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EFFECT OF COMBINED PLYOMETRIC AND CIRCUIT TRAINING ON SELECTED PHYSIOLOGICAL COMPONENTS AMONG CRICKET PLAYERS

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Abstract

The purpose of the study was to find out the effect of combined plyometric and circuit training on selected physiological components among cricket players. Twenty four male cricket players aged between 18 to 21 years were selected randomly from various departments of Bharathidasan University, Tiruchirappalli, Tamilnadu. They were divided into two groups (one experimental and one control group) the experimental group I was given combined plyometric and circuit training for six weeks and control group was not allowed to participate in any training programme. Pre test was conducted dependent components such as vital capacity and anaerobic capacity at the beginning before the experimental treatment and post test was taken after the experimental treatment. The data were analyzed by applying dependent 't' test. The results revealed that the combined plyometric and circuit training had significantly improved the vital capacity and anaerobic capacity.

Keywords: Combined Plyometric and Circuit Training, Vital Capacity and Anaerobic Capacity.

Introduction

Plyometric training refers to performance of stretch-shortening cycle (SSC) movements that involve a high intensity concentric or shortening muscle action immediately after a rapid and powerful eccentric or lengthening muscle action. The SSC is a natural type of muscle function in which muscle is stretched immediately before being contracted. The SSC enhances the ability of the neural and musculotendinous systems to produce maximal force in the shortest amount of time, prompting the use of plyometric exercise as a bridge between strength and speed Chmielewski TL et. al., (2006). For the lower body, plyometric training includes performance of various types of body weight jumping-type exercise, like drop jumps, countermovement jumps, alternate-leg bounding, hopping, and other SSC jumping exercises. For the trunk and upper body, plyometric training includes performance of various types of throwing exercises, mainly using medicine balls (Markovic G, Mikulic P., 2010).

Circuit training program is carried out through interval training and consists of several stations that involve work on strength, balance, resistance, and coordination, depending on the objectives. This type of training program has several advantages: it is easy to adapt to the target audience and existing resources; it enables the stimulation of several muscle groups in each season and the application of

different loads, and allows results to be obtained in a short period of time (Faigenbaum AD., et. al., 2015).

Methodology

The purpose of the study was to find out the effect of combined plyometric and circuit training on selected physiological components among cricket players. To achieve the purpose of the study 24 male cricket players in the age group 18 to 25 years were selected at randomly from various departments of Bharathidasan University, Tiruchirappalli, Tamil Nadu. Selected subjects were divided in to two groups of experimental I and control group. The experimental group I undergone combined plyometric and circuit training for the training period six weeks three alternate days per week. The control group were maintained their daily routine activities and no special training was given. The following criterion components were selected and tested.

Table - I: Selection of Physiological Components and Tests

S. No.	Components	Test	Unit Measurement
1.	Vital Capacity	50 mts run	Sec
2.	Anaerobic Capacity	150 mts run	Sec

The data pertaining to the physiological components in this study were examined by using dependent 't' test to find out the significant improvement and tested at 0.05 level of significance. The data obtained for vital capacity and anaerobic capacity of the pre test and post test means of experimental and control group have been analyzed and presented in Table II.

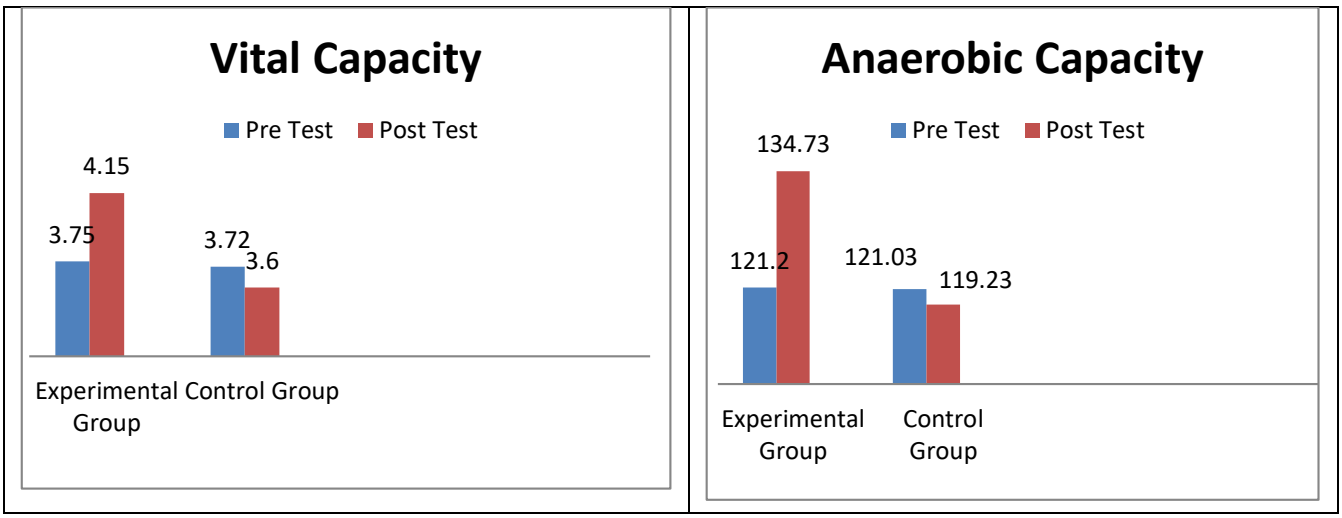
Table II: Computation of 't' Ratio between Pre and Post test Scores of Experimental and Control Group

Components	Group Name	Mean		SD		SD Error	DF	't' ratio
		Pre	Post	Pre	Post			
Vital Capacity	Experimental Group	3.75	4.15	0.61	0.42	0.076	11	5.26*
	Control Group	3.72	3.60	0.51	0.41	0.084		1.42
Anaerobic Capacity	Experimental Group	121.20	134.73	15.40	17.11	0.914	11	14.80*
	Control Group	121.03	119.23	15.41	14.41	0.86		2.08

The table II shows that the mean values of pre-test and post-test of experimental group in vital capacity were 3.75 and 4.15 respectively. The mean values of pre-test and post-test of control group in speed were 3.72 and 3.60 respectively. The obtained 't' ratio of the experimental group and control group was 5.26 and 1.42. The obtained 't' ratio of the experimental group was greater and control group was lesser than the required table value of 2.20 for significance at 0.05 level of with 11 degrees of freedom. Since it was found that the experimental group was statistically significant and the control group was found statistically insignificant. The result of this study statistically proved that the experimental group showed significant improvement on vital capacity due to plyometric and circuit training on male cricket players.

The table II shows that the mean values of pre-test and post-test of experimental group in anaerobic capacity were 121.20 and 134.73 respectively. The mean values of pre-test and post-test of control group in anaerobic capacity were 121.03 and 119.23 respectively. The obtained 't' ratio of the experimental group and control group was 14.80 and 2.08. The obtained 't' ratio of the experimental group was greater and control group was lesser than the required table value of 2.20 for significance at 0.05 level of with 11 degrees of freedom. Since it was found that the experimental group was statistically significant and the control group was found statistically insignificant. The result of this study statistically proved that the experimental group showed significant improvement on anaerobic capacity due to combined plyometric and circuit training on male cricket players.

The pre and post test mean values of combined plyometric and circuit training group and control groups on vital capacity and anaerobic capacity are graphically represented in the figure 1.



Discussion on Findings

The results of the study reveal that there was a significant change found after the combined plyometric and circuit training on selected physiological components such as vital capacity and anaerobic capacity among male cricket players of Bharathidasan University Tiruchirappalli Tamilnadu. The result of the study was supported by the studies of **Ramakrishnan and Gopinath (2014).**

Conclusions

It was concluded that the six weeks of combined plyometric and circuit training were significantly improved selected physiological components such as vital capacity and anaerobic capacity among male cricket players The control group had not shown any significant changes on selected physiological components such as vital capacity and anaerobic capacity among male cricket.

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