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Effect of high intensitiy cardiac circuit exercises on selected anthropometric measures among obese female male students

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Abstract

The purpose of present study was to find out the effect of high intensity cardiac circuit exercises on selected anthropometric measures among obese Female students. To achieve this purpose, (n=30) thirty obese Female students, studying in various classes in St. Michael's College Cherthala, Kerala. In the age group of 18 - 25 years were selected as subjects. The selected 30 subjects were divided into two equal groups, in which, group – I (n = 15) underwent high intensity cardiac circuit exercise with 65% of heart rate, group – II (n = 15) acted as control which did not participate in any special training. The training programme was carried three days per week for twelve weeks (alternative days). Prior to and after the training period the subjects were tested for; body mass index and percentage of body fat. Body mass index (BMI) was measured by using Deurenberg *et al,* formula and percentage of body fat was measured by using Quetelet index. The statistical tool were used for the present study is Analysis of Covariance (ANCOVA). The result of the study was a significant decrease on percentage of body fat and body mass index after twelve weeks of high intensity cardiac circuit programme. However the decrease was favour of experimental group. There was a significant difference was occurred between high intensity cardiac circuit exercises and control group after twelve weeks of high intensity cardiac circuit programme.

Keywords: students, obese, anthropometric, high intensitiy

Introduction

Obesity is the abnormal growth of the adipose tissues due to the enlargement of fat cell size or increase in its number. It denotes accumulation of excess fat on the body. Foods provide us with the nutrients we need for energy. If we take in more calories than we burn, the extra food gets converted into fat and is stored in our bodies. If we overeat regularly, we gain weight and if we continue to gain weight we may become obese.

Obesity is considered a chronic (long-term) disease. It has many serious long-term consequences for the health. The BMI is a measure of your weight relative to your height. An individual is said to be obese when his body mass index (BMI) of greater than 30.

It is a metabolic disorder which is affecting the people throughout the world and commonly caused by a combination of excessive food energy intake, lack of physical activity, genetic susceptibility, and other psychological problems, although a few cases are caused primarily by genes, endocrine disorders, medications or psychiatric illness. The negative health (obesity) consequences are less or more insulin resistance, chances of occurring type 2 diabetes, asthma, hyper tension, increase in high total cholesterol, low density lipoproteins, triglycerides and lowering the triglycerides in blood, become sleep apnea, attaining early puberty, etc.

Indexes associated with high risk in obese persons often return to normal with appropriate physical activities, dietary habits, and a small weight loss even when body weight and percentage body fat remain above recommended amounts. Circuit training is the most effective way to build muscles and improve cardio fitness, which makes it ideal for those who are overweight. Completing a circuit is no easy feat, as there is little or no rest between workouts, which means some level of fitness, is required.

Methodology

To achieve this purpose, thirty obese female students, studying in various classes in

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St. Micheale's college cherthala, Kerala in the age group of 18 - 25 years were selected as subjects. The selected 30 subjects were divided into two equal groups, in which, group – I (n = 15) underwent high intensity cardiac circuit exercises with 65% of heart rate and group – II (n = 15) acted as control which did not participate in any special training. The training programme was carried out three days per week for twelve weeks (alternative days). Prior to and after the training period the subjects were tested for body mass index and percentage of body fat. Body mass index (BMI) was measured by using Deurenberg *et al,* formula and percentage of body fat were measured by using Quetelet index.

Analysis of data
The data collected prior to and after the experimental periods on percentage of body fat and body mass index on high intensity cardiac circuit exercises and control group were analyzed and presented in the following table -I.

Table 1: Analysis of covariance and 'f' ratio for percentage of body fat and body mass index on high intensities of cardiac circuit exercises and control group

Variable Name	Group Name	Control Group	High intensities of cardiac circuit exercises Group	F ratio
Percentage of Body Fat	Pre-test Mean ± S.D	22.65 ± 1.32	22.90 ± 1.35	2.03
	Post-test Mean ± S.D.	23.19 ± 0.85	19.01 ± 1.58	16.23*
	Adj. Post-test Mean ± S.D.	20.42	20.42	196.23
Body Mass Index	Pre-test Mean ± S.D	29.52 ± 1.40	29.42 ± 1.53	2.46
	Post-test Mean ± S.D.	30.75 ± 1.45	26.21 ± 1.95	18.65*
	Adj. Post-test Mean ± S.D.	32.17	27.25	162.58

* Significant at .05 level of confidence.

(The table value required for significance at .05 level of confidence with df 1 and 29 42 were 4.20 and 4.21 respectively).

Results
The analysis of covariance (Ancova) was used to find out the significant difference if any, among the experimental group and control group on selected criterion variables separately. In all the cases, .05 level of confidence was fixed to test the significance, which was considered as an appropriate.

Table - I showed that the results of the study there was a significant difference between high intensity cardiac circuit exercises and control group on percentage of body fat and body mass index. Further the results of the study showed that there was a significant decrease on percentage of body fat and body mass index after twelve weeks of high intensity cardiac circuit programme. However the improvement was in favour of experimental group. There was a significant difference was occurred between high intensity cardiac circuit exercises and control group after twelve weeks of high intensity cardiac circuit programme.

Conclusions
From the analysis of the data, the following conclusions were drawn.
1. There was a significant decrease on percentage of body fat and body mass index after twelve weeks of high intensity of cardiac circuit programme. However the decrease was favour of experimental group
2. There was a significant difference was occurred between high intensity cardiac circuit exercises and control group after twelve weeks of training high intensity of cardiac circuit programme.

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