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## The effect of power yoga training programme on fat percentage of obese male

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### Abstract

Purpose of this study was to investigate the effect of 8 weeks of power yoga intervention on fat percentage in obese male. Cross-sectional study design study was piloted with using purposive sampling technique involving n = 24 obese male subjects' age range between 18 to 28 years between control (n = 12) and experimental groups (n = 12) subjects. Bio-electrical impedance test was conducted to obtain the pre and post data of fat percentage which was recorded in percentage rounded off 0.01 percent. Further, experimental group subjects were practiced 8 weeks power yoga training programme for 3 days in a week and control group were not practiced any yoga training. Descriptive statistics was used to describe the status of obese male subjects on fat percentage with the help of groups. For analysing difference between the groups the analysis of co-variance and post-hoc test (LSD) were applied and level of significance was set at the 0.05 level. Results of the study concludes that power yoga training intervention improves body composition variable i.e. fat percentage in obese male.

**Keywords:** Power yoga training, body composition, bio-electrical impedance, and fat percentage

### Introduction

Obesity can be characterized as a modern epidemic known as the "New World Syndrome," imposing significant socioeconomic and public health burdens across developed, developing, and impoverished nations. Further, the widespread consumption of energy-dense, nutrient-poor foods coupled with sedentary living has given rise to a global crisis of obesity and type 2 diabetes (Goran, 2003) [5]. On a global scale, the prevalence of obesity in adults averaged at 8.2% in the year 2000. Furthermore, this prevalence is progressively higher based on a country's level of development: undeveloped countries (1.8%), developing countries (4.8%), countries in transition (17.1%), and developed countries (20.4%) (WHO, 2001) [24]. Moreover, Dogra, *et al.* (2022) [2] also highlighted from the WHO (2013) [25] report that 44% of diabetes cases, 23% of ischemic heart disease cases, and between 7% and 41% of certain cancer cases due to overweight or obesity.

However, physical activity plays a crucial role in young people's growth, development, and physical health because of all the positive effects it has on both their physical and mental health (Shukla *et al.* 2020) [20]. Beginning in early childhood, regular physical activity has a favourable impact on mortality and longevity. Additionally, the significance of supportive contextual elements is emphasized in order to increase habitual levels of physical activity in children and adolescents (Hills *et al.*, 2007) [7].

Moreover, yoga appears to be as effective as or more effective than exercise in alleviating symptoms linked with diabetes, menopause, renal illness, multiple sclerosis and schizophrenia. Exercise is known to have insulin-like effects on blood glucose levels. But, the practice of yoga creates harmony in the physical, mental, psychological and spiritual aspects and improves the quality of life of the humans (Nagendram and Nagarathna, 1997; Ni *et al.*, 2016; Santoshi (2017); Naragatti, 2020) [10, 12, 16, 11].

Further, yoga has recently been shown to improve blood glucose levels in people with diabetes and other chronic health issues (Nadaf, 2017) [9]. Furthermore, previous studies suggested that yoga, a sort of sitting training, has numerous health and physical benefits.

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Additionally, consistent yoga practice increases the flexibility and muscle strength and BMI as well (Tracy and Hart, 2013; Selvaraj and Sivasankar, 2017; Shiraishi, *et al.* 2017; Ganga, 2019) [22, 17, 19, 4]. Similarly, Mallinson and Singleton (2017) [8] also founded that, practicing asana improves muscle flexibility and relaxation, which is extremely beneficial to the human skeletal system. This, in turn, reduces the risk of ligament and tendon issues. Apart from this, yoga is essential for regulating muscle growth and promoting peak bodily efficiency.

On the other hand, Hagins *et al.* (2007) [6] compared the metabolic and cardiorespiratory effects of regular hatha yoga and treadmill walking practice, finding that the hatha yoga metabolic costs averaged over the course of a session represent low levels of physical activity compared to 3.2 KMPH treadmill walking. Additionally, Dominika *et al.* (2019) [3] were reported that power yoga training program was a significant mode to improve explosive strength of upper limbs and anaerobic endurance in dancers. Further, the literature suggested that yoga and fusion yoga programmes like power yoga, aqua yoga etc. have a significant impact on various health related physical factors. But, very few were conducted to assess the impact of yoga on the body composition aspect. To address this research gap researcher conducted this study and programmed a 8 week power yoga training schedule to assess the effect of power yoga on body composition variable fat percentage.

## Purpose

The purpose of the present study was to investigate the effectiveness of prescribed 8 week power yoga training programme on the selected body composition variable i.e. fat percentage of obese male.

## Hypotheses

It was hypothesized that the prescribed 8 week power yoga training programme will have a significant effect on fat percentage.

## Methodology

**Research Design:** In order to examine the impact of an 8-week power yoga training programme between the control and experimental groups on the fat percentage of obese males, the study adopted a cross-sectional study design.

## Selection of Subjects

The purposive sampling technique was used to select the total of twenty-four obese male resident of Banaras Hindu University Campus, Varanasi, (UP) age ranging from eighteen to twenty-eight years were chosen as the subjects. Further, the participants were then split into two equal groups, with 12 obese individuals as the experimental group and the remaining 12 obese participants to serve the control group respectively.

### Inclusion and Exclusion Criteria

S. No.	Inclusion Criteria	Exclusion Criteria
1.	Obese male	Other than obese male
2.	18-25 years	Less than 18 years and above 25 years
3.	Resident of Banaras Hindu University Campus, Varanasi, (UP)	Outside resident of Banaras Hindu University Campus, Varanasi, (UP)

## Selection of Variables

**Dependent Variables:** Fat percentage

**Independent Variables:** 8 weeks of prescribed power yoga training programme

## Selection of Tests and Criterion Measures

Bio-electrical Impedance Test was used to examine the Fat percentage. Further, the fat percentage was measured in percentage rounded off 0.01 percent.

## Administration of Training Programme

The subjects belonging to the control group were not expose to any yoga training programme throughout 8 weeks respectively. But, they was undergoing through their regular daily routine schedule within their lifestyle. In contrast to this, prescribe yoga training programme program as developed by the researcher was implement to the experimental group - A for a period of 8 weeks for 3 days in a week with active rest of 2 days at the end of every week. The intensity, load and volumes was changing in 3<sup>rd</sup>, 5<sup>th</sup> 7<sup>th</sup>, 9<sup>th</sup> and 11<sup>th</sup> weeks respectively. The duration of the training was remain 30

minutes a day excluding 5 minutes of dynamic warming up and 5 minutes of cooling down.

## Collection of Data

The data of selected 24 obese male resident of Banaras Hindu University Campus, Varanasi (UP) subjects was collected by the research scholar in Yoga and Meditation Hall of Department of Physical Education. Further, the initial data on selected variables i.e. fat percentage of each subject was collected prior to the treatment program and the subjects were further examined after the treatment and considered final data of this research.

## Statistical Analysis

The body composition variable i.e. fat percentage of obese male resident of Banaras Hindu University Campus, Varanasi (UP) was analyse by using the descriptive and inferential statistics. Further, the status of fat percentage of selected groups were described by mean and standard deviation. Furthermore, in order to analyse the difference between groups, analysis of co-variance test was applied and the level of significance was set at the 0.05 level.

**Table 1:** Analysis of Experimental and Control Group on Fat Percentage among BHU Resident Obese Male

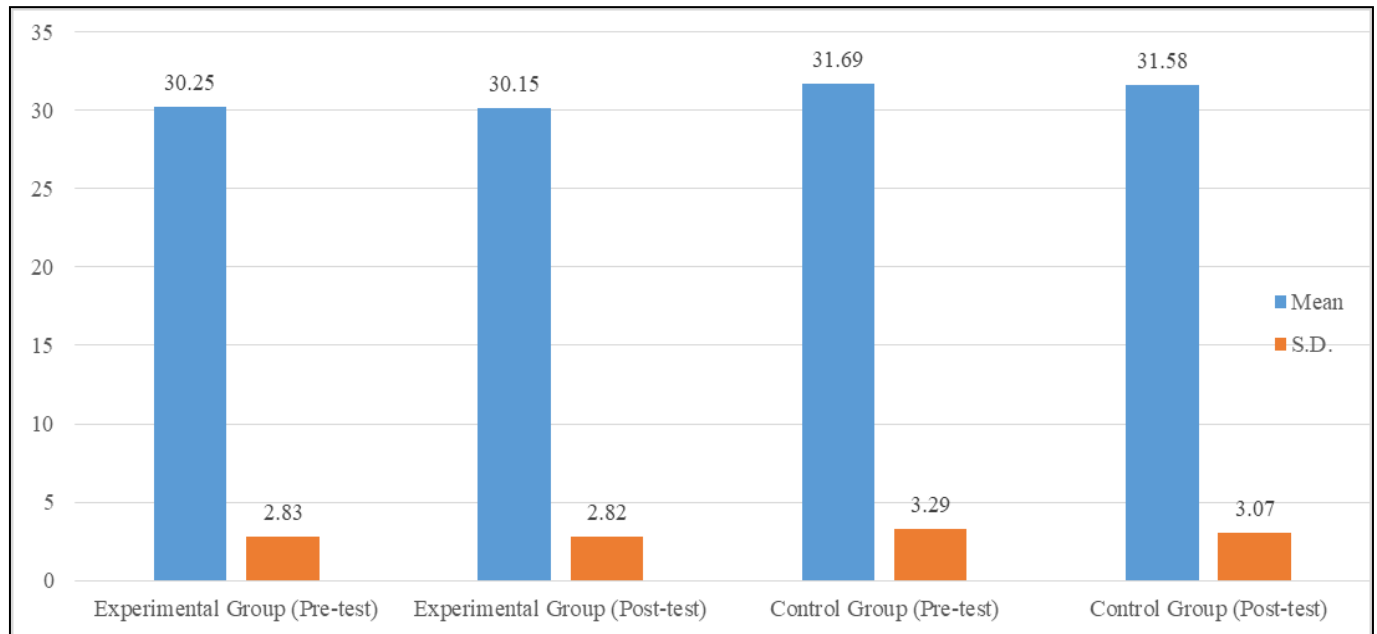
Group	Treatment	Mean ± SD	Degree of Freedom		F value	P Value
Experimental Group	Pre Test	30.25±2.83	1	21	15.03	0.00
	Post Test	30.15±2.82				
Control Group	Pre Test	31.69±3.29	1	21	15.03	0.00
	Post Test	31.58±3.07				

N= 12 (Each group)

\*Significant at 0.05 level

Table 1. Exhibit the Mean and Standard Deviation of pre-test and post-test of fat percentage among experimental and control group. Where the mean and standard deviation of pre-test (experimental group) was  $30.25 \pm 2.83$ . Further, the mean and standard deviation of post-test (experimental group) was  $30.15 \pm 2.82$ . Furthermore, mean and standard deviation of pre-test (control group) was  $31.69 \pm 3.29$ . Moreover, the mean and standard deviation of post-test (control group) was  $31.58 \pm 3.07$ . Additionally, the analysis of co-variance on selected variable fat percentage in table 1. Indicate the

significant difference on post-test among experimental and control group as the obtained P value (0.00) is less than 0.05 ( $F = 15.03$ ,  $P < 0.05$ ) at 0.05 level of confidence. Further, the graphical representation of experimental and control group on fat percentage among BHU resident obese male are shown in figure no. 1.0. Furthermore, to find the exact location of difference where F-Ratio is significant pair wise mean comparison (Post-Hoc) was done by using least significant difference test (LSD). Data pertaining to this has been presented in table-1.



**Fig 1:** The Graphical Representation of Mean and Standard Deviation of Experimental and Control Group on Fat Percentage among BHU Resident Obese Male

**Table 2:** Post-Hoc (LSD) on Experimental and Control Group on Fat Percentage among BHU Resident Obese Male

Dependent Variable	Group	Group	Mean Difference (I-J)	Std. Error	Sig.
Fat Percentage	Experimental	Control	-0.97*	0.25	0.00

\*significant at 0.05 level

The table-2 exhibits the pair-wise mean comparison through post-hoc test (LSD) for post-test of fat percentage among experimental and control group. The sig-values denotes that the mean of control group is higher than the experimental group fat percentage at the level of significance 0.05. Further, on the basis of the table 2, this has been interpreted that the post training experimental group BHU resident obese male has lower level of fat percentage than the control group BHU resident obese male.

### Discussion of Findings

The study was conducted to assess the effectiveness of 8 weeks prescribed power yoga training programme on fat percentage among experimental and control group Banaras Hindu University Varanasi (UP) resident obese male. Further, the descriptive statistics of tale 1.0 reveals that the experimental post-test group have lower mean value than the control group along with their graphical representation in figure 1.0. Furthermore, analysis of co-variance revealed a significant effect of prescribed 8 week power yoga training programme on the BHU resident obese male of experimental group in comparison to control group at 0.05 level of confidence. Moreover, the LSD post-hoc analysis of fat percentage from table no. 2, at 0.05 level of significance shows that 8 weeks of prescribed power yoga training

programme have significant improvement in fat percentage of experimental group obese male.

Additionally, this significant impact of 8 weeks prescribed power yoga training programme is occurred due to the fact that the power yoga is the fusion of explosive movements in yoga. Further, power yoga is a anaerobic activity in which yogic asana are performed with insufficient recovery. Due to this anaerobic nature activity the significant differences were occurred in fat percentage and similar finding on body composition variables were reported by several studies. Further, Chu *et al.* (2016) [1] and Patel *et al.* (2012) [14] investigated the short- and long-term effects of yoga programs on anthropometric measures and body composition in both healthy and symptomatic populations. Furthermore, Raju *et al.* (1986) [15], Tran (2001) [23], Pal *et al.* (2011) [13], Shantakumari *et al.* (2013) [18], and Telles *et al.* (2014) [21] reported found improvements in body composition markers including body fat percentage, and lean body mass percentage.

### Conclusion

The findings of the study shows the significant improvement in body composition variable i.e. body fat percentage due to the prescribed 8 week power yoga training programme. Further, on the basis of the results and findings of the study it

was concluded that 8 week power yoga training programme can improve the fat percentage of obese males.

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