

## **Relationship of Physical Fitness with Performance of Collegiate Kho-Kho Players of Amravati University**

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### **Abstract**

The sports performance of Kho-Kho players which depends upon the Physical Fitness of the players, it is felt that there may be a positive relationship of these variables with the performance in Kho-Kho. The purpose of the study is to find out the relationship of Physical Fitness with Performance of Collegiate Kho-Kho Players and to develop a Prediction Equation for the forecasting of the performance of a Kho-Kho player depending upon the Physical Fitness.

It was hypothesised that there would be significant relationship of the Physical Fitness with performance of Collegiate Kho-Kho Players. The data pertaining to the present study were collected from the 200 players of the best eight teams and extras of Sant Gadge Baba Amravati University inter-collegiate Kho-Kho (Men) tournaments.

The data were collected by administering the tests for the selected variables viz. power, strength, speed, agility, endurance. On the basis of finding and within the limitation of present study it was found that there is little correlation between Physical Fitness and Total Performance in Kho-Kho.

**KEYWORDS:** Physical Fitness, Performance in Kho-Kho.

### **Introduction:**

Human life is based upon the body he keeps. All the activities of life are done with the help of body. Nature has created humans to perform various activities efficiently. Today modernization has made human life easier, as most of the work is performed by the machines. The sedentary life style of man has reduced the efficiency of humans. The less working capacity of humans has caused many problems like weakness, illness, chronic diseases, etc. In past our ancestors were quite healthy and fit. The big reason was that, they had to perform a lot of hard physical activity, like running, walking, jumping etc. The environment in past was less polluted. Moreover, they had less stresses in their life. Today it is all opposite, i.e., physical activity is less, environment is polluted, unhygienic conditions exist all around, life is full of stresses, unbalanced diet etc. All these factors have reduced the efficiency of humans. Today, we desperately require physical fitness not only to improve our abilities but also to improve our health and wellness. This will also help to develop healthy environment around us along with

community health, thus nation will be benefited. By doing physical fitness programmes, we can improve our fitness, wellness and health.<sup>1</sup>

"Live most and serve best". By means of physical fitness programmer performance of games and sports is also improved. Every country is struggling hard for the apex position in games and sports. To achieve this top position every effort is done. The scientific and systematic ways of training are followed to improve the standards of physical fitness, so that the best result should be achieved. Apart from this, a healthy living also Anthropometric measurements are the best applicable means for studying body, size, shape and composition. It helps greatly in sports talent selection, sports counseling and measurement of obesity for health related physical fitness.

makes a person a good citizen. One has rightly said "Physical fitness is one's richest possession; it cannot be purchased but it has to be earned through daily routine of physical exercises."

There are different views regarding physical fitness. Some say it is related to task or work. Some consider it as good looking physique. Many consider it as proper functioning of physical system. Where as it is a term with wide meaning. It is more than the position of system of strength speed

and endurance. The person who remains energetic, enthusiastic, and cheerful in doing his work is said to be physical fitness.

Physical fitness may be defined as "It is the ability of a person to do daily routine work without fatigue; moreover, to Participate in Playful activity and still reserve enough capacity to meet any emergency." Also "Physical fitness is the capacity to meet the present and potential physical challenges of life with success." This is also defined as "Successful adaptation to the stress of one's life style." This variable is of great importance for good performance in Kho-Kho.

The performance of the Kho-Kho player depends on many factors related to skills viz. (1) Sitting In The Square, (2). Giving 'Kho', (3) Simple 'Kho', (4) Judgement 'Kho', (5) Late Kho, (6) Tapping, (7) Covering, (8) Running Dive, (9) Side Dive, (10) Spot Dive, (11) Pole Dive, (11) Running Pole Dive, (12) Sudden Change Of Target, (13) Trapping, (14) Pole Turning, (15) Entering The Field Of Play, (16) Positioning On The Post, (17) Single Chain, (18) Single Six-Up Chain, (19) 3 Six-Up Chain, (20) Ring Game, (21) Dodging, (22) Pulty/Sudden Turn and (23) Counter Action For Judgement 'Kho'.

Multiple regression equation describes the path of the mean values of the dependent variable Y, for all combinations of the independent variables  $X_1, X_2, X_3, \dots$

$X_k$ . The principal advantage of multiple regression equation is that it allows us to utilise more of the information available (independent variable) to us to estimate the dependent variable.

Multiple regression equation is expressed as:

$$Y = a + b_1 X_1 + b_2 X_2 + b_3 X_3 + b_4 X_4 + \dots + b_k X_k$$

in which  $a$  is a constant,  $b_1, b_2, \dots, b_k$  are constants known as partial regression coefficients,  $Y$  is the variable taken to be dependent and it is to be predicted/estimated and  $X_1, X_2, X_3, \dots, X_k$  are the independent variables.

#### **Statement Of The Problem:**

The present researcher is serving in an Arts, Science and Commerce College at Chikhaladara. He himself is an NIS Coach and giving special coaching in Kho-Kho to the inter-collegiate players of the college as well as to the players of the local colleges. Due to his personal curiosity in knowing the sports performance of Kho-Kho players which depends upon the Physical fitness of the players, it is felt that there may be a positive relationship of these variables with the performance in Kho-Kho. To verify the relationship in a scientific way the problem is stated as "Relationship Of Physical Fitness With Performance Of Collegiate Kho-Kho Players of Amravati University".

#### **Purpose Of The Study:**

The purpose of the study is to find out the relationship of Physical Fitness with Performance of Collegiate Kho-Kho Players and to develop a Prediction Equation for the forecasting of the performance of a Kho-Kho player depending upon the Physical Fitness.

#### **Significance Of The Study:**

The significance of the study is justified on the grounds that (i) The present study would be the first of its kind in Sant Gadgebaba Amravati University, Amravati and perhaps in Maharashtra; (ii) The relationship of Physical Fitness with Performance Of Collegiate Kho-Kho Players would be made known; (iii) The Prediction Equation under study for the forecasting of the performance of Kho-Kho players considering the Physical Fitness, would be helpful to the coaches of Kho-Kho; and (iv) The present study will motivate the future research scholars to undertake similar study in other games and sports at different level of participation.

#### **Hypothesis:**

It was hypothesised that there would be significant relationship of the Physical Fitness with performance of Collegiate Kho-Kho Players.



### **Delimitation Of The Study:**

The scope of the present study were delimited to (i) The study was delimited to the male Kho-Kho players only; (ii) The study was further delimited to the players of the best eight teams of Amravati University inter-collegiate Kho-Kho (Men) tournaments; (iii) The Physical Fitness were delimited to selected variables The test items involve the basic elements viz. power, strength, speed, agility, endurance

### **Limitation Of The Study:**

The present study had the limitations like (i) The Socio-Economic-Status of the students might be different (ii) The present research scholar did not consider the dietary and nutritional practices of the students; (iii) The variation in age of the students were not be taken into consideration and (iv) The climatic condition of different measurements were different.

### **Reviews Of Related Literature:**

A summary of the writings of recognized authorities and of previous research provides evidence that the researcher is familiar with what is already known and what is still unknown and untested. Since effective research is based upon past knowledge, this helps to eliminate the duplication of what has been done, and provides useful hypotheses and helpful suggestions for significant investigation.

The research scholar made an attempt to go through the related literatures in libraries of Sant Gadgebaba Amravati University, Amravati; Degree College of Physical Education, Amravati and Rashtrasant Tukadoji Maharaj Nagpur University, Nagpur. From the **5 reviews** it was very clear that not even a single study was found which was directly related to the present study on the Prediction of Kho-Kho playing ability on the basis of Physical Fitness. Hence the topic is a claimed to be a New One and has a greater scope to work with it as far Maharashtra State is concerned.

### **Method of study:**

The data pertaining to the present study were collected from the 200 players of the best eight teams and extras of Sant Gadge Baba Amravati University inter-collegiate Kho-Kho (Men) tournaments.

No sampling method was used to select the players i.e. all the players of the best eight teams of of Sant Gadge Baba Amravati University Inter-Collegiate Kho-Kho (Men) competitions were selected.

The data pertaining to the study was collected by administering the tests for the selected variables. Before Collection of data, the subjects was given a chance to practice the prescribed tests so that they should become familiar with the tests and know

exactly what is to be done to ensure uniform testing condition the subjects was tested during morning/evening and data were collected.

The details of the criteria are given below:

### **Physical Fitness:**

#### **Description of the Tests:**

#### **AAHPER youth fitness test:**

The researcher used the following apparatus and equipments for collection of data during the test:

- (a) Stop Watch: To record the time of shuttle men, 50 yard dash, 600 yard men walk and time of flexed arm hang.
- (b) Measuring Tape: To measure the distance of standing broad jump and the length of shuttle run, 50 yards dash and 600 yard run walk distance.
- (c) Bank board: To help the subjects return in shuttle run.
- (d) Lime powder: To mark times for starting and ending for the lanes.
- (e) Clapper: To start the runners.

#### **Procedure of Conducting The Test:**

AAHPER Youth Fitness Test consisting of (1) Pull-ups; (2) Sit-ups; (3) Shuttle run; (4) Standing broad jump; (5) 50-yard dash and (6) 600-yard run-walk. The New Norms Were Published In 1965. The Test Is Essentially A Performance Test. The test items involve the basic elements of power, strength, speed, agility, endurance, purports to measure "total" ability and not to measure in themselves any of the basic under time "total ability". On the basis of validity and high reliability of the items contained in AAHPER youth fitness test, the researcher decided to adopt the test.

#### **Item No-I Pull-Ups:**

Purpose: To measure arm and shoulder strength.

The height of the bar should be adjusted to such height that the player can hand free of the floor. The player should use an overhand grasp. The player should then raise his body until his chin is over the bar and lower it again to the starting position with his arms fully extended.

Scoring: One point was scored each time the student completes a pull-ups.

**Item No-2: Sit-Ups.**

Purpose: To measure abdominal strength and endurance.

The pupil assumes a supine lying position, knee bent to an angle less than 90 degrees, and hands clasped behind neck. A partner holds down the feet. To perform the sit-ups, the pupil brings his head and elbows forward in a curl-up motion, touching elbows to knees. In returning to the supine position, the elbows should touch the floor each time.

Scoring: Number of correctly executed sit-ups performed in one minute.

**Item No.-3: Shuttle Run:**

Purpose: To measure speed and agility.

The player stands at one of the lines with the 2 blocks at the other line. On the signal to start, the student runs to the blocks, takes one and returns to the starting line and places the block behind that line. He then returns to the second block, which is carried across the starting line on the way back. The test consists of running to the blocks and bringing them to the starting line one at a time and placing them begin the starting time. Two trials were allowed with some rest between.

Scoring: Record the time of the better of the two trials to the nearest tenth of a second.

**Item No.-4: Standing Broad Jump:**

Purpose: To measure power.

The pupil takes a position with toes just touching the take-off line, feet slightly apart. Taking off from both feet simultaneously he jumps as far as possible, landing on both feet; in jumping, he crouches slightly and savings he arms to aid the jump.

Scoring: Scoring in the distance to the nearest inch from take off line to the closest heel position; if the pupil falls back, he should retake the test the best of three trials was recorded.

**Item No.-5: 50-Yard Dash:**

Purpose: To measure speed.

The pupil takes a position behind the starting line. The starter uses the



commands, "Are you ready? And "Go"! The word 'Go' was accompanied by a downward sweep of the starter's arm as a signal to the timer. More than one pupil may run at a time if sufficient stopwatches are available.

Scoring: The score was recorded in seconds to the nearest tenth of a second.

#### **Item No.-6: 600-Yard Run-Walk:**

Purpose: To measure endurance.

The player runs a distance of 600 Yard marked in the Track or in Football ground. He can interspace running with period of walking.

Scoring: The score was elapsed time in minutes and seconds.

#### **Measurement of Kho-Kho Performance:**

The performance of the Kho-Kho players was made on the basis of (1) Sitting In The Square, (2) Running 'Kho', (3) Sitting 'Kho', (4) Judgement 'Kho', (5) Late 'Kho', (6) Tapping, (7) Covering on Cross lane, (8) Running Dive, (9) Side Dive, (10) Spot Dive, (11) Sitting Pole Dive, (12) Running Pole Dive, (13) Sudden Change Of Target, (14) Trapping/Clubbing, (15) Pole Turning, (16) Entering The Field Of Play (17) Positioning On The Post,; (18) Single Chain, (19) Single Six-Up Chain, (20) 3 Six-Up Chain, (21) Ring Game (22) Dodging, (23) Pulty and (24) Counter Action For Judgement 'Kho'. For this the subjective judgement by the experts of Kho-Kho was made. There were five judges for this purpose. The mean performance of the players was recorded as the performance for the development of the Prediction equation of Kho-Kho playing ability.

#### **Compilation Of Data:**

The data pertaining to the study were collected by administering the tests for the selected variables. The data were collected in the prescribed proforma made for this purpose. After collection they were entered in Microsoft Excel for further processing. After the collection of the data, correlational statistical techniques were applied. To find the relationship of Physical fitness with performance of collegiate Kho-Kho players, the research scholar used Pearson's Product Moment Correlation. Multiple Regression Analysis was applied to form the Regression Equation which was the core of the study.

#### **Level of Significance:**

To test the hypothesis the level of significance was set at 0.05 level of confidence, which was considered adequate for the purpose of this study. The details of

the analyses are given in the following tables:

Table No. - 1  
Showing Inter-Corelation Among Physical Fitness Variables

	SBJ	SR	50-YD	600 RW	SU	PU	Total
SBJ	1.000						
SR	-0.071	1.000					
50-YD	0.084	0.248	1.000				
600 RW	-0.041	0.213	0.220	1.000			
SU	0.030	-0.004	-0.057	0.027	1.000		
PU	0.142	0.032	-0.091	-0.042	0.174	1.000	
Total	0.196	0.001	0.053	-0.008	0.060	0.126	1.000

From the above table it is observed that the correlation between Standing Broad Jump and Shuttle Run is -0.071, Standing Broad Jump and 50 Yard Dash is 0.084, Standing Broad Jump and 600 R/W is -0.041, Standing Broad Jump and Sit-Ups is 0.030, Standing Broad Jump and Pull-Ups is 0.142 and Standing Broad Jump and Total Performance is 0.196.

Further it is observed that the correlation between Shuttle Run and 50 Yard Dash is 0.248, Shuttle Run and 600 R/W is 0.013, Shuttle Run and Sit-Ups is -0.004, Shuttle Run and Pull-Ups is 0.032 and Shuttle Run and Total Performance is 0.001.

It is observed that the correlation between 50 Yard Dash and 600 R/W is 0.220, 50 Yard Dash and Sit-Ups is -0.057, 50 Yard Dash and Pull-Ups is -0.091 and 50 Yard Dash and Total Performance is 0.053.

It is found that the correlation between 600 R/W and Sit-Ups is -0.027, 600 R/W and Pull-Ups is -0.042 and 600 R/W and Total Performance is -0.008. The correlation between Sit-Ups and Pull-Ups is 0.174. The correlation of both Sit-Ups and Pull-Ups with Total Performance are 0.060 and 0.126 respectively.

Table No. - 2  
Showing Regrsson Analysis Among Physical Fitness Variables

Regression Statistics				
Multiple R	0.229	SE	8.007	
R Square	0.052	Observations	236	
	Coefficients	SE	t-Stat	P-value
Intercept - $\alpha$	33.886	9.015	3.759	0.000
Standing Broad Jump - $\beta_1$	0.068	0.026	2.674	0.008

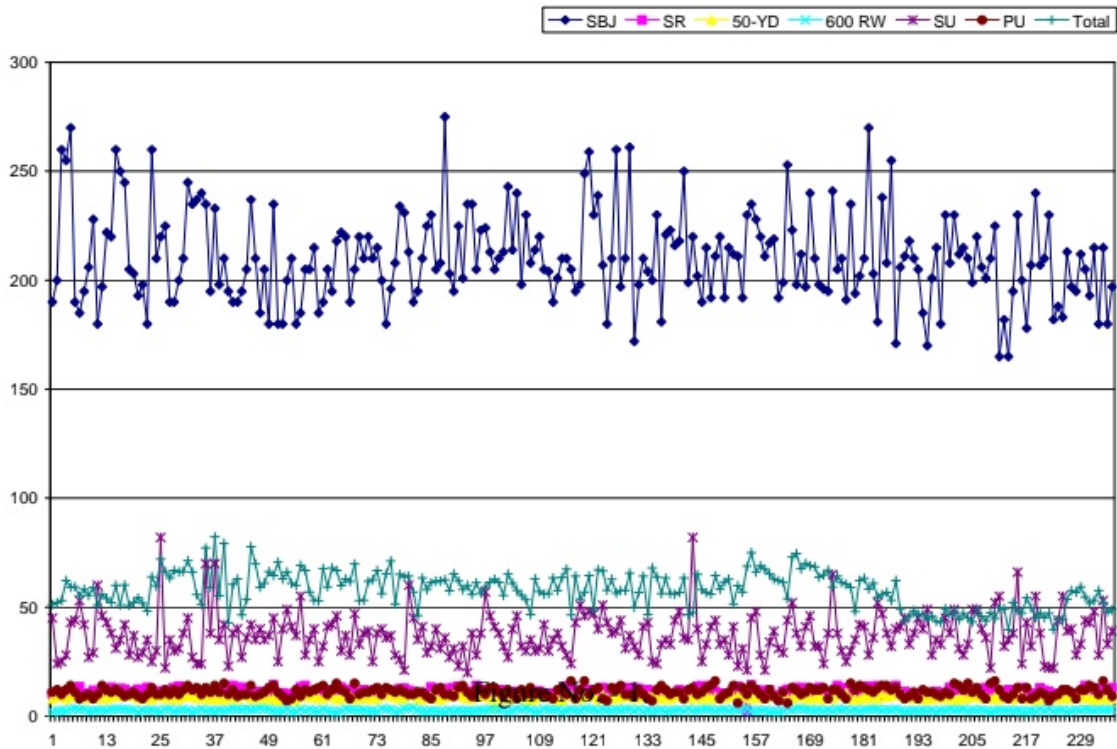


Shuttle Run - $\beta_2$	-0.007	0.394	-0.019	0.985
50-Yard Dash- $\beta_2$	0.558	0.727	0.767	0.444
600 Run and Walk- $\beta_3$	-0.187	1.332	-0.140	0.889
Sit-Ups- $\beta_4$	0.032	0.052	0.618	0.537
Pull-Ups- $\beta_5$	0.386	0.259	1.489	0.138

From the previous table it is observed that the Multiple R for the selected variables is 0.229 and the R Square is 0.052 which are not significant at the 0.05 level of significance. The  $\alpha$  for the Prediction Equation is 33.886 and  $\beta$  weight for the Standing Broad Jump is 0.068, for Shuttle Run is -0.007, for 50-Yard Dash is 0.558, for 600 Yard Run and Walk is -0.187, Sit-Ups is 0.032, and for Pull-Ups is 0.386. Hence the Prediction Equation for the above variables can be constructed as given below:

$$\text{Performance} = 33.886 + (0.068 \times \text{Standing Broad Jump}) + (-0.007 \times \text{Shuttle Run}) + (0.558 \times \text{50-Yard Dash}) + (-0.187 \times \text{600 Yard Run and Walk}) + (0.032 \times \text{Sit-Ups}) + (0.386 \times \text{Pull-Ups})$$

The Inter-Corelation Among Selected Physical Fitness Variables is shown in Figure-3.



## Showing Inter-Corelation Among Selected Physical Fitness Variables

### Testing of Hypothesis:

It is hypothesised that there would be significant relationship of the Physical Fitness with Performance of Collegiate Kho-Kho Players.

In the light of derived results, it was found that the hypothesis made by the researcher was partially correct. In beginning it was hypothesized that there might be significant relationship between the Physical Fitness with Performance of Collegiate Kho-Kho Players. It was based on the previous experience.

### Conclusion:

On the basis of finding and within the limitation of present study the following conclusion has been drawn:

From Tables-1 and 2it was found that there is little coorelation between Physical Fitness and Total Performance in Kho-Kho.

### Recommendation:

The following recommendations are made on the basis of the results from the study which may be useful for the future research work:

1. The same study may be repeated with other Physical Fitness, Physiological and Anthropometric variables on the same subjects.
2. The same study may be repeated with other Physical Fitness , Physiological and Anthropometric variables on the female subjects.
3. The same study may be repeated with other Physical Fitness , Physiological and Anthropometric variables of other games.
4. The same study can be carried on other states and university.
5. The findings of the study may serve as a reference material for the future studies

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