

Effect of Aerobic Training Programme on Selected Physical Fitness Components Among School Cricket Players



Physical Education

KEYWORDS : Aerobic training, muscular strength, power and cricket

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ABSTRACT

The purpose of the present investigation was to find out the effect of aerobic training programme on selected physical fitness variables among school cricket players. To achieve this purpose of the study, thirty male students were selected from Sri Jeyandra Saraswathi Maha Vidyalaya Matriculation higher secondary school and their age ranged between 16 to 18 years. The selected subjects were divided into two groups namely aerobic training and control groups of fifteen each. The experimental group I underwent aerobic training for 12 weeks, five days a week, whereas the control group maintained their daily routine activities and no special training was given. The following variables namely, muscular strength and power were selected as criterion variable and tested by using, sit-ups for strength and standing broad jump for power. All the subjects of the two groups were tested on selected dependent variables at prior and immediately after the training programme. The pre and post-test scores were statistically examined by applying the analysis of covariance (ANCOVA) for each and every selected variable separately. In all cases 0.05 level of confidence was fixed as the level of significance difference. Aerobic training shown significant improvement after the completion of training programme of twelve weeks in all selected variables such as muscular strength and power among school cricket players.

INTRODUCTION

Training is a systematic process of repetitive progressive exercise of work involving, learning and acclimatization (Arnheim and Klafs, 1963).

Training represents a long-term endeavor. Exercise efficiency is not developed overnight and a coach cannot create miracles by cutting corners through overlooking scientific and methodical theories (Bompa, 1997).

Aerobic (or cardio respiratory) endurance is the ability of the body to supply oxygen and energy to the cells and remove waste products in order to sustain prolonged rhythmical exercise. The heart pumping oxygenated blood through the arteries to the cells accomplishes this. At the cellular level, the cells absorb oxygen and waste products are removed and carried away by the blood. An adequate supply of oxygen prevents the build up of lactic acid, which produces fatigue in the muscle, and also, follows for the production of adenosine triphosphate (ATP) – the basic energy source in the muscle. The heart then pumps this blood to the lungs to de-oxygenated and returned to the heart via the pulmonary veins to begin systemic circulation cycle once again.

Anaerobic exercise is high intensity muscular activity that lasts for a short period of time. Anaerobic means “without oxygen,” so your body does not use oxygen to help produce energy when you exercise anaerobically like it does when you exercise aerobically.

HYPOTHESES

There would be a significant improvement on physical fitness variables among school cricket players due to aerobic training.

There would be a significant difference among experimental and control groups on physical fitness variables.

METHODOLOGY

The purpose of the present investigation was to find out the effect of aerobic training programme on selected physical fitness variables among school cricket players. To achieve this purpose of the study, thirty male students were selected from Sri Jeyandra Saraswathi Maha Vidyalaya Matriculation higher secondary school and their age ranged between 16 to 18 years. The selected subjects were divided into two groups of fifteen each namely aerobic training and control groups. The experimental group I underwent aerobic training for 12 weeks, five days a week, whereas the control group maintained their daily routine activities and no special training was given. The following variable

namely, muscular strength and power were selected as criterion variable and tested by using sit-ups for strength and standing broad jump for power. All the subjects of the two groups were tested on selected dependent variables at prior and immediately after the training programme. The pre and post-test scores were statistically examined by applying the analysis of covariance (ANCOVA) for each and every selected variable separately. In all cases 0.05 level of confidence was fixed as the level of significance to test the ‘f’ ratio obtained by the analysis of covariance. This was considered as an appropriate.

ANALYSIS OF THE DATA

The effect of Aerobic training programme on selected physical fitness variables were analyzed and presented below.

MUSCULAR STRENGTH

The analysis of covariance on muscular strength of the pre and post test scores of aerobic training group and control group have been analyzed and presented in table I.

TABLE I
ANALYSIS OF COVARIANCE OF THE DATA ON MUSCULAR STRENGTH OF PRE AND POST TESTS SCORES OF AEROBIC TRAINING AND CONTROL GROUPS

Test	Aerobic training group	Control group	Source of Variance	Sum of Squares	df	Mean Squares	Obtained 'f' Ratio
Pre test Mean	8.466	8.266	Between	.300	1	.300	.207
SD	1.40	0.96	within	40.667	28	1.452	
Post test Mean	9.800	8.200	Between	19.200	1	19.200	12.56*
SD	1.37	1.08	within	42.800	28	1.529	
Adjusted Post test Mean	9.710	8.290	Between	15.012	1	15.012	41.10*
			within	9.860	27	.365	

***Significant at .05 level of confidence.**

(The table value required for significant at .05 level of confidence for df 1 and 28 and 1 and 27 are 4.20 and 4.21 respectively).

The table I show that the adjusted post-test means of aerobic training group and control group are 9.710, 8.290 respectively. The obtained ‘f’ ratio of 41.10 for adjusted post-test means is higher than the table value of 4.21 for df 1 and 27 required for

significance at .05 level of confidence on muscular strength.

The result of the study indicated that there was a significant difference between adjusted post-test means of aerobic training group and control group on muscular strength.

The adjusted mean values of aerobic training and control groups on muscular strength have been presented in the figure I.

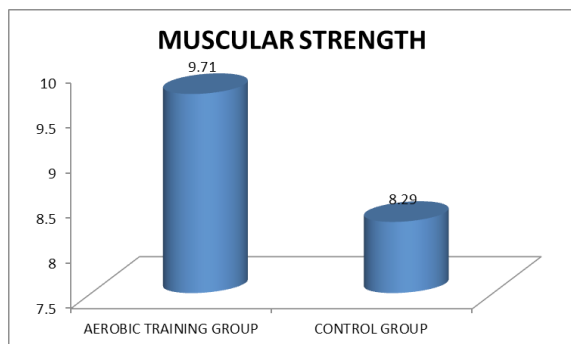


FIGURE-I THE ADJUSTED MEAN VALUES OF AEROBIC TRAINING AND CONTROL GROUPS ON MUSCULAR STRENGTH

POWER

The analysis of covariance on power of the pre and post test scores of aerobic training group and control group have been analyzed and presented in table II.

**TABLE II
ANALYSIS OF COVARIANCE OF THE DATA ON POWER OF PRE AND POST TESTS SCORES AEROBIC TRAINING OF AND CONTROL GROUPS**

Test	Aerobic training group	Control Group	Source of Variance	Sum of Squares	df	Mean Squares	Obtained 'f' Ratio
Pre test Mean	2.006	1.958	Between	.018	1	.018	1.01
SD	0.14	0.11	within	.489	28	.017	
Post test Mean	2.112	1.897	Between	.346	1	.346	26.81*
SD	0.13	0.15	within	.361	28	.013	
Adjusted Post test Mean	2.041	1.874	Between	.195	1	.195	48.63*
			within	.108	27	.004	

*Significant at .05 level of confidence.

(The table value required for significant at .05 level of confidence for df 1 and 28 and 1 and 27 are 4.20 and 4.21 respectively).

The table I show that the adjusted post-test means of aerobic training group and control group are 2.041, 1.874 respectively. The obtained 'f' ratio of 48.63 for adjusted post-test means is higher than the table value of 4.21 for df 1 and 27 required for significance at .05 level of confidence on power.

The result of the study indicated that there was a significant difference between adjusted post-test means of aerobic training group and control group on power.

The adjusted mean values of aerobic training and control groups on power have been presented in the figure II.

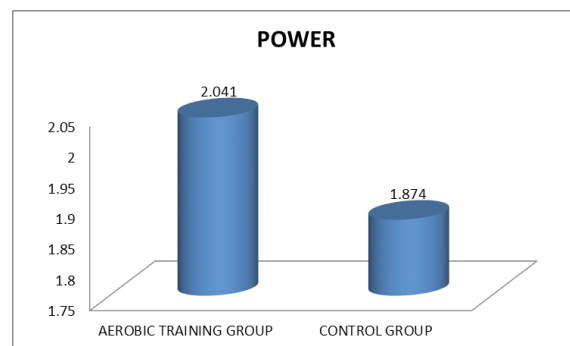


FIGURE II- THE ADJUSTED MEAN VALUES OF AEROBIC TRAINING AND CONTROL GROUPS ON POWER

CONCLUSIONS

1. There was a significant difference among aerobic training group and control group on muscular strength and power among school level cricket players.
2. There was a significant improvement on muscular strength and power due to aerobic training.

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