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Maximum oxygen consumption as an indicator for estimating the load of a training program on aerobic puissance for half-mile runners in the under-18 category

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ABSTRACT

The aim of the current study was to determine whether the maximum oxygen consumption (Vo2max) is considered an indicator for estimating the load of a proposed training program and to find out if the proposed load contributes to the development of aerobic puissance in middle-distance runners under the age of 18. To suit the nature of the study, we used an experimental method with a single group on a sample of 6 runners from the Al-Wifaq Idrissia Athletics Club, who were selected intentionally. As a research tool, we used the field test (1993 VAM-Eval) to measure Vo2max and VMA. In light of the results, we concluded that there were statistically significant differences between the pre-test and post-test measurements in favor of the post-test regarding the development of aerobic puissance. The study concluded that the proposed training program is effective in contributing to the development of aerobic puissance for middle-distance runners under the age of 18.

Keywords: The training program, Vo2max, aerobic capacity, interval training, and middle-distance running.

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1- INTRODUCTION:

Day after day, week after week, training is stressful.(stress) is very useful, because it improves the body's potential energy and the ability to endure effort and performance. The first positive effects of training appear within six to ten weeks of training. This importance often comes from the amount of training completed, which led coaches and athletes to believe that the quantitative aspect of training is the main factor for good performance. Many also believe that the quantitative and qualitative aspects have the same meaning. Accordingly, training is often evaluated from the quantitative aspect only and is conducted in a non-specialized manner with little individuality. The individual response to training is purely individual and determined by genetic factors, so that each athlete has limits in developing and improving physical abilities.(W. Larry Kenney & al, 2017, p. 348)

There may be two runners of the same height, same weight, proper nutrition and sleep, and following the same training, but one of them is 20 seconds faster than the other per kilometer due to invisible physiological, biomechanical and even psychological factors. There is a factor that has a major impact on performance, which is the amount of oxygen that can be transported through the blood. The amounts of hemoglobin (a substance that transports oxygen to the muscles during effort) can change greatly from one runner to another, as everyone was not created with the same opportunities (natural abilities) in running on foot.(Daniels, Daniels' running formula, 2014, p. 25)

Maximum oxygen consumption is considered the best measure of the aerobic aspect or cardiorespiratory maintenance and aerobic readiness of athletes, and accordingly several researchers consider maximum oxygen consumption to be a good indicator of maintenance.(W. Larry Kenney & al, 2017, p. 348)

Athletes who practice sports that require effort of more than two minutes have a higher maximum oxygen consumption compared to athletes in other sports that require short or intermittent effort.

The high values of $\text{Vo}_{2\text{max}}$ is possessed by runners who specialize in half- and long-distance disciplines, and this benefit results from the strong correlation between oxygen values and performance, and thus the maximum oxygen consumption allows us to predict performance in these runners. (Brikci, 1995, p. 55)

The body's efficiency in maximum oxygen consumption is considered one of the important capabilities required for physical activity that requires endurance of performance for a long period, as maximum oxygen consumption means energy production.(Abu Al-Ala Abdel Fattah, 2003, page 458)

High VO₂max values not only allow good performance, but also indirectly allow for the development and improvement of other physical characteristics due to good recovery after exercise, which ensures good training effectiveness.

The important thing for any runner is to improve a set of variables in order to develop his performance. Accordingly, the runner is required to introduce training that increases aerobic puissance (maximum oxygen consumption), as well as running economy. If these two variables or one of them improves, then another very important variable, which is the speed of maximum oxygen consumption, will be improved and developed.V.Vo₂max).

Aerobic puissance is defined as :The rate of energy production through cellular metabolic processes that depend on the availability of oxygen. asIt indicates Ability Maximum aerodynamic to maximum capacity for re-production ATP (W. Larry Kenney & all, 2012, p. 211)

The refore, there is no single path to success for the athlete, as some runners adapt to one type of training, unlike others, where with the same training, some take longer to respond while others are faster, and therefore it is natural to put runners in several training approaches during the training season, which makes runners and coaches in a high sportsmanship in order to try different types of training with different priorities throughout the training season, provided that it is possible to continuously answer the question that arises: "What is the goal of this session?" From here, it was suggested to apply the contents of a training program whose intensity was determined by the values of maximum oxygen consumption in order to develop and improve some aerobic puissance in the aerobic side of some half-long runners, and this is what prompted us to ask about.

Hence, in light of this information, we can ask whether He was The content of this applied and intensity-specific training program impacts the values of :Consumption maximum oxygen(Vo₂Max)In development Aerobic puissance For half-mile runners For under 18 category?

2- Research hypotheses

2-1 -General hypothesis:

The content of the applied training program and the specific intensity affect the values of the Maximum oxygen consumption (Vo2Max) In development and improvement Aerobic puissance the power I have Half-long runners For under 18 category?

2-2-Partial hypotheses:

- No There are statistically significant differences between the pre- and post-measurement of the experimental group in Ability (Aerobic puissance for half-mile runners.
- There are statistically significant differences between the pre- and post-measurement of the experimental group in Ability (Aerobic puissance for half-mile runners in favor of dimensional measurement.

3- Research objectives:

- 1- To know the impact of the extent of application of the contents of this training program applied in the development and improvement Ability Aerobics for semi-long distance runners under 18 years old.
- 2- Check if the values are Consumption VO₂max (maximum oxygen uptake) adjusts and estimates the training load in the applied program. VO₂max
- 3- Application Test Optimal for measurement Ability antenna power) and() VO₂max
- 4- Use study to enrich And development Related research By improving the tremendous ability of the male cubs for medium distances.

4- Study terms

Training program: It is a set of organized and specific experiences in a scientific and standardized manner according to a well-studied plan with specific objectives, which are worked on to achieve through a set of scientific methods and means according to a specific time frame. Its success is based on the appropriate progression of the training units followed.(Al-Tawab, 2022, p. 10)

Maximum oxygen consumption:

Procedurally: It is symbolized by the symbol(VO₂ max), which is the body's maximum ability to take in oxygen (via the lungs), transport it through

the blood, and then extract it by the working muscles, to use it in the processes of producing the energy needed for muscle contraction.

Aerobic capacity:

The intensity with which we can increase our endurance and ability to continue running at maximum speed for the longest possible period.

(Dellal, 2008)

Half-long distances:

Ahmed Bastawisi knows that middle-distance races are closely related to the endurance element, and therefore they are called skin races, and they are represented in: the 800m and 1500m races, the high level of running these races depends on many elements for which the competitor must be prepared physically, physiologically, skillfully and psychologically. The physical element is considered the most important of these components in raising the level of running competitors, as the elements of cardiovascular fitness and speed play a positive and effective role in advancing the level of this race..(Islam Muhammad, 2022)

5- Previous and similar studies:

Study (Tjelta, L. & Enoksen, E, 2010)

A study entitled Training Characteristics of Male Junior Cross Country and Track Runners on European Top Level

The aim of this study was to describe the training characteristics of high-level European long-distance runners. The athletes' training diaries for the 2008 season were analysed. The total training volume (km/week) during different training periods at five different intensities. The results showed that during the pre-season period, the junior runners ran an average of 5.132 ± 9.25 km/week. $3.78 \pm 7.4\%$ of the weekly training distance (km/week) was continuous running at a heart rate of 62–82% of maximum. During the competitive track season, the total weekly running distance was 1 ± 9.22 km/week. Training in the last three months before the European Cross Country Championships was very similar to training in the pre-season in 2008. The study concluded that a relatively high training volume with a low intensity (62–82%) of maximum heart rate combined with training near the anaerobic threshold (82–92% of maximum heart rate) was beneficial for the development of VO₂max and running performance in track and field competitions in elite middle- and long-distance runners.

Study(Rotstein A & all, 1986)

A study entitled: The effect of training on the anaerobic threshold, maximum aerobic capacity, and anaerobic performance in pre-adolescents

The purpose of the study was to evaluate a training program in terms of aerobic and anaerobic capacity and the anaerobic threshold index at pre-adolescent age. The sample size was intended for 28 individuals aged between (10-12) years, for a period of 9 intermittent weeks. The research tool was a set of tests aimed at measuring aerobic and anaerobic capacity and anaerobic threshold, test Wingate The progressive exercise test and the 1200m running test, and the study concluded that appropriate training for this category improves maximum aerobic capacity and anaerobic capacity, and that the aerobic capacity of pre-adolescence is greater than that of post-adolescence and is shown by stimulating the increase and improvement of Vo2max Compared to the slight improvement in anaerobic threshold measures.

6- Search method and tools:

6-1-Research Methodology:

We used In this study the experimental method In one set, which suits the nature of the research.

6-2-Study community and sample:

After getting to know the original community We used The deliberate method To choose Our research sample, the sample number was 6 Runners under 18 years old, confirming the existence of a strong relationship that shows the degree of harmony between them, the runners are active in the Wifaq Al-Idrissia Club, Athletics Branch. They were chosen deliberately.

6-3-Research areas:

Human domain: 6 Male runners under 18 year.

Spatial area: Municipal stadium track in Idrissia.

Time frame: Basic study procedures from 02 September 2023 until 01 November 2023.

6-4-Study variables:

Independent variable: It is the variable that the researcher wants to change in the study, and it is referred to here as A training program that is accredited by Constant Vo2max: This is the variable affected by the independent variable, and is referred to here as Aerobic capacity.

7- Data collection tools:

7-1/ Test vameval:

Vamoval test 1993: (Cazorla, G & Léger, L, 1993)

a test VAMEVAL ((VAM-Eval) is a physical test by running at an ascending pace every minute according to a specially prepared BIP audio rhythm, used to calculate the maximum aerobic speed VMA by running on a track or circular path, in which the speed rhythm is increased every minute through the determinants present on the track every 20 m.

The purpose of this test is to calculate the maximum airspeed..

Equipment: 200m or 400m circular track marked with 20m spacing, stopwatch, special audio recording Bip "VAMEVAL", registration papers.

Before the test: Explain the test protocol. Prepare basic information such as age, height, body weight, and gender.

Test préparation:

- Place the cones on the 400m track. The distance between them is 20m.
- A 200m circle can be created using a tape measure of two circles of radius (19.20m). Place cones every 20m around the track.
- Or you can create a single circle with a diameter of 31.85 m and a circumference of 20 m between its two points.
- Only one player can start in each funnel at a time.

Testing procedures:

- The test starts at an initial speed of 8 km/h. A Then gradually increase by 0.5 km/h. A Every minute.
- Maintaining the correct speed rhythm according to the required and issued by the audio recording whistle is consistent with the suppression of the mark when each speed signal is issued.
- Hostility warns in case of Deviation of 2 meters or less from the specified limit.
- And excluded from the brother If he misses the specified time limit by 3 meters for two consecutive times, his final numbers will be recorded.

Results:

Record the maximum airspeed of the last(VMA) for the last level of speed, distance and distance covered in meters, and also calculate VO2max

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The result is either ready via the application or calculated using the following equation: $VO_{2max} \text{ (ml/min/kg)} = 3.5 * VMA \text{ (Km/h)}$ Compare the raw results in Appendix 8 with the reference table for values. Test As shown in Appendix 8.



7/2 - Pedagogical equipment used in the study:

number	Tool name	The number	number	Tool name	The number
	Test programmmove	09	Athletics track		
6	Official dress code for running competitions	10	2	Whistle	01
2	Speaker	11	2	Mikati	02
1	Microphone	12	20	Plastic cones	03
2	Table and chair for registration	13	1	Measuring wheel in meters	04
			3	hourPOLAR heart rate monitor	05
			1	laptop	06

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6	Results discharge formTests	07
Audio programTo consonant	test	08

8- Overview of the training program:

The training program plan includes a period of two months divided into 8WeeksThat is, over 02 medium training courses, containing a total of 52 lessons, divided as follows:

Training methods used: Easy training E Repetitive training R Running training in the limit T	50 km per week, i.e. 200 km per cycle	24 shares / 08 qualitative shares / 16 shares Retrospective	First weekly training course
Training methods used: Easy training E Repetitive training R Running training in the limit T hard training H Interval training I	55 km per week, i.e. 220 km total cycle	28 sessions / 12 quality sessions / 4 muscle strengthening sessions / 12 sessions Retrospective	Second weekly training course

9- The methods for Statistics:

Given the nature of the subject and the desired goal of the study and the applied test, it gives results that analyze and explain the phenomenon studied, so we relied on a group Statistical methods are:

Statistical description: Arithmetic mean - Standard deviation - Graph

Inferential description Pearson's correlation coefficient - test T test for two equal samples interconnected

10- Presentation, analysis and discussion of results:

Display and analyze test results vameval to measure Ability antenna through variablevo2max:

Significance Statistics	N	Sig	α	d	value(T) Tabular	value (T) calculate	Deviation Standard	Average Arithmetic	Measureme
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						d			
Dal Statistically	6	0.00	0.05	5	2.015	22.83	1.49	56.29	tribal
							1.25	59.50	After me

-Table (A) The significance level represents the difference between the pre- and post-measurement of a variable. Ability The antenna of the research sample individuals.

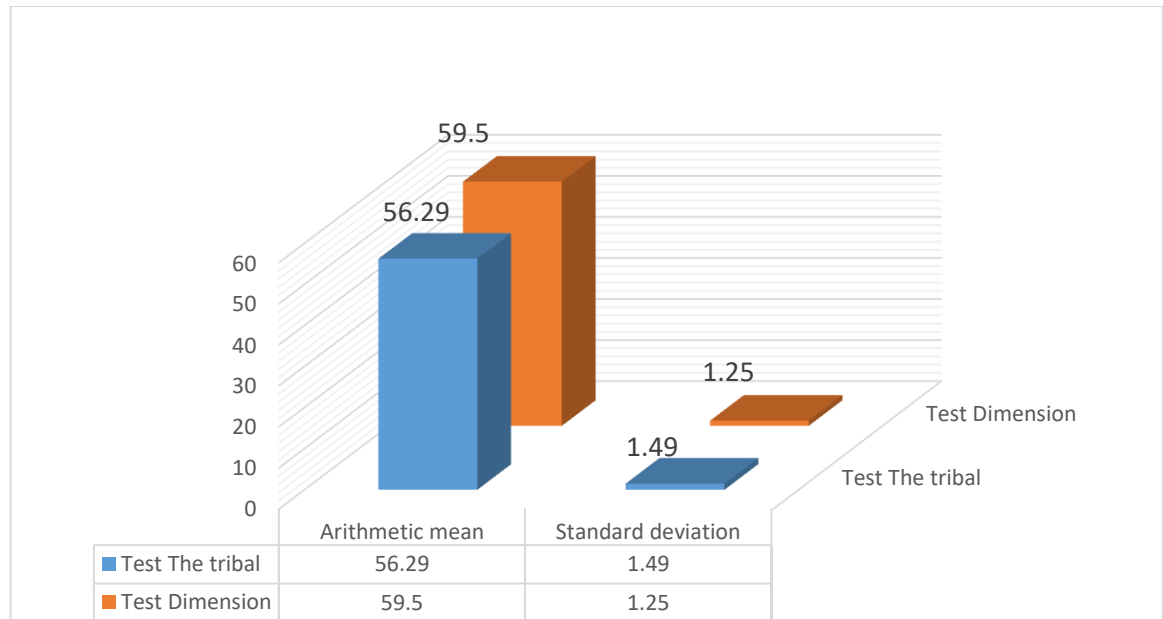


Figure (B): Represents a comparison between the pre- and post-measurement of values.Vo2Max from Vamoval test for research sample individuals

It is clear from Table No. (A) that there is a significant development regarding the values of Vo2Max extracted from Vamoval test for the research sample where the arithmetic mean was in Test The tribal is estimated at 56.29 And deviation The standard value is 1.49 while the arithmetic mean is Test Dimension to 59.5 And deviation Standard for 1.25 and since The calculated t was 22.83, which is greater than the tabular t value of 2.015 at 5 degrees of freedom. Since the value of probability sig = 0.00 which is less than the significance level $\alpha=0.05$, we conclude that there is a difference between The two tests Regarding values Vo2Max is a significant difference that reaches the level of statistical significance.

From the graph No. (B), we can see the difference in the pre- and post-arithmetic averages of the research sample, which achieved the highest level of achievement in Test The post-test and the significant improvement rate derived from the difference between the two averages reached 5.29.% This is a

tangible and essential confirmation, and this indicates the effectiveness of the proposed training program for developing the variable. Ability The aerobic side of the half-mile runners.

Discussion of the results of the hypotheses:

Discussion of the results of the first hypothesis:

The first assumption states that there is no There are statistically significant differences between the pre- and post-measurement. For research sample in Ability(Aerobic power for half-mile runners. By analyzing the results in Table (A) and Graph (B), we clearly see that there is a difference between the two tests, and therefore we reject this hypothesis.

Discussion of the results of the first hypothesis:

And it is assumed The researcher found that there are statistically significant differences between the pre- and post-measurement of the research sample in Ability((Aerobic) power for the aerobic side of the half-length runners in favor of the dimensional measurement.

from during Table (A) (We notice presence Differences same indication Statistics between Test tribal And the next one is for Saleh Test The dimensional and the results indicate A There is an improvement rate estimated at (5.29%)To be able Antenna and comparing the results of the arithmetic mean For testing Pre- and post-we note that the improvement is clear in favor of Test The dimension is (59.50%) which shows the amount improvement To be able The antenna of the research sample, and this is consistent with the studies of both(Esfandiari & all, 2014) Which had almost the same improvement rate for his research sample compared to our research which are The recommended rest varies according to the distance covered and the training condition and is between 30 second And 5 D Minute In the form of a light jog from 10m to 1000mThat it is affect (Comfort)On cardiovascular and metabolic indicators Food Y F They return to their resting value, which is a benefit of incorporating the method into our training program. Our study is also consistent with Study results(Husseini and Abu Sadiq, 2019),Which says that training with specific, controlled intensity sessionsVO2max positive role in development Endurance The antenna and the achievement in the 1500m enemy, and also consistent with the study(Alili and Meziane, 2020) Which

concluded that training directed at developing the Aerobic capacity has an impact on the development of speed and speed endurance in half-mile races.

From another angle, theoretical and experimental projections confirm the study.(Duffield R & all, 2006)That the contents of the qualitative shares are directed towards the development of A antenna power Maximum oxygen consumption It is done from During high intensity exercise

We attribute this to the characteristics of the contents of the qualitative portions, which are controlled in intensity.VO2max on development Aerobic capacity: What distinguishes the program is controlling the rest between exercises in relation to the heart rate, as it varies according to the distance covered and the training condition, as it generally falls between 30 Thai intention And 3 Minute In the form of a light jog from 100m to 700m, Also, after stopping the effort, the systolic and diastolic blood pressure decreases, and it is clear that the heart absorbs this pressure through the process of expansion, which explains the reason for the increase in the cardiac cavity. Systole volume is also at its maximum during the recommended rest period. Interval training is also one of the most important factors controlling the improvement of capacity, and this approach is supported by the study(Duffield R & all, 2006)Which says that high intensity interval training has a benefit on the aerobic side. Which It results in a rapid improvement in the high performance of the heart muscle, which in turn affects the maximum capacity of Oxygen absorption and as a result, high performance increases in continuity, and some researchers have noticed an increase in the size of the heart by 220 cm³ in just weeks, and on the other hand, it is seen (Daizong Wen & all, 2019) and It has the same goal as our topic, it recommends the interval training method to improve the ability and The antenna has the advantage of producing a large increase in quantity and as a result a large increase in Disease of Maximum oxygen consumption, in training programs directed to this, this method is recommended because it improves Ability Aerobic and anaerobic.

About the benefit of interval training (I) very strongly, Some researchers believe that only two weeks of training containing 4to6 reps of 30 second intention To get better and It is evolving. Power variable from The aerobic aspect of untrained people and the characteristic of this type of training It only takes 2 hours and 30 minutes of training per week, which is a huge benefit for people who do not have enough time to train. Also, for athletes who are training and regular athletes, they can benefit from this type of training, as several studies have shown that some (cyclists) athletes replaced only 15 percent of the classical training volume practiced with high-intensity interval

training, and thus obtained an improvement in maximum capacity in only 4 weeks. Recommended Gibala and Jones 2013 Specialized athletes devote 75 percent of their time to continuous low-intensity training (10-15)% For high intensity interval training (W. Larry Kenney & al, 2017, pp. 237-238)

Regarding Improve timing and results Maximum consumption of And oxygen in the dimensional measurement is attributed to the improvement of the body's ability to consume maximum oxygen and reach maximum running speed as a result of the interaction of three factors: the effectiveness of the step, the economy of running, and the motivation to reach maximum oxygen consumption, as well as the improvement of breathing technique and respiratory rhythm frequency.

Developing runners from the physiological side represented in the maximum oxygen consumption through a regular annual training program that includes the contents of specific, intensity-controlled portions. VO₂max intensively pays off inevitably for development .Ability antenna, In addition, our program is characterized by the diversification of training methods and in smaller proportions, such as repetitive training, running in the limit and straight lines, muscle strengthening, and running on slopes. All of these types of training work in a secondary way, physically and psychologically, to achieve our hypothesis. These methods and approaches were arranged in accordance with the recognized principles of training, especially the principle of gradual load and the principle of alternating work/rest to avoid falling into overtraining. And the occurrence of injuries due to the pressure of training and its high intensity.

that Ability The antenna that represents the intensity with which we can increase endurance and capacity. Continue Running as fast as possible for as long as possible (Dellal, 2008), And the intensity can only be lifted through The ability of muscles to use oxygen from the heart and lungs to produce energy. The more efficient this process becomes, the better Thea Aerobic capacity. Therefore, aerobic capacity is usually monitored and tested using VO₂ max. (Lorenz & al, 2013)

This factor is the muscle strength training that is programmed in Thai will spend the second half of the program and its positive impact on improving the work of the individual muscle that makes each More powerful contraction, improved fatigue resistance, and developed neuromuscular coordination, which in turn develops Economic running is what It necessarily requires improvement of Maximum oxygen consumption, which is confirmed by a study. (Marcinik EJ & al, 1991) Among the exercises we worked on in the muscle strengthening classes were strength training exercises. Explosive and

muscular strength in the core Plyometric and weight training With weights Fits And the age of the sample.

As for the benefit of easy training E We justify it from the study (Martin, & David E., 1997) Which was in most of the periods of probation and its relationship with For aerial power it is a share Healing for high intensity quality sessions it ensures physiological adaptations to improve type I muscle fibers as well as improve capillary function, blood volume and number. Red blood cells, fuel stores within muscles, mitochondrial size and density, aerobic energy metabolism develops by recruitment of free fatty acids and glycogen oxidation enzymes, and cardiovascular volume and output within muscles due to increased blood flow to muscles.

One of the main priorities of easy or continuous training is to train at the same intensity imposed by the competition. Continuous training allows for maximum cellular adaptations for the maintenance athlete. This is in contrast to interval training, which potentially engages more fast twitch muscle fibers, which are not the muscle fibers that work during a maintenance competition.(W. McArdle & all, 2001, pp. 383-384)

11-a summary

In light of the above interpretation of the results of the proposed hypotheses, the study concluded the extent of the positive impact of the controlled training program on Maximum consumption of And oxygen on Thea Aerobic capacity We can say that training with Contents of the qualitative classes of various strengths, especially Easy and High intensity interval training to the anaerobic threshold with a rate of Approximately 4 moles of Lathe blood levels of ketones in runners are approximately 80%.% of high performance capabilities They have it What was observed in Runners' disease, where their performance improved compared to the first case in high-intensity training, which we explain by saying that they They passed the anaerobic threshold late. Let us conclude from this the importance of planning and the efficiency of the program contents and effectiveness. Exercises with standardized intensities And he had It has a positive effect on improving maximum oxygen consumption in long-distance runners. Less than 18 years old. Of course this is confirmed by(Daniels, 2014, p. 57) Several in this area when they worked between the contents of the shares continuously For retrieval Optimal and contents of the shares in the period They reached the effectiveness of the latter through the results, especially in developing aerobic capacity (VO₂MAX). And it is compatible with what He mentioned it.(Howald H, 1977)for An there It is believed that athletes who use submaximal long training have higher anaerobic thresholds than those who use

endurance training at maximum intensity. Therefore, we advise field coaches to follow the method of measuring the intensity of the sessions by Vo2max has no effect on developing Thea Aerobic capacity is what most of the senior trainers in the field work with.

12-Recommendations:

-Approval of training programs in which Maximum oxygen consumption as an indicator for estimating the load of a training program on aerobic capacity for half-mile runners in the under-18 category.

- The trainer was urged to standardize training programs with controlled loads other than heart rate, such as: Vo2Max, VMA, PMA, blood lactate levels, etc.

- procedure studies Complete the study Current For the rest Categories Age.

- the job Gradually in Pregnancy Applied in The program and this To respect him principles Training.

- Search on Variables Other that maybe Measure it By consumption The farthest For oxygen.

13-the reviewer:

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First intermediate training course

First intermediate training course											E Easy : 141 km		T : Threshold running 36.5 km		MS : Muscle strengthenin 26.02 km			R : Repetition training . 8.8 km SL: Straight lines 6.24 km		
The week date	Week 01 02/09 --- 08/09					Week 02 09/09 ---- 15/09					Week 03 16/09 ---- 22/09					Week 04 23/09 ---- 29/09				
	september 2023																			
Saturday	+ Easy running E '35 ("20) m120 LD 6					+ Easy running E '35 ("20) m120 LD 6					+ Easy running E '35 ("20)m 120 LD 6					+ Easy running E '35 ("20) m120 LD 8				
Sunday	("40.41) R (m200 x2)+ E km 3 R (m400 x2)+ (m200) RP trot x2) + (m400) RP trot ("80.81) 2 + (m200) RP trot R (m200 E km					("80.81) R (m400 x6)+ E km 3 E km 3 + (m400 per) RP trot					R (m x6)) le block x2 + E km 3 (m400) RP ((m200 per) RP trot E km 2+between the bloks					("59.60) R (m300 x4)+ E km 3 (m200 x6) + (m300 per) RP trot (m200 per) RP trot ("39.40) R E km 2 +				
Monday	Muscle strengthening 5.760 km					Muscle strengthening 6.160 km					Muscle strengthening 7 km					Muscle strengthening 7 km				
Tuesday	Straight lines 6 + E '35 ("20)m 120					Straight lines 6+E'40 ("20)m120					Straight lines 6 + E '40 ("20)m 120					Straight lines 8 + E '35 ("20) m120				
Wednesday	rest					rest					rest					rest				
Thursday	(m5000) T '20 + E km 2 E km 2 + continuons					T((m1500) '5x4) + E km 3 E km 3 +					(م5000) T '20 + E km 3 E km 3 +continuons					T((m1500) '5x4) + E km 3 E km 3 +				
Friday	Easy running E '50					Easy running E '50					Easy running E '50					Easy running E '50				
	E	T	MS	R	SL	E	T	MS	R	SL	E	T	MS	R	SL	E	T	MS	R	SL
	33	5	5.76	1.6	1.44	37	6	6.16	2.4	1.44	36	5	7	2.4	1.44	35	6	7	2.4	1.92
km /week	45 km					50km					50km					50km				

Maximum oxygen consumption as an indicator for estimating the load of a training program on aerobic capacity for half-mile runners in the under-18 category

Khedari Ahmed Yassin, Gacem Mokhtar

Second intermediate training course

:E Easy 130 km : SL Straight lines 6.36 km	:T Threshold running 36.5 km	running hard : H 8.7 mk Muscle : RS strengthening 5.26 km	Repetition : R training . 4 km I : Interval training 12 km
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Maximum oxygen consumption as an indicator for estimating the load of a training program on aerobic capacity for half-mile runners in the under-18 category

Khedari Ahmed Yassin, Gacem Mokhtar

The week date	Week 05 09/30 ---- 10/06						Week 06 10/07 ---- 10/13					Week 07 10/14 ---- 10/ 20					Week 08 10/21 ---- 10/27					
	October 2023																					
Saturday	+ Easy running E '35 ("20)m 120 SD 8						+ Easy running E '35 ("20)m 120 SD 6					+ Easy running E '35 ("20) m120 SD 6					+ Easy running E '40 ("20) m120 SD 8					
Sunday	('3.31) <u>I</u> (m1000 x4) + E km 3 E km 2 + (m1000 per) RP trot '3						'2 ('2.64) <u>I</u> (m800 x5) +E km 3 E km 3 +RP trot					RP '2 (m1000) <u>H</u> ('3 x5)+E km 3 E km 2 + trot					RP trot '3 ('3.34) <u>I</u> (m1000 x4)+ E km 3 E km 2 + (m1000)					
Monday	continuous (m5000) T '20 + E km 2 ("39.40) R (m200 x3) + RP ' 3 with E '10 +(m200) RP trot						T ('6 x4) + E km 3 (side 8°) R (m200 x3) +RP '1 E km 2+ (m200) RP trot and					RP '1 (1500m) T ('5 x4) + E km 2 300RP trot ('58.59) R (m300 x2)+ E km 2 +m					x3)+ RP '2 (m3000) T ('10 x3) + E km 2 (m200)RP (side 8°) R (km200 E km 2 +					
Tuesday	Straight lines 8 + E '35 ("20) m120						Straight lines 6 + E '35 ("20) m120					Straight lines 3 + E '35 ("20)m 120					Straight lines 8 + E '35 ("20) m120					
Wednesday	E '30						E '30					E '30					E '30					
Thursday	RP '1 (m1500) T ('5x1) + E km 3 x3)+ RP trot'1 with 2x(m1000) H ('3)+ ("39.40) R (m200 E km2 + m 200 RP trot						Muscle strengthening 5.260 km					RP '1 ('10) T km 3 + E km 2 + RP trot'1(m700) H ('2)+ m300 RP trot ("58.59) R (m300x2) E km 2+					H ('3) + RP '1 (m1600) T km 6 + E km 2 + RP trot '2 (km 1) ("39.40) R (m200 x2) E km 2 +m 200 RP trot					
Friday	Easy running E '50						Easy running E '50					Easy running E '50					long run or competition					
	E	T	H	I	R	SL	E	T	I	R	LD	E	T	H	R	SL	E	T	H	I	R	SL
	44	6.5	2	4	1.2	1.92	41	6	4	0.6	1.44	43	9	5.7	1.2	1.08	42	15	1	4	1	1.92
										5.2												
Week/km	km 60						km 60					km 60					km 65					