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Effects of Plyometric Training, Skill Training and Combined Training on Speed Performance of Men Hockey Players

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

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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 perforamnce of Men Hockey players. To attain the purpose, sixty men Hockey Players who have participated in Thiruvalluvar University Vellore inter collegiate tournaments during the year 2014-2015 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

Sport and games involve competition. Without competition, there is no game. Competition provides a forum within which people strive to become competent, to become excellent. The opportunities for rivalry within sport are many and varied: team against team, individual against individual, individual against a record, individual now against a previous best performance, individual against a physical barrier. Competition involves individuals and groups striving for excellence within the rules and traditions that make up a sport, including all the festival characteristics that give the sport additional flavor and meaning ***(Dary, 1998).***

The word "training" means different things in different fields. In sports the word "training" is generally understood to be synonym of doing exercise. In a narrow sense training is physical exercise for the improvement of performance. Training involves constructing an exercise programme to develop an athlete for a particular event. This increasing skill and energy capacities need equal consideration ***(Singh, 1991).***

"Sports training is a scientifically based and pedagogically organized process which through planned and systematic, effect on performance ability and performance readiness aims at sports perfection and performance improvement as well as at the contest in sports competition".

The actual term 'plyometrics' was first coined in 1975 by Fred Wilt, the American Track and Field coach. The elements ply and metric come from Latin roots for "increase" and "measure" respectively, the combination thus means 'measurable increase"***(Baechle, 1994).***

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.

METHODOLOGY

The study was conducted on sixty men Hockey Players who have participated in Thiruvalluvar University Vellore inter collegiate tournaments during the year 2014-2015 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

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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.

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	7.29	7.16	6.89	7.66	Between With in	4.62 3.09	3 55	1.54 0.06	27.41*

**** Significant at.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 7.29, 7.16, 6.89 and 7.66 respectively. The obtained F-ratio of 27.41 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	7.29	7.16	--	--	0.13	0.15
	7.29	--	6.89	--	0.14	0.15
	7.29	--	--	7.66	0.37*	0.15
	--	7.16	6.89	--	0.27*	0.15
	--	7.16	--	7.66	0.50*	0.15
	--	--	6.89	7.66	0.77*	2.04

**** Significant at.05 level of confidence***

Table-2 shows that the adjusted post test mean differences on Speed between Plyometric training group and Control group, Skill training group and Combined Plyometric and Skill training group, Skill Training group and Control group, Combined Plyometric and Skill training group and Control group are 0.37, 0.27, 0.50 and 0.77 respectively and they are greater than the confidence interval value 2.04, which shows significant differences at 0.05 level of confidence.

The adjusted post test mean differences on Speed between Plyometric group and Skill training group, Plyometric training group and Combined Plyometric and Skill training group, are 0.13 and 0.14 respectively and they are lesser than the confidence interval value 0.15, which shows there is no significant difference 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 group and Control group, Skill training group and Combined Plyometric and Skill training group, Skill Training group and Control group, Combined Plyometric and Skill training group and Control group. The results further revealed the Plyometric group and Skill training group, Plyometric training group and Combined Plyometric 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.

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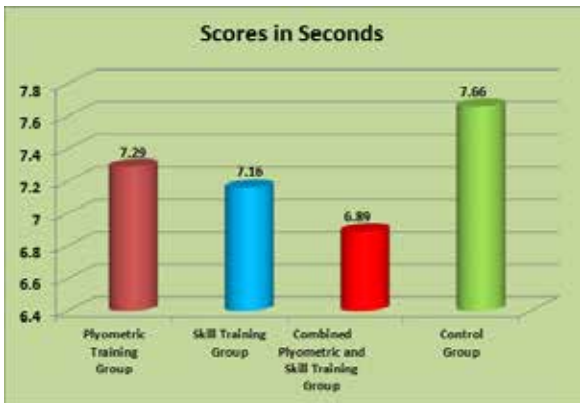
Figure-1
Bar diagram on ordered adjusted means of Speed



CONCLUSION

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

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.

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.

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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