International Journal of Physiology, Sports and Physical Education

ISSN Print: 2664-7710
ISSN Online: 2664-7729
Impact Factor: RJIF 8.00
IJPSPE 2024; 6(1): 81-83
www.physicaleducationjournal.net
Received: 10-02-2024
Accepted: 14-03-2024

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Relationship among selected anthropometric physical fitness and physiological variables on skill performance of women football players

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DOI: https://doi.org/10.33545/26647710.2024.v6.i1b.68

Abstract
Purpose of the study is to find out the relationship between the selected anthropometric, physical fitness and physiological variables on skill performance of women football players. Different variables namely (Weight, standing height, Speed, Agility, Flexibility, BMI, Resting pulse rate and Breath holding time) were measured of the samples. Standard procedure was followed to measure the anthropometric, physical fitness and physiological variables. To achieve this purpose of the study, twenty-five women football players were select from university football team, Department of Physical Education**,** Annamalai University who participated in various level football tournaments, were selected as subjects at random. The age of the subjects were ranged between 19 and 25 years.

Keywords: Anthropometric, physical fitness, physiological, skill performance and women football players

Introduction

Football is the word given to a number of similar team sports, all of which involve (to varying degrees) kicking a ball with the foot in an attempt to score a goal. The most popular of these sports worldwide is association football, more commonly known as just "football" or "soccer".

The English language word "football" is also applied to "gridiron football" (a name associated with the North American sports, especially American football and Canadian football), Australian football, Gaelic football, rugby league, rugby union, and related games. Each of these codes (specific sets of rules, or the games defined by them) is referred to as "football".

These games involve

- Two teams of usually between 11 and 18 players; some variations that have fewer players (five or more per team) are also popular. A clearly defined area in which to play the game;
- Scoring goals and/or points, by moving the ball to an opposing team's end of the field and either into a goal area, or over a line;
- Goals and/or points resulting from players putting the ball between two goalposts.
- The goal and/or line being defended by the opposing team;
- Players being required to move the ball-depending on the code-by kicking, carrying and/or hand passing the ball; and Players using only their body to move the ball.

In most codes, there are rules restricting the movement of players offside, and players scoring a goal must put the ball either under or over a crossbar between the goalposts. Other features common to several football codes include: points being mostly scored by players carrying the ball across the goal line and; players receiving a free kick after they take a mark/make a fair catch.

Peoples from around the world have played games which involved kicking and/or carrying a ball, since ancient times. However, most of the modern codes of football have their origins in England.

Materials and Methods

Subjects: Twenty-five women football players were select from university football team, Department of Physical Education**,** Annamalai University who participated in various state and national level football tournaments, were selected as subjects at random. The age of the subjects were ranged between 19 and 25 years.

Tools

Stadiometer, Weighing Machine, Measuring Tape, Stop Watches, Two Blocks of Wood (2"X2"X2") and Footballs

Methods

The purpose of the study was to find out the relationship between the selected anthropometric physical fitness and physiological variables such as height, weight, BMI, speed, agility, pulse rate, breath holding time and skill performance of women football players. To achieve this purpose of the study, twenty-five female football players who participated in various level including inter district, inter university, interstate etc., were selected as subjects. The Pearson Product Moment Correlation was used to find out the relationship between the selected anthropometric, physical fitness physiological variables such as height, weight, BMI, speed, agility, pulse rate, breath holding time and selected skill performances of football players.

Results

Table 1: Mean and standard deviation on anthropometric, physical fitness and physiological variables on skill performance of women football players

Variables	N	Mean	SD
Skill Performance	25	17.68	2.56
Height	25	158.36	4.78
Weight	25	48.96	4.44
BMI	25	19.50	1.20
Speed	25	7.28	0.17
Agility	25	15.82	0.75
Resting Pulse Rate	25	63.64	4.16
Breath Holding Time	25	25.96	1.67

Table – 1 presents the mean and standard deviation (SD) values of skill performance, anthropometric measurements, physical fitness and physiological components are 17.68±2.56, 158.36±4.78, 48.96±4.44, 19.50±1.20, 7.28±0.17, 15.82±0.75, 63.64±4.16 and 25.96±1.67 for skill performance, height, weight, BMI, speed, agility, resting pulse rate and breath holding time of women football players respectively.

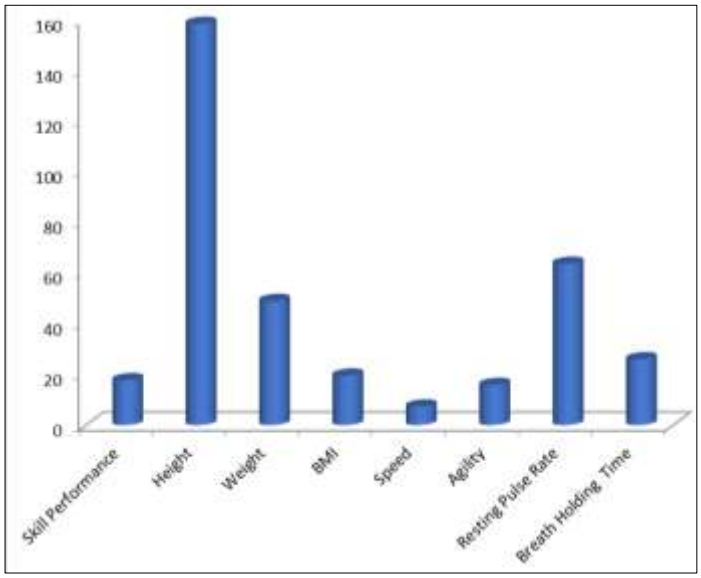

Fig 1: Cylinder diagram showing the mean value on anthropometric, physical fitness and physiological variables on skill performance of women football players

Pearson Product Moment Correlation

To realize the objectives of this study, relationship between the criterion and determinant variables and inter relationship between determinant variables were calculated using the method of Pearson Product Moment correlation. The correlation coefficient thus obtained is presented in table 2.

Table 2: Inter correlation matrix on anthropometrical variables, motor fitness components and volleying skill

	Skill Performance	Height	Weight	BMI	Speed	Agility	Resting Pulse Rate	Breath Holding Time
Skill Performance	1.00	0.934*	0.383*	0.265	0.414*	0.612*	0.027	0.023
Height		1.00	0.740*	0.126	0.385*	0.290	0.112	0.029
Weight			1.00	0.758*	0.152	0.500*	0.064	0.023
BMI				1.00	0.091	0.449*	0.226	0.008
Speed					1.00	0.444*	0.076	0.115
Agility						1.000	0.142	0.177
Resting pulse rate							1.00	0.399*
Breath holding time								1.00

* Significant 0.05 level (Table value required is 0.381 for 25 degrees of freedom)

Table-2 reveals that the obtained Pearson Product Moment correlation values between the criterion and the determinant variables. The correlation coefficient between skill performance with height, weight, speed, and agility are 0.934, 0.383, 0.414, and 0.612 respectively.

The obtained correlation coefficient values between height with weight and speed, are 0.740 and 0.385 respectively.

The obtained correlation coefficient values between weight with BMI and agility are 0.758 and 0.500 respectively.

The obtained correlation coefficient value between BMI with Agility is 0.449.

The obtained correlation coefficient values between speed with Agility is 0.444.

The obtained correlation coefficient values between resting pulse rate with breath holding time is 0.399.

There is no significant correlation between skill performance with BMI, resting pulse rate and breath holding time are 0.265, 0.027 and 0.023 respectively.

There are no significant correlations between heights with BMI, agility, resting pulse rate and breath holding time are 0.126, 0.290, 0.112 and 0.029 respectively.

There are no significant correlations between weights with speed, resting pulse rate and breath holding time are 0.152, 0.064 and 0.023 respectively.

There are no significant correlations between BMI with speed, resting pulse rate and breath holding time are 0.091, 0.226 and 0.008 respectively.

There are no significant correlations between speed with resting pulse rate and breath holding time are 0.076 and 0.115 respectively.

There are no significant correlations between agility with resting pulse rate and breath holding time are 0.142 and 0.177 respectively.

Discussion

The result of the study stated that the skill performance is highly correlated with the height, weight, speed and agility of the women football players.

Conclusions

The result of the study reveals that the football skill performance was highly correlated with anthropometric variables height and weight of the women football players.

The result of the study shows that the skill performance was highly correlated with physical fitness component of speed and agility women football players.

The result of the study also reveals that the skill performance was not significantly correlated with BMI, resting pulse rate and breath holding time of women football players.

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