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## RELATIONSHIP OF ANTHROPOMETRIC MEASUREMENT ON THE PERFORMANCE OF SWIMMERS

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### ABSTRACT

The purpose of this study was to investigate the relationship of Anthropometric Measurement with the performance of college male swimmers. The study was conducted on 30 male swimmers selected randomly out of 100 male swimmers and age ranged between 16-25 years. Anthropometric Measurement consists of objective measurement of structure of body measurement. Structure includes weight, height, age, arm length and leg length. **Coefficient of Correlation “r”** was applied to compute the significances among two groups at 0.05 level of significance. The result of the study indicates they was not significant relation between anthropometric measurement.

**KEY WORDS:** - Weight, Height, Age, Arm Length and Leg Length



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## INTRODUCTION

De Garry, Levine and Carter after intensive study of anthropometric measures of Olympic athletes concluded that top-level performance in a particular event demands particular type of body size and shapes other aspects being similar. They established height relationship between a athlete and the Specific task or vent in which he excelled. Surrender Nath the role of sports anthropology is highly applicable in identification of individuals, at a relatively younger age. Which could be ideal for a specific sports event through different body measurement, For example, individuals with tall stature, long lags and shorter trunks are best suited for events like jumping, hurdling and vaulting Individuals with overage stature. Short legs and harrow shoulders are most ideal for long distance running while tall heavy muscled individuals with long legs and broad shoulders in relation to hip breadth are best suited for 400 meter running. Similarly tall individuals with greater arm reach and longer legs have an added advantage in event like basketball, Volleyball, pole-vault, long and triple-jumps. The high jumpers, on the other hand, are tall individuals with probably the longest legs relative to their trunk, than the other athletes. Thus incorporating the use of anthropometric measurement, like stature, body weight, Leg length, arm length, calf length, thigh length, chest circumference, upper arm circumference, thigh circumference, calf circumference etc., individual could be identified for training in specific sport events.



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## OBJECTIVES OF THE STUDY

The objective of the study is to find out the relationship between Anthropometric Measurement and performance of college male swimmers.

## HYPOTHESIS

It was hypothesized that there would be no significant relation in Anthropometric Measurement with the performance of swimmers.

## METHODOLOGY

Thirty (30) male swimmers belonging to different colleges who participated in the University of Rajasthan inter-collegiate swimming championship in 50m and 100m free style events which was held at I.C.G. International College for Girls Mansarover, Jaipur. The subjects were selected randomly out of 100 male swimmers and age ranged between 16-25 years.

## SWIMMING PERFORMANCE

50m and 100m free style events time was recorded during the competition with the help of trained officials. The performance of the subjects was recorded to the nearest, 1/100 of a



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second. The researcher in consultation with swimming experts established a point based system as per the timing of the respective swimmer.

## STATISTICAL TECHNIQUE USED

To study on relationship of Anthropometric Measurement on the performance of swimmers. **Coefficient of Correlation “r”** was applied at 0.05 level of confidence to find out the relationship of Anthropometric Measurement with the swimming performance.

## Result

Table – 1

Relationship of selected anthropometric measurement in 50m performance of swimmers (n = 30)

S.No.	Variables	Coefficient of Correlation “r”
1.	Age	-0.073
2.	Height	0.020
3.	Weight	0.308
4.	Arm Length	0.002
5.	Leg Length	-0.038
6.	Trunk Length	-0.083

\*significance at 0.05 level of confidence



As shown in **Table-1** that the values of coefficient of correlation increase of all the selected anthropometric measurement were found insignificant at .05 level of significance table value of coefficient of correlation is 0.368 and the obtained values of coefficient of correlation of selected variables are less than the required value. The graphic repetition of this anthropometric measurement is presented with bar diagram in **fig. 1**, it shows there was no significant relationship between anthropometric measurement and performance in 50meter event.

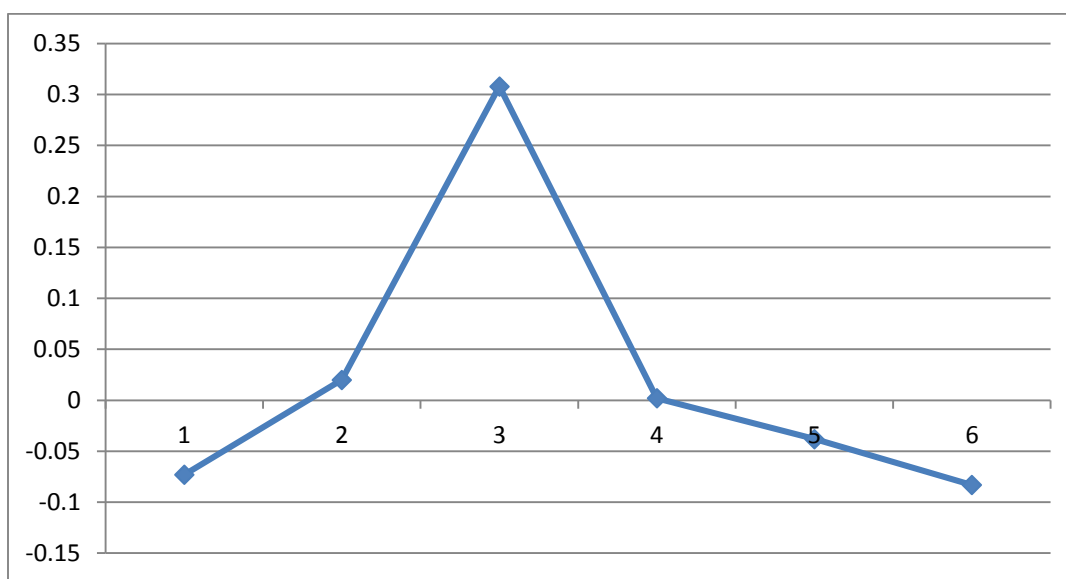


Fig 1: Bar diagram showing Correlation of Anthropometric Measurement with 50m Performance of the Swimmers

Table – 2

Relationship of selected anthropometric measurement in 100m performance of swimmers (n = 30)

S.No.	Variables	Coefficient of Correlation "r"
1.	Age	-0.047
2.	Height	0.004
3.	Weight	0.436*



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4.	Arm Length	0.122
5.	Leg Length	-0.041
6.	Trunk Length	0.151

\*significance at 0.05 level of confidence

As shown in **Table-2** that the values of coefficient of correlation increase of all the selected anthropometric variables were found insignificant except weight at its level of significance of 0.05. Since the table value of coefficient of correlation for 29 is 0.368 and the obtained values of coefficient of correlation of selected variables less than the table value except weight which was found to be significant. The graphic repetition of this anthropometric measurement is presented in form of bar diagram in **fig. 2**

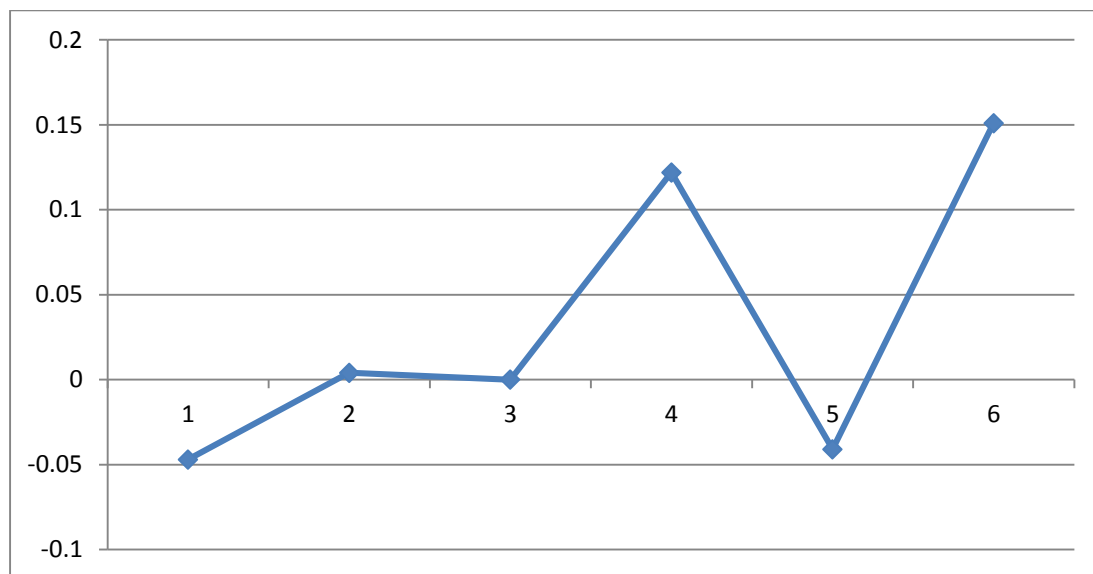


Fig 2: Bar diagram showing Correlation of Anthropometric measurement with 100m Performance of the Swimmers

## DISCUSSION



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Age, Height and Weight showed an insignificant relationship with the performance of swimmers in 50m performance. So this shows that there is no significant relationship among the performance in 50m and height age required as the sample size was low, the effect might not have been analyzed properly or some cumulative effect might have been there.

Weight showed an significant relationship with the performance of swimmers in 100m performance so this shows that there is drastic relationship among the performance in 100m and weight as 100m is a long distance event as compared to the 50m event. Buoyancy plays a very Important role in it and the heavier the body will float better so increase in weight will increase the performance in 100m.

Age & height showed insignificant relationships with the performance of swimmers in 100m performance as most of the subjects were of the same age category. There would not have been much of relationship with the performance but if the age varied drastically then there might have been some relationship.

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