THINK INDIA JOURNAL

ISSN:0971-1260
Vol-22-Issue-01-January-March-2019

Comparative Study Of Anthropometrical Variables Of Cricket And Baseball Players Of Universities

Manju Rani

Teaching assistant in physical education

Regional Center lula Ahir Rewari

B PS Mahila Vishvidlay Khanpur Kalan

ABSTRACT: The present is an attempt to compare some selected anthropometrical variables of cricket and baseball players who have participated in All India Inter-University Camps of Cricket and Baseball players. In the present study, 200 subjects (100 from Baseball + 100 from Cricket) were selected from the universities (M.D.U, Rohtak, K.U. Kurushetra, P.U. Chandigarh and Delhi University) of their Inter-university camp. Linear measurements were taken with the help of anthropometric rod. Findings of the study: (i) Height of Baseball players is much higher in comparison to height of cricket players; (ii) Totalleg length of Baseball players is much higher in comparison to height of cricket players; (iii) Total arm length of Baseball players is much higher in comparison to height of cricket players; (iv) and Sitting height of Baseball players is much higher in comparison to height of cricket players.

Key Words: Anthropometric, Height, Total Leg Length, Total Arm Length and Sitting Height

INTRODUCTION: Physiological and anthropometric measurements and the physical form of the engine play a vital role in almost all games and sports. Athletes focus on developing speed, strength, agility flexibility, endurance, etc., as part of the preparation in their respective sports. General motor skills help an athlete learn specific skills from a solid foundation on which he can develop excellence in the particular game he is involved with (Dobbins, 1985).

ANTHROPOMETRY

One of the foundations of this approach is the study of human measurements or anthropometry. Anthropometry plays an important role in deciding the particular body structure with various measures of body segments, suitable for a game and sport in particular and essentially useful to excel in that game. Anthropometry is a branch of ergonomics that deals specifically with the measurement of people, in particular with the measure of body size, shape, strength and work capacity (Pheasant, 1998). This measurement data is used to

ISSN:0971-1260
Vol-22-Issue-01-January-March-2019

describe or paint an image of the user population for a particular body measurement. When applying anthropometry, we try to design the work environment around the person, instead of imposing restrictions, as they have to adapt to what is provided. If anthropometric factors are taken into account in the design of the products it is likely that the result is greater acceptability, greater ease and efficiency of use and, consequently, greater operational safety and profitability. When considering the design and use of equipment, the term "average person" is often mentioned and used. However, very few people could actually adapt to this scheme. The body is anthropometrically composed of various functional parts, such as the height of the seat, the extent of the hold forward, the height of the waist and the circumference of the head. Height is often used as a design criterion, but a "tall" person can have a long or short body and long or short legs. Therefore, although many people adapt to medium garments (using clothing as an example) and garments can be scaled down to increase the likelihood of a reasonable fit, the efficiency of the garment or ensemble could be compromised, especially when the movement. The free is influenced, for example, by the use of self-contained breathing apparatus and a harness. When products are designed around the "average person", most of the population is excluded from its use, since they are well outside this average.

Changes in body size reflect the health and general well-being of individuals and populations. Anthropometry is used to assess and predict people's performance, health and survival and to reflect the economic and social well-being of populations. Anthropometry is a widely used, economic and non-invasive measure of the general nutritional status of an individual or a population group. Recent studies have demonstrated the applications o anthropometry including the prediction of who will benefit from interventions, identifying social and economic injustice and evaluating responses to interventions. Tanner (1964) referred that it can be assumed that the physical and body composition of an individual severely limit or, in some cases, predispose this individual to a successful participation in one activity or another. According to Motto (1977) performance depends on inherited features such as height and limb length, etc.

Anthropometry can be used for various purposes, depending on the anthropometric indicators selected. For example, weight for height (waste) is useful for screening at-risk children and measuring short-term changes in nutritional status. However, weight for height

ISSN:0971-1260
Vol-22-Issue-01-January-March-2019

is not appropriate for assessing changes in a population over longer periods of time. A clear understanding of the different uses and interpretations of each anthropometric indicator will help determine the most appropriate indicator(s) for evaluating the program. For more detailed explanations on age and gender specific appropriate anthropometric uses. Key terms are defined in the glossary.

There are many other anthropometric measures that include the circumference of the mid-upper arm circumference (MUAC), the relationship between the height of the seat and the height in feet (ceramic index) and many measures of the skin fold. This guide will focus on measurements and interpretation of weight and height in children. Anthropometry, growth measurement, body type, body composition, growth model predictions, and physical activity success predictions in the region, and assessment of obesity.

How do we use anthropometric data

The goal of the application of anthropometry is to welcome as many users as possible. If we look at a particular anthropometric measure, such as female height, we find that most people will have an average height, and there will be fewer people who are very tall or very low. The horizontal axis shows a person's height (height) and the vertical axis shows how many people would be of a particular height, or how often they appear in the sample of people they are measuring. For this cause, this type of chart is called "frequency distribution."

When an anthropometric measurement produces a symmetrical curve like the one above, the average value is also the value of the 50^{th} percentile, which means that 50 percent of the people measuring it is shorter than this value and 50 percent are higher than this value. Similarly, the line marked with a 95^{th} percentile indicates that 5% of the people they are measuring (i.e. 1in 20) is higher than this value. Therefore, 90% of the people who measure have a height between the percentile values 5 and 95. When designing products, this is often referred to as 90% of the population; that is, to exclude the smallest 5% (digit of the 5^{th} percentile) and the largest 5% (figure of the 95^{th} percentile) (Figure 1). This is because accommodating people with measurements at the ends of the distribution queue would greatly increase the length of hat variable and could mean that the product will be very complex and expensive. In general it is easier to participate separately in people who are below the 5^{th} percentile and above the 95^{th} percentile with personalized or specially adapted elements. However, in critical situations, it is necessary to add a safety margin to the extreme

ISSN:0971-1260
Vol-22-Issue-01-January-March-2019

percentiles. For example, any space in the protection of a machine must be smaller than a finger/hand without a percentile of 1st percentile of the user population. Discharge methods must be wider than a fully dressed person (including PPE and relevant equipment) with a shoulder width of the 100th percentile (bi-deltoid) of the user population (usually a man).

Cricket : Cricket is basically a simple game - score more than the opposition. Two teams, both with 11 players, take it in turns to bat and bowl. When one team is batting, they try and score as many runs as they can by hitting the ball around an oval field.

Basketball : Basketball is a team sport. Two teams of five players each try to score by shooting a ball through a hoop elevated 10 feet above the ground. ... The team with the ball is called the offense. The team without the ball is called the defense.

REVIEW OF LITERATURE

Kaur (2004) selected 10 anthropometric variables namely weight, height, sitting height, leg length, arm length, hip width, ankle width, foot length and calf circumference. The data was collected on play field of Gurusar Sudhar college campus. It was found that defensive players were superior to offensive player in maximum all variables.

Hasan, Rahaman, Cable and Reilly (2007) concluded that Asian handball players differ in anthropometric characteristics from European players previously studied and that specific anthropometric variables are associated with successful tournament performance at international level in Asia.

Gill, Deol and Kaur (2010) found that rural female students found to be superior in strength, endurance, speed and agility. Urban female students on the other hand, were found to be heavier and superior in tasks like flexibility.

Singh and Kaur (2011) found no significant difference on lung capacity between female physical education and non-physical education students. There were no significant differences obtained on body mass index (BMI) between female physical education and non-physical education students.

Kamble, Daulatabad and Baji (2012) observed that as compared to the age matched controls the basketball players had significantly more height, height of upper segments of body. Strength of shoulder as well as leg muscles endurance was significantly more in basketball players than controls. We also found that there was a significant decrease in weight, fat percent, and fat mass of basketball players than controls. There was no significant change in height of lower body segment, static strength of leg and back muscles.

ISSN:0971-1260
Vol-22-Issue-01-January-March-2019

Karthi and Krishnakanthan (2014) shows that basketball players were better speed comparing than the hockey and Football players. Cardio respiratory endurance was better football players comparing than the basketball and hockey players.

Devi (2016) shows direct relationship between physiological parameters with handball performance whereas moderate relationship was found between motor fitness components with sports performance.

Tsuchikane et al. (2017) found statistically significant positive correlations between BSS and muscle thicknesses of the abdominal wall and multifidus lumborum on the dominant side, whereas only trends against this significance were observed between BSS and muscle thicknesses on the non-dominant side. No statistical correlations were found between BSS and the lateral asymmetry of any muscles.

OBJECTIVES OF THE STUDY

1. To compare the linear measurement – height, total leg length, total arm length and sitting height of cricket and baseball players.

HYPOTHESES

1. There is no significant difference in linear measurement – height, total leg length, total arm length and sitting height of cricket and baseball players.

METHODOLOGY

In the present study an attempt has been made to compare the anthropometrical variables between Cricket and Baseball players who have participated in All India Inter-University Camps of Cricket and Baseball players.

SAMPLE

In the present study, 200 subjects (100 from Baseball + 100 from Cricket) were selected from the universities (M.D.U, Rohtak, K.U. Kurushetra, P.U.Chandigarh and Delhi University) of their Inter-university camp.

TOOL USED:

1. Linear measurements were taken with the help of anthropometric rod.

SELECTION OF VARIABLES:

- Height
- Total Leg Length
- Total Arm Length
- Sitting height

ISSN:0971-1260
Vol-22-Issue-01-January-March-2019

ANALYSIS OF DATA

TABLE 1

COMPARISON OF MEAN VALUES BETWEENCRICKET AND BASEBALL PLAYERS REGARDING HEIGHT, TOTAL LEG LENGTH, TOTAL ARM LENGTH AND SITTING HEIGHT

Sr. No.	Variable	Group	N	Mean Scores	S.D's	t-value
1.	Height	Cricket players	100	164.38	9.98	5.976**
		Baseball players	100	171.16	5.37	
2.	Total Leg Length	Cricket players	100	85.88	4.88	5.711**
		Baseball players	100	89.47	3.95	
3.	Total Arm Length	Cricket players	100	70.47	14.55	3.513**
		Baseball players	100	76.36	8.30	
4.	Sitting Height	Cricket players	100	79.92	5.77	4.426**
		Baseball players	100	83.41	5.38	

****Significant at 0.01 level of significance**

Further, the mean values of Cricket and Baseball players regarding total leg length were 85.88 and 89.47 respectively. The calculated't' value is 5.711 which is significant at 0.01 level of significance. So there is a significant difference in total leg length of Cricket and Baseball players. The higher mean score shows that the total leg length of Baseball players is much higher in comparison to height of cricket players.

The table also shows that the mean values of Cricket and Baseball players regarding total arm length were 70.47 and 76.36 respectively. The calculated't' value is 3.513 which is significant at 0.01 level of significance. So there is a significant difference in total arm length of Cricket and Baseball players. The higher mean score shows that the total arm length of Baseball players is much higher in comparison to height of cricket players.

Lastly the mean values of Cricket and Baseball players regarding sitting height were 79.92 and 83.41 respectively. The calculated 't' value is 4.426 which is significant at 0.01 level of significance. So there is a significant difference in sitting height of Cricket and Baseball players.

ISSN:0971-1260
Vol-22-Issue-01-January-March-2019

The higher mean score shows that the sitting height of Baseball players is much higher in comparison to height of cricket players.

Findings

There is a significant difference in height of Cricket and Baseball players. Height of Baseball players is much higher in comparison to height of cricket players.

There is a significant difference in total leg length of Cricket and Baseball players. Total leg length of Baseball players is much higher in comparison to height of cricket players.

There is a significant difference in total arm length of Cricket and Baseball players. Total arm length of Baseball players is much higher in comparison to height of cricket players.

there is a significant difference in sitting height of Cricket and Baseball players. Sitting height **of Baseball players is much higher in comparison to height of cricket players.**

CONCLUSION AND IMPLICATIONS

It was concluded that there is a significant difference in anthropological variables - height, total leg length, total arm length, sitting height. These anthropological variables of baseball players were found higher in comparison to cricket players. The study has the significance of making a training schedule for the players, coaches, trainers and physical education teachers of baseball and cricket players for developing different structure pertaining of this game.

BIBLIOGRAPHY

1. Devi, S. (2016). A study of some selected physiological parameters and motor fitness predictors of handball performance. *International Journal of Engineering Sciences & Research Technology*, 5(11), 372-377.
2. Gill, M. Deol, N.S. and Kaur, R (2010). Comparative Study of Physical Fitness Components of Rural and Urban Female Students of Punjabi University, Patiala, *Kamla-Raj Anthropologist*, 12(1): 17-21.
3. Hasan, A.A.A., Rahaman1, J.A., Cable, N.T. and Reilly, T. (2007). Anthropometric Profile Of Elite Male Handball Players In Asia, *Biology of Sport*, Vol. 24 No1.
4. Kamble, Prafull, Vandana S. Daulatabad and P.S. Baji (2012). Study of anthropological parameters, body composition, strength & endurance in Basketball players. *International Journal Biol Med Res*., 3(1): 1404-1406.

ISSN:0971-1260
Vol-22-Issue-01-January-March-2019

5. Karthi, R. and Krishnakanthan, S. (2014). Comparative Analysis of Selected Physical Variables among Football Hockey and Basketball Players, *PARIPEX - Indian Journal of Research*, 157-158.
6. Kaur, G. (2004). *Comparison of Anthropometric Components between Forwards and Defenders in Female Soccer Players*, Unpublished Master's Thesis, Punjab University, Chandigarh.
7. Singh, N., & and Kaur, J. (2011). Lung Capacity and Body Mass Index Between Physical Education and Non-Physical Education Students- A Comparative Study. International Journal of Health, *Physical Education and Computer Science in Sports*, 4(1), 1-4.
8. Tetsuo, Ohkuwa and Yoshinobu, Kato (2006). "Blood lactate and glycerol after 400-m and 3,000-m runs in sprint and long distance runners", *Department of Physical Education, Nagoya Institute of Technology*, 466 Nagoya, Japan 2006.