A COMPARATIVE STUDY ON PHYSICAL FITNESS VARIABLES BETWEEN DIFFERENT PLAYING POSITIONS OF SOCCER PLAYERS

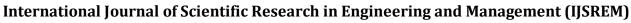**Dr. Mrityunjay Biswas* Mr. Arnab Barman****

Abstract

In the present study, an attempt has been made to compare physical fitness variables between offensive and defensive soccer players at Rampurhat sub divisional soccer players of West Bengal, India. For this study, different physical fitness variables (Muscular Strength- Hand dynamometer, Muscular Endurance- 1-min. Sit-up Test, flexibility- Sit and reach test, Cardio respiratory endurance- Queen college step test, Speed-50yard dash, Agility-Shuttle run, Leg explosive strength-Standing board jump, and balance- Stork Stand Test) was applied to soccer players to compare their physical fitness performance. Total number of 50 soccer players was selected randomly for this study. The total number of subjects classified as 25 offensive players and rest of 25 was defensive player's .Their age ranged from 18 to 25 years based on their birth records. The data was computed and analyzed by using descriptive statistics like mean, standard deviation and t-test in order to compare the significant difference between offensive and defensive soccer players. The result reveals that offensive soccer players are comparatively better than defensive soccer players in speed and agility, where as defensive soccer players are superior to offensive soccer players in muscular strength and balance.

Keywords: Physical fitness components, Offensive players, Defensive players,

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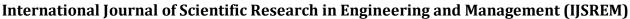
Introduction:

Sports performance depends on various physical fitness aspects. In case of soccer, skills such as dribbling, juggling and kicking are the most important facts which are greatly influenced by before mentioned aspects.

A good performance in soccer definitely depends upon serious training and fitness as well. The fitness aspects related to soccer player highly influences the capability of a player and this can be assessed by novel approaches developed off late due to the advent of technology and the extension of the field of healthcare into sports. It is no surprise that the players are often selected into the team based on such fitness aspects as well. Also this greatly affects the position at which the player is made to play in the game. Various fitness such as speed, agility, explosive strength, balance, endurance and many more are most common aspects measures under the umbrella of fitness.

These aspects can be statistically analyzed to arrive at a conclusion about an individual with respect to his ability to perform and hence a better player. This is also because of the fact that the more fit a player is, better is his endurance in the game which is the primary aspect of any game. Also playing positions can affect the player to a great extent. These parameters can also help one decide on the playing position that may best suit a given player instead of undergoing a trial-and-error based approach.

From the physiological perspective, soccer is understood as an intermittent activity that combines aerobic and anaerobic efforts at different intensity levels with irregular pauses. Moreover, it is a team sport with unique performance characteristics and demands. An official football match has duration of 90 min, which can be extended to up to 120 min in some cases. The effective playing time varies; e.g., in the France 2019 Women's World Cup, an average of 54 min per match was recorded. During such time, different skills, such as sprinting, jumping, and changing direction, are combined with technical-tactical elements, such as dribbling, passing, and shooting, among others. It is important to highlight that physical and technical demands are determined by the different positions or roles of each player in the team. In this sense, there are different classifications or types of playing positions in a football team. The most described positions are usually goalkeepers, defenders, midfielders, and forwards. Thus, for example, each player covers different distances according to her position. In the analysis of the France 2019 World Cup, the average total distance covered was 5362 m for goalkeepers, 10,369 m for defenders, 11,210 m for midfielders, and 10,979 m for forwards. Regarding the intensity of the distances covered, for the medium–high range (19–23 km/h) the distances covered according to the playing position was 253 m for defenders, 313 m for midfielders, and 360

m for forwards. In this sense, it has been reported that the amount of physical performance, effort intensity, and movement patterns are different depending on the playing position.

The demands of soccer require players to be trained in various components of physical conditioning, including aerobic capacity, speed, strength, power, and agility etc. in this sense the study was to explore the physical fitness status the on different playing position of soccer players.

Objective of the Study:

1. To observe the selected physical fitness status of different playing position of soccer players.
2. To compare the selected physical fitness status of different playing position of soccer players.

Methodology

Subjects: The study was conducted on different playing position of Rampurhat sub divisional soccer players of West Bengal. Total number of 50 soccer players was selected for this study. The total number of subjects classified as 25 offensive players (midfielders & striker) and rest of 25 was defensive players (defenders & goalkeeper) .Their age ranged from 18 to 25 years based on their birth records.

Anthropometric and Physical Fitness assessment: height, weight, muscular strength, muscular endurance, flexibility, cardio respiratory endurance, speed, Agility, leg explosive strength, and balance were assessed at Rampurhat sub divisional soccer players. Height was measured by anthropometric road, weight was measured by standard weighing machine, and muscular strength was measured by hand grip dynamometer, muscular endurance was measured by sit & reach test, flexibility was measured by sit-ups, cardio respiratory endurance was measured by queen college step test, speed was measured my 50 yard dash, agility was measured by 10x4m shuttle run, leg explosive strength was measured by standing board jump and balance was measured by strok stand test.

Statistical Calculations: Basic descriptive statistical parameters such as mean average and standard deviation were calculated. To determine the differences, if any, between two groups of players, the independent t-test was calculated. The data was processed by means of the MS Excel Data Analysis tool pack. Statistical significance was tested at 0.05 level of confidence.

Results and Discussion

Table 1: **Mean±SD, mean difference, standard error and t-value in height, weight, muscular strength, muscular endurance, flexibility, speed, agility, explosive leg strength, and balance between offensive and defensive soccer players**.

Fitness variables	Offensive Players Mean±SD	Defensive Players Mean±SD	Mean Difference	Std. Error Difference	t-value
Height(cm.)	164.52±5.24	166.12±7.24	1.60	1.78	0.89
Weight (kg.)	51.64±6.19	54.36±8.23	2.72	2.06	1.32
Muscular Strength	10.96±4.36	14.44±3.88	3.48	1.16	**2.97***
Muscular Endurance	29.44±6.56	30.36±6.71	0.92	1.67	0.55
Flexibility	41.04±5.07	42.14±5.22	1.10	1.45	0.75
Cardio respiratory endurance	51.64±5.59	53.33±6.50	1.69	1.71	0.98
Speed	6.62±0.83	7.52±1.66	0.89	0..37	**2.41***
Agility	8.43±1.43	9.20±1.04	0.76	0.35	**2.15***
Leg Explosive Strength	2.02±0.32	2.06±0.22	0.04	0.08	0.54
Balance	12.20±4.45	14.45±3.31	2.24	1.11	**2.02***

***Significant at 0.05 level (table value 1.67, df-48)*

The mean and SD (Mean ± SD) values of height for offensive players was 164.52±5.24 cm and that of defensive players was 166.12±7.24 cm. It also appears from table no. 1 that the mean score of the height is higher in defensive players than the offensive players, but the mean difference between offensive players and defensive players was 1.60 and obtained t-value was 0.89 which was not statistically significant at 0.05 levels.

The mean and SD (Mean ± SD) values of weight for offensive players was 51.64±6.19 kg and that of defensive players was 54.36±8.23 kg. It also appears from table no. 1 that the mean score of the weight is higher in defensive players than the offensive players, but the mean difference between offensive players and defensive players was 2.06 and obtained t-value was 1.32 which was not statistically significant at 0.05 levels.

The mean and SD (Mean ± SD) values of muscular strength for offensive players was 10.96±4.36 kg and that of defensive players was 14.44±3.88 kg. It also appears from table no. 1 that the mean difference between offensive players & defensive players was 3.48 and the obtained t-value was 2.97 which was

statistically significant. The difference was significant at 0.05 levels since the table value 1.67 for the df 48 which was lower than the obtained value.

The mean and SD (Mean ± SD) values of muscular endurance for offensive players was 29.44±6.56 and that of defensive players was 30.36±6.71. It also appears from table no. 1 that the mean score of the muscular endurance is higher in defensive players than the offensive players, but the mean difference between offensive players and defensive players was 0.92 and obtained t-value was 0.55 which was not statistically significant at 0.05 levels.
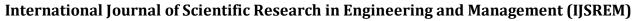
The mean and SD (Mean ± SD) values of flexibility for offensive players was 41.04±5.07 cm and that of defensive players was 42.14±5.22. It also appears from table no. 1 that the mean score of the flexibility is higher in defensive players than the offensive players, but the mean difference between offensive players and defensive players was 1.10 and obtained t-value was 0.75 which was not statistically significant at 0.05 levels.

The mean and SD (Mean ± SD) values of Cardio respiratory endurance for offensive players was 51.64±5.59 and that of defensive players was 53.33±6.50. It also appears from table no. 1 that the mean score of the Cardio respiratory endurance is higher in defensive players than the offensive players, but the mean difference between offensive players and defensive players was 1.69 and obtained t-value was 0.98 which was not statistically significant at 0.05 levels.

The mean and SD (Mean ± SD) values of speed for offensive players was 6.62±0.83sec and that of defensive players was 7.52±1.66 sec. It also appears from table no. 1 that the mean difference between offensive players & defensive players was 0.89 and the obtained t-value was 2.41 which was statistically significant. The difference was significant at 0.05 levels since the table value 1.67 for the df 48 which was lower than the obtained value.

The mean and SD (Mean ± SD) values of agility for offensive players was. 8.43±1.43 sec and that of defensive players was 9.20±1.04 sec. It also appears from table no. 1 that the mean difference between offensive players & defensive players was 0.76 and the obtained t-value was 2.15 which was statistically significant. The difference was significant at 0.05 levels since the table value 1.67 for the df 48 which was lower than the obtained value.

The mean and SD (Mean ± SD) values of leg explosive strength for offensive players was 2.02±0.32 m and that of defensive players was 2.06±0.22 m. It also appears from table no. 1 that the mean score of the Leg Explosive Strength is higher in defensive players than the offensive players, but the mean difference between offensive players and defensive players was 0.04 and obtained t-value was 0.54 which was not statistically significant at 0.05 levels.

The mean and SD (Mean ± SD) values of balance for offensive players was. 12.20±4.45 sec and that of defensive players was 14.45±3.31sec. It also appears from table no. 1 that the mean difference between offensive players & defensive players was 2.24 and the obtained t-value was 2.02 which was statistically significant. The difference was significant at 0.05 levels since the table value 1.67 for the df 48 which was lower than the obtained value.

In the above table the t value shows that muscular endurance, flexibility, cardio respirator endurance and leg explosive strength, there is no significant difference between offensive and defensive soccer players, but mean value of defensive players are greater than the offensive players. It also shows that muscular strength, speed, agility and balance was statistically significant difference between two different playing positions of soccer players. Sing (2020) shows that the offensive Football players have performed significantly better in speed and agility than their defensive Football players.

Conclusion

In conclusion, the results of the present study confirm that offensive soccer players are comparatively better than defensive soccer players in speed and agility, where as defensive soccer players are superior to offensive soccer players in muscular strength and balance. It also concluded that muscular endurance, flexibility, cardio respirator endurance and leg explosive strength, was not significantly difference between offensive and defensive soccer players.

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