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INFLUENCE OF FARTLEK AND CIRCUIT TRAINING ON VO_2 MAX AMONG SCHOOL-LEVEL CRICKET PLAYERS

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ABSTRACT

The aim of this study is to find out the influence of Fartlek and circuit training on VO2 max among school level cricket players. 36 male cricket players age ranged 12 to 15 years were selected from Sri Chaitanya Future Pathways School, Miyapur Campus, Hyderabad. They were divided into three groups, namely, Fartlek training (group – I), circuit training (group – II) and control (group – III). The two groups were experimented with Fartlek and circuit training respectively for 12 weeks. The collected data from the three groups prior to and post experimentation were statistically analyzed to find out the significant difference if any, by applying the analysis of covariance (ANCOVA). Since three groups were involved, the Scheffe's test was applied as post hoc test to determine the paired mean differences, if any. In all the cases statistical significance was fixed at 0.05 levels. Twelve weeks of Fartlek and circuit training had significant increase on VO 2 max of cricket players.

Key Words: Fartlek and Circuit Training and Vo_2 max.

INTRODUCTION

Fartlek training is based on the principle of adaptation and produces several physiological improvements, including enhanced cardiovascular efficiency, improved oxygen delivery to working muscles, and increased tolerance to lactic acid accumulation. These adaptations contribute to better athletic performance, greater speed, and improved endurance capacity. A special form of Fartlek training involves performing sessions using two different aerobic activities within the same workout. In addition to improving VO_2 max, lactate threshold, and exercise economy, Fartlek training also plays an important role in the development of muscular strength and power. Although Fartlek training is commonly associated with running at varying speeds, it can be applied to multiple forms of aerobic exercise.

Circuit training is an effective and demanding method of conditioning that simultaneously develops muscular strength, aerobic and anaerobic endurance, flexibility, and coordination within a single training session. It is considered one of the most efficient training methods for improving both strength and cardiovascular fitness together. The term "circuit training" refers to the structure and organization of the workout rather than the specific exercises performed. A circuit training session generally consists of a sequence of exercises or stations completed one after another with minimal rest intervals. This method allows athletes and coaches to design a wide variety of workouts and introduce diversity into regular training programs.

METHODOLOGY

Subjects and Variables

For the purpose of this study, 36 Boys Cricket players from Sri Chaitanya Future Pathways School, Miyapur Campus, Hyderabad were randomly selected as subjects. Their ages ranged from 12 to 15 years. The participants were equally divided into three groups: the Fartlek Training Group, the Circuit Training Group, and the Control Group, with 12 players in each group. The experimental training programme was conducted for a duration of 12 weeks. VO_2 max was selected as the criterion variable and was assessed using the Astrand–Astrand Nomogram Test, measured in litres per minute (L/min).

Statistical Technique

The data collected from the three groups before and after the experimental period were statistically analysed using Analysis of Covariance (ANCOVA) to determine the existence of significant differences among the groups. Since the study involved three groups, Scheffe's post hoc test was employed to identify paired mean differences whenever significant results were observed. In all analyses, the level of significance was fixed at 0.05.

RESULTS

The data collected from the three groups before and after the experimental period were statistically analysed using Analysis of Covariance (ANCOVA) to determine whether any significant differences existed among the groups. The obtained results are presented in Table – I.

Table – I Analysis of Covariance (ANCOVA) on VO_2 Max of Experimental and Control Groups

	Fartlek Training Group	Circuit Training Group	Control Group	SoV	Sum of Squares	df	Mean squares	'F' ratio
Pretest Mean	2.18	2.23	2.19	B	0.022	2	0.011	1.41
SD	0.08	0.10	0.07	W	0.33	42	0.008	
Post test Mean	3.01	2.85	2.21	B	5.21	2	2.60	15.40*
SD	0.32	0.57	0.26	W	7.11	42	0.16	
Adjusted Post test Mean	3.00	2.85	2.21	B	5.21	2	2.61	15.06*
				W	7.11	41	0.17	

(The required table value for significance at 0.05 level of confidence with degrees of freedom 2 and 42 is 3.22 and degree of freedom 2 and 41 is 3.23.)

**Significant at .05 level of confidence*

The adjusted post-test mean scores of the Fartlek Training Group, Circuit Training Group, and Control Group were 3.00, 2.85, and 2.21 respectively. The obtained "F" ratio value of 15.06 for the adjusted post-test scores was higher than the required table value of 3.23 for degrees of freedom 2 and 41 at the 0.05 level of significance on VO_2 max.

The findings of the study revealed that a significant difference existed among the adjusted post-test mean scores of the Fartlek Training Group, Circuit Training Group, and Control Group with regard to VO_2 max. In order to identify the significant differences among the paired mean scores, Scheffe's post hoc test was applied, and the results are presented in Table – II.

Table – II Scheffe's Post Hoc Test for the Differences among Paired Means of Fartlek Training Group, Circuit Training Group, and Control Group on VO_2 Max

Fartlek Training Group	Circuit raining Group	Control Group	Mean Difference	Confidence Fartlek
3.00	2.85		0.15	0.38
3.00		2.21	0.79*	0.38
	2.85	2.21	0.64*	0.38

**Significant at .05 level of confidence*

Table – II reveals that the mean difference values between the Fartlek Training Group and Control Group, and between the Circuit Training Group and Control Group were 0.79 and 0.64 respectively on VO_2 max. These values were greater than the confidence interval value of 0.38 required for significance at the 0.05 level of confidence.

The results of the study further indicated that there was no significant difference between the Fartlek Training Group and the Circuit Training Group on VO_2 max. However, both experimental groups showed significant improvement when compared to the Control Group. Therefore, it was concluded that both Fartlek training and Circuit training were effective in improving VO_2 max when compared to the Control Group.

DISCUSSION

Previous investigations have reported that circuit training contributes significantly to the improvement of VO_2 max. Vivekanand et al. (2010) stated that high-intensity Fartlek training is an effective endurance training method for non-athletic school-going boys and produces greater improvement in VO_2 max compared to slow continuous training. Similarly, Andrew et al. (2013) reported through meta-analysis that Fartlek training leads to significant enhancement in VO_2 max. The findings further suggested that Fartlek training combined with continuous training produces more consistent and substantial improvements in VO_2 max, with noticeable positive responses among participants.

CONCLUSION

The findings of the study concluded that both the Fartlek Training Group and the Circuit Training Group showed significant improvement in VO_2 max when compared to the Control Group. No significant difference was observed between the two experimental groups; however, the Fartlek Training Group demonstrated comparatively greater improvement in VO_2 max than the Circuit Training Group.

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