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A comparative study on selected anthropometric variable of the Indian, Korean and mixed students of IB School in India

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Abstract

The present investigation was presented to compare the Indian, Korean and Mixed students of IB school in India. The subject for this study were total 450 students and the subject have been divided into three groups Indian, Korean and Mixed group, each group consisted of 150 students, aged-15 to 17 years, the selected Anthropometric variable considered for study were Height, Weight and upper arm girth. The data was collected after employing standard test and measurement procedure. Descriptive Analysis and Analysis of variance (Anova) test was employed, to find the mean difference among the groups and the level of significance was set at 0.05.

Keywords: anthropometric, investigation

Introduction

The word anthropometry is a Greek word and is a combination of two Greek words “Anthropos” means Man and “Metric” means Measure. Measurement of body size and composition should always be accompanied by the measurement of working capacity, physical fitness and energy expenditure. There is no single equipment through which we can measure the size and composition of human body together. Therefore, measuring the human size and composition, there are specific anthropometric equipment’s for example: weighing machine for weight, anthropometric rod for height etc. It is essential to collect the data on anthropometrical and physiological responses of participants to general task and during the participation in different games/sports. Particular type of body size, shape and proportions are important pre-requisite for successful participation in many sports. Tanner (1964) have shown that those who are best in the world in 1960 Olympics have different events in which they completed. The quality of performance is related to the various basic traits of boys and girls, such as their maturation, body size, shape, proportion, composition and physique ^[1].

Methodology

Selection of the subject

For the purpose of the study, four hundred fifty students have been randomly selected from different World Schools in India such as Pathways World School, Aravali, Pathways School Gurgaon, Pathways school Noida, DPS Edge Gurgaon, G.D Goenka Sohna Road which are affiliated to International Baccalaureate Organization [Geneva]. The age of the subjects selected for the study have been between 16 to 17 years with Mean and S.D. of 16.96 ± 0.50 . The subjects have been divided into three groups i.e. Indians, Koreans and rest of the world; each group consisted of 150 subjects. The subjects were thoroughly aware with the testing procedure. The subjects have been requested to participate in the testing procedure whole heartedly and utmost sincerity in the present study.

Selection of Variable

On the basis of review of literature, experts’ opinion, facilities & instrument availability and scholars’ own understanding of the problem the researcher had been selected the following

Anthropometric variables for present study:- Height, weight and upper arm girth. **Results**

Table 1: Descriptive Analysis of Anthropometric Variables

Variables	Groups	Mean	S.D.	Minimum	Maximum
Height	INDIAN	168.54	7.08	155	184
	KOREAN	166.36	4.25	154	180
	MIXED	169.03	5.12	157	180
	TOTAL	167.97	5.71	154	184
Weight	INDIAN	65.61	5.73	53	80
	KOREAN	65.42	3.93	53	75
	MIXED	67.31	4.25	58	79
	TOTAL	66.11	4.77	53	80
Upper Arm Girth	INDIAN	28.97	1.99	24.3	35.3
	KOREAN	30.3	1.46	27	35.3
	MIXED	29.69	1.34	26.5	32.6
	TOTAL	29.65	1.71	24.3	35.3

Table 3 shows the Mean, Standard deviation, Maximum and Minimum scores of Anthropometric variables. The Mean and S.D of Height in Indian, Korean and Mixed is 168.54 ± 7.08 ,

166.36 ± 4.25 and 169.03 ± 5.12 ; Weight 65.61 ± 5.73 , 65.42 ± 3.93 and 67.31 ± 4.25 ; Upper Arm Girth 28.97 ± 1.99 , 30.30 ± 1.46 and 29.69 ± 1.34 .

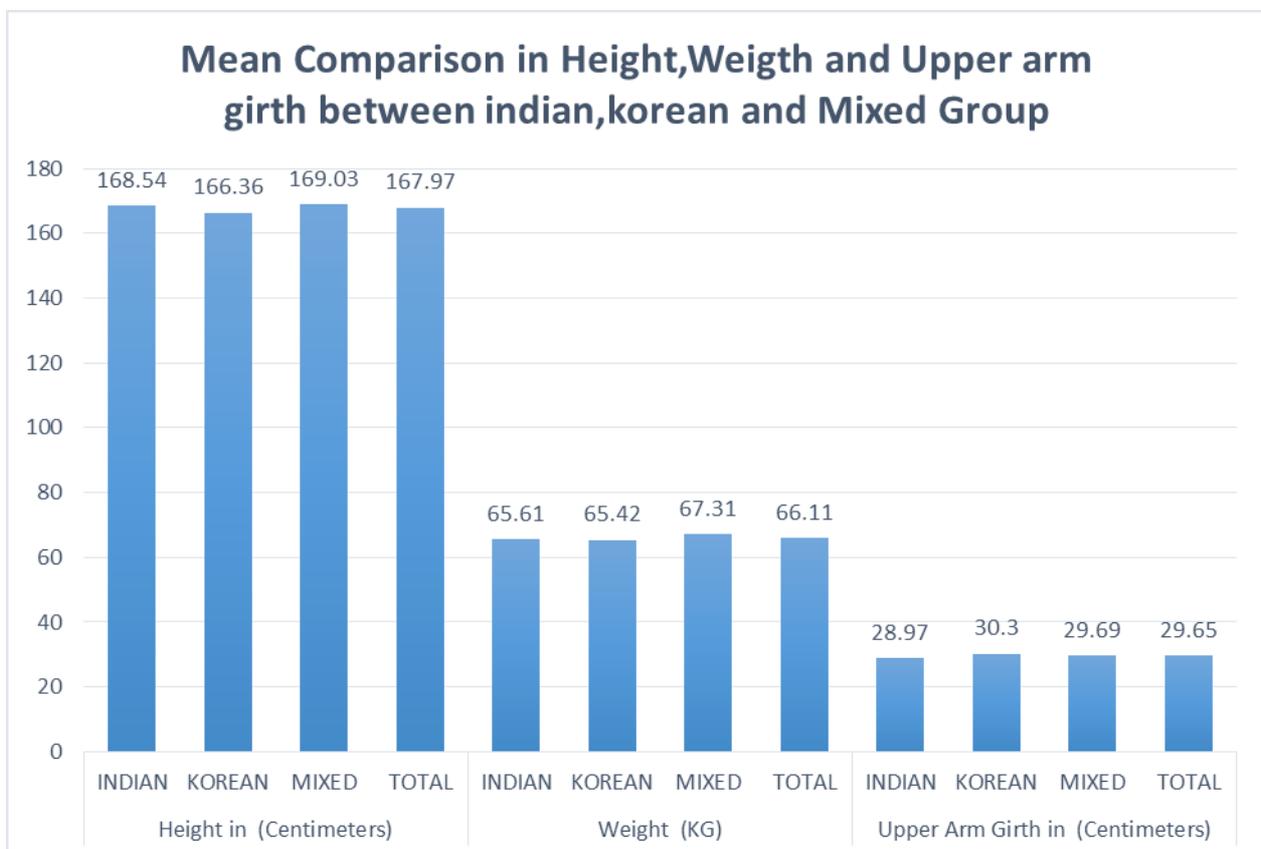


Fig 1: Graphical representation of mean value in Height, weight and Upper arm girth between Indian, Korean and mixed group is depicted in figure -1.

Table 2: Analysis of Variance among Indian, Korean and Mixed In Height

Source of Variation	Degree of Freedom	Sum of Square	Mean sum of square	F value	Significant
Treatment	2	607.12	303.56	9.63	0
Error	447	14082.65	31.5		
Total	449	14689.77			

- **The mean difference is significant at the 0.05 level.**

According to analysis of data presented in table 2, the calculated 'f' ratio 9.63, which is greater than the tabulated 'f' value 3.01 at 2,447 df at 0.05 level of significance. It is evident that there is significant difference among Indian, Korean and Mixed group in height.

Table 3: Analysis of Variance among Indian, Korean and Mixed In Weight

Source of Variation	Degree of Freedom	Sum of Square	Mean sum of square	F value	Significant
Treatment	2	324.21	162.1	7.32	0.01
Error	447	9896.54	22.14		
Total	449	10220.75			

- **The mean difference is significant at the 0.05 level.**

According to analysis of data presented in table 3, the calculated 'f' ratio 7.32, which is greater than the tabulated 'f' value 3.01 at 2,447 df at 0.05 level of significance. It is evident that there is significant difference among Indian, Korean and Mixed group in Weight.

Table 4: Analysis of Variance among Indian, Korean and Mixed in Upper arm girth

Source of Variation	Degree of Freedom	Sum of Square	Mean sum of square	F value	Significant
Treatment	2	131.75	65.87	24.91	0
Error	447	1182.18	2.64		
Total	449	1313.93			

- **The mean difference is significant at the 0.05 level.**

According to analysis of data presented in table 4, the calculated 'f' ratio 24.91, which is greater than the tabulated 'f' value at 2,447 df at 0.05 level of significance. It is evident that there is significant difference among Indian, Korean and Mixed group in upper arm girth.

Discussion and Conclusion

There is significant difference between Indian and Korean as well as Korean and mixed group in height. The result of this study is similar to the findings of Leone (2002) where he did his analysis on selected anthropometric and bio motor variables among elite adolescent female athletes in four sports. After validation, the analysis showed that 88% of the athletes were correctly classified in their respective sports. Our model confirms that elite adolescent female athletes show physical and bio motor differences that clearly distinguish them according to their particular sport. It may be attributed due to geographical area. Koreans are basically short in height than Indians and rest of the world.

There is also significant difference between Indian and mixed as well as Korean and mixed in weight. It may be attributed due to owing reason that the height of the students belongs to mixed group is more than the Koreans that's why their weight is also more, whereas the Indians are comparatively lean might be due to lack of proper physical education program.

There is also significant difference between Indians and Koreans; Indian and mixed; and Korean and mixed group in upper arm girth. Upper arm girth of Korean is more than both groups because Koreans were short height and they have more strength that's why there girth is more.

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