



P-ISSN: 2394-1685
E-ISSN: 2394-1693
Impact Factor (ISRA): 5.38
IJPESH 2021; 8(6): 192-193
© 2021 IJPESH
www.kheljournal.com
Received: 04-09-2021
Accepted: 06-10-2021

Dr. Bupesh S Moorthy
Associate Professor, Department
of Physical education,
Annamalai University,
Chidambaram, Tamil Nadu,
India

Dr. Baiju P Jose
Associate Professor in Physical
Education, St Cyril's College
Adoor, (University of Kerala),
Kerala, India

Investigation on the changes on inspiratory reserve volume and expiratory reserve volume due to resistance training among obese male students

Dr. Bupesh S Moorthy and Dr. Baiju P Jose

Abstract

This study was find about investigation on the changes on inspiratory reserve volume and expiratory reserve volume 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 inspiratory reserve volume and expiratory reserve volume. Inspiratory reserve volume and expiratory reserve volume was measured by expirograph. The statistical tool were used for the present study is Analysis of covariance (ANCOVA). The result of the study was significant improvement on inspiratory reserve volume and expiratory reserve volume after twelve weeks of resistance training programme. However the improvement was favour of experimental groups. 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, inspiratory reserve volume and expiratory reserve volume

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).

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) ^[5].

Statement of the Problem

The purpose of present study was to find out the investigation on the changes on inspiratory reserve volume and expiratory reserve volume due to resistance training among obese male students.

Corresponding Author:
Dr. Bupesh S Moorthy
Associate Professor, Department
of Physical education,
Annamalai University,
Chidambaram, Tamil Nadu,
India

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 inspiratory

reserve volume and expiratory reserve volume. Inspiratory reserve volume and expiratory reserve volume was measured by expirograph.

Analysis of Data

The data collected prior to and after the experimental periods in inspiratory reserve volume and expiratory reserve volume on resistance training group and control group were analyzed and presented in the following table –I.

Table I: Analysis of covariance of resistance training groups and control groups

Variable Name	Group Name	Control Group	Resistance Training Group	F ratio
Inspiratory reserve volume	Pre-test Mean \pm S.D	2.62 \pm 1.32	2.63 \pm 1.45	0.301
	Post-test Mean \pm S.D.	2.64 \pm 0.85	2.78 \pm 1.75	09.14*
	Adj.Post-test Mean	2.65	2.73	91.16*
Expiratory reserve volume	Pre-test Mean \pm S.D	2.54 \pm 1.40	2.54 \pm 1.65	0.217
	Post-test Mean \pm S.D.	2.56 \pm 1.45	2.78 \pm 2.03	8.35*
	Adj.Post-test Mean	2.54	2.70	54.32*

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-I it is clear that resistance training increases inspiratory reserve volume and Expiratory reserve volume when compare with control group.

1. The research study also shows that resistance training group have decreased in percentage of body fat. Prasertsri and Padkao (2021) ^[4] have evaluated 8 weeks of aerobic high-intensity interval resistance training increasing inspiratory reserve volume of obese middle aged women. Mendelson., *et al.* (2012) ^[2] found that significant improvement on inspiratory reserve volume after eight weeks of exercise. Moradians., *et al.* (2016) ^[3] has discovered that aerobic, resistive, and interval exercise increase inspiratory reserve volume of non-athlete women.
2. It was found from the effects of the training that expiratory reserve volume had enhanced for the resistance training group when compared with the control group. Prasertsri and Padkao (2021) ^[4] have evaluated 8 weeks of aerobic high-intensity interval resistance training increasing expiratory reserve volume of obese middle aged women. Mendelson., *et al.* (2012) ^[2] found that significant improvement on inspiratory reserve volume after eight weeks of exercise. Moradians., *et al.* (2016) ^[3] has discovered that aerobic, resistive, and interval exercise increase inspiratory reserve volume of non-athlete women.

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 inspiratory reserve volume and expiratory reserve volume when compared with the control group.
2. The improvement in criterion variable such as inspiratory reserve volume and expiratory reserve volume was higher for the resistance training group than control group.

References

1. Ban, Anitha. The Complete Guide to Strength Training, London, A&C Black Publishers Ltd, 1997.
2. Mendelson M, Michallet AS, Estève F, Perrin C, Levy P,

Wuyam B *et al.* Ventilatory responses to exercise training in obese adolescents. *Respiratory Physiology and Neurobiology*, 2012, 184(1).

<https://doi.org/10.1016/j.resp.2012.08.001>

3. Moradians V, Rahimi A, Javadmoosavi SA, Khorasani FSS, Mazaherinejad A, Mortezaazade M *et al.* Effect of eight-week aerobic, resistive, and interval exercise routines on respiratory parameters in non-athlete women. *Tanaffos*, 2016, 15(2).
4. Prasertsri P, Padkao T. Efficacy of High-Intensity Interval Resistance Training on Pulmonary Function and Respiratory Muscle Strength in University Athletes. *Journal of Exercise Physiology Online*, 2021, 24(1).
5. Wilmore, Jack H, Costill, David L. Training for Sports and Activity, The Physiological Basis of Training Process, Champaign, Human Kinetics Publication, 1988.