

# The Effect of Dynamic Lactic Training According to the Target Time to Develop the Achievement of 800m Runners Under 20 Years Old

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## Abstract

The purpose of this paper is to preparing dynamic lactic exercises according to the target time for 800m runners (under 20 years old) , and identifying the effect of dynamic lactic exercises on achievement. The researchers has adopted the experimental approach in the (one group) style with two pre and post-tests and its design to suit the nature of the research problem. The sample of the research community for the event of running (800 m) under 20 years old, whose number is (6) runners who represent 100% of the community of origin from the elite of Baghdad, and the research sample was chosen by the intentional method in the Iraq Athletics Clubs Championship for the season (2022-2023), which They applied the training curriculum using dynamic lactic exercises. One of the most important results reached by the researchers is that : The dynamic lactic training according to the target time affects the flow of performance and improves the achievement of the 800m run, the development of the fatigue index variable and performance endurance of the runners were in a positive direction in improving the level of achievement of the 800m run , and use of the high-intensity and repetitive interval training method in dynamic training is effective in improving hypoxia and delaying the onset of lactic acid. One of the most important recommendations recommended by the researcher is that: It is preferable to adopt dynamic lactic exercises according to the target time to complete the 800m, as it has an impact on organizing the training load, and necessity of rationing the training loads according to the target time during the training units in order to

**Keywords:** dynamic lactic exercises, event of running (800) meters.

## Introduction:

Physical preparation is one of the important pillars to reach the best sporting achievements. The development of the digital levels and achievements that we see in various sports certainly came as a result of the development of sports sciences and the coaches following the correct scientific approaches, in an attempt to invest human energy to the maximum extent, and the sport of athletics is greatly affected. In light

of these components, the level of achievement in its various competitions depends, as the specialized training process in these competitions aims to raise the level of physical and physiological aspects, as each athletics competition has its own specifications and requirements, and among the athletics competitions run 800m, in it, the athlete must have special endurance capabilities and energy production systems to complete the race, which requires special

training to reach the state of extreme adaptation to improve the level of the athlete in terms of stabilizing the running rhythm and maintaining the speed of endurance in the last part of the event distance through careful training according to Scientific foundations and legalization of training loads for running (200-400-600 m). Dynamic lactic exercises represent one of the exercises that works on an intentional change in the level of lactic acid production in the muscles by increasing the running speed for certain distances and then reducing the speed with repetition of that for certain distances interspersed with rest periods using light jogging. The distances are divided into particle distances, with determining the time of each part, and this is what is called the target time. This type of training affects the physiological aspect, especially the special endurance, which is "A player's ability to resist fatigue resulting from performing the same activity for a long time in the field of specialization, meaning that the special endurance is represented by that which specializes in one of the sports events." (Hanan Jaed Al-Daihani. 2009). In addition to other physiological variables, such as the percentage of lactic acid concentration, which is a clear reflection of the mentioned exercises, and the more it progresses, the more it has a positive return on achievement.

Hence the importance of research in the numbers of dynamic lactic exercises according to the target time to develop the achievement of 800m runners under 20 years old in order to improve the physical levels that raise the readiness of the runners to achieve what they want.

### **Research problem:**

The research problem lies in the fact that the female runners reach the effectiveness of the 800-meter run to fatigue

in the last third of the race distance, and thus increase the race time, so the researchers chose the exercises according to the target time because of its impact on achievement and some physical abilities.

The problem of the study was determined through the personal experience of the researchers in the aforementioned event and her observation during her continuous presence in the athletics forums.

### **Research objective:**

- Preparing dynamic lactic exercises according to the target time for 800m runners (under 20 years old)
- Identifying the effect of dynamic lactic exercises on achievement.

### **Research hypotheses:**

- There are statistically significant differences between the pre and post-tests of the experimental research sample in achievement.

### **Research fields:**

- Human field: Elite female runners in Baghdad governorate for the 800m event for the season (2022-2023), whose number is (6).
- Time field: (20/12/2022) to (4/5/2023)
- Spatial field: Stadium of the College of Physical Education and Sports Sciences - University of Baghdad, Al-Jadriya.

### **Define terms**

### **Dynamic lactic exercises:**

They are exercises aimed at deliberately changing the level of lactic production in muscle cells by increasing the running speed and decreasing it within the repetitions of one group, where the level of lactic production increases by increasing

the running speed in the distance prescribed for intense running, and the level of lactic accumulation decreases in periods of low intensity running) (Hameed & Altay. 2019). and (Krem & Almusawi. 2021).

### **Research methodology and field procedures:**

#### **Research Methodology:**

The study of the nature of the phenomenon that the researchers deals with is what determines the nature of the under 20 years old, whose number is (6) runners who represent 100% of the community of origin from the elite of Baghdad, and the research sample was chosen by the intentional method in the Iraq Athletics Clubs Championship for the season (2022-2023), which They applied the training curriculum using dynamic lactic exercises.

curriculum because the curriculum is a method by which a person reaches a truth, and scientific facts are reached through research and investigation, and for this reason the researchers has adopted the experimental approach in the (one group) style with two pre and post-tests And its design to suit the nature of the research problem.

#### **Community and sample research:**

The sample of the research community for the event of running (800 m)

#### **Homogeneity of the research sample:**

For the purpose of verifying the homogeneity of the research sample by adjusting the variables and avoiding the indicators that may affect the research results in terms of individual differences for the sample members. For this reason, homogenization was conducted for the experimental research sample in terms of anthropometric measurements in variables (height, mass, chronological age, training age) to ensure that the sample is under one initiation line.

**Table (1) shows homogeneity tests (mass - height - chronological age - training age**

Variables	Measuring unit	Mean	Median	Std. Deviations	Skewness
Length	Cm	163,25	163,00	2,035	0,386
Mass	Kg	58,38	58,50	2,061	0,045
training age	Year	18	18	0,755	0,000
chronological age	Year	5,13	4,00	1,641	0,068

#### **Means of collecting information**

- Arab and foreign references and sources and the Internet.
- Personal interviews.
- Resolution.
- Testing and measurement.

- Note .

#### **Tools and devices used:**

- (1) Chinese-made (DELL) laptop computer.
- (4) Japanese-made Canon video cameras.

- (4) Photographic stands.
- Japanese-made electronic stopwatches (3).
- Athletics track.
- Good balls of various weights (3).
- Weight vest of different weights (3).
- Barriers number (10).
- Metal tape length (10 meters).
- Wooden box of different heights (10).
- Indicators number (20).
- LACTIC PROO Lactate Meter.
- A medical balance device for measuring height and weight, type PESPERSONE, of German origin, number (1).

### **Field procedures:**

#### **Achievement test: 800-meter running test (Aldulaimi, 2009)**

- Objective: To measure the achievement of the 800-meter running event
- Tools used: athletics track, stopwatches, support staff, registration forms.
- Description of the performance: The test was conducted according to the conditions and controls of the International Association of Athletics Federations, as the test was started for both runners from the starting position from standing and after hearing the runner (take your place) and then the start and launch signal for two laps around the track at the runner's full speed until reaching the finish line.
- Recording: The registrar will record the completion time in the form prepared for this purpose in minutes and seconds to the nearest part of a second.

### **Exploratory experience:**

The exploratory experiment is one of the most important necessary procedures that the researchers must take, because it is a training for the researchers to find out for

himself the negatives and positives that he encounters during the conduct of the tests in order to avoid them in the future. The researchers conducted the exploratory experiment in two days 21-22/12/2022 at (2:00) in the afternoon on (2) two runners from the same research sample at the stadium of the College of Physical Education and Sports Sciences - University of Baghdad, for identifying:

- The ability of the sample to implement the tests and the way they interact with them.
- Identifying the appropriate time to conduct the tests and how long this procedure takes.
- Finding enough time to take the tests.
- Determine the difficulties, obstacles and errors that will appear during the implementation and conduct of the tests.
- Identify the devices and tools necessary to carry out the experiment and tests.
- Recognizing the efficiency of the assistant work team.

### **Main experimental procedures:**

#### **Pre-test:**

The pre-test was conducted for the research sample (control and experimental) on (Sunday) corresponding to 12/27/2022 in the arena and field track in the College of Physical Education and Sports Sciences - University of Baghdad, where an 800-meter effectiveness test was conducted, and the researchers fixed the conditions related to the test In terms of time, place, tools used and method of implementation in order to provide them in the post-test.

#### **Main research experience:**

After conducting the exploratory experiment and confirming the validity of the necessary procedures to test the effectiveness of 800 meters, the researchers

prepared a training program in the event of (800) meters according to real time in the pre-tests, and determined the intensity with which the sample members covered the race distance:

Implementation of the training curriculum started on 31/12/2022 until 22/2/2023

- Number of training modules developed (8) weeks
- The total number of training units (24) training units
- The number of weekly training units (3) units
- Weekly training days (Saturday - Monday - Wednesday)
- The training method used: high-intensity interval training

- The intensity used is (80-95%) of the maximum intensity for the performance of the sprinter
- Special preparation period

#### Post-test:

The researchers, with the help of the assistant work staff, conducted the post-tests for the research sample after completing the Wheatley application, and that was on the day of the limit corresponding to (25/12/2022), as the researchers took into account the same conditions in which the pre-tests were conducted in terms of the sequence of tests.

**Statistical methods:** The search data was processed through the Statistical Package for the Social Sciences (SPSS). (Al-Kaabi . 2007). (Abboud. 2017)

### Results and discussion:

#### Presentation of the results of the pre- and post-tests for the achievement of the 800-meter event:

Table (2) shows the arithmetic means, standard deviations, the calculated (t) value, the level of test significance, and the significance of the difference for the pre and post-tests for the control group of the research variables

variable	Measuring unit	Pre-test		post-tests		T value calculated	Level Sig	Type Sig
		arithmetic means	standard deviations	arithmetic means	standard deviations			
800-meter event	Second	2.305	0.242	2.276	0.216	7.021	0.001	Sig

#### Discuss the results:

Through the results presented in Table (2), it is clear that the value of the arithmetic mean for the fatigue index test for the research sample, as the arithmetic mean in the pre-test was (2.305) standard deviation (0.242), while the arithmetic mean value in the post-test was (2.276) standard deviation (0.216). After using the (T) test for the differences between the pre

and post-tests, the calculated (T) value reached (9.220), while the real significant value (0.000) was smaller than (0.05), under the degree of freedom (5), and this means that there is a statistically significant difference between The pre and post-tests and in favor of the post test. There are significant differences and this development is a logical result of the moral results of special endurance and

performance endurance that were previously discussed, as the work focused on implementation according to the correct scientific foundations that focused on dynamic tactical exercises that had a major role in the occurrence of physiological adaptations in during breaks "The dynamic lactic exercises are considered a practical application of the theory of the shuttle transport of lactic acid, which does not only take place during the recovery period, but also occurs rapidly during exercise, as the percentage of lactic acid transported reached 36.54%." (Battaglia, et. al. 2010). The researcher believes that the overlap between the oxygenic and anoxic training methods had a direct impact on achieving achievement in the special endurance tests, as they are considered to be complementary to one another in determining the race according to the effort exerted, as all distances start working with the mixed anaerobic energy system up to the antenna, and this matter is in the use of training For different energy systems, it is a continuous training process that complements one another. And confirmed it (Alkazaly & Altay. 2023). The use of anoxic exercises that are characterized by less than the maximum intensity causes a shortage of oxygen needed to produce energy, and thus energy is produced with insufficient oxygen, and then an accumulation of lactic acid occurs to a greater degree than the rate of its elimination, and as a result the blood becomes acidic, and this condition occurs when the lactic acid threshold is exceeded (4 mmol), thus reducing the blood, which can become dangerous when the vital organizations are unable to equalize the blood, and the internal organs and organs are unable to get rid of lactic acid. What distinguishes the 800-meter race from its semi-maximal intensity and its relatively long time, which is related to the special endurance, which is characterized by the

lack of oxygen reaching the working muscles, because one of the conditions for the occurrence of adaptation to the endurance of the effectiveness is the resistance to extreme fatigue, as "the use of high load to the maximum in order to secure the occurrence of fatigue, and severe fatigue, which is a condition for the occurrence of adaptation, which in turn contributes to the rise in the level" (Khaleel, 2009)

### **Conclusions and Recommendations:**

#### **Conclusions:**

- The dynamic lactic training according to the target time affects the flow of performance and improves the achievement of the 800m run.
- The development of the fatigue index variable and performance endurance of the runners were in a positive direction in improving the level of achievement of the 800m run.
- The use of the high-intensity and repetitive interval training method in dynamic training is effective in improving hypoxia and delaying the onset of lactic acid.

#### **Recommendations:**

According to the research sample, its objectives, and the results reached, the researcher recommends the following:

- It is preferable to adopt dynamic lactic exercises according to the target time to complete the 800m, as it has an impact on organizing the training load.
- Necessity of rationing the training loads according to the target time during the training units in order to work on developing the competence of the athlete and achieving achievement.
- Need to use various high-speed stresses for their effect on achievement in anoxic exercises.

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