



## IMPACT OF YOGIC PRACTICE AND PLYOMETRIC TRAINING ON SELECTED SKILL PERFORMANCE VARIABLES OF INTER COLLEGIATE MALE NETBALL PLAYERS

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### Abstract

The purpose of the study was to find out the impact of yogic practice and plyometric training on selected skill performance variables of inter collegiate male Netball players. To achieve this purpose, forty five inter collegiate male netball players selected from Meenakshi Ramasamy Physical Education College, Ariyalur District, the subjects were divided into three equal groups of fifteen each. The selected variables for the present study are passing, shooting and overall playing selected as a skill performance variables. The skill performance variable in Netball was measured by the subjectively rating by three qualified coaches. Experimental group 'A' underwent Yogic practice and Experimental group 'B' underwent plyometric training programme for a period of twelve weeks. The control group was not exposed to any specific training apart from their regular routine. All the subjects were tested on selected variables, before and after the treatment. The collected data from the three groups prior to and after the experimental treatment on selected skill performance variables were statistically analyzed by using the concept of analysis of covariance (ANCOVA). Whenever the 'F' ratio for adjusted post test means was found to be significant, Scheffe's test was followed as a post hoc test to determine which of the paired means difference was significant. The result reveals that there was a significant difference between the groups of inter collegiate male Netball players.

**Keywords:** Yogic Practice, Plyometric Training, Skill Performance Variables, Netball Players.

### INTRODUCTION

Human have consistently strived to run faster, jump higher, throw farther and exhibit greater strength, endurance and skill. As a results of practical experience, observation and much scientific experimentation, old methods of conditioning, though fascinating and rich in tradition have been discarded and replaced by new methods based on insight and understanding. In modern days, highly competitive sports essentially require a very effective and specific selection of participants, improved training procedures, advanced techniques and modern facilities. A high level of physical fitness is desirable for a healthful, productive life. Sedentary living habits and poor physical fitness have a negative impact on both health and daily living (Uppal, 1996).

The concept of training is reflected in words or terms, which are given to separate components of training or separate methods of procedures of doing physical exercise. Training means are various physical exercises and their objects, methods and procedures, which are used for the improvement, maintenance and recovery of performance capacity and performance readiness. Physical exercises are the physical means of training. The other means are used in addition to physical exercises or separately as per requirement. Each training means has its own specific effect on the performance capacity. This effect may be direct or indirect. Physical

exercises have a direct effect on performance capacity. Means like physiotherapy, autogenous training has indirect effect (Dick, 1980).

Sports performance is indeed an aspect of complex human performance which has several dimensions. Hence several disciplines of sports science are required to work in a co-ordinated manner to explore the nature of sports performance and the process of improving sports performance. In last few decades several disciplines of sports science have been established example sports anthropometric, sports management, sports training, sports medicine, sports physiology, sports psychology, sports bio-mechanics, sports nutrition, sports neuro-physiology and sports pedagogy. Man's life is a continuing movement of activity. Every point in time he's doing something and his every activity is the result of the joint efforts of your body and mind; more integrated attempts deliver more success to the average person. Things in this world, outside ourselves, come via the body into our head and things in our mind reach the planet outside through the body (Sushil Chandra Gupta 1983). Netball emerged from early versions of basketball and evolved into its own sport as the number of women participating in sports and the game is developed. Basketball was invented in 1891 by James Naismith in the United States.

The game was initially played indoors between two teams of nine players, using an association football that was thrown into closed-end peach baskets. The purpose of the study was to find out the influence of yogic practice and plyometric training on selected skill performance variables of inter collegiate male Netball players.

## METHODOLOGY

The purpose of the study was to find out the impact of yogic practice and plyometric training on skill performance variables of inter collegiate male Netball players. To achieve this purpose, forty five inter collegiate male netball players selected from Meenakshi Ramasamy Physical Education College, Ariyalur District, the subjects were divided into three equal groups of fifteen each. Experimental group 'A' underwent Yogic practice and Experimental group 'B' underwent plyometric training programme for a period of twelve weeks. The control group was not exposed to any specific training apart from their regular routine. All the subjects were tested on selected variables, before and after the treatment.

## DATA ANALYSIS AND RESULTS

**TABLE – 1**  
**ANALYSIS OF COVARIANCE FOR PRE TEST, POST TEST AND ADJUSTED POST TEST MEANS ON PASSING OF EXPERIMENTAL AND CONTROL GROUPS**

Test	Experimental Group-'A' (Points)	Experimental Group-'B' (Points)	Control Group (Points)	Source of variance	Sum of square	df	Mean square	'F' ratio
<b>Pretest Mean SD(±)</b>	6.27 (1.22)	6.27 (1.39)	6.13 (1.41)	Between Groups	0.18	2	0.09	0.05
				Within Groups	75.60	42	1.80	
<b>Post test Mean SD(±)</b>	7.20 (1.15)	8.53 (0.74)	6.67 (1.11)	Between Groups	27.73	2	13.87	13.40*
				Within Groups	43.47	42	1.03	
<b>Adjusted Post test Mean</b>	7.17	8.50	6.72	Between sets	25.71	2	12.86	43.74*
				Within sets	12.05	41	0.29	

\*Significant at 0.05 level of confidence.

(The table values required for significance at 0.05 level of confidence for 2 & 42 and 2 & 41 are 3.22 and 3.23 respectively).

The table – 1 shows that the pre-test mean values on passing of yogic practice training group, plyometric training group and control group are 6.27, 6.27 and 6.13 respectively. The obtained 'F' ratio 0.05 for pre-test scores is less than the table value 3.22 for df 2 and 42 required for significance at 0.05 level of confidence on passing. The post-test mean values on passing power yogic practice training group, plyometric training group and control group are 7.20, 8.53 and 6.67 respectively. The obtained 'F' ratio 13.40 for post-test scores is greater than the table value 3.22 for df 2 and 42

In order compare the effect of treatment on selected skill performance variables among the three groups, analysis of covariance was used. Whenever, the 'F' ratio for adjusted post-test was found to be significant to determine which of the three paired means significantly differed, the Scheffe's test was applied.

The selected variables for the present study, passing, shooting and overall playing selected as a skill performance variables. The skill performance variable in Netball was measured by the subjectively rating by three qualified coaches. The guideline for subjective rating was given by the investigator. To make the study more scientific the subject reliability, reliability of data, instrument reliability, tester reliability was established.

The collected data from the three groups prior to and after the experimental treatment on selected skill performance variables were statistically analyzed by using the concept of analysis of covariance (ANCOVA). Whenever the 'F' ratio for adjusted post test means was found to be significant, Scheffe's test was followed as a post hoc test to determine which of the paired means difference was significant.

required for significance at 0.05 level of confidence on passing.

The adjusted post-test means on passing of yogic practice training group, plyometric training group and control group are 7.17, 8.50 and 6.72 respectively. The obtained 'F' ratio of 43.74 for adjusted post-test means is greater than the table value of 3.23 for df 2 and 41 required for significance at 0.05 level of confidence on passing. The results of the study indicated that there is a significant difference among the adjusted post-test means of yogic practice training group, plyometric

training group and control group on passing.

**TABLE – 2**  
**SCHEFFE’S TEST FOR DIFFERENCE BETWEEN PAIRED MEANS ON PASSING**

Experimental Group-‘A’ (Yogic practice group)	Experimental Group-‘B’ (Plyometric training group)	Control Group	Mean Difference	Required C.I
7.17	8.50	--	1.33*	0.49
7.17	--	6.72	0.45	
--	8.50	6.72	1.78*	

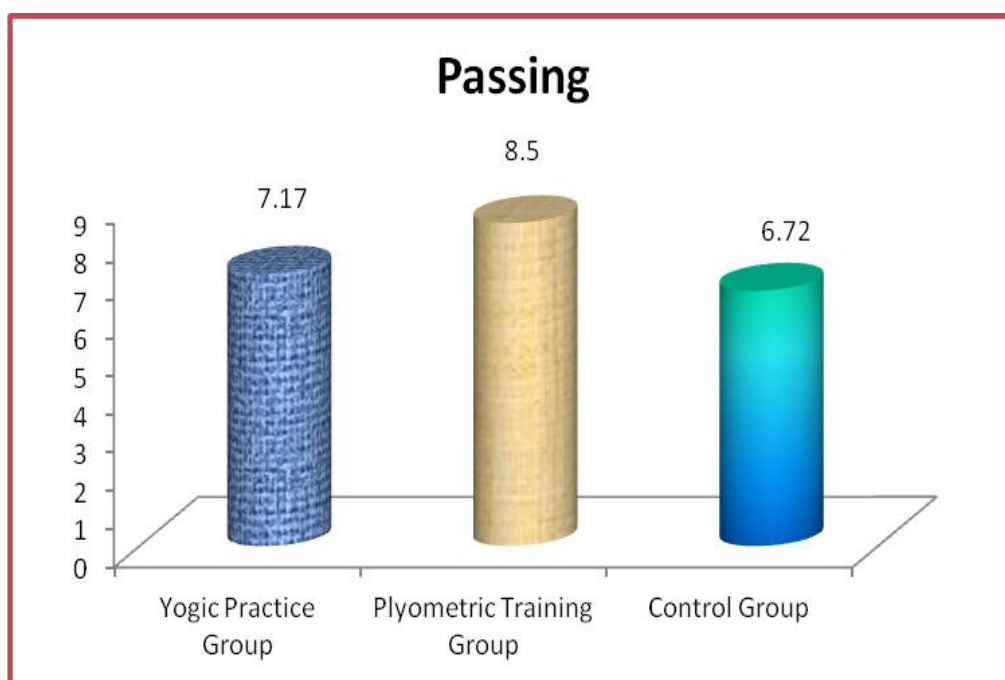
\*Significant at 0.05 level of confidence.

Table – 2 shows that the mean difference values between yogic practice training group and plyometric training group; yogic practice group and control group and between plyometric training group and control group are 1.33, 0.45 and 1.78 respectively.

It may be concluded from the results that there

is a significant difference between adjusted post means among experimental group ‘A’ and ‘B’ and control group. The results of the study show that there is a significant difference between yogic practice training group and plyometric training group; and between plyometric training group and control group on passing.

**FIGURE – 1**  
**ADJUSTED POST TEST MEAN VALUES OF YOGIC PRACTICE TRAINING, PLYOMETRIC TRAINING AND CONTROL GROUPS ON PASSING**



**TABLE – 3**  
**ANALYSIS OF COVARIANCE FOR PRE TEST, POST**  
**TEST AND ADJUSTED POST TEST MEANS ON SHOOTING OF EXPERIMENTAL AND CONTROL GROUPS**

Test	Experimental Group-‘A’ (Points)	Experimental Group-‘B’ (Points)	Control Group (Points)	Source of variance	Sum of square	df	Mean square	‘F’ ratio
<b>Pretest Mean SD(±)</b>	5.73 (0.80)	5.67 (0.98)	5.73 (0.88)	Between Groups	0.04	2	0.02	0.03
				Within Groups	33.20	42	0.79	
<b>Post test Mean SD(±)</b>	7.80 (0.86)	8.20 (0.94)	6.73 (0.88)	Between Groups	17.24	2	8.62	10.73*
				Within Groups	33.73	42	0.80	
<b>Adjusted Post test Mean</b>	7.79	8.23	6.72	Between sets	18.04	2	9.02	18.24*
				Within sets	20.28	41	0.49	

\*Significant at 0.05 level of confidence.

(The table values required for significance at 0.05 level of confidence for 2 & 42 and 2 & 41 are 3.22 and 3.23 respectively).

The table – 3 shows that the pre-test mean values on shooting of yogic practice training group, plyometric training group and control group are 5.73, 5.67 and 5.73 respectively. The obtained ‘F’ ratio 0.03 for pre-test scores is less than the table value 3.22 for df 2 and 42 required for significance at 0.05 level of confidence on shooting. The post-test mean values on shooting power yogic practice training group, plyometric training group and control group are 7.80, 8.20 and 6.73 respectively. The obtained ‘F’ ratio 10.73 for post-test scores is greater than the table value 3.22 for df 2 and 42 required for significance at 0.05 level of confidence on

shooting.

The adjusted post-test means on shooting of yogic practice training group, plyometric training group and control group are 7.79, 8.23 and 6.72 respectively. The obtained ‘F’ ratio of 18.24 for adjusted post-test means is greater than the table value of 3.23 for df 2 and 41 required for significance at 0.05 level of confidence on shooting. The results of the study indicated that there is a significant difference among the adjusted post-test means of yogic practice training group, plyometric training group and control group on shooting.

**TABLE – 4**  
**SCHEFFE’S TEST FOR DIFFERENCE BETWEEN PAIRED MEANS ON SHOOTING**

Experimental Group-‘A’ (Yogic practice group)	Experimental Group-‘B’ (Plyometric training group)	Control Group	Mean Difference	Required C.I
7.77	8.22	--	0.45	0.64
7.77	--	6.72	1.05*	
--	8.22	6.72	1.5*	

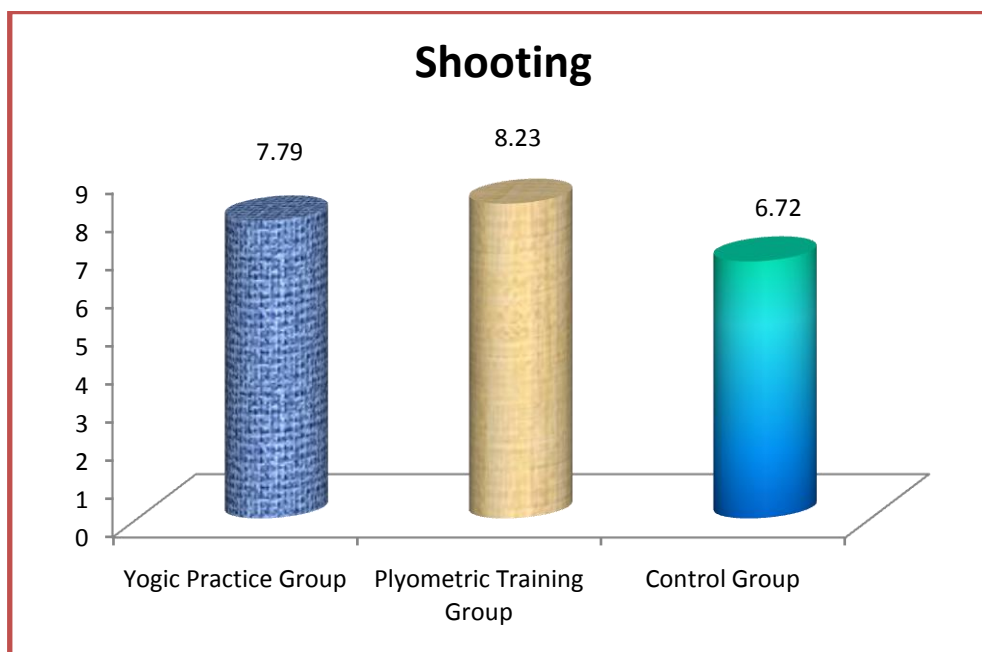
\*Significant at 0.05 level of confidence.

Table – 4 shows that the mean difference values between yogic practice training group and plyometric training group; yogic practice group and control group and between plyometric training group and control group are 0.45, 1.05 and 1.5 respectively.

It may be concluded from the results that there

is a significant difference between adjusted post means among experimental group ‘A’ and ‘B’ and control group. The results of the study show that there is a significant difference between yogic practice group and control group and between plyometric training group and control group on shooting.

**FIGURE – 2**  
**ADJUSTED POST TEST MEAN VALUES OF YOGIC PRACTICE TRAINING, PLYOMETRIC TRAINING AND CONTROL GROUPS ON SHOOTING**



**TABLE – 5**  
**ANALYSIS OF COVARIANCE FOR PRE TEST, POST TEST AND ADJUSTED POST TEST MEANS ON OVERALL PLAYING ABILITY OF EXPERIMENTAL AND CONTROL GROUPS**

Test	Experimental Group-‘A’ (Points)	Experimental Group-‘B’ (Points)	Control Group (Points)	Source of variance	Sum of square	df	Mean square	‘F’ ratio
<b>Pretest Mean SD(±)</b>	5.67 (1.11)	5.80 (1.57)	5.80 (0.94)	Between Groups	0.18	2	0.09	0.06
				Within Groups	64.13	42	1.52	
<b>Post test Mean SD(±)</b>	6.87 (0.92)	7.93 (0.88)	6.73 (0.88)	Between Groups	12.98	2	6.49	8.11*
				Within Groups	33.60	42	0.80	
<b>Adjusted Post test Mean</b>	6.91	7.91	6.71	Between sets	12.37	2	6.18	15.58*
				Within sets	16.27	41	0.39	

\*Significant at 0.05 level of confidence.

(The table values required for significance at 0.05 level of confidence for 2 & 42 and 2 & 41 are 3.22 and 3.23 respectively).

The table – 5 shows that the pre-test mean values on overall playing ability of yogic practice training group, plyometric training group and control group are 5.67, 5.80 and 5.80 respectively. The obtained ‘F’ ratio 0.06 for pre-test scores is less than the table value 3.22 for df 2 and 42 required for significance at 0.05 level of confidence on overall playing ability. The post-test mean values on overall playing ability power yogic practice training group, plyometric training group

and control group are 6.87, 7.93 and 6.73 respectively. The obtained ‘F’ ratio 8.11 for post-test scores is greater than the table value 3.22 for df 2 and 42 required for significance at 0.05 level of confidence on overall playing ability.

The adjusted post-test means on overall playing ability of yogic practice training group, plyometric training group and control group are 6.91, 7.91 and 6.71 respectively. The obtained ‘F’ ratio of 15.58 for adjusted

post-test means is greater than the table value of 3.23 for df 2 and 41 required for significance at 0.05 level of confidence on overall playing ability. The results of the study indicated that there is a significant difference

among the adjusted post-test means of yogic practice training group, plyometric training group and control group on overall playing ability.

**TABLE – 6**  
**SCHEFFE'S TEST FOR DIFFERENCE BETWEEN PAIRED**  
**MEANS ON OVERALL PLAYING ABILITY**

Experimental Group-‘A’	Experimental Group-‘B’	Control Group	Mean Difference	Required C.I
6.91	7.91	--	1.00*	0.57
6.91	--	6.71	0.2	
--	7.91	6.71	1.2*	

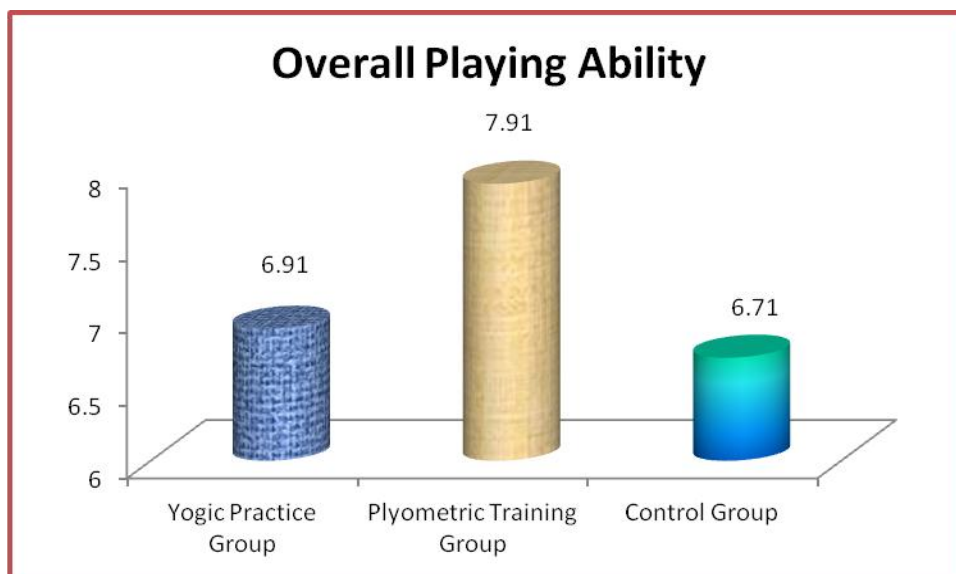
\*Significant at 0.05 level of confidence.

Table – 6 shows that the mean difference values between yogic practice training group and plyometric training group; yogic practice group and control group and between plyometric training group and control group are 1, 0.2 and 1.2 respectively.

It may be concluded from the results that there is a significant difference between adjusted post means

among experimental group ‘A’ and ‘B’ and control group. The results of the study show that there is a significant difference between yogic practice training group and plyometric training group; and between plyometric training group and control group on overall playing ability.

**FIGURE – 3**  
**ADJUSTED POST TEST MEAN VALUES OF YOGIC PRACTICE TRAINING, PLYOMETRIC TRAINING**  
**AND CONTROL GROUPS ON OVERALL PLAYING ABILITY**



## DISCUSSION ON FINDINGS

The results of the study reveal that there is a significant differences on the passing, shooting and overall playing ability between the adjusted post test means of experimental ‘A’, experimental ‘B’ and control group and also a significant difference is found between the experimental groups and control group.

It is concluded that the plyometric training group is found to be better than yogic training group and control group in improving the passing, shooting and

overall playing ability performance of the Netball Players. The results indicate that the improvement in passing, shooting and overall playing ability performance is due to the impact of plyometric training programme.

The results agree with the studies done by Abolghasem Memarzadeh, Mehrzad Moghadasi and Karim Zare (2014), Shelvam and Baljit Singh Sekhon (2012). The findings of the study is in par with the literatures that a relatively small amount of plyometric

training is required to improve performance of Netball players.

Roopchand-Martin, Lue-Chin (2010) Plyometric training is widely used in conditioning, power training and in prevention and rehabilitation of injuries in some sports. This study sought to investigate the influence of a three-week plyometric training programme on jump performance and agility in Jamaican national netball players. Three weeks of Plyometric training can lead to significant improvements in jump performance and agility and should be integrated into the national training programme at intervals yet to be determined.

### CONCLUSIONS

1. The Yogic practice group and plyometric training group had shown significant improvement in all the selected skill performance variables of inter collegiate male Netball players.
2. The control group had not shown significant changes in all the skill performance variables of inter collegiate male Netball players.
3. The results of the study showed that there is a significant difference among the adjusted post test means of the experimental groups in the selected skill performance variables of inter collegiate male Netball players.
4. The result of the study shows that plyometric training group is better than the yogic practice training group and control group in skill performance related variables namely Passing, shooting and overall playing. The results indicate that the improvement of skill performance related variables performance is due to the impact of plyometric training programme.

### RECOMMENDATIONS FOR IMPLEMENTATION

1. The results of this study clearly indicate that yogic practice training and plyometric training practice could enhance the performance on skill performance variables of inter collegiate male Netball players.
2. Hence, it is recommended that coaches and physical educators in the game of Netball should include yogic practice training and plyometric training practice in their schedules.
3. It is suggested that similar type of yogic practice training and plyometric training

package for Goal Keeper (GK), Goal Defence (GD), Wing Defence (WD), Centre (C), Wing Attack (WA), Goal Attack (GA) Goal Shooter can be designed and implemented.

4. Netball Federation of India and other state Netball association may utilise this yogic practice training programme and plyometric training programme in their coaching camps to improve the skill performance of inter collegiate male Netball players.

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