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Effect of Yogic Practice and Plyometric Training on Selected Coordinative Abilities of Inter Collegiate Netball Players

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Abstract

The purpose of the study was to find out the effect of yogic practice and plyometric training on selected coordinative abilities of inter collegiate Netball players. To achieve this purpose, forty five inter collegiate 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 coordinative abilities namely differentiation ability, space orientation ability and complex reaction ability. The following standardized tests were used to measure the coordinative abilities namely backward ball throw, numbered medicine ball run, ball rolling test. 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 coordinative abilities 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 s significant difference between the groups of inter collegiate Netball players.

Keywords: Yogic Practice, Plyometric Training, Coordinative Abilities, Netball Players.

Introduction

The word 'physical' refers to the body, and indicates bodily characteristics such as strength, speed, endurance, flexibility, health, coordination and performance. Human being is an integration of the body and mind. Both components through their combinations make him more successful. (Kamlesh, 1988). 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).

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). Human have consistently strived to run faster, jump higher, throw farther and exhibit greater strength, endurance and skill.

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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.

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.

Coordinative motor abilities are particularly important at the initial stages of the sports development of a competitor A high level of coordination in early age enables an individual to learn techno- tactical skills more promptly and execute them with desired efficacy and perfection in due course of time during competition A

well-formed basis of coordinative abilities in young sportsmen is maintained at a later age and seemed an important reason for faster and more accurate learning of rather more difficult and complex movement tasks (Martin 1979,).

Especially in sports, in addition to motor abilities, the coordinative abilities are the prerequisites for developing high athletic performance. With high level of coordinative abilities, athletes can learn and improve athletic motor abilities and techniques that are required for the specific sport more promptly and with a higher degree of quality. (Hartmann, Minow & Senf, 2002). 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 effect of yogic practice and plyometric training on selected coordinative abilities of inter collegiate Netball players.

Methodology

The purpose of the study was to find out the effect of yogic practice and plyometric training on selected coordinative abilities of inter collegiate Netball players. To achieve this purpose, forty five inter collegiate 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.

In order compare the effect of treatment on selected coordinative abilities 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 are coordinative abilities namely differentiation ability, space orientation ability and complex reaction ability. The following standardized tests were used to measure the coordinative abilities namely backward ball throw, numbered medicine ball run, ball rolling test.

Statistical analysis

The collected data from the three groups prior to and after the experimental treatment on selected coordinative abilities 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. In all the cases 0.05 level of confidence was fixed as a level of confidence to test the hypothesis.

Data analysis and results

Table 1

Analysis of covariance for pre test, post test and adjusted post test means on differentiation 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
Pretest Mean SD(±)	11.80 (2.78)	11.20 (3.00)	11.60 (3.50)	Between Groups	2.80	2	1.40	0.14
				Within Groups	406.40	42	9.67	
Post test Mean SD(±)	15.07 (2.05)	13.13 (3.18)	12.27 (3.51)	Between Groups	61.64	2	30.82	3.46*
				Within Groups	373.60	42	8.89	
Adjusted Post test Mean	14.83	13.43	12.20	Between sets	51.471	2	25.74	25.45*
				Within sets	41.457	41	1.01	

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 differentiation ability of yogic practice training group, plyometric training group and control group are 11.80, 11.20 and 11.60 respectively. The obtained 'F' ratio 0.14 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 differentiation ability.

The post-test mean values on explosive power yogic practice training group, plyometric training group and control group are 15.07, 13.13 and 12.27 respectively. The obtained 'F' ratio 3.46 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 differentiation ability.

The adjusted post-test means of yogic practice training group, plyometric training group and control group are 14.83, 13.43 and 12.20 respectively. The obtained 'F' ratio of 25.45 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 differentiation 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 differentiation ability.

Table 2
Scheffe's test for difference between paired means on differentiation ability

Experimental Group-'A' (Yogic practice group)	Experimental Group-'B' (Plyometric training group)	Control Group	Mean Difference	Required C.I
14.83	13.43	--	1.4*	0.93
14.83	--	12.20	2.63*	
--	13.43	12.20	1.23*	

**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 1.4, 2.63 and 1.23 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; yogic practice group and control group and between plyometric training group and control group on differentiation ability.

Figure I
Adjusted post test mean values of yogic practice training, plyometric training and control groups on differentiation ability

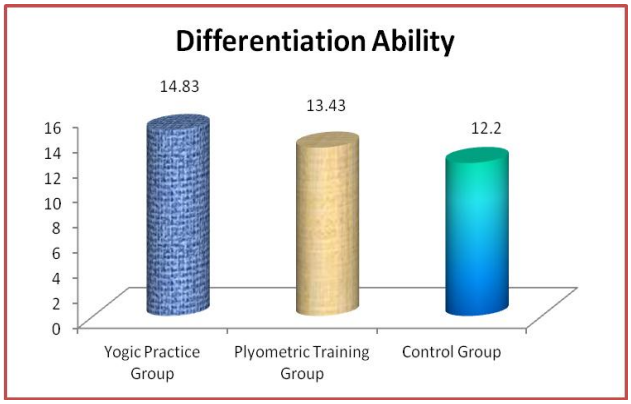


Table 3
Analysis of covariance for pre test, post test and adjusted post test means on space orientation ability of experimental and control groups

Test	Experimental Group-'A' (Points)	Experimental Group-'B' (Points)	Control Group (Points)	Source of variance	Sum of square	df	Mean square	'F' ratio
Pretest Mean SD(±)	7.64 (0.80)	7.65 (0.57)	7.65 (0.72)	Between Groups	0.00	2	0.00	0.00
				Within Groups	20.75	42	0.49	
Post test Mean SD(±)	6.81 (0.53)	6.93 (0.53)	7.35 (0.70)	Between Groups	2.49	2	1.25	3.60*
				Within Groups	14.52	42	0.35	
Adjusted Post test Mean	6.81	6.92	7.35	Between sets	2.44	2	1.22	9.76*
				Within sets	5.13	41	0.12	

**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 space orientation ability of yogic practice training group, plyometric training group and control group are 7.64, 7.65 and 7.65 respectively. The obtained 'F' ratio 0.01 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 space orientation ability.

The post-test mean values on space orientation ability of yogic practice training group, plyometric training group and control group are 6.81, 6.93 and 7.35 respectively. The obtained 'F' ratio 3.60 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 space orientation ability.

The adjusted post-test means values on space orientation ability of yogic practice training group, plyometric training group and control group are 6.81, 6.92 and 7.35 respectively. The obtained 'F' ratio of 9.76 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 space orientation 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 space orientation ability.

Table 4
Scheffe's test for difference between paired means on space orientation ability

Experimental Group-'A' (Yogic practice group)	Experimental Group-'B' (Plyometric training group)	Control Group	Mean Difference	Required C.I
6.81	6.92	--	0.11	0.32
6.81	--	7.35	0.54*	
--	6.92	7.35	0.43*	

****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 0.11, 0.54 and 0.43 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 space orientation ability.

Figure II

Adjusted post test mean values of yogic practice training, plyometric training and control groups on space orientation ability

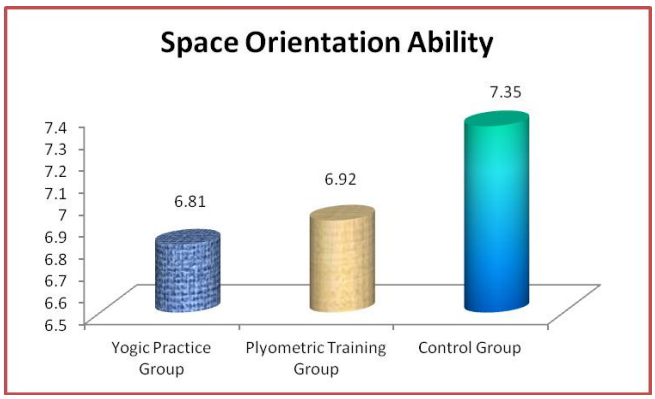


Table 5

Analysis of covariance for pre test, post test and adjusted post test means on complex reaction 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
Pretest Mean SD(±)	121.80 (14.25)	120.27 (18.79)	123.60 (15.89)	Between Groups	83.51	2	41.76	0.15
				Within Groups	11324.93	42	269.64	
Post test Mean SD(±)	101.27 (12.79)	104.60 (15.20)	116.93 (16.71)	Between Groups	2043.33	2	1021.67	4.55*
				Within Groups	9431.47	42	224.56	
Adjusted Post test Mean	101.33	105.78	115.69	Between sets	1615.67	2	807.83	9.53*
				Within sets	3473.83	41	84.72	

***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 complex reaction ability of yogic practice training group, plyometric training group and control group are 121.80, 120.27 and 123.60 respectively. The obtained 'F' ratio 0.15 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 complex reaction ability.

The post-test mean values on complex reaction ability of yogic practice training group, plyometric training group and control group are 101.27, 104.60 and 116.93 respectively. The obtained 'F' ratio 4.55 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 complex reaction ability.

The adjusted post-test means values on complex reaction ability of of yogic practice training group, plyometric training group and control group are 101.33, 105.78 and 115.69 respectively. The obtained 'F' ratio of 9.53 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 complex reaction 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 complex reaction ability.

Table 6
Scheffe's test for difference between paired means on omplex reaction ability

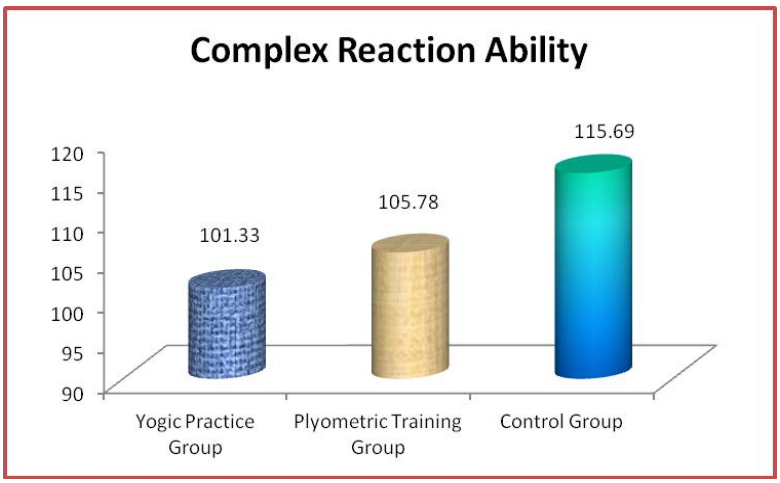
Experimental Group-'A' (Yogic practice group)	Experimental Group-'B' (Plyometric training group)	Control Group	Mean Difference	Required C.I
101.33	105.78	--	4.45	8.54
101.33	--	115.69	14.36*	
--	105.78	115.69	9.91*	

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 4.45, 14.36 and 9.91 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 complex reaction ability.

Figure III
Adjusted post test mean values of yogic practice training, plyometric training and control groups on complex reaction ability



Discussion on findings

The results of the study reveal that there is a significant differences on the differentiation ability, space orientation ability and complex reaction 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 differentiation ability, space orientation ability and complex reaction ability performance of the Netball Players. The results indicate that the improvement in differentiation ability, space orientation ability and complex reaction ability performance is due to the impact of plyometric training programme.

The results agree with the studies done by Neluta Smidu, 2014, Umesh, U and Suresh, C (2018) and Srinivasan, Ravi (2016). The findings of the study is in par with the literatures that a relatively small amount of yogic practice is required to improve coordinative abilities of students with hearing impairment students. Umesh and Suresh (2018) analyze the effect of Yoga programme on coordinative abilities of high school students. The subjects were divided into two groups of

Twenty (n=20) each namely experimental group and control group. The experimental group underwent six weeks of Yoga programme on alternate days per week. The dependent variables selected for the study were selected coordinative abilities namely eye hand coordination, static balance, dynamic balance and reaction time and the independent variable selected for the study were Yoga programme. The result of the study indicated that there was a significant differences in coordinative abilities selected for this study.

Conclusions

1. The yogic practice group and plyometric training group had shown significant improvement in all the selected coordinative abilities of inter collegiate netball players.
2. The control group had not shown significant changes in all the coordinative abilities of inter collegiate 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 coordinative abilities of inters collegiate netball players.
4. The result of the study showed that yogic practice training group is better than the plyometric training group and control group in coordinative abilities namely differentiation ability, space orientation ability and complex reaction ability. The results indicate that the improvement in coordinative abilities is due to the impact of yogic practice training programme.

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