

The Relationship between Some Physical Measurements and the Force Distinctive with Speed of the Broad Jumpers

Saif Abdul-Zahra Hamza

Department of Theoretical Science, Faculty of Physical Education and Sport Sciences, Al Mostanseryah University

ABSTRACT

The scientific progression in the field of sports has seen a remarkable development in various levels and for most sports, achieving a quantum leap in establishing great achievements in some sport games. Today we are in dire need for more effort to achieve a bright future that ensures the sports movement scientific advancement and progression at various levels. Through the revision done by the researcher of a number of studies and researches which included physical measurements, he noted that each physical activity owned specific physical measurements qualifying to reach high levels of competition for this activity. The researcher intended to identify the relationship between the height and the force distinctive with speed among the athletic students, in the fourth grade in the faculty of physical education and Sport Sciences/University of Baghdad. The study included a sample of the fourth grade students. They were 26 students. The sample was divided into two groups, the first group included students whose heights exceeded (177 cm). The second group included students whose heights were below (165 cm). For the period from 01/01/2016 to 05/01/2016. The force distinctive with speed was measured for both legs in the two groups. The results showed no significant correlation ($P \geq 0.05$) between age and choosing the vertical jump of fortitude, and between age and choosing medical ball pushing. Results also recorded the existence of a significant correlation ($P \leq 0.05$) between the (weight - thigh circumference) and choosing the medical ball pushing. As well as a significant correlation ($P \leq 0.05$) between the length of the hummers and choosing broad jump of stability, vertical jump of stability and pushing the medical ball. The results also recorded the existence of a significant correlation ($P \geq 0.05$) between the length of the forearm and the broad jump of stability test and pushing the medical ball. The most important conclusions that have been reached that there was a significant correlation between height and force distinctive with speed among the jumpers of the broad jump of stability.

Keywords: Physical measurements, force distinctive, speed, jumpers

INTRODUCTION

The force distinctive with speed is defined according to “Monterey” as muscular and nervous system’s ability to overcome the resistances by the speed of muscle contraction. It is defined by (Clark) as the

individual’s ability to launch the maximum muscular strength in the shortest possible time. “Larsson and Herman” (1) also agrees with that. It is defined as the ability to release the maximum force in the maximum time. In the triple movements, the height or the distance value is considered as a measure to develop the force distinctive with speed. There is a used choice to measure the strength of the jump, which is jumping over it. As we measure the difference between the height while standing and in case of jumping. While the ability to jump for a broad could be recognized by choosing the familiar three jumps there are many terms in the foreign language refer to the concept of physical and kinetic or physical or kinetic. Which resulted from

Access this article online



Website:
<http://sjsr.se/>

ISSN:
2001-9211

Address for correspondence:

Saif Abdul-Zahra Hamza, Department of theoretical science, Faculty of Physical Education and Sport Sciences, Al Mostanseryah University. E-mail: Alnmr77@yahoo.com

the link between muscle strength and speed. Some of the pioneer researchers who worked in the field of measurements in physical education English used the English term. These terminologies were translated into Arabic, they mean the ability on the mechanical concept of the word as it refers to the work done for time that it is equal to (2):

$$\text{Force} = \text{power} \times \text{distance} \div \text{time}$$

Recent research in the field of measurement in physical education in the field of sports training has taken up the analysis of the complex motor component, that links between power and speed. Some researchers suggested using the term exploitive and explosive power, given that the speed used in the performance serve as the maximum kinetic speed. The power distinctive with speed (muscle force or explosive power) of the most important components for the motor performance in many sporting activities (3).

The muscle strength is known to be the maximum amount of power that can be released by a muscle or a set of muscles involved in work together, because there is a group of researchers identifies muscle strength as the ability of a muscle or muscle to overcome the external resistors or face them on the basis of physical and motor performance requires trial to overcome the resistances and called facing of this resistance. Of course these resistors differ in terms of the intensity in the other physical activity, and that the muscle performance of the other performance in this sense the muscle acquires its significance by being an important factor in the performance and motor performance in most sports activities, and considered to be the most important factor for the performance in certain sports activities. (4.5). the muscle strength can be defined as the force that can and individual exerts and making the utmost effort only once. While the other definition of muscle strength is the ability of the muscle and the muscles to overcome the maximum possible resistances or facing these resistors during a scheduled performance (7.6).

One study (8) pointed to the presence of attractive correlation between physical measurements and the force distinctive with speed among as the football goalkeepers; the problem has forced the researcher to adopt the descriptive manner in the survey because it was the closest approach to solve the problem by a scientific method.

Research Procedure

Research methodology

The research problem has forced the researcher to adopt the descriptive manner in the survey because it was the closest approach to solve the problem by a scientific method. This approach is considered one of the main and basic approaches in the research.

The research sample

The research sample included Phase IV students in the Faculty of Physical Education/University of Baghdad. They were 26 students. The researcher has divided the sample into two groups:

First: He tested the students whose heights exceeded (177 cm).

Second: He tested the students whose heights were below (165 cm).

Tools used

Arabic resources - A playground field - measuring tape - colored chalks.

Specification of test terms used

The purpose of the test: measuring the force distinctive with speed for both legs.

Test description

The student begins with forearms swinging, with knees slightly bent, and then forward swinging of the arms with rapid stretching of the knees, and jumping forward for the furthest distance.

Test rules

Each student is allowed to get three attempts to record the best result.

Statistical methods

The use of statistical program SPSS, for preset calculations. The arithmetic mean, standard deviation and test t value have been calculated for samples to extract the differences.

RESULTS AND DISCUSSION

Table 1 represents the means and standard deviations for students of standard height of 177 cm and above, and students whose heights are below of 165 cm. Also it illustrates the calculated T value (3.385) and the tabular T value (2.228). Upon comparing the calculated value with the tabular value we note a correlation between height and jumping off stability.

Table 1: Illustrates the medians, calculated values and tabular values for the fourth grade students

Physical variable	Median	Standard deviation	Calculated T value	Tabular T value	0.01
Height of 177 and above	83-233	4.63	3.385	2.228	3.169
Height of below 165	222.91	8.56			

As the students whose heights are more than 177 cm were able to achieve greater distance. This proved the research hypothesis, which was the presence of a significant correlation between height and jump out of the stability. The researcher explained that the nature of the test that he performs through which swinging of the arms and bending of the knee joint with pushing the ground and throwing the legs forward up gives a positive aspect to the sample that is characterized by the length of the body especially the legs. As with the increased leg length, the longer the distance passed by the student.

The taller the student, the higher gravity center of the body or the center of the weight of his body. Which in turn makes the fly arc better than the short stature ones. This is what we observe in the jump activities of jump as the broad jump. Where the tall athlete is better than the short one due to the difference in the center of the body gravity. Mahdy Shalsh's success has confirmed that the increase in the length of the muscle fibers is directly proportional to the strength of the muscle. As the muscle with short fibers produces less force than the muscle with long fibers. The muscle strength is directly proportional to the degree of fibers stretch to a certain extent. The less stretch produced less force and vice versa (9).

In light of the results that the researcher found we concluded the following: The existence of a strong relationship between total body length and strength of the jump off stability, or this is what confirms the mechanical orbit in the events in and jump off stability in particular. Based on the above, the researcher recommends the following:

1. Preferential selection of students with longer body length, especially the lower limbs for many sporting events and activities, including jumping.
2. The power distinctive with force is a motion feature of effective influence on the impact of movements by combining two basic traits, and playing an important role in achieving the levels of sports and in the compilation of sporting events and games, including the event of the track and the field. Therefore, we recommend its use in the events of track and field in general.

REFERENCES

- Abul-Ela Abdul Fattah ((1993, physiology of fitness, Alfikr Alaraby publishing house, Cairo.
- Bastawisi Ahmed (1999), the foundations and theories of sports training, Alfikr Alaraby publishing hous, Cairo.
- Botrous Ahmed: Principles of Statistics of Physical Education, Dar Alkotob Press, Egypt, 1980.
- Mohammed Abdu Saleh: integrated preparation of the football players, Alfikr Alaraby publishing hous, Cairo 1981.
- Talha Hossam El-Din (1997), the scientific encyclopedia in sports training, book publishing center, v. 1, Cairo.
- Resan Kahribt: athletic training, Basra University, 1988.
- Adel Abdul Basir: (1992), sports training and physical integration- theory and practice, Almotaheda Library, Port Fouad.
- Ahmed Abdel Aziz: The relationship between some physical measurements and the force distinctive with speed among football goalkeepers.
- Mohi Ibrahim Hamad: performance and tactical preparation, Alfikr Alaraby publishing hous, Cairo 1975.