

## A Comparative Study of Balance and Rhythmic Abilities of Indian Soccer Players at Different levels of Participation

Amit Kumar Singh\*Dr. Dharendra Tiwari\*\*Dr. Usha Tiwari\*\*\*

\*PGT (Physical education) Army School, Meerut, (U.P) care4u.amit@gmail.com

\*\*Assistant Director(B H U) Varanasi,(U.P.) dr.dhirendratiwari@gmail.com

\*\*\* Associate Proffesor , Vanasthali Vidhyapeeth, (Rajasthan) usha4tiwari@gmail.com

(Received 01 January 2015 – Accepted & Published 16 January 2015)

### Abstract

**Background:** The purpose of the study was to compare Sub Junior, Junior and Senior Soccer players by their selected coordinative abilities.

**Methods:** The study was conducted on 90 subjects with a purpose to compare Sub Junior, Junior and Senior Soccer players by their coordinative abilities. The variables selected for the study were Balance ability and Rhythmic ability. Thirty subjects were selected from each level i.e sub juniors, juniors and seniors. For Sub Juniors, the age of the subjects was 16 years and below. For juniors, the age of the subjects was 19 years and below. For seniors, the age of the subjects was above 19 years. To compare the selected coordinative abilities among sportsman belonging to three levels (Sub Junior, Junior and Senior), one way analysis of variance (ANOVA) was used and level of significance was set at 0.05 level.

**Results:** It was concluded that: In relation to Balance ability significant difference was found between three age group level i.e sub juniors, juniors and seniors. In case of Balance ability, the sequence of performance between three age group was seniors>juniors>sub-juniors. In relation to Rhythmic ability significant difference was found between three age group level i.e sub juniors, juniors and seniors. In case of Rhythmic ability, the sequence of performance between three age group was seniors>juniors>sub-juniors.

### INTRODUCTION

Football is a fast moving and exciting game requiring quick thinking as well as physical skills. Players and spectators participate in Football with high game spirit. The game of Football is an opportunity to combine, speed of judgment, speed of physical and mental reaction and expertise with body and ball. These entire combine together to help in achieving the skills, which need finesse of movement. To establish the relationship research has tried to accretion whether all these coordinative abilities have any impact on accuracy in kicking.

Modern soccer is characterized by its high tempo. To play soccer successfully, players must react faster than ever when they receive the ball, as well as making frequent sudden changes of direction, sprints into free space and instant switches from defense to attack. The demands on soccer players are so great that special and systematic training of their running coordination, especially their running technique and rhythm, appears essential.

### Objective of the Study

The purpose of the study was to compare Sub Junior, Junior and Senior Soccer players by their selected coordinative abilities.

### METHODOLOGY

1. The subjects for this study were selected from national football camp of U.P.State who participated in various competitions, such as sub-juniors, juniors and seniors national

championships in Soccer. A total of 90 subjects were selected consisting of 30 players in each level i.e. Sub- Junior, Junior and Senior.

- a) For Sub Juniors, the age of the subjects was 16 years and below.
  - b) For Juniors, the age of the subjects was 19 years and below
  - c) For Seniors, the age of the subjects was above 19 years.
2. Keeping in mind the specific purpose of the study to find out the relationship between co-ordinative ability and performance of soccer players at different levels, the following variables were selected:
- a) Balance ability
  - b) Rhythm ability
3. The necessary data was collected by administering co-ordinative abilities tests as suggested by Peter Hirtz.
- a) The Balance ability was measured by using long nose test and was recorded in seconds.
  - b) Rhythm ability was measured by using sprint at given rhythm test and was recorded in seconds.
4. To characterize elite soccer players to their standard human performance measures by selected coordinative abilities, mean and standard deviation were calculated.
5. To compare the selected coordinative abilities among sportsman belonging to levels (senior and junior), one way analysis of variance (ANOVA) was used and the level of significance was set of 0.05 levels.

## RESULTS

The findings and discussion of findings with regard to the present study have been presented in this section. Descriptive profiles of co-ordinative abilities (Orientation ability & Reaction ability) of various level and the comparison of co-ordinative abilities between the age groups (Sub-Junior, Junior and Senior).

**Table-1: Descriptive Statistics of Co-Ordinative Abilities at Various level Players**

Various levels	Co-ordinative ability	Minimum	Maximum	Mean	Std. Deviation
Sub-Junior	Balance Ability	7.10	12.60	10.13	1.55
	Rhythmic Ability	0.20	2.70	1.69	0.75
Junior	Balance Ability	6.30	10.90	8.55	1.56
	Rhythmic Ability	0.07	1.92	1.12	0.50
Senior	Balance Ability	5.70	8.40	7.22	0.83
	Rhythmic Ability	0.07	1.71	0.99	0.49

Table-1 reveals the mean and standard deviation of co-ordinative abilities of Indian Soccer players at various levels. At Sub Junior level the observed mean and standard deviation for each coordinative ability were as follows: Balance Ability ( $10.13 \pm 1.55$ ) Rhythmic Ability ( $1.69 \pm 0.75$ ). At Junior level the observed mean and standard deviation of each coordinative ability were as follows: Balance Ability ( $8.55 \pm 1.56$ ), Rhythmic Ability ( $1.12 \pm 0.50$ ). At senior level the observed mean and standard deviation of each coordinative ability were as follows: Balance Ability ( $7.22 \pm 0.83$ ), Rhythmic Ability ( $0.99 \pm 0.49$ ).

**Table-2: Balance Ability among Players of Three Different Levels of Participation.**

	Sum of Squares	df	Mean Square	F	Sig.
Between Groups	127.03	2.00	63.52	34.45*	.00
Within Groups	160.39	87.00	1.84		
Total	287.43	89.00			

\*Significant at 0.05 levels

F .05 (2, 87) = 3.10

It is evident from table 2 that significant difference was found among the Soccer players of three different levels as the F-value of 34.45 is higher than the tabulated value of 3.10 with 2,87 df at .05 level of significance. Since the one way analysis of variance was found significant in relation to Balance Ability, the least significant (LSD) test was applied to find out which of the different of the means amongst the different groups (Sub Juniors, Juniors and Seniors) were statistically significant (Table-3).

**Table -3: Least Significant Difference Post-Hoc Test for Means of the Sub Juniors, Juniors and Seniors in Relation to Balance Ability.**

(I) Various Level	(J) Various Level	Mean Difference (I-J)	Std. Error	Sig.	95% Confidence Interval	
					Lower Bound	Upper Bound
sub-junior	junior	1.58*	.35	.00	.88	2.27
	senior	2.91*	.35	.00	2.21	3.60
junior	sub-junior	-1.58*	.35	.00	-2.27	-.88
	senior	1.33*	.35	.00	.63	2.03
senior	sub-junior	-2.91*	.35	.00	-3.60	-2.21
	junior	-1.33*	.35	.00	-2.03	-.63

\*. The mean difference is significant at the 0.05 level.

It is evident from table-3 that mean difference of sub juniors and juniors; sub juniors and seniors; juniors and seniors was found to be significant at 0.05 levels of significance in relation to Orientation ability. This table also shows that Seniors are having better Orientation ability than Juniors and Sub Juniors and it further reveals that Juniors have better Orientation ability than the Sub Juniors.

**Table -4: Analysis of Variance of the Means of Reaction Ability among Players of Three Different levels of Participation**

	Sum of Squares	df	Mean Square	F	Sig.
Between Groups	8.45	2.00	4.22	12.08	.00
Within Groups	30.42	87.00	.35		
Total	38.87	89.00			

\*Significant at 0.05 levels

F .05 (2, 87) = 3.10

It is evident from table 4 that significant difference was found among the Soccer players of three different levels as the F-value of 12.08 is higher than the tabulated value of 3.10 with 2,87 df at .05 level of significance. Since the one way analysis of variance was found significant in relation

to Rhythmic Ability, the least significant (LSD) test was applied to find out which of the difference of the means amongst the different groups (Sub Juniors, Juniors and Seniors) were statistically significant (Table -5).

**Table -5: Least Significant Difference Post-Hoc Test for Means of the Sub-Juniors, Juniors and Seniors in Relation to Reaction Ability.**

(I) Various Level	(J) Various Level	Mean Difference (I-J)	Std. Error	Sig.	95% Confidence Interval	
					Lower Bound	Upper Bound
sub-junior	junior	20.07*	5.75	.00	8.64	31.49
	senior	32.50*	5.75	.00	21.08	43.92
junior	sub-junior	-20.07*	5.75	.00	-31.49	-8.64
	senior	12.43*	5.75	.03	1.01	23.86
senior	sub-junior	-32.50*	5.75	.00	-43.92	-21.08
	junior	-12.43*	5.75	.03	-23.86	-1.01

\*. The mean difference is significant at the 0.05 level.

It is evident from table-5 that mean difference of sub juniors and juniors; sub juniors and seniors; juniors and seniors was found to be significant at 0.05 levels of significance in relation to Reaction ability. This table also shows that Seniors are having better Reaction ability than Juniors and Sub Juniors and it further reveals that Juniors have better Reaction ability than the Sub Juniors.

### Discussion of Findings

Significant difference was found between the Soccer Players of three different levels in relation to Orientation ability & Reaction Ability at 0.05 level. After applying the post-hoc (least significant difference) test it was observed that in relation to orientation ability mean difference of sub juniors and juniors; sub juniors and seniors; juniors and seniors was found to be significant at 0.05 level of significance and also In relation to Reaction ability mean difference of sub juniors and Juniors; sub juniors and seniors; juniors and seniors was found to be significant at 0.05 level of significance.

This might be due to reason that senior Soccer players developed Coordinative abilities by the long duration of participation and by the help of general and specific exercises, additional means for improving motor sense organs, variation of exercises, variation of movement execution, Variation in external conditions, combination of movement, change in information uptake, practice against time and due to practice under fatigue.

### References:

- Bell Keith F (1983) *"The Athlete Guide to Winning Performance in All Sports"*. (London Prentice Hall).
- Butcher Helga,(1983)*"Relationship of Coordinative Abilities and Swimming Techniques in School Swimming Classes,"* Beiheft 1, Berlin.
- Casolino E Cortis C,(2012) *"Department of Human Movement and Sport Sciences, University of Rome Foro Italico,"* Rome, Italy.
- Clarke Harrison H., and Clarke David H.(1972) *"Advanced Statics with Application to physical Education"* Engle wood Cliffs, N.J.Printice all Ins.

- Dorthy Beise And Peasely Vorgania,(1937) "*The Relationship Of Reaction Time Speed, And Agility Of Big Muscles Groups To Certain Skills.*" Research Quarterly
- E. Prasad (1994) "*Modern Coaching in Kabaddi*". (New Delhi: DVS Publication).
- Harre Dietrich (1982) "*Principles of Sports Training*" ( Berlin: Interdruck, Graphister GroBbertrick
- Johnson and Fisher,(1979) "*Scientific Basis of Athletics Conditioning, Lea & Febiger,*" Philadelphia.
- Mathana Satish: (2004) "*Comparative Study of Co-ordinative Ability of State level volleyball and Basket Ball players.*" Unpublished Dissertation, Deptt. of Physical Education Kurukshetra University, Kurukshetra.
- Raghupati K, (2013) "Comparative Analysis of Coordinative and Balancing Abilities Among 10-15 Years of Rural and Urban School Boys" *Research Paper Physical Education*, Nagarjuna University, Guntur, Andhra Pradesh,
- Slater A. T and Hammel, (December 1995) "Comparison of Reaction Time measures to a visual stimulus and Arm Movement. "*Reaction Quarterly* 26
- Stuart Appelle and Laurence Oswald E, (June 1974) "Simple Reaction Time as a function of Alertness and prior mental Activity" *Perceptual and motor skills.*