

Research Paper :

Relationship of selected physical and physiological variables to the performance in long jump

DHANANJAY KUMAR AND ARJUN SINGH

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See end of the article for authors' affiliations

Correspondence to:

DHANANJAY KUMAR
Department of Physical Education, Govt. P.G. College, M.Bad, MAU (U.P.) INDIA

ABSTRACT

Fifteen male students of Lakshmbai National Institute of Physical Education, Gwalior were selected as subjects. For the establishment of relationship of dependent and independent variables and number of tests were employed. The findings of the study revealed the significant relationship between the performance of subjects in long jump and selected variables *i.e.* standing broad jump (0.786) and no significant correlation was obtained with variables *i.e.* 50 m dash/(-0.839), maximum strength (0.418), vital capacity (0.076), positive breath holding capacity (0.062), negative breath holding capacity (0.304) and resting heart rate (0.240).

Key words : Long jump, Physical variable, Physiological variable

The performance of long jump is affected by different factors like physiological, psychological, motor traits and physical etc. Many studies had been done in respect of physiological and psychological factors on the performance level and so on. So, the efforts have been made to investigate the relationship of physical and physiological variables on the performance of long jump.

Objective:

The purpose of the study was to compare the selected physical, physiological variables to the performance in long jump.

Hypothesis:

On the basis of literature reviewed, research findings and the scholar's own experience in the field, it was hypothesized that there would be no relationship between selected physical variables and physiological variables to the performance in long jump.

METHODOLOGY

Selection of subjects:

Fifteen male long jumpers studying from B.P.E 1 to B.P.E. III of Lakshmbai National Institute of Physical Education, Gwalior were selected randomly as subjects for this study. According to college records, the average age of the subjects was in the range between 19 to 22 years.

Selection of variables:

Based on the review of related literature, experts advices, the comparable study in the related field,

feasibility, delimitation of the present study as well as very purpose of the study, the following variables were selected for the purpose of the study:-

Physical variable:

- Explosive leg strength
- Maximum leg strength
- Speed (50 meter dash run)

Physiological variable:

- Vital capacity
- Maximum breath holding (positive and negative)
- Resting heart rate

Statistical technique:

The relationship of selected physical and physiological variables to performance in long jump was calculated by using the method cited by Clerke and Clarke.

$$r_{xy} = \frac{N \bar{x}\bar{y} - (\Sigma x)(\Sigma y)}{\sqrt{[N\Sigma x^2 - (\Sigma x)^2][N\Sigma y^2 - (\Sigma y)^2]}}$$

OBSERVATIONS AND DISCUSSION

To determine the relationship between the independent variables namely, selected physiological variables *i.e.* vital capacity, positive breath holding capacity, negative breath holding capacity and resting heart rate and selected physical variables *i.e.* standing broad jump, 50 meter dash, maximum strength and dependent variables namely, performance in long jump and the product moment correlation were applied. The frequency