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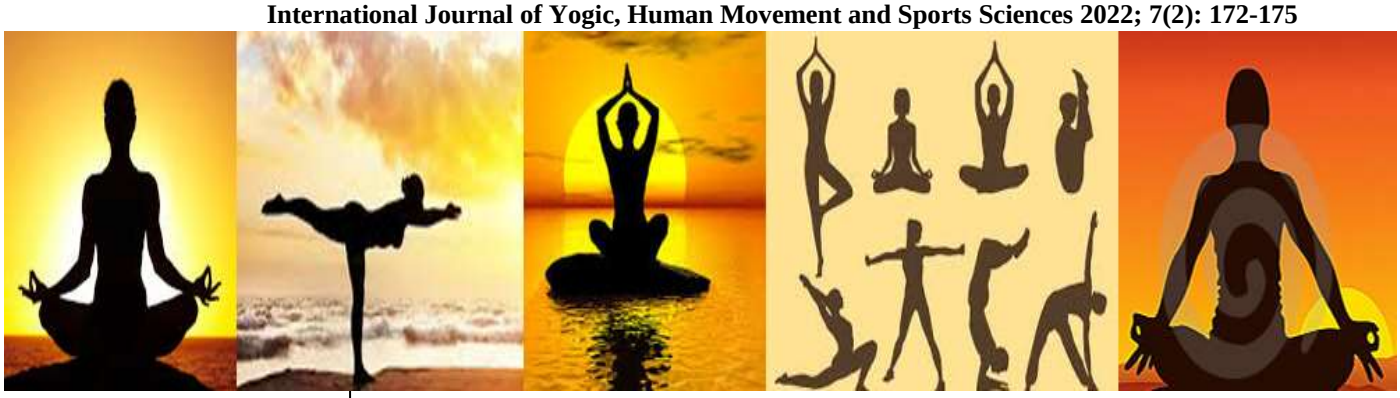

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Rationalizing the rest between exercises and its effect in terms of the lactic acid index in achieving the effectiveness of running 800 meters for young people

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Abstract
The goal study aims to identify the index of lactic acid in the blood, which is affected by the training loads for the effectiveness of 800 meters, to identify the rest used after each physical effort, and to ration the rest between exercises in terms of the index of lactic acid in the blood before and after each physical effort.
The researcher assumed that there are statistically significant differences in the results of the lactic acid index between the pre and post-tests and that there are statistically significant differences between the lactic acid index and achievement.
The researcher used the experimental method in the one-group method due to its suitability to the nature of the research, and the research community was determined by the players of the Missan Governorate team for the 800-meter running event for the youth category for the season 2021, whose number is (6) players. The duration of the curriculum is (12) weeks, at the rate of (2) two units per week, as the total number of units of the training curriculum is (24) units.

Keywords: Rest, lactic acid, 800-meter event

Introduction
The physical and functional preparation of the body's systems is of great importance in reaching the best sports achievements, as the levels reached by many world champions are a fantasy after the progress that occurred in the sciences related to the sports field, especially the science of sports training and the physiology of training.
Despite the scientific progress in training, more research and studies must be conducted to reach many scientific facts to reveal the best methods for optimally developing each sporting event.
In the 800-meter running competition, one of the exciting Olympic and international middle-distance running competitions in athletics, it is only possible to develop the runner's athletic level by providing the correct scientific foundations related to the type of training and rest used. It is also a process that takes place at the right time, and depends on the type of effort and its duration, as it is defined as a complex process and highlights the duration of the rebuilding activity to avoid training**.** (M. Kellman, 2010) [5] completion of these loads and trying to overcome them depends on the correct choice of the length of the inter-rest period when repeating the exercises. Coaches plan to use rest effectively to enhance performance and avoid muscle injuries. (Koehler & (et al.), 2013) [4]

Research problem
During the researcher's work in the field of training and as a former player, the researcher found that attention during training focuses on one of the components of the training load, except one component, which is rest, where rest is given without taking into account the functional aspects of the athlete's body systems and not taking into account individual differences between athletes. Therefore, the researcher proceeded to research rest between exercises and rationing them according to the lactic acid index in the blood.

Research aims

1. Identify the lactic acid index in the blood that is affected by training loads for the 800-meter event.
2. Identify the rest used after each physical effort, according to the percentage of lactic acid in the blood
3. To identify the effect of rest between exercises according to the lactic acid index in the blood before and after each physical effort.

Research assignments

1. There are statistically significant differences in the results of the lactic acid index between the pre and post-tests.
2. There are statistically significant differences between lactic acid index and achievement.

Research methodology and field procedures

The researcher chose the experimental approach due to its suitability to the nature of the research because this (experimental) approach includes an attempt to control all the main factors influencing the experiment, except for one factor that the researcher controls and changes in a certain way, with the aim of determining and measuring its effect on the dependent variable or variables. (Mahjoub, 1988) [6]

The researcher chose the research sample deliberately, consisting of three players from the Maysan national team for the 800-meter event in athletics. In order to conduct the research experiment on the selected sample of the players of the Missan Governorate in intermediate sports, number six players represent the research community, and consider the three players chosen by the researcher as the research sample. Specifying the stadiums on which the experiment and tests will be conducted was also agreed upon.

Functional tests and measurements used in the research

1. Measuring achievement of running (800) meters: (Saleh, 2004) [9] (Mahmoud, 2014) [7]

- Measure name: 800-meter running measure.
- The goal of the measurement: to measure the achievement of running 800 meters.
- Tools used: athletics court, stopwatches, registration form, whistle, assistant staff.
- Description of the performance: The laboratory applies the performance in the 800-meter race.
- Recording: records the time in minutes and seconds to the nearest tenth of a second.

2. Lactic acid in the blood (Aziz, 2013) [3]

- Of the measurement: the concentration of lactic acid in the blood after physical exertion using the Lactate Pro Test Meter.
- The aim of the measurement: to know the percentage of lactic acid concentration in the blood.
- Measurement method: before the effort (during the rest period) and after the runner finishes the achievement test (running the race distance) after the effort after a time of (5) minutes after the performance, using the instructions installed on the device.
- Recording: the percentage of lactic acid concentration in the blood in a unit of measure (mmol/liter of blood).

The procedures used in the research

Exploratory experience

On Wednesday, 1/1/1/20 21, to get acquainted with the tests' implementation procedures. The aim of implementing the exploratory experiment was to identify the difficulties or obstacles that they may encounter during work, so that the researcher and the work team can overcome them, in addition to training the work team on how to implement the tests used in the research.

The main experience

The researcher carried out the pre-test for the effectiveness of 800 meters, and with the help of the work team, before the start of the test, a measure of the concentration of lactic acid in the blood was taken before the researcher.

Pre-test

On 8/1/1/20 21 on the research sample in Maysan Stadium. The Olympic test was conducted as mentioned in detail (the measurement of running 800 meters). Also, the lactic acid index was measured before and after the test.

Post-test

The post-test for the effectiveness of 800 meters was conducted on 7/4/20 21 on the research sample at Maysan Stadium. The Olympic test was conducted as mentioned in detail (the measurement of running 800 meters). Also, the lactic acid index was measured before and after the test.

3. Statistical means

Appropriate statistical methods have been used as follows:

The one-sample Kolmogorov-Smirnov test to check the quality of reconciling the normal distribution of the data, and the (t) test to test the equality of the means of two independent groups with dependence on the application of the (Levene) test to test the homogeneity of the two variances, and the (t) test for matched pairs -test) between the results of the pre and post-tests.

The Statistical Bag for Social Sciences (SPSS) version (10.0) was used to obtain all the search results.

4. The results

Table 1: The test (Kolmogorov-Smirnov) to check the quality of the standard model in the blood lactate concentration test between the two samples (the used rest time and the measured rest time)

the sample	One-sample Colgrove-Samir Nof test		
rest time used	Matching check indicator	Concentration/rest	5 minutes after exertion
	The number of duplicate readings	15	15
	(K.S.) for the Z statistic test -	1,183	0.684
	Affinity level of significance	0.122	0.738
	0.05 significant comparisons at the level	N.S.	N.S.
	The normal distribution of the blood lactic concentration index was achieved		
Rated rest time	The number of duplicate readings	15	15
	(K.S.) for the Z statistic test -	1,183	0.529
	Affinity level of significance	0.122	0.942

	0.05 significant comparisons at the level	N.S.	N.S.
	The normal distribution of the blood lactic concentration index was achieved		

NS: not significant, with a significance greater than 0.05

It is clear by reviewing the results of Table (1) that the assumption of a normal distribution of the results of the blood lactate concentration test has been validated, and Table (2) includes the results of the blood lactate concentration test for each of the two samples (the used rest time and the measured rest time), where the degree of convergence with A state of relative deviation was achieved at the period 5 minutes after exertion between the two types of rest, where the decrease in the readings of the blood lactic concentration index in The measured rest time compared to the readings of the blood lactic concentration index with the used rest time.

Table 2: It shows the descriptive statistics of the response levels to the blood lactic concentration index for the two resting subjects studied during the two periods (before and after resting).

Blood lactate concentration	My kind of comfort	Refined	Average	Standard deviation	Standard error	95% confidence interval for the arithmetic mean			Highest response
						Minimum	The highest rate		
Ahead of effort – rest	Coach rest	15	0.87	0.06	0.02	0.83	0.90	0.80	1.00
	Search convenience	15	0.83	0.06	0.02	0.80	0.87	0.70	0.90
5 minutes after exertion	Coach rest	15	3.73	1.08	0.28	3.13	4.33	1.90	5.90
	Search convenience	15	2.85	0.58	0.15	2.53	3.17	2.10	3.90

In order to test the degree of concordance between the responses of both samples (the rest time used and the measured rest time), Table (3) shows the results of Levin's test for equality of variances and the t-test for equality of the two means.

Table 3: Shows the parametric significance tests for the results of the blood lactic concentration index between the two samples the rest time used and the measured rest time)

Testing periods	Levene's test for equality of variables		T-test for equality of the two means			
	F test	Moral	t-test	Degrees of freedom	Moral two-tailed	F test
Concentration/rest	0.000	1,000	1,479	28	0.150	N.S.
5 minutes after exertion	3,121	0.088	2,759	28	0.010	S

NS: not significant, more excellent than 0.05S; Significant with a significance of less than 0.05

In light of the results of the significance levels of the two tests, it is clear that the hypothesis above is achieved in its first and second parts at the initial period (concentration/rest), which means that it can be accepted.

Table 4: It shows the parametric significance tests of the results of the blood lactate concentration index between the correlated pairs between the two tests (before the effort and 5 minutes after the effort) and for the two samples (the rest time used and the measured rest time).

Comfort type	Blood lactate concentration	Average variances	Standard error	Calculated t	Degrees of freedom	Significance level	Statistical decision
Rest time used	Before exertion - Rest - 5 minutes after exertion	-2.86	0.275	-10.39	14	0.000	High spirits
Rated rest time	Before exertion - Rest - 5 minutes after exertion	-2.02	0.150	-13.50	14	0.000	High spirits

The results of the correlated couples hypothesis test showed that there are highly significant differences with significant significance at less than the level (0.01) and for (the used rest time and the measured rest time) the research subject.

Discussion of the results of the blood lactic acid concentration index

From the review of Table (3), the apparent improvement in the index of lactic acid concentration in the blood at the time of rest before the effort and after the effort (5 minutes) for (the time of rest used and the time of measured rest) that occurred in the readings of the research rest sample group through the qualitative decrease in the readings of the lactic concentration index with blood after the effort stage by 5 minutes compared to the readings of the trainer sample group and with a significant significance, which confirms the validity of the experimental effect of rationing rests between exercises in terms of the functional indicator (lactic concentration in blood) sequentially before and after the physical effort, and the researcher attributes this to the rationing of rests between exercises that led to Reducing the concentration of lactic acid in the blood, as the regulated training and the regulated rests led to a straightforward adaptation in the body, which led to a decrease in the level of lactic acid in the blood, and this was confirmed by (Sami Abdel-Fattah). With the increase in the intensity of the performance compared to what it was during the rest period, as it reaches its highest percentage in the exercise with the maximum intensity of (1-3) minutes, this leads to the accumulation of lactic acid in the muscles, which impedes the work of the energy system. This leads to fatigue, and after the end of the effort and during recovery, lactic acid is transmitted to the blood. It disappears and returns to its average level, a period before the performance of the effort. (:

8 b r), or it is due to lactic acid, which in turn separates into ions lactate And hydrogen ions, as hydrogen ions cause a decrease in the (pH) of the muscles, i.e., the acidity of the muscles, as it decreases from 6.4-7. Some athletes in sprint activities have recorded this percentage (Abdel-Fattah, 1997-1998) [1].

Presenting and analyzing the results of the research in the test of the completion time of (800) meters

Table (5) shows the research sample's results in the 800 - meter distance pre-and post-test. t) Calculated (7.419), which is greater than the tabular value of (t) of (6.964) at a degree of freedom (2), and the probability of error is (0.01), which indicates the existence of a significant difference between the two tests and in favor of the post-test.

Table 5: It shows the arithmetic mean, the standard deviation of the differences, the sample size, and the calculated and tabulated (t) values in the pre and post-tests in achieving a distance of (800) meters.

The group	Pre and post-test		Sample volume	Calculated t – value	Tabular t - value	Significance level
	Average variances	The standard deviation of the differences				
Group 1	0.230	0.054	3	7,419	6,964	moral

Discussing the results of the research in the test of the completion time of a distance (800) meters

From the observation of Table (5), the apparent improvement in the players' performance in the post-test is evident. The researcher attributes this to the standardized rests during training that the researcher set, as they had positive effects that led to raising the level of the players, and (Bahaa Ibrahim Salama) mentioned that the rest process for all Players after training and competitions occupies great importance in the field of sports training. As a result, it is no less important than the training itself, so the proper balance between work and rest periods (Recovery) is the most complex and most important process in preparing training programs and participating in competitions. (Salama, 2008) [8]

The researcher led to an adaptation process, which helped the body's response to physiological changes according to the intensity of exercise, and this was confirmed by (Hussein Ali Al-Ali and Amer Fakher Shanghai) "The rest period is of great importance in the process of response and adaptation of the functional organs, whether positive or Negative. Therefore, this period must be regulated accurately between repetitions and groups according to the intensity and type of physical training. (Al-Ali & Amer Fakher Shaghati, 2006) [2]

Conclusions and recommendations

Conclusions

In light of the research results, the researcher concluded the following

1. There is a significant improvement in the blood lactic concentration of the sample as a result of the measured rest.
2. The achievement improved due to the effect of rest, which was adopted during the main experiment, as the measured rest according to the lactic acid index had a positive effect on the results of the research sample.

Recommendations

In light of the research results, the researcher recommends the following

1. Using the measured rest According to the lactic acid index in short-distance training.
2. Conducting similar studies for older or younger age groups in the 800-meter event.
3. Conducting similar studies for older or younger age groups in long and short-distance activities.

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