Review of Literature

DEVELOPMENT OF DISCRIMINANT MODEL FOR SOCCER PLAYERS PLAYING AT DIFFERENT POSITIONS

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ABSTRACT :

This study was undertaken for the development of discriminant model for soccer players playing at different positions on the basis of selected anthropometric variables, functional capacities and soccer skill variables. 235 Male soccer players of SAI Training Centres and academies, age ranging between 14 to 19 years, age groups–(Under-14, Under-16 and Under-19 years) were selected by using multistage sampling technique and were classified into three groups (i.e. Attackers = 75, Midfielders = 75 & Defenders = 75). On the basis of previous literature, expert's opinions and scholars own understanding, a total of thirteen variables (6 Anthropometric and 5 Functional Capacities and 2 Soccer Skill Variables) were selected by the researcher. For developing the model Multiple Discriminant Analysis was used to classify an individual into one of the three groups on the basis of predictor variables. It is indicated that the value of wilks lambda for all the variables is closer to one, which means no any variable is selected for the model. The position wise results of the multiple discriminant model indicating that attackers, midfielders and defenders possess the same characteristics in playing at any position because results showed no difference in all the selected anthropometric variables, functional capacities and soccer skills, it might be because in modern soccer training trends all the players has been trained in same pattern not as per their position in the game. In this study the research scholar found in the model for three different positions (i.e Attackers, midfielders and Defenders) that no difference in the variables and no variable was selected for the model.

KEYWORDS : *Discriminant Model, Soccer, Attackers, Midfielders and Defenders.*

INTRODUCTION:

Anthropometric characteristics of athletes determine the success in particular sports events in various ways. The knowledge of these characteristics is necessary to establish their importance for the success in competitive sport. Football is one of the complex technical team game and differences in performance between players of different region and varying ability levels are quite natural. The game of football requires the application of variety of different abilities (Angyan, et al., 2003; Jelicic, et al., 2002).

In modern sports, the anthropometric measurements and their relationship with various physical fitness traits are an important guide for the coaches and athletes themselves for making training schedules and for classification of players into different groups according to their ability. The development, maturity status, functional capacities and skills of male youth soccer players have received reasonable attention in the literature. Youth soccer players tend to have average heights and weights that fluctuate above and below reference medians for the general population from childhood through adolescence, although body weights tend to be somewhat above the reference in later adolescence.

The nature of the modern soccer that is different from the previous days because modern soccer is more dynamic, speedy and fast in nature. Soccer is a deceivingly demanding sport; players need a lot of motor fitness and skills to sustain in the game. They needs to move continuously on their feet, with periodic fast sprints at the time of running for the ball or chasing the opponent with lots of changing in the direction and short stoppages, plus various dynamic movements such as jumping, throwing, diving, tackling, heading and turning quickly. Soccer is not a continuous steady state sport - there are frequent changes in running speed and intensity of effort, plus various strength and power movements.

In the past, teams included players who could purely defenders, midfielders, wingers and strikers were inept in the field. This is no longer possible, particularly in fast and more tactical versions of the game. Having athletic, multi skilled players can run fast with or without ball, attack to score, defence to snatch ball, can play midfield as play maker. Most important we need players who can be at the right position at the right time as situations demands. That is the reason modern soccer in know as total soccer, players must be perfect, skilled and tactically smart enough to play at any position or role in the game.

METHODOLOGY

Selection of subjects: For the purpose of this study 225 male soccer players from various academies and SAI centres age ranging between 14-19 years, were selected by using multistage sampling technique. All subjects were regular player with efficient skill level. The selected subjects were divided into three groups according to their playing positions in their respective teams such as Attackers, Midfielders and Defenders.

Selection of variables: On the basis of review of literature, experts own opinion, facilities, instruments availability and scholars own understanding of the problem various anthropometric variables; functional capacities and soccer skills were selected.

TESTS AND CRITERION MEASURES

ANTHROPOMETRIC VARIABLES			
S. No.	Variables	Test	Criterion Measure
1	**Height**	Stadiometer	Height measured in Centimeters.
2	**Weight**	Weighing Machine	Weight taken in kilogram as score.
3	**Leg length**	Non- Stretchable Steel Tape	Readings were recorded to the 0.1 cm
4	**Thigh length**	Non- Stretchable Steel Tape	Readings were recorded to the 0.1 cm
5	**Thigh girth**	Measuring Tape	Readings were recorded to the 0.1 cm
6	**Calf girth**	Measuring Tape	Readings were recorded to the 0.1 cm

FUNCTIONAL CAPACITIES			
S. No.	Variables	Test	Criterion Measure
1	**Leg power**	Standing Vertical Jump	Height covered in Centimeters.
2	**Shoulder strength**	Medicine ball throw	Distance covered in Centimeters.
3	**Agility**	10x4 m shuttle run	Time recorded in seconds
4	**Reaction ability**	Penny cup test	Time recorded in seconds
5	**Repeated sprint ability**	30msprint including a slalom	Time recorded in seconds

SOCCER SKILLS			
S. No.	Variables	Test	Criterion Measure
1	Dribbling speed	Dribbling for time as mentioned in G.H. Warner soccer skill test.	Time taken to cover the course in seconds.
2	Wall pas	McDonald Soccer test	In 30 seconds duration the sum of kicks of the three best trails.

STATISTICAL TECHNIQUE EMPLOYED IN STUDY

• Descriptive statistics was used for the describing the data and comparing the profile of soccer players in different categories. In descriptive statistics like mean, skewness and kurtosis was computed.
• Discriminant analysis was used to classify an individual into one of the three groups on the basis of predictor variables.

RESULTS, DISCUSSION & CONCLUSION OF STUDY

Table- 1

Analysis Case Processing Summary			
Unweighted Cases		N	Percent
Valid		225	100.0
Excluded	Missing or out-of-range group codes	0	0.0
	At least one missing discriminating variable	0	0.0
	Both missing or out-of-range group codes and at least one missing discriminating variable	0	0.0
	Total	0	0.0
Total		225	100.0

The above table-1 shows the all the cases which were used in the model for classifying the positions in soccer. For developing this model a total of 225 samples were selected by the researcher above table showed that out of 225 no any value is missed out from the samples for analysis.

Table- 2

Variables Not in the Analysis					
Step		Tolerance	Min. Tolerance	F to Enter	Wilks' Lambda
0	Height	1.000	1.000	1.055	.991
	Weight	1.000	1.000	.803	.993
	leg length	1.000	1.000	.246	.998
	thigh length	1.000	1.000	1.290	.989
	thigh girth	1.000	1.000	.067	.999
	calf girth	1.000	1.000	.125	.999
	leg explosive power	1.000	1.000	.006	1.000
	shoulder strength	1.000	1.000	.050	1.000
	Agility	1.000	1.000	.115	.999
	reaction ability	1.000	1.000	.148	.999
	repeated sprint ability	1.000	1.000	.184	.998
	dribbling speed	1.000	1.000	.088	.999
	wall pass	1.000	1.000	.312	.997

The above table no.2 is used to indicate the significance of discriminant function developed in the discriminant analysis the value of Wilks' lambda is used. It provides the proportion of total variability not explained by the discriminant model. The value ranges from 0 to 1 and lower the value of Wilks' lambda better will be the discriminating power of the model. Here, the above table shows the value of wilks' lambda, as above mention if the value of wilks' lambda is nearer to the 0 it is batter for the model, but in this table it is indicated that the value of wilks lambda for all the variables is closer to one, which means no any variable is selected for the model.

As there is no any variable is selected for the model for analysis. So, it is inferred that there is no any positional wise difference among different playing positions (attackers, midfielders and defender) of the players in soccer. The position wise results of the multiple discriminant model also indicating that attackers, midfielders and defenders possess the same characteristics in playing at any position because results showed no difference in all the selected anthropometric variables, functional capacities and soccer skills, it might be because in modern soccer training trends. All the players have been trained in same pattern not as per their specific position in the game. It might be because in modern soccer there are more numbers of multi position players in a team as compare to the previous days. It is also seen that most of the defensive players score goals constantly, regularly even in club and country matches.

And it becomes one of the requirements in the today's soccer to play with more number of multi positional players. Scoring has also been improved prominently due to regular involvement in club league matches the youngsters scoring extra ordinary goals frequently in every match. For scoring these spectacular goals the players have to remain extremely fit and also have to maintain their optimum skill level. Or it can be said that the players should take their fitness to such a level, that they can give their hundred present efforts in each and every match with a very less chances of injury. In modern soccer defenders, midfielders and attackers all are required to optimize their attacking and defending skills. And for this purpose they all are required to enhance their fitness level.

The hypothesis for this study was that the model will be significant in discriminating the soccer players according to their playing positions is rejected. Because the selected variables were unable to make any discrimination between the groups, and it was proved that all three categories might have same qualities.

REFRENCES

1. M. William, A. Nevill & A. Franks A multidisciplinary approach to talent identification in soccer, 09 Dec 2010, Pages 695-702 | Published online.

2. Angyan, L., Teczely, T., Zalay, Z., & Karsai, I. Relationship of anthropometrical, physiological and motor attributes to sport-specific skills. Acta Physiol. Hung. 2003, 90(3): 225-231.

3. Figueiredo A.J., Goncalves C.E., Coelho E.S.M.J., Malina R.M., Characteristics of Youth Soccer Players Who Drop Out, Persist or Move Up, Journal of Sports Sciences, 2009, 27(9), 883–891.

4. Franks, A.M., Williams, A.M., Reilly, T. and Nevill, A. 1999. Talent identification in elite youth soccer players: Physical and physiological characteristics. Communication to the 4th World Congress on Science and Football, Sydney. Journal of Sports Sciences, 17: , 812

5. Gil S.M., Gil J., Ruiz F., Irazusta A., Irazusta J., Physiological and Anthropometric Characteristics of Young Soccer Players According to Their Playing Position: Relevance for the Selection Process, Journal of Strength and Conditioning Research, 2007, 21(2), 438–445.

6.Pearson, D.T., Naughton, G.A. and Torode, M. 2006. Predictability of physiological testing and the role of maturation in talent identification for adolescent team sports. Journal of Science and Medicine in Sport, 9: 277–287.

7. Puilam wong,1 karim chamari,2 alexandre dellal,2 and ulrik wisløff3, "Relationship between anthropometric and physiological characteristics in youth soccer players" Department of Physical Education, Hong Kong Baptist University, Hong Kong, China.

8. Ranks A.M., Williams A., Reilly T., Nevill A.M., Talent Identification in Elite Youth Soccer Players: Physical and Physiological Characteristics, Communication to the 4th World Congress on Science and Football, Syndey,

Journal of Sports Sciences, 1999, 17, 812.

9. Vaeyens R., Malina R.M., Janssens M., Van Renterghem B., Bourgois J., Vrijens J., Philippaerts R.M., A Multidisciplinary Selection Model for Youth Soccer: The Ghent Youth Soccer Project, British Journal of Sports Medicine, 2006, 40(11), 928–934.

10. Wong P.L., Chamari K., Dellal A., Wisloff U., Relationship between Anthropometric and Physiological Characteristics in Youth Soccer Players, Journal of Strength and Conditioning Research, 2009, 23(4), 1204–1210.