



Effect of Plyometric Training and Functional Core Strength Training on Explosive Power Components among Kabaddi Players

P.Mahendiran¹ & Dr.A.Chandramohan²

¹Ph.D., Research Scholar, Department of Physical Education and Sports Sciences, Annamalai University, Chidambaram, Tamilnadu, India.

²Department of Physical Education and Sports Sciences, Annamalai University, Chidambaram, Tamilnadu, India.

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Abstract

The purpose of the study was to find out the effect of plyometric training and functional core strength training on explosive power among kabaddi players. To achieve the purpose of the present study, forty five male kabaddi players from Affiliated Colleges of Bharathidasan University, Tiruchirappalli, Tamilnadu, India were selected as subjects at random and their ages ranged from 18 to 25 years. The subjects were divided into three equal groups of fifteen each. Experimental Group I was exposed to plyometric training, Experimental Group II was exposed to functional core strength training and control group underwent no training. The duration of experimental period was 12 weeks. The pre test and post test scores were subjected to statistical analysis using Analysis of Covariance (ANCOVA) to find out the significance among the mean differences, whenever the 'F' ratio for adjusted test was found to be significant, Scheffe's post hoc test was used. In all cases 0.05 level of significance was fixed to test hypotheses. The plyometric training and functional core strength training had shown significant improvement on explosive power of male kabaddi players.

Keywords: Plyometric Training, Functional Core Training, Explosive Power, Kabaddi.

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Introduction

Studies have shown that plyometric conditioning enhances muscular power - the ability of the muscle to generate a large amount of force quickly. Plyometric exercises can be added to a standard strength training routine. They can be done as part of an aerobic workout session. They are not intended to be a stand-alone exercise routine. Because Plyometric exercise increases muscular power, it can be a good addition to a standard exercise program. Plyometric exercise fosters speed and agility, and this type of training can improve balance and coordination. Properly performed and supervised, it enhances athletic performance. Plyometric training is based on movements that are similar to the type of movement that would be done in a particular sport or activity to improve performance. Adding a small amount of plyometrics to the training regimen of endurance will help athletes to improve performance. Strength and conditioning specialists are often cautious in their prescription of plyometrics due to what they believe is an inherent risk of injury (Blair, 1990). Functional training is a classification of exercise which involves training the body for the activities performed in daily life. Functional training has its origins in

rehabilitation. Functional training attempts to adapt or develop exercises which allow individuals to perform the activities of daily life more easily and without injuries. In the context of body building, functional training involves mainly weight bearing activities targeted at core muscles of the abdomen and lower back (Tong et al., 2016).

Methodology

The purpose of the study was to find out the effect of plyometric training and functional core strength training on explosive power among kabaddi players. To achieve the purpose of the present study, forty five male kabaddi players from Affiliated Colleges of Bharathidasan University, Tiruchirappalli, Tamilnadu, India were selected as subjects at random and their ages ranged from 18 to 25 years. The subjects were divided into three equal groups of fifteen each. Experimental Group I was exposed to plyometric training, Experimental Group II was exposed to functional core strength training and control group underwent no training. The duration of experimental period was 12 weeks. The pre test and post test scores were subjected to statistical analysis using Analysis of Covariance (ANCOVA) to find out the significance among the mean differences, whenever the 'F' ratio for adjusted test was found to be significant, Scheffe's post hoc test was used. In all cases 0.05 level of significance was fixed to test hypotheses.

Correspondence

Dr. A.Chandramohan
Annamalai University

Results

Table 1. Calculation of ANCOVA on explosive power

	PTG	FCSTG	Control Group	Source of Variance	Sum of Squares	df	Means Squares	F-ratio
Initial means	34.42	34.82	34.97	BG	2.448	2	1.224	0.298
				WG	172.297	42	4.102	
Final means	38.67	37.98	35.00	BG	114.425	2	57.213	15.589*
				WG	154.147	42	3.670	
Adjusted Final means	38.74	37.96	34.94	BG	119.533	2	59.767	16.833*
				WG	145.574	41	3.551	

An assessment of table - 1 point out that the pre test means of plyometric training, functional core strength training and control groups were 34.42, 34.82 and 34.97 respectively. The attained F-ratio for the pre-test was 0.298 and the table F-ratio was 3.22. Hence the pre-test mean F-ratio was insignificant at 0.05 level of confidence for the degree of freedom 2 and 42. This established that there were no significant difference between the experimental and control groups representing that the course of action of randomization of the groups was ideal while conveying the subjects to groups. The post-test means of the plyometric training, functional core strength training and control groups were 38.67, 37.98 and 35.00 respectively. The attained F-ratio

for the post-test was 15.589 and the table F-ratio was 3.22. Hence the post-test mean F-ratio was significant at 0.05 level of confidence for the degree of freedom 2 and 42. This confirmed that the disparity between the post test means of the focus were significant. The adjusted post-test means of the plyometric training, functional core strength training and control groups were 38.74, 37.96 and 34.94 respectively. The attained F-ratio for the adjusted post-test means was 16.833 and the table F-ratio was 3.23. Hence the adjusted post-test mean F-ratio was significant at 0.05 level of confidence for the degree of freedom 2 and 41. This established that there was a noteworthy difference among the means owing to the experimental trainings on explosive power.

Table 2. The scheffe's test for explosive power

Adjusted Final means			Mean Difference	Required CI
PTG	FCSTG	Control Group		
38.74	37.96	---	0.78	1.74
38.74	---	34.94	3.80*	
---	37.96	34.94	3.02*	

* Significant at 0.05 level of confidence

The multiple comparisons showed in Table 2 proved that there existed significant differences between the adjusted means of plyometric training and control group (3.80), functional core strength training and

control group (3.02). There was no significant difference between plyometric training and functional core strength training (0.78) at 0.05 level of confidence with the confidence interval value of 1.74.

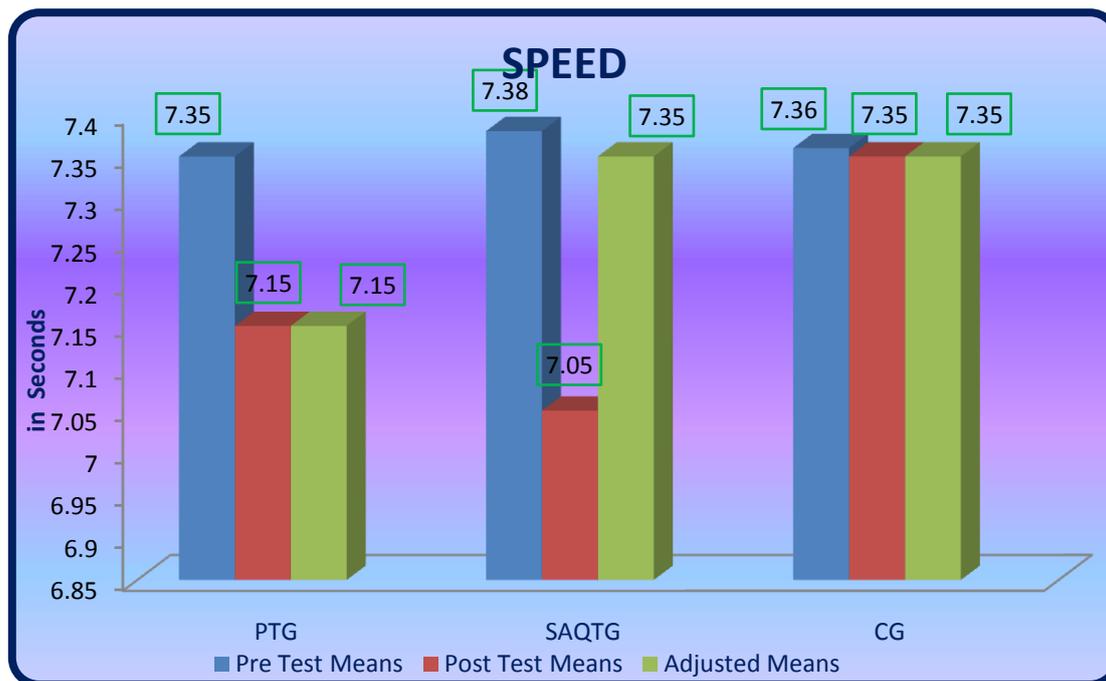


Figure 1. Graphical illustration of explosive power

Conclusion

1. The plyometric training had shown significant improvement on explosive power of male kabaddi players.
2. The functional core strength training had shown significant improvement on explosive power of male kabaddi players.

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