

## **Comparative Analysis of Reaction and Coordination Ability among Football Athletes and Hockey Athletes**

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### **Abstract**

The purpose of this research was to examine the various sensory motor abilities like coordination and reaction time between female football players and female hockey players. To accomplish this, a total of 40 participants (20 football players and 20 hockey players) from the Lakshmibai National Institute of Physical Education in Gwalior, ranging in age from 17 to 25 years, were randomly selected. The statistical method employed in this study was paired t-test with a significance level of 0.05. The results of the statistical analysis indicated a significant difference between football and hockey players in terms of reaction ability and coordination ability.

**KEYWORD:** Coordination Ability, Reaction Time

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### **INTRODUCTION**

Athletes encounter unique obstacles in the realm of sports that call for remarkable physical prowess and mental agility. Football and hockey, two well-liked team sports, feature impressive feats of athleticism, cunning, and synchronization. While agility, quick reactions, and precise movements are necessary for both sports, the unique demands imposed on athletes in each discipline might vary greatly. Comparing and contrasting the reaction and coordination skills of football and hockey players can shed light on the particular qualities and abilities these athletes must possess.

The study of human performance in sports has long been a subject of scientific investigation, aiming to uncover the physiological and psychological factors that contribute to excellence. Among the key elements that determine success in both football and hockey, reaction time and coordination play vital roles. The capacity to integrate motor skills, balance, and body control to carry out exact motions is known as coordination. Reaction time is the rate at which an athlete notices and reacts to external stimuli.

Football and hockey both demand certain perceptual and motor skills, despite their fundamental differences. Both sports require quick thinking, lightning-fast reflexes, and accurate motor control. However, differences in the playing fields, tools, rulebooks, and team configurations present special difficulties that could influence the demands made on athletes. Recognizing these variations can assist in adjusting training plans and locating possible cross-sport skills.

To date, research on the comparative analysis of reaction and coordination ability among football and hockey athletes remains limited. Existing studies often focus on individual sports in isolation, failing to explore the contrasting demands posed by team sports.

Therefore, this research paper aims to bridge this gap in knowledge by conducting a comprehensive comparative analysis of reaction and coordination ability among football athletes and hockey athletes.

This study aims to determine the similarities and differences in the cognitive and physical characteristics of football and hockey athletes by measuring reaction speed, perceptual abilities, motor control, and coordination through various laboratory and field-based examinations. Additionally, the study will look into how team chemistry, equipment, and playing surfaces can all have an effect on how well a player uses their reaction and coordination skills.

In conclusion, this research paper aims to provide a comparative analysis of reaction and coordination ability among football athletes and hockey athletes. By exploring the similarities and differences in these key attributes, this study seeks to contribute to the understanding of the unique demands placed on athletes in these team sports. Ultimately, the insights gained from this research can guide the development of effective training methodologies and enhance the performance of athletes in football and hockey.

## **MATERIALS AND METHODS**

### **OBJECTIVE**

The objective of the study was to compare the coordination ability and reaction ability between football players and hockey players.

### **HYPOTHESIS**

It was hypothesized that there might be significant differences of coordination ability and reaction ability between football and hockey players.

### **METHODOLOGY**

**Selection of Subject:** Forty (40) players from Lakshmi Bai National Institute of Physical Education, Gwalior were selected as participants randomly. The age of the participant was ranged from 17 to 25 years. The selected variables coordinative ability and reaction time of performance assessed with BMS software.

### **SELECTED SENSORY MOTOR ABILITIES**

**Coordination:** According to definition from Oxford languages, the organization of the different elements of a complex body or activity so as to enable them to work together effectively. Or the ability to use different parts of the body together smoothly and efficiently. The adjustment of our body's reaction towards any stimulus around us and from the inside of our body. It ensures that each part of the body is controlled so that it functions harmoniously with each other when it receives a stimulus.

**Reaction time:** Reaction time is the ability to respond quickly to a stimulus. It is important in many sports and day to day activities, though it is not often measured. Simple reaction time is the time taken between a stimulus and movement.

**DATA ANALYSIS**

For data analysis response was expressed as mean and standard deviation. Paired t test were performed for comparisons means between two group (football female players and hockey female players), p value set at 0.05 level. And data analysis performed at spss 20.

**RESULTS**

The minimum and maximum ages were similar in both the groups. The means and standard deviation (SD) of the coordinative abilities and reaction abilities, the means, and standard deviations of the two groups have been presented in table. For further difference of means checked through paired t test. Where in both the variable coordination and reaction ability a significant difference found in both the team.

**Coordination Left and right**

**Paired Samples Statistics**

	Mean	N	Std. Deviation	Std. Error Mean
Pair 1 coord_LR_football	1.5900	20	.46215	.10334
coord_LR_hockey	1.1850	20	.28335	.06336

**Paired Samples Test**

	Paired Differences					t	df	Sig. (2-tailed)
	Mean	Std. Deviation	Std. Error Mean	95% Confidence Interval of the Difference				
				Lower	Upper			
Pair 1 coord_LR_football - coord_LR_hockey	.40500	.47404	.10600	.18314	.62686	3.821	19	.001

**Coordination Front and back**

**Paired Samples Statistics**

	Mean	N	Std. Deviation	Std. Error Mean
Pair 1 coordination_FB_Football	1.6150	20	.27961	.06252
coordination_FB_Hockey	1.1000	20	.31789	.07108

**Paired Samples Test**

		Paired Differences					t	df	Sig. (2-tailed)
		Mean	Std. Deviation	Std. Error Mean	95% Confidence Interval of the Difference				
					Lower	Upper			
Pair 1	coordination_FB_Football - coordination_FB_Hockey	.51500	.40167	.08982	.32701	.70299	5.734	19	.000

**Reaction front, back, right, left**

**Paired Samples Statistics**

		Mean	N	Std. Deviation	Std. Error Mean
Pair 1	reaction_front_football	1.3155	20	.35149	.07859
	reaction_front_hockey	2.7950	20	.59425	.13288
Pair 2	reaction_back_football	1.3900	20	.24039	.05375
	reaction_back_hockey	2.9600	20	.41977	.09386
Pair 3	reaction_right_football	1.3605	20	.25802	.05769
	reaction_right_hockey	3.1000	20	.35393	.07914
Pair 4	reaction_left_football	1.2800	20	.18525	.04142
	reaction_left_hockey	3.7950	20	.42237	.09444

**Paired Samples Test**

		Paired Differences					t	df	Sig. (2-tailed)
		Mean	Std. Deviation	Std. Error Mean	95% Confidence Interval of the Difference				
					Lower	Upper			
Pair 1	reaction_front_football - reaction_front_hockey	-1.47950	.64358	.14391	-1.78070	-1.17830	10.281	19	.000
Pair 2	reaction_back_football - reaction_back_hockey	-1.57000	.49747	.11124	-1.80282	-1.33718	14.114	19	.000
Pair 3	reaction_right_football - reaction_right_hockey	-1.73950	.47233	.10562	-1.96056	-1.51844	16.470	19	.000
Pair 4	reaction_left_football - reaction_left_hockey	-2.51500	.51122	.11431	-2.75426	-2.27574	22.001	19	.000

## DISCUSSION OF FINDINGS

The purpose of this study was to find out the significance different of coordinative abilities and reaction abilities between female football players and female hockey players. It was concluded from the above findings that the significant different was found in the coordination ability front, back, left and right. Also reaction abilities in all the four side right, left, front and back. The Football players had better reaction ability, and coordination ability found better in hockey players. The findings may be apparent to the reason that footballer emphasized a lot of reaction in training during their practice session because they have to tackle the ball with their body and at the same time they need dribbling and fainting maneuvers as included in hockey, but they have to tackle the ball also with their own body and not with the stick. The coordination ability was also found to be significantly better in the hockey players as compared to the football players. As hockey players tackle ball with the stick the combination of ball and stick make a better coordination. It may be attributing to the reason that there is a greater need of awareness among football teammates and oppositions' players in football and the training that there is a sense developed without any conscious effort. As it may be argued that kinesthetic sense of awareness about it much required in the game of football for different aspect in both the games. It is due to the reason that there is a need to give passes when condition demand without being seeing the players on the bases of previously seen moment of players. Therefore, during training and competition the regular conditioning of such ability helps the footballers to develop better coordination and reaction abilities.

## References

1. Pandey, Gayatri. (2020). Comparison of coordinative and proprioceptive abilities among selected team games. . International Journal of Physical Education, Sports and Health, 7(3):261-264
2. D. Yuvraj, R. Gawrisankara Prasad, N. Suresh (2020). Position-wise analysis of coordinative ability and anthropometric variables among college level football players. International journal of adapted physical education, vol-1 (20-24).
3. P. Ajay kumar, sardar sanjit (2015). A study of speed ability among football and hockey male players of Bilaspur Chhattisgarh. International journal of applied research, 1(11):694-696.
4. S. Dheeraj (2016). Criteria of fitness: A comparative study of hockey and football girl players. International Journal of Advanced Education and Research, 1(11): 50-54.
5. K. Sumeer Ahmad (2017). Comparative Study of Physical Fitness Components of Hockey and Football Players, 6(71-73).
6. B. Romi, S. Chandra Mohan, Dr. MA (2017). A comparative study of reaction ability and balance ability among players belonging to contact, semicontact and non-contact sports. International Journal of Physical Education, Sports and Health, 4(4): 77-80.
7. S. Sandeep, G. Narendra (2014). Comparison of selected coordinative abilities between football and hockey male players. International Journal of Physical Education, Health and Social Science, 3(2).