Impact of Submaximal And Maximal Aerobic Training on Selected Tidal Volume Variables Among Under 14 Years Cricketer

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Abstract- *The purpose of the study was find out the impact of submaximal and maximal aerobic training on selected tidal volume variables among under 14 years cricketer. Forty five under 14 years cricketer were selected randomly as subjects from YMCA, Cricket Academy at Chennai city, Tamilnadu, India. The subjects were selected random group design were divided in to three groups of fifteen each named as selected submaximal aerobic training group, maximal aerobic training group and control group. The subjects were tested prior to and after the twelve weeks of experimentation. The training program is scheduled at 6.30 am to 7.30 am on alternate days. Tidal volume variables measured by spirometer. The obtained data from the experimental and control group initial and final ridings were statistically analyzed with analysis of covariance (ANCOVA) with scheffes post hoc test applied to examine the difference between groups and testing condition. The level of confidence was fixed 0.05 level of confidence. Result the experimental group had achieved significant improvement on tidal volume when compared to control group. It was also observed that the 12 weeks of submaximal and maximal aerobic training program have significantly improved the body composition and physiological variables are tidal volume among under 14 years cricketer. The experimental group had achieved significant improvement on body composition and physiological variables are tidal volume when compared to control group.*

Keywords- Tidal volume, spirometer, submaximal and maximal.

I. INTRODUCTION

The term fitness is an important aspect to be developed in the minds of all the people irrespective of age and sex. Much attention has to be focused on youth physical fitness. A sound and well organized physical education program in the schools and colleges will be right solution for these problems. (Bucher, 2002).

CRICKET IN INDIA

Although cricket was introduced to India by European merchant sailors in the 18th century, and the first cricket club was established in Calcutta in 1792, India's national cricket team did not play its first Test match until 25 June 1932 at Lord's, becoming the sixth team to be granted Test cricket status. In its first fifty years of international cricket, India was one of the weaker teams, winning only 35 of the first 196 Test matches it played. From 1932 India had to wait until 1952, almost 20 years for its first Test victory. Traditionally much stronger at home than abroad, the Indian team has improved its overseas form since the start of the 21st century, winning Test matches in Australia, England and South Africa. It has won the Cricket World Cup twice – in 1983 under the captaincy of Kapil Dev and in 2011 under the captaincy of Mahendra Singh Dhoni. After winning the 2011 World Cup, India became only the third team after West Indies and Australia to have won the World Cup more than once and the first cricket team to win the World Cup at home. It has won the 2007 ICC World Twenty20 and 2013 ICC Champions Trophy, under the captaincy of Dhoni. (Sheringham and Sam, 2011).

MAXIMAL AEROBIC TRAINING

VO2 max (also maximal oxygen consumption, maximal oxygen uptake, peak oxygen uptake or maximal aerobic capacity) is the maximum rate of oxygen consumption as measured during incremental exercise, most typically on a motorized treadmill. (Clemente C, 2009).

TIDAL VOLUME

Tidal volume is the lung volume representing the normal volume of air displaced between normal inhalation and exhalation when extra effort is not applied. In a healthy, young human adult, tidal volume is approximately 500 mL per inspiration or 7 mL/kg of body mass. (Beardsell, I et al., 2009).

II. METHODOLOGY

The purpose of the study was find out the impact of submaximal and maximal aerobic training on selected tidal volume variables among under 14 years cricketer. Forty five under 14 years cricketer were selected randomly as subjects from YMCA, Cricket Academy at Chennai city, Tamilnadu, India. The subjects were selected random group design were divided in to three groups of fifteen each named as selected submaximal aerobic training group, maximal aerobic training group and control group. The subjects were tested prior to and after the twelve weeks of experimentation. The training program is scheduled at 6.30 am to 7.30 am on alternate days. Tidal volume variables measured by spirometer. The obtained data from the experimental and control group initial and final ridings were statistically analyzed with analysis of covariance (ANCOVA) with scheffes post hoc test applied to examine the difference between groups and testing condition. The level of confidence was fixed 0.05 level of confidence.

III. RESULTS AND DISCUSSIONS

Table 1. Analysis Of Covariance On Tidal Volume Of Experimental And Control Group

Mean	Submaximal Aerobic Training Group	Maximal Aerobic Training Group	Control Group	SOV	Ss	df	M.sq	'F' ratio
Pre-test Mean	0.491	0.489	0.493	B	0.00012	2	0.00006	0.37
S.D.	0.017	0.013	0.007	W	0.007	42	0.00016	
Post-test Mean	0.513	0.510	0.491	B	0.004	2	0.002	11.58*
S.D.	0.014	0.015	0.009	W	0.008	42	0.0002	
Adjusted post-test Mean	0.513	0.512	0.491	B	0.004	2	0.002	27.76*
				W	0.003	41	0.00079	

*Significant at 0.05 level of confidence

*The required value for significance at 0.05 level of confidence for 2 and 42 and 41 are 3.22 and 3.23.

The table I reveals that the pre-test means in tidal volume of the submaximal aerobic training group, maximal aerobic training group and control group are 0.491, 0.489 and 0.494 respectively. The 'F' ratio of 0.37 for pre test scores was less than the table values of 3.22 for df 2 and 42 required for significant at 0.05 level of confidence on tidal volume.

The post-test means of the submaximal aerobic training group, maximal aerobic training group and control group are 0.513, 0.510 and 0.491 respectively. The 'F' ratio of 11.58 for post test scores was greater than the table values of 3.22 for df 2 and 42 required for significant at 0.05 level of confidence on tidal volume.

The adjusted post-test means of the submaximal aerobic training group, maximal aerobic training group and control group are 0.513, 0.512 and 0.491 respectively. The 'F' ratio of 27.76 for adjusted post test scores was greater than the table values of 3.23 for df 2 and 41 required for significant at 0.05 level of confidence on tidal volume. Among the three groups the hypothesis has been accepted.

Table 2. Scheffes Post-Hoc Test For Mean Difference Between Paired Means On Tidal Volume

Submaximal Aerobic Training Group	Maximal Aerobic Training Group	Control Group	Mean difference	Confidence Interval value
0.513	0.512		0.001	0.008
0.513		0.491	0.022*	0.008
	0.512	0.491	0.021*	0.008

*Significant at 0.05 level of confidence.

Scheffes post hoc test however showed that the adjusted post test paired mean differences on tidal volume between submaximal aerobic training group, maximal aerobic training group were 0.001, which are less than the confidence interval of 0.008 required for significance at 0.05 levels. Adjusted post-test paired means difference on tidal volume between submaximal aerobic training group and control group and maximal aerobic training group and control groups were 0.022 and 0.021 respectively. Which are higher than the confidence interval of 0.008 required for significance at 0.05 levels of confidence.

It is inferred that the twelve weeks of submaximal aerobic training group, maximal aerobic training groups have significantly decrease the tidal volume as compared to the control group. The result also reveals that the decrease in tidal volume is significantly more for maximal aerobic training group was higher than submaximal aerobic training group.

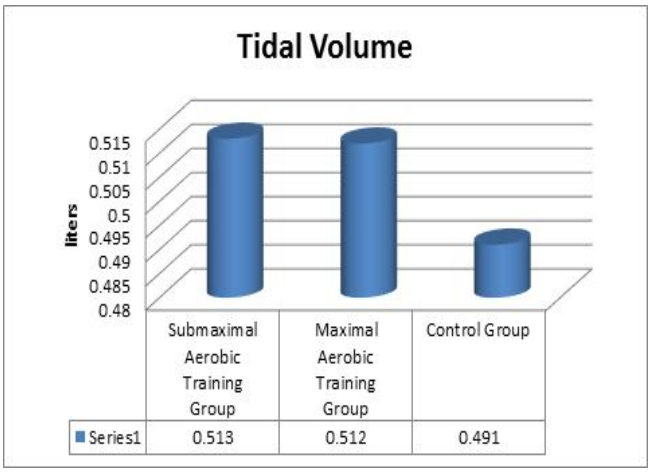

Figure 1.

IV. CONCLUSION

Physiological variables namely tidal volume. There was significantly increase in tidal volume for both submaximal aerobic training and maximal aerobic training group as compared to control group.

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