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Comparative study of selected anthropometric components of students of technical and non-technical institutes

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Abstract

The purpose of the present study was to study the selected Anthropometric Components of students of Technical and non-technical institutes of Punjab. For this purpose, a sampling of 100 male players was selected from 4 districts of Punjab. The age of the subjects ranged between 18 to 20 years. The obtained data for the two groups was compared on Femur Diameter, Humerus Diameter, Waist circumference, Biceps circumference and Calf circumference. The data was analyzed with the help of t-test. The findings of the study revealed that there is a significant difference at 0.05 level of confidence for the components of Femur diameter, Humerus diameter and Calf circumference however there was no significant difference on the component of Waist and Biceps circumference.

Keywords: Femur, humerus, biceps, calf, technical institutes, non-technical institutes

Introduction

The researcher has endeavored to know the selected anthropometric measures of male students studying in Technical and non-technical Institutes of Punjab with respect to different age groups. Human physique plays an inspirable role during execution of movement, skill and technique. The quality of an individual's movement and skill efficiency in terms of its utilization value is directly proportional to his level of performance. For this purpose, researcher has to identify the factors which are responsible for the dismal performance of sports person such as physical, physiological, psychological abilities, techniques, tactics, physique, body size and body composition which has to be researched from the root level. The athletes are recognized and selected naturally on the basis of their body characteristics for a particular sport or event. Anthropometry is the science that deals with measurements of size, weight and proportions of human body. It provides scientific methods and observations on the living humans. Anthropometric techniques (skinfold fat, circumference and diameter measurements) are popular for predicting body composition because they are not much expensive, require little space and can be performed easily (Behenke and Willmore, 1974 and Pollock and Willmore, 1990). Anthropometry is often used in physical education, sports science, physical activity and biomedical sciences. Anthropometric measurements can be divided into height, weight and lengths, breadth or width, circumferences or girths, depths and skinfolds. All measurements of individual are external dimensions of the body.

Objective of the Study

The primary objective of the study was to study and find out the difference if any in the anthropometric measures of male students studying in various technical and non-technical Institutes and the secondary objective was to make the students aware of their anthropometric measures.

Research Methodology

Standard instruments from Chaudhary Devi Lal University, Sirsa was used to measure the Anthropometric components. The various Anthropometric components used in the study were Weighing Machine, Anthropometric Rod/ Compass, Skinfold Caliper, Sliding Caliper and

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Gulick Tape. The instruments were calibrated before measuring the components. The data for the present study was collected from different technical and non-technical institutes of four district of Punjab, namely Patiala, Sangrur, Barnala and Bathinda.

Results and Analysis of the Study

After analyzing the data for both the groups, t-test value was computed.

Table 1: Statistical Analysis of t-value for Femur Diameter

Group	N	Mean	Standard Deviation	Standard Error of Mean	t-Value	Remarks
Technical Institute Male Students	40	8.71	1.08	0.17	6.16	Significant
Non- Technical Institute Male Students	40	7.59	0.39	0.06		
Df=78, Level of Significance=0.05						

The values in the table 1 suggest that the mean score on the parameters of Femur Diameter was 8.71 for the technical male students as compared to 7.59 of the non-technical male students. The data of the non-technical students is more homogeneous as compared with the counterpart. The t-test

value of the table is 6.16 and the Critical t-value from the norms is 1.99 for two-tailed at 0.05 level of confidence. The two-tailed p-value is less than 0.0001 and the results are considered to be extremely statistically significant.

Table 2: Statistical Analysis of t-value for Humerus Diameter.

Group	N	Mean	Standard Deviation	Standard Error of Mean	t-Value	Remarks
Technical Institute Male Students	40	8.31	0.51	0.08	6.53	Significant
Non- Technical Institute Male Students	40	7.25	0.89	0.14		
Df=78, Level of Significance=0.05						

The values in the table 2 suggest that the mean score on the parameters of Humerus Diameter was 8.31 for the technical male students as compared to 7.25 of the non-technical male students. The data of the technical students is more homogeneous as compared with their counterpart. The t-test

value of the table is 6.53 and the Critical t-value from the norms is 1.99 for two-tailed at 0.05 level of confidence. The two-tailed p-value is less than 0.0001 and the result is considered to be extremely statistically significant.

Table 3: Statistical Analysis of t-value for Waist circumference

Group	N	Mean	Standard Deviation	Standard Error of Mean	t-Value	Remarks
Technical Institute Male Students	40	78.38	2.35	0.37	1.93	Not Significant
Non- Technical Institute Male Students	40	79.28	1.76	0.27		
Df=78, Level of Significance=0.05						

The values in the table 3 suggest that the mean score on the parameters of Waist circumference was 78.08 for the technical male students as compared to 79.78 of the non-technical male students. The data of the technical students is more homogeneous as compared with the counterpart. The t-

test value of the table is 1.93 and the Critical t-value from the norms is 1.99 for two-tailed at 0.05 level of confidence. The two-tailed p-value is 0.056 and the result is not statistically significant.

Table 4: Statistical Analysis of t-value for Bicep circumference

Group	N	Mean	Standard Deviation	Standard Error of Mean	t-Value	Remarks
Technical Institute Male Students	40	26.79	1.16	0.18	0.70	Not Significant
Non- Technical Institute Male Students	40	26.99	1.38	0.21		
Df=78, Level of Significance=0.05						

The values in the table 4 suggest that the mean score on the parameters of Bicep circumference was 26.79 for the technical male students as compared to 26.99 of the non-technical male students. The data of the technical students is more homogeneous as compared with the counterpart. The t-

test value of the table is 0.70 and the Critical t-value from the norms is 1.99 for two-tailed at 0.05 level of confidence. The two-tailed p-value is 0.48 and the difference is considered not significant.

Table 5: Statistical Analysis of t-value for Calf circumference

Group	N	Mean	Standard Deviation	Standard Error of Mean	t-Value	Remarks
Technical Institute Male Students	40	29.39	1.86	0.29	4.67	Significant
Non- Technical Institute Male Students	40	31.03	1.21	0.19		
Df=78, Level of Significance=0.05						

The values in the table 5 suggest that the mean score on the parameters of Calf circumference was 26.79 for the technical male students as compared to 26.99 of the non-technical male students. The data of the technical students is more homogeneous as compared with the counterpart. The t-test

value of the table is 4.67 and the Critical t-value from the norms is 1.99 for two-tailed at 0.05 level of confidence. The two-tailed p-value is 0.0001 and the difference is considered extremely statistically significant.

Discussion on Results

After analyzing the results of the study, it was found that there was a significant difference between the technical male students and non-technical male students on the component of Femur diameter, Humerus diameter and Calf circumference. However, for the components of Waist circumference and Bicep circumference the difference was found to be non-significant between the students of technical institutes and the non-technical institutes.

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