

# The Effect Of The Accompanying Effort (Ischemia And Hyperemia) Of The Higher Parties In The Development Of Some Functional Variables And Digital Targeting Of 50 Advanced Freestyle Swimmers

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## **Abstract**

*The research aims to know the effect of the effort associated with ischemia and hyperemia of the upper extremities (the arms) in developing some functional variables by blocking the artery in the working muscle for a specific period ranging from 1-2 minutes as the oxygen level within the muscle tissue decreases by obstructing the passage of arterial blood flow (oxygenated blood) ) To the cells, which leads to a state of ischemia, i.e. training with lack of oxygen, and this process is accompanied by an increase in the accumulation of lactic acid in the muscles and expansion of blood vessels, and upon completion of the state of ischemia, i.e. when the artery is opened and allowing the passage of arterial blood naturally (hyperemia) during which blood flow to cells increases, as The blood circulation supplies the muscles with oxygen and removes the remnants of the cellular reaction that cause the widening of the arteries. Lactic acid is eliminated by oxidizing it and converting some of it to other compounds. The research sample included (6) swimmers from the Iraqi national team free swimming for the applicants, which were divided into two experimental and control groups to find out the extent. Development in some functional variables and achievement in the 50m freestyle.*

**Keywords:** *training / swimming stilt.*

## **1. INTRODUCTION**

The world in mathematical achievement is progressing rapidly from day to day, whether in activities of an individual or collective character, which makes us wonder what lies behind this progress as this progress did not come from a vacuum, but was and is still the basis of science, and then the continuous and vigorous efforts to raise the level By researchers.

Hence, we note the extent of development that individual games have reached, especially swimming, which today is one of the best sports accomplished by the fall of records and digital targeting from past years due to the availability of some modern means and methods that add to training the distinction in the progress of record numbers and among these methods are the accompanying exercises ( For ischemia and hyperemia) is a method aimed at preventing or blocking the oxygen-carrying blood to the muscles of the upper extremities (arms) or lower (legs) by means of a compressive method, placed on the main arteries of

those extremities, in order for a condition called Ischemia to occur, and to give Accompanying physical pregnancy (physical exercises), and then lifting the method of pressure to cause the so-called state of hyperemia (an increase in the rate of blood flow to the organ after a temporary closure of the arterial flow rate of that organ) so that he can develop the athlete's ability to functionally and thus achieve better achievement.

#### Research problem

Swimming is one of the sports that progresses and rises quickly at the Arab, Asian and global levels, as noted, but it did not get much luck from researchers in Iraq to advance it as required, but training must be based on sound foundations in the components of the training load and the relationship between them during training And competition in the internal body systems as well as biochemical and physiological indicators as a result of physical effort and how to work on its adaptation, so the researcher decided to address this problem by studying the associated effort (for ischemia and hyperemia) and its effect on the upper extremities of the arms and in the development of some functional variables and digital targeting of 50-meter tourists free to serve us The development of this sport, especially free swimming, because of its distinction and progress, and it occupies the first places by digital targeting among other swimmers.

## 2. RESEARCH AIMS

- To identify the effect of the effort associated (ischemia and hyperemia) of the higher parties in developing some functional variables on the research sample.
- To identify the effect of the associated effort (ischemia and hyperemia) of the higher parties on the achievement of 50 free meters on the research sample

#### Research hypotheses

- 1- There are significant differences in favor of the experimental group in the accompanying effort (ischemia and hyperemia) of the higher parties in developing some functional variables on the research sample
- 2- There are significant differences in favor of the experimental group in the accompanying effort (Ischemia and Hyperemia) of the higher parties to achieve 50 free meters on the research sample

#### Research areas

The human field: a sample of the Iraqi national team swimmers in the 50m freestyle swimming category.

Spatial area: the Olympic indoor swimming pool.

The temporal domain: from 3/14/2019 - 5/15/2019.

#### Research Methodology

The researchers chose the experimental method to suit the nature of his research. As the problem addressed by the researcher was imposed on him to prove the hypotheses through experience, as the experimental method is (the most accurate and most adequate types of approaches in reaching accurate and reliable results) 121: 1

#### The research sample

The research sample included swimmers of the Iraqi national team who were deliberately selected and numbered (6) swimmers as a sample for the research because they were practicing a 100-meter freestyle swimming that suits the idea of the research. Homogeneity of the research sample.

#### Search devices and tools

- A legal closed swimming pool.
- Electronic stopwatch number (6). (1) Fox / Fox whistle
- Electronic balance to measure weight and height

- Pressing method (tourniquet) for the upper extremities.
- Medical syringes capacity (5 ml).
- A portable electronic lactic meter (Japanese-made)
- Lactic acid test strips (English made).
- Regular blood pressure tubes contain preservatives.
- Medical cotton and sterile materials
- Electronic stopwatch count (6)
- Plaster of different sizes
- A form for recording test and measurement results of the sample.

Tests used in research:

The researcher used the following tests to suit their research procedures. The test description follows.

Post-mortem HR measurement:

- Name of the test / heart rate test immediately after the exertion

The aim of the test is to correct the heart rate per minute

Description of the test performance / measurement is done using an oximeter device placed on the index finger and then the number of heartbeats per minute is calculated

CPK test:

- Name of the test / creatine phosphokinase enzyme test

The purpose of the test / to know the levels of this enzyme in the blood.

- Description of the performance of the test / it is measured by drawing (5CC) blood from the player from the vein in the left hand and then placing it in a special tube containing an anti-clotting substance and then transferring it to the laboratory to be chemically treated to extract the proportions

LA test:

- Test name / Lactic Acid Enzyme Concentration Test

The aim of the test / to know the levels of lactic in the blood.

Description of the performance of the test / is measured by drawing blood from the player with an amount of (5CC) from the vein in the left hand and then placing it in a special tube containing an anti-clotting substance and then transporting it to the laboratory for chemically processing it to extract the proportions.

The pretest

On 3/14/2019, the researchers together with the assistant work team, after preparing all the supplies and capabilities needed by the research sample, conducted a pre-test before conducting the first training unit measuring pulse rate per minute, CPK rate and AL concentration, and after that the swimmers conducted a test of 50 free swimming, and then the researcher Write down all the information related to the search variables.

Training curriculum

- The training program was prepared by specialized trainers and under the supervision of the Iraqi Central Swimming Federation. The two researchers did not interfere with the training program, and it relied on the program prepared by the trainers.

3-7 main experience

The two researchers determined the required pressure for the pressure method, and a pressure (120-160 mm Hg) was determined to ensure that ischemia occurred and not to allow blood to pass easily into the blood vessels of the upper extremities.

Then the two researchers prepared a work program for the research by reviewing scientific sources and previous studies and using the opinions of specialists and previous studies, as

they conducted personal interviews with expert experts with doctors in the field of vascular and other specialties.

The program included:

\* - After the swimmers descend the water and warm up, the compressor is attached to the experimental group at 120 mm Hg.

\* - Doing freestyle swimming with medium intensity for a period of 1\_2 minutes until the effort of the experimental group benefited.

\* - After two weeks of work, the pressure is increased to 140 mm Hg, doing freestyle swimming with moderate intensity for 1-2 minutes

In the last (4) weeks, the pressure is increased to 160 mm Hg with high intensity, and a free-swimming session is performed for 1\_2 minutes.

\* - Give a rest for 3 minutes after each pressure with an effort associated with ischemia, and then continue with the training unit prepared by the trainer.

\* - The researcher's experience period in the stage of special preparation for swimmers

Post tests

On 15/5/2019 at four in the afternoon in the closed Olympic swimming pool, all the tests were conducted under the same conditions and the auxiliary work team.

Table No. (1) shows the pre -and post- tests of the experimental group of the research variables.

the tests	Experimental group/PRE		Experimental group/POST		T	Sign
	A	STD	A	STD		
HR	168.8889	1.45297	164.555	1.589	3,756	Sign
CPK	120.2556	1.47388	131.428	2.249	2,857	Sign
AL	169.7522	.80151	163.782	4.767	4,637	Sign
Achievement	25.9978	.79265	24.548	0.857	5,178	Sign

Table No. (2) shows the pre- and post- tests for the control group for the research variables

the tests	Control group/PRE		Control group/POST		T	Sign
	A	STD	A	STD		
HR	169.6667	1.22474	168.000	1.500	1,987	Sign
CPK	120.3378	1.79648	120.337	1.796	2,470	Sign
AL	170.6356	2.89886	167.656	2.190	2,783	Sign
Achievement	26.1256	.78801	25.304	1.706	3,654	Sign

Table (3) shows the arithmetic mean, standard deviations, and (T) value calculated for the post test and for the experimental

Table (3) shows the arithmetic mean, standard deviations, and (T) value calculated for the post test and for the experimental and control groups in the tests under study

and control groups in the tests under study.						
the tests	Experimental group/POST		Control group/POST		T	Sign
	A	STD	A	STD		
HR	164.555	1.589	168.000	1.500	2,428	Sign
CPK	131.428	2.249	120.337	1.796	2,196	Sign
AL	163.782	4.767	167.656	2.190	3,846	Sign
Achievement	24.548	0.857	25.304	1.706	2	Sign

In light of the results presented in Table (1, 2, 3) that there are significant differences in the dimension tests of the two groups (experimental and control) in the research variables. (Pulse rate after exertion, CPK enzyme rate and LA concentration in the blood), and the researcher attributes that the reason for the findings of a mechanism regarding pulse rate is that the method is the effort associated with ischemia and hyperemia and the regular distribution of pressure intensity on the arms over a two-month period increased heart efficiency, which improved the rate The pulse per minute is that the set of functional, anatomical and psychological changes that occur to the organs corresponds to the intensity of the training program, for a long period that gives the body of the swimmer functional changes and among those adaptations that occur at the beginning of the effort, such as an increase in the heart rate, in what occurs functional responses During and after the effort are considered primary responses to the stresses or stresses that the swimmer is subjected to, which is called real-time functional adaptation 31: 1, and the rest of the results showed a clear improvement for the experimental group due to the effect of the effort associated with ischemia and hyperemia, which led to an improvement in the achievement of a 50m freestyle swimming and this is what he referred to ( Abu Al-Ela Ahmad Abdel-Fattah and BRENT RUSHALL 2016), "Since in rebuilding ATP, the muscle needs other sources, and these sources are energy fuel and vary according to the speed of providing the required energy, as well as the extent of the need The muscle for oxygen, and these sources are obtained by the swimmer through the metabolism, but these sources need longer chemical processes in order to provide energy, but there is another substance stored in the muscle that the body manufactures and stores in the muscle until it is needed quickly and with the help of stimulating enzymes, as these The substance is composed of phosphate and creatine, and it is called phosphocreatine. The advantage of this substance is that it is very fast in the formation of ATP and does not need oxygen, that is, it is the main energy source in anaerobic work 37: 4.

### 3. CONCLUSIONS

In light of the scientific results and facts that the researcher has reached in his research, he concluded the following.

- 1- The method of using the stress associated with ischemia and hyperemia effectively affected the body's functional systems
- 2- The improvement of the functional apparatus of the swimmer's body had a positive effect on athletic achievement
- 3- The duration of the experiment was sufficient to develop the functional apparatus of the swimmer's body

#### Recommendations

In light of the researcher's conclusions, he recommends the following:

1- Directing the coaches' interest in applying this method to other swimming activities of all kinds

3- Urging researchers to conduct other studies on other types of sports and the possibility of applying this method because of its positive impact on the health of the athlete and the level of achievement

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