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Effect of training on increasing intensity and lactic acid concentration in enduring special speed and 800m run achievement for female

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ABSTRACT

The importance of the research focused on the use of the effect of training on according to the increasing intensity and concentration of lactic acid in enduring the special speed and the achievement of running 800m for the applicants.

As for the research problem, through the experience of researchers, they noticed that the achievement of 800-meter jogging does not develop with the Iraqi runner, as the scientific research and experiments that have been reached in this game is not carrying large energy residues, which is (large amounts of accumulation of lactic acid concentration in the blood), which is called The researcher seeks to address this problem by finding a training method that leads to the development of the body to endure lactic and to endure the special speed through which we can develop the Iraqi achievement in this game.

The aim of the research was to identify the effect of training according to the increase in intensity and the concentration of lactic acid in enduring the special speed and the achievement of 800m jogging for the female applicants, the identification of the percentage of the improvement of the special speed and the achievement of the 800m run for the female applicants, the identification of the percentage of the body's resistance to the accumulation of lactic acid for the individuals of the research sample.

The researchers used the experimental method for its suitability to the research problem, "where the researcher conducted the experiment on a sample of an elite 800-meter runner, whose total number is (12) female runners. 1200 meters on the individuals of the research sample, the researcher reached the following conclusions that the exercises according to the increasing intensity gave progress in the level to the sprinting distance (800) meters, and they need to be steadfast and avoid fluctuation in the variation in the values of this test, the results showed the superiority of the experimental group members in the post test in (the concentration of lactic acid) and this gives an important meaning an apparent focus for aerobic and anaerobic exercises developed by researchers.

The researchers recommended the necessity of conducting physiological and other physical tests because of their effective role in the training process, focusing on developing the endurance of special speed as well as reducing residues of lactic acid accumulation because of their direct impact on the development of achievement in this game.

Keywords
Training, intensity, Lactic acid, Special speed, Achievement, Female

Introduction

The sporting achievements that have been achieved at the present time did not come purely by chance. Rather, they came as a result of the fruit of correct, purposeful and codified training planning that gives great results that depend mainly on research, expertise and scientific experiments in order to achieve high achievement and reach an advanced level of sports performance. The world has witnessed a rapid development. It is noticeable in all sports, achieving championships and breaking numbers, especially in athletics, after developed countries have put all their capabilities to raise the sporting level by advanced scientific methods through which the technical, physical and physiological capabilities of all athletes can be invested, this made athletes reach the highest levels and receive accolades on the international and Olympic scale. The 800m activity is one of the fast jogging that is performed with maximum intensity and less than the maximum, due to this feature, there is a specificity when training it in terms of the energy system prevailing in it and the method and training method that affects the physical abilities used and the physiological variables that characterize this activity, and as a result of this particularity must be That the physical capabilities and the selected physiological indicators be in this direction, because this game is seen as a fast running race, and this gives an idea of the general trend in thinking about developing achievement in this competition. It should focus on special physical abilities and some physiological variables affecting this competition and the common

characteristics between it and fast running and developing the time of this game that needs compatibility and harmony, and because the runner possesses the capabilities that are in harmony with the requirements imposed by the stages of the performance of this game in terms of physical abilities, especially the special endurance and the ability to endure the special speed, which has a positive effect in maintaining the speed throughout the race distance and the intensity required by the game by taking advantage of improving neuromuscular work and adapting body systems to use the high training intensity according to the physiological variables of resistance to fatigue in the accumulation of lactic acid concentration in the blood hence the importance of the research from the use of the effect of training according to the increasing intensity and the concentration of lactic acid in enduring the special speed and the completion of 800m run for the advanced.

Research Problem

That is a game ran 800 Olympic competitions that require a specialist in this game to have special physical and physiological capabilities in addition to willpower, determination and struggle , the researchers noted through their experience on the field in the Iraqi stadiums that the achievement of the 800-meter run does not develop among the Iraqi runners, as the scientific research and experiments that have been reached in this game, it is not to large energy residues, which is (large amounts of accumulation of lactic acid concentration in the blood), which called the researchers to address this problem by finding a training method that leads to the development of the body to endure lactic and withstand the special speed, so that we can develop the Iraqi achievement in this activity.

Research Objectives

- Identify the effect of training according to the increasing intensity and the concentration of lactic acid on enduring the special speed and the achievement of running 800m for the female applicants
- Identify the percentage of improvement for the special speed and the achievement of 800m runs for the female applicants
- Identify the percentage of body resistance to accumulation of lactic acid for the subjects of the research sample.

Research hypotheses

- There are statistically significant differences between the pre and post-tests, training according to the increase in intensity and the concentration of lactic acid in enduring the special speed and the achievement of running 800m for the sample of the research.
- There are statistically significant differences between the pre and post-tests in achieving the effectiveness of 800m for the research sample.

Research fields:

The human field: (12) Runner in the 800m event for the female applicants.
Time field: From 29/1/2021 to 30/3/2021.
Spatial field: The stadium of the College of Physical Education and Sports Sciences / University of Baghdad / Al-Jadriya

Research methodology and field procedures:

Research Methodology:
The researcher used the experimental method to suit the nature of the research.

Community and sample research:
The researchers conducted the experiment on a sample of the elite 800-meter runner, whose total number is (12) female runners, and they were chosen by the intentional method.

Devices, tools and means used in the research:

Means of data collection:

- Dell laptop of Chinese made
- Lactic acid pro-2 device
- Medical scale to measure weight (kg).
- Rest meter to measure the total length of the body (cm).

Research tools used:

1. Arab and foreign sources and references.
2. Information network (internet).
3. Observation and experimentation.
4. Personal interviews with specialists and experts.
5. Measurements and tests.
6. Data collection form.
7. Data dump form.
8. Helping staff.
9. Playground Square and Square.
10. Metric tape measure to measure length.
11. Number (1) whistle.
12. Sterile materials - medical cotton.

Physical abilities tests:

Running test (600 m) from standing: -
Tests name: Running test (600 meters) from standing.
The aim of the test: To measure the anaerobic endurance of female runners.
Tools: Track and Field with whistle, stopwatch and flags to mark the starting point and the end point.
Performance description: The player stands behind the starting line and upon hearing the start signal the player runs continuously until she crosses the finish line.
Registration: The time it took the athlete to finish a run distance (600m) is recorded, and it is one attempt.

- Note that the test reliability coefficient is (0.87) and the objective coefficient is (0.90).
- Gain content validity by seeking expert opinion.

Achievement test ran 800 meters:
Purpose of the test: to measure the effectiveness of 800 meters.
Tools used: athletics track, stopwatches with the ability to measure more than one time during the test, assistants, registration form.

Performance description: The test was conducted according to the conditions and regulations of the International Association of Athletics Federation, as every two runners were tested together for the purpose of competition, and each runner in the designated running area, and after that the test began by giving the runners instructions to go behind the starting line to take the starting position from standing, and upon hearing Start signal Runners will run two laps on the track for the 800-meter distance.
Registration: The registrar records the completion time in the form prepared for this purpose in the minute and the second to the nearest fraction of a second.

Running test (1200m): -
Test name: Running test (1200 meters) from standing.
The aim of the test: to measure the oxygen capacity.
Tools: Athletics track and using whistle, stopwatch and flags to determine the starting point and the end point.
Performance description: The player stands behind the starting line and upon hearing the whistle, the player runs continuously until the end of the distance of (1200 m), reaching the end point.

Registration: The time the player took to finish a test is recorded and recorded in the registration form by the registrant.

- Note that the test reliability coefficient is (0.89) and the objective coefficient is (0.91).
- Gain content validity by consulting with experts.

Blood lactic acid concentration test before and after physical exertion.[(2)]
Test name: Measurement of lactic acid concentration in the blood before and after physical exertion.
The aim of the test: to find out the concentration of lactic acid in the blood.

Tools: Lactate Pro2 LT-1710 device, needle drill, test strip, graduated tape, medical cotton, sterile materials, registration form will be used.
How to use it: Take blood samples in the pre-test and post-test.
Registration: The reading shown by the device for each laboratory is recorded in the registration form.

Exploratory experience:

The exploratory experiment was conducted on a sample of Iraqi club female athletes with the help of the assistant work team, and the aim of the first exploratory experiment was as follows:

- Ensuring the possibility of providing accommodation in the heights and identifying the problems that may accompany the process of conducting the experiment and testing when applied.
- Knowing the validity of the place of the experiment to create the residence site and other services for the sample.
- Identify the possibility of working group to assist.
- Identify the extent of the sample's response to performing the test.
- Assist in organizing work by knowing the time spent on implementation.

Pre-tests:

After identifying the results obtained from the exploratory experiment, the researcher conducted physical and functional tests for the research sample in the physical education and sports sciences field, and the researcher had created the appropriate conditions for conducting the tests in terms of time and place to ensure the success of the tests.

Training curriculum:

The researchers designed a training curriculum based on scientific foundations and was presented to a group of specialists in the field of sports training, taking into consideration the sound scientific opinions of the specialists. Training per week, bringing the total of the units to 48 training units. The design of the training curriculum was based on severe aerobic exercises (70-85%) and strongly anaerobic exercises (80-95%) applied to the experimental group, anaerobic and aerobic exercises were used according to the theories of training, as it was proved that the focus on developing one device (air endurance) usually occurs at the expense of other devices (1). Aerobic and anaerobic exercises were distributed in the training curriculum on days of the week and based on the foundations of sports training and the intensity of anaerobic exercises was determined depending on the maximum time that the player traveled for the distances for these exercises, for example if 200 is the maximum time 25 seconds represents 100% to determine the intensity of training equal to 90 %, So the determination of the time corresponding to the intensity of 90% is as follows:
Maximum time 100% = 25 seconds
Absolute intensity 90%
As for the aerobic exercises, the training is determined so the maximum pulse is represented by running 1000 m 180 beats / d. 180 x 90% =
After the researcher had completed providing the appropriate conditions and place for training and feeding, the training curriculum was applied to the experimental group

Post-test:

The researcher, in cooperation with the assistant team, performed the post-tests for the research group and applied the same test method and procedures that were used in the pre-tests and according to the same sequence, as the researcher took into account the spatial and temporal conditions similar to the pre-tests when conducting these tests in order to achieve the validity of the results and give the desired result.

Statistical methods: -
The researcher used the ready-made program (Spss) to extract the following statistical treatments:

- Mean.
- Std. Deviation.
- Median.
- Skew ness.

Presenting, analyzing and discussing results:

Table (1) shows the arithmetic mean, standard deviations, and the calculated value (t) for the pre and post- tests of the experimental group.

Variables	Measuring unit	Pre-test		Post-test		Difference of means	Difference of standard deviations	T value	Sig type
		Mean	Std. Deviation	Mean	Std. Deviation				
Ran 600 meters test	Minute	2.383	0.354	2.090	0.288	0.267	0.124	2.878	Sig
Test achievement of 800 meters	Minute	4.345	0.533	4.052	0.665	0.243	0.122	2.171	Non sig
Ran 1,200 meters test	Minute	6.399	0.380	6.06	0.373	0.393	0.092	4.348	Sig

The tabular value (t) is (2.571) below the level of significance (0.05) with the degree of freedom (5).

Table (1) shows that the arithmetic mean value (for a 600-meter test run) in the pre-test is (2.383) with a standard deviation of (0.354), while the arithmetic mean in the post test reached (2.090) with a standard deviation (0.288). As for the calculated value of (t), it was (2.878), which is greater than the tabular value of (2.571) and with a degree of freedom (5) below the significance level (0.05), which indicates the existence of significant differences in favor of the post-test.

As for the results of the arithmetic mean and standard deviation in (the 800-meter run test) in the pre-test, it was (4.345) and with a standard deviation of (0.533), and for the post test (4.052) and with a standard deviation of (0.665), the calculated value of (t) was (2.171, which is smaller) From the tabular value (2.571), with a degree of freedom (5) and below the level of significance (0.05), indicating that there are no significant differences.

While the results of the arithmetic mean and standard deviation in (the 1200-meter run test) in the pre-test were (6.399) and with a standard deviation of (0.380), and for the post test (6.06) and with a standard deviation of (0.373), the calculated value of (T) was (4.348), which is greater than the tabular value (2.571), with a degree of freedom (5) below the level of significance (0.05), which indicates the presence of significant differences in favor of the post test.

Table (2) Shows the arithmetic mean, standard deviations, and the calculated value (t) for the pre and post-tests of the group.

Variables	Pre-test		Post-test		Difference of means	Difference of standard deviations	T value	Sig type
	Mean	Std. Deviation	Mean	Std. Deviation				
Lactic acid before the effort	18.854	4.491	17.569	3.645	1.283	0.850	1.877	Non sig
Lactic acid after exertion	135.155	21.388	117.144	17.688	17.966	4.824	3.844	Sig

The tabular value of (t) is (2.571) below the level of significance (0.05) and with the degree of freedom (5)

From the results presented in table (2), it appears that the mean value (the percentage of lactic acid before the effort) in the pretest is (18,854) with a standard deviation of (4.491), while the arithmetic mean in the post test reached (17,569) with a standard deviation (3,645). The calculated value of (t) was (1.877), which is smaller than the table value of (2.571) with a degree of freedom (5) below the significance level (0.05), which indicates that there are no significant differences.

As for the results of the arithmetic mean in (lactic acid after the effort) in the pretest it was (135.155) with a standard deviation of (21.388), and for the post test the arithmetic mean was (117.144) and with a standard deviation of (17.688). As for the value of (t) calculated, it was (3.844), which is greater than the tabular value of (2.571), with a degree of freedom (5) below the level of significance (0.05), which indicates the existence of significant differences in favor of the post-test.

Discuss the results

It is evident from the results presented in tables (1,2) that show the differences in the arithmetic circles of the experimental group, as the results of the physical tests showed the presence of significant differences in the pre and post tests and in favor of the post tests in the (600 m) test, which the researcher attributes to the effect of the training curriculum. Which included anaerobic exercises, which has an impact on the development of the digital level, which is in agreement with BUENO, which indicates the need to use anaerobic and aerobic exercises in order not to focus on a single device [(3)] .

As for the test (800m), the results showed that there are no significant differences between the pre and post-tests of the experimental group, and the researcher attributes this to the fact that running (800m) has a maximum intensity and less than the maximum, adding it to endurance, which indicates that the circulatory system is not sufficiently developed to achieve a better time, the results of each of the experimental group in the test (1200 AD) were significant and the researcher attributes that development to the effect of the training approach consisting of aerobic and anaerobic exercises in addition to the effect of training of maximum intensity and less than medium strength and this is consistent with what was mentioned by Holman / Hettinger and other previous studies that for training the antenna and the antenna lead to the development of functional systems, the increase in red blood cells, an increase in hemoglobin, changes in the volume of oxygen stocks within the cells and the proportion of adaptation and adaptation processes, in addition to changes in the various energy processes (increase in their activity), which leads to improved production [(4)] .

Among the arithmetic circles in the pre and post-tests of the experimental group for the proportion of lactic acid in the blood before the effort was not significant, as the researcher believes that every person has a percentage of lactic acid present in the body without exerting any effort and that this percentage is due to individual characteristics of each person and the activity of an enzyme (LDH) and this is in accordance with what was mentioned by "Kiel and Neil". The normal range for the concentration of lactic acid in the blood ranges between (10-20 mg / 100 ml blood) during rest [(5)] .

As for the results of lactic acid after the effort of the experimental group, they were significant, and the researcher attributes this to the effect of the training curriculum and the training of the aerobic and anaerobic center and the rate of lactic acid accumulation in addition to the increase in the disposal of lactic acid in the muscles as a result of the increase in cardiac thrust and capillary density, the increase in the number of red blood cells and the proportion of hemoglobin, thus increasing the delivery of blood to the working muscles through the development of the circulatory system, which is in accordance with "Shaker Al Sheikhly" [(6)] , reducing the lactic acid pool by increasing oxygenation and activating the circulatory system, and that the two ratios shown through the arithmetic media of the pre and post tests were within the normal proportions and this is consistent with what was mentioned by "Muhammad Hassan Allawi and Abu Al-Ela

Ahmed."In the case of a high-severity physical pregnancy, it reaches about 250 milligrams [7] , and this is also mentioned by "Muhammad Ahmad and Bakr Muhammad" in that the ratio is up to 128.7 mg / 100 milliliters of blood after performing an anaerobic effort - anaerobic [8] .

Conclusions and recommendations

Conclusions:

- The exercises according to the increasing intensity gave an advance in the level of the enemies of a distance of (800) meters in this test, and they need to be stable and avoid fluctuation in the discrepancy with the values of this test.
- The results showed the superiority of the experimental group members in the post test in (the concentration of lactic acid), and this gives an important and clear indication for the focus of aerobic and anaerobic exercises that were developed by the researcher.

Recommendations:

- The necessity of conducting physiological and other physical tests because of their effective role in the training process.
- Focusing on developing the endurance of special speed as well as reducing the residues of accumulation of lactic acid because of its direct impact on the development of achievement in this game.

References:

[1] Amer Ibrahim: (1993);Scientific Research and Use of Information Sources: Baghdad, Cultural Affairs House.
[2] Hazaa Muhammad Hazaa; Physiology of Exercise, Riyadh, King Saud University, 2008.
[3] BUENO ,M,(1998). Atitude training problems .moderm Athlete and coach.
[4] Hussein Ali Al-Ali and Amer Fakher Shaghati: (2006);Sports Training Planning Rules: Baghdad, Al-Karar Office.
[5] Bahaa El-Din Ibrahim Salama: (1994); Sports Physiology: Cairo, Arab Thought House.
[6] Shaker Mahmoud Zainal: The effect of standardized training methods from the Fartlek on the development of endurance speed, brown acid concentration in the blood and the achievement of running 400 mu 1500 m (PhD thesis, University of Baghdad / College of Physical Education, 2001)
[7] Muhammad Hassan Allawi, Abu Al-Ela Ahmed: (1984); Physiology of Sports Training: Cairo, Dar Al-Fikr Al-Arabi.
[8] Muhammad Ahmad Abdo Khalil, Bakr Muhammad Ahmad Salam: A study of the effect of accumulating high levels of lactic acid on the efficiency of subsequent aerobic and anaerobic work of athletes, The Scientific Journal of Physical Education and Sports Issue 25 / College of Physical Education for Boys in Al-Haram / Helwan University 1996).