

# RELATION BETWEEN PHYSICAL FITNESS AND PLAYING ABILITY OF INTER COLLEGE LEVEL SOCCER PLAYERS

Harbhajan Singh<sup>a</sup> and Dr Gurpreet Singh Kang<sup>\*,b</sup>

<sup>a</sup> Research Scholar Department of Physical Education, Punjabi University, Patiala, Punjab- 147002, India

<sup>b</sup> Principal, Khalsa College of Physical Education, Heir, Amritsar, Punjab- 143002, India

\*Corresponding Author Ph: 098151-50030; Email: [kanggurpreetsingh@gmail.com](mailto:kanggurpreetsingh@gmail.com)

DOI: 10.26524/1339

**Abstract:** Sports have become an integral part of society. The coaches and trainers all over the world are aspiring for better result of their trainers. This can be made possible by conducting studies on the relationship of motor ability and level of skill of the player with their playing ability. The purpose of the study was to find out relationship of soccer playing ability with the selected physical fitness component. The study was delimited to 150 male inter college level player is age group of 19-25 year. The subject was selected from the inter college soccer matches of three university of Punjab. The data was collected during the inter college matches of soccer. The Pearson's product moment correlation coefficient (r) method was used. The level of  $p \leq 0.05$  was considered significant. The result show significant relationship of playing ability with sprinting speed, agility, endurance and flexibility

**Keywords:** Physical Fitness, Inter College, Soccer Players

## Introduction

Soccer is one of the most widely played sports in the world [1]. The game consists of two equal periods of 45 minutes, with a fifteen minutes break. During the game, players are required to perform activities like jogging, running (forward, backward and sideways), kicking, turning, heading and throwing. Fitness is important at all levels of the game, while it is being essential for top level players, it is beneficial for beginners who will improve their performances through good standards of fitness. Soccer is one of those rare games which demands not only speed but also agility, strength, power, flexibility and endurance. It is characterized by short sprints, rapid acceleration or deceleration, turning, jumping, kicking, and tackling[2].

Strength training is found to increase the concentric and eccentric strength and kick performance of soccer players, [3, 4]. Taiana et al (1993) have reported that with maximal strength of lower limbs of Soccer player's speed in kicking performance was increased [5]. Though it is widely accepted that speed and accuracy in kicking for goal shooting and passing are depend upon explosive strength, which is also known as power of lower extremities, it is reported by other experts that kicking performance is not affected by different kinds of strength [6]. It is also reported by that high resistance strength training did not improve the speed in kicking performance. Enhanced aerobic endurance in soccer players improved soccer performance by increasing the distance covered, enhancing work intensity, and increasing the number of sprints and involvements with the ball during a match. Bjoern Ekblom in his book Football (Soccer) has reported that Strength in the lower limbs is of obvious concern in football, the Quadriceps, hamstrings and triceps groups must generate high forces for jumping, kicking, tackling, turning, and changing pace. The ability to sustain forceful contractions is also important in maintaining balance and control. For Goalkeepers almost all the body's muscle groups are important. For outfield players, the lower part of the trunk, the hip flexors and the planter and dorsi flexors of the ankle are used most exactingly, upper body strength is employed in throw-ins and the strength of the neck flexors could be important in

forcefully heading the ball. At last a moderate level of upper body strength should prove helpful in preventing being knocked off the ball, concluded the author.

Reilly et al (2005) have reported that „Speed-endurance“ can help players to improve their ability to perform motor skills such as tackling, heading [2]. Power and speed“ are needed to propel the body of the football player into the air, and fitness tends to do better and players are able to learn faster when performing a wide variety of skills. It is evident from the review of literature that the performance in football is dependent on the skills, which is dependent on the physical fitness abilities of the players.

It is also understood from the literature review that experts differ in their opinions about the impact of strength on kicking performance of football players and no clear evidence is available in the literature about the impact of strength on the performance of kicking in football at College level Football Players. College level football players may not be getting trained on scientific lines throughout the year and as such they might not have developed the physical fitness parameters to optimum level and their ball skills also may not be to the level of elite footballers of professional clubs or national and international level players. No scientific research has also been conducted to find out the relation between physical fitness parameters and performance in soccer skills at college level football in India and reported in Literature. Hence, it is felt necessary to carry out a study to find out the relationship between physical fitness components and playing ability of inter college level male football players.

### **Material & Methods**

A Study was conducted on the following 150 Soccer players from inter colleges as Khalsa college Patiala, M.M.Modi College Patiala, Govt. physical education college Patiala, Punjabi university campus player, Sports college Jalandhar, Khalsa college Amritsar, Lyalpur Khalsa college Jalandhar. DAV college Jalandhar, DAV college Amritsar, Mata Gujri college Fatehgarh sahib, P.N.B. college Rajpura, Govt. Rajindra college of Physical Education Bathinda, Govt. Ranbir college Sangrur, Govt. college Malerkotla by administering the selected Physical Fitness tests constructed by observing all procedures. The Data collected was analyzed statistically to confirm whether the performance in physical fitness tests was having significant correlation with the playing ability of the subjects. The playing ability of the subjects was assessed by three experts. The relation between the performance in physical fitness tests and playing ability assessed by computing correlation coefficient between these variables was calculated by product moment method.

### **Methodology**

The following Physical Fitness tests were administered to the volunteered subjects.

### **Physical Fitness tests**

The following physical fitness tests were selected for this study:

#### **(I) Five Hops test**

Five Hops with Left Foot, Five Hops with Right Foot for assessing Explosive Strength Endurance of legs was administered, and the maximum distance covered by each subject was measured in meter with the accuracy of one hundredth of the meter, as followed by (Nagerkoti 1989, Bala 2000) [7, 8].

#### **(ii) Sprint test**

40 meters Sprint, for assessing sprinting speed was administered to all subjects. The time was measured in seconds to the accuracy of one hundredth of the second, as suggested by Malhotra et al 1979, Subramanian 1981) [9, 10].

**(iii) Shuttle run test**

6 x 10 meters shuttle run for assessing the agility of the subject was administered to all the subjects observing all precautions and the time was measured in seconds to the accuracy of one hundredth of the second.

**(iv) Endurance test**

2.4 Kilo-meters run in 400 meters track for assessing the endurance level of the subjects was administered to all subjects, and the time taken to cover this distance was measured in minutes and seconds to the accuracy of one hundredth of the second.

**(v) Flexibility test**

Bend and reach test for assessing the flexibility of the subjects, which was adopted by was administered to all subjects and the measurement was carried out in centimeters marked on a scale.

**Assessment of playing ability by Experts**

The subjects' playing ability was assessed by three qualified soccer coaches – (coach of Punjabi University Patiala, Assistant Coach of Punjabi University Patiala and the researcher himself, who is also a qualified soccer coach).

**Test of Playing ability comprises of the following**

- |                           |                            |
|---------------------------|----------------------------|
| 1) Kicking for High Drive | 6) Kicking for low Drive   |
| 2) Heading for Accuracy   | 7) Long pass for Accuracy  |
| 3) Dribbling              | 8) Short pass for Accuracy |
| 4) Throwing Accuracy      | 9) Move Tactics            |
| 5) Ball Receiving         | 10) Dodging                |

The Evaluation of the test will be out of hundred marks. Ten marks for each of the above mentioned abilities after the assessment of the three experts. The total score of all three experts will be added and further divided by three. Thus the average score will be taken as the performance of the player. The Judgment of the playing ability was also done with help of video recoding. This was observed by experts as well as by researcher himself.

**Results**

The descriptive data of the subjects on the physical fitness tests is presented in Table -1:

**Table - 1**  
**Mean Score and S.D. of physical fitness Tests**  
**(N = 150)**

Sr.no	Name of Test	Mean	S.D.
1.	<b>Explosive Strength (5 Hops With Right Foot)</b>	10.80	1.44
2.	<b>Explosive Strength (5 Hops With Left Foot)</b>	10.89	1.24
3.	<b>Sprinting Speed</b>	6.18	0.45
4.	<b>Agility</b>	14.98	0.70
5.	<b>Endurance</b>	10.31	0.59
6.	<b>Flexibility</b>	11.73	4.32

The Correlation coefficient between physical fitness tests scores and the as indicated by the experts was obtained and presented in Table-2. Analysis of data given table-2 indicate significant relationship of playing ability with „40 Meters sprint“ ( $r=0.54$ ); „6 X 10 Meters sprint“( $r=0.69$ ); „Bend & Reach“( $r=0.47$ ) and „2.4 K.M. Run“( $r=0.61$ ). However, insignificant relation were observed in case of 5 Hops with right leg ( $r=0.23$ ) and 5 Hops with left leg ( $r=0.21$ )

**Table - 2**  
**Relationship between playing ability of Subjects and Physical Fitness Tests**  
(N = 150)

Sr.no	Name of Test	Mean	S.D.
1.	<b>Explosive Strength (5 Hops With Right Foot)</b>	0.23	Not significant
2.	<b>Explosive Strength (5 Hops With Left Foot)</b>	0.21	Not Significant
3.	<b>Sprinting Speed</b>	- 0.54	Significant
4.	<b>Agility</b>	- 0.69	Significant
5.	<b>Endurance</b>	- 0.61	Significant
6.	<b>Flexibility</b>	0.47	Significant

The results presented vide Table-2 reveal that the game performance ability of the subjects was significantly related with the performance in all physical fitness tests, except in the test 5 Hops with right leg and 5 hops with left leg. Though the „5 Hops with right and left leg“ tests were not significantly related with game performance, there was a tendency with these tests also to become related with the game performance in football.

### Discussion

The results presented in Table-2 reveal that the playing ability of the subjects was significantly related with the performance in „40 Meters sprint“; „6 X 10 Meters sprint“; „Bend & Reach“ and „2.4 K.M. Run“ test. The other physical fitness tests, namely „5 Hops with Right foot“ and „5 Hops with left foot“ were not significantly related with the playing ability of the subjects. The relationship of soccer playing ability with „40 Meters sprint“; „6 X 10 Meters sprint“; „2.4 K.M. Run“ and Bend & Reach test are supported by the study conducted by [11-13 ].

The 5 hops test (assessing explosive strength endurance) not found to be correlated may be because of the fact that the college level football players are not highly trained on scientific lines. This fact is also confirmed through the significant relationship established for all skill tests, as college level players mainly train the skills for limited period before inter- colleges competitions. They are not trained throughout the year. The main reason is lower level of college soccer players [14].

### Conclusion

Based on the results obtained from this study, it may be concluded that the performance in „40 Meters sprint“; „6 X 10 Meters sprint“; „2.4 K.M. Run“; Bend and Reach test was related with the playing ability of the inter college level soccer players.

### References

- [1] H. Inklaar, Soccer injuries. I: incidence and severity, *Sports medicine*, 18(1) 55–73.
- [2] J. Bangsbo, and L. Michalsik, Assessment of the physiological capacity of elite soccer players. In: *science and soccer IV*. W. Spinks, T. Reilly, and A. Murphy (Eds.) London: Routledge: 53– 62. (2002)
- [3] Prins and Jan, Histological changes in human skeletal muscle with isokinetic strength training at two distinct limb speeds, (Ph.D. Thesis) Indiana University, 39(A) (1978) 4123.
- [4] R. Stevans, Isokinetic vs. Isotonic training in the development of lower body strength and power, *Scholastic Coach*, 49 (1980) 74-76.
- [5] F. Taiana, J.P. Grehaigne, G. Cometti, The influence of maximal strength training of lower limbs of soccer players on their physical and kick performances, *Science and*

- Football, (eds., T.Reilly, J.Clarys and A.Stibbe ) E & F.N. Spon, London, (1993) 98-103.
- [6] E. De Proft, J. Cabri, W. Dufour, J. Clarys, Strength training and kicking performance in soccer players. In Science and football, (Edited by Reilly T, Lees A, Davids K, Murphy W) 109-113, (1988) London, UK: E. and F. N. Spon,
- [7] Nagerkoti, Nandan Singh, Effect of twelve weeks specific training based on periodization on skill and fitness level of National Junior Basketball Players, (Unpublished Master's Thesis) (1989) SAI, N.S.N.I.S., Patiala.
- [8] Bala Suman, Modification and Evaluation of selected specific speed endurance test of basketball, (Ph.D. Thesis) (2000) Guru Nanak Dev University, Amritsar.
- [9] Malhotra, M.S. Singh, R. Rai. And H.S Sodhi, Evaluation of general physical fitness of national level sportsmen, SNIPES Journal, 4 (1979) 4-9.
- [10] S. Subramanian, Comparison of Training Effect on Physical Fitness and Performance through Pre-competitive and off-season Programme on selected College Basketball Players, (Master's Thesis) (1981) N.S.N.I.S., Patiala.
- [11] G. Cometti, N. A. Maffiuletti, M. Pousson, J.C. Chatard, and N. Maffulli, Isokinetic strength and anaerobic power of elite, subelite and amateur French soccer players. International Journal of Sports Medicine, 22 (2001)45-51.
- [12] D. Rösch, R. Hodgson, T.L. Peterson, T. Graf-Baumann, A. Junge, J. Chomiak, J. Dvorak, Assessment and evaluation of soccer performance, American Journal of Sports Medicine, 28(5 Suppl) (2000) S29-39.
- [13] E.G. Russo, G. Gruppioni, P.Gueresi, M.G. Belcastro and V. Marchesini. Skinfolds and Body Composition of Sports Participants, Journal Sports Medicine and Physical Fitness, 32(3) (1992) 303-313.
- [14] H. Gauffin, J. Ekstrand, L. Arnesson, and H. Tropp, Vertical jump performance in soccer players: a comparative study of 2 training-programs, Journal Human Movement Studies, 16 (1989)159–176.