



P-ISSN: 2394-1685  
E-ISSN: 2394-1693  
Impact Factor (ISRA): 5.38  
IJPESH 2014; 1(2): 37-41  
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www.kheljournal.com  
Received: 27-09-2014  
Accepted: 30-10-2014

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## Comparative study of coordinative ability at different level of kho-kho players

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### Abstract

Coordinative ability is one of the important ability that is vital towards bringing out optimum performance in the Sports Kho-Kho. In this Research, scholar have studied the difference of coordinative abilities namely Balance ability, Reaction Ability, Rhythm Ability, Orientation Ability and Differentiation Ability between zonal level and beginner level Kho-Kho players and have established an outcome that, the coordinative abilities of zonal level players are significantly higher than the coordinative abilities of beginner level players. The Long Nose Test for Balance Ability was conducted and t-test value: 6.177. Mean and Standard Deviation of Balance Ability of zonal and beginner level players were  $5.48 \pm .4703$  and  $6.49 \pm .5247$  respectively. The Sprinting at Given Rhythm Test for Rhythm Ability was conducted and t-test value: .0167. Mean and Standard Deviation of Rhythm Ability of zonal and beginner level players were  $.7853 \pm 5.45102$  and  $.68 \pm .2546$  respectively. The Numbered Medicine Ball Run Test for Orientation Ability was conducted and t-test value: 6.0525. Mean and Standard Deviation of Orientation Ability of zonal and beginner level players were  $9 \pm .150466$  and  $11.47 \pm .23776$  respectively. The Backward Medicine Ball Throw Test for Differentiation Ability was conducted and t-test value: 4.049. Mean and Standard Deviation of Differentiation Ability of zonal and beginner level players were  $17.6 \pm 1.451$  and  $12 \pm 2.9664$  respectively. The Ball Reaction Exercise Test for Reaction Ability was conducted and t-test value: 4.888. Mean and Standard Deviation of Reaction Ability of zonal and beginner level players were  $77.266 \pm 8.322$  and  $89.733 \pm 6.477$  respectively.

**Keywords:** coordinative ability, kho-kho players

### Introduction

In recent years an increasing amount of attention has been paid to the inter relationship of some selected psychological variables with motor ability has been greater interest to physical education as is confirmed by great number of publications concerning with motor ability on sports performance. The coordinative abilities play a vital role to increase the efficiency. To acquire efficiency, we require skilled and efficient potentials, for skilled and efficient potential coordinative abilities are very important and a pre-requisite for performance. Coordinative abilities are primarily dependent on the motor control and regulation processes of central nervous system. The theory of motor coordination, therefore is the basis for understanding the nature of coordinative ability (Blume 1978, Meinal and Schnabel 1987) <sup>[10]</sup>. For a Coordinative ability the control regulations processes are required to function in a particular manner whereas in case of a skill, these processes are automatized to a great extent. Coordination capacity can be defined as a psychometric quality, which is based on the correlation between the central nervous system and skeletal muscles while performing the movement.

### Importance of motor and coordinative ability

Sports achievements are based on optimum level of training to develop motor and coordinative abilities. Both motor and coordinative abilities are the pre-requisites to achieve excellent results in competitive sports. Motor ability is primarily a skill-related components of fitness and refers to a number of inter-related factors. Motor abilities requires the effective transmission and management of messages and responses between the central nervous system and the peripheral nervous system. The peripheral system collects information via the sensory system, the central nervous system receives and processes this information and sends an appropriate response via the motor system, which initiates the appropriate response. Motor

fitness is perhaps more applicable to the sports person. However, it can have an indirect effect on the improvement of out fitness in the other health-related fitness components. Development of specific skills can improve our performance of certain activities. Skilful movements are more efficient; if we move skilfully we can improve the effectiveness of the activities we perform. In addition, by learning to perform exercise with the correct technique, we will reduce the risk of injury that can be caused by moving with our body alignment. Therefore, improved motor ability will maximize both the safety and effectiveness of our performance. Since five motor abilities namely strength, speed, endurance, flexibility and agility are considered to be the components of physical fitness. But since recently, the word agility is replaced by the word coordinative abilities. To avoid misinterpretation and to be more scientific. Blume suggested that there are seven coordinative abilities which are important. Coordinative motor abilities are particularly important at the initial stages of the sports development of a competitor. A high level of coordination improvement since the earliest years makes it possible to make use of technical and tactical skills during a sports competition, effectively. 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. The term coordinative abilities have come into existence replacing the earlier used term agility as stated in most of the literature on physical education. The concept of coordinative abilities should be understood as the ability expediently to form, coordinate and, link into an integrated whole the motive actions on one hand and secondly the ability to transform action already worked out under dynamic situations. These abilities to a considerable degree have their own specific role to play in learning and perfecting motor actions.

### **Hypothesis**

On the basis of literature it was hypothesized that there would be no significant difference in coordinated abilities of Kho-Kho players at different levels namely beginners and zonal level.

### **Criterion measures**

Following were the criterion measures which were selected for this study:

1. Long Nose Test was administered to measure the balance ability of the subjects measured in seconds.
2. Sprinting at Given Rhythm Test was administered to determine the Rhythm ability of the subjects measured in seconds.
3. Number Medicine Ball Run Test was used to determine the Orientation Ability of the subjects measured in seconds
4. Backward Medicine Ball Throw Test was used to assess the Differentiation Ability of the subjects measured in points.
5. Ball Reaction Exercise was conducted to measure the Reaction Ability of the subjects measured in centimetres.

### **Selection of variables**

In order to measure and to evaluate or to test the coordinative ability of the Kho – Kho players, there is basic requirement of specifically designed coordinative ability test instead of general coordinative ability test. On the basis of available literature, scientific authenticity and administrative feasibility

the research scholar has chosen the selected variable were found to be most reliable, objective and valid used in the field of physical education and sports.

### **Variables**

1. Balance Ability
2. Rhythm Ability
3. Orientation Ability
4. Differentiation Ability
5. Reaction Ability

### **Selection of subjects**

The present investigation was conducted on a total of 30 students from which 15 were beginners. The research scholar had an informal discussion with all the subjects and put forth the purpose of the study and explained to them the efforts that would be required on their part. All the subjects expressed their keenness to participate in the project and assured that they would extend full cooperation. Subjects has been selected randomly.

### **Administration of test**

The necessary data were collected by administering various coordinative ability test as suggested by Peter Hirtz. The subjects had undergone 5 tests which were administered to the subjects in the stadium.

The necessary marking had been done before the start of the test and the scholar had strictly followed the specifications as mentioned in the tests for coordinative abilities.

All the tests were demonstrated and explained to the subjects by the scholar. Each students were given a chance for practice in order to cut down the chance of error while performing the tests for the collection of data. There was time limit set for performing the tests for coordinative ability.

Following tests were used to measure the selected variables of coordinative abilities:

#### **Long nose test**

##### **Objective of the test**

The test was administered to measure the balance ability of the subjects.

#### **Sprinting at given rhythm**

##### **Objective of the test**

The test was administered to determine the Rhythm ability of the subjects.

#### **Number medicine ball run test**

##### **Objective of the test**

To determine the Orientation Ability of the subjects.

#### **Backward medicine ball throw**

##### **Objective of the test**

This was the test to assess the Differentiation Ability of the subjects.

#### **Ball reaction exercise**

##### **Objective of the test**

This test was conducted to measure the Reaction Ability of the subjects.

### **Collection of data**

A total number of 30 subjects, 15 subjects (Zonal Level) and 15 subjects (Beginner Level) were administered with different tests. The scores of the subjects received in the form of

numerical values were considered as raw data.

**Statistical procedure**

The gathered raw data was computed, analysed and interpreted by using ‘T’ Test to find out the significance

difference between zonal level and beginners on selected variables among Kho-Kho players.

**Results and Findings**

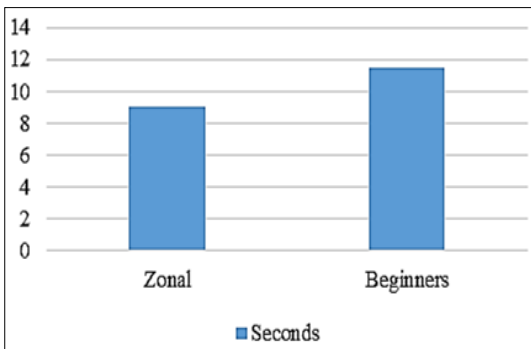
**Table 1:** Significance of mean differences between beginner and zonal level of kho-kho players

S. No.	Name of the test		Mean	Standard deviation	Standard error	t-test
1.	Backward medicine ball throw	Zonal	17.6	1.45	0.37	4.04
		Beginners	12	2.96	0.76	
2.	Sprinting at Given Rhythm	Zonal	0.78	5.45		.01
		Beginners	0.68	0.25	0.06	
3.	Number Medicine Ball Run	Zonal	9	0.15	0.15	6.05
		Beginners	11.47	0.24	0.23	
4.	Long Nose Test	Zonal	5.48	0.47	0.12	6.17
		Beginners	6.49	0.52	0.13	
5.	Ball Reaction Exercise	Zonal	77.26	8.32	2.1	4.88
		Beginners	89.73	6.47	1.6	

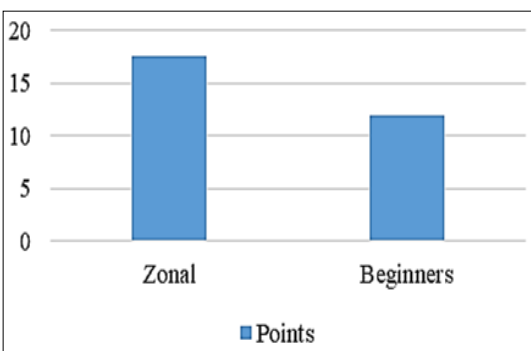
Significant at .05 level, ‘t’<sub>.05</sub><sup>(29)</sup> = 2.05

Table No. 1 reveals that there was a significant difference found between the zonal level players and the beginners in-Backward Medicine Ball Throw (Differentiation Ability), Numbered Medicine Ball Run (Orientation Ability), Long Nose Test (Balance Ability), Ball Reaction Exercise (Reaction Time respectively as the calculated values of 4.04, 6.05, 6.17, 4.88 were found to be more than the tabulated value of 2.05 at .05 level of confidence at 29 degree of freedom. The table further reveals that the insignificance difference was exist between zonal level players and beginners in the Sprinting at given Rhythm (Testing Rhythm Ability) as the calculated value of .016 was extremely lower than the tabulated value of 2.05 at .05 level of confidence at 29 degree of freedom.

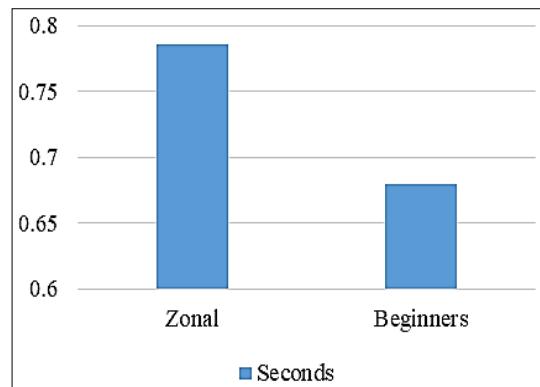
**Graphical representation of data**



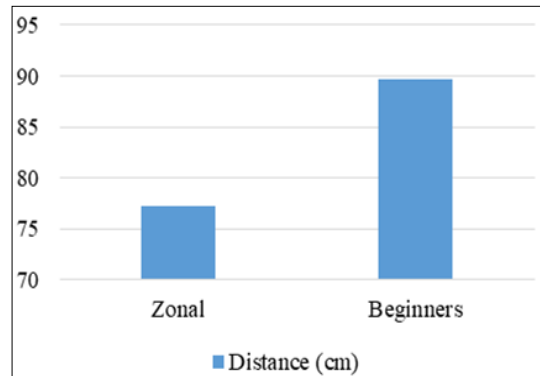
**Fig 1:** Numbered medicine ball run test - orientation ability



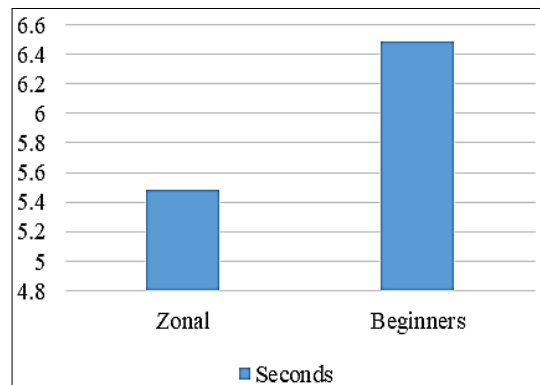
**Fig 2:** Backward medicine ball throw test - differentiation ability



**Fig 3:** Sprint at given rhythm test - rhythm ability



**Fig 4:** Ball reaction exercise test - reaction ability



**Fig 5:** Long nose test - balance ability

### Discussion on Findings

Kho-Kho is one of the indigenous game which is most popular in northern part of India. This game requires top class physical and physiological fitness. To compare the coordinative abilities between beginners and zonal level players. The co-related t-ratio was computed. The findings pertaining to the significant difference between zonal and beginner players if any was tested at .05 level of confidence. The backward medicine ball test was used for testing differentiation ability by computing t-test. The significant difference was found between zonal and beginner players, as the Kho-Kho players require this ability in its different skills like pole turning, diving, so this ability is a pre-requisite for Kho-Kho players. Zonal level players have more training age a-id similarly having better level of skill learning and skill acquisition which might have developed with the due course of training in comparison to the beginner who have just entered into the game. Due to lack of training age in the sports might have affected their differentiation ability. The Long Nose Test for balance ability was conducted and t-ratio was found to be significantly different between the zonal and beginner players. Zonal level players have shown high level of balance ability which is the bases for all the motor performance. In the youngsters this ability is highly developed and mainly in Kho-Kho player as the complete game is based on maintaining balance that is the basic prerequisite of the game, as the player is to sit in the square while chasing the runner, while pole turning, while preparing dodged Kho this particular ability is required. The finding of the study is in consonance with the findings of Jennett W. Clair (1960)<sup>[1]</sup>, T.O. Mullai (1987)<sup>[2]</sup>. Ball Reaction Exercise Test was conducted for testing the Reaction ability of the subject by the tester and the result shows that there is significant difference between the zonal and beginner level players as obtained t-values was found to be higher than the tabulated values. The reaction to a tactical stimulus is the basic requirement in Kho-Kho. Therefore the Kho-Kho players those who have certain level of participation scored higher level of significance in this test. Significant difference may be attributed to the fact that the players those who participated at certain level react to different situation and take specific training which in turn develop the reaction ability. In the test named Numbered Medicine Ball Run was conducted to test the orientation ability of the subjects. The t-test result was found significant as the calculated t-ratio value was higher than the tabulated t-ratio. The mean value of beginners were found to be higher than the zonal players, however, the significant difference was seen as the orientation is "The ability to know about the body position". Significant difference was found because of the fact that the subjects those who have selected for the present study might have involved themselves in different activities which in turn developed the orientation ability.

### Conclusion

The findings of this study revealed a statistically significant difference founded among selected zonal and beginner players in their coordinative ability i.e., balance ability, orientation ability, differentiation ability, and reaction ability respectively. On the other hand insignificant difference was found on rhythm ability among zonal and beginner players. Further, the results and findings of this study was concluded that zonal players have differentiation ability, balance ability, Reaction ability. Furthermore, in orientation ability beginner players found better in comparison to zonal players.

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