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The effect of increasing the intensity of specialized endurance training on runners' ability in the advanced 1500-meter run in terms of vital capacity indicators (V.C.) and hear t rate (S.V.)

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Abstract. The 1500m race event is part of the athletics system, and the continuous competition to break records and achieve the highest levels of achievement in athletics events, especially the 1500m race event, is one of the topics that occupies the minds of many people interested in achieving digital development for this event, given the distance of the race and the time it takes to complete it. Because it is unique from other events, it has characteristics that distinguish it from other events, despite it being a middle-distance event, which shares with them that its speed is measured by the step, which consists of the length of the step and its frequency. Increasing any of these two factors while keeping one of them constant or increasing them together improves the level of speed and strength, which contributes to achievement.

Keywords. specialized training, achievements, heart rate, vital ability indicators, advanced 1500 run

Introduction

The great development that has occurred in the field of scientific research and sports training techniques and the extent of their contribution to the development of personal or national achievements, was not the result of coincidence, but rather the result of intense competition in developing curricula through training methods and techniques between countries for their accomplished athletes.

Athletics has taken its share of this entertainment revolution, due to the diversity of athletics and the specificity of each event according to the different requirements for its completion. Indeed, it is difficult to apply innovative results and techniques among its various events.

The 1500m race event is part of the athletics system, and the continuous competition to break records and achieve the highest levels of achievement in athletics events, especially the 1500m race event, is one of the topics that occupies the minds of many people interested in achieving digital development for this event, given the distance of the race and the time it takes to

complete it. Because it is unique from other events, it has characteristics that distinguish it from other events, despite it being a middle-distance event, which shares with them that its speed is measured by the step, which consists of the length of the step and its frequency. Increasing any of these two factors while keeping one of them constant or increasing them together improves the level of speed and strength, which contributes to achievement.

The length of the distance and the type of energy system used in races determine which of the two components has a greater role in developing strength endurance and speed. Therefore, special strength endurance exercises have a major role in increasing speed and are appropriate to the abilities of the athletes, which leads to an economy of effort and expenditure of energy. Strength endurance is one of the important elements, especially for high-level players, as it is used during the stage of keeping up with the fast pace of the "1500" meter event, which usually occurs at the beginning or end of the race (finish) in order to get away from the competitors and make them go at a speed higher than the usual speed. This is to control the racetrack. Despite the multiplicity of training methods in developing special strength endurance.

As a result of the game's rigor and physical strength, which makes winning its competitions depend on where the athlete lives, as is known in many countries such as Kenya, Ethiopia, Eritrea, and others. Because the two researchers are practitioners of the game and the event and conducted some interviews with coaches of some clubs, they noticed that there is a weakness in the strength endurance level of athletes who live and train at sea level, which is that some coaches do not use the training method at heights or the means or alternatives that contribute to compensating for this weakness in abilities. Endurance and strength. From here, the two researchers decided to solve the research problem by trying to develop personal endurance through training in the altitude method and with a height-rationing device.

Methods

The experimental method was used in a design (one experimental group with a pre-test and a post-test) to suit the nature of the problem to be solved. The two researchers adopted the "experimental method that is the closest research method to solving problems by the scientific method. It is an attempt to control all the basic variables and factors with the exception of one variable, as the two researchers change it with the aim of defining and measuring "His scientific influence"

Duration of the curriculum: The duration of the course is 8 weeks, with two training units per week. The number of units is 16 main training units distributed over 8 weeks, with two training units per week for days (Sunday and Tuesday). The training method was high-volume, low-intensity interval training. Training intensity ranges from (65-75%).

The research community was chosen intentionally, and they are the players of the Police Club in the arena and field event (1500) meters in number (6) players participating in the activities of the Iraqi Athletics Federation clubs, and they represent the research community honestly and truly and at a rate of 100%.

After completing the pre-tests and knowing the level of the players through physical and physiological tests in the research, in order to reach a solution to the research problem and achieve the research objectives, the researchers prepared proposed exercises and relied in designing these exercises on the content of scientific sources interested in the training process and preparing training curricula and in order to demonstrate their impact in developing Some physical and physiological characteristics.

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Results and discussion

The researchers took into account the gradation and fluctuation in the training loads in all training units, in a way that suits the level of the players and their physical and physiological capabilities, as the application of the exercises began on Thursday, 12/25/2023, and ended on Thursday, 2/14/2024, where the training curriculum consisted of (16) training units. Distributed over (8) weeks, with two training units per week for days (Sunday, Tuesday). These exercises were specified in the main part of the training unit for a time ranging between (30-45) minutes for the main part and for a time of (60-75) minutes for the total training unit. In the special preparation phase of the training season, the first and second weeks were dedicated to preparing the players by giving them exercises in order to develop strength.
Presentation, analysis and discussion of the results of research

indication	level The error	T indication Calculated	F.H.	F.	Dimensional analysis		intertribal		Variables
					E-	S-	E-	S-	
moral	0.010	3.52	0.46	1.62	0.70	35.75	0.83	34.12	Testing the leg muscles' power endurance
moral	0.009	4.15	0.02	0.08	0.08	4.20	0.10	4.28	Test of running 1500 metres
moral	0.001	7.310	2.401	7.16	2.733	49.667	2.317	56.833	Heart rate (resting)
moral	0.012	2.76	2.28	2.80	1.30	181.20	1.58	184.00	Heart rate)Immediately after effort
moral	0.000	19.36	0.63	5.00	0.40	92.16	0.40	97.16	The percentage of blood saturated with oxygen.

The table shows the arithmetic means, standard deviations, and T value calculated between the pre- and post-tests of the research tests. The table below shows the results of the pre- and post-tests.
For the research variables (measuring the strength endurance of the leg muscles, a test for completing a 1500-meter run, heart rate (at rest), heart rate (immediately after exertion), blood saturation rate with oxygen), as it turns out that there are

statistically significant differences between the results of the pre- and post-tests and in favor of The researchers attribute this to the fact that the exercises used in the training device proved effective in developing the results of the research sample tests, which focused on
Developing aspects of force endurance capabilities was effective as it included exercises at different times, which had a clear and effective effect in improving the force endurance characteristic of the research sample through their adaptation of the approach that relied on organizing training periods, using appropriate intensity, appropriate rest, and repetitions that are compatible with the development of force endurance. And the use of training methods that are appropriate for developing this physical characteristic, which led to the research group's physical work capacity being high and thus led to improved achievement.
Because the event of running (1500) meters falls within the races in which the oxygen system is dominant, and for which the research sample trained, this enables the effect to be transmitted according to the training followed with the research sample, as increasing the work of working enzymes increases the ability of this system to enable the athlete to possess special physical abilities such as (endurance speed).

As for the results of the test for achieving the distance of (1500) meters, they were positive in favor of the post-tests, and all of this came as a result of the quantitative accumulation of the lack of oxygen, whether through training in this activity or its subsequent effects when training with an altitude regulating device, as the absolute value of the lack of oxygen begins to rise more than twice as much. Or three times as training increases over this type of distance, that is, by increasing the time required to complete work, as aerobic training methods emerge here, but anaerobic methods remain important in the course of vital processes and have a clear role, especially in running these distances.
The athlete maintains the high level of efficiency for some time after returning from the highlands due to the significant improvement in international records after training above sea level, as a result of the increase in the athlete's functional capabilities in terms of the degree of economy and effectiveness of using oxygen to produce the energy necessary for performance, as well as the increase in the body's ability to endure. Oxygen debt. In addition to the special requirements for the 800 m event (speed, endurance, control, ability of the circulatory and respiratory system, ability to distribute effort, physiological adaptation, will, perseverance, intelligence), as the physical requirements for this event depend on the acquisition of oxygen and non-oxygen energy.
As for the results of the heart rate variable, there are significant differences between the pre- and post-tests, through a decrease in the heart rate at rest, which is a good functional indicator of the health and safety of the circulatory system, as the training with the phosphogine and lactic energy systems, which was carried out by the members of the research sample, while rationing the training load on Depending on your heart rate, you can schedule rest times between repetitions and sets
The exercises used using the training device were carefully regulated in order to serve the mechanism of saturating the blood with oxygen as a result of the use of continuous training over long distances similar to the highland environment, which leads to functional adaptations in the process of delivering oxygen carried by hemoglobin to all parts of the body, and this ensures the continuity of work under the provision of All performance requirements, the most important of which is "the percentage of oxygen under oxygen pressure at sea level, which becomes 159 mm Hg, decreases to 125 mm Hg at an altitude of 2439 meters, which reduces hemoglobin saturation to decrease from 98% to 92% and thus reduces oxygen consumption by about 15%."

At altitudes of 2439 metres, the oxygen pressure in the arterial blood drops to 60 mm Hg, while in the tissues it is 40 mm Hg. The difference decreases to 20 mm Hg, and this reduces the exchange by 70% ( ). The imprinting process that occurs above sea level when training at altitudes occurs after 10 - 14 days, followed by stabilization of the different responses, leading to adaptation after 45 days or more, which appears clearly in the results of the research sample, which were positive due to adaptation when training at heights.

Conclusions:

The exercises used in the training device have proven effective in developing strength endurance and developing the muscles of the legs and thus had a positive impact on the results of the research. The development of the physical aspects led to the development of the achievement of running 1500 meters, and this is what the results indicated. Training at altitudes clearly affected the adaptations occurring in the variables. Physiological, qualitative transition in the intensity of training in altitude style must be consistent with the performance requirements, the form of the exercise, and the required motor task.

Recommendations:

Using exercises early on similar samples from other age groups, using continuous tests to measure strength endurance and training on the strengths and weaknesses of the players, designing and codifying other tests to measure the special physical characteristics in each event. It is preferable to adopt altitude training according to the target time for completing 800 meters, as it has an impact in organizing The training load, the necessity of focusing training programs on the use of modern equipment in developing the physical aspects that serve the skill aspect because it is of great importance.

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