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EFFECT OF AEROBIC EXERCISES ON BODY COMPOSITION AMONG OBESE WOMEN

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ABSTRACT:

Present study was designed to explore the effect of 12-week aerobic training program on body composition of obese females. Thirty obese women whose age ranged from 23 to 27 year were purposively selected from Panjab University Chandigarh. The participants were divided into 2 equal groups of 15 subjects in each group. Group 1 served as the experimental group (n = 15) and group II was treated as the control group (n = 15). Further, all the subjects from both groups were tested for Body Mass Index and Percent Body Fat before and after the 12 weeks aerobic exercise protocol. Findings of the study concluded that continuous aerobic exercises had a tendency to decrease Body Mass Index and Body Fat of obese women. These findings demonstrate effectiveness similar to that observed in other research and indicate that continuous aerobic training practice may be used as an alternative therapy for obesity prevention and health promotion in obese persons.

KEYWORDS: Aerobic Exercises, Obesity, Body Mass Index, Percent Body Fat, Digital Body Composition Analyzer.

INTRODUCTION:

Obesity, a global health concern, poses significant challenges to individuals of all ages and socioeconomic groups and threatens to overwhelm both developed and developing countries and their healthcare systems. According to WHO report there were approximately 20 crore obese adults worldwide and additional 1 crore and 80 lakh children below five years were classified as overweight in 1995. As of 2000, the number of obese adults has increased to over 30 crores. Contrary to orthodox perception, the obesity epidemic is not limited to developed countries; in developing countries, it is assessed that over 11 crores and 50 lakh people suffer from obesity-related problems (Controlling the Global Obesity Epidemic, 2023).

"Obesity is a chronic relapsing disease affecting a rapidly increasing number of people worldwide. By 2025, global obesity prevalence is predicted to reach 18% in men and surpass 21% in women" (World Obesity Day: 'Missing the Targets Report' | World Obesity Federation, n.d.). The multifaceted nature of obesity demands comprehensive strategies for

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its management, with physical activity emerging as a pivotal component. Among various exercise modalities, aerobic exercises have gained prominence for their potential to positively impact body composition (Niemiro, 2023). As obesity continues to escalate, especially among women, due to some physiological, biochemical, and hormonal changes female body tends to store more fat and the increase in body fat rate in women is associated with a number of other factors including pregnancy and menopause (Aktas et al., 2016). Understanding the nuanced effects of aerobic exercises on body composition becomes imperative for devising targeted and effective interventions. This paper explores into the complex relationship between aerobic exercises and body composition, focusing specifically on obese women. The term "body composition" refers to the relative proportions of fat and non-fat mass in the body, providing a more nuanced understanding of the physiological changes associated with obesity and exercise interventions. Body composition is a key component for maintaining good general health and longevity. It can be influenced by a variety of factors, including genetics, environment, and lifestyle choices (Holmes & Racette, 2021). The primary objective of this research is to elucidate the specific effects of aerobic exercises on adiposity, body mass index and percent body fat among women struggling with obesity. Historically, research has demonstrated the efficacy of aerobic exercises in promoting weight loss and improving cardiovascular health. However, the impact of aerobic exercises on body composition, encompassing changes in fat distribution, muscle mass, and metabolic health, remains an area warranting in-depth exploration. By narrowing our focus to obese women, this study seeks to address the gender-specific nuances in body composition changes induced by aerobic exercises, recognizing the distinct physiological and hormonal factors that may influence outcomes. The findings of this research endeavor aim to contribute valuable insights into tailoring exercise prescriptions that are not only feasible and sustainable but also specifically tailored to the unique needs and characteristics of obese women. In this study, it was aimed to explore the effect of aerobic exercises on body composition among obese women.

METHODOLOGY:

The research was done at Panjab University Chandigarh campus, to achieve the purpose of the study a total of thirty (N=30) obese women were purposively selected from Panjab University Chandigarh as subjects. All subjects were obese and had sedentary lifestyles, their age ranged from 23 to 27 years. The selected subjects were randomly divided into two equal groups. Group I served as the experimental group comprised of fifteen (n=15) subjects which underwent Aerobic exercises for twelve weeks and group II served as a control group comprised of fifteen (n=15) subjects and they were not allowed to take part in any special aerobic exercise except their daily routine. The dependent variables selected for this study are Body Mass Index (BMI) and Percent Body Fat (% BF). These variables were measured with the help of digital body composition analyzer. All the subjects were tested for baseline (Pre-test) data one day before the commencement of the training program and after completion of 12 weeks of aerobic training protocol for post test scores on BMI and % BF. Random group pre-test and post-test design was used as an experimental design. Both groups were recorded for BMI and % BF at baseline and after the 12weeks of the training period.

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TRAINING PROTOCOL:

The subjects in the experimental group participated aerobic exercises for 6 days in a week except Sunday for 12 weeks. The aerobic exercises training periods approximately 50 to 60 minutes including (Jumping jacks, burpees, static running etc.). The package of aerobic exercises protocol was given in the morning session between 7:30 am to 8:30 am.

SATASTICAL 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.

RESULTS:

The analysis of dependent 't'-test on the data obtained from the experimental and control group for body mass index is analyzed and presented in Table 1.

Table 1: *Comparison of Body Mass Index (BMI) variable between Aerobic Exercises Group and Control Group*

Group	Test	Mean	SD	t-value	p-value
Experimental Group	Pre-Test	25.67	.77	9.875	.000*
	Post-Test	24.23	.66		
Control Group	Pre-Test	25.43	.77	.037	.971
	Post-Test	25.42	1.18		

* Significant at 0.05 level ($p<0.05$)

Table 1 shows the result about comparison of body mass index variable among experimental and control group subjects. The mean ± SD of 15 pre- and post-test of experimental group is 25.67 ± .77 and 24.23 ± .66 respectively. The mean ± SD of body mass index on the other sample i.e. 15 pre and post-test of control group are 25.43 ± .77 and 25.42 ± 1.18 respectively.

Table 1 also reveals that there is a significant difference in the experimental pre- and post-test observations on body mass index variable among obese women as the obtained t-value of the experimental group on body mass index is 9.875 and p-value is less than 0.05 level, which means that there is a significant effect of 12 weeks aerobic exercises training program on body mass index variable of obese women. Whereas in case of control group, pre- and post-test observations on body mass index are not found to be significant, as the obtained t-value of the control group is 0.37 and p-value is .971 that is greater than 0.05 level.

The pre-test and post-test mean scores of experimental and control groups for body mass index are graphically presented in figure 1.

Figure-1

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Graphical Presentation of Mean and SD Scores of Experimental Group (EG) and Control Group (CG) on the Body Mass Index of Obese Women.

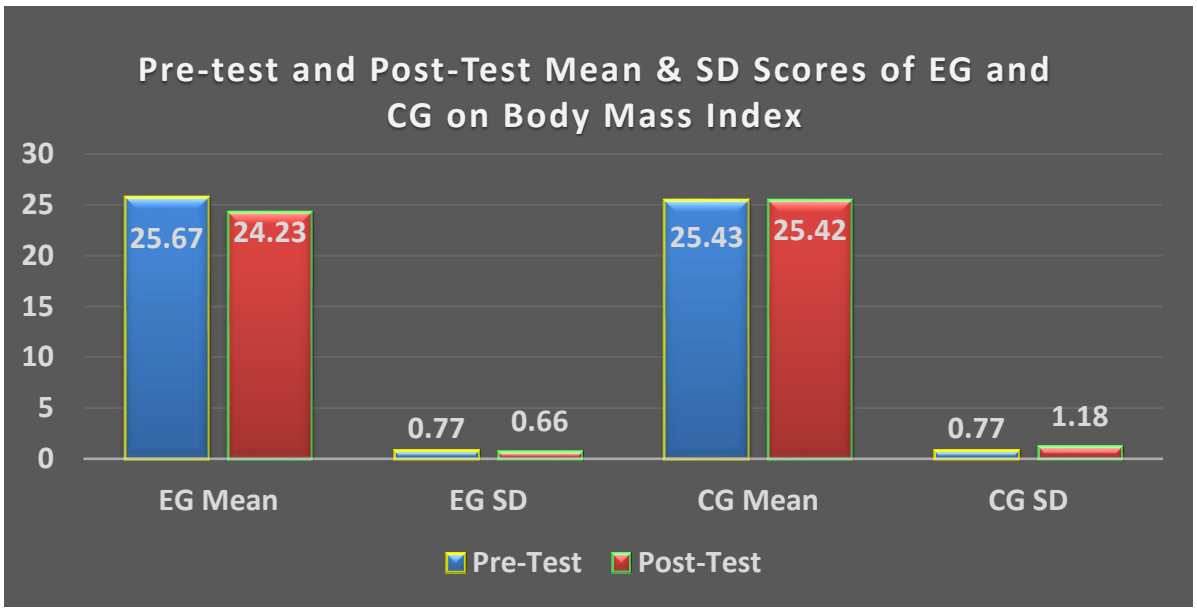

Table 2:

Comparison of Percent Body Fat (PBF) Variable between Aerobic Exercises and Control Group

Group	Test	Mean	SD	t-value	p-value
Aerobic Experimental Group	Pre-Test	32.86	.82	17.407	.000*
	Post-Test	31.72	.79		
Control Group	Pre-Test	32.85	.83	1.234	.238
	Post-Test	32.81	.87		

* Significant at 0.05 level ($p<0.05$)

Table 2 shows the result about comparison of percent body fat variable among experimental and control group subjects. The mean ± SD of 15 pre- and post-test of experimental group is 32.86 ± .82 and 31.72 ± .79 respectively. The mean ± SD of percent body fat on the other sample i.e. 15 pre and post-test of control group are 32.85 ± .83 and 32.81 ± .87 respectively.

Table 2 also reveals that there is a significant difference in the experimental pre- and post-test observations on Percent Body Fat variable among obese women as the obtained t-value of the experimental group on percent body fat is 17.407 and p-value is less than 0.05 level, which means that there is a significant effect of 12 weeks aerobic exercises training program on

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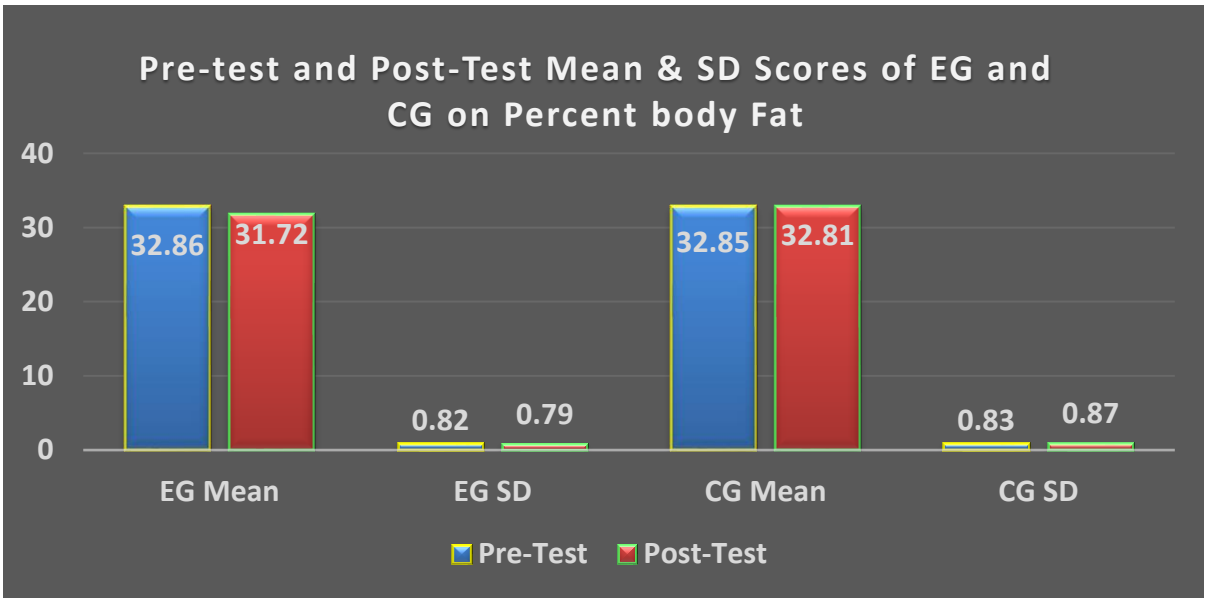
percent body fat variable of obese women. Whereas in case of control group, pre- and post-test observations on percent body fat are not found to be significant, as the obtained t-value of the control group is 0.37 and p-value is 1.234 that is greater than 0.05 level.

The pre-test and post-test mean scores of experimental and control groups for percent body fat are graphically presented in figure 1.

Figure-2

Graphical Presentation of Mean and SD Scores of Experimental Group (EG) and Control Group (CG) on the Percent body Fat of Obese Women.



DISCUSSION:

In the present study a 12 weeks aerobic exercises training program improve the body mass index and percent body fat of 30 obese women. Body mass index and percent body fat analysis showed an improvement in the body mass index and percent body fat values of obese women. The Intervention has also raised concerns about the advisability of an intensive aerobic exercises training program in view of the body mass index and percent body fat changes. These results further suggest that studying the effects of a more gradual change in along with or independent of aerobic exercises program would be useful.

CONCLUSION:

The current study demonstrated a comprehensive analysis of body mass index (BMI) and percent body fat (% BF) in obese women undergoing a 12-week aerobic exercises training

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program reveals significant and positive outcomes. The experimental group exhibited a substantial decrease in both BMI and % BF, indicating the effectiveness of the aerobic exercises program in controlling obesity. The result confirmed that continuous aerobic exercises training practice affected Body mass index and percent body fat experimental group whereas there was no significant change was recorded in the control group on Body mass index and percent body fat. It concludes that even 12weeks aerobic exercises training protocol is effective enough on Body mass index and percent body fat of obese women subjects. Regular aerobic exercises had a positive effect on Body mass index and percent body fat of obese women. These findings demonstrated intervention effectiveness that was similar to other clinical research and indicated that continuous daily aerobic exercises practice may help to enhance the power of satisfaction, freedom and good health thus aerobic exercises training should be the part of the lifestyle of the obese women and be used as an alternate part of the curriculum and therapy for obesity control.

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