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Endurance Capacity of The Pakistani National Football Players According to Their Playing Position

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ABSTRACT

Background: In modern days, football players require specific stamina and body composition to perform well in various playing positions such as goalkeeper, defenders, midfielders, and forwards. This study was aimed to examine the body composition and endurance capacity of Pakistani national football players. Data was collected from national football players by considering their playing position.

Methods: The selected variables were height, weight, eight skinfolds, the sum of skinfolds, cover distance in a match, and yo-yo intermittent test. One-way analysis of variance (ANOVA) was applied for statistical analysis.

Results: Results showed that the goalkeepers were significantly superior in height and weight than the midfielders and defenders. On the other hand, goalkeepers were significantly inferior in endurance capacity and covered distance than the midfielders and defenders.

Conclusion: The midfielders and defenders cover a longer distance during a match which depicts their higher endurance capacity than the goalkeeper and forward. These findings would be useful to address the advancement in football performance and team selection. Therefore, coaches should focus on a training session by considering the playing positions of players.

Keywords: football, endurance, body composition, yo-yo test.

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INTRODUCTION

Modern football depends on the higher quality of game skills and physical fitness for each position. Such as forwards must be quick in judgment to find a gap from the opposite defenders, midfielders must be an expert for long and short passes, and defenders should be able to take the higher vertical jump for tackling the forwards of the opposite team [1]. Various studies have proved that physical fitness and physical characteristics improve team performance [2, 3]. Therefore, the physical characteristics of football players depict a strong relationship with their performance [4]. On the other hand, aerobic endurance would be considered an essential element of a football player's performance. As concluded, the midfielders cover maximum distance in a football match with a higher anaerobic capacity [5, 6], whereas others reported that forwards have a higher endurance capacity [7].

On the other hand, Malina, Cumming, Kontos, Eisenmann, Ribeiro, & Aroso 2005 [8] reported no significant differences among elite football players in ball control, dribbling, passing, and shooting even at various playing positions. The performance of football players according to playing position is a controversial subject to understand the overall performance of football teams. Consequently, coaches must select an appropriate player for a specific playing position to fulfill the game demand [9]. It concludes that variances in the endurance capacity of football players according to their playing position suggest different criteria in team selection and training. Although football is not a popular sport in Pakistan like cricket, many urban and rural areas like to play and watch football matches.

There was a lack of scientific studies to examine the playing performance of Pakistani football players. Therefore, a dire need for research to compare the game skill, physical fitness, and physical characteristics of football players by considering their playing position. This study would be helpful to understand the procedure of team selection, training effect, individual and team performance.

METHOD AND MATERIAL

This is a cross-sectional study, and a purposively sampling technique was adopted to select participants. The selected participants were goalkeeper (n = 04), defenders (n = 12), midfielders (n = 13), forwards (n = 07). These players were selected from the football team's training camp, which the Pakistan football association properly selected by adopting a selection procedure. These players were selected from four provinces of Pakistan, including the federal territory. The data was compiled at the Punjab football stadium in Lahore with the permission of the Punjab football federation. A consent letter was obtained from all participants to ensure their volunteer participation in the study. The purpose and procedure of data collection were thoroughly briefed to all participants.

The procedure of Data Collection

At the time of data collection, participants were in light dress as shirts, boxers, and slippers. The procedures for obtaining the weight and height as hands asides look straight and upright. All reading was noted at the Performa.

The participant's body weight was obtained in kilograms with the help of a digital weight scale, and the minimum value noted was .01 kg [10]. The height was obtained in centimeters using a stadiometer, and the minimum value was recorded as 0.01 cm. The body sites of all participants were marked to find the appropriate method for the measurements of skinfolds as guided by [11]. Four skinfold triceps, subscapular, suprailicrest, and abdomen, along with the sum of four skinfolds, was obtained with a skinfold caliper. These skinfold measurements were recorded in millimeters, and the minimum value was recorded in 0.2 mm.

The endurance capacity was recorded by adopting the Yo-Yo test in the following [12, 13, 14], which roughly consisted of 5-15 minutes for YYIR1 and 2-15 minutes for the YYIR2 test. Two officials were positioned at both shuttle lines (cone B and C), and players were ready to participate in the test.

Figure 1. The setup of the Yo-Yo Intermittent Recovery Test

The data collection procedure started as a player started to run towards cone B as instructed by the audio player, then turned towards cone C; the participant must reach the next point before the end of the following beep and immediately return to cone B before the next signal. Once a player reaches cone B, players had a 10-second recovery period for jogging from cone B towards cone A and then back to cone B before the commencement of the next shuttle. According to the test protocol, a player was only allowed two consecutive failed attempts before withdrawing from the test. Therefore, if any participants fail to reach cone C and return to cone B within time, they will also be considered a failed attempt. If such a thing happens for the second time in a row, the player will be disqualified. Once a player is disqualified from the test, his score will be recorded.

Statistical Analysis

All variables' results were obtained using mean and standard deviation. One-way analysis of variance (ANOVA) was applied to examine the body composition and endurance capacity of goalkeepers, defenders, midfielders, and forwards of the Pakistan national team football players football team. Tukey post hoc was applied to find significance between and within groups. All assumptions of one-way analysis of variance ANOVA were followed as the normality of data was tested by adopting the histogram,

homogeneity of variance, and independence. The level of significance was adjusted at P < 0.5 for all measures. The SPSS version 25. was used for statistical analysis.

RESULTS

Table 01: Demographic analysis of Pakistani national football players according to their playing positions

Vari-ables	Goalkeeper		Defenders		Midfielders		Forwards			
	Mean	Std. D	Mean	Std. D	Mean	Std. D	Mean	Std. D	F	Sig.
Age (years)	25.25	2.63	23.42	3.58	23.54	3.53	23.00	2.65	0.42	0.74
Height (cm)	181.50	2.65	173.58	5.66	170.27	5.36	171.57	4.86	5.00	0.01
Weight (kg)	74.83	2.50	68.14	6.40	65.15	5.20	67.37	5.67	3.14	0.04

The significance value was adjusted at *P* < .05

Table one shows the goalkeepers were significantly taller than the defenders, midfielders, forwards. The goalkeepers were also significantly heavier than defenders, midfielders, and forwards.

Table 02: Body composition and endurance capacity of Pakistani national football players according to their playing position

Vari-ables	Goalkeeper		Defenders		Midfielders		Forwards			
	Mean	Std. D	Mean	Std. D	Mean	Std. D	Mean	Std. D	F	sig.
Triceps	9.13	1.04	6.83	1.67	6.96	1.72	6.57	1.68	2.40	0.09
Subscap-ular	10.35	1.84	9.54	1.83	9.02	1.00	9.94	2.84	0.72	0.55
SupraIl-iac	6.13	0.85	5.39	1.02	5.24	1.03	5.13	1.67	0.72	0.55
Abdom-inal	14.60	1.38	12.19	3.68	10.98	3.34	11.46	3.38	1.27	0.30
Sum of skin-folds	40.20	3.60	33.95	7.04	32.21	6.24	33.10	8.71	1.42	0.26
Stage	11.86	0.65	11.04	1.24	10.73	1.19	10.87	1.56	0.85	0.47
Distance	15.10	0.35	16.43	0.68	16.85	0.92	15.66	0.67	7.49	0.00
VO2max	840.00	92.38	1260.00	220.08	1375.38	283.57	1000.00	211.66	7.39	0.00

The significance value was adjusted at *P* < .05

Table two shows the endurance capacity of the defender and midfielders was significantly higher than the goalkeepers and forwarders. On the other hand, both midfielders and defenders significantly covered a larger distance than the goalkeeper and forwards in a match.

DISCUSSION

This investigation compares goalkeepers, defenders, forwards in their body composition and endurance capacity. For this purpose, Pakistan national team football players were recruited for data collection. According, to the demographic findings, the goalkeepers were significantly taller and heavier than midfielders, defenders, and forwards. Results showed moderate differences in the body composition among Pakistani national footballers according to their playing position. The present study's findings are supported by Cossio-Bolanos, Portella, Hespanhol, Fraser, and De Arruda, 2012 [15] that goalkeepers were significantly higher in height and weight than the players of other positions.

On the other hand, the defenders and midfielders were significantly higher in their endurance capacity VO2max than forwards and goalkeepers. The present study's findings supported the previous investigations [16, 13] that fullbacks and midfielders were significantly superior in endurance capacity VO2max than goalkeepers and forwards. In contrast, Arnason et al. (2006) [17] contradict the present study's findings, as they reported there were minor differences in the endurance capacity VO2max of football players in their playing position. The endurance VO2max is also correlated to the physical demands of football players of various positions. Although the running intensity of midfielders and defenders was reported higher than the players of other positions [18, 19], it is also observed the midfielders cover the longest distances during games than the other playing positions [20].

The study of [22] has supported this similar fact. The study results observed that the midfielders and defenders were better in the physical endurance capacity, which plays a significant role in the overall winning performance of the team in elite competitions. On the other hand, the goalkeeper and forward engage in tactical training of sprinting, jumping, and agility which may reduce the aerobic capacity of the midfielders and half-back defenders. Therefore, this investigator agrees with the results of (Bradley et al., 2013 [22] regarding his assessment of the aerobic endurance of football players. Unfortunately, most coaches do not take the time to do endurance fitness work during the regular season. As a result, many coaches have relegated this type of physical training has been relegated to secondary importance by many coaches.

CONCLUSION

Finally, the current investigation in body composition and endurance capacity found contrasts among forwarding, midfielders, safeguards, and goalkeepers of Pakistani national football players. Goalkeepers were the tallest and heaviest than other players of a team. The way goalkeepers have a unique interest in the midfielders and defenders to utilize their height and weight against the forwards of the opponent team, where oxygen consumption would be limited. Interestingly, advances were the least fatty, introducing the most noteworthy muscle rate. On the other hand, a less fatty body was discovered to be a significant factor for defenders. Therefore, each positional job can be believed to be described by an alternate profile.

Future Recommendations

This finding, together with how each position has an alternate physiological outstanding burden in a soccer coordinate, shows that a few of the instructional courses ought to be committed to preparing explicit to each position, as of now occurs with goalkeepers. Considering the current discoveries when arranging the preparation timetable of youthful soccer players at a non-elite level may streamline instructional meetings and the subsequent matches.

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