Relationship of Some Anthropometric Measurements With The Explosive Strength of the Upper and Lower Extremities with the Rhythmic Gymnastics of Female Students

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Abstract

Identify the relationship between some anthropometric measurements and the explosive power of the upper and lower extremities of female students in rhythmic gymnastics. The research sample consisted of students from the University of Kufa / College of Physical Education and Sports Science where the research sample underwent field tests to measure the explosive power of the upper and lower extremities and after conducting statistical treatments and presenting the results and analyzing and discussing the researcher reached To a set of conclusions, including there is an inverse correlation between age and the explosive force of the upper and lower extremities, and there is a direct correlation between body length and the explosive force of the upper and lower extremities.

Key words: *anthropometric measurements, explosive force of the upper and lower extremities, rhythmic gymnastics*

Introduction

Rhythmic gymnastics is one of the sporting activities that depend mainly on different sciences such as biomechanics, training science and other sciences. It also has special physical requirements that distinguish it from other games and these requirements are reflected in the physical specifications that must be met by those who practice them, which are the basis for the use of motor characteristics. It gives a greater opportunity to absorb the skills of the game and its arts. Here, asserts,(1) "It has been demonstrated in various sports that there is a relationship between bodybuilding characteristics such as height, weight, length of the limbs and between the high athletic level and that each game has certain physical characteristics that must be observed when athletes choose games. And the various activities, "and Muhammad Subhi Hassanein points out that," (2) as for the sports field, it has been proven that physical measurements are related to many motor abilities and excel in various activities(3). Also, Kurton has proven that athletes in some games are distinguished from their peers in many physical measures such as the length of the trunk,(4) the width of the shoulders, the narrowing of the pelvis, and others. Qassem Hassan Hussein also stresses that "the characteristics of sports require attributes that are appropriate to games and related to the signs of for bodybuilding, such as body height, body weight,(5) and the relationship between arms, legs, body, etc(6).

From the foregoing, the importance of the research lies in knowing the relationship between some physical measurements and the explosive strength of the upper and lower sides of the rhythmic gymnastics students, and the research problem was that the rhythmic gymnastics game is a distinctive game from the organized games that contains a set of motor skills subject to a special law that defines the methods of practicing it and determines the number Team players, and through the experience of the field researcher being a player, trained and teaching at the same time, and through the many field view of the training of students and different teams it was found not to set the correct foundations for the selection of male and female students according to the anthropometric measurements and special physical abilities so this is important in the correct choice and keeping pace with the progress of the game Accordingly, the researcher decided to delve into the current study to demonstrate its

importance due to its positive impact on the progression of the level of the player and the achievement of the teams advanced results, and the objectives of the research were to identify some anthropometric measurements of the students under study, measure the explosive strength of the upper and lower extremities of the students under study, and identify Relationship between some anthropometric measurements and explosive force For the upper and lower extremities of students under study

Practical measures:

The descriptive method was used in the survey method, due to its relevance and the nature of the research on the students of the University of Kufa / College of Physical Education and Sports Science, the third stage of (23) students.

Search procedures:

First: the measurements used:

For each of the students, the following measurements and tests were conducted (age - length-weight - shoulder-width - arm length - leg length - palm length - the vertical bounce of stability - Wide bounce of stability - throw a medical ball weighing 2 kg for the maximum distance.

Second: The tests used:

1 - Vertical Jump Test of Stability (the test goal is to measure the explosive force of the two legs, the test measurement method: the distance from the mark marked with the height of the arms high is calculated "from the standing position to the specified point from the highest vertical vault possible)

2 - Wide jump grip test (test objective: measure the explosive strength of the leg muscles, test measurement method: the best distance is calculated for the three attempts)

3 - Throw a medical ball weighing 2 kg to the maximum distance (test objective: measuring the explosive strength of the arms, the test measurement method: the distance is calculated for the best attempt)

The scientific basis for the tests

Statistical methods were used to evaluate the tests in terms of honesty, consistency and objectivity, and the following appeared:

1. Vertical Jump Test of Stability: Stability Coefficient (0,85) for Self-Validity (0,81).

2. The wide jump stability test: reliability coefficient (0,7), validity (0,8).

3. The medical ball throw test weighing 2 kg for the maximum distance: reliability coefficient (0.94), honesty (0.96).

Statistical means: SPSS was used

Results

Through statistical analysis and Table (1) we observe the values of the arithmetic mean and the standard deviations of the research measurements

Table (1): Shows the mean of the mean and the standard deviations for research measurements

Variables	Age	Length	the weight	Shoulder width	Arm length	Leg length	Palm length	The vertical jump from constancy	The broad jump from stability	Throwing a medical ball
mean	20year	158 cm	63 kg	39.5 cm	70 cm	75.2 cm	16.3 cm	41.2 cm	2.30m	10.5 M
standard deviation	3.6	0.12	6.7	2.6	3.3	3.7	1.2	8.8	0.16	1.8

Through the statistical analysis of Table (2), we note that there is a statistically significant correlation relationship between the chosen physical measurements and the explosive strength of the upper and lower extremities of the sample under study. My agency:

Table (2):Shows the correlation coefficients between the explosive strength of the legs and arms, and some selected measurements (N-19).

Explosive force Measurements	Vertical jump for the legs		Wide jump for the legs		Throwing a medicine ball for the arms	
	Correlation coefficient	Significance	Correlation coefficient	Significance	Correlation coefficient	Significance
age	- 0.3	non-significant	-0.3	non-significant	-0.5	non-significant
length	0.3	non-significant	0.2	non-significant	0.2	non-significant
weight	- 0.01	non-significant	-0.1	non-significant	0.4	non-significant
shoulder width	0.2	non-significant	0.2	non-significant	0.4	non-significant
arm length	0.35	non-significant	0.33	non-significant	0.3	non-significant
man height	0.4	non-significant	0.53	significant	0.43	non-significant
Length of palm	0.1	non-significant	-0.2	non-significant	0.2	non-significant

The international value at the significance level (5%) equals (0.47)

1- An inverse correlation between:

A - Age and the ability of the upper and lower extremities as their ability decreases with increasing age and this appears clear "in Table (2) and this is consistent with the Burley and Helen study in 1961, which concluded that the relationship between the previous variables decreases and each of the age (3, 910)

B - Weight and the capacity of the lower limbs, that is, the capacity of the lower limbs decreases with the increase in weight, as the weight of the body plays an "important"[7] role in many different games and activities, including rhythmic gymnastics, and this is confirmed by Hara (33,15) and from studies that prove the impact of the explosive force of the lower limbs By weight, which is consistent with our findings from what Muhammad Sobhi Hassanein mentioned, "A study conducted in 1967 at the University of Louisiana, in the United States of America, to identify the effect of changes in weight" (increase or decrease) on the results of individuals in the vertical jump test of stability. Among the most important results of this study is the results of individuals in testing explosive power when reducing body weight. "[8]

2 - A positive correlation between:

* Body length

* Arm length, upper and lower limb capacity

* Leg length

* Shoulder width and upper limb capacity

* the weight

That is, the capacity of the upper and lower limbs increases with increasing height, the trait that he stressed the necessity of availability for many, including Harrah, by saying, "The length is a characteristic that plays a" significant "role in many games, including rhythmic gymnastics (15,33). This man agrees with the role of the limbs in sports, which Harra affirmed by saying that "the muscles (limbs) play a major" role "in sports and that this aspect is preferred, especially from biomechanics," as it indicates in the same source that the players "throughout Stature and people with graceful bodies are the most appropriate form of "rhythmic immobility," as well as there is a convergence in what has been reached and what was stated in the study of Start and others in 1966 in that "there is a statistical indication of the correlation between the lengths of the lower limb and the explosive force[9]." The upper limbs increase with increasing weight (although increasing weight affects the ability of the two men as we explained earlier), meaning that weight plays a role in increasing the capacity of the arms.

Finally, "there is a relationship between weight and length that affects the explosive force, and this is what Muhammad Subhi Hassanein confirmed from Sar Jannat," he said, "The explosive force is affected by weight and length.[10]"

Conclusions

There is a statistically significant correlation relationship between some selected body measurements and the explosive strength of the upper and lower extremities of the sample. My agency:

1- An inverse correlation between:

* Age and explosive strength of the upper and lower extremities.

* Weight and explosive strength of the lower extremities.

2- A direct correlation between:

* Body length, arm length, and leg length with the explosive force for the upper and lower extremities.

* Shoulder width and weight with explosive power to the upper extremities.

Ethical Clearance: The Research Ethical Committee at scientific research by ethical approval of both MOH and MOHSER in Iraq

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157

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