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Prediction of Shooting Ability through Selected Physical Fitness Components among University Male Football Players

J. Santhosh[1], Dr. K. Sivakumar[2]

[1]*Ph.D., Research Scholar, Department of Physical Education and Sports Sciences, Annamalai University, Chidambaram, Tamilnadu, India.*
[2]*Associate Professor, Department of Physical Education and Sports Sciences, Annamalai University, Chidambaram, Tamilnadu, India.*

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Abstract

The study was confined to the university level male football players those who were participating in the South Zone Inter University Football Tournament held at Mahathma Gandhi University, Kottayam, Kerala during the year 2013 – 2014. One hundred and twenty university male football players from ten schools (n = 12), with age group between 19 and 27 years, were selected as subjects for the current study. The selected criterion variables, such as, shooting ability, speed, agility and muscular endurance were selected for this study. The shooting ability was assessed by Mor-Christian General soccer ability skill test, speed was assessed by administering 50 meters dash, agility was assessed by conducting 4 x 10 yards shuttle run and muscular endurance was assessed by administering sit-ups test. The Pearson Product Moment correlation and multiple regression equation were used to find out the relationship between the selected football playing ability such as, shooting ability and selected physical fitness components such as, speed, agility and muscular endurance. The result of the study shows that there was a significant relationship between the shooting ability and selected motor fitness components such as, speed, agility and muscular endurance.

Keywords: Shooting ability, physical fitness components, speed, agility, muscular endurance, correlation.

Introduction

The origin of football / soccer can be found in every corner of geography and history. The Chinese, Japanese, Italian, Ancient Greek, Persian, Viking, and many more played a ball game long before our era. The Chinese played "football" games date as far back as 3000 years ago. But it was in England that soccer / football really begin to take shape. It all started in 1863 in England, when two football association (association football and rugby football) split off on their different course. Therefore, the first Football Association was founded in England. Shooting of the goal is an attempt to send the ball directly in to opponent goal, with the aim to score. It is based on individual and collective action. When shooting is practiced during preparation, it is technique; whereas shooting at the goal in the match is tactical. Speed is the performance prerequisite to do motor actions under given conditions (movement task, external factors, individual prerequisites) in minimum of time. Agility is generally defined as the ability to change the direction quickly and effectively while moving as nearly as possible at full speed. It is depended primarily on strength, reaction time, speed of movement and specific muscle co-ordination. Muscular endurance is very important for people playing sports and who have to sustain an activity for long periods of time. Muscular endurance is determined by how well your slow twitch muscle fibers are developed.

Correspondence
Dr.K.Sivakumar
E-mail: shivameyy@gmail.com, Ph: +9194431 76546

Methodology

The purpose of the study was to predict shooting ability through and physical fitness components (speed, agility and muscular endurance) of university level male football players. To achieve this purpose of the study, various football teams participated in the South Zone Inter University Football Tournament for men, which, was held at Mahathma Gandhi University, Kottayam were selected. One hundred and twenty university male football players from ten universities (n = 12), were selected. The following universities such as, University of Calicut, M.G. University, Kottayam, Annamalai University, Anna University, Bharathidasan University, Rayalaseema University, Ramakrishna University Mission, University of Kannur, Sathyabama University and S.R.M. University were selected as subjects. The age of the subjects were ranged between 17 and 27 years. The selected criterion variables, such as, shooting ability, speed, agility and muscular endurance were selected for the present study. The shooting ability was assessed by Mor-Christian General soccer ability skill test battery, speed was assessed by administering 50 meters dash, agility was assessed by conducting 4 x 10 yards shuttle run and muscular endurance was assessed by

administering sit-ups test. The Pearson Product Moment correlation and multiple regression equation were used to find out the relationship between the, shooting ability and physical fitness components such as, speed, agility and muscular endurance.

Results

Table I. Descriptive Statistics for all Selected Variables

Variables	Mean	S.D.
Shooting	117.85	12.432
Speed	7.2697	0.24007
Agility	10.7767	0.24079
Muscular endurance	35.13	2.970

Table II. Correlation between Selected Criterion Variables of Male University Football Players

	Shooting	Speed	Agility	Muscular Endurance
Shooting	1.00	- 0.230**	0.224*	- 0.729*
Speed	--	--	0.988*	- 0.328
Agility	- -		1.00	- 0.339*
Muscular endurance	--		--	1.00

From the scores exhibited in table – II following inferences were drawn:

1. The correlation between shooting and speed was positive and r = - 0.230 and it was as much as higher than the 0.019 (p > 0.01) and found to be statistically significant.
2. The correlation between shooting and agility was positive and r = 0.224 and it was as much as higher than the 0.000001 (p > 0.01) and found to be statistically significant.
3. The correlation between shooting and muscular endurance was positive and r = - 0.729 (p > 0.01) and it was as much as higher than the 0.000001 and found to be statistically significant.
4. The correlation between speed and agility was positive and r = 0.988 (p > 0.01) and it was as much as higher than the 0.00001 and found to be statistically significant.
5. The correlation between speed and muscular endurance was positive and r = 0.213 (p > 0.01) and it was as much as higher than the 0.019 and found to be statistically significant.
6. The correlation between agility and muscular endurance was positive and r = - 0.339 (p > 0.01) and it was as much as higher than the 0.000001 and found to be statistically significant.

It is evident from the table – II that there is a significant relationship between shooting and speed, agility and muscular endurance of male football players in each variable separately. Multiple correlations were computed by backward selection method on data obtained for the male football players in shooting and the results were presented in table - III.

Table III. Multiple Correlation Co-efficient for the Predictors of Shooting Ability of Male University Football Players

S. No	Variables (Backward Selection)	R	R Square	Adjusted R Square	R Square Change
1.	Muscular Endurance, Speed and Agility	0.729	0.531	0.519	0.531
2	Muscular endurance, and Speed	0.728	0.530	0.522	- 0.001
3	Muscular endurance	0.728	0.530	0.526	0.00000

From the table – III is found that the multiple correlation co-efficient for predictors, such as, speed, agility and muscular endurance is 0.730, which produces highest multiple correlations with shooting ability of the male university football players. R square values show that the percentage of contribution of predictors to the shooting ability (dependent variable) is in the following order.

1. About 53% of the variation in shooting ability was explained by the regression model with three predictors, such as speed, agility and muscular endurance.
2. About 53% of the variation in shooting ability was explained by the regression model with two predictors, such as speed and muscular endurance.
3. About 53% of the variation in shooting ability was explained by the regression model with one predictors, such as muscular endurance.

Further, multiple regression equation was computed and the results are presented in table – IV.

Table IV. Regression Co-efficient for the Predicted Variables with Shooting Ability of Male University Football Players

Sl. No.	Variables	B	Std. Error	Beta Weightage
1.	Constant	40.073	85.310	
	Speed	9.524	21.787	0.184
	Agility	- 9.148	21.817	- 0.177
	Muscular endurance	3.049	0.283	0.728
2.	Constant	6.598	29.968	
	Speed	0.506	3.472	0.010
	Muscular endurance	3.062	0.281	0.731
3.	Constant	10.75	9.310	
	Muscular endurance	3.048	0.0264	0.728

From table - IV, the following regression equations were derived for university level football players with dependent variables.

Regression Equation in obtained scores form $= X_C$

$$\mathbf{X_C=(0.184)X_1+ (- 0.177)\ X_2 + (0.728)\ X_3 + 40.073}$$

Where, X_c = Shooting ability, X_1 = Speed, X_2 = Agility and X_3 = Muscular endurance.

The regression equation for the prediction of shooting ability of male football players includes, speed, agility and muscular endurance was predictive. As the multiple correlations on shooting ability with the combined effect of these independent variables are highly significant, it is apparent that the obtained regression equation has a high predictive validity. Thus, this equation may be successfully utilized in selecting university male football players.

Conclusions

Based on the results of the study the following conclusions were drawn:

1. The correlation between shooting and speed was high.
2. The correlation between shooting and agility was high.
3. There was a high correlation between shooting and muscular endurance.
4. The correlation between agility and muscular endurance was also high.

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