

Physical abilities and their relationship to some physiological variables of the 100-meter freestyle swimmers for youth

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Abstract

The science of sports training has laid a basic foundation for all sporting activities and activities, and that the link and interaction of the science of sports training with other sciences can be used to achieve the required achievement.

Physical abilities are one of the main factors affecting the swimmer's speed in traveling the distance and achieving the best time during races and competitions.

The research aims to identify the level of some physical abilities and some functional variables for swimmers (100 meters) for youth, as well as to identify the type of relationship between some physical abilities and some functional variables for swimmers (100 meters) for youth. The sample included the national team swimmers for the youth age group (15-17) Year.

After presenting, analyzing, and discussing the results, the most important conclusions were the presence of a significant relationship between some physical abilities and some functional variables of the swimmers (100 meters) for the youth.

The most important recommendations were the need to pay attention to some physical abilities in general and some functional variables (number of heartbeat, stroke size, and cardiac output) for my swimmers (100 meters) for young people in particular.

Keywords : *physical abilities, functional variables, free-swimming.*

Introduction

The sport of swimming has witnessed a remarkable and rapid development in recent years, whether at the Arab, continental or regional level, and the smashing of numbers is only clear evidence of the extent of development and the increase in training loads and the associated development of physical qualities as well as the characteristics and functional variables that lead to achieving digital achievement Required and trying to reach the state of adapting the functional devices of the swimmers, commensurate with the type of swimming on the one hand, and with the method of training used on the other hand.

Physiological tests and measurements are the clear evidence of knowing the level of adaptation of functional devices through the responses of these devices to the physical load, which reflects the level of adaptation brought about by the training curricula given to swimmers, which will enable the trainer to discover the extent achieved from the desired goals in the curricula and training units.

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Physical abilities are related and specific to the type of sports activity, and they are closely related to sports activities in terms of technical performance and are similar in motor formation with the movements performed by the athlete during sports competitions. And that the exercises specific to sports activity, which are similar in performance to competitive movements or during matches, and which aim to develop muscles or muscular strength, and whose importance lies in playing the main role in the type of specialized or skilled sports activity for the type of sport or sporting activity.

The importance of the research is reflected in studying the relationship between some of the physical and functional variables of swimmers and keeping pace with developments in the (100-meter) freestyle swimming for young people.

Research problem:

By informing the researcher of the sources and follow-up in the field of swimming training, in addition to being one of the rulers of the Central Federation, he noticed a decline in the level of some physical abilities, which the researcher believes that the functional variables have an important role as they are the real indicator of the development of the level of physical abilities and through that he studied the relationship between Physical abilities and some functional variables to guide players and coaches to promote swimming in general.

Research goal:

Identifying the level of some physical abilities and some functional variables of a swimmer (100 meters) for youth.

Identifying the type of relationship between some physical abilities, functional variables, and some (100 meters) swimmers for youth.

1-4 Imposing search:

There is a statistically significant relationship between some physical abilities And some functional variables for a swimmer (100 meters) for youth.

1-5 Research Areas:

1-5-1 The human domain: the swimmers of the Army Club, the youth category (15-17) years..

Spatial domain: Al Shaab Olympic Indoor Swimming Pool (Baghdad Governorate).

1-5-3 Time domain: the period from 26/5/2019 to 29/6/2019.

2-1- Research Methodology:

The nature of the problem to be studied is what determines the nature of the approach followed, as the descriptive approach was used to fit the nature of the problem.

2-2- Research sample:

The research sample included the intentional method, and they are the army club swimmers for the youth category (15-17) years, and their number is (10) swimmers, and (2) swimmers chosen by the researcher were excluded for the exploratory experiment.

2-3- Devices and tools used in the research:

- Portable Personal Calculator (Dell).
- A rheostat for measuring weight and height.
- Manual stopwatch type (Diamond). number (3)
- Swimming paws.
- Modified Monarch bike. (Monark 894 E) Piece (1)

- The Physio Flow device with its accessories (gel, electrical wires, electrodes) to measure cardiac functions, number (1).
- Camera type (SONY). Number (1).
- Pool.
- Fox 40 whistle. Number 2).

2-4 Tests used in the research:

The tests used that achieve the objective of the test were determined for the individuals of the research sample.

2-4-1 Functional tests for swimmers on land under study:

First: The test of measuring cardiac functional indicators for a period of (120) seconds. (Abu El-Ala Ahmed Abdel-Fattah, 1997,140

After looking at one of the sources related to swimming, it indicates the possibility of using exercises or testing at the same time as the performance of the event, and considering it as a protocol for field and laboratory procedures.

1. Purpose of the test: To measure cardiac indicators.

2. Tools used: a physio flow endruo device with its accessories, a Monarch physical exercise bike (model 894 E), a portable calculator (P4), a special program for the bike (software).

3. Method of performance: The test taker enters the data of the laboratory, including (age, height, weight) and on this basis, the intensity required to work on the bike is determined, and then the laboratory warms up for (5) minutes, after which the tester sits on the bike for a minute One until the functional indicators return to the normal state, after which the sensors of the (Physio Flow Endruo) device are connected in the specified areas and after giving the signal to the laboratory, it performs the test for two minutes and the cardiac functional indicators are recorded by performing the physical effort exerted by the laboratory on the bike The data is self-analysed through the program for calculating the results of cardiac indicators at rest (before exertion) and during the period of physical exertion.

2-4-2 Tests of physical abilities in water. (Ahmed Mohamed Farhan, 59, 60, 2016)

First : the name of the test: a test for a distance of (100) meters free swimming with the paws.

Purpose of the test: To measure the strength endurance of the swimmer.

Tools used: swimming pool, stopwatch, registration form, whistle, paws, support staff.

Performance description: The position of the body of the tester (the swimmer) is horizontal, that is, in the same position of buoyancy inside the water at the edge of the basin. When the signal is heard, the swimmer begins to swim freely, until the end of the specified distance.

Recording method: The laboratory (the swimmer) records the time he took to travel the distance in seconds.

Second: A test for a distance of (150) meters free swimming.

1. The purpose of the test : To measure the speed endurance of the swimmer.

2. Tools used: swimming pool, stopwatch, registration form, whistle, paws, support staff.

3. Description of performance: The position of the laboratory body (the swimmer) is horizontal, i.e. in the same position of buoyancy inside the water at the edge of the basin. When the signal is heard, the swimmer begins to swim freely until the end of the specified distance.

4. Recording method: The laboratory (the swimmer) records the time he took to travel the distance in seconds.

Third: A test for a distance of (25) meters free swimming.

1. Purpose of the test : To measure the speed characteristic of the swimmer.

2. Tools used : swimming pool, stopwatch, registration form, whistle, assistant work team.

3. Performance description: The position of the body of the tester (the swimmer) inside the basin is horizontal, i.e. in the same position of buoyancy inside the water at the edge of the basin. When the signal is heard, the swimmer starts free-swimming at the maximum speed until the end of the specified distance.

4. Recording method: The laboratory (the swimmer) records the time he took to travel the distance in seconds.

2-5- The exploratory experience: (Ali Salman Al-Tarifi, 2013)

The researcher conducted an exploratory experiment on (2) swimmers from the same sample who were excluded from the main sample on Monday, 30/5/2019, and the experiment aimed to.

- Knowing the efficiency of the devices and tools used in the research.
- Knowing the appropriateness of the tests to individualize the research sample.
- The period of time that the tests take during their implementation.
- Knowing the efficiency of the assistant work team.
- Knowing and identifying the most important negatives that accompany the experiment in order to avoid them when conducting the main experiment.

2-6-Field Research Procedures

In order to achieve the objectives of the research on the one hand, and to identify the preparation and preparation of the variables for the research, the researcher conducted the main experiment on Thursday (2/6/2019), where tests were conducted on the research sample and the data for the tests were collected in a special form for data collection.

2-7-Statistical means

(SPSS) was used to process the data and the results of the search variables.

Presentation, analysis and discussion of the results

3.1 Presentation and analysis of the results:

Table (1) (2) represents the results of the research variables.

Table No. (1)

It represents the arithmetic means and standard deviations of the research variables

the exams	measruing unit	s	p
b The number of heart beats	against	65	1,95
stroke size	MI	76,65	0.97
output lower	l/ d	5,54	1,83
speed for a distance of 150 metres. the Withstand	the second	84,46	0.54

second			
Withstand the force for a distance of 100 meters with the palm. the second	the second	57,89	0.97
The force characteristic of velocity for a distance of M. the second25	the second	12,35	1,88

Table No. (2)

Represents the multiple correlation coefficient (Kandal) for the search variables

Variables	Withstand speed for a distance of metres. the 150 second	Withstand the force for a distance of 100 meters with the palm. the second	The force characteristic of velocity for a M. 25 distance of the second
The number of heart against.b beats	0,77	0.87	0.75
ML.stroke size	0,98	0,89	0.97
d/ turn.l output is my	0,93	0.74	0.76

Degree of freedom = (n - 2) below the level of error (5%) = 0.70

3.2 Discussing the results:

Some physical abilities have a direct relationship with some functional variables, and this is natural for the research results to be positive.

And the positive correlation of speed endurance with some functional variables, which means that the higher the level of speed endurance, the greater (the number of heart beats, stroke size and cardiac output). It is related to the body's ability to withstand fatigue and bear the pain resulting from high acidity in the blood as a result of the accumulation of lactic acid. Therefore, the ability (velocity endurance) has been linked to the lactic acid system. With the ability to endurance speed, because swimming is a recurring activity, which requires avoiding the manifestations of fatigue for the speed of forward movement in short competitions. (Essam Abdel Khaleq, 184, 2005)

And the positive correlation of force endurance with some functional variables, which means that the higher the level of force endurance, the greater (the number of heart beats, stroke size and cardiac output), “ the marriage of the two elements of muscle strength and endurance is of great importance from the physical and physiological perspectives for many sports activities and games that require continuous movement Long- and medium-distance swimming, long- and medium-distance running, cycling, rowing and gymnastics, and this mating results in an element of endurance of force, and strength endurance is defined as the ability of a muscle or a muscle group to resist muscle fatigue during repeated muscle contractions and for a long period of time. 95)

And the positive correlation of speed-characterized strength with some functional variables, which means the greater the level of force-characterized by speed, the greater (the number of heart beats, stroke volume and cardiac output). To the speed characteristic of the muscles of the arms and legs, because swimming activities depend greatly on it, “It is required for the presence of the speed characteristic of the individual that he must be characterized by a high degree of muscular strength and a high degree of speed as well as a high degree of motor skill to integrate muscle

strength with speed, which is the rapid appearance of muscular strength that combines both speed and strength into a movement. (Muhammad Ali Ahmed al-Qat, 45, 2006).

Conclusion:

4.1 Conclusions

- A good level in some of the physical and functional abilities of the swimmer (100 meters) for the members of the research sample.
- There is a significant direct relationship between some physical abilities and functional variables for a swimmer (100 meters).
- The higher the level of some physical abilities of the swimmer, the higher the level and capabilities of some functional variables (number of heart beats, stroke size and cardiac output)..

4.2 Recommendations

- 1 - Attention to physical abilities in general and some functional variables (number of heart beats, stroke volume and cardiac output) I have a swimmer (100 meters).
- 2- Paying attention to the study of functional variables as an important indicator to suit the type of exercises and the correctness of the approach followed.
- Conducting similar studies and research concerned with research variables and on different samples of swimmers from other events.

References

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