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مجلة علمية محكمة تصدرها كلية التربية البدنية وعلوم الرياضة

The effect of training size and adaptation exercises for the development of speed tolerance and lactic ability and the achievement of 1500 meters running for elite runners

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Abstract

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The importance of the research is reflected in the preparation of high training volumes that have a large degree of adaptation to the lactic ability to reach better achievement, and the goal of the research is to prepare training sizetraining and adaptation to the development of speed tolerance and lactic ability and the achievement of running 1500 meters for elite runners, and the researcher used the experimental approach of the experimental and control groups to suit the nature of the research , and the research community was determined for the effectiveness of running 1500 meters for the sports season 2024, which is (14 runners) , and the sample was divided into two groups, an experimental group and a control group and (7 runners) for each group , and the researcher recommended the use of training volumes according to the degree of pregnancy and ripple because they have an effective role in the training process.

Introduction:

The athletic achievements of world champions in all types of sports and sporting events have shown great progress, especially in the past few years. Today, the world is witnessing every sports forum a new achievement. In the events of athletics, it has received special attention and care in the field of research and scientific studies that have helped in major developments in training methods and methods. One of these events is the effectiveness of running 1500 meters, which needs physical abilities and their own physical measurements, and carrying the speed of special physical abilities that require increasing the amounts of training volume and sufficient familiarity with the components of the training load that allow the performance of loads to be accomplished and exceeded. Excellence in lactic ability is the adaptation of runners to the acidic effect of lactic acid and resistance to the effect of lactic acid more, and physiological endurance resulting from , and the importance of research is the preparation of high training volumes that have a great degree of adaptation to the lactic ability to achieve better achievement.

Research Problem:

The training size training requires a controlled performance in terms of the duration of its performance, the distances traveled and the number of repetitions completed. Through the researcher's experience as a former player and current trainer in the Iraqi Athletics Federation, he noticed a great weakness in the runners' speed tolerance and the physiological inability to adapt to lactic acid, which leads to early fatigue and their inability to finish the race better. Therefore, the researcher decided to gradually increase the training volumes to overcome the accumulation of lactic acid resulting from this type of training in order to raise the level of performance of the runners who ran 1500 meters .

5- Research **Objectives** :

- Preparation of training size and adaptation exercises for the development of speed tolerance and lactic ability and the completion of a 1500-meter run for elite runners
- Identifying the impact of the training size exercises and adapting to the development of speed tolerance and lactic ability and completing a 1500-meter run for elite runners

Research hypotheses:

The training size and adaptation exercises have a positive impact on the development of speed tolerance and lactic ability and the achievement of 1500 meters running for elite runners

Human Sphere: Elite Runners for 1500m Event for Season 2024

Temporal field: Duration 13/1/2024 to 23/3/2024

Spatial field: Specialized School for Talent Care – Baghdad Governorate

Research Methodology and Field Action:

Research Methodology: The researcher used the experimental method with the experimental design of the two equivalent groups (experimental and control) to suit the nature of the research.

The **research community and its sample:** The research community identified elite players in the activity of 1500 meters for the sports season 2024, and their number was (14 runners), and the research sample was selected in a comprehensive inventory method and the sample was divided into two control experimental groups by (7 runners)

Homogeneity and equivalence of the sample:

Table (1) Homogeneity of the research sample

Variables	Unit of Measurement	Arithmetical mean (Maths.)	median	Standard deviation (Maths.)	Modulus of torsion = torsion modulus (Mech.)
Length	meter	158	174	1.299	0.387
Weight	kg	.011	70,000	1.364	0.490

Age	**Year**	**26.235**	**26.000**	**1.616**	**588**

The value of the torsion coefficient is limited to ± 1, which indicates a moderate distribution of society

[Table 2]

Equivalence of the experimental and control groups in variables .

Variables	UoM	Test group		Control group		Calculated t value	error level	Significant
		You will	Letter A	You will	Letter A			
Speed tolerance	**TI**	2.35.1	7.243	2.37.2	8.381	465	0.711	Not significant
Lactic Capability	**No. of**	32.001	6.498	28	643	0.711	.782	Not significant
Completion of 1500 meters	**TI**	3.57.2	.655	3.59.0	401	0.630	.309.	Not significant

D Below significance level ≤ 0.05 and below degree of freedom 12

Means of collecting information: (observation, tests and measurements, Arab and foreign sources).

Instruments and tools used in the research:

- Athletics track, boxes of 20 , Japanese-made (Casio) stopwatch (2), measuring tape (1), electronic medical scale (1) .

Tests used in the research:

1- **Special speed endurance test ran a distance** of **1000m** (Ahmed Hakim Abdel Wahed :2013, p.70)

Test Objective: Measure your speed tolerance 1000m distance.

Tools used: Arena and field playground, stopwatch .

Performance Description: The test begins by instructing the runners to stand behind the starting line to take the starting position from standing. Upon hearing the starting signal , the runners go to run and cover a distance of 1000m. Upon reaching the finish line , the stopwatches are stopped and each runner is recorded for the time it took.

Recording: The time completed for each runner is recorded.

2-Lactic Ability Test (Saad Tayeh Abd : 2014, p. 86)

Objective: Measure anaerobic lactic capacity for (30 seconds)

The **tools used**: a box with a height of (40) cm , a stopwatch , a scale to measure mass .

Performance description: The laboratory stands facing the box and one of its feet is placed on the box (the man preferred by the runner) while the other man is free on the ground. At the start signal , the runner begins by lifting the free man on the ground and placing it next to the man on top of the box and repeating this performance with a rhythm (one – two). The laboratory must perform the largest number of performances within (30 seconds), and the step is not counted if the feet are not completed above the box.

Recording : The highest number of performances is recorded for each runner

3- **Achievement distance** of **1500meters**(Zainab Johnny Coty : 2007, p. 44)

Objective of the test: Measuring the achievement of running a distance of 1500meters

Used tools: square and field playground , stopwatch

Performance Description: Starting the test and standing behind the starting line to take the starting position from(running from standing), and upon hearing the start signal, the runners went to run and traveled a distance of 1500m and upon reaching the finish line, the stopwatches were stopped and the time for each runner was recorded in the registration form

Recording : records the time accomplished for each runner

Exploratory experiment: The researcher conducted a sample of (6 runners) on 13/1/2024 to identify the obstacles facing the researcher .

- Know the time taken for tests .
- Know the tools used to conduct the tests
- Knowing the difficulties, obstacles and work flow

Pre-tests: The researcher conducted on 16/1/2024 at the Specialized School for Talent Care – Baghdad Governorate

Key Experience:

- **The training program was implemented on 20/1/202 4 until 20/3/202 4.**
- **The program lasted 8 weeks**
- **The training program included 24 training modules**
- **3 units per week selected**
- **The training days were on Sunday, Tuesday and Thursday**
- **The researcher used the method of high-intensity interval training**

- **Intensity ranges from 80-90%**

Post-tests: The researcher conducted on 23/3/2024 at the Specialized School for Talent Care – Baghdad Governorate

Statistical means: Statistical Portfolio (SPSS)

Presentation and analysis of the results of:

Display the results of pre and post tests in the research variables of the experimental group

Table (3)

Physical Variables	Pre-test		Post-test		BRB.	Calculated t value	error level	Significant
	You will	Letter A	You will	ali				
Speed tolerance	2.35.1	.496	2.33.2	388	0.388	432	0.000	Significant
Lactic Capability	32.001	722	112	5.664	-.399	727	0.002	Significant
Completion of 1500 meters	3.57.2	.729	3.55.1	424	0.402	993	0.004	Significant

D Below significance level ≤ 0.05 and below degree of freedom 6

Display the results of the pre and post tests of the search variables of the control group

Table (4)

Physical Variables	Pre-test		Post-test		BRB.	Calculated t value	error level	Significant
	You will	Letter A	You will	ali				
Speed tolerance	2.37.2	3.532	2.35.3	669	0.911	4.490	0.002	Significant
Lactic Capability	28	2.681	103	.841	0.832	0.731 ***	0.005	Significant
Completion of 1500 meters	3.59.0	4.917	3.57.5	5.664	0.288	843	0.003	Significant

D Below significance level ≤ 0.05 and below degree of freedom 6

Presentation, analysis and discussion of the results of post-tests of the tests for the control and experimental groups

Table (5)

Physical Variables	Test group		Control group		Calculated t value	error level	Significant
	You will	Letter A	You will	Letter A			
Speed tolerance	2.30.0	877	2.33.2	479	.982	0.000	Significant
Lactic Capability	012	7.632	32.000	3.811	418	0.000	Significant
Completion of 1500 meters	3.53.3	.512	3.55.4	621	770.	0.001	Significant

D Below significance level ≤ 0.05 and below degree of freedom 12

DISCUSSION OF RESULTS

The results of statistical measurements and knowledge of the significance of the differences between the two groups showed in the post-test of the research variables and for the benefit of the experimental group**,** and this development is the result of the regular training program in which high training volumes were used, including a variety of distances and specific time according to the effort exerted for each exercise (Amer Fakher Shaghati : 2004, p59), where the members of the research sample were able to perform a speed tolerance test that ran 1000meters at a high degree and intensity without a substantial drop in the level of speed tolerance in order to know the level of development (Obaid , L. ., & Salem, H. 2024.993), and training was given in a targeted manner and focused on the lactical ability, which led to its development as a result of its repetition according to the pulse rate for comfort and appropriate intensity (Abood, H. 2023.p1145) , and the distribution of the training load was based on the scientific foundations that led to the development of the lactical ability (Curby, D. ., Ali, A., & Khudair, G. . 2024.p180) , and the role of the method of high interval training and the performance of training related to the type of specialized effectiveness (Al-Saadi, E. ., & Shalsh, M. 2024.p265) , and the process of ration of the components of the training campaigns in the preparation of the various importance of the training program at the training program

(Mohamed, A. F. ., & Al-Shamaa, H. F. 2021.p19), according to the normalization of training vocabulary based on scientific foundations of size , intensity and comfort commensurate with the capabilities of runners (Clausen .J.P. :2009,p97) .

Conclusions

- Significant differences emerged between the post-tests between the experimental and control groups and in favor of the experimental group
- Diversity in the formation of training volumes has had a significant impact on the development of speed tolerance, lactic ability and achievement of the effectiveness of running 1500 meters

Recommendations:

- The need to use training sizes according to the degree of pregnancy and ripple because they have an effective role in the training process
- Conducting other similar studies and research on the age stages and for both genders

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Sample Trainings

#	Week	Training unit	DIS	Strength (Ash-Shiddah)	Frequency	Rest period per minute according to pulse rate	Aggregates
1	The first	1	M.	5 .	4	Pulse return to normal 110-120N.D	3
		2	6	80	5		2
		3	1000m	85	5		2
2	Level 2	1	400m	85	4	Pulse return to normal 110-120N.D	3
		2	1200m	80	3		2
		3	600m	85	3		2
3	third	1	M.	85	3	Pulse return to normal 110-120N.D	3
		2	16.	8	3		2
		3	M.	5 .	3		3