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The effect of multi-tempo training according to the race constant in enduring speed, lactic acid, maximum oxygen consumption and achievement for 1500m runners under 20 years old

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Abstract

The preparation of athletes requires appropriate and ideal training methods and methods to develop kinetic capabilities and physiological variables and to improve achievement with specialized effectiveness through exercises that are applied in training programs according to methods and methods of sports training and according to energy systems, and the effectiveness of running (1500m) is one of the activities that require high training and one of its most important requirements is development (Withstand speed and lactic acid concentration) LA (And maximum oxygen consumption) Vo2Max (So that runners can run at high speeds and endure these speeds for the longest period of time possible despite the increased concentration of lactic acid) LA) And the shortfall in oxygen as a result of higher effort by runners during training or competition to achieve the best athletic achievement, so headed researcher Wen to develop these variables through the use of training t multiple according to the rhythms of the fixed race and at the (rhythm race that faster from a fixed race be slower than a fixed race) and to identify these exercises effect as well as to identify the advantage of these exercises for training adopted by the trainers in the development of variables under other Study, used experimental approach in a manner experimental and control groups chose sample his research m from clubs Karbala province in a manner comprehensive inventory, and it was the most important research procedures determine the constant race for each runner, and determine melodious fastest and the slowest of the fixed race and determine the tests and measurements of search variables, and use the statistical methods parametric (arithmetic mean, standard deviation and the law of Levin and the law (T(For symmetric and independent samples of equal number to find differences between the pre and post tests and between the posttests between the experimental and control groups), and among the most important conclusions the exercises with multiple rhythms according to the constant of the race contributed to the development of the variables under study with the preference of these exercises over the exercises used by the trainers, and the most important recommendations It is the adoption of training in multiple rhythms according to the constant of the race in the

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development of the variables under study and the need to pay attention to them by coaches and those concerned with the specialty, and to apply these exercises to other activities and to different categories.

***Keywords**:multi-tempo training, race constant, enduring speed, lactic acid, maximum oxygen consumption, achievement, 1500m runners*

Introduction

Athletics is one of the widespread sports around the world, and what distinguishes it from other sports is the multiplicity of its activities, as each one differs from the other, and the 1500-meter run is one of the athletics competitions that is characterized by excitement, suspense and competition among runners, and this competition depends on its performance on The physical capabilities of the special endurance, the most important of which is (enduring speed), and on producing energy in the mixed system (the lactic anaerobic system and the aerobic system) . The particularity of this activity places a great burden on the various functional organs of the body as a result of the increase in lactic acid accumulation during competition, in addition to the maximum oxygen consumption. It differs from one individual to another depending on the type of sports training practiced by the individual, as the maximum oxygen consumption is one of the important determinants of the efficiency of the circulatory and respiratory systems, and it is the best physiological indicator of the individual's functional potential and a good indication of the extent of his physical fitness (**Mackenzie, 2005**), As well as the role of the central nervous system that controls all the various organs and systems of the body, as it is the responsibility of the continuous mobilization of muscle fibers upon accumulation of a large amount of lactic acid, in addition to that there are many physiological and skill processes that affect the level of achievement and are related to the ability of the system nervous on the regulation and control of active devices and members of the body (**Adel, 2000**), said T. Hussein the efficiency of the work of the nervous system to increase the massing of muscle fiber rapid rise up during the performance of high speeds and carry these speeds despite an increase in the concentration of acid of the ACT Iike in the blood and muscles, and high Respiratory rate, whether during training or competition, is one of the main requirements and the main key to developing the achievement of runners . One of the training methods that would improve these requirements is training with multiple rhythms as it provides the runner with training in rhythms faster than the race level and at the same level and less than the racing level (**Ali, 2002)**, the aim of this method is to develop the ability of the central nervous system to mobilize fast fibers under highly acidic conditions as well as endure the speed which is of great value. S important and critical in the Open O achievement and improve the scalability of hostile enemy at high speeds despite the high concentrations of lactic acid as well as high respiration rates (VO2MAX), Hence the importance of research in the preparation of T. multiple rhythms to develop bearing speed and lactic acid and the maximum oxygen consumption and achievement of a hostile 1500 under 20 years old.

***Research problem* :** the follow through the experience of the researcher and field, Wen noted that there is a marked decline in the level now Jazz race ran (1500 m) and when comparisons where it reached the figure for recent results (3.5 8 . 35 d) index of the Iraqi (3.4 9 . 27 d) with global levels and global record (3. 30 . 24 d), we find that a very big difference, which made the researcher Wen based Wen research and study on the causes of poor achievement, which he attributes to a lack of training aimed at developing Kavae nervous Merk uniform to work under the accumulation of conditions Lactic acid and the maximum oxygen consumption because this competition works in a large proportion for these two variables, in addition to that many of the coaches of this competition pay great attention to exercises that target the circulatory and respiratory systems, and the use of training methods that depend on the maximum ability of the runner

only without taking into account the constant rhythm of the race and the faster rhythms and Slower than the constant of the race and this by its nature is a problem if we notice that many races are with different rhythms, some of them are fast, some are slow and according to the nature of the competition and this requires a great work of body equipment, including a To the nervous system and circulatory system and respiratory system, so felt researcher Wen this problem through the preparation of a study exercises multiple rhythms and implementation of a new and modern style aimed at developing the efficiency of the nervous system and circulatory system and respiratory system and thus reflected on the development of the variables under study.

***Research Aim*:**To prepare multi-rhythm exercises according to the race constant, to identify the effect of exercises with multiple rhythms according to the race constant in enduring speed and lactic acid and the maximum oxygen consumption and achievement for 1500m runners under 20 years old, to identify the preference for the effect between the exercises (control and experimental group) in endurance Speed, lactic acid, maximum oxygen consumption and achievement for 1,500m runners under 20 years old.

***Hypotheses* :**that the exercises the rhythms of multiple according to a fixed race positive effect in bearing speed, lactic acid and the maximum consumption of oxygen and the achievement of a hostile 1500 under 20 years old, preference group trial for the control to influence the carrying speed, lactic acid and the maximum consumption of oxygen and the achievement of a hostile 1500 Under 20 years old.

***Research limits* :** human field: runners 1500 m of youth clubs in the province of Karbala holy for the sports season 2019-2020, field Temporal: Length of 6 / 6 / 2020 and up to 6 / 10 /2020, the field of spatial: Golf Training Center For the Central Athletics Federation in Karbala Governorate.

Methodology

***Research Method*:** The researcher used the one experimental approach to design two equivalents experimental and control groups to its suitability to the nature of the problem and research objectives and assumptions.

***Community & research sample*:**Select the researchers research community from hostile clubs Governor T Karbala for the category of youth effectiveness ran (1500 m) totaling (10 runners), chose sample his research m manner exclusively of a comprehensive and up (100%), and the dividing sample the way simple random to two groups (control group and experimental) and every five hostile group, was made harmonies process research sample using the law of statistical (Levin) in measurements (height, weight, age training) because of their influence on the research variables, and proved that Individuals of the research sample are homogeneous in these variables, as the level of significance of the (Levin) test was respectively (. 831, .275, 795 (It is greater than the level of significance) 05 Which indicates the homogeneity of the individuals of the research sample.

Aids, devices and tools used in the research: the researcher used means and devices the following tools: observation, test and measurement, personal interview, an electronic calculator handy type (SHARP), Computer type (Pentium 4)Korean origin, like a Mira video imaging with a velocity of 500 p / s type) Casio(Korean made, type manual stopwatches (Kislo 610) Chinese origin, weighing device (of Korean origin), legal athletics track, various tools (red and white flags, starting blocks, firing pistol) .

Field research procedures:

Determine the rhythms of the multiple, according to the rule (F. H) : In order to determine the multiple rhythms, the researchers extracted the race constant for the effectiveness of (1500 m) by conducting an achievement test for the runners of the experimental group, where the time of one cycle (400 m) was extracted for each runner, which is the rhythm

constant of the main race (1500 m), and by reducing (5 seconds) from the constant tempo of the main race we extract the rhythm constant of the (800 m) race, and by reducing (10 seconds) from the constant tempo of the main race we extract the tempo constant for the (400 m) race, and by adding (5 seconds) from the tempo constant of the main race we extract the rhythm constant of the race (3000 m), and by adding (10 seconds) of the constant tempo of the main race we extract the constant tempo of the (5000 m) race, these rhythms that runners will train with, and to clarify

Identification tests and measurement of research variables **:**After informed researcher Wen on the sources and references, letters and only scientific, was selected test (Kosmin) To measure bearing velocity, device (Lactate Pro2) Handheld second generation type For measuring the concentration of lactic acid, test (Balke) To cut the longest distance for a period (15 minutes) to measure Vo2Max.

Description of tests and measurements of research variables

First: (Kosmin test) (Mackenzie, 2005)

Objective of the test:to measure speed tolerance.

Test requirements :track legal athletics - stopwatch - whistle - a metal tape measure distance length of 50 m - Cones - Registration Form - Registered - watch - absolute.

Performance description : Run 1 minute x 4 with resting descending between repetitions (3 - 2 -1) minutes, as each two runners test together after completing the warm-up process, the test starts from the high starting position and when the trigger signal is heard, the two runners start running for a full minute, and when the temporary hearing the whistle stands sprinters and given comfort of 3 minutes, and at the same time marked in the place of the end of each runner for the moment of the launch of the whistle by the assistant team calculated the distance made by each runner and recorded, after the end of the time of rest kicks off sprinters after hearing a signal of absolute running sprinters Once again a full minute from the same starting line and the marks are raised, and after the end of the minute the timer blows the whistle, the two runners stop and a rest of 2 minutes is given and a mark is also placed at the end of each runner at the moment the whistle is fired, and the distance covered is calculated and recorded, after the break the two runners start to run the repetition (minute) The third from the same starting line and raise the marks, and at the end of the minute time called the temporary whistle stops sprinters and placed a sign at the end of each runner the moment of the launch of the whistle, given the comfort of 1 minute, and the distance is calculated and recorded for each runner, some The two runners set off to run the fourth and final iteration. The two runners also stop the moment the whistle is fired and a mark is placed at their end, and the distance is calculated and recorded.

Method of registration : Each distance the runner travels is recorded in each iteration in a special form prepared by the researcher to the nearest part of a meter.

Second :measuring the percentage of lactic acid concentration

The researcher Wen device to measure the concentration of lactic acid, the second generation mobile manually type (Lactate Pro2) The method of measurement was by selecting one of the fingers of the hand to be pricked and the appearance of the first drop of blood, then wiping it, and after the appearance of the blood drop for a second time, a measuring tape connected to the device is placed on it to draw the blood towards the tape and keep the finger pressed on the tape measure until the result of the measurement of lactic acid appears during)15) seconds, and the process of measuring the level of lactic acid in the blood after (5 d) of effort (1500 m) .

Third: Test (Balked cut the longest distance for (15 minutes).

- **The aim of the test:**to measure Vo2Max
- **Test requirements :**track legal athletics - Stopwatch - whistle - Form registration - Registered - Makati - Absolute.

Performance description : The tester stands behind the starting line from the standing position (high start), the launcher gives a directive (take your place), then after the start signal, the tester starts a rune and the timing starts by the timers so that each temporary laboratory is given its own and the timer follows up the runner assigned to it and calculates the number The laps (laps) that he travels during a period of (15 minutes) to find out the distance traveled and at the end of time the referee blows the final whistle, after which the timer sets the end point of the run

Recording : Calculating the total distance to the nearest distance (25 m), using the following equation to measure Vo2Max.

Vo2Max= (Distance covered in 15 minutes / 15 - 133 X 0.172 + 3.33)

Pre- tests: Conducted researcher tribal tests for members of the sample's (10 runners) so as to install the degree tests and to identify the level of runners, have conducted tests over three days and follows, on (Saturday) corresponding to (13 / 6 /2020) to test the carrying speed, on (Wednesday) corresponding to (17/6 /2020) to test ran (15 minutes) to measure Vo2Max, On (Saturday) corresponding to (20 / 6 /2020) to test ran (1500 m) to measure achievement and the concentration of lactic acid, and conducted all tests in me exactly at (5) pm on youth sports stadium in the province of Karbala, the holy, and conducted a researcher There is parity between the control and experimental groups using the teachers' statistical law (T(For two independent samples of equal number with the results of measurements and pre- tests for the variables (tolerance of speed, percentage of lactic acid concentration and maximum oxygen consumption) and the results were confirmed by parity of the two groups and the levels of significance were respectively. 194, 061, 280, .587 (It is smaller than the level of significance) 05 Which indicates parity for the two research groups.

Main test : The preparation of exercises with multiple tones according to a fixed race drawer t within the training program for the development of research variables w (under study) for the total of the pilot of, and was performed here at the stage of the private numbers were last forever by day (Sunday) corresponding to (28 / 6/2020) and continued to be implemented for a period of (1 0 as a b j p and the number of training modules (three unified data generating Libyan) weekly in the days of (Sunday, Tuesday, Wednesday) and reached the total number of training modules (3 0 unit training) ranged between (55 d - 75 d) and the researcher used the method of training pulsation low, medium and high intensity and ended the application of her day (Thursday) corresponding to (3/9/2020).

Tests posteriori : After the completion of the implementation of the exercises included in the training program for the aggressive, conducted researcher Wen of tests for dimensionality in the days (Sunday and Wednesday and Saturday) corresponding to (6 - 9 - 12 / 9 /2020) for the two sets of research, and at the same time, place and steps tribal variables (under study) As much as possible.

Statistical means : The researcher used the statistical packages system spss Using statistical parameters the arithmetic mean, standard deviation, Levine test, and (T) For symmetric and independent samples.

Results

This chapter included presenting, analyzing and discussing the results through collecting data, organizing them, classifying them in illustrative tables, and then processing them statistically to reach the final results to achieve the objectives and assumptions of the research**.**

1. Presenting and analyzing the results of the pre and post tests of the study variables for the control group

Table (1) it shows the values of the mean, standard deviation, mean of variances, standard deviation of variances, and (T) Calculated and moral level of statistical significance of hid Ra T. tribal and dimensionality of the research variables for the control group

Variables	The pretest		Post test		P	P. P	Values T Calculated	Level of moral	Indication type
	s	P	s	P					
Withstand speed	1567.0000	17.64936	1580.0000	9.56556	-13,000	3.7416	-3.474	025	moral
Lactic acid	9.2200	28636	10.3200	. 47645	-1.1000	10488	-10.488	.000	moral
Vo2Max	58.3340	1.35802	60.7820	61051	-2.44800	0.78427	-3.121	035	moral
XD	4.0980	02864	4.0680	02490	.03000	.00316	9.487	.001	moral

2. Presentation and analysis of the results of tribal tests and meta - study variables for group of the experimental

Table (2) it shows the values of the mean, standard deviation, mean of variances, standard deviation of variances, and (T) Calculated and moral level of statistical significance of hid Ra T. tribal and dimensionality variables search for a group of the experimental

Variables	The pretest		Post test		P	P. P	Values T Calculated	Level of moral	Indication type
	s	P	s	P					
Withstand speed	1579.2000	7.62889	1624.2000	30.57286	-45. 00	10.79352	-4.169	014	moral
Lactic acid	9.6200	29496	12.3600	27019	-2.74 0	02449	-111.86	.000	moral
Vo2Max	58.8360	1.44735	62.6940	1.25560	-3.85 0	1.20 225	-3.209	033	moral
XD	4.0780	02588	4.0200	01225	05800	00860	6.742	003	moral

The table shows (1) and (2) statistical indicators for the results of tribal tests and dimensionality variables research that underwent members of Total Tin the officer and experimental, the results indicate the existence of significant differences between the two tests in favor of the post tests and this is indicated by the significant levels through the use of law statistical (T) Samples per square meter armpits, as were all variables less than the level of significance (0, 05) indicating p Li there are significant differences between the two tests .

Discussion

Through the presentation and analysis of the results obtained by the researcher Wen in the table (1) for the control group shows significant differences for the variables bearing speed and the concentration of lactic acid (LA (And maximum oxygen consumption) Vo2Max) And achievement attributes researcher Wen this reason for evolution to the effectiveness

of the exercises that have been developed by the trainers was marked by proper planning and has been applied by members of the control group continuously and without interruption, and this is pointed out to him (Ahmad, 2014) " is considered one of the planning of measures predictive which depend on many studies of reality, taking into account the experiences and what is available potentials and capabilities and what can be done to achieve a particular goal, but it is the preparation of the athletes to reach the highest levels of achievement ", and this is what noted researcher Wen in runners training for this group, which included anaerobic exercises And antenna aimed at improving the speed bearing variable, which in turn contributed to improving the ability of the runners to withstand high concentrations of lactic acid, as well as that these exercises contributed to improving the maximum oxygen consumption (Vo2Max) Through the antenna exercises performed by the runners, which in turn reflected on the development of achievement, and the training of this group was characterized by correct scientific codification in terms of intensity, comfort and size, and had a great impact on the development of these variables, and this is confirmed by (Adel, 2009) to "The group of exercises or The physical efforts that are used in the training units lead to adaptations or functional change in the internal organs and organs of the body to achieve a high level of mathematical achievement, " and this confirms the development of the control group members in variables . As for the experimental group, there were significant differences between the two tests for all variables and they were These differences are in favor of the dimensional tests, so the researchers attribute the reason for the emergence of such differences to the exercises prepared by the researchers in multiple rhythms according to the race constant to cut distances perfectly and codify according to the race constant and faster than the race constant and slower than it, as well as continuous and continuous training by the runners and the discipline of performing the exercises in the form The correct one. In these exercises, the researchers took into account the individual capabilities or capabilities of the runners, each according to its own digital level (Achievement), as well as the number of repetitions, the ideal rest and the variation in distances from shortest to longest, which is of great importance and has high specificity in training, and this was confirmed (Adel, 2000) that "every group of exercises must be prepared in a way that gives an effective effect in the development of each Of the abilities of the type of activity practiced, "in addition to that this type of training works greatly to improve the efficiency of the functional and physical organs as it improves the efficiency of the nervous system in mobilizing the largest number of motor units, as well as the work of the heart, blood circulation and internal organs, as well as It makes the runners economical by physical effort, and it is not possible to reach the necessary specialization except by this way, and this is what contributed to improving both the variable bearing speed and tolerance of high concentrations of lactic acid and the maximum oxygen consumption (Vo2Max), And that these variables are among the important and decisive variables in improving achievement for runners (1500 AD). Therefore, improving them will inevitably lead to an improvement in mathematical achievement, and this is what we seek a mechanism in the training process. Researcher Wen believes that through the foregoing, we can say that the reason for the development in the post-tests and for both groups is the systematic and continuous use of the training curriculum because the process of sports training is an organized and continuous process that aims to raise the level of athletes and reach the highest levels, and this is confirmed (**Edington, 1976**) " that structured training results in an increase in the individual's ability to perform as a result of performing physical exercises for several days, weeks, or months, by printing the body's systems to the optimal performance of those exercises . "

3. Presentation and analysis of the results of the tests dimensional variables study for the total Tin control and for experimental and discussed.

Table (3) Shows the mean values, the standard deviation, and (T) Calculated and moral level of statistical significance of hid Ra v dimensionality of research variables for total Tin control and a for experimental

Variables	the group	s	P	ValuesT Calculated	Level of morale	Indication type
Withstand speed	**Control**	1580.0000	9.56556	-3.085	015	moral
	Experimental	1624.2000	30.57286			
Lactic acid concentration	**Control**	10.3200	. 47645	-8.328	.000	moral
	Experimental	12.3600	27019			
Vo2Max	**Control**	60.7820	61051	-3.062	016	moral
	Experimental	62.6940	1.25560			
XD	**Control**	4.0680	02490	3.868	.005	moral
	Experimental	4.0200	01225			

The table shows (3) indicators only statistical test results posteriori between the control and experimental groups of variables search, the results indicate the existence of significant differences between the two groups in favor of the experimental group and this is indicated by the significant levels through the use of statistical law (T) Samples pain Stqlh as it was for all variables less than the level of significance (0, 05) indicating p Li there are significant differences between the two tests .

Discussion

Through the presentation and analysis of the results obtained by the researcher Wen is clear that there were significant differences between the two groups in the search results posteriori tests for variables carrying speed and the proportion of lactic acid concentration and maximum oxygen consumption (Vo2Max) And achievement for the benefit of the experimental group and attribute the cause of preference to the exercises stomach rhythms multiple according to a fixed race in the training program, which has prepared a standardized manner and by the completion of each runner, taking into account carrying components of the training rias Doanh, that the nature of the performance of these exercises inhalers enabled runners to acquire or possess some features As required by the event or competition, the exercises that were applied at a faster rhythm than the constant of the race gained the runners from crossing distances at speeds better and higher than the speed of the race and this inevitably leads to improving the special speed that the runner travels during the competition or training, and thus the amounts of force that the runner sheds on the ground during jogging, as well as the bounce time of them and this is what he needs hostility to improve his speed for the race, either training a constant rhythm of the race, it will be granted and can runners jogging pace and rhythms similar to the rhythm of the race, as this training will give him to withstand high velocities gained from training with the rhythms faster than the constant race resistance Fatigue from high performance despite the accumulation of high levels of lactic acid concentration, the level A. For high to withstand the speed associated with susceptibility muscle to accept high rates of concentration of lactic acid and carry fatigue, and efficient work of the central nervous system, which falls on the last burden most control performance and fatigue resistance under training and competition conditions, and this was confirmed by (**Saleh, 2011**) " E n physical

ability (carrying speed) does not t integrate only the development of the efficiency of central nervous system and your cardiovascular and muscle and readiness of these devices on performance ratios distinct ", and highlights the importance of this capability mightily hostility quickly ran the race distance despite the accumulation of lactic acid in the blood and muscles, which It helps to develop the time of achievement, and this is what he indicated Canova) Renato) "Be all effective is the effectiveness of the speed because it is always the winner is the athlete 's fastest at the end of the race, but most of the training is the training of strength - endurance, where the force is the speed that can each athlete to maintain it for about ¾ of the distance, endurance is training to maintain the same speed The perfect competition distance, " and the researchers confirm that the exercises at a faster pace than the racing constant and at a steady racing rhythm improved the ability of runners to withstand the accumulation of high levels of lactic acid concentration in the muscles, which made the experimental group members able to perform faster and better while maintaining the average speed for the longest distance. It is possible from members of the control group, and this indicates the occurrence of better adaptations for this type of training, and this is what was confirmed (**Ali, 2002**), "The increase in the concentration of lactic acid in the blood of athletes after the performance is an indication that they have become able to withstand the pain resulting from the increased concentration of lactic acid in the blood and that the energy produced from the cracking of the anaerobic glucose high in terms of increasing the proportion of the concentration of lactic acid in the blood, and this makes the athletes are able to faster performance at a rate and for a longer period ", either for variables T the maximum oxygen consumption (Vo2MaxThe researchers attribute this preference to training at a slow pace than the constant race, as these exercises focused on improving the functioning and efficiency of the circulatory system and the respiratory system in the first place because the process of consuming the maximum amount of oxygen is related to the efficiency of the gas exchange that occurs in the lungs, as well as the ability of the circulatory system to deliver greater the amount of it to bite lattes and this is what he referred to (**Abraham, 1998**) to "the oxygen consumption is one of the most important measurements that reflect the functional state of the body sports because of that oxygen plays a key role in the processes of energy production, especially wind energy in the performance of physical effort efficiently the two devices league And respiratory from fulfilling the requirements of this performance, " and the researchers add that the response of the experimental group to these exercises led to an improvement in the efficiency of the work of the nervous system, as well as the work of the circulatory and respiratory systems, and an increase in energy houses within the muscle fibers, which reflected positively on the ability of the muscles to consume oxygen from the blood. The greater the muscle's capacity to consume, the higher the values of the maximum oxygen consumption (Vo2Max) This is due to the nature of the rated physical effort during the period of training, and this was confirmed by many scientists that the physiological changes that occur on the organs of the body and that comes as a result of rated physical effort that lasts for more than (8 weeks) These changes are responsible for increasing the capacity of the muscle on the consumption of Oxygen and the production of air energy, as for the achievement variable, it is greatly affected by the variables that play a major role in improving it, and if we know that the studied variables are variables carrying speed, lactic acid concentration percentage and the maximum oxygen consumption (Vo2MaxOne of the basic requirements for this effectiveness and that the achievement depends on it very much, and this is what many scientists have confirmed, and the results in Table (3) showed the preference of the experimental group over the control group for these variables and therefore the achievement in the experimental group will be better than that of the control group.

Conclusions

- The exercises prepared by the researcher won the runners to run in multiple rhythms (the racing constant, faster and slower than the racing constant.
- The exercises prepared by the researcher Wen had a great impact in improving the speed tolerance, the percentage of lactic acid concentration and the maximum oxygen consumption (Vo2Max) Achievement of the effectiveness of (1500 m).
- The study proved that training with multiple rhythms (steady race, faster and slower than steady race) is better than training that depends only on the capabilities of the runners.

Recommendations

- The researcher recommends Wen trainers depending on the training multiple rhythms (b constant race faster than a fixed race and slower than the fixed race) and the study of other competitions for different age groups.
- The need to pay attention to physiological variables because of their positive impact on athletic achievement.

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