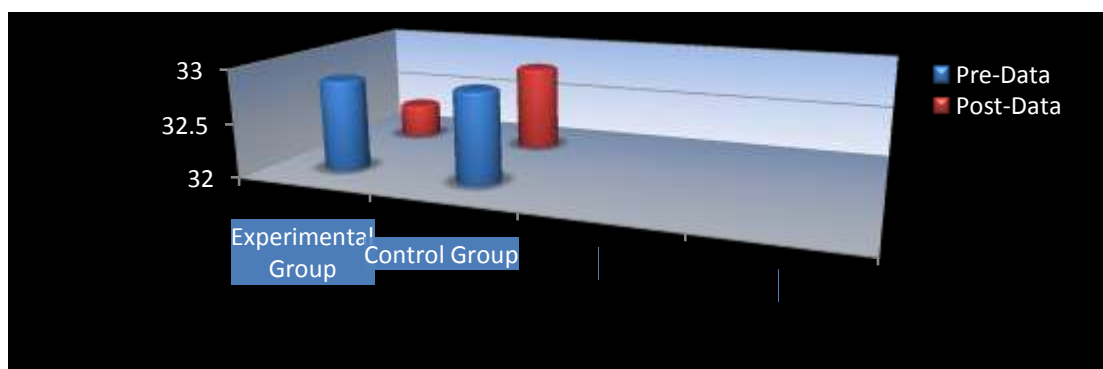
The analysis of dependent ‘t’-test on the data obtained from the experimental and control group for Percent body fat and body mass index is analyzed and presented in Table 1 and Table 2 respectively.

**Table1:** N, Mean, SD and t-value of obese women belonging to experimental and control group during Pre-test and post-test on the Percent Body Fat (PBF).

Group	N	Test	Mean	SD	t-value	P-value
Experimental Group	15	Pre-test	32.85	.83	8.621	.000*
		Post-test	32.33	.79		
Control Group	15	Pre-test	32.85	.83	1.234	.238
		Post-test	32.81	.87		

\* Significant at 0.05 level (p<0.05)

Table1 shows the result about the comparison of percent body fat (PBF) among yoga experimental and control groups obese women. The mean of 15 pre and post-test of yoga experimental group are 32.85 and 32.33 with SD of .83 and .79 respectively. Table1 also reveals that there is the significant difference in the experimental pre-test and post-test observations on the Percent Body Fat of obese women as the obtained t-value of the experimental group on Percent Body Fat is 8.621 and p-value is less than 0.05 level of significance. Whereas in the case of control group Mean and SD on percent body fat (PBF) are not found to be significant at 0.05 level of significance, as the obtained t-value is control group 1.234 and p-value is greater than 0.05 level of significance. The pre-test and post-test mean scores of experimental and control groups for Percent Body Fat are graphically presented in figure 1.

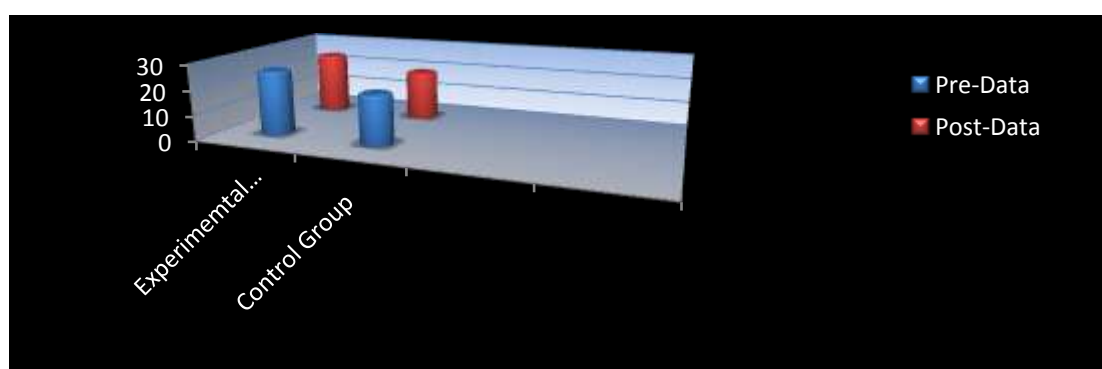


**Table2:** N, Mean, SD, and t-value of obese women belonging to experimental and control group during Pre-test and post-test on the Body Mass Index (BMI).

Group	N	Test	Mean	SD	t-value	P-value
Experimental Group	15	Pre-test	25.71	.54	11.996	.000*
		Post-test	24.79	.47		
Control Group	15	Pre-test	19.93	.77	.037	.971
		Post-test	19.96	1.18		

\* Significant at 0.05 level (p<0.05)

Table 2 Depicts the result about the comparison of Body Mass Index (BMI) among yoga experimental and control groups obese women. The mean of 15 pre and post-test of yoga experimental group are 25.71 and 24.79 with SD of .54 and .47 respectively. Table 2 also reveals that there is the significant difference in the experimental pre-test and post-test observations on the Body Mass Index of obese women as the obtained t-value of the experimental group on Body Mass Index is 11.996 and p-value is less than 0.05 level of significance. Whereas in the case of control group Mean and SD on Body Mass Index are not found to be significant at 0.05 level of significance, as the obtained t-value is control group .037 and p-value is greater than 0.05 level of significance. The pre-test and post-test mean scores of experimental and control groups for Body Mass Index are graphically presented in figure 2.



### IX. DISCUSSION:

In the present study a 12-weeks yoga program reduced the Percent Body Fat (PBF) and Body Mass Index (BMI) in 30 obese women. Body composition analysis showed a decrease in the PBF and BMI values of obese women. The present study can be considered preliminary, requiring a further randomized controlled trial and a follow-up to determine the long term impact of yoga training on obesity. The Intervention has also raised concerns about the advisability of an intensive yoga program in view of the body composition changes and the decrease in Percent body fat and body mass index. These results suggest that studying the effects of a more gradual change in along with or independent of a yoga program, would be useful.

### X. CONCLUSION:

The current study demonstrated that the mean of percent body fat and body mass index of an Experimental group decreased significantly at week 12. The result confirmed that continuous yoga practice affected Percent body Fat (PBF) and body mass index (BMI) experimental group whereas there was no significant change was recorded in the control group on Percent body Fat (PBF) and body mass index (BMI). It concludes that even 12-weeks yoga protocol are effective enough on Percent body Fat (PBF) and body mass index (BMI) obese women subjects. These findings demonstrated intervention effectiveness that was similar to other clinical research and indicated that continuous daily yoga practice may help to improve the cardiac and lung health thus yogic exercises should be the part of the lifestyle of the obese women and be used as an alternative therapy for obesity prevention and health promotion in obese women.

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