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A comparative study of selected anthropometric measurements between inter-university and intercollege male Kabaddi players

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Abstract
The purpose of this study was to find out the significant difference of anthropometric measurement between inter-university and inter-college Kabaddi player. For this purpose, thirty male Kabaddi players were selected as subject for this study. The subjects were selected from Guru Nanak Dev University Amritsar who has participated in the national level Kabaddi tournament. Subjects were divided in to two groups, each group consists of fifteen players the age levels of the subjects were ranged from 23 years to 28 years. All subjects belong to different socio-economic conditions. Student's t-test for independent data was used to determine the significant differences between inter-university and inter-college male Kabaddi players, unpaired t-test was employed for data analyses. To test the hypothesis, the level of significance was set at 0.05.

Keywords: anthropometric measurement, kabaddi player

Introduction
The two Greek words 'anthropos' and 'metrein' have given birth to a new term 'anthropometry' 'anthropos' means man and 'metrein' means to measure. Therefore, when we speak literally anthropometry is the measurement of the human body to discover its exact dimensions and the proportions of its parts. Anthropometry, measurement of body structure is the oldest type of body measurement know, dating back to the beginning of recorded history. Through the study of anthropometry and the significance of the relative proportions of the human body have undergone some recent changes in invention, the early beginnings reach back to the remote civilization of India, where treatise called *silpi sastra* investigated the outline of the body by dividing it in to 480 parts, the Ancient egyptains also used to a rough sort of anthropometry during the period from the thirty-fifth to twenty-seconds century, B.C.

To find some, one's anatomical proportion of the body that would be a common measure of all the other structures, the body was divided into nineteen equal segments each of which was the length of the high priest's middle finger.

Anthropometry constitutes the earliest from of measurement in physical education. Study of the human physique and its proportions began many centuries ago. Measurement [anthropometry] is nothing new but has been serving man since his origin. Artists comprised the chiefs workers in anthropometry until 1935 when a mathematician in Brussels, baron, quetlet, applied purely mathematical methods to discover the physical constants of the body and provide that the bionomial law (law of chance) applies to human proportions, the finding was confirmed about 50 years later by sir, Francis galton, who systematically analyzed measurements of certain physical constant of English men and women. The seventeenth century saw the emergence of the field of anthropometry in the science of human biology. Anthropometric measurement was the first type of testing used in physical education in the world. Fifty separate measurements were recommended by the American association for the advancement of physical education. Sargent, chart contained 44 anthropometric measurement as well as a number of strength tests.

Anthropometric measurement consists of objective measurement of structures and of functions of the body. The measurement of structure include such items as weight, total height, the width, the breadth, the depth and the circumference of chest. The measurement of function includes such items as pulse rate arterial and venous blood pressures, muscular strength, basal metabolic rate estimated from cardiovascular variables, posture and breathing capacity.

The physical educators have long realized that the performance of the boys and girls is greatly influenced by such factors as age, height and weight structure. Before the various classification indices and age, height and weight tables are presented it may be pertinent to briefly discuss some points that should be considered in measuring height and weight. There measure are so common that occasionally the examiners to be too lax and inaccuracies results. Remember that practice and attention to detail are as important here as in any measurement if the result is to have real value.

Selection of variables
The following anthropometric measurements were selected for the study. Flexible steel tape was used to measure the various anthropometric measurement.

Anthropometric measurement
- Leg length
- Upper leg length
- Lower leg length
- Arm length
- Upper arm length
- Lower arm length
- Calf girth
- Thigh girth

Analysis of data

Table 1: shows the Mean, Standard Deviation and t-value of inter-university and inter-college Male Kabaddi Players on Selected Anthropometric Measurements.

Variables	No. of Subjects	Group	Mean	Standard Deviation	't' Value
Leg Length	15 15	Int. Uni. Int. Col.	95.66 95.13	3.82 3.88	0.378
Upper Leg Length	15 15	Int. Uni. Int. Col.	44.66 43.20	3.39 2.36	1.373
Lower Leg Length	15 15	Int. Uni. Int. Col.	50.73 51.86	4.09 2.79	0.885
Arm Length	15 15	Int. Uni. Int. Col.	75.60 75.53	3.92 3.81	0.047
Upper Arm Length	15 15	Int. Uni. Int. Col.	29.13 39.80	1.45 1.32	1.313
Lower Arm Length	15 15	Int. Uni. Int. Col.	46.13 45.46	3.54 3.81	0.496
Calf Girth	15 15	Int. Uni. Int. Col.	38.86 35.80	5.13 2.27	2.113*
Thigh Girth	15 15	Int. Uni. Int. Col.	88.73 82.86	7.84 4.62	2.495*

* Significant at 0.05 level

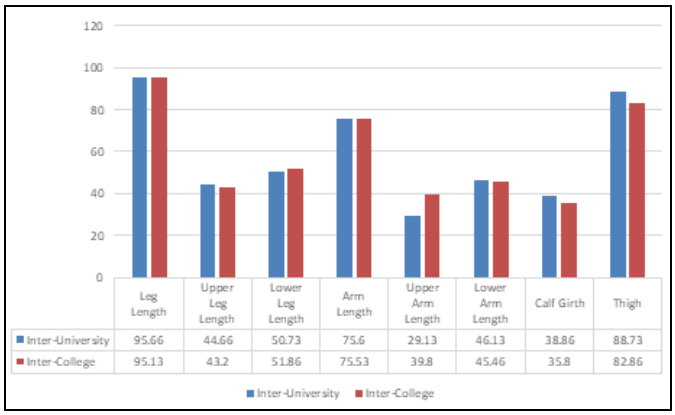

Fig 1: shows the Mean, Standard Deviation and t-value of inter-university and inter-college Male Kabaddi Players on selected Anthropometric Measurements.

Conclusion

Leg Length

Table-1 presents the results of inter-university and inter-college with regard to the variable anthropometric measurement. The descriptive statistics shows the Mean and SD values of inter-university the sub–variable leg length as 95.66 and 3.82 respectively. However inter-college had Mean and SD values as 95.13 and 3.88 respectively. The (t) value 0.378 as shown in the table above was found statistically insignificant, but while comparing the mean values of both the groups it has been observed that inter-university have demonstrate better leg length then the inter-college players.

Upper Leg Length

The descriptive statistics shows the Mean and SD values of inter-university the sub –variable upper leg length as 44.66 and 3.823.39 respectively. However inter-college had Mean and SD values as 43.20 and 2.36 respectively. The (t) value 1.373 as shown in the table above was found statistically insignificant, but while comparing the mean values of both the groups it has been observed that inter-university have demonstrate better upper leg length then the inter-college players.

Lower leg length

The descriptive statistics shows the Mean and SD values of inter-university the sub –variable lower leg length as 50.73 and 40.9 respectively. However inter-college had Mean and SD values as 51.86 and 2.79 respectively. The (t) value 0.885 as shown in the table above was found statistically insignificant, but while comparing the mean values of both the groups it has been observed that inter-university have demonstrate better lower leg length then the inter-college players.

Arm length

The descriptive statistics shows the Mean and SD values of inter-university the sub –variable arm length as 75.60 and 3.92 respectively. However inter-college had Mean and SD values as 75.53 and 3.81 respectively. The (t) value 0.047 as shown in the table above was found statistically insignificant, but while comparing the mean values of both the groups it has been observed that inter-university have demonstrate better Arm length then the inter-college players.

Upper arm length

The descriptive statistics shows the Mean and SD values of inter-university the sub –variable upper arm length as 29.13 and 1.45 respectively. However inter-college had Mean and SD values as 39.80 and 1.32 respectively. The (t) value 1.313 as shown in the table above was found statistically insignificant, but while comparing the mean values of both the groups it has been observed that inter-university have demonstrate better upper Arm length then the inter-college players.

Lower arm length

The descriptive statistics shows the Mean and SD values of inter-university the sub –variable lower arm length as 46.13

and 3.54 respectively. However inter-college had Mean and SD values as 45.46 and 3.81 respectively. The (t) value 0.496 as shown in the table above was found statistically insignificant, but while comparing the mean values of both the groups it has been observed that inter-university have demonstrate better lower Arm length then the inter-college players.

Calf girth

The descriptive statistics shows the Mean and SD values of inter-university the sub –variable calf girth as 38.86 and 5.13 respectively. However inter-college had Mean and SD values as 35.80 and 2.27 respectively. The (t) value 2.113 as shown in the table above was found statistically significant, but while comparing the mean values of both the groups it has been observed that inter-university have demonstrate better Calf girth then the inter-college players.

Thigh girth

The descriptive statistics shows the Mean and SD values of inter-university the sub –variable thigh girth as 88.73 and 7.84 respectively. However inter-college had Mean and SD values as 82.86 and 4.62 respectively. The (t) value 2.495 as shown in the table above was found statistically significant, but while comparing the mean values of both the groups it has been observed that inter-university have demonstrate better thigh girth then the inter-college players.

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