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Relationship of selected anthropometric measurement to the performance of sprinting events in athletics

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Abstract

The purpose of this study was to determine the relationship of selected anthropometric variables such as Leg length, Arm length, sitting height, Arm girth, chest girth, weight.

Twenty male students of Lakshmi Bai National Institute of Physical Education Gwalior were selected as subject. The subjects were residing in the Institute hostel. All the subject had their require schedule of training in physical education activities as per the performance of the Institute.

For the establishment of relationship of dependent and independent variables the following tests were employed. Standing height, sitting height, chest girth, arm girth, arm length leg length, standing broad jump measured in centimeters, weight were measured in kilograms. Product movement correlation method was used to compute coefficient of correlation.

The findings of the study revealed that no significant relationship were found between performance of 100 meters sprint & Standing height ($r=-.65$), sitting height ($r=-.80$), weight ($r=-.75$), chest girth ($r=-.72$), arm girth ($r=-.83$), leg length, ($r=-.88$) arm length, ($r=-.53$). The findings of the study revealed that no significant relationship were found between performance of 400 meters sprint & Standing height ($r=-.79$), sitting height ($r=-.62$), weight ($r=-.76$), chest girth ($r=-.49$), arm girth ($r=-.68$), leg length ($r=-.81$), arm length ($r=-.75$).

Keywords: Anthropometric, performance, 100 meters, 400 meters

Introduction

Track and Field got its popularity because of its similarity with daily life doings. It is a known fact that soon after a human infant move to crawl to walk, he takes interest in throwing etc., which appeals him to follows therefore, that since the events on the track field programme are fundamental movements they soon find their place in the lives of the young aspirant youth.

The strength of a nation rests upon the health of its people and future of the health of the people depends, to a large extent, on what is done to promote, improve and preserve good health, as health is a fundamental human right. To be a good person is the first requisite to success in life and to be a nation of healthy citizens is the first condition to national prosperity. Considering the above mentioned studies the anthropometric variables are very important factors for achieving the high level of performance in standard competitions.

So, an objective assessment of the relationship that exists between selected Anthropometric measure to performance in running. Sprints will serve the coaches and physical education teachers to select the athletes for a particular event and to construct the training schedule accordingly, once the results of the study are known.

Methodology

The present study was carried out on twenty male students of Lakshmi Bai National Institute of Physical Education, Gwalior, who came for regular Track & Field match practice were randomly selected and oriented to the tests. Anthropometric parameters were measured by standard equipment. Linear measurement, researcher used Anthropometric rod, girth of the subject's flexible steel tape was used, skin fold measurement of the subject's skin fold caliper was used and diameters were measures with the help of Sliding Caliper. The selected anthropometric variables were taken for the study (Leg length, Arm length, sitting height, Arm girth, chest girth, weight). To find out the relationship, Pearson's Product Moment Correlation was applied. For testing hypothesis, level of significance was set at .05 level.

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Analysis and Interpretation of Data

In order to find the relationship of selected anthropometric variable namely standing height, sitting height, weight, chest girth, calf girth, leg length and arm length with the performance, Pearson's product moment correlation was used.

Table 1: Data pertaining to relationship of selected anthropometric variables with the performance of 100 meters sprint

S. No.	Variable	Coefficient of Correlation
1.	Standing Height	-0.65
2.	Sitting Height	-0.80
3.	Weight	-0.75
4.	Leg Length	-0.89
5.	Arm Length	-0.53
6.	Arm Girth	-0.83
7.	Chest Girth	-0.72

It is evident from table-1 that there was negative relationship between standing height and the performance of as the obtained the result (-.65) showed negative relationship between the two. In the case of sitting height with the performance very high negative correlation (-.80) was obtained. In the case of weight and its relationship with the performance again high negative correlation (-.75) was obtained. In case of relationship between leg length and performance again high negative correlation (-.89) was obtained. In case of relationship between leg length and performance again the negative relationship (-.89) was obtained. In case of arm length with the performance again negative relationship (-.53). In case of arm girth and chest girth again the similar result was obtained (-.83) (-.72) respectively.

Table 2: Data pertaining to relationship of selected anthropometric variables with performance of 400 meters

S. No.	Variable	Coefficient of Correlation
1.	Standing Height	-0.79
2.	Sitting Height	-0.62
3.	Weight	-0.76
4.	Leg Length	-0.81
5.	Arm Length	-0.75
6.	Arm Length	-0.68
7.	Chest Girth	-0.49

It is evident from table-3 that in the case of 400mts. sprint there was very high negative correlation between standing height and performance (-.79). In case of sitting height again the negative correlation was obtained (-.62). In case of weight negative correlation was obtained (-.76). In case of leg length again a high negative correlation was obtained (-.81). In case of arm length, arm girth and chest girth negative correlation was obtained with 400mts. Performance as the obtained value showed negative relationship (-.75, -.68, -.49) respectively.

Discussion on findings

In the case of relationship between the Anthropometric variables and the performance of 100mts. of the boys and girls of match practice group there was negative co-relationship in all the variables with performance namely; standing height (-.65), sitting height (-.80), weight (-.75), leg length (-.89), arm length (-.53), arm girth (-.83) and chest girth (-.72) Their result is evident to show that there was significant relationship between the performance of 100mts. and variables of Anthropometric. The reason could be attributed to the fact that in sprint events probably reaction time speed of movement and frequency of the stride are much more important than the bodily measurements. A sprinter has

to react quickly to the stimulus i.e. gun or clapper and also has to have quick frequency stride to initially start the movement and there after complete the event. Hence the hypothesis stated earlier that there will be a significant relationship among between the anthropometric variables and the performance of 100mts. is accepted.

There was significant correlation between all the variables namely; standing height (-.79), sitting height (-.62), weight (-.76), leg length (-.81), arm length (-.75), arm girth (-.68), chest girth (-.49) of anthropometric and performance of 400mts. sprint. The reason for having a significant correlation in the said variables could be attributed to the fact that in the sprinting event one has to have inherent qualities of fast muscle fibers and the physical variables like reaction time, speed of movement agility and the frequency of the stride. These anthropometric variables probably play a secondary role and this was the reason why the anthropometry variables did not have a significant correlation with the performance of 400mts. Therefore, the hypothesis stated earlier that there will be significant relationship between the anthropometric variables and performance is accepted.05 level.

Conclusion

Within the limitations of the study the following conclusion were drawn:-

1. There were no significant relationships between weight, sitting height, standing height, chest girth, arm girth, leg length and arm length to the performance of 100 meters and 400 meters sprint.
2. The anthropometric variables were the crucial factors in 100 meter and 400 meters performance.

References

1. Baacke, Laverne W. Relationship of Selected Anthropometric and Physical Performance Measures to Performance in the Running Hop, Step and Jump Research Quarterly. 1964; 35(1):107.
2. Charlene Bremberg E. A Study to Determine the Relationships of Certain Anthropometric, Motor Ability and Reaction, Movement Measurement of High School Girls. Completed Research in Health, Physical Education and Recreation. 1966; 8:72.
3. Clarke Harison H. Relationship of Strength and Anthropometric to Physical Performance Involving the Trunks and Legs, Research Quarterly. 1957; 28(1):223-232
4. Keith Gooden, The Relationship of Selected Anthropometric Measurements to the leg and foot of speed and vertical jump of male collegiate Track and Field. Completed Research in Health, Physical Education and Recreation. 1979; 13:307.
5. Knechtel Kohler. A descriptive field study on the effects of anthropometry on race performance in ultra-endurance triathletes. Procedia-social and behavioral science Journal. 2011; 47:1023-1027.
6. Marrow JR. Anthropometric, Strength and Performance Characteristics of American World Class Thrower. Sports Medicine and Physical Fitness, 1982; 73.
7. Singh Parminder. Anthropometric, motor fitness and motor skill determinants of performance in inter-college level handball players. Unpublished Ph.D. Thesis, Punjab University, Chandigarh, 2002.
8. Surinder Kaur, Dolly, Rajesh Kumar. Assessment of Anthropometric and Physical Fitness components as predictors of performance of Athletes of 800m race. International Journal of Recent scientific Research, 2016; 7(4):10305-10308.