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A study on assessment of selected motor fitness variables among professional college football players on skill basis

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Abstract
The term "Motor Fitness," "Physical fitness," "physical activity" and "exercise" are terms that describe different concepts, include elements which involve more abilities than those basic physical fitness components. Motor fitness takes into account efficiency of basic movements and therefore would involve such elements as power, agility, endurance, speed and strength. Sports and physical activity have been considered an integral part of human life since its inception. Physical activity is an indispensable condition of human life. It is universally accepted that sports and games fulfill the requirements of human activities. Hence, physical fitness is a set of attributes that are either health or skill-related. The degree to which people have these attributes can be measured with specific tests.

Keywords: motor fitness variables of college football players on skill basis

Introduction
The term "Motor Fitness," "Physical fitness," "physical activity" and "exercise" are terms that describe different concepts, include elements which involve more abilities than those basic physical fitness components. Motor fitness takes into account efficiency of basic movements and therefore would involve such elements as power, agility, endurance, speed and strength. Physical activity is defined as any bodily movement produced by skeletal muscles that result in energy expenditure. Exercise is a subset of physical activity that is planned, structured, repetitive and has a final or an intermediate objective, the improvement or maintenance of physical fitness. Hence, physical fitness is a set of attributes that are either health or skill-related. The degree to which people have these attributes can be measured with specific tests.
Sports and physical activity have been considered an integral part of human life since its inception. Physical activity is an indispensable condition of human life. It is universally accepted that sports and games fulfill the requirements of human activities. For achieving excellence in the field of Football, various components of physical fitness must be possessed by the Football players. Therefore, Football is among the most popular sports in the world. An estimated 100 million registered players exist worldwide in men's, women's youth and veteran competitions, with many millions more playing non-organized football. The major components of fitness for football players are endurance, strength, speed, flexibility and power. The player invests considerable time and effort to get a significant 'return' for his efforts that are an improvement in performance as well achievement.

Purpose of the Study
The purpose of study which makes an attempt to expose the personality of athletes, coaches, officials, physical educationists, the faculty member of various universities, including director of physical education etc. to find out the physical fitness variations among professional college students where physical education is not considered as a major one especially in India. Implementing the physical education among those students will ultimately increase their physical fitness and activity. The study was intended for the assessment of selected motor fitness among the professional college football players on skill basis.

Methodology
In this study the selection of subjects, variables, collection of data, criterion measures,

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Administration of tests, statistical procedures employed for analyzing data have been described.

Selection of Subjects
30 men football players studying in SDM Medical and Dental colleges were selected as subjects. In order to get co-operation from the subjects the investigator had explained to them the purpose and significance of the study under ethical clearance.

Selection of Variables
The selection of variables was done keeping in view the most contributing factors to sports performance the feasibility of collection of data and the legitimate time available with the research, the following variables had been selected.

Procedure for collection of data
The researcher gathering all the subjects from the Medical and Dental College and explained them that the purpose of the test and also demonstrated the various tests before them which the subjects were to perform. It was so that the subjects prepared for themselves a mental picture of various tasks they were going to attempt. If any doubts in the mind of the subjects, were cleared by the researcher

Motor Fitness Variables
The independent variables were selected taking into consideration the most contributing factors to the performance of motor skill. The independent variables for the study are as below;

For motor fitness test
a) Speed b) Agility c) Strength (Explosive Power of Leg) and d) Endurance

For Football skill test
a) Shooting ability b) 50 meters run with ball and c) Zigzag run with ball

Statistical Technique
This study was to assess the motor fitness components and skill performance of the Football players.

The following formulae used
1) Mean, 2) Standard Deviation, 3) Karl Pearson Coefficient of correlation and 4) 't' test
The Karl Pearson Coefficient of Correlation was calculated and then to test whether it is significant or not 't' test was applied.

Result of Data
The objective of the study is to analyze the data for the various components like 4 components of motor fitness (speed, strength, agility, endurance) and 3 components of skill performance (kicking the football, 50 meters run with football, zigzag run with the football) that were collected from 30 male students of SDM College of Medical Sciences & SDM Dental College.

Table 1: Shows the mean, standard deviation of the selected motor abilities

Sl. No	Test	Mean	SD
1	Speed	7.73	0.46
2	Agility	9.55	0.65
3	Strength	1.94	0.19
4	Endurance	3.75	0.39

Table 2 shows the Karl Pearson's Coefficient of Correlation between each components of motor fitness with each of the component of football skills

Table 2: Correlation Matrix

Football Skills Components\ Motor Fitness Components	Kicking Football for Distance F_1	50 mtrs Dash with Football F_2	Zigzag run with Football F_3
Speed – M_1	- 0.12	- 0.01	0.21
Agility – M_2	- 0.13	- 0.17	0.33
Strength – M_3	0.21	- 0.11	0.04
Endurance – M_4	0.08	- 0.79	0.06

The above correlation matrix shows the coefficient of correlation between the motor fitness (M_1, M_2, M_3, M_4) and the football skills (F_1, F_2, F_3) of the Subjects. The correlation between speed (M_1) & kicking football (F_1) showed -0.12, speed (M_1) & 50mts run with ball (F_2) showed -0.01, speed (M_1) & zigzag run with ball (F_3) showed 0.21, Agility (M_2) & kicking football (F_1) showed -0.13, agility (M_2) & 50mts run with ball (F_2) showed -0.17, agility (M_2) & zigzag run with ball (F_3) showed 0.33, Strength (M_3) & kicking football (F_1) showed 0.21, Strength (M_3) & 50mts run with ball (F_2) showed -0.11, Strength (M_3) & zigzag run with ball (F_3) showed 0.04, Endurance (M_4) & kicking football (F_1) showed 0.08, Endurance (M_4) & 50mts run with ball (F_2) showed -0.79, Endurance (M_4) & zigzag run with ball (F_3) showed 0.06,

Level of Significance
To know whether coefficients of correlation between the motor fitness and the skill components is significant or not 't' test was used at 0.05 level of significance by using the above mentioned formula.

Table 3: Shows the values of 't' statistics with the help of 'r' values which are as shown below (By using Karl Pearson's coefficient of correlation).

For	M_1	and	F_3	t = 1.11
For	M_2	and	F_3	t = 2.14
For	M_3	and	F_1	t = 1.53
For	M_4	and	F_1	t = 0.42

Table 3
The table value of 't' at 5% level of significance for 28 degrees of freedom is 2.048. Therefore correlation coefficient between M_2 and F_3 (i.e., Agility and Zigzag run with football) is found to be significant, while the other components of motor fitness and skill are related but value of their correlation coefficient are not significant.

Discussion
From the result of the study, a player must have explosive leg strength, cardio respiratory endurance, agility, speed due to the fact that the nature of the fame which requires football dodging and changing of direction and quick jumping for heading or some essential features to zigzag run with ball test was significantly correlated with motor fitness components, whereas the game of football also requires fast running, quick jumping to head the ball or for other reasons, such as stopping, blocking etc., and the power for kicking the ball is essential.
The study indicates that it is possible to make reasonably accurate prediction of football playing ability on the basis of motor fitness variables. Explosive leg strength has a greatest

role in the nature of the game, which requires fast running with jumping and powerful kicking.

Cardio vascular endurance is also been found to be of value in correlation in positive direction. Because the game of football is a long duration game, so for successful performance the players must have high cardio respiratory efficiency.

The agility is also been found as an important component as in shuttle run and in football dodging and opponent changing of direction with quick jumping for heading, so players need a high demand of agility.

Conclusions
On the basis of the result the following conclusions may be drawn.

- The co efficient between football playing ability test i.e. zigzag run with football and motor fitness test score show significant correlation.
- Where in football playing ability test i.e. 50 meters run with football and motor fitness components were showing no significant correlation.
- There was significant correlation found in 50 meters run with zigzag run with speed.
- However significant correlation was found in 4*10 meters and zigzag run with agility.
- There was no significant correlation found in standing broad jump with kicking the ball with strength.
- There was slightly correlation between the endurance i.e. 1000 meters Run with kicking the ball for distance.

Outcome
1. The result of study will help the physical education teachers, coaches to select the football players on the basis of the motor performance and to know which motor fitness components are more significant.
2. The result of study helps the coaches or physical education teachers to plan the training and coaching schedule of the football players and may help coaches to judge the standard of the players and could point out their strength, weakness and assist them to improve their efficiencies.
3. The study may help future research scholars to select the problems related to their study.

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