



P-ISSN: 2394-1685
E-ISSN: 2394-1693
Impact Factor (ISRA): 4.69
IJPESH 2016; 3(3): 639-641
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www.kheljournal.com
Received: 22-03-2016
Accepted: 28-04-2016

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A Co-relational investigation of selected anthropometric measurements and performance of women cricket players

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Abstract

The role of anthropometry as a sports science is perhaps one of the most crucial in this regard. It is essential because the physique, body composition, physical growth and one's motor development are of fundamental importance in developing the criteria of talent relation and development in sports. Keeping in mind the fact the scholar decided to find out the Relationship between Selected Anthropometric Measurements and Performance of Women Cricket Players. 35 female students studying in different colleges of University of Delhi who have either participated in inter college or Zonal championships in Cricket were randomly selected to act as subjects for the study. The average age of the subjects was 21 years. Weight, Standing Height, Sitting Height, Leg Length, Lower Leg Length, Upper Leg Length, Arm Length, Upper Arm Length and Lower Leg Length were taken into consideration for the anthropometric measurements. Weighing Scale, Anthropometric Rod, Steel tape and Skin Fold Calliper were the tools used for the measurements, whereas the performance of the selected female Cricket players was gathered by the help of the three experts out of 10. The collected data was analyzed by computing descriptive statistics followed by Pearson's Product Moment Correlation. The results revealed that mean and SD values of Weight, Standing Height, Sitting Height, Leg Strength, Lower Leg Length, Upper Leg Length, Arm Length, Upper Arm Length and Lower Leg Length were found to be 50.48 ± 5.28 , 154.91 ± 3.85 , 79.03 ± 6.32 , 86.82 ± 7.38 , 47.80 ± 3.82 , 43.80 ± 1.99 , 59.73 ± 4.68 , 29.15 ± 3.20 and 31.0 ± 4.21 respectively. Whereas, a significant relationship was found between Performance score and the selected variables, as the values were found to be 0.324, 0.828, 0.468, 0.481, 0.655, 0.533, 0.352 and 0.658 respectively against the tabulated value 0.296 which was significant related at 0.05 level and only upper leg length was not correlated to performance score as the value was found to be 0.178. So finally it was concluded that for better prediction of performance of women Cricket players, all the selected anthropometric variables may be considered in combination instead of studying the influence of each independent variable.

Keywords: anthropometry, weight, standing height, sitting height, leg strength, lower leg length, upper leg length, arm length, upper arm length and lower leg length, skin fold calliper

Introduction

Millions of people take part in sports activities for either recreational purpose or for health, strength and fitness purpose and for displaying superiority over others in competitive sports. The need of for scientific approach to the problem of modern athletic training has been recognized for many years. It is imperative that a certain general body of knowledge is acquired before attempting to study the techniques and methods of improvement in training. It is essential therefore, to gather data on morphological and physiological responses of the participants to a general work task during participation in different sports.

As evident from the historical resume, anthropometry as measurement of body structure happens to be one of the oldest types of body assessment as an earlier form of testing in physical education. The study of human physical measurements is, therefore prominently known as anthropometry, and has wide application to the essentials parameters constituting the selective diagnostics of any game or sport.

There is a wealth of scientific and empirical evidence to support the claim that there is body-size differences among athletes in different sports and games, and among even within the same sports.

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The increased participation of women both in number and equality has naturally raised the question of scientific investigation and study in women sports.

Today, it has been realized that the champions in different sports differ in their anthropometric and physiological characteristics particular requirements of their respective events. Studies have shown that the top level performance is not ensured, if the anthropometric- body dimensions of mechanical aspect of the game concerned. Therefore it has been observed that apart from other factors the performance of a sportsman in any sport and game is influenced by various specific characteristics of physique, body composition, psychological traits and physiological functions which help him to attain better performance. (William H. Freeman, 1984) [4].

Objectives and Hypothesis

The objectives of the study were:

- Assessment of selected anthropometric characteristics of female Cricket players
- To determine the correlation between selected anthropometric variables and performance score.

The hypothesis of the study was;

- It was hypothesis that greater anthropometric measurements in height, sitting height, leg length and arm length will have higher correlation with Cricket playing ability.

Procedure and Methodology

For the purpose of the study 35 female students studying in different colleges of University of Delhi who have either participated in Inter-college or Zonal championships were randomly selected to act as subjects for the present study. The age of the subjects were ranging from 17-25 years. The average age of the subjects was 21 years. Weight, Standing Height, Sitting Height, Leg Length, Lower Leg Length, Upper Leg Length, Arm Length, Upper Arm Length and Lower Leg Length were taken into consideration for the anthropometric measurements. Weighing Scale, Anthropometric Rod, Steel tape and Skin Fold Calliper were the tools used for the measurements, whereas the performance of the selected female Cricket players was gathered by the help of the three experts out of 10. The collected data was analyzed by computing descriptive statistics followed by Pearson's Product Moment Correlation.

Results and Discussions

The results and findings of the present study were analyzed and interpreted in the different tables as follows:

Table 1: Descriptive Statistic values of Selected Anthropometric Variables

S. No.	Variables	Mean	SD
1	Weight	50.48	5.28
2	Height	154.91	3.85
3	Sitting Height	79.03	6.32
4	Leg Length	86.82	7.38
5	Upper Leg Length	47.80	3.82
6	Lower Leg Length	43.80	1.99
7	Arm Length	59.73	4.68
8	Upper Arm Length	29.15	3.20
9	Lower Arm Length	31.00	4.21

Table no. 1 indicates the descriptive statistics values of Selected Anthropometric Variables, which shows that the

mean and SD values of Weight, Height, Sitting Height, Leg Length, Lower Leg Length, Upper Leg Length, Arm Length, Upper Arm Length and Lower Leg Length were found to be 50.48±5.28, 154.91±3.85, 79.03±6.32, 86.82±7.38, 47.80±3.82, 43.80±1.99, 59.73±4.68, 29.15±3.20, 31.00±4.21 respectively.

Table 2: Pearson's Product Moment correlation between selected Anthropometric Characteristics and the performance score of female Cricket players

S. No.	Variables Correlated	Correlation Coefficient ('r')
1	Weight and Performance Score	0.324*
2	Height and Performance Score	0.828**
3	Sitting Height and Performance Score	0.468*
4	Leg Length and Performance Score	0.481**
5	Upper Leg Length and Performance Score	0.178
6	Lower Leg Length and Performance Score	0.655*
7	Arm Length and Performance Score	0.533**
8	Upper Arm Length and Performance Score	0.352*
9	Lower Arm Length and Performance Score	0.658**

*Significant at 0.05 level

**Significant at 0.01 level

Table no. 2 indicates the values of Pearson's Product Moment Correlation, which indicates that the performance score of female Cricket players significantly correlates to weight, height, sitting height, leg length, lower leg length, arm length, upper arm length and lower arm length as the values were found to be 0.32, 0.82, 0.46, 0.48, 0.655, 0.53, 0.35 and 0.65 respectively, which were significant at 0.05 level.

Conclusions

Within the limitations of the present study the following conclusions were drawn from the study:

- Performance of the women Cricket players was significantly related to leg length, upper arm length and arm length and these variables may be used as the predictors of performance of Cricket.
- The performance of the women Cricket players was not significantly related to upper leg length so it may be treated as poor predictor of performance.
- For better prediction of performance of women Cricket players, all the variables Weight, Standing Height, Sitting Height, Leg Length, Lower Leg Length, Upper Leg Length, Arm Length, Upper Arm Length and Lower Leg Length employed in the study may be considered in combination instead of studying the influence of each of the independent variable.

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