Prediction of Playing Ability from Selected Motor Components and Breathe Holding Time

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Abstract

The aim of this present study was to predict the playing ability of footballers from selected criterion variables namely, sprinting speed, explosive strength, reaction time and breath holding time. This study curried out a seventy male elite footballers from different clubs of Pune, Maharastra in the year 2014. The age of the football players were taken from18 to 25 years. *The playing ability was judged by three well qualified and experienced experts. Pearson "r" was used to determine the inter correlation among them and the regression model was used to predict the playing ability with respect to the above mentioned aspects at the 0.05 level of statistical significant. **Results:1**) there were significant relationship obtained between playing ability with* explosive strength (-.533*), with Breath holding time(-.496*) and with Sprinting speed (-.050*) and insignificant relation with Reaction time was (-.212).*2) The presented Linear Regression Model equation is*---- Playing ability = 11.527 + (0.282) Explosive strength– (.121) Breath holding time – (0.131) Sprinting speed

KEYWORDS: football, playing ability, breath holding time, explosive strength

1. INTRODUCTION

Soccer is the most popular team game in the world, played and watched by millions of people each year. As soccer has developed at the elite level much research regarding match performance and training has been conducted (Campbell, 1980 & Chakarborthy, 1986). Athletic performance in soccer is a function of aerobic fitness, anaerobic fitness, speed, muscular strength, muscular power, and agility. The existing literature in the field of football shows that endurance, speed, agility, maximum leg strength, upper body strength, leg power, muscular endurance, flexibility, coordination and reaction time are important pre-requisites for efficient football performance, where as excess body fat proves to be a hindrance (Uppal,2000).

Physiological profiles that were relevant to success in the game of soccer seven broad areas (heart rate, blood pressure, respiratory rate, anaerobic power, vital capacity negative breath holding capacity and positive breath holding apacity were covered in the first part the physical profile of elite soccer players was covered next describing the pattern of physical abilities to participation in soccer evaluated from different measurement during and following the game (Duane, 1960).

The football is unarguably the world's most popular sports but there is still limited scientific information available concerning the physique and performance qualities elite soccer players (Reilly et al, 1990).The game comprises activities like sprint and jumps in attack and defence. It also requires aerobic capacity as the game lasts one

and half hour, sometimes even longer than the official time. These short and long lasting activities are performed over the entire game, so, both aerobic and anaerobic capacities are very important to exhibit better performance (Goran. *et al.,* 2011). Football required a high degree of running ability and total body agility so that the player is able to gain good field position and compare with his opponents both offensive and defensive man curves. Fast acceleration is required to be able to advantage positions while attacking and counter attacking. In the way, the football player has to change his body position quickly and accurately to concentrate while receiving the ball. A good understanding of available scientific knowledge will not only result in good teams and better programme of activities but also it mainly consider about physical fitness like strength speed reaction time etc. So the most important variables determining performance in team sports such as soccer are physical condition and technical as well as tactical performance in elite footballer. In fact, these variables are very much useful for the people of our society too. Thus, the present piece of research has a social relevance. The relationship between of elite footballer is considerably high than that of other player and playing performance and during the match depends upon a diverse range of qualities including specific skill team. If will considered appropriate by the researcher to conduct the study entitled relationship between explosive strength reaction time breath holding capacity and sprinting speed of elite footballers.

2. METHODOLOGY

2.1. Subjects

Seventy male elite football players were selected from different clubs of Pune City Maharashtra, with ages ranging from 18 to 25 years. The random sampling approach was used to collection of the data.

2.2. Exclusion Criteria

- The footballers residing at Pune city, but representing other institutions/ clubs situated outside the jurisdiction of Pune city was excluded.
- The unhealthy footballers were excluded from the study.
- Female footballer were also excluded from the study.

2.3. Ethical consideration

Permission from the heads of different clubs at Pune city was taken before the data the collection. The subjects were free to give the information, there were no compulsion. The researcher was meet the elite footballers and communicates with them about the purpose of this study.

2.4. Testing protocol

The researcher was used standard tests of measuring explosive strength (standing broad jump), reaction time (Nelson hand reaction time), breath holding capacity and sprinting speed (50 yard dash) of elite footballers. **Table I.**

S. N	VERIABLES	TESTS	UNIT
1	Explosive strength	Standing broad jump	Meter
2	Reaction time	Nelson hand reaction time test	Centimetre

| 3 | Breath holding capacity | Pneumograph / Manually | Second |
| 4 | Sprinting speed | 50 yard dash | Second |

2.5. Measuring of playing ability

The playing abilities were measured with the help of three football experts, those who did NIS. The 10 points rating scale was used and the average value was taken to measure the playing ability of the footballers. There were numerous skills such as Kicking, push pass; dribbling, throwing, heading, and shooting were taken into consideration.

2.6. Statistical Analysis

Descriptive statistics such as mean, min, max and standard deviation were applied to characterize the football playing ability, Pearson "r" was used to determine the inter correlations among them. For prediction of the playing ability, the researcher applied the multiple linear regression models at $P<005$ level of significant.

3. RESULTS

Table II: Descriptive Statistics of the football players

variables	Minimum	Maximum	Mean	Std. Deviation
explo_strength	2.10	2.52	2.3645	.10145
reaction_time	.05	.05	.0503	.00196
breath	58.05	115.03	75.9300	7.04885
speed	5.91	6.39	6.1698	.10309
Playing ability	6.50	9.00	7.7200	.67300

Table – III: Pearson Product Moment Correlation between predictor and criterion variables

Variables	Reaction time	Breath holding time	Sprinting speed	Playing abilities
Explosive strength	-.068	.352[*]	-.112	-.533*
Reaction time		.081	-.102	-.212
Breath holding time			.040	-.496*
Sprinting speed				-.050*

*Significant at (P<0.05)

Table – IV: Model Summery

Mode	R	R Square	Adjusted R Square	Std. Error of the Estimate	Change Statistics		
					R Square Change	F Change	Sig. F Change
	.492	0.242	-.006	.68135	.097	.938	.453

Regression Model for Football Playing Ability

Playing ability = 11.527 + (0.282) Explosive strength– (.121) Breath holding time – (0.131) Sprinting speed

4.   DISCUSSION

The football is unarguably the world's most popular sports but there is still limited scientific information available concerning the physique and performance qualities elite soccer players. Being an elite footballer, high level of physiological and motor qualities is required for their better performance. The table: 2, shows that all descriptive information about elite footballers. From the above Table: 3, all criterion variables such as Explosive strength, Reaction time, Breath holding time and Sprinting speed were showed significant relationship with predictor variable playing abilities. Football is a multidimensional activities, it required high qualities of motor components as well as physiological fitness such lung, and breath holding capacity. Football match plays more than an hour in 90x 55 meter ground dimension. Therefore all criterion variables such as speed, explosive strength and breath holding time showed significant with playing ability. In other hand reaction time was showed insignificant relationship with playing ability, it may be reaction ability is not much important in football. playing ability was indirectly measured with numerous skills such as Kicking, push pass; dribbling, throwing, heading, and shooting, for that may be reaction ability was not much contributed. Therefore may be the reason to find insignificant in reaction time. From the table: 4, the obtained R=0.492and R^2= 0.242, it shows that strong relationship and enough to predict the playing ability from criterion variables namely, speed, explosive strength and breath holding time. This obtained model is useful in talent identification for identifying good football players.

5.   CONCLUSION

1. The present study indicates that there were a significant relationship obtained between playing ability and, sprinting speed, explosive strength and breath holding time .
2. There were insignificant relationship obtained between playing ability and reaction time.
3. The obtained linear regression model is …. Playing ability = 11.527 + (0.282) Explosive strength– (.121) Breath holding time – (0.131) Sprinting speed

REFERENCE

Campbell Donald W., (1980) "The Relationship of Selected Measures of Physical Performance and Structure to quality of Performance in Collegiate football," Competed Research in Health Education and Recreation.

Chakarborthy Debananca, (1986). "Relationship of Selection Motor Components and Physique Characteristics to Performance in Soccer" (Unpublished Master's Thesis, jiwaji university Gwalior.

Elena Jack Duane. (1960). "Relation of Physiological Factor to Football Performance" Completed Research in Health Physical Education and Recreation.

Reilly T. et al., (2000). "A Multidisciplinary approach of talent Identification in Soccer", Journal of Sports Science. 15 (9).

Sporis Goran. et al., (2011). "Correlation between speed, agility and quickness (SAQ) in elite young male soccer players"   Acta Kinesiological 5.

Uppal A. K.(2000). "Assessment of Motor Fitness Components as Predictors of Soccer Playing Abilities", SNIPES Journal.