

EFFECT OF FOUR WEEKS AEROBIC EXERCISE TRAINING ON BODY MASS INDEX AND VITAL CAPACITY IN OBESE COLLEGE MALE: A PILOT STUDY

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ABSTRACT:

Introduction: The purpose of the present study was to find out the effect of four weeks Aerobic exercise training on body mass index and vital capacity in male student. Aerobic means -with oxygen -and refers to the oxygen in the body's metabolic process. Aerobic exercise programme such as on spot marching, hopping, running, walking, bicycling and jogging exercises for weight loss and vital capacity. There are many benefits for health and well-being to gain from regular aerobics exercise.

Methods: For this purpose ten obese male students were selected randomly from Pt. Kundanlal Shukla Mahavidyalaya, Kanpur Dehat (U.P). The subject's age ranged between 18 to 25 years. Their Body mass index ranged between is 25-29.9. Data were collected before and after four weeks aerobics exercise training programme. To find out the significance difference between pre and post-test means score of body mass index and vital capacity. Data collected from the subjects was statistically analyzed by t test.

Result and discussion: The result of the study showed that there was significant difference between pre-test and post-test ,as the calculated value of body mass index and vital capacity respectively (2.92*, 4.83*) was found more than the tabulated t value (2.26) at level of significance. The training was more effective for the subjects and the study confirmed that the effect of aerobic exercises has played a significant role in weight reduction of obese male as well as vitalcapacity.

Conclusion: The Aerobic exercise has beneficial effects on Body Mass Index and Vital Capacity. It is help for obese male students to loss of weight and improvement of the vital capacity.

Key Words: Aerobic exercise, Vital capacity, Body mass index, obese male.

Introduction

Aerobic exercise (also known as cardio) is physical exercise of relatively low intensity that depends primarily on the aerobic energy-generating process. Aerobic means with air or oxygen and it also increases your peak oxygen consumption, meaning more oxygen is getting into your blood,

improving circulation and heart function. It also burns excess calories that are stored in body tissues, which can lead to fat accumulation and weight gain if you take in more calories through food than you burn. Your normal daily activities burn a large number of the calories you eat every day; however, unless you're on a very restrictive diet, it's difficult to burn excess calories and lose weight without adding aerobic exercise. You should be able to carry on a short conversation while doing aerobic exercise. If you are gasping for air while talking, you are probably working anaerobically. When you work anaerobically, you will tire faster and are more likely to experience sore muscles after exercise is over. Using the same large muscle group, rhythmically, for a period of 15 to 20 minutes or longer while maintaining 60-80% of your maximum heart rate and think of aerobic activity as being long in duration yet low in intensity [1-7].

Aerobic activities include: walking, biking, jogging, swimming, aerobic classes and cross-country skiing. Anaerobic activity is short in duration and high in intensity. Aerobic exercise is any continuous, rhythmic activity that uses your large muscle group. It's elevates your heart rates, forcing your heart and your lungs to work harder than they do when you are sedentary.

In addition to cardiovascular benefits and other benefits of aerobic exercise are

Control of body fat(Aerobic exercise in conjunction with strength training and a proper diet will reduce body fat.), Increased resistance to fatigue and extra energy, Toned muscles and increased lean body mass, Decreased tension and aid in sleeping, Increased general stamina,

Strengthening the muscles involved in respiration to facilitate the flow of air in and out of the lungs, Strengthening and enlarging the heart muscle to improve its pumping efficiency and reduce the resting heart rate known as aerobic conditioning, Improving circulation efficiency and reducing blood pressure, Increasing the total number of red blood cells in the body and facilitating transport of oxygen, Improved mental health, including reducing stress and lowering the incidence of depression, Reducing the risk for diabetes.

Psychological benefits - Exercise improves mood, reduces depression and anxiety.

Aerobic exercise comprises innumerable forms. In general, it is performed at a moderate level of intensity over a relatively long period of time. For example, running a long distance at a moderate pace is an aerobic exercise, but sprinting is not. Playing singles tennis, with near-continuous motion, is generally considered aerobic activity, while golf or two person team tennis, with brief bursts of activity punctuated by more frequent breaks, may not be predominantly aerobic. Some sports are thus inherently "aerobic", while other aerobic exercises, such as fartlek training or aerobic dance classes, are designed specifically to improve aerobic capacity and fitness. It is most common for aerobic exercises to involve the leg muscles, primarily or exclusively. There are some exceptions.

BODY MASS INDEX (BMI)

Body Mass Index, or BMI, is a tool that helps you measure the amount of body fat you have based on your height and weight. Underweight = <18.5, Normal weight = 18.5-24.9, Overweight = 25-29.9, Obesity = BMI of 30 or greater. A standardized estimate of an individual's relative body fat calculated from his or her height and weight. The formula for calculating BMI is weight in kilograms (kg) divided by height in meters (m) squared.

The body mass index measurement, put simply, is the calculation of someone's body weight in relation to their height. Using a chart or a calculator, such as the [one on this site](#), you enter your weight and height details and are then told your current BMI measurement. You can also use this method to discover what your ideal weight should be for your height, a useful tool in today's climate of thin celebrities and fad diets. In broad terms, a BMI of under 18.5 places you in the underweight category and between 18.5 to 24.9 you are deemed normal - this is what we should all be aiming for. These moves on to being overweight with a BMI of between 25 to 29.9, obese at over 30 and morbidly obese if you have a BMI of over 40.

Vital capacity (VC)

Vital capacity (VC) is the maximum amount of air that a person can expel from the lungs after first filling the lungs to their maximum extent; it is equivalent to the inspiratory reserve volume (IRV) plus the tidal volume (TV) plus the expiratory reserve volume (ERV). ($VC = IRV + TV + ERV$).

Vital capacity is the maximum amount of air a person can expel from the lungs after a maximum inhalation. It is equal to the sum of inspiratory reserve volume, tidal volume, and expiratory reserve volume.

A person's vital capacity can be measured by a wet or regular spirometer. In combination with other physiological measurements, the vital capacity can help make a diagnosis of underlying lung disease. A normal adult has a vital capacity between 3 and 5 liters. A human's vital capacity depends on age, sex, height, weight, and ethnicity. Lung volumes and lung capacities refer to the volume of air associated with different phases of the respiratory cycle. Lung volumes are directly measured, whereas lung capacities are inferred from volumes.

Methodology

Subjects

The main purpose of the study was to determine the effect of four weeks aerobic exercise on Body mass index and vital capacity in obese male. Ten obese college male students randomly selected from Pt. Kundanlal Shukla Mahavidyalya, Kanpur-Dehat (U.P), who were volunteered participated to conduct the study. The age ranged of the subjects between 18 to 25 years.

Tools and Instruments

The body weight measure with the help of weighing machine. The overweight subject considers BMI in between 25-29.9 and used the BMI chart. For vital capacity, the measurement was taken by the spirometer.

BODY MASS INDEX CHART

BMI	Classification
< 18.5	underweight
18.5–24.9	normal weight
25.0–29.9	overweight
30.0–34.9	class I obesity
35.0–39.9	class II obesity
≥ 40.0	class III obesity

Procedure

The Aerobic exercise training given as per scheduled. The measurement of the body weight as pre-test an aerobic exercise programmed was administered to the selected subjects for one month which includes many aerobic exercises. The duration of the training programmed was 45 minute per day and frequency of the training was five days per week. The data were collected pre and post of the training programme.

Statistical Technique

The present study pays attention mainly on the $_t'$ test was applied to find out the significance difference between the pre and post-test means of Body mass index and vital capacity.

Results

To find out the significance difference between the pre-test and post-test means of Body mass index (BMI) and vital capacity the $_t'$ test was applied. The obtained $_t'$ ratio was tested for the significance difference at the 0.05 level of confidence. The finding are

Table-1

Significance difference in body mass index of obese male between pre-test and post-test score

Test	Mean	S.D	't' ratio
Pre-test	27.30	0.81	2.92*
Post-test	26.19	0.94	

Significance at 0.05 level $t_{0.05}(9) = 2.26$

It is observed from table-1 that the calculated $_t'(2.92)$ is more than the tabulated value(2.26).it may be considered that there was significant difference found between the pre-test and post-test means.

The scores are also illustrated in the figure-1

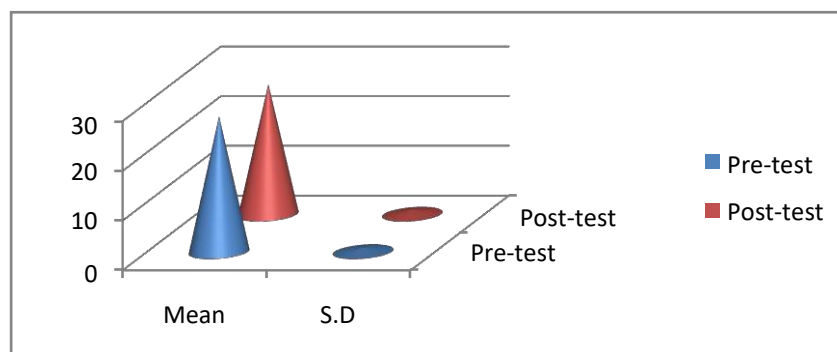


Table-2

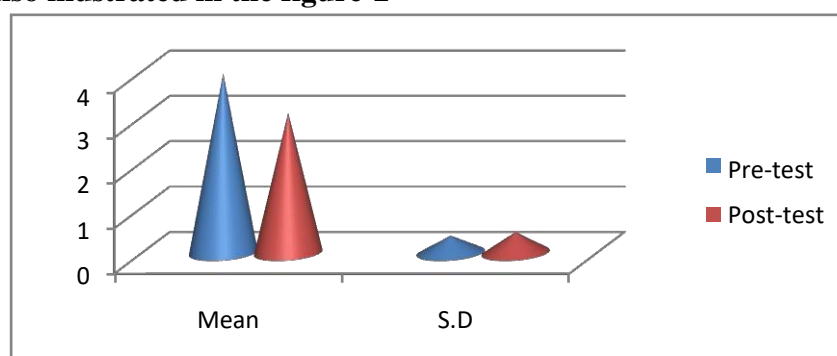
Significance difference in vital capacity of obese male between pre-test and post-test score

Test	Mean	S.D	't' ratio
Pre-test	3.96	0.38	4.83*
Post-test	3.09	0.46	

Significance at 0.05 level $t_{0.05}(9) = 2.26$

It is observed from table-2 that the calculated $t'(4.82)$ is more than the tabulated value(2.26).it may be considered that there was significant difference found between the pre-test and post-test means.

The scores are also illustrated in the figure-2



This significant change in BMI and vital capacity might be due to the effects of one month aerobic exercise training program to the effective group.

Discussion

The study was conducted to find out the effect of four weeks aerobic exercise on body mass index and vital capacity in obese college male. The result shows, it has been observed that there was significant difference between pre and post-test mean score of body mass index (BMI). Through the aerobic exercise body mass index was improved, its means it significantly decrease. The findings of this study are in agreement with the findings of **Jincekappen [2]**. Who prove after 12weeks of aerobic training, significant decreases in BMI and for the vital capacity it was also improved, it means it is increases. The finding of the vital capacity study shows that the aerobic exercises are significantly influence of the BMI and vital capacity. Increase your vital capacity by decreasing your body-fat composition, becoming more physically active.

Conclusion

It was observed that effect of aerobic exercise training programme reduced the percentage of weight in obese male. Aerobic exercises play a significant role in weight loss. Many more paper was conducted on aerobic exercise and weight reduction.

Tehrani Abdolhamid Mona.et.al.,(2012) conducted the study on aerobic exercise obese woman for weight loss [7]. He found the BMI of the group also did not show any statistical variation. There was no significance difference in FEV1 and FVC between control and experimental group. The level of both FEV1 and FVC increased significantly in experimental group through aerobic exercise compared to control group.

Ahmad, Azad.et.al.,(2011) conducted the study on obese male, he given appropriate aerobic exercise training can partly improves lung function by strengthening the muscles of respiration [1]. However, In order to achieve the predicted values of lung function, a further increase in activity duration and decrease in BMI is necessary.

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