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ORIGINAL RESEARCH

Evaluation of Exercise's Impact on Obese and Overweight People's Body Composition

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Abstract
Background: Aim: To evaluate how exercise affects obese and overweight people's body composition.
Methods: Seventy-two overweight participants, male or female, were recruited for the research. There were two groups ready. There were two groups: the experimental group (n = 36) and the control group (n = 36). Age, height, and weight were among the parameters that were noted. Every subject's body mass index and body fat percentage were calculated using these data. Over the course of four weeks, the experiment group underwent aerobic activity. **Results:** Group I's mean height was 163.7 cm, whereas group II's mean height was 165.4 cm. Group I had a weight of 65.2 kg, whereas group II had a weight of 63.5 kg. BMI (kg/m2) was 29.4 and 29.1, and body fat was 29.3% and 29.6%, respectively. There was a discernible difference ($P<0.05$). Group I and II had mean pre-test BMIs of 29.6 and 38.5, and post-test values of 26.4 and 38.9, respectively. There was a discernible difference ($P<0.05$). **Conclusions:** People who engage in regular physical exercise seem to benefit in terms of their health. In order to lower the amount of fat in the body, aerobic activity was positively correlated with overweight women.
Keywords:- Exercise, Obese, Overweight

INTRODUCTION

It is everyone's natural desire to have a prosperous and happy life. To fulfil this basic yearning, one must be in good physical condition and be in good health. Exercise is one way to reach one's ideal level of physical fitness.[1] It is a well-known fact that most people, especially women, lead sedentary lives. Research results indicate that people who lead sedentary lifestyles are clearly more vulnerable to a number of negative outcomes, including obesity, weight gain, hypertension, and other chronic diseases.[2] Numerous obesity therapies, such as dietary changes, exercise, behavioural therapy, and medication, have been documented in recent research.[3] Exercise therapies, among other behavioural techniques, may effectively reduce obesity and promote weight loss, weight maintenance after loss, and weight maintenance.[4] Nevertheless, the impact of exercise on the body weights of obese people is not very great. Furthermore, both the general public and researchers are aware of the recommendations for the recommended daily allowance of physical activity and exercise to promote health; nevertheless, the standards are too broad to target obesity specifically, and the results are frequently unpredictable. Therefore, it's critical to comprehend the extent to which physical activity or exercise programmes contribute to obesity.[5] Studies revealed that a healthy diet, stress reduction techniques, and—above all—an appropriate level of exercise are all necessary for the optimal regulation of body composition.In light of this, the current research sought to determine how exercise affected the body composition of overweight and obese individuals.[6]

MATERIAL AND METHODS

Seventy-two overweight individuals of both sexes were recruited for the research. The institutional ethics committee accepted the research protocol. Written permission was acquired from each individual once they were informed about the research.

Information was recorded, including name, age, and gender. Two teams were ready. There were two groups: the control group (n=56) and the experimental group (n=56). Data was recorded, including weight, age, and height. Every subject's body fat percentage and body mass index were calculated using these data. For a period of four weeks, the experiment group engaged in aerobic activity. No therapy was administered to the control group. The chi-square test was used to statistically infer the study's results once all pertinent data had been recorded. If the p value is less than 0.05 or less than 0.01 then the degree of significance was considered to be extremely significant.

RESULTS

The mean height in group I was 164.6 cm and 166.3 cm in group II. Weight was 66.1 kg and 64.4 kgs in group II, BMI (Kg/m2) was 30.3 and 30.2, body fat was 30.2% and 30.5% in group I and II respectively. A significant difference was observed (P< 0.05). [Table 1, Figure 1].

The mean pre- test BMI was 30.5 and 39.4 and post- test value was 27.3 and 39.8 in group I and II respectively. A significant difference was observed (P< 0.05). [Table 2, Figure 2].

Table 1: Demographic variables

Parameters	Group I	Group II	P value
Height (cm)	164.6	166.3	>0.05
Weight (Kg)	66.1	64.4	>0.05
BMI (Kg/m2)	30.3	30.2	>0.05
Body fat %	30.2	30.5	>0.05

Table 2: Pre and post-test results in body mass index

Duration	Group I	Group II	P value
Pre- test	30.5	39.4	<0.05
Post- test	27.3	39.8	<0.05

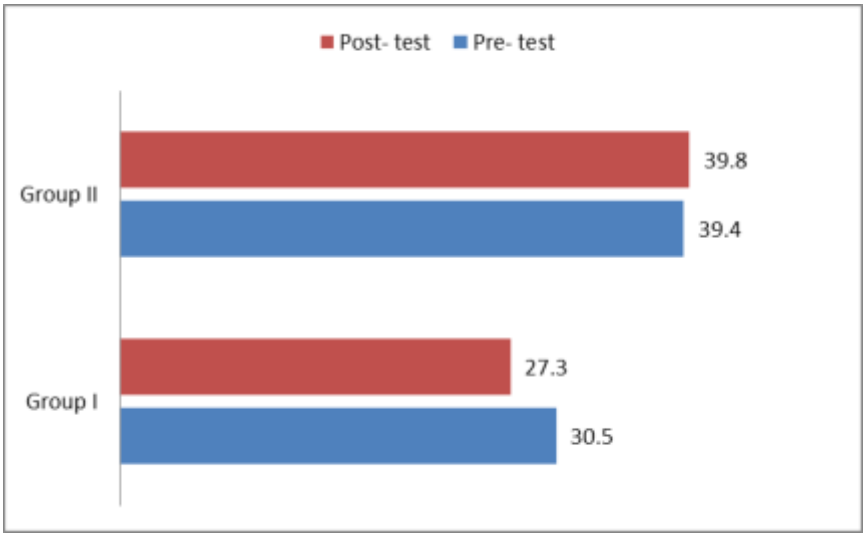

Fig 1: **Table 2: Pre and post-test results in body mass index**

DISCUSSION

Obesity as a proportion of the population rose in both industrialised and developing nations. The state of abnormal or excessive body fat, or the buildup of adipose tissue, to the point that health may be compromised, is known as obesity.Research has shown that obesity is associated with an increased risk of acquiring a number of chronic conditions, including cancer, type 2 diabetes mellitus, and cardiovascular disease.[8] Aerobic exercise is an effective way to decrease weight, especially body fat, since it raises peak oxygen consumption (VO2 peak), which is positively connected with total body fat percentage (BF%). The length and intensity of an exercise programme are often adjusted when creating a good weight reduction plan.[9] Body composition, insulin resistance, and glycated haemoglobin (HbA1c), three risk factors for metabolic syndrome, may be improved by engaging in moderate aerobic activity for at least 150 minutes each week. When food is uncontrolled, long-term moderate aerobic activity for >150 or 200–300 minutes per week may considerably decrease body weight, according to the American College of Sports Medicine.[10] But exercise expenditure alone does not account for weight reduction when exercise intensities vary. It is uncertain how increasing exercise intensity, while maintaining the same exercise time, affects weight reduction.[11] The current research set out to evaluate how exercise affected obese and overweight people's

body composition. Both genders comprised 72 participants in our research. There were 36 females and 40 guys in it. The effects of varying aerobic exercise intensities and energy expenditures on the body composition of obese, inactive college students were compared by Chiu et al. [12]. A total of 48 obese individuals with a body mass index (BMI) of ≥ 27 kg/m2, aged between 18 and 26 years, were randomly assigned to four equal groups (n = 12): the light-intensity training group (LITG), which had an HRR of 40% to 50%; the middle intensity training group (MITG), which had an HRR of 50% to 70%; the high-intensity training group (HITG), which had an HRR of 70% to 80%; and the control group (CG). For twelve weeks, the aerobic exercise training programme included using a treadmill three days a week for sixty minutes each day. At baseline and twelve weeks into the study, all participant anthropometric data, blood biochemical markers, and health-related physical fitness components were assessed. Anthropometric indicators at baseline did not show a significant difference between the four groups ($p > 0.05$). Compared to the LITG, the HITG and MITG saw substantially greater changes in body weight, waist circumference (WC), waist-to-hip ratio (WHR), and waist-to-height ratio (WHtR) after a 12-week exercise intervention. All four groups had different increases in BMI and body fat percentage ($p < 0.05$). While a light-intensity exercise intervention may substantially decrease body weight and body fat, a 12-week high-intensity exercise intervention with high energy expenditure can significantly reduce body weight, body fat, WC, WHR, and WHtR. We found that group I's mean height was 163.7 cm, whereas group II's mean height was 165.4 cm. Group I had a weight of 65.2 kg, whereas group II had a weight of 63.5 kg. BMI (kg/m2) was 29.4 and 29.1, and body fat was 29.3% and 29.6%, respectively. The effects of aerobic exercise on the body composition of overweight women aged 22–27 were evaluated by Pawaz et al. [13]. a sample of thirty overweight women, ages 22 to 27, who were not overweight. A four-week workout regimen was created and implemented for the female participants in the study. Anthropometric and three-site skin fold measures were applied to the experimental group. Both the control and experimental groups' pre- and post-test data were meticulously documented and input into the computer for analysis. The data was analysed using both inferential (Independent Samples t-Test and Paired Samples t-Test) and descriptive (mean and standard deviation) statistics. The data analysis revealed that the average score for EG in both the pre- and post-tests was 23.5 and 28.66. The table's P-value is 0.001, and its t-value is 5.022, both of which are below the significant threshold ($P<0.05$). We discovered that the mean BMI for groups I and II before the test was 29.6 and 38.5, and after the test was 26.4 and 38.9. Castro et al.'s study [14] looked at whether a certain kind of exercise promotes bigger changes in body composition in overweight and obese individuals or better adherence to a diet plan, as well as increased eating-related motivation and a healthier diet composition. During a 24-week period, 122 individuals (79 men) between the ages of 18 and 50 were randomly assigned to one of four intervention groups: strength, endurance, combined strength and endurance, or guideline-based physical activity. All groups were coupled with a diet restricted by 25–30% of calories. Pre- and post-intervention measures included a "3-day food and drink record" and a food frequency questionnaire. Using a questionnaire created specifically for this research, motivation levels linked to diet and exercise were assessed. Accelerometry was used to quantify habitual physical activity, while DXA was used to assess body composition. Following the intervention, there were no group differences in terms of body weight, body mass index (BMI), or body fat percentage; instead, lean body mass increased. There were no discernible interactions between the intervention groups and time; all groups exhibited a reduction in calorie consumption ($p < 0.001$). Between the pre- and post-intervention periods, intakes of fat, protein, and carbohydrates declined, and there were no discernible interactions between the intervention groups, BMI categories, or gender ($p < 0.001$). From pre- to post-intervention, diet-related motivation tended to rise without significantly interacting with intervention groups, BMI, or gender. Gender x time interactions were noted in relation to exercise motivation. Men's motivation remained the same after the intervention, whereas women's rose (pre: 17.6 ± 0.3, post: 18.2 ± 0.3). These results imply that exercise style has no discernible influence on calorie intake, choice of macronutrients, or changes in body composition. People did not lose interest in diet or exercise after a six-month weight reduction programme, particularly women. When following diet recommendations, people who start a long-term exercise programme do not increase their calorie consumption in order to make up for it.

CONCLUSIONS

People who engage in regular physical exercise seem to benefit in terms of their health. In order to lower the amount of fat in the body, aerobic activity was positively correlated with overweight women.

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