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**Chandrachooda M**  
Research Scholar, Department of  
Physical Education, Annamalai  
University, Chidambaram, Tamil  
Nadu, India

**Dr. K Sekar Babu**  
Assistant Professor, Research  
Guide, Department of Physical  
Education, Annamalai  
University, Chidambaram, Tamil  
Nadu, India

## Influence of plyometric training on speed among male Kabaddi players

**Chandrachooda M and Dr. K Sekar Babu**

### Abstract

The main scope of this training is to increase athlete work and skill capabilities and to develop strong motor qualities. This study was designed to find out the influence of plyometric training on speed among University kabaddi players. For this purpose, twenty four ( $n=24$ ) male kabaddi players from the affiliated colleges of Bangalore University, Bengaluru during the year 2016-17 were selected as participants at random and the selected participants were divided randomly into two groups namely experimental and control groups of twelve ( $n=12$ ) participants each. The age of the selected subjects ranged from 18 to 25 years. The training period was limited to twelve weeks and for three days per week. The plyometric training is selected as independent variable and speed was selected as dependent variable. All the participants were tested two days before and immediately after the experimental period on the selected dependent variables. The obtained data from the experimental and control groups before and after the experimental period were statistically analyzed with dependent 't'-test and analysis of covariance (ANCOVA). The level of confidence was fixed at 0.05 level for all the cases to test the hypothesis. The results of the study indicated that there was significant difference between experimental and control groups on the development of speed. Hence, the plyometric training had influence on participant's speed.

**Keywords:** Plyometric training, speed and Kabaddi players

### Introduction

The world of games and sports has crossed many milestones, as a result of different achievements in general and their application in the field of sports in particular. Scientific investigation into performance of sportsman has been playing an increasingly importance role to attain excellence of performance in different sports. Sportsmen concentrate on the development of general motor abilities, it assist a sportsman in learning specific skills from a solid base over which he can develop excellence in the particular game he is involved (Singh, 1991) [9].

Sports performance is the unity of execution and result of a sports action or a complex sequence of action measured or evaluated according to socially determined and agreed norms." The sports performance is affected by various factors like body types, structure, ground surface, psychological variables, biological aspect, lake of fitness, body motion, equipment standard and etc.

Speed is the capacity to travel or move very quickly. Like all bio motor abilities speed can be broken down into different types. Speed training involves development of a skill so that the technique is performed at a faster rate. To develop speed the skill must be practiced on a regular basis at a maximum or close to maximum rate of movement. Maximal running speed, for example, is developed by runs over short distances at maximum effort. The skill of moving at speed should, like all skills, be practiced before the athlete becomes fatigued. For this reason recovery times between repetitions and sets should be long enough to recover from any fatigue.

**Correspondence**  
**Chandrachooda M**  
Research Scholar, Department of  
Physical Education, Annamalai  
University, Chidambaram, Tamil  
Nadu, India

### Methods

#### Subjects

The purpose of the study was to investigate the influence of plyometric training on speed among male kabaddi players.

To achieve the purpose of the study, twenty four (n=24) male kabaddi players were selected randomly from the affiliated colleges of Bangalore University, Bengaluru during the year 2016-17 as participants. The age of the participants was ranged from 18 to 25 years. The selected participants were divided into two groups such as group-I underwent plyometric training and group-II acted as control group.

### Variables

Competitive sports have assumed great importance in our country and there is increasing demand that a specific plyometric training for various sports should be constructed for all levels. Hence, the plyometric training three day per week for twelve weeks was selected as independent and one of the motor quality speed was selected as dependent variables for this study. The speed was measured by 50 mts dash and unit of measurement in seconds.

### Training Programme

Before constructing the training programme, a pilot study was conducted to find out the initial capacity of the subjects in order to fix the training intensity. The group-I performed plyometric training and group-II acted as control and did not participate any systematic training other than their regular routine work. The duration of the training programme was three alternate days in a week for twelve weeks. The plyometric training programme comprised with six exercises for two sets. The initial training volume (Foot contacts) for the experimental group was 80 (Foot contacts) and it was progressively increased by 20(Foot contacts) once in three weeks for twelve weeks. The experimental groups performed their respective training programme under the strict supervision of the investigator. The subjects were tested on criterion variable before and after the training programme.

### Statistical Procedure

The obtained data from the experimental and control group before and after the experimental period were statistically analyzed with dependent 't'-test and analysis of covariance (ANCOVA). The level of confidence was fixed at 0.05 level for all the cases to test the significance.

### Results

The analysis of dependent „t“-test on the data obtained for speed of the pre-test and post-test means of plyometric training and control groups have been analyzed and presented in table-I

**Table 1:** Mean and Dependent ‘T’ Test for Pre and Post Tests on Speed of Experimental and Control Groups (in Seconds)

	Experimental Group		Control Group	
	Mean	SD	Mean	SD
Pre-test	7.80	0.10	7.89	0.11
Post-test	7.31	0.19	7.92	0.12
T' test	8.24*		0.11	

\*Significant at 0.05 level of confidence.

Table value required for significance at 0.05 level for‘t’ test with df 11 is 2.201.

From the table above, the dependent ‘t’-test values between the pre and post-tests means of experimental group and control groups were 8.24 and 0.11 respectively. Since, the obtained ‘t’-test value of experimental group was greater than the table value 2.201 with df 11 at 0.05 level of confidence, hence the experimental group had significant improvement in speed.

The analysis of covariance on speed of experimental and control groups have been analyzed and presented in table-II.

**Table 2:** Analysis of Covariance for Experimental and Control Groups on Speed

Adjusted Post Test Mean Experimental Group	Control Group	So V	Sum of Square	df	Mean Square	F-ratio
			B:	1	1.78	59.33*
7.33	7.90		W:	21	0.03	

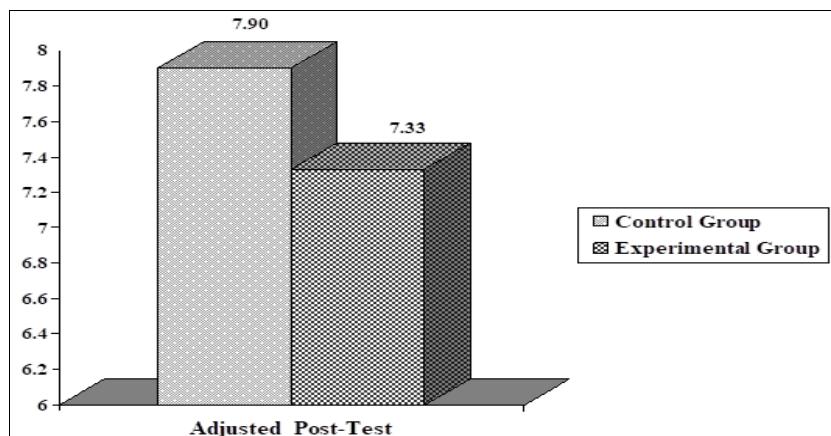
\*Significant at .05 level of confidence.

The table value required for significance at 0.05 level with df 1 and 21 is 4.32.

From the table-II, the adjusted post-test mean values of speed for experimental and control groups are 7.33 and 7.90 respectively. The obtained F-ratio of 59.33 for adjusted post-test means is greater than the table value of 4.32 for df 1 and 21 required for significance at 0.05 level of confidence. Therefore, the results of the study indicated that there was

significant difference between the adjusted post-test means of experimental and control groups on the development of speed after the training programme.

The adjusted post-test mean values of experimental and control groups on speed are graphically represented in the figure-I.



**Fig 1:** The Adjusted Post-Test Mean Values of Control and Experimental Groups on Speed

## Findings

This study provides some interesting facts regarding, initial insights into potential benefits of plyometric exercise. The twelve week training improved speed of college men. Finding of this study was very well supported by Gomez *et al.*, (2008) [4], that the Six week plyometric training improved speed of students. Speed and power of female high school soccer players improved positively (Sieglar *et al.*, 2003) [8]. A short-term plyometric training program improved speed of soccer players by (Chelly *et al.*, 2010) [1], the Low and moderate plyometric training frequency produces sprinting gains De Villarreal *et al.*, (2008) [2], the plyometric training improved sprint proved by De Villarreal *et al.*, (2012) [2] and 8-week plyometric training influenced in speed Ozbar *et al.*, (2014) [5]. The following authors were proved that the plyometric training increased speed in players in various games Rimmer and Sleivert (2000) [6], Ronnestad *et al.*, (2008) [7], Sieglar, J. *et al.*, (2003) [8], Zbar *et al.*, (2014) [10] and supported this study favourably.

## Conclusions

The study concluded that the twelve week of plyometric training improved speed performance of experimental group when compared to control group. These results indicated that plyometric training provides excellent absolute and relative reliabilities. Thus, the plyometric training may be suitable for developing speed of kabaddi players.

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