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RELATIONSHIP OF SELECTED ANTHROPOMETRIC MEASUREMENTS AND PHYSICAL VARIABLES TO PERFORMANCE IN LONG JUMP

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ABSTRACT

The study was conducted on selected anthropometrics measurements and physical variables with a purpose to find out the relationship of selected anthropometrics measurements and physical variables to the performance of long jump. Methods: The male long jumpers of Uttar Pradesh State were selected as subject for the study. The Anthropometrics measurements selected for the study were Height, Sitting Height, Weight, Arm Length, Leg Length and Physical Variables selected for the study were, Speed (50 yard dash), Agility (10 x 4 yards Shuttle run), Explosive Leg Strength (Standing Broad Jump). Relationship of selected anthropometrics measurement and physical variables to performance in long jump was calculated by using Product Moment Method of Co-relation. Results: The study showed that the calculated value of "r" for Explosive Leg Strength (standing broad jump), Leg Length, Arm Length, Agility (shuttle run 4x10yard) and Speed (50 Yard dash) 0.81 was found to be significant at 0.05 level of confidence. Further it was evident from the table that variables Height, Weight and Sitting Height were found to be statistically insignificant to the performance in long jump. Conclusion: There was significant correlation between Leg length, Arm length, Agility, Speed and Explosive Leg strength and the performance of long jump. While there was no significant correlation between heights, weight in performance. Therefore, it crucial factors for a successive long jump performance whereas height, weight were not important factors influencing performance in long jump.

KEYWORDS:*anthropometrics measurements and physical variables , objective measurements .*

INTRODUCTION:

Anthropometric measurements consist of objective measurements and the function of the body. The measurements of structure include items such as weight, height, length of the limbs, depth and width and circumference of the different part of the body. The body structure of an athlete has a vital influence on his physical performance. Hence the coaches and physical education teacher while selecting their athletes for participating in any competition give due consideration to the technique possessed by the athletes and at the same time they give due weight age to various anthropometric measurements. The jumping events like long jump require a great amount of leg power. The long jumper's size and structure of the body may play an important role in their success in the events. So it is feasible to have some sort of invention, which may contribute in selecting right kind of athlete for event as well as help to isolate the factors that may contribute to the development of the jumping events.

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OBJECTIVE OF THE STUDY: -

The purpose of the study was to find out the relationship of selected anthropometrics measurements and physical variables to the performance of long jump. Ten male long jumpers of Uttar Pradesh State were selected as subject for the study. The age of the subjects was ranged from19 to 25 years.

Variables

The following Anthropometrics measurements and Physical Variables were selected for the purpose of the study: -

1. Anthropometrics measurements

(i) Height
(ii) Sitting Height
(iii) Weight
(iv) Arm Length
(v) Leg Length

2. Physical Variables

(i) Speed (50 yard dash)
(ii) Agility (10 x 4 yards Shuttle run)
(iii) Explosive Leg Strength (Standing Broad Jump)

Measures

Criterion measures for testing the hypothesis were following:

(i) Speed was measured by 50-yard dash and was recorded in 1/10 of the second.
(ii) Agility was measured by 10 x 4 yards shuttle run and was recorded in 1/10 of the second.
(iii) Explosive Leg Strength was measured by Standing Broad Jump and was recorded in centimeters.
(iv) Body Weight was measured by weighing machine and was recorded in kilograms.
(v) Height was measured by steadiometer and recorded to the nearest centimeter.
(vi) Leg Length was measured by measuring tape and was recorded in centimeters.
(vii) Sitting height was measured by measuring tape and was recorded in centimeters.
(viii) Arm Length was measured by measuring tape and was recorded in centimeters.

Analysis

The relationship of selected anthropometrics measurement and physical variables to performance in long jump was calculated by using Product Moment Method of Co-relation.

Findings

To determine the relationship between the independent variables namely selected anthropometrics measurement, i.e. height, weight, sitting height, leg length and arm length and selected physical variables, i.e. Explosive Leg Strength (standing broad jump), Speed (50 yard dash), Agility (4x10yards Shuttle run) and dependent variables namely performance in long jump, the product moment method of correlation was applied. The frequencies of deviation for X and Y variables were recorded and their products were ordained and analyzed. The product moment of all the sequences were computed with due regard to plus and minus sings, and on the basis of plus and minus sing entries were also made carefully in the “X” and “Y” column. All the products moment were circled to facilitate addition. For obtaining the Correlation (“r”) between the independent variables the formula was used and the results relating to this are presented in Table-1.

Table-1: Coefficient of Correlation between Dependent and Independent Variables

S.No.	Variables	Coefficient of Correlation
1	Performance in long Jump and Height	0.61
2	Performance in long Jump and Weight	0.50
3	Performance in long Jump and Sitting height	0.25
4	Performance in long Jump and Leg Length	0.76*
5	Performance in long Jump and Arm Length	0.68*
6	Performance in long Jump and Explosive Leg Strength	0.81*
7	Performance in long Jump and Speed	0.90*
8	Performance in long Jump and Agility	0.70*

*Significant at 0.05 level of confidence.

The tabulated value of "r" required being significant at 0.05 level of confidence for degree of freedom = 0.632. Table–1 shows that the calculated value of "r" for Explosive Leg Strength (standing broad jump), leg length, arm length, Agility (shuttle run 4x10yard) and Speed (50 Yard dash) (0.81) was found to be significant at 0.05 level of confidence. Further it was evident from the table that variables height, weight, were found to be statistically insignificant to the performance in long jump.

CONCLUSION

With the limitation of the study, the following conclusions were drawn:

1. Significant: There was significant correlation between Leg length, Arm length, Agility (shuttle run 4x10yard), Speed (50 Yard dash) and Explosive Leg Strength (standing broad jump) and the performance of long jump.

2. Insignificant: There was no significant correlation between heights, weight to performance. Therefore, it crucial factors for a successive long jump performance whereas height, weight were not important factors influencing performance in long jump.

Discussion

In the light of the conclusion drawn, the following discussions were made the Physical Education Teacher, Coaches, Sports Scientists and long Jumpers:

1. In the training programme for long jumper considerable emphasis must be laid on improvement Leg length, Arm length, Agility (shuttle run 4x10yard), Speed (50 Yard dash) and Explosive Leg Strength (standing broad jump).
2. It is recommend designing an experimental study involving specialized conditioning programme with the specific aim of developing the performance and then finding the factors influencing level of performance.

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