



RELATIONSHIP OF SELECTED ANTHROPOMETRIC AND PHYSICAL PERFORMANCE VARIABLES TO PERFORMANCE IN SHOT PUT

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Abstract

The purpose of the study was to find out the relationship of selected anthropometric and physical performance variables in shot put. 30 inter collegiate level shot putters from the Coimbatore District of 18 to 25 years were selected for this study. The selected anthropometric variables recorded were the height, weight, Leg length, chest girth, arm length, upper arm girth, sitting height. The selected physical performance variables were standing broad jump, vertical jump, sit and reach test, 4 x 10 yards shuttle run, and 50 yards dash. The criterion measures chosen for the study was the performance of shot put where the subjects obtained crouch position, with a glide, thrust in the ankle, knee, hip and flick in the wrist the shot was released with maximum velocity and the performance was recorded in mts and cms. Height (stadiometer) was recorded in cms. Weight (weighing machine) was recorded in kgs. Leg length, chest girth, arm length, upper arm girth, sitting height were measured with the help of flexible steel tape and recorded in cms. The physical performance variables standing broad jump, vertical jump, sit and reach were recorded in cms and 4 x 10 yards shuttle run and 50 yards dash were recorded to the nearest 1/10th of the seconds. The relationship of selected anthropometric and physical performance variables with the performance of long jump

was calculated by using Pearson's Product Moment Correlation. The level of significance chosen was .05. Based on the analysis, and within the limitations of the present study it has been found that the anthropometric variables height, weight, Leg length, chest girth, arm length, upper arm girth, sitting height and physical performance variable standing broad jump of the person have a positive influence on performance in shot put. Whereas the physical performance variables Vertical jump, sit and reach test, 4 x 10 yards shuttle run and 50 yards dash are not found to be significant contributors to shot put performance.

Keywords: Intercollegiate, Anthropometric, Standing Broad Jump, Shot put

Introduction

Physical fitness is an inseparable part of sports performance and achievements. The quality of its utilitarian value is directly proportional to the level of performance. That means the greater the level of fitness, the greater the ability of a person to attain higher level of performance.

Persons with wide differences in structure may all be able to execute the same kind of movement, but the difference in quality of execution of the movement shown by each person result largely from variations on the amount of strength, speed, skill and endurance that are possessed by each individual.



The typical throwers were those with great arm span / height and greater upper arm length / forearm length. The jumpers, hurdlers and vaulters had relatively great leg length / trunk length and relatively large foreleg length / thigh length. Scientists and physiologists have held the view that anthropometric measurements and physical component of an athlete have lot to do with his performance. More than the technique and tactics of a player or a team, physical and physiological characteristics help him for better performance. Only technique alone cannot produce the success but it demands higher level of speed, strength, endurance, flexibility, coordination and optimum fitness of the organism. Human motor performance is a composite of many variables. One of which is the structure of the body. The specific measurements of the limbs lengths, circumferences breath and body built index can reveal the relationship between anthropometry of the athlete and his motor performance.

Materials and Methods

30 male inter collegiate long jumpers of 18 to 25 years were selected for this study. They had undergone training for a considerable period in order to acquire good level of technique of shot put. The selected physical performance variables standing broad jump were measured in centimeters, 50 yard dash and shuttle run (4 x 10 yards) were recorded to the nearest 1/10th of a second, sit and reach test, Vertical jump were measured to the nearest centimeter. The selected anthropometric variables chosen were Height, Leg Length, Chest girth, upper arm girth, arm length and the sitting height were recorded to the nearest centimeter and the weight was recorded in kilograms and grams

The criterion measures chosen for the study were the horizontal distance covered by the shot by attaining the position of crouch, went for a glide and with the thrust of ankle, knee, hip, by the flick of the wrist to the fingers and released the shot. Height of the subject was taken with the help of the stadiometer and recorded to the nearest half cms. Weight of the subject measured using a weighing machine and recorded in the nearest half kilogram. Leg length, chest girth, upper arm girth, arm length and sitting height was measured with the help of flexible steel tape and recorded in to the nearest half cms. The performance was observed by three persons and measured with the help of steel tape in meters and cms.

Findings and Results

TABLE NO 1
RELATIONSHIP OF SELECTED ANTHROPOMETRIC
VARIABLES TO PERFORMANCE IN SHOT PUT

S. No	Variables	Coefficient of correlation
1.	Height	0.580*
2.	Weight	0.698*
3.	Leg Length	0.599*
4.	Chest Girth	0.541*
5.	Arm Length	0.394*
6.	Upper Arm Girth	0.465*
7.	Sitting Height	0.401*

*Significant at 0.05 level of Significance

It is evident from table no.1 that the correlation for the selected anthropometric variables the height, weight, Leg length, chest girth, Arm length, upper arm girth, sitting height of the person have a positive influence on performance in shot put. The value of r required at .05 level of significance for 28 degree of freedom is 0.361.



TABLE 2
RELATIONSHIP OF SELECTED PHYSICAL
PERFORMANCE VARIABLES TO PERFORMANCE IN
SHOT PUT

S. No	Variables	Coefficient of correlation
1.	Standing Broad Jump	0.488
2.	Vertical jump	0.303
3.	Sit and Reach	0.283
4.	4 x 10 yard Shuttle Run	0.181
5.	50 yard Dash	0.102

*Significant at 0.05 level of Significance

It is evident from table 2 that the correlation for the selected physical performance variables namely vertical jump, sit and reach, shuttle run (4 x 10 yard), 50 yards dash have not been found to be significantly related to performance in shot put. But the standing broad jump results show a positive significance related to performance in shot put. The relationship of selected anthropometric and physical performance variables with the performance of shot put was calculated by using Pearson's Product Moment Correlation. The level of significance chosen was 0.05

Conclusion

Based on the analysis and within the limitations of the present study it has been found that the selected anthropometric variables height, weight, Leg length, chest girth, arm length, upper arm girth, sitting height and the physical performance variable standing broad jump of the person have a positive influence on performance in long jump. The physical performance variables vertical jump, sit and reach, 4 x 10 yards shuttle run, 50 yards dash have not been found to be significantly related to performance in shot put.

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