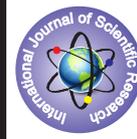


## EFFECTS OF PLYOMETRIC TRAINING, SKILL TRAINING AND COMBINED TRAINING ON SPEED PERFORMANCE OF WOMEN ATHLETES



## Physical Education

**KEYWORDS:** Speed Performance, Plyometric Training, Skill Training, Combined Training

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### ABSTRACT

The present study was designed to find out the effects of Plyometric training, Skill training and Combined training of Speed performance of women Athletes. To attain the purpose, sixty (N=60) women athletes who have participated in the Alagappa University inter collegiate athletic meet during the year 2015-2016 were randomly selected as subjects. The subjects were assigned at random into four groups of fifteen each (n=15). Group-I underwent Plyometric training, Group-II underwent Skill training, Group-III underwent Combined Plyometric and Skill Training and Group-IV acted as Control. The duration of the training period for all the three Experimental groups was restricted to twelve weeks and the number of sessions per week was confined to three in a week. For Combined Plyometric and Skill Training the training period was restricted to alternative weeks for twelve weeks. The dependent variable selected for this study was Speed and it was assessed by 50 Meters Run Test. All the subjects were tested prior to and immediately after the training for all the selected variables. Data were collected and statistically analyzed using ANCOVA. Scheffe's post hoc test was applied to determine the significant difference between the paired means. In all the cases 0.05 level of significance was fixed. The results of the study showed that there was a significant difference was found among all the Experimental groups namely Plyometric Training, Skill Training and Combined Plyometric and Skill Training groups had significantly increase in the Speed. Further the results of the study showed that Combined Plyometric and Skill Training group was found to be better than the Plyometric Training group and Skill Training group in Speed.

### INTRODUCTION

Sports for all have become a very popular slogan all over the world today. Participation in sports and games will yield optimum physical fitness and positive health for all. Today's life mostly depends upon science and technology. In such circumstances people need more exercise to keep the body fit to execute the activity efficiently. A sport is a popular spectacle and a mass social movement of contemporary times. In the process of historical development, sports have occupied a prominent place in both the physical as well as in the moral culture of the society.

The word training means different things in different fields. In sports, the word training means doing physical exercises. In a narrow sense, training is doing physical exercises for the improvement of performance. The concept is reflected in short terms, which are given to separate components of training or to separate methods or procedures of doing physical exercises (Singh, 1991).

Training is the main component and the basic form of preparing the athlete for higher level of performance. It is a systematically planned preparation with the help of the exercise which realizes the main factors of influencing the athlete's progress. The content of training includes all the basic types of preparation of the sportsmen such as physical, technical, tactical and psychological. Through systematic training, the athletes' "fitness level", his acquisition of vital knowledge and skill are improved.

Sportsmen undergo various types of training to improve their performance and physical fitness. Training means a systematic scientific programme of conditioning exercise and physical activities designed to improve the physical fitness and skill of the players (Fox, 1984).

Plyometrics is the term now applied to exercises that have their roots in Europe, where they were first known simply as jump training. Interest in this jump training increased during the early 1970s as East European athletes emerged as powers on the world sport scene. As the Eastern bloc countries began to produce superior athletes in such sports as track and field, gymnastics and weight lifting the mystique of their success began to center on their training methods.

Plyometric training is known to be an intense form of exercise that requires maximal efforts to create the physiological change associated with elite athletic performance. This system became popular in the late 60's to the early 70's and was credited with being responsible for much of the East European success in athletics

during that time. Since then, the use of plyometric training has evolved into a mainstay of the training and development programs of virtually all-sporting events. With this transition came many questions, including the age, gender and strength levels of the athletes who would benefit from this form of training. The fundamental reason to train with plyometrics is to reduce the ground contact time that an athlete spends when running or jumping. This time is reduced as the athlete matures, gets stronger, and practices the skills of their game. To further enhance resistance training the athlete spends considerable time practicing the specific movement skills they wish to improve; namely, running and jumping. These two movement patterns are often thought of as genetic endowments and affected little by outside influences such as training programs. To the contrary, research has shown that virtually all athletes can positively influence their performance outcomes by using plyometric training on a regular basis. In order to implement this type of training with young athletes several factors must be considered. The first consideration is what controlled research studies tell us about this form of training and its effect on young children.

### METHODOLOGY

The study was conducted on sixty women athletes who have participated in Alagappa University inter collegiate athletic meet during the year 2015-2016 were randomly selected as subjects. Subjects were randomly assigned equally into four groups. Group-I underwent Plyometric training, Group-II underwent Skill training, Group-III underwent Combined Plyometric and Skill Training and Group-IV acted as Control. The experimental groups underwent the respective training for a period of 12 weeks (3 days/week), the Combined Plyometric and Skill Training the training period was restricted to alternative weeks for twelve weeks whereas the control remain as normal with the sedentary life. Speed was selected as dependent variable and it was assessed by 50 Meters Run test (Natarajan, 2014). All the four groups were tested on selected Speed was analyzed before and after the training period.

### ANALYSIS OF THE DATA

The data collected from the experimental groups and control group on prior and after experimentation on selected variables were statistically examined by analysis of covariance (ANCOVA) was used to determine differences, if any among the adjusted post test means on selected criterion variables separately. Whenever they obtained f-ratio value in the simple effect was significant the Scheffe's test was applied as post hoc test to determine the paired mean differences, if any. In all the cases 0.05 level of significance was fixed.

The Analysis of covariance (ANCOVA) on Speed of Experimental Groups and Control group have been analyzed and presented in

**Table -1. Values of Analysis of Covariance for Experimental Groups and Control Group on Speed**

Certain Variables	Adjusted Post test Means				Source of Variance	Sum of Squares	df	Mean Squares	'F' Ratio
	Plyometric Training Group	Skill Training Group	Combined Plyometric and Skill Training Group	Control Group					
Speed	7.23	7.11	6.76	7.61	Between	5.49	3	1.83	31.78
					Within	3.17	55	0.06	

*\*Significant at 0.05 level of confidence (The table value required for Significance at 0.05 level with df 3 and 55 is 2.77)*

Table-1 shows that the adjusted post test mean value of Speed for Plyometric Training group, Skill Training group, Combined Plyometric and Skill Training group and Control group is 7.23, 7.11, 6.76 and 7.61 respectively. The obtained F-ratio of 31.78 for the adjusted post test mean is more than the table value of 2.77 for df 3 and 55 required for significance at 0.05 level of confidence.

The results of the study indicate that there are significant differences among the adjusted post test means of Experimental groups on the decrease of Speed.

To determine which of the paired means had a significant difference, Scheffe's test was applied as Post hoc test and the results are presented in Table-2.

**Table - 2 The Scheffe's test for the differences between the adjusted post tests paired means on Speed**

Certain Variables	Adjusted Post test Means				Mean Difference	Confidence Interval
	Plyometric Training Group	Skill Training Group	Combined Plyometric and Skill Training Group	Control Group		
Speed	7.23	7.11			0.11	0.25
	7.23		6.76		0.47*	0.25
		7.11	6.76		0.35*	0.25
		7.11		7.61	0.50*	0.25
			6.76	7.61	0.85*	0.25

*\*Significant at 0.05 level of confidence*

Table-2 shows that the adjusted post test mean differences on Speed between Plyometric Training and Combined Plyometric and skill

training group, Plyometric training and control group, Skill training group and Combined Plyometric and Skill training group, Skill Training group and Control group, Combined Plyometric and Control group are 0.47, 0.38, 0.35, 0.50 and 0.85 respectively and they are greater than the confidence interval value 0.25, which shows significant differences at 0.05 level of confidence.

Further the table-2 shows that the adjusted post test mean differences on Speed between Plyometric training group and Skill training group is 0.11 and this is less than the confidence interval value 0.15, which shows there is no significant differences at 0.05 level of confidence.

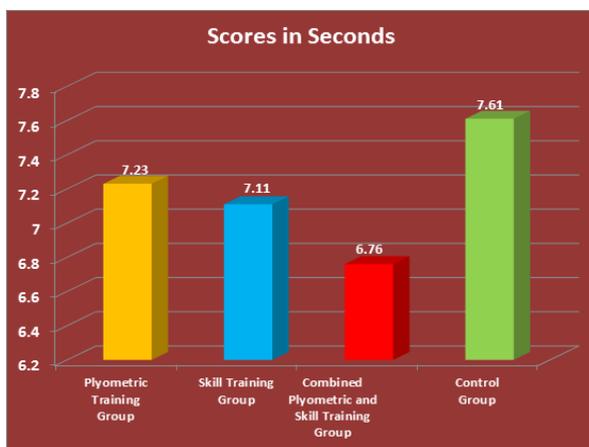
The results of the study further have revealed that there is a significant difference in Speed between the adjusted post test means of Plyometric Training and Combined Plyometric and skill training group, Plyometric training and control group, Skill training group and Combined Plyometric and Skill training group, Skill Training group and Control group, Combined Plyometric and Control group. The results further revealed the Plyometric group and Skill training group, showed there is no significant difference on Speed.

However, the decrease in Speed was significantly higher for Combined Plyometric and Skill training group than other Experimental groups.

It may be concluded that the Combined Plyometric and Skill training group has exhibited better than the other experimental groups in decreasing Speed.

The adjusted post test mean value of experimental groups on Speed is graphically represented in the Figure -1.

**Figure-1 Bar diagram on ordered adjusted means of Speed**



**CONCLUSION**

From the analysis of the data, the following conclusions were drawn.

1. Significant differences in achievement were found between Plyometric Training group, Skill Training group, Combined Plyometric and Skill Training group and Control group in the selected criterion variable such as Speed.
2. The Experimental groups namely, Plyometric Training group, Skill Training group and Combined Plyometric and Skill Training group had significantly improved in Bio-Chemical variable such as Speed.
3. The Combined Plyometric and Skill Training group was found to be better than the Plyometric Training group, Skill Training group and Control group in decreasing Speed.

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