



ORIGINAL RESEARCH PAPER

Physical Education

A RELATIONSHIP STUDY ON ANTHROPOMETRIC VARIABLES WITH SKILL ABILITY OF SOCCER PLAYERS

KEY WORDS: Anthropometry, soccer.

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ABSTRACT

The aim of the study was to find out the Relationship of anthropometric variables with skill ability of soccer players. The study was conducted on forty (40) College level soccer players for this study. The age of the subject was ranging from 18-21 years. The selected variables for the study were Anthropometric variables: Total leg length, Total foot length, Waist circumference, Thigh circumference, Calf circumference. McDonald Soccer Skill Test. Mean, standard deviation and further product moment correlation of coefficient statistics were employed on selected anthropometric and McDonald soccer skill test of male inter college winner soccer players. The level of significance was set at 0.05 level of confidence. Statistical calculation of gathered data of this study indicates that there had some significance relationship between Skill Ability and Anthropometric Variables.

INTRODUCTION

Talent identification has long been of great interest to sports coaches and administrators. There are various reasons for this, principal among them being prediction of success in adult elite competition and determination of appropriate development processes to achieve adult success (Reilly.et.al, 2000). Besides technical and tactical skills, which are of primary importance in soccer, anthropometrical and physical characteristics are actually crucial to discriminate talented from non-talented soccer players.

Anthropometry is the branch of anthropology that is concerned with the measurement of human body. The definition has confined to the kind of measurements commonly used in associating physical performance with body build. Anthropometry involves the measurement of external part of the body, including body diameters, body circumferences somatotype. Specific anthropometric characteristics are needed to be successful in certain sporting events. It is also important to note that there are some differences in body structure and composition of sports persons involved in individual or team sports.

OBJECTIVE OF THE STUDY

The objective of the study was to find out the Relationship of anthropometric variables with skill ability of soccer players.

METHODOLOGY

SELECTION OF SUBJECTS:

Total forty (40) College level soccer players from R .S College, Barrackpore, North 24 Pgs District, Dr. B. R. Ambedkar College, Nadia district and Hiralal Bhakat College, Nalhati, Birbhum district under the state of West Bengal were selected as the subject for this study. The age of the subject was 18-21 years according to their college records.

SELECTION OF THE VARIABLES:

To investigate the relationship of Anthropometric Variables with physical fitness components of college level soccer player, the following variables were undertaken for the present study.

- Anthropometric variables
 1. Total leg length.
 2. Total foot length.
 3. Waist circumference.
 4. Thigh circumference.
 5. Calf circumference.
- McDonald Soccer Skill Test

CRITERION MEASURES:

To measure the above mentioning all variables the following criteria were undertaken.

• **Anthropometric Variables**

- To determine the leg length the examiner was faced the students placed his hands approximately four to six inches below the students waist on each hip and asked the students to swing his right leg back and forth slowly and then to lift it to the outside . By manipulation the examiner was able to locate the spore where the greater trochanter entered the pelvic girdle. The height of the greater trochanter entered the pelvic girdle. The height of the greater trochanter from the floor was measured. This procedure was followed twice with every student. The measurement was recorded in centimeter.
- Length of foot was measure with a steel tape of the straight distance directly from pternion (pte) to acropodion (ap). The subject stood with his weight equally distributed on both feet. The measurement was recorded in centimeters.
- Waist girth was measure with a steel tape round of the abdomen at the most lateral contour of the body between ribs and intestine. The measurement was recorded in centimeters.
- Thigh girth was measure with a steel tape round the thigh horizontal with its top edge. Just under the fold of the buttock. The subject stood with his weight equally distributed on both feet. The measurement was recorded in centimeters.
- Calf girth was taken with a steel tape at the maximum circumference of the calf in a plane at right angle to his long axis. The leg was held dangling over a table top so that the tape measured was horizontal plane; in this position the calf muscle was quite relaxed. The measurement was recorded in centimeters.

• **McDonald soccer skill test**

- Test administration : The subject (examinee) was instructed to make maximum number of kicks in 30 seconds by keeping the ball in his control while using any type of kick and ball control method. On the signal Ready? Go! The time starts the stopwatch and the subject starts kicking the stationary ball from or behind the restraining line and continues kicking the rebounding ball as rapidly as control permits until the 30 seconds time limit expires (indicated by the time). In case, the ball fails to rebound sufficiently, the subject has the option either to retrieve the same ball or to take one of the extra balls with the help of either hands of feet after placing the retrieved or the extra ball on or just behind the 9 feet restraining line, the subject continues kicking the ball again.

STATISTICAL PROCEDURE:

Mean, standard deviation and further product moment correlation of coefficient statistics were employed on selected anthropometric and McDonald soccer skill test of male inter college winner soccer players. For the purpose of the present study the level of significance was set at 0.05 level of confidence.

RESULTS OF THE STUDY

For the analysis of the study, data were collected on selected

anthropometric variables with skill ability which is presented below:

Table-1 Mean Standard Deviation and Standard Error of mean of Anthropometric variables of soccer players

Variables	Mean	Standard deviation	Standard Error
Total leg length.	88.575	3.169	0.281
Total foot length.	24.45	1.28	0.178
Waist girth.	69.75	4.60	0.339
Thigh girth.	48.08	3.812	0.308
Calf girth..	30.33	1.857	0.190

Table-2 Mean Standard Deviation and Standard Error of mean of skill ability of soccer players

Variables	Mean	Standard deviation	Standard Error
SKILL ABILITY	19.83	2.49	0.249

Table-3 Relationship of anthropometric variables with skill ability of soccer players

Independent Variable	anthropometric Variables	'r' value
SKILL ABILITY	Total leg length.	0.315*
	Total foot length.	0.202
	Waist circumference.	0.177
	Thigh circumference.	0.349*
	Calf circumference.	0.348*

*Significant at 0.05 level of confidence, 'r'_{0.05} (38) = 0.304

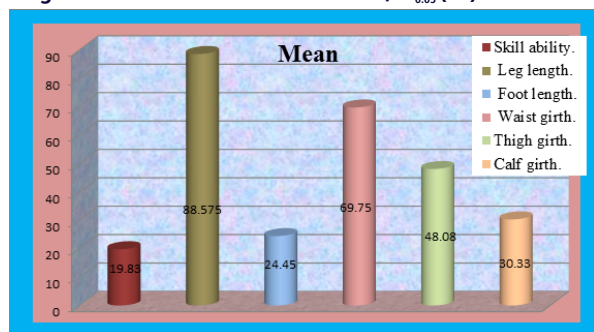


Figure-1 Mean score of anthropometric variables and skill ability.

FINDINGS

From the above **Table-3** it is clearly reveal that significant relationship is found of skill ability in relation to total leg length (0.315).No significant relationship is found in respect of skill ability test with Total foot length (0.202), Waist circumference (0.177). Significant relationship is found in respect of McDonald soccer skill test with Thigh circumference (0.349), and Calf circumference (0.348). Further this table indicates that positive relationship is found in respect of all anthropometric variables of soccer players. Since the calculation value of all anthropometric variables is less than the required table value (0.304).

DISCUSSION

The purpose of the present study was to examine relationships among anthropometric variables with skill ability of the soccer players. Statistical calculation of gathered data of this study indicates that there had some significance relationship.

Relationship between Skill Ability and Anthropometric Variables

In this study, the Product movement correlation analysis indicated significant relationship exists between skill ability and anthropometric variables i.e. skill ability and Total leg length. (**r = 0.315***), skill ability and Thigh circumference(**r = 0.349***), skill

ability and Calf circumference(**r = 0.348***)of the soccer players. Again there was no significant relationship between skill ability and Total foot length(**r = 0.202**), skill ability andWaist circumference (**r = 0.177**). In line with the present study, **Bandyopadhyay (1982)**, reported significant relationship between skill ability and anthropometric variables (Thigh circumference), **Mehdi Ben Brahim, Rym Bougatfa, Amri Mohamed (2013)**reported significant relationship between skill ability and anthropometric variables (Total leg length, Total foot length, Waist foot circumference)and **Bandyopadhyay (1982), Hassan Matinhomae and Masoud Tolouei (2015)** reported no significant relationship between skill ability and anthropometric variables (Thigh circumference, Calf circumference).

CONCLUSIONS

With the limitation of the present study, the following conclusion is enumerated:

1. Significant relationship was found in respect of soccer skill ability with anthropometrical variables i.e. Total leg length.
2. Significant relationship was found in respect of soccer skill ability with anthropometrical variables i.e. Thigh girth,
3. Significant relationship was found in respect of soccer skill ability with anthropometrical variables i.e. Calf girth.
4. No significant relationship was found in respect of soccer skill ability with anthropometrical variables i.e. Total foot length.
5. No significant relationship was found in respect of soccer skill ability with anthropometrical variables i.e. Waist girth.

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