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A comparative study of football players at different levels of performance in relation to their anthropometric variables

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Abstract
The study was conducted to find out the comparison between performances at different levels of Football players. The sample consisted of 300 Football players were selected as subjects. To assess the Anthropometric variables of Football players standardized instruments were used. Data was analyzed through F-test and it was found that higher level of players were better in their performance.

Keywords: Anthropometric, Performance, Football Player, Variable

Introduction
Anthropometry means the measurement of man, whether living or dead, and consists primarily in the measurement of the dimension of the body. Anthropometry, the measurement of man, provides scientific method and observation on the living man and his skeleton. Anthropometry represents the typical and traditional tool of human biology, physical anthropometry and axiology. Recently it has taken a strong bonded relationship with physical and sports sciences. "Anthropometry" which is a word synthesized from two Greek word "Anthropos" means man and "Metreein" means 'to measure.'

Statement of the study
"A Study of Football Players at Different Levels of Performance In Relation to their Anthropometric Variables."

Objectives of the study
- To compare the independent and interactive effects of anthropometric measurements of football players playing at different levels of performance.

Hypotheses of the study
Keeping in view the objectives of the study the following hypotheses have been formulated:-
- There may exist significant difference between anthropometric measurement of football players playing at different levels of performance.

Methodology
The subjects of the present study consisted of 300 male football players in the age group of 18-25 years from Haryana, Punjab and Chandigarh, who have participated in inter-college, inter-university and national level tournaments in football. To select the subject, the random sampling technique was used.

Tools Used
Keeping in view those considerations the investigator has used the following tools for data collection:
- To measure the height and weight, the anthropometric rod and portable weighing machine were used.
- A flexible steel tape was used to measure the circumferences.
- Diameters were taken with the help of venire caliper and anthropometer compass.
- All the anthropometric measurements were taken on the right side of the subject where side was involved.

Statistical Design:-

In order to achieve the objective of the present study, the investigator has applied ANOVA to made comparison among different level of performance in Football players.

Table 1: Analysis of Variance of the Mean Difference in Anthropometric Variables Weight and Height (Sitting, standing and trunk height)

Variables	Source of variance	Df	Sum of square	Mean square	F-value
Weight	Between groups	2	42.620	21.310	.325^{NS}
	With in groups	297	19448.900	65.485	
Standing Height	Between groups	2	71.665	35.828	1.034^{NS}
	With in groups	297	10290.760	34.649	
Sitting Height	Between groups	2	38.963	19.482	1.557^{NS}
	With in groups	297	3715.131	12.509	
Trunk Height	Between groups	2	2.003	1.001	0.79^{NS}
	With in groups	297	3749.803	12.626	

Not significant.

Table 1 reveals the comparison on the height and weight variables of anthropometric variables of different Football players. The results of ANOVA did not indicate any significant difference among the three categories of Football players. Though weight, sitting height, standing height and trunk height measurements are the important factors for the Football players. The results of ANOVA with F-value .325, 1.034, 1.557 and 0.79 among the three groups are too less to be significant only with the difference of means indicate that national level players are better as compared to other two groups.

Table 2: Analysis of Variance of Mean Difference in Anthropometric Variables Knee Joint, Ankle Joint, and Shoulder Joints

Variables	Source of variables	Df	Sum of squares	Mean squares	F-value
Knee Joint	Between groups	2	3.370	1.685	2.998 NS
	With in groups	297	166.935	.562	
Ankle Joint	Between groups	2	4.633	2.317	3.03*
	With in groups	297	227.081	.765	
Shoulder Joint	Between groups	2	3.850	1.925	0.96^{NS}
	With in groups	297	5963.439	20.079	

Not significant

Table 2 indicated that there were significant difference in ankle joint, the anthropometric variables, as obtained F ratio of ankle joint 3.03, which is higher value than required 3.03 F ratio to be significant at .05 level with (2, 297) degree of freedom. The knee joint and shoulder joint did not show any difference as the F ratio obtained is very less than the required F value of 3.03 to be significant with 2/297 degree of freedom.

Table 3: Analysis of Variance of Mean difference in Anthropometric variable i.e. Shoulder Girth, Chest girth, Abdomen girth, Hip girth, thigh girth, calf girth and ankle girth of football players at different level.

Variables	Source of variables	Df	Sum of squares	Mean squares	F-value
Shoulder girth	Between groups	2	65.680	82.840	1.175 NS
	Within groups	297	20946.400	70.527	
Chest Girth	Between groups	2	63.585	31.792	.681 NS
	With in groups	297	13869.758	46.700	
Abdomen girth	Between groups	2	155.167	77.583	1.104 NS
	Within groups	297	20872.570	70.278	
Hip girth	Between groups	2	117.420	58.710	1.047 NS
	Within groups	297	16657.200	56.085	
Thigh girth	Between groups	2	50.137	25.068	1.496 NS
	Within groups	297	4975.792	16.754	
Calf girth	Between groups	2	36.183	18.092	3.116*
	Within groups	297	1724.434	5.806	
Ankle girth	Between groups	2	22.360	11.180	3.04*
	Within groups	297	1107.435	3.729	

Significant at .05 level Tabulated value 3.03 < CV (3.116 & 3.04). Df 2/297

Table 3 reveals that there was no significant difference in shoulder girth, chest girth, abdomen girth, hip girth, thigh girth among the three groups of football players as F-value is very less against the tabulated value 3.03 for.05 on 2/297 degree of freedom. calf and ankle girth shows significant difference as calculated F value are higher than the tabulated value at .05 i.e. 3.03 on 2/297 degree of freedom.

Results and conclusions

The discussion is related to those anthropometric variables only, which have significant difference between the three groups of footballers.

As per result it was found that negligible differences were found in weight, standing height, sitting height and trunk height. When compared, the means scores, the results indicates that players participating at higher level are slightly better than the other two groups. Statistically these differences did not have the considerable degree of significance.

The result pertaining to table 2 in which means difference of anthropometric variables of all length of the body, such as total arm length, total leg length, thigh length, lower leg length and foot length were taken into consideration. The result revealed that there exist no significant differences in all these variables. Though as per results, there is an indication that players participating at higher level do have better length of these segments in their body. Gray (1956) [2] studied 1179 football players in relation to their field positions in which they played.

The results of Table 3 again indicate that the joints of body

especially hip joints and ankle joint of national level football players have significant difference in comparison to other two groups i.e. intervarsity and inter-college. The joints of the body of the average Football players with height and weight, larger trunks and smaller lower extremities are the reason to develop lean tissue in the extremities of the higher level football players as compared to the footballer of lesser participation. Sidhu and Wadhwan (1979) [3] also found the same thickness with Indian footballer. They found that forwards, halves and backs were quite similar to one another. The results of this study also indicates their national level football players have relatively better calf girth and broad shoulder (Shoulder Girth) as they have better developed lean tissue in their thighs and calf as compared to former who possessed proportionally much broader knee and calf than the lower level of players. Similarly apart from the knee joints the results also indicate that national level players have proportionately broader shoulders and its joints and slender chest. All these anthropometric variables indicate that they are more ectomorphic and less mesomorphic type of body than their counter part i.e. university and inter-college footballers.

References

1. Seaver. Quoted in Measurement in Physical Education by Carlton R. Meyors. The Ronald Press Company, 1890.
2. Gray H. Body Built in Football Players. *Research Quarterly* 1956; 7:37.
3. Sidhu LS, Wadhan SPS. Anthropometric Variations in Throwers and Football players Proceedings. IVth Annual Conference of Indian Association of Sports Medicine, 1979.
4. Sodhi HS. Skinfold Patterns of Top Indian Athletes and Sportsmen. Modern Perspective in Physical Education and Sports Sciences. Harman Publications, New Delhi, 1986.
5. Sodhi HS. *Sports Anthropometry*. Mohali: Anova Publications, 1991.