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Impact of fartlek and plyometric training on agility performance of male football players

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Abstract

The present study focused on the impact of Fartlek and Plyometric training on Agility performances of Male Football players. For the purpose of the present study, 45 Male Football players from various colleges. Of Chandrapur District are selected. The selected subjects were of age group ranging from 18 to 25 years. The subjects were randomly divided into three groups and each group consisted of 15 subjects. Group-I underwent isolated fartlek training, Group-II was isolated plyometric training, and Group-III act as control group was not given any special treatment. The experimental period was 12 weeks. Pre-test and Post-test were taken before and after the training programme. The selected physical variables were agility. During the intervention phase, a modified training program was offered by a well-trained football coach to the Experimental Group under the supervision of the researcher at a college in Chandrapur district. All participants were encouraged to continue their standard physical activities and routine procedures. The intervention phase 12 weeks and included morning 60 minutes and evening 60 minutes Football coaching classes for alternative days in a week. To find out the significant effects of fartlek and plyometric training on selected physical variable. The ANCOVA statistical technique was used to find the mean difference between the groups on physical variables. The results of the study revealed a significant group \times test interaction ($p < 0.05$). Follow-up analyses indicated that while no group differences in physical variables existed between the three groups of the pre-test. In post-test all the experimental groups were found to have significantly ($p < 0.05$) better performance on the physical variables than the Control Group. The findings of the present study suggest that plyometric training improved the physical variables in collegiate Male Football players.

Keywords: Football, fartlek training, plyometric training, agility performance etc.

Introduction

Sports are integral part of the system of education. Sports is a category that covers numerous different activities. Many sports involve high degrees of physical activity (for instance, running or rugby) whilst others focus more on strategy and mental exertion (for example, chess is considered to be a sport).

Training is a system of process in which Male Football players improve their fitness to meet the demands of their sport. Training uses both general and specific exercises to develop the Male Football players for their sport. Fartlek training refers to the training that uses some kind of fartlek to the contraction of a muscular force. In this training, the effort is normally performed more efficiently operating the Male Football players. Plyometric training involving repeated rapid stretching and contracting of muscles to increase muscle power. The plyometric training system can provide great amounts of energy but this system fatigues quickly. People participating in speed or power events like basketball, football and hockey are very familiar with this form of energy production.

Methodology

In order to achieve the aim of the present study, 45 Male football players were selected from Chandrapur District colleges, who had participated in the inter-collegiate level tournaments. They were selected at random as subjects. All the subjects were residents of Maharashtra State and they had a similar academic work and regular activities in accordance with the requirements of their college curriculum. The selected subjects were of age group ranged from 18 to 25 years.

The subjects were randomly divided into three groups and each group consisted of 15 subjects. Group-I underwent Isolated Fartlek Training, Group-II was Isolated Plyometric Training, and Group-III act as Control Group was not given any special treatment. The study was conducted 12 weeks training schedule. Agility was selected as a dependent variable and it was tested through 10 meters Shuttle run test. Pre-test-post-test-random group-research design was followed in this study.

To find out the significant effects of aerobic and anaerobic training on selected agility, analysis of covariance (ANCOVA) was computed (Clarke and Clarke, 1972) for the

data collected aerobic, anaerobic, combined and control groups during pretest and posttest separately for each variable. Further to state, since three groups were involved, whenever the F ratio was significant, Scheffe's post hoc test was used determine which of the paired mean differed significance 0.05 was fixed.

Results and Discussion

The statistical analysis comparing the initial and final means of agility due to effect of fartlek and plyometric training on selected physical fitness variable namely, agility among collegiate Male Football players is presented in Table 1

Table 1: Computation of analysis of covariance of agility

	Fartlek Training	Plyometric Training	Control	Source Of Variance	Sum of Squares	Df	Mean Squares	Obtained F
Pre Test Mean	13.05	12.96	12.9	Between	0.36	3	0.12	1.68
				Within	5.45	76	0.07	
Post Test Mean	12.89	12.76	12.9	Between	0.53	3	0.18	2.86*
				Within	4.73	76	0.06	
Adjusted Post Test Mean	12.83	12.77	13.9	Between	0.87	3	0.29	17.75*
				Within	1.23	75	0.02	
Mean Diff	-0.16	-0.20	0.01					

Table F-ratio at 0.05 level of confidence for 3 and 76 (df) =2.73, 3 and 75(df) =2.73.*Significant

As shown in Table I, obtained F ratio of 1.68 on pre-test means of the groups is not significant at 0.05 levels. This shows that there is no significant difference among the means of the groups at the initial stage and hence the random assignment of the groups is successful. The obtained F ratio on post-test means is 2.86, and is significant at 0.05 level, being greater than the required F value of 2.73 to be significant at 0.05 level. Taking into consideration the pre-test means and post-test means, adjusted post-test means are determined and analysis of covariance is done and the obtained F value 17.75 is greater than the required value of 2.73 and hence it is accepted. This shows that there are significant differences among the adjusted means on the collegiate Male Football players. Since significant improvements were recorded, the results were subjected to post hoc analysis using Scheffe's Confidence Interval test. The results are presented in Table 2.

Table 2: Scheffe's Confidence Interval Test Scores on Agility

Fartlek Training	Plyometric Training	Control Group	Mean Diff	C.I
12.83	12.77		0.16*	0.12
12.83		12.96	0.13*	0.12
	12.77	12.96	0.29*	0.12

* Significant at 0.05 level.

The post hoc analysis of obtained ordered adjusted means prove that (1) there are significant differences between fartlek training and plyometric training groups (2) fartlek and control group (3) plyometric and control group and. It is found that (1) there was no significant difference between fartlek and plyometric group. The ordered adjusted means are presented through bar diagram for better understanding of the results of this study in Figure 1.

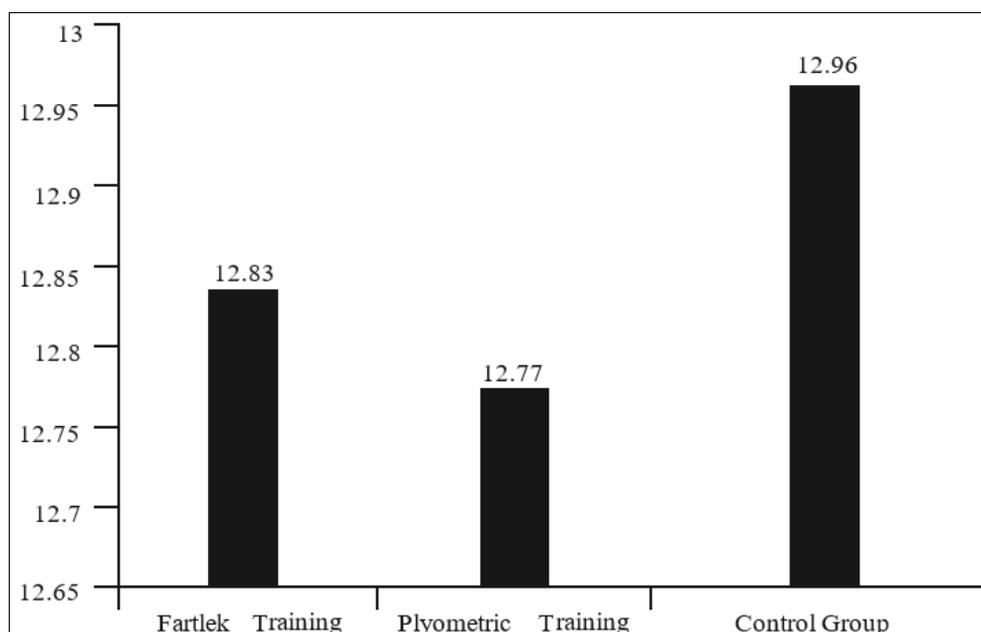


Fig 1: Bar Diagram on Ordered Adjusted Means of Agility

Discussions on Findings

As shown in Table 1, the obtained F value on the scores of pre-test means (1.68) is less than the required F value, which proves that the random assignment of the subjects were successful and their scores in agility before the training were equal and there were no significant differences. Taking into consideration the pre-test means and post-test means, adjusted post-test means are determined and analysis of covariance is done and the obtained F value 17.75 is greater than the required value of 2.73 and hence it is accepted. This shows that the interventional programmes significantly improve agility of the Collegiate Male Football players. The post hoc analysis of obtained ordered adjusted means prove that there are significant differences between (1) fartlek group and control group (2) plyometric group and control group.

Comparing between the treatment groups, it is found that (1) there are significant differences between fartlek group and plyometric group. Thus, it is proved that while fartlek group and plyometric group improve agility of the college Male Football players compared to control group, plyometric group is better than improving agility of the collegiate Male Football players and the differences are significant at 0.05 levels. Bames Schilling and Falvo (2007) found large magnitude of differences on jumping and agility performance among different categories of athletes and agility covers 34% of the variance of performance. Under the twelve weeks fartlek and plyometric training the subjects were induced to exert more energy and training themselves. The findings proved that the twelve weeks fartlek and plyometric training had significant influence in improving agility of the Male Football players. The finding of this study is in agreement with the findings of Bames Schilling and Falvo (2007) who found significant improvement in run time, agility and improved performance due to frequent training protocol.

Conclusions

1. It is concluded that effects of fartlek and plyometric training significantly improve agility of the college Male Football players.
2. The comparing among the treatment groups, the plyometric training would be better than fartlek training group and control agility of collegiate Male Football players.

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