COMPARISON OF BALANCE AND RHYTHMIC ABILITIES OF HOCKEY PLAYERS AT DIFFERENT LEVELS OF PARTICIPATION

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ABSTRACT

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

Methods: *The study was conducted on 90 subjects with a purpose to compare Sub Junior, Junior and Senior Hockey 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- w a y 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: Hockey is a fast moving and exciting game requiring quick thinking as well as physical skills. It is an ancient game that is played in India for years. Also, the game is always played with a stick and a ball. Before 1272 BC it was played in Ireland and during 600 BC ancient Greece used to play it. Around the world, there are many variations of the game known by the name ice hockey, field hockey, street hockey, sled hockey, and roller hockey. Players and spectators participate in Hockey with high game spirit. The game of Hockeyis an opportunity to combine, speed of judgment, speed of physical and mental reaction and expertise with body and ball. These entire combines together to help in achieving the skills, which need finesse of movement. To establish the relationship research has tried to accretion whetherall these coordinative abilities have any impact on accuracy in kicking.

The game has much importance in India as it has chosen it as its national game. Also, India has a bright and big deep-rooted history related to sports. In addition, India has many brilliant players that played for the country and it is the oldest known game in the country.

In conclusion, Hockey is the national game of India but it was never declared officially. But, we can make this official by bringing the golden period of hockey back once again. Currently, our hockey team lacks support from the government but with our support they can bring the glory days of hockey back.

Modern Hockey is characterized by its high tempo. To play Hockey 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 Hockey Players are so great that special and systematic training of their running coordination, especially their running technique and rhythm, appears essential.

Rhythm is strongly featured in human development. A healthy baby in the womb hears his mother's rhythmic heartbeat, feels his mother's rhythmic walking. A baby sucks rhythmically for comfort and nourishment. Many innate infant movements are rhythmical — these are natural, spontaneous movements that all healthy babies do when given the opportunity. Stimulation from these innate rhythmic movements in the first year of life is fundamental for development and drives the growth of the brain, body, and sensory systems.

Balance is needed in our day to day life too. Movements are essential to perform any sort of activity. To conduct this activity efficiently, your body requires a strong balance. Without balance simple tasks like bending, lifting things, walking up and down the stairs etc become extremely difficult and challenging. Hence for sportsmen/ athletes maintaining a good balance will help them to play better, run harder and going on longer. To have good balance, in general, and especially while playing sports and exercising, one must learn how to engage the core as that is the muscle that dictates how the body moves.

OBJECTIVE OF THE STUDY

The purpose of the study was to compare Sub Junior, Junior and Senior Hockey Players in their selected coordinative abilities

METHODOLOGY

1. The subjects for this study were selected from national Hockey camp of U.P. State who participated in various competitions, such as sub-juniors, juniors and seniors national championships in Hockey. 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 coordinative ability and performance of Hockey Players at different levels, the following variables were selected:

a) Balance ability

b) Rythmic ability

3. The necessary data was collected by administering coordinative abilities tests as suggested by Peter Hirtz.

a) The hockey Players was measured by using long nose test and was recorded in seconds.

b) Rythmic ability was measured by using sprint at given rhythm test and was recorded in seconds.

4. To characterize elite Hockey 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

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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 Hockey 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 + 1.55) Rythmic ability(1.69 + 0.75). At Junior level the observed mean and standard deviation of each coordinative ability were as follows: Balance Ability (8.55 + 1.56), Rythmic ability (1.12 +0.50). At senior level the observed mean and standard deviation of each coordinative ability were as follows: Balance Ability (7.22 + 0.83), Rythmic ability (0.99 + 0.49).

Table-2: Hockey Players 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 Hockey Playersof 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
		-1.33*	.35	.00	-2.03	-.63

junior					

*. 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 Hockey Playersof 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 Rythmic, 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 different was found between the Hockey Playersof 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 Hockey Playersdeveloped 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

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