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Effect of Specific Tactical Exercises in Some Biochemical Indicators and Psychological Endurance and Achievement of 400 M Hurdles for Young Players

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Abstract

This study dealt with several topics including the introduction of the research and the importance of the use of specialized tactical training during the training units, which are manifested in the development of biochemical indicators, psychological tolerance and performance of the effectiveness of 400 m hurdles, so researchers thought to conduct this study and go in the process to identify the results that will be achieved. In the results to the lack of the use of specialized lactic exercises, which are based on scientific foundations and that would make adaptations functional, in addition to the effectiveness of this need of self-sufficiency of large runners because it is a difficult activity that requires the will and determination to win, if The research problem involves two main axes: the first is the low speed restriction and tolerance of the special speed in the 400 m hurdles, and the second axis in the search is to obtain a high level of functional efficiency of some biochemical indicators associated with special speed and the tolerance of the speed Therefore, the researchers considered going into this experiment.

Keywords: *biochemical indicators , psychological endurance , achievement*

Introduction

The achievement of sport requires the use of the scientific method of modern planning in various fields, where it began to take a large space to create a sophisticated world using it in all methods and scientific methods and in all areas of life 1, including sports, which is one of the important areas that reflect the culture of peoples. The emergence of modern science in the field of sports, especially in the science of training and physiology, the great impact in the development of the sports side and thus the evolution of athletes by upgrading their levels to the best compared to the previous level 2. The effectiveness of the arena and the field of sports events reflected the scientific progress achieved and reflected on most of the activities 3, including digital levels of times in track (running, jogging, walking, barriers and barriers) and distances in the field (jump, throw and jump) and points in the composite competitions (Decathlon for men – sevenfold for women) 4 Including the 400 m hurdles, which are very difficult to perform and their skills, and therefore require skill and physical training to suit the difficulty of the players during the competitions. Hence, it was necessary to use specialized lactic training because it has a positive effect on the development of functional efficiency 5 and upgrading the level of training of the player and the training and psychological state as the exercise exercises used, which is one of the most important factors of success and progress in performance provided that it is built on the basis of scientific correct to contribute In order to increase the efficiency of the athlete to achieve the best achievement 6, hence the importance of research in the use of lactical training specialized during the training units, which are reflected in the development of biochemical indicators and psychological tolerance and performance of the effectiveness of 400 m hurdles. So researchers thought to conduct this study and go into the process to identify the results that will be achieved. The 400 m hurdles are difficult games that require integration of physical elements and skill performance as well as

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functional integration. Here, the process of selecting players is based on scientific principles in order to achieve better results. And the experience of researchers and follow-up to most of the local championships noted that there is a weakness in the results achieved in the effectiveness of 400 m hurdles, despite the possession of players to physical capabilities and physical measurements, that the results do not meet the desired ambition compared to the figures recorded Arab and Asian and far from international figures, And attributed the researchers the reason for the decline in the results to the lack of the use of specialized lactical exercises that are based on scientific grounds and that would cause functional adjustments, in addition to that the need for self-sufficiency of large runners because it is difficult events that require the will and determination to win, if The research problem involves two main axes: the first is the low of the restriction speed and the tolerance of the special speed in the 400 m hurdles, and the second axis in the search is to obtain a high level of functional efficiency of some biochemical indicators associated with special speed and tolerance speed So researchers thought to go into this experiment.

Methodology

To achieve the objectives of the research, it was necessary to identify the research community and choose a representative sample, as well as the choice of statistical methods 8 suitable for data analysis and exit results, as follows:

Research Methodology:

The method is one of the important factors followed by the researcher to solve the problem and is chosen according to the nature 9 of the problem to be studied since the nature of the problem is imperative for researchers to use the experimental method because it fits the nature of the problem of research, and design the style of the two groups (experimental and control) with the pre and after the test .

Community and Research Sample:

The research community identified the effectiveness of the 400 youth hurdles of the Middle Euphrates clubs (Al-Khorraq, Midwest, Babel, Qasim, Rafidain, Shamiya, Najaf, and Al-Madhitiyyah),18 runner and a sample of them were selected for the pilot experiment by (4) runner), And the main sample of the experiment (14) runner were run in the simple random way (lot). They were divided into two groups (experimental and control) equally by random method. Table (1) builds the community and the research samples.

Table (1). Shows community and sample research

Number of members of the exploratory experiment	percentage	Number of main experiment personnel	percentage
4	22.2 %	41	77.7%

Sampling homogeneity and equivalence of the two research groups:

Homogeneity of the sample:

In order to adjust the variables that affect the accuracy of the search results, the researchers sought to verify the homogeneity of the research sample, which is related to the morphological measurements (length, mass mass, temporal age). The researchers used the torsion factor before applying the main experiment to the control and experimental groups, As shown in table (2).

Measurement method:

1. Five minutes after the player's 400m hurdles test, this is the best time to measure lactic.

2 - The measuring tape is placed in the location assigned to the device.

3. After placing the tape, the code number of the tape will appear. A blood sample will then be taken through the use of a complaint through which a finger is pricked and then pressed to allow us to extract the blood drop.

4. Note through the screen device and after raising the finger for a few seconds will appear on the screen the proportion of lactic acid in the blood and according to the specified percentage.

The record: A blood drop from the finger that has been pricked by a LACTATE PRO 2 device is used to obtain the drop of blood and place it in the measuring tape placed in the device . The blood is drawn by the medical staff, And in recent years used modern devices and simple can be carried by hand to measure the amount of lactic acid in the blood after the implementation of the

physical effort for about five minutes according to the consensus of expert experts after the implementation of the physical effort required to know the movement of the escalation of the amount of lactate blood and landing after the physical effort to ensure the transfer of the largest amount of The lactic acid from the muscles to the blood and put this sample of blood in the device, measuring the amount of lactic acid after several seconds and read the figure that appears in the screen of the device, which represents the measurement (Mmol / L ^{3}), and Yoshida , 1984 that lactate responses in The veins are better responsive to lactate arteries. 2

2- Measuring the level of concentration of dehydrogenase (LDH) in the blood:

The concentration of the enzyme dehydrogenase (LDH) was measured after the completion of the 400 m hurdle test. The laboratory sits on a chair immediately after 5 seconds, and the venous blood is withdrawn by (2 cc) by the chemist from The research community (14) hostility, which is sufficient amount as indicated by the instructions attached with the measuring tape , which is placed in the tubes (medical) written on the name of the player and number, and was transferred to the laboratory of Sadek Specialist directly, where the analysis of the enzyme By the specialist doctor.

Second - Psychological Endurance Scale:

In order to reach the goals that were developed, the researchers adopted the psychological stress scale prepared by 3 .

The scale may be from (64) paragraphs, see Appendix (2).

Third: Test run 400 m hurdles:

- Objective of the test: measuring the real achievement of the competition.

- Gadgets: Stopwatch (3), whistle.

- Method of testing: 10 barriers are set according to the competition law and each person is given an attempt to cut a distance of 400 meters by ten legal barriers.

Registration: Time is recorded through three temporary periods according to international law.

Exploration Experiment:

The researchers conducted an exploratory experiment on a sample of the original research community and outside the sample of the study and 4 players on Thursday, April 25, 2019. The exploratory experiment aims at:

1. Ensure the validity of the stadium and the tools and devices used and search requirements and suitability.

2. Organization of the working group and the required guidance.

3 - Ensure that the possibility of conducting laboratory tests of biochemical indicators, as well as make sure of the special laboratory devices in the detection of these indicators.

4- Know the readiness of the research sample to perform the tests.

6. Identify the time taken by the test.

Main experience:

Pre - Tests:

After the completion of the pilot experiment and ensure that the researchers applied the main experiment through the application of tests and standards on the community research was conducted on the pre- tests on Sunday 28/4/2019, as the tests were in the following sequence:

Results and Discusion

Table (2) Shows the computational circles, standard deviations, the calculated value of (t) of the interrelated samples, the level of significance of the test and the significance of the difference to the pre and post - tests of the control group of the variables investigated

Statistical means Variable	Measruing unit	Pre-test		Post-test		Calculated T value	Significant Test level	Significant type
		s	± p	s	± p			

Cont... **Table (2) Shows the computational circles, standard deviations, the calculated value of (t) of the interrelated samples, the level of significance of the test and the significance of the difference to the pre and post - tests of the control group of the variables investigated**

Lactic acid	mmol / L	14.60	0.62	13.01	0.28	8.75	0.000	moral
L.D.H	Unit / L	509.762	20.181	489.098	11.891	3.619	0.006	moral
Heart rate after voltage	Beat/ min	184.85	2.54	180.57	0.78	4.66	0.003	moral
Psychological endurance	degree	62.149	4.56	68.857	4.70	6.60	0.001	moral
Completion of 400 m hurdles	m / sec	58.428	0.567	56	0.213	4.16	0.006	moral

Table (3) Shows the computational circles, standard deviations, the calculated value of (t) of the interrelated samples, the level of significance of the test, and the significance of the difference for the pre and post- tests of the experimental group of variables investigated .

Statistical means Variables	**Measruing unit**	**Pre-test**		**Post-test**		**Calculated T value**	**Significant Test level**	**Significant type**
		s	**± p**	**s**	**± p**			
Lactic acid	mmol / L	14.61	0.47	11.92	0.63	12.49	0.000	moral
L.D.H	Unit / L	507.676	15.272	450.43	17.412	7.059	0.002	moral
Heart rate after voltage	Beat / min	184.57	2.87	176.85	2.03	9.21	0.000	moral
Psychological endurance	degree	62.571	6.72	78.428	6.75	60.79	0.001	moral
Completion of 400 m hurdles	m / sec	58.17	0.245	54.50	0.141	3.43	0.004	moral

As for the difference in the experimental group of the variable (heart rate after the effort), the researchers attributed to the use of the special lactical training that was prepared and applied to the members of the experimental group, because the runners were exposed to the effort (anaerobic), seeing 11 Physical exertion is considered the most important factor affecting the heart rate, as the rise of the pulse during the effort is normal in response to the effort exerted to meet the body's energy needs, which the heart and circulatory system to provide them by increasing the heart rate or the size of the blow " . 12

Table (4). (T) for the independent samples and the level of significance of the test and the significance of the differences between the results of the test (post-dimensional) of the control and experimental groups of the variables investigated

Statistical means Variables	**Measruing unit**	**Control**		**experimental**		**Calculated T value**	**Significant Test level**	**Significant type**
		s	**± p**	**s**	**± p**			
Lactic acid	mmol / L	13.01	0.28	11.92	0.63	4.13	0.001	moral

Cont... **Table (4). (T) for the independent samples and the level of significance of the test and the significance of the differences between the results of the test (post-dimensional) of the control and experimental groups of the variables investigated**

L.D.H	Unit / L	489.098	11.891	450.43	17.412	5.799	0.001	moral
Heart rate after voltage	Beat / min	180.57	0.78	176.85	2.03	4.50	0.001	moral
Psychological endurance	degree	68.857	4.70	78.428	6.75	3.076	0.002	moral
Completion Of 400 m Hurdles	m / sec	56	0.213	54.50	0.141	2.354	0.003	moral

The differences between the control and experimental groups were due to the quality of the exercises. The results showed that there were significant differences between the two groups (control and experimental) in the concentration of lactic acid in the blood and for the benefit of the experimental group. The specialized lactic prepared and designed by the researchers according to the physiological bases, which is compatible with the prevailing energy exchange system for the effectiveness of 400 m. Based on the scientific foundations of sports training and sports physiotherapy, as these exercises were prepared according to the system of lactic energy and this helped the athletes to get rid of lactic acid quickly, and researchers believe that sports training leads to increase the work of organizations to eliminate the biological increase of lactic acid, The exercises resulted in these differences after the effort between the two groups and after training for the concentration of lactic acid in the blood, which led to a state of improvement in the experimental group and thus an improvement in the work of the functional devices we note the low concentration of lactic acid, The concentration of lactic acid in the blood of well-trained athletes is less comparable to non-trained or less effective training if they do the same training or effort.

Conclusions

Based on the research results reached within the research community, the following conclusions were reached: specialized lactic exercises helped to develop the concentration of lactic acid in the blood. The specialized lactic exercises contributed to the high concentration of the enzyme (L.D.H) in the blood. The specialized lactic exercises were in the level of achievement in the sample research.

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Conflict of Interest: None to declare.

Ethical Clearance: All experimental protocols were approved under the Faculty of Physical Education and Sports Sciences / University of Kufa and all experiments were carried out in accordance with approved guidelines.

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