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The comparative study of coordinative abilities between handball and basketball national levels players

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Abstract
The purpose of this study was to assess the comparative study of coordinative abilities between Handball and Basketball national levels Players.20 male Handball and 20 male basketball players were randomly selected for this study. All the players were residing in Punjab and their age ranged from 17-25 years. For measuring the Orientation ability was measured by numbered Medicine Ball run test, Different ability was determined through backward Medicine Ball throw test, Rhythm ability was measured by sprint at given rhythm test, Balance ability was measured by long nose test and Reaction ability was measured by ball reaction exercise test. To compare the coordinative abilities among Handball and Basketball players, independent t test was employed. The level of significance chosen was at 0.05. Based on the results of the study, Analysis of data reveals that there is no significant difference between Handball and Basketball players in case of orientation ability, balance ability and differentiation ability. The findings may be due to the fact that both Handball and Basketball players have to execute sudden action such as swift running, turning, dodging, stopping twisting, abrupt stopping etc. So, both games require optimum amount of these abilities.

Keywords: Comparative study, coordinative abilities, players

Introduction
Games and sports has a broad area is the whole world. Developing tendencies in international sports especially in team games are identified as the increase in game tempo greater variability in technique and tactics. In laws an increase in performance level can only be achieved by exploitation of all foremost components i.e. procedure, co-ordination, tactics, physical fitness & psychological qualities of sportsman. The degree to which the component of physical fitness contributes to particular game or activity depends on the type and emphasis is laid on those components of physical fitness which are fundamental to that particular sport. Many studies have been conducted to find out the differences between playing abilities of various sports to different motor abilities and but no sincere effort is made to study the comparison between Handball and Basketball player to different coordinative abilities. General athletic ability is considered synonymous with general motor ability. It includes several items such as strength, power, agility, speed, reaction time and flexibility. An abundance of these traits enables a person to perform well in such basic activities as running, jumping, climbing, throwing and dodging. If a performer has a large amount of general athletic ability, he is said to be a natural athlete. Motor fitness variables have been considered as important pre request for sportsman to secure the top level performance in games. There is general agreement among authorities that general and specific motor fitness play a decisive role in one's level of performance in wide range of motor activities.

Objective of the study
To find out the comparative on Orientation ability, Differentiation ability, Reaction ability, Balance ability, and Rhythm ability between Handball and Basketball Players.

Methodology
For the purpose of the study, 20 Handball male and 20 Basketball male players those who participated in National level tournament were selected as the subject for the study. The age of the subject was ranging from 17-25 years.

Variables: Orientation ability, Differentiation ability, Reaction ability, Balance ability, and Rhythm ability.

Criterion Measures

- Orientation ability was measured by numbered Medicine Ball run test.
- Different ability was determined through backward Medicine Ball throw test.
- Rhythm ability was measured by sprint at given rhythm test.
- Balance ability was measured by long nose test.
- Reaction ability was measured by ball reaction exercise test.

Administration of test

The necessary data was collected by administering various coordinative ability tests as suggested by Peter Hertz. The necessary markings were done before the start of the test and the scholar strictly followed the specification as mentioned in the test. All the tests were demonstrated and explained to the subjects by the scholar. They were given a chance to practice so as to become familiar with the tests and to know exactly what was expected to be done. There were no time limit in performing the test but the subjects were exhorted to put in their maximum effort.

Numbered Medicine Ball Run Test

Objective: To determine orientation ability of the subject.

Equipment: Five medicine ball weighing 3 kg, one medicine ball weighing 4 kg, Stop-watch**,** Clapper**,** Pencil, papers and pad.

Description: All the medicine balls weighing 3 kg were arranged on an even ground in a semicircular fastidious with a distance of 1.5 M between the balls. The medicine ball weighing 4 kg was kept 3m away from these medicine balls. Behind all the medicine balls of 3 kg weight, metallic number plates of 1 sq. foot size were kept from 1 to 5 as shown in Figure. Before the start of the test the subjects were asked to stand behind the sixth medicine ball facing towards the opposite direction. On signal, the subjects turned and ran towards the number called by the tester and touched the medicine ball and ran back to touch the sixth medicine ball. Immediately another number was called. Similarly, a total of three times the number was called by the tester and the subjects performed accordingly. Before the actual test was administered, one practice that was given to all subjects.

Scoring: The time taken to complete the course was recorded. Two trials were given to each subject and the better one was recorded as score.

Backward Medicine Ball Throw Test

Objective**:** The test was administered to assess the differentiation ability of subjects.

Equipments: A gymnastic mat size 3’ x 6’, One medicine ball weighing 2 kg**,** Five medicine ball weighing 1 kg each**,** Pencil, paper and pad.

Description: A gymnastic mat was kept 2M away from the starting line. A circle of 40 cm radius was drawn in the middle of the mat and a medicine ball of 2 kg was kept at the centre of the circle. The subjects were asked to stand behind the starting line facing in the opposite direction. They were asked to throw five medicine balls (1 kg) over the head to hit the 2 kg ball kept on the mat. One after another by using both the hands, one practice trial was given to all the subjects.

Instruction: Only overhead throw was permitted, the students were not allowed to look back.

Scoring: Medicine ball touches the mat – 1 pt, Medicine ball touches the circle line – 2 pt, Medicine ball inside the circle – 3 pts**,** Medicine ball touches the 2 kg medicine ball kept at the Centre of the circle – 4 pt, and Points were decided considering the 1st pitch of the ball. The score of the individual was the total point scored in all the five throws.

Backward Medicine Ball Throw Test

Objective: The test was administered to assess the differentiation ability of subjects.

Equipment: A gymnastic mat size 3’ x 6’, one medicine ball weighing 2 kg, five medicine ball weighing 1 kg each, Pencil, paper and pad.

Description: A gymnastic mat was kept 2M away from the starting line. A circle of 40 cm radius was drawn in the middle of the mat and a medicine ball of 2 kg was kept at the centre of the circle as shown in fig 2. The subjects were asked to stand behind the starting line facing in the opposite direction. They were asked to throw five medicine balls (1 kg) over the head to hit the 2 kg ball kept on the mat. One after another by using both the hands, one practice trial was given to all the subjects.

Instruction: Only overhead throw was permitted and the students were not allowed to look back.

Scoring: Medicine ball touches the mat – 1 pt, Medicine ball touches the circle line – 2 pt**.,** Medicine ball inside the circle – 3 pts**,** Medicine ball touches the 2 kg medicine ball kept at the, Centre of the circle – 4 pt. Points were decided considering the 1st pitch of the ball. The score of the individual was the total point scored in all the five throws.

Scoring: The score was the distance measured in cms. From the top of the plank to a point where the subject stopped the ball. Only two trials were given and the best one was recorded as the score.

Long Nose Test

Objective: The test was administered to measure the balance ability of the subject.

Equipment: Balance Beam, One medicine ball weighing 2 kg, five medicine balls weighing 1 kg, Stop watch, Pencil, paper and pad.

Description: A balancing beam of standard size was kept on the floor one and half meter away from the starting line as shown in Figure 4. The subjects were asked to stand behind the starting line with one kg medicine ball on his strong hand fully stretched inward and the other hand holding the

opposite earlobe. On clapping, the subject had to move over balancing beam toward the 2 kg medicine ball which was kept at the other end of the beam and push down the medicine ball with any of foot without losing the balance. Each subject was given only one chance.

Instruction: The arm with which the ball is carried should be kept straight and the medicine ball kept on the balancing beam should be rolled down with either foot.

Scoring: The time taken in second to complete the course was taken as the score. At the same time the subject who failed to complete the task was not given further trial and no score was awarded to him.

Sprint at given Rhythm

Objective: The test was administered to determine the rhythm ability of subject.

Equipment: Eleven gymnastic hoops each 1 inch in diameter, one stop watch, one measuring tape, Pencil, Pen, paper and pad.

Description: - The subject was asked to run a distance of 30 meter with maximum sprinting speed marked between two lines. The sprinting time of the subject was taken by stop watch. In the second attempt the subject had to run at a particular rhythm with maximum speed through the hoops, which were arranged systematically. Three hoops were kept in a sequence adjacent to each other of distance of 5 meter away from the starting line. Similarly three hoops were kept on distance 5M from the finishing line. Five more hoops were kept in a sequence in the middle of the running distance as shown in figure 5. The subjects were asked to run through three hoops stepping between each of them adjusting to the new self-rhythm. The research scholar explained the test along with one demonstration and each subject was given one trial run.

Scoring: The difference between the timing of 1st and 2nd attempt was taken as the score.

Collection of Data

The data was collected by the administering various tests on 20 male players comprising of 20 players from Football and 20 players from Hockey. The data was collected in the evening after proper warm up.

Statistics Analysis

To compare the coordinative abilities among Football and hockey players, independent t test was employed. The level of significance chosen was at 0.05.

Findings

In order to find out the comparison of selected coordinative abilities between Handball and Basketball players, the collected data was analyzed by using independent t-test. The result of the statistical technique used on data are presented in Table no. 1

Table 1: Significance difference between handball and basketball players in coordinative abilities

	Variables	Basketball			Handball			t-test
		Mean	S.D.	σDM	Mean	S.D.	σDM	
1.	Orientation Ability	7.14	.53	.12	7.46	.58	.13	1.79
2.	Differentiation Ability	10.25	3.38	.756	10.75	3.67	.82	.448
3.	Reaction Ability	1.64	.37	.083	1.94	.31	.069	2.76*
4.	Balance Ability	9.38	1.51	.337	9.57	1.38	.31	.39
5.	Rhythm Ability	1.40	.26	.059	1.62	.23	.051	2.86*

* $t_{0.05}$ (38) = 2.02

Analysis of data on selected co-ordinative abilities between Handball and Basketball players from Table 1 reveal that:

a) There was no significant difference in Balance Ability between Handball and Basketball players because the calculated value (.39) was less than the tabulated value (2.02) at the 0.05 level of significance.
b) There was no significant difference in Differentiation Ability between Handball and Basketball players because the calculated value (.45) is less that tabulated value (2.02) at the 0.05 level of significance.
c) There was significant difference in Reaction Ability between Handball and Basketball players because the calculated value (2.76) was greater than the tabulated value (2.02) at the 0.05 level of significance.
d) There was no significant difference in Orientation Ability between Handball and Basketball players because the calculated value (1.79) was less than the tabulated value (2.02) at the 0.05 level of significance.
e) There was significant difference in Rhythm Ability between Handball and Basketball players because the calculated value (2.86) was greater than the tabulated value (2.02) at the 0.05 level of significance.

Discussion of Finding

Analysis of data reveals that there is no significant difference between Handball and Basketball players in case of orientation ability, balance ability and differentiation ability. The findings may be due to the fact that both Handball and Basketball players have to execute sudden action such as swift running, turning, dodging, stopping twisting, abrupt stopping etc. So, both games require optimum amount of these abilities.

Finding also reveals that Basketball player posses more reaction and rhythm ability than Handball players. Further, the game also needs quick, reflection, intelligence to cope with new situation and perfect eyesight. The repetitive movement's zigzag running, footwork and sudden start require reaction and optimum rhythm ability.

Conclusions

From the above result it was concluded that:

1. There was no significant difference between Handball and Basketball players related to differentiation ability.
2. There was no significant difference between Handball and Basketball players related to orientation ability.
3. There was no significant difference between Handball

and Basketball players related to balance ability.
4. There was significant difference between Football and Hockey players related to reaction and rhythm ability.

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