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Structured resistance training on Vo2 max

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Abstract

The purpose of the present study was to investigate the structured resistance training on vo2 max. To achieve the purpose of the study thirty college men students were selected from Alagappa University college of Physical Education, Karaikudi during the year 2018. The subject's age ranges from 18 to 25 years. The selected players were divided into two equal groups consists of 15 men students each namely experimental group and control group. The experimental group underwent a resistance training programme for six weeks. The control group was not taking part in any training during the course of the study. Vo2 max was taken as criterion variable in this study. The selected subjects were tested on Vo2 max was measured through Cooper's 12 Minutes Run or Walk Test. Pre-test was taken before the training period and post-test was measured immediately after the six weeks training period. Statistical technique 't' ratio was used to analyse the means of the pre-test and post test data of experimental group and control group. The results revealed that there was a significant difference found on the criterion variable. The difference was found due to structured resistance training given to the experimental group on Vo2 max when compared to control group.

Keywords: Structured resistance training, Vo2 max and 't' ratio

Introduction

“Only he who can see the invisible can do the impossible.”

- Frank L. Gaines

Today's there is an escalating emphasis on appearing smarter, feeling better and living longer. In order to achieve these ideals as, scientific evidence tells us that one of the keys is high fitness and exercises. On the contrary, acquiring these ideals is a challenge because today physical activity is less a part of our daily lives. Training is not a recent discovery. In ancient times, people systematically trained for military and Olympic endeavors. Today athletes prepare themselves for a goal through training (Kerr, R. 1982) [3].

Sports training are the process of sports protection based on scientific and pedagogical principles for higher performance (Hardayal Singh, 1991) [2] Resistance Training involves the application of elastic or hydraulic resistance to muscle contraction rather than gravity. Weight training provides 7 the majority of the resistance at the beginning, initiation joint angle of the movement, when the muscle must overcome the inertia of the weight's mass. After this point, the overall resistance alters depending on the angle of the joint. In comparison, hydraulic resistance provides a fixed amount of resistance throughout the range of motion, depending on the speed of the movement. Elastic resistance provides the greatest resistance at the end of the motion, when the elastic element is stretched to the greatest extent (Arnheim, 1985) [1].

VO2 max is the maximal oxygen uptake or the maximum volume of oxygen that can be utilized in one minute during maximal or exhaustive exercise. It is measured as milliliters of oxygen used in one minute per kilogram of body weight (Strukic, P.J. 1981) [4].

Methodology

Selection of subjects

The purpose of the study was to find out the structured resistance training on vo2 max. To achieve this purpose of the study, thirty college male students were selected as subjects at random. The age of the subjects were ranged from 18 to 25 years.

Selection of variable

Independent variable

- Structured resistance training

Dependent variable

- Vo2 Max

Experimental design

The selected subjects were divided into two equal groups of fifteen subjects each, such as a structured resistance training group (Experimental Group) and control group. The experimental group underwent structured resistance training for three days per week for six weeks. Control group, which they did not undergo any special training programme apart from their regular physical activities as per their curriculum. The following physiological variable, namely Vo2 max was selected as criterion variable. All the subjects of two groups

were tested on selected criterion variable Vo2 max was measured through Cooper’s 12 Minutes Run or Walk Test at prior to and immediately after the training programme.

Statistical technique

The ‘t’ test was used to analyse the significant differences, if any, difference between the groups respectively.

Level of significance

The 0.05 level of confidence was fixed to test the level of significance which was considered as an appropriate.

Analysis of the Data

The significance of the difference among the means of the experimental group was found out by pre-test. The data were analysed and dependent ‘t’ test was used with 0.05 levels as confidence.

Table I: Analysis of t-ratio for the Pre and Post Tests of Experimental and Control Group on Vo2 Max (Scores in ml/kg/min)

Variables	Group	Mean		SD		df	‘t’ ratio
		Pre	Post	Pre	Post		
Body composition	Control	34.23	34.20	1.96	2.05	14	0.31
	Experimental	34.17	34.93	1.78	1.83		6.81*

*Significance at 0.05 level of confidence.

The Table-I shows that the mean values of pre-test and post-test of the control group on Vo2 max were 34.23 and 34.20 respectively. The obtained ‘t’ ratio was 0.31, since the obtained ‘t’ ratio was less than the required table value of 2.14 for the significant at 0.05 level with 14 degrees of freedom it was found to be statistically insignificant. The mean values of pre-test and post-test of the experimental group on Vo2 max were 34.17 and 34.93 respectively. The obtained ‘t’ ratio was 6.81* since the obtained ‘t’ ratio was greater than the required table value of 2.14 for significance at 0.05 level with 14 degrees of freedom it was found to be statistically significant. The result of the study showed that there was a significant difference between control group and experimental group in body composition. It may be concluded from the result of the study that experimental group improved in Vo2 max due to six weeks of structured resistance training.

Conclusion

On the basis of the results obtained the following conclusions are drawn,

1. There was a significant difference between experimental and control group on Vo2 max after the training period.
2. There was a significant improvement in Body composition. However the improvement was in favor of experimental group due to six weeks of structured resistance training.

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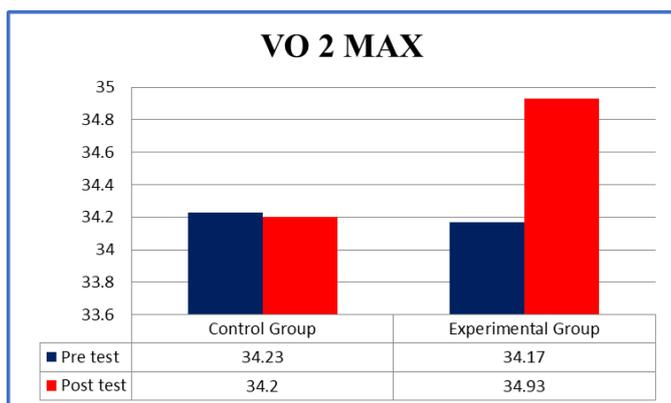


Fig 1: Bar Diagram Showing the Pre and Post Mean Values of Experimental and Control Group on Vo2 Max

Discussions on Findings

The result of the study indicates that the experimental group, namely structured resistance training group had significantly improved the selected dependent variable namely Vo2 max, when compared to the control group. It is also found that the improvement caused by structured resistance training when compared to the control group.