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RELATIONSHIP OF SELECTED ANTHROPOMETRIC MEASUREMENTS AND PHYSICAL VARIABLES TO PERFOMANCE IN 100 METERS

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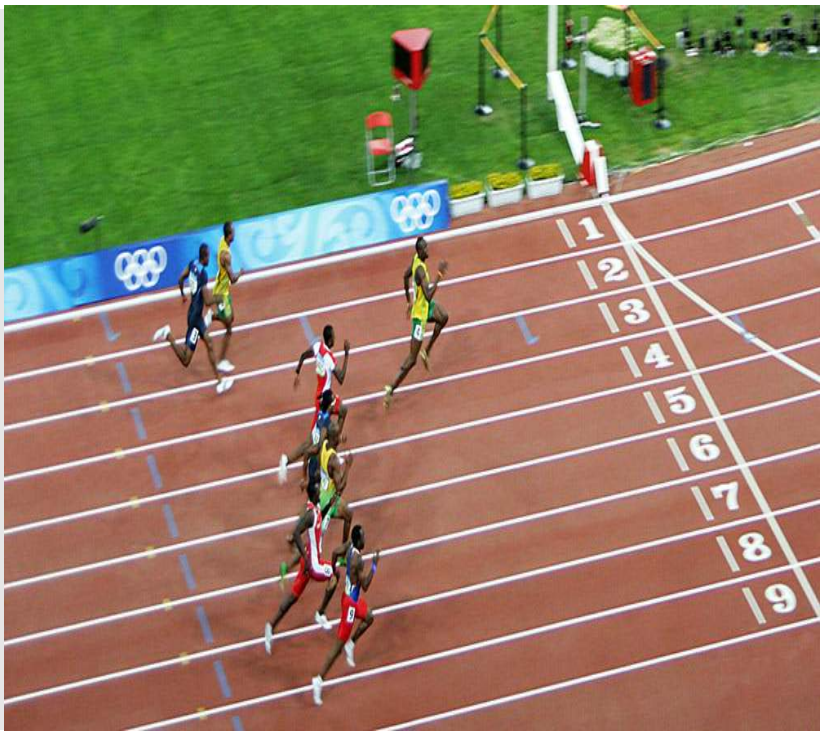
Short Profile

Praveen kumar Mishra is a HOD at Department of Physical Education in Swaminarayan Vidyapith, Anand. He has completed B.P.E., M.P.E., M.Phil., Ph.D. He has professional experience of 14 years.



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 of100 meters. The male 100 meters sprinters of Gujarat 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 100 meters was calculated by using Product Moment Method of Co-relation. Result of 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 in100 meters.

KEYWORDS

Anthropometric Measurements , Physical Variables , Product Moment Method .

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 100 meters.

SUBJECTS: -

Ten male Triple jumpers of Gujarat State were selected as subject for the study. The age of the subjects was ranged from19 to 25 years. Only those subjects were selected who could run 11.30 second and below. The subjects were from different states and union territories of India. The factors such as diet, daily routine of works and environment conditions were identical for all the subjects.

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 100 meters 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 in100 meters, the product moment method of correlation was applied. The frequencies of deviation for X and Y variables were recoded 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 t o 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

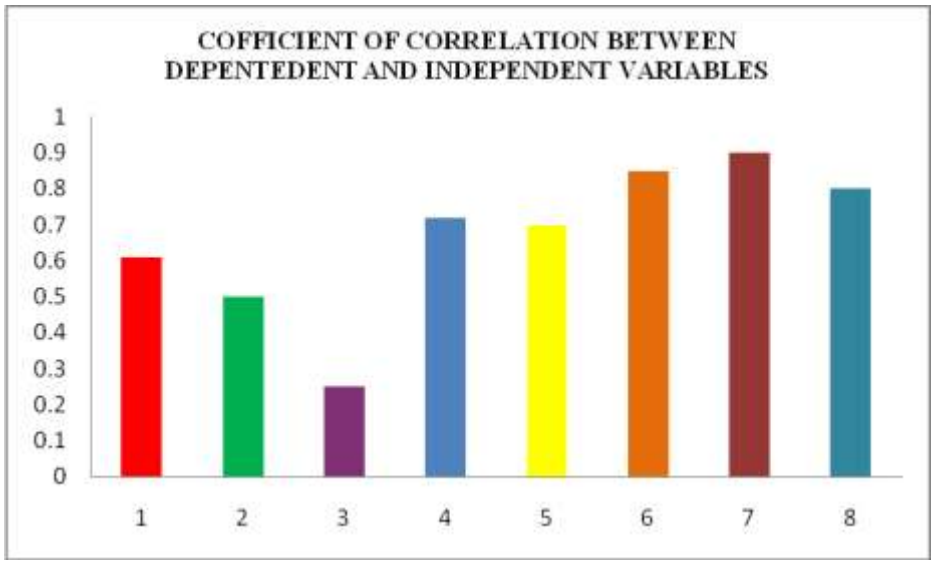
COFFICIENT OF CORRELATION BETWEEN DEPENTEDENT AND INDEPENDENT VARIABLES

S.No.	Variables	Coefficient of Correlation
1	Performance in 100 meters and Height	0.61
2	Performance in 100 meters and Weight	0.50
3	Performance in 100 meters and Sitting height	0.25
4	Performance in 100 meters and Leg Length	0.72*
5	Performance in 100 meters and Arm Length	0.70*
6	Performance in 100 meters and Explosive Leg Strength	0.85*
7	Performance in 100 meters and Speed	0.90*
8	Performance in 100 meters and Agility	0.80*

•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 4 x 10 yard) and Speed (50 Yard dash) (0.81) was found to b e 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 100 meters.



RELATIONSHIP OF SELECTED ANTHROPOMETRIC MEASUREMENTS AND PHYSICAL VARIABLES TO PERFOMANCE IN 100 METERS

A-Height
B-Weight
C-Sitting Height
D-Leg Length
E-Arm length
F-Explosive Leg Length
G-Speed
H-Agility

•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 of100 meters.
2.Insignificant: - There was significant correlation between height, weight to performance. Therefore, it crucial factors for a successive 100 meters performance whereas height, weight were not important factors influencing performance in100 meters.

•DISCUSSION: -

In the light of the conclusion drawn, the following discussions were made the Physical Education Teacher, Coaches, and Sports Scientists and100 meters:

1.In the training programme for 100 meters 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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