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## Investigation on the changes on percentage of body fat and total cholesterol due to resistance training among obese male students

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### Abstract

This study was find about investigation on the changes on percentage of body fat and total cholesterol due to resistance training among obese male students. To achieve the purpose of the study, only thirty male obese male students from St Cyril's College Adoor, Kerala and their aged between 17 and 25 years were selected as subjects. The selected thirty subjects were randomly divided into two equal groups of fifteen subjects each, out of which group – I (n = 15) underwent resistance training programme and group – II remained as control. The training period for the present study was five days per week for twelve weeks. Prior to and after the training period the subjects were tested for percentage of body fat and total cholesterol. Percentage of body fat was measured by using Quetelet index and total cholesterol measured by Colorimetry using Reagent kit. The statistical tool were used for the present study is Analysis of covariance (ANCOVA). The result of the study was significant improvement on percentage of body fat and total cholesterol after twelve weeks of resistance training programme. However the improvement was favour of experimental group. There was a significant difference was occurred between resistance training group and control group after twelve weeks of resistance training programme.

**Keywords:** Resistance training, obesity, percentage of body fat and total cholesterol

### Introduction

The terms resistance and strength training encompass a wide range of training modalities including poly metrics and will refer only to normal resistance training using free weights or weight machines. Individuals who participate on a resistance-training program expect the program to produce certain benefits, such as increased strength, increased muscle size, improved sports performance, increased fat free mass and decreased body fat. A well designed and consistently performed resistance training program can produce these enriching outcomes. Most of the people taking part in a strength training program are concerned with improving their appearance through increasing muscle mass and definition. The later is achieved by reducing body fat so the shape of the muscles becomes more apparent. A low body fat percentage is major aim for weight trainers, body builders and for the most competitive sports people (Ban, 1997) [1].

Overweight and obesity kills more people than underweight and act as a predisposing factor for non-communicable diseases such as cardiovascular diseases (heart attack and stroke), diabetes, musculoskeletal disorders (osteoarthritis), some cancers (including breast, ovarian, prostate, liver, gallbladder, kidney, and colon).

Obesity during childhood also causes breathing difficulties, increased risk of fractures, hypertension, and psychological effects. In later life with high chances of obesity, cardiovascular diseases, diabetes can lead to disability and premature death.

Overweight is defined as any body weight that exceeds the normal or standard weight for a particular individual, based on his or her age, height, and frame size (Wilmore and Costill, 1988) [7].

### Statement of the problem

The purpose of present study was to find out the investigation on the changes on percentage of body fat and total cholesterol due to resistance training among obese male students.

## Methodology

To achieve the purpose of the study, Only thirty male obese male students from St Cyril's College Adoor, Kerala and their aged between 17 and 25 years were selected as subjects. The selected thirty subjects were randomly divided into two equal groups of fifteen subjects each, out of which group – I (n = 15) underwent resistance training programme and group – II remained as control. The training period for the present study was five days per week for twelve weeks. Prior to and after the training period the subjects were tested for percentage of

body fat and total cholesterol. Percentage of body fat was measured by using Quetelet index and total cholesterol measured by Colorimetry using Reagent kit.

## Analysis of Data

The data collected prior to and after the experimental periods in percentage of body fat and total cholesterol on resistance training group and control group were analyzed and presented in the following table –1.

**Table 1:** Analysis of covariance of resistance training groups and control groups

Variable Name	Group Name	Resistance Training Group	Control Group	F ratio
Percentage of body fat	Pre-test Mean $\pm$ S.D	23.55 $\pm$ 1.82	22.65 $\pm$ 1.32	0.712
	Post-test Mean $\pm$ S.D.	20.62 $\pm$ 1.52	23.19 $\pm$ 0.85	13.63*
	Adj. Post-test Mean	24.78	20.42	86.80
Total cholesterol	Pre-test Mean $\pm$ S.D	253.50 $\pm$ 23.18	248.58 $\pm$ 24.67	0.273
	Post-test Mean $\pm$ S.D.	236.41 $\pm$ 15.68	249.00 $\pm$ 23.08	12.439*
	Adj. Post-test Mean	241.15	260.93	48.524*

Significant at 0.05 level of significance.

(The table value required for significance at 0.05 level of significance with df 1 and 28 and 1 and 27 were 4.196 and 4.210 respectively).

## Results

From the Table-1 it is clear that resistance training increases percentage of body fat and Total cholesterol when compare with control group.

1. The research study also shows that resistance training group have decreased in percentage of body fat. Jang (2019) <sup>[2]</sup> have evaluated 8 weeks of aerobic and resistance exercises decreasing percentage of body fat of obese middle aged women. Jin *et al.* (2018) <sup>[3]</sup> found that significant improvement on percentage of body fat after eight weeks of combined training of aerobic and resistance exercise. Kelley (2019) <sup>[4]</sup> has discovered that exercise interventions decrease percentage of body fat of obese students.
2. It was found from the effects of the training that Total cholesterol had enhanced for the resistance training group when compared with the control group. Ribeiro *et al.* (2018) <sup>[6]</sup> has discovered that total cholesterol decreased after the continuous and intermittent aerobic training among obese women. Khammassi (2018) <sup>[5]</sup> has evaluated twelve week of high-intensity interval training reduced Total cholesterol among young overweight/obese men.

## Conclusions

From the analysis of the data, the following conclusions were drawn.

1. There was a significant difference between resistance training group and control group on percentage of body fat and Total cholesterol when compared with the control group.
2. The improvement in criterion variable such as percentage of body fat and total cholesterol was higher for the resistance training group than control group.

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