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Construction of skill test in Kho-Kho

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Abstract
This study was carried with the objective of developing a running ability test for Kho-Kho players. 75 female Kho-Kho players who have represented their colleges in state intercollegiate tournaments were selected as subject for the study. 5 tests were selected for this study namely: Zig- zag run test, shuttle run test, oval run test and distance run test. After applying one way ANOVA it was calculated that each test differ from each other significantly f (4, 71) = 2.50, $p < .05$. Product moment and Carrfush's correlation revealed that distance run is the most appropriate test to measure running ability of Kho-Kho players. This test specifically developed for female Kho-Kho players. Similar study can be done male Kho-Kho players to develop male specific Kho-Kho running ability test.

Keywords: Kho-Kho, running ability, distance run test

Introduction

Kho-Kho is the Indian origin game of chasing which roots are connected from Indian mythology. This game played all around the country but Maharashtra, West Bengal, Karnataka, Madhya Pradesh, Kerala, Gujarat, Andhra and Telangana are the places where kho-kho played specifically. Two teams of 12 players of which 9 take part on the field to compete in this game rest three players are reserves. Physical fitness, strength, speed and stamina and dodging ability are highly tested in this game. Gymkhana Poona in 1914 formed a committee to form rule and regulations for the game and in 1924 Gymkhana Baroda published the first-ever book on the rules and regulations of Kho-Kho. In this rule book it was mention that the game should start after the toss, one team sits in a row down the middle of the court, with alternate members facing opposite directions. They are the chasers. The opposing team sends three players in the court as a dodger. It was decided that only the chaser may run behind the runner in only one direction and touch the runner without cutting or crossing the centre line and can also take the help of his/her teammate by loudly saying 'Kho' after touching the back of his/her mate. The main concept of this game is to tag all the dodgers in the shortest time period. Kho-Kho Federation of India is the organising body of this game which was created in 1956-57 at Cuttack, Orissa to popularize the Kho-Kho game.

The achievement of performance in sports skill is measured by specific skill tests, skills and sports performance etc. These tests unable to measure the change in trainees psychomotor behaviour in the form of a variety of sports skill like Basketball passing, modern dance, volleyball serving, archery shooting, football forward pass gymnastic skill, tumbling skill, achromatic skill and handball services placement, soccer dribbling/ juggling, swimming skill, tennis rallying etc. Testing in sports skill is based on skill test which is standardized by creating an environment similassr to the respective game environment. Tiwari & Venugopal (2015) [5, 6], developed a test to measure the reaction ability test for female Kho-Kho players (N = 60 female Kho-Kho players). The 'r' was found to be 0.90 and Reliability was set at 0.91. Tiwari and Venugopal 2015 [5, 6] also constructed a test to measure female Kho-Kho player's tapping ability. Whereas R. Jagathesan (2018) [1] found the correlation of physical fitness components with skill-related components and playing ability on kho-kho players, and no relationship was found in Kho-Kho players on their skill-related physical fitness components. Kumar and Singh's (2015) [2] also conducted the study to find out the correlation between physical fitness variables (Explosive Strength, Speed, Agility, Flexibility and Cardiovascular Endurance) and Kho-Kho Performance. Further, Waghchoure and Bera (2000) [7] constructed and standardized a new battery of Kho-Kho skill test. Two thousand (n=2000) schoolboys, aged from 11-14 years, from Pune city, India.

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The test is a prerequisite for all measurements. Kho-Kho is an Indian origin game which has very few measuring criteria of playing ability of any player and to measure the effective techniques in the game. Thus, this study focuses on developing a running skill test in Kho-Kho.

Objective of the study
1. Construction of kho-kho skill test for the running technique.
2. To Find out the most appropriate test to measure running ability of Kho- Kho players

Selection of subjects
75 female students from Delhi University who participated in intercollegiate tournament of different colleges were selected as subjects for the present study. The age of the subjects ranged from 17 to 25 year.

Selection of variables
Kho Kho is a game which requires different physical ability keeping in mind the administrative feasibility only running was taken into consideration for the skill test. Since, running is also having various factors which might not be possible to measure by one method or test. Scholar has selected various test of running which include running in different form.

Criterion measure
To measure the running skill following test was selected as there are various factors in the running.
1. Zig-Zag run Test
2. Shuttle run Test
3. Oval run Test
4. Distance run Test
5. Set on the pole

Administration of test
1. Zig-Zag run Test
Purpose: This test was also used to measure the running agility of the subject and was suitable for girls aged 14 years and above.

Material: Stopwatch, chairs measuring tape and marking tape or Chawk.

Test area: test area was marked and 4 chairs were arranged in a straight line, 10 feet apart. The starting point was six feet on the left side of the first chair as shown in the figure 1. Finish point was on the right-hand side of the first chair at a distance of 6 feet from the first chair. Procedure: the subjects were asked to take up online position with hands on the starting line. on the command of go, the subjects jumped on foot mark and sprints for 16, and reverses by crossing the 16 metres line at least 1 foot, before reversing sprint round the first chair, takes the left turn around the first chair and complete the zig Zag run. on returning to the chair number 1, the subject took the left turn this time ran diagonally to point B so as to take the finishing 30 feet straight sprint from point B to the finish line which was one foot across the small line indicating 30 feet on the right side of chair one at a distance of 6 feet.

Scoring: Each subject was allowed three trials and the best timing from starting signal to the duration when the subject's chest crosses the finish line was taken as the score of the subject for this test.
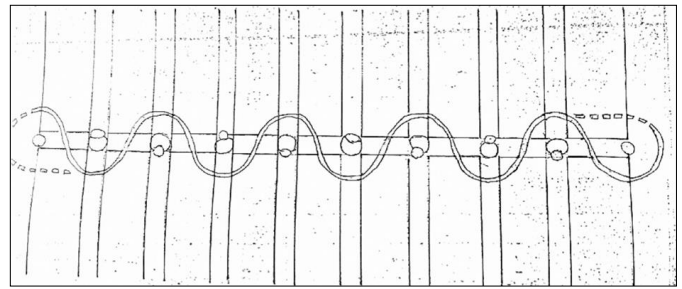

Fig 1: Zig-Zag Run

2. Shuttle run Test
Purpose: this is a test of speed and agility, which is important in many sports.

Equipment required: Wooden blocks, marker cone, measurement tape, stop watch, non- slip surface.

Procedure: This test requires the person to run back and forth between two parallel lines as fast as possible. Set up two lines of cones 30 feet apart or use line markings, and place two blocks of wood or a similar object behind one of the lines. Starting at the line opposite the blocks, on the signal "Ready? Go!" the participant runs to the other line, picks up a block and returns to place it behind the starting line, then returns to pick up the second block, then runs with it back across the line.

Scoring: Two or more trails may be performed, and the quickest time is recorded. Results are recorded to the nearest tenth of a second.
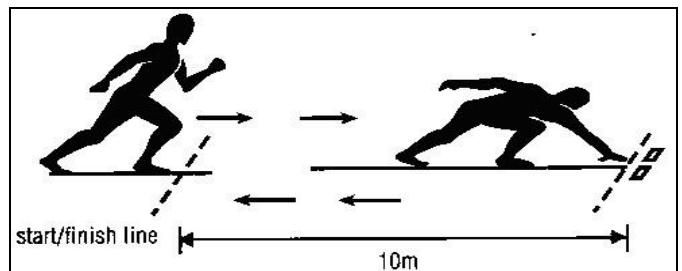
Fig 2: Shuttle Run Test

3. Oval Run Test
Purpose: To measure agility of subjects during forward, sideward and backward movements.

Test Area: A smooth area of 12' x 19'was marked. 4 cones were placed at each inner angle of the 12' x 19' rectangle.

Procedure: Subjects were made to stand at the starting line out side the marked rectangle. On the word Go! the subjects started side stepping at her faster speed until they reach outer corner of the second cone to the inner corner of the no 3, from where they took a forward sprint from cone 3 to cone 1 just outside the 19' marked line. From Cone 1, the subjects took a side turn and reach the inner corner of cone 4 pedalling at the free throw line where they had to change the direction to perform another sprint from outer corner from cone 4 to cone 2. Where they had to perform side steps to their left to reach finish line.

Scoring: Each subject was given 3 trials. mean value of 3 trials marked the score of subjects.
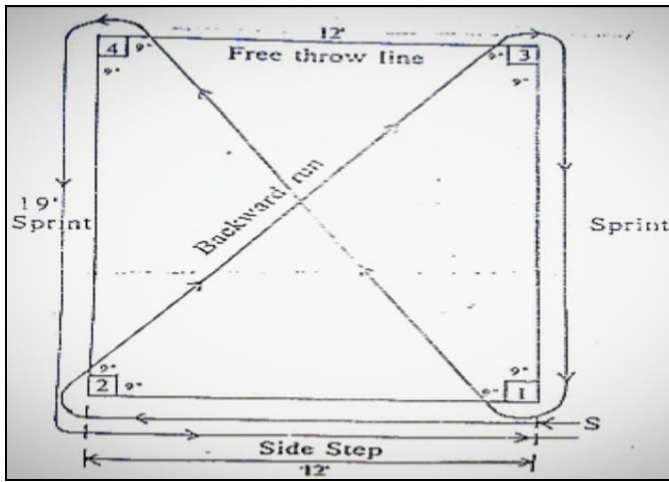
Fig 3: Oval Run Test

4. Distance run Test
Purpose: to measure running speed

Equipment Required: Area of desired length or kho-kho court with a maerked starting and finish line, 2 stopwatch.

Test Administration: Take any position behind the starting line. on receiving the signal go, they need to start to run as fast as possible until they crossed finish line. each subject was given 3 trials.

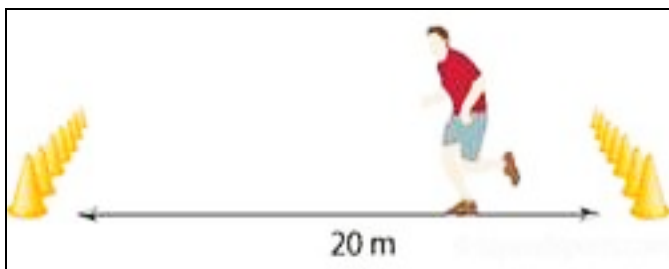**Scoring:** the mean score of three trials was considered as their score.

Fig 4: Distance Run Test

5. Set on the Pole Test
Purpose: To measure agility ability.

Equipment Required: Area of desired length (minimum of 8 metres with one pole), stop watch.

Purpose: The subjects were instructed to stand near the third square from the pole. On the command of 'Go' subjects started running towards the pole, taking turn around it and again run back to the starting point (third square). The subjects took the five turns around the pole in this manner. Each subject was given 3 trials.

Scoring: the least time from all the three trials will be considered as the score of the test.

Fig 5: Set on the Pole Test

Collection of data
75 subjects (female) of different colleges were administered with these tests. This course the subject scored in the form of time in seconds were considered as raw data. Subjects were given three chances on each test and the average was taken as final score.

Statistical analysis
After a detailed discussion with the experts following statistical techniques were used to evaluate the data collected:
1. One Way ANOVA (Analysis of Variance)
2. Product Moment Correlation
3. Corrfuch's Co-efficient

Table 1: One Way ANOVA among different Test Selected for Running

Source	Sum of Square	Df	Mean Score	'F'	p- value
Between Tests	17161.05	4	4290.26	2.50	0.05
Among Tests	54.14	71	0.76		

Table 1, demonstrate there is highly significant difference between the tests with the F value $(4, 71) = 2.50$, $p< .05$. Hence, the post Hoc test was employed to find out whether the difference in the mean is real or due to any error.

Table 2: Significance of mean difference among different tests

Mean Values of Different Tests				M. D	Critical Difference
10.93-11.45				0.52	
10.93- 16.89				5.96	
10.93- 3.92				7.01	
10.93- 24.21				13.28	
	11.45- 16.89			5.44	0.28
	11.45- 3.92			7.53	
	11.45- 24.21			12.76	
		16.89- 3.92		12.97	
		16.89- 24.21		7.39	
			3.92- 24.21	20.29	

Table 2, reveals significant difference between the zig-zag and shuttle run test, zig-zag and oval run test, zig-zag and distance

run test and zig-zag and set on the pole test with the value of mean difference 0.52, 5.96, 7.01 and 13.28 respectively against the value of critical difference 0.28 required to be significant at 0.05 level.

The table no. 3 also reveals significant difference between Shuttle run and oval run test, shuttle and distance run test and shuttle run and set on the pole test pole test with the value of mean difference 5.44, 7.53 and 12.76 respectively against the value of critical difference 0.28 required to be significant at 0.05 level.

Table further reveals significant difference between Oval run test and distance run test and oval run test and set on the pole test with the value of mean difference 12.97 and 7.32 respectively against the value of critical difference 0.28 required to be significant at 0.05 level.

Table shows a significant difference between Distance Run test and Set on the pole test as the value of mean difference is 20.29 against the value of critical difference .28 required to be significant at 0.05 level.

Table 3: Product Moment Correlation and Carrfush's Correlation

Name of Tests	Correlation					Total
Zig Zag run Test	0.00	0.28	0.39	0.30	0.17	1.14
Shuttle run Test	0.28	0.00	0.13	0.12	0.14	0.67
Oval run Test	0.39	0.13	0.00	0.65	0.67	1.80
Distance run Test	0.30	0.12	0.65	0.00	0.856	1.93
Set on the pole	0.17	0.14	0.67	0.86	0.00	1.84

The table no. 3, demonstrates the correlation values of zig zag run with shuttle run test, oval run test, distance run test and set on the pole test which are 0.28, 0.39, 0.30 and 0.17 respectively. The correlation value of shuttle run test with oval run test, distance run test and set on the pole test are 0.13, 0.12 and 0.14 respectively. The correlation value of oval run test with distance run test and set on the pole test are 0.65 and 0.67 respectively. The correlation value of Distance run test with set on the pole test is 0.86.

To find out the best test among the five tests Carrfuch's correlation is computed. The distance run test scored the highest in Carrfuch's coefficient with the value of 1.93. The other test that scored highest after distance run test was set on pole test.

Discussion of findings
For the purpose of present study 5 tests namely zig- zag run test, shuttle run test, oval run test, distance run test and set on the pole were used. These tests are widely used among the players of various games and sports. All of these tests have their own importance and are used to measure one or the other parameter such as agility, changing direction etc. After applying analysis of variance we came to know that the selected tests have significant difference between them as computed value was less than significance level. Hence Post hoc was computed to analyse Wzzz hether the findings are real or not. The post hoc also revealed that the difference between the groups is significant and not influenced by any error. So, this could be understood that the selected tests are meant to tests specific abilities of players. Later, Corrfuch's correlation matrix was prepared to find the most appropriate test to measure running ability of kho-kho player among all the five tests. Which revealed Distance run test as the most correlated test to measure running ability of kho-kho player. The distance run test measure the speed ability of individual. The distance for the distance run test is 20 metres. Which is very close to the actual distance between the two poles i.e. 23.50 metres.

Hence the similarity between the test conditions and game conditions might have influenced the results.

Conclusion
As per the need of the study with in the limitation of study, it was concluded that, Distance run test is the most appropriate test to measure running ability of players. The set on the pole and oval run test area also found to be appropriate test after distance run test.

Educational Implications
1. The investigation may further be extended on the chasing skill of Kho- Kho.
2. The investigation may further be extended on the male Kho- Kho players
3. The investigation may further be extended to construct a test battery in Kho- Kho.

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