

Comparison of Physical Fitness Variables Among Football Players in Relation to their Playing Position

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ABSTRACT

The purpose of the study was to analyze the differences in physical fitness variables among Football players. This study was conducted on 100 Football players with an aim to find out differences in physical fitness variables among the forwards (n=30), Halfbacks (n=30), fullbacks (n=30) and goalkeepers (n=10). The data for the present study were collected in the inter-college competition organized by Himachal Pradesh University, during the session 2011-2012. AAHPER physical fitness test (AAHPER. 1976) was used to assess the physical fitness level. Analysis of variance (ANOVA) was used to find out significant difference among the Football players. In case of any significance of mean difference, Scheffee's post hoc 't' test was applied for further analysis.

From the results, it has been found that forwards Football players possess greater value and goalkeepers possess lowest value for arm and shoulder strength endurance; in agility, fullbacks were more agile than other counterpart groups and goalkeepers possess lowest value; in speed, halfbacks were more speedy than other counterpart playing positions and goalkeepers possess lowest value; and in cardio-vascular endurance, forwards possess greater value and goalkeepers possess lowest value. There was significant difference among the players of Football game in arm and shoulder strength, agility, speed and cardio-vascular endurance.

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KEYWORDS

Physical fitness, forwards, halfbacks, fullbacks and goalkeepers.

INTRODUCTION

Physical fitness is a set of attributes that people have or achieve. President's Council on physical fitness and sport (1971) has defined 'being physically fit as "the ability to carry out daily tasks with vigor and alertness, without undue fatigue and with ample energy to enjoy leisure-time pursuits and to meet unforeseen emergencies". The most frequently cited components fall in two groups: one related to health and other related to skills that pertain more to athletic ability (Pate, 1983)

Skill related physical fitness refers to an individuals athletic ability in sports and encompasses skill related attributes like dynamic balance, power, speed and agility. The health related aspect is a measure of cardiovascular endurance, muscle strength, endurance and flexibility and body composition (Hopkins & Walker, 1988)

Physical fitness is one of the most important aspects of performance in Football. A skillful Football player will go a long way in the sport, but without the fitness part of his game he will not be the complete player.

Aerobic endurance, running speed and particularly repeat sprint ability are important components of fitness of footballers. Players also need good agility, strength power and flexibility. The physical fitness demands will vary for players in different playing positions and by understanding the demands of the game, specific to position, it will be easier to design position specific drills and training programmes. Hence, the objective of the present study was to find out the fitness difference among the Football players playing at different positions.

METHODOLOGY

To achieve the purpose of this study, 100 Football players i.e forwards (n=30), halfbacks (n=30), fullback (n=30) and goalkeepers (n=10), who participated in the inter-college competition organized by Himachal Pradesh University in the session 2011-12, were randomly selected and used as subjects in this study. Age group ranged from 18-25 years. AAHPER Physical Fitness Test 1976 was used to assess the physical fitness. Pull ups were used to measure the arm and shoulder strength endurance. One point was scored each time a pull ups was completed. Total Number of pull ups performed by the subjects was taken as score for pull ups. Bent knee sit ups were used to measure the abdominal strength endurance. The score of the test is the number of correctly executed sit ups performed by the subjects in 60 seconds. Shuttle run test was used to monitor the agility of the subjects. The time taken by the subjects between the audible signal 'start' and the finishing of the run was recorded to be the score. The time was recorded correct in seconds. The standing broad jump was used to measure explosive strength of the legs. 50 yard dash was used to estimate speed. The time taken by the subjects to complete the test, in seconds was the net score of the subjects. 1.5 mile run and walk test was used to measure cardio-vascular endurance.

To test the significance of mean difference among the Football players, namely forwards, halfback, fullbacks and goalkeepers, analysis of variance (ANOVA) was used. In case of any significance of mean difference on the criterion measure to find out which pair of group was better among the other, the Scheffee's Post Hoc 't' Test was applied.

RESULTS & DISCUSSION

Table-1: Mean, Standard deviation and F values of physical fitness variables among forwards, halfbacks, fullbacks and goalkeepers of Football players.

Parameters	Forwards	Halfbacks	Fullbacks	Goal keepers	F value
	Mean \pm S.D	Mean \pm S.D	Mean \pm S.D	Mean \pm S.D	
Arm and shoulder strength endurance (counts)	9.97 \pm 1.65	9.47 \pm 2.543	8.26 \pm 1.5	7.4 \pm 2.170	10.02**
Abdominal strength endurance (counts)	37.27 \pm 4.67	35.63 \pm 6.11	36.36 \pm 5.288	37.60 \pm 34.3	.027
Agility (sec)	8.33 \pm 0.38	8.23 \pm 0.45	8.14 \pm 0.38	8.76 \pm 0.6699	6.02**
Leg explosive strength (cm)	217.5 \pm 13.66	218.43 \pm 13.4 2	210.03 \pm 12.6 5	210.8 \pm 117.3 1	1.93
Speed (sec)	7.11 \pm 0.30	6.60 \pm 0.30	7.25 \pm 0.41	7.38 \pm 0.42	6.62**
Cardio vascular endurance (min)	11.27 \pm 0.49	11.51 \pm 0.55	12.03 \pm 0.49	12.54 \pm 0.46	25.60**

*Significant at 0.05 level

**Significant at 0.01 level

Table 1 represents the comparison of mean, standard deviation and level of significance of arm and shoulder strength endurance, agility, leg explosive strength and speed among Football players, with respect to their playing positions. Forwards possess greatest arm and shoulder strength endurance (9.97) and goalkeepers possess least (7.4) among the Football players. The statistical differences, revealed that the 'f' ratio is significant at the level of $p < .01$. Abdominal strength endurance was found more in goalkeepers (37.60) and less in halfbacks (35.63), with respect to their playing positions. The statistical differences, revealed that the 'f' ratio is non significant at the level of $P < .05$. In agility,

the goalkeepers possess greatest value (8.76.) and fullbacks possess the smallest value (8.14) with respect to their playing positions. The statistical differences, when observed revealed that the 'f' ratio is significant at the level of $P < .01$. In leg explosive strength halfbacks possess greatest value (218.43) and fullbacks possess the smallest value (210.03), among the Football players, with respect to their playing positions. The statistical differences, when observed among the Football players, revealed that the 'f' ratio is non- significant at the level of $P < .05$. It has been observed that goalkeepers take more time (7.38) to complete 50 yards dash and halfbacks take less time (6.60) with respect

to their playing positions. The difference was found to be statistically significant, at the level of $P < .01$. It has been observed that goalkeepers take more time (12.54) to complete 1.5 Mile run and walk and

forwards take less time (11.27) with respect to their playing positions. The difference was found to be statistically significant, at the level of $P < .01$.

Table-2: Post hoc 't' values for comparing arm and shoulder strength endurance, agility, speed and cardio vascular endurance among football players, with respect to their playing position.

Parameters	t- value					
	Forwards Vs Halfbacks	Forwards Vs Fullbacks	Forwards Vs Goalkeepers	Halfbacks Vs Fullbacks	Halfbacks Vs Goalkeepers	Fullbacks Vs Goalkeepers
Arm and shoulder strength endurance	4.50**	3.95**	4.22**	0.54	1.04	1.43
Agility	.88	1.76	2.79**	2.64**	2.17*	4.04**
Speed	4.32**	1.34	1.84	2.98**	1.22	.89
Cardio vascular endurance	1.98	6.29**	7.39**	.30**	5.98**	2.94**

*Significant at 0.05 level.

**Significant at 0.01 level

From Table 2, it was observed that there was significant mean difference between the forwards and halfbacks ($t=4.50$; $P < .01$), having the maximum value followed by forwards and goalkeepers ($t=4.22$; $P < .01$), and then forwards and fullbacks ($t=3.95$; $P < .01$), in arm and shoulder strength endurance; but insignificant mean difference was observed between halfbacks and fullbacks, halfbacks and goalkeepers, and fullbacks and goalkeepers. In agility, it was clearly noticed that there was significant mean difference between fullbacks and

goalkeepers ($t=4.04$; $P < .01$), having the maximum value followed by forwards and goalkeepers ($t=2.79$; $P < .01$), halfbacks and fullbacks ($t=2.64$; $P < .01$), and halfbacks and goalkeepers ($t=2.17$; $P < .05$); but insignificant mean difference was observed between forwards and halfbacks followed by forwards and fullbacks.

In speed, it was clearly noticed that there was significant mean difference between forwards and halfbacks ($t=4.32$; $P < .01$), having the maximum value followed by halfbacks and fullbacks

($t=2.98; P<.01$); but insignificant mean difference was observed between forwards and fullbacks, followed by forwards and goalkeepers, halfbacks and goalkeepers, and then fullbacks and goalkeepers. In cardio-vascular endurance, it was observed that there was a significant mean difference between forwards and goalkeepers ($t=7.39; P<.01$), having maximum value followed by forwards and fullbacks ($t=6.29; P<.01$), halfbacks and goalkeepers ($t=5.98; P<.01$), halfbacks and fullbacks ($t=4.30; P<.01$), fullbacks and goalkeepers ($t=2.94; P<.01$); but insignificant mean difference was observed between forwards and halfbacks players only.

CONCLUSION

1. Significant difference in arm and shoulder strength exist between forwards and halfbacks, forwards and goalkeepers and between forwards and fullbacks of Football players.
2. It has been observed that players of Football game do not differ significantly

from each other in abdominal strength endurance.

3. A statistical significant difference in agility exist between fullbacks and goalkeepers, forwards and goalkeepers, halfbacks and fullbacks and halfbacks and goalkeepers
4. It has been observed that players of Football game do not differ significantly from each other in leg explosive strength.
5. A statistical significant difference exist among Football players of different position, i.e, between forwards and halfbacks and halfbacks and fullbacks in running speed.
6. A statistical significant difference exist among Football players of different positions, i.e, between forwards and goalkeepers, forwards and fullbacks, halfbacks and goalkeepers, halfbacks and fullbacks and fullbacks and goalkeepers in cardio-vascular endurance.

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