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The effect of a dietary training special program on improving functional situation and achievement in terms of muscular fatigue and some functional indicators for the men runners of (1500) meters race

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Abstract

By following the researchers to intermediate jogging, including runners who ran (1500) meters in the exercise of official racing for some clubs Iraq noted that there is a decrease in the level of achievement researcher believed to be caused by the decline in the functional and physical susceptibility to most runners as well as the lack of adaptations of functional positive for body organs despite undergo hostility to training programs for a variety of delay fatigue and complete the race time less effort higher and also Runners not subject to effective nutritional or nutrition programs consistent with the nature of the effort exerted during training and competition. Researcher Wen believes that the research problem It is manifested in the fact that most of the trainers do not rely on some functional indicators in addition to the heart rate with the help of specialists and their adoption as an indicator of the development of the functional and physical level. The researcher thus assumed the existence of statistically significant differences between the pre-test and the post-test of the muscle fatigue index and the values of the functional indicators and achievement of the research sample. The results obtained by the researcher in the tribal and dimensionality tests, the researcher found a group of the most important conclusions that the index of muscle fatigue has a major role in the preparation of training programs for the development of the functional ability of the players and the legalization of the training load must adopt e by the trainers as well as an improvement of the functional state of the runners through Most of the studied functional indicators have improved between pre and post

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testing for the studied research sample, and among the recommendations is the adoption of effective and appropriate food programs in line with the physical effort of the runners and the various activities.

Key words :muscle fatigue, nutritional training program

Introduction

*Research problem***:** observation and follow - up to the researcher Wen for most of the races that belong to medium including ran 1500 meters for men, especially the youth was not functional and physical level of performance is required due to what exists in the races of other Arab countries, for example, shows through digital achievement of the athletes in those countries. Therefore, the researcher believes Wen reason is due to weakness in the functional level and thus physical for most runners output perhaps by Ray researcher to the ineffectiveness of the training programs used diet for runners as well as the failure to adopt most of the trainers on some indicators functional addition to the heart rate with the help of specialists and adoption Km/s the evolution of the level The career and physical fitness of runners and herein lies the research problem. (***Bahaa, 2002***) This is the oldest researcher Wen on the preparation of a special training program and in cooperation with the trainers for this event using one of the methods of training, which had been successful in most countries of the world, a lack of oxygen mask (exercises hypoxic) (Hypoxia) For the runners under study to increase the functional adaptations of the sample and thus develop their functional status and achievement and the use of carbohydrate loading and give some vitamins to the sample during the training period. (***Thomas, 2016***) The values of the functional variables under study are also known, the most important of which is the muscle fatigue index represented by the lactic threshold Anaerobic Threshold Which have great importance in the assessment of the sports case and the values of indicators functional other so that the trainers through which to identify p Li career level runners and find the best ways to legalize curricula are training and training load , and which consequently lead to delay the onset of fatigue during the competition and raise the level of achievement . (***Qasim, 1990*****)**

The aim of the research is to know the value of the index of muscular fatigue (threshold) and some other functional indicators and achievement of the studied research sample. And to improve the level of functional status in terms of muscle fatigue index and some functional indicators of the research sample.

The imposition of research is that there are statistically significant differences between the pre-test and the post-test for the value of muscle fatigue and some functional indicators of the research sample.

*And areas of research***:** The human field: Some of the Diyala clubs' runners ran (1500 meters) men, who were (5). Domain Temporal: for the period from 1 / 9 / 2019 until 2 / 1 / 2020. Spatial domain: Laboratory of the Faculty of Physical Education, the external arena of the faculty / University of Diyala.

Literature review

Events of Athletics Bride Games sports are one of the forms that require physical strength of the practitioners of high technical skills and complex, and it requires proper planning training using sound scientific bases in the science of sports training and physiology training and other sciences. A 1500-meter runner is distinguished by the element of enduring speed, as this activity requires endurance combined with speed, which enables the competitor to run the race distance without decreasing the degree of productivity and at a proportional speed - and the endurance is linked here with the functional ability of the body's organs (heart - circulation - breathing - nutrition Occasion - secretions of various hormones - chemical changes in muscles). ***(Thomas, 2016***) As the subject of training programs and the diet used for athletics runners is one of the important topics that have aroused the interest of specialists, researchers, and workers in the field of

sports training and training philosophy in order to reach the best methods that would develop the level of functional ability of runners, including middle-distance runners. (***Abd al-Fattah, 1993***) Herein lies the importance of research by identifying when muscle fatigue appears (lactic threshold) Anaerobic Threshold) And the values of variables , functional and other sample research and the possibility of delaying the appearance of fatigue muscle through the use of a special diet training program on the research sample and it is to provide information needed by trainers and workers in the field of sports training, and through training loads and programs according to the level of the training status of the players in the exercises daily. (***Qasim, 1990***)

Methodology

Research Methodology: The experimental method was used in a method (pre and posttest) for one group, and it fits the studied problem and contributes to achieving its objectives.

Community sample: The research sample included a group of hostile medium - sized clubs Diyala effectiveness of running (1500 Free meter men) who were deliberately chosen, numbered (7) runners, and (2) of them were excluded for various reasons. Those who are undergoing training in Diyala governorate, in the end, their number reached (5) runners.

Devices and tools used and means of gathering information: - Hypoxic training mask. - Fat device dead Fit mate ProMade in Italy. - Conveyor belt device in China. - Electronic height and weight measuring device made in China. - Computer (laptop) HP.

Means the collection of information: Personal interview, World Wide Web and the sources and references Arab and foreign.

Table (1) shows the mean values for the indicators of the research sample

Indicator body mass	the weight	Length	Age of training	Age Temporal	Pain indicators
19 .3	64 kg	16 8 cm	5 years	24 years old	The research sample

Exploratory experience: It was conducted exploratory experiment on Sunday approved 6 /9/2019 In the Physiology Laboratory of the College of Physical Education and Sports Sciences - University of Diyala, the purpose of which is to identify the obstacles to conducting tests and functional measurements and others, if the performance of the tests has been confirmed and the requirements required for this and other technical matters are provided.

- **Muscle fatigue test:**

Objective of the test: To measure the lactic threshold time (LA) and some functional indicators other including (Vo2max, Heart rate HR, The percentage of oxygen in the exhaled air FeO2, Hospitalization)

Tools used: device (fitmate pro), Treadmill (Treadmill) Height and weight device.

Performance method: The measurement process is carried out first by fastening the pulse belt (HR) On the runner’s chest and after that the runner climbs onto the treadmill and wears the mask for the stress test and the mask is tightened so that the runner breathes only from it.(fitmate pro)A minute after the start of the runner's jog for the purpose of correcting errors and warming up , the performance is by gradual effort (increase in intensity) and by the direct method through the device (Fitmate pro) Which by air analysis (Gas analysis) By the mask for measuring this indicator and its attachments,

Bruce standardized test: was applied (Bruce Test) As in Table (2) for each individual from the sample, through continuous jogging with an increase in the intensity stages by increasing the speed and height of the treadmill until the player's effort (fatigue) is exhausted and the test ends, and after the end of the effort or test, the heart rate is measured after the passage of 3 Minutes for the purpose of measuring hospitalization for each runner from the research sample.

Registration: The results of the job indicators under study are shown through the printer that is in the same device and on a special paper for each player separately, as the table includes the values of the functional indicators under study.

Table (2) shows the stages or curriculum of the Bruce exam

The Bruce Treadmill Test Protocol			
the level Level	**Time (minutes(Time (mins)**	**The speed is km / h Speed (km /hr.)**	**Degree of elevation Grade (%)**
1	**0**	**2.74**	**10**
2	**3**	**4.02**	**12**
3	**6**	**5.47**	**14**
4	**9**	**6.76**	**16**
5	**12**	**8.05**	**18**
6	**15th**	**8.85**	**20**
7	**18**	**9.65**	**22**
8	**21**	**10.46**	**24**

(Robert, 2000)

Test of speed tolerance

The aim of the test: to identify the achievement of a run 1500 Meters.

The tools: Whistle stopwatch, tape measure, starting line, and finish line.

Performance description: The laboratory is positioned in the low starting position behind the starting line in the designated position. The call is done Take your place - Get ready - Run. When the laboratory hears it kicks off by running at full speed in a straight line and continues to run erosion Z finish line

Score calculation: The laboratory score is the time to reach the finish line in a 1500-meter run.

Test tribal: The pre-test of the research sample was conducted on Sunday 9/15/2019 at nine o'clock in the morning in the Physiology Laboratory of the College of Physical Education - University of Diyala for five runners. Height and weight were initially measured for the purpose of using them in the fitness equipment information, in order to extract the functional variables in the research By using a device (Fitmate Pro) And based on the Bruce Test)Bruce Test) Represented by the gradient voltage and as shown in Table (1). The researcher has won the following actions:

- Height and weight were measured in an electronic device located in the laboratory.
- Give runners a chance to warm up simple before testing.

On Monday (9/16/2019) at ten thirty, the researchers conducted a speed endurance test for the research sample through a 1500-meter freestyle race in the yard of the College of Physical Education and with the help of the work team for the purpose of launching and timing the sample and of recording their times.

Food training program:

The researcher used Wen training program prepared and e with the coach of the effectiveness ran (1500 m) and has , and also prepare a program diet to improve the situation functional sample of the research and development of prescription speed of the effectiveness of (1500 m) free sample research since the start of the training curriculum on 18 / 9 / 2019 as it was a researcher Wen observe the capabilities of functional and physical research sample drawing on sources in the science and sports training as well as experts and specialists. In this area , as the researcher Wen using the method of any one group of the experimental group only used the trainer training method is high - intensity interval to develop a recipe or carrying speed of the sample individuals. As the intensity used in this training program starts from 70 % and reaches 85% of the maximum intensity for the research sample. As the training program included a 12-week diet with 4 training units during one week in which the oxygen deficiency mask method was used during the main section of the training unit at a time of 50 minutes, taking into account the progressive progression by reducing the entry of air into the lungs through the openings of the mask and thus reducing the percentage of oxygen entering. Some of the exercises were carried out in the outdoor yard and in the laboratory, using a treadmill. The researchers gave the sample members a group of carbohydrates in high and gradual proportions with 3 meals a day to replenish the glycogen percentage in the body, including for viewing (milk, nuts and a portion of fruit) as well as giving the natural protein (red and white meat and eggs) and in the form of powder (WHEY) Protein, with one dose per day for each runner to fill the deficiency caused by training and give some vitamin tablets after training to facilitate the storage of carbohydrates in the body or muscles , as well as the researchers with the trainer to change some of the program's vocabulary through the values of the indicators they obtain and through functional tests to identify The functional and physical aspect of the research sample improved

Posttest: It was a post test on Wednesday and Thursday 19 - 18 /12/2019 at nine in the morning after the end of the training program , food researchers and keen to provide the same conditions associated with the testing of tribal and use the same steps or previous procedures.

Results

1. **Display circles calculations and the deviations of standard values functional indicators of the research sample.**

Table (2) shows the statistical description of the test (tribal, posttest) for indicator values functional passion of search

Variables	the test	measuring unit	Sample number	Arithmetic mean	deviation
AT time	**Tribal**	**min**	**5**	**2.78**	**0.47**
Fatigue time	**after me**		**5**	**3.20**	**0.63**

VO2 max	Tribal	Ml / kg / min	5	40.18	2.10
	after me		5	42.52	0.88
HR	Tribal	Bpm	5	173.80	5.36
	after me		5	172.60	4.16
FEO2	Tribal	%	5	19.18	0.89
Oxygen ratio	after me		5	18.91	0.86
RE	Tribal	Bpm	5	141.00	5.66
Hospitalization	after me		5	134.60	6.07

Diagram (1) Shows indicator change (AT) Muscle fatigue time during pretest and posttest

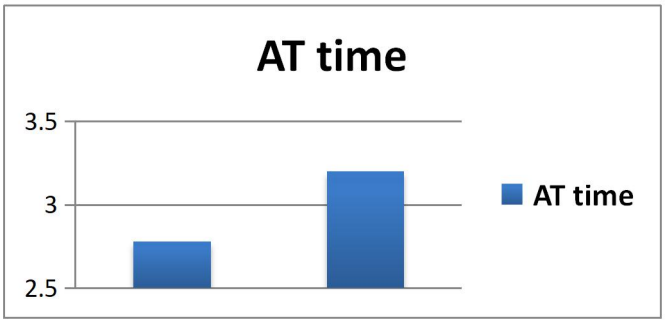

Diagram (2) shows indicator change Vo2maxAnd the percentage of oxygen in the exhaled air during the test (pre and post)

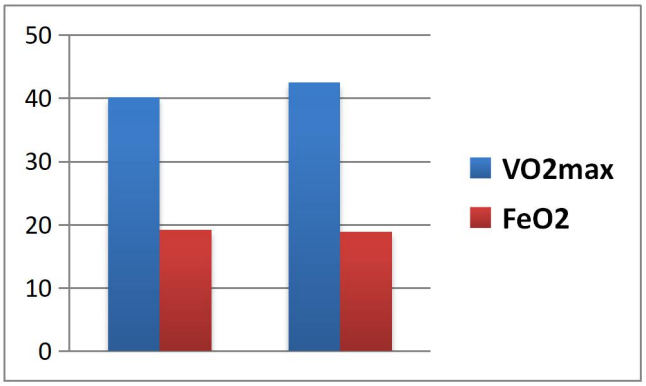

Table (3) shows mean and deviation for meaningful teams T Calculated and the percentage of error and significance between the pre and posttests in the research variables

Variables	QF	P. P	Standard error	Degree of freedom	ated value of t	mistake percentage	Indication type
AT time	0.42	0.30	0.16	4	3.10	0.036	moral
VO2 max	2.34	2.63	1.17	4	1.99	0.117	Immoral
HR	1.2	1.93	0.86	4	1.4	0.235	Immoral
FEO2	0.27	0.83	0.37	4	0.72	0.512	Immoral
RE	6.4	3.91	1.75	4	3.66	0.022	moral

Degree of freedom = 4 and below error level = 0.05

2. **Discussion**

Muscle fatigue index results (AT time) and hospitalization (REC): Through the results obtained from the table (3) which refers to the variation of indicators research found that there is evolution marked for this indicator between the pre - test and post and has a sign of moral which is a positive indicator of the improvement in the situation functional sample studied since the time of the appearance of fatigue muscle whenever Delayed appearance by the runner when the physical exertion was better, which means the delay of the lactic acid accumulation in the working muscles and thus the delay in the appearance of fatigue. Researchers Attribute Wen that the effectiveness of the training program - food that used by the sample developed by the trainer and researchers that the impact of a positive sample search and thus represents a positive response to the devices body of hostility and shows that also the graph (1). Regarding this, (***Abd al-Fattah, 1993***) point out that one of the most important factors that help delay the onset of fatigue is the spread of lactic acid through the non-working muscle fibers and its reconstitution into energy by the liver , and this can only be achieved through high-intensity exercises that do not Its role is limited to increasing the speed of the metabolism of lactic acid by the working muscles and thus the speed of its elimination, but rather works to increase the efficiency of the non-working muscles in their consumption of lactic acid as targeting the work of the non- working muscles can only be done through high-intensity exercises, which works The increase in its consumption capacity for lactic acid, which in turn leads to delaying the appearance of fatigue, and this is what happened in the post test of the research sample. As for the hospitalization index in the table (3) It has also found significant differences between the tests or measurements of tribal and dimensionality conducted on a sample when comparing by error , this indicates a positive improvement and indicates the presence of adaptations of functional positive for the respiratory system caused by proper training and food program good used by researchers as well as the effectiveness of the training as the use of mask a lack of oxygen on a sample of members of the search. As the lack of oxygen in the blood during physical exertion indicates the kidneys, and a substance called the renal factor is secreted, and it also affects the liver, producing a substance, so that a reaction to these two substances occurs in the blood, the hormone von ESP. This hormone is carried through the blood to the red bone marrow, affecting the cells that produce red blood cells, stimulating them to produce large numbers of red blood cells that carry hemoclopin, and thus the amount of oxygen carried increases and thus the amount of energy produced inside the muscles increases and muscle work continues to carry out sports exercises despite Hypoxia improves the functional responses and adaptations of the circulatory system - respiratory system, thus improving the functional state and physical performance, which in turn achieves the research objectives.

3. Discuss the results of job indicators (VO2max) (HR) (Feo2)

In light of the results in Table (2), there was an improvement in some values despite the absence of significant differences, including the presence of a clear development of the maximum oxygen consumption index. VO2max) The heart rate, as we see an increase in the value of the first in the post- test and a slight decrease in the value of the second(HR)This is a healthy and positive case for the research sample indicates an improvement in the situation functional and respiratory research sample and as is evident in the graph (2) The researcher sees Wen reason for this for some adaptations of the circulatory system and respiratory result from regular exercise program or training curriculum through training modules and exercises hypoxic It in turn affected the training status of the player and is suitable for the development of some functional organs in

the body. As (Bhaedin, 2002) supported that Considering that a no consumption of oxygen j is compared integrated to the most vital organs during the performance of a respiratory, circulatory and muscular blood, so depend on it coefficient functional to evaluate the sports case training. With regard to the index (Feo2)The percentage of oxygen in the exhaled air, so we find that there is no significant indication of the differences in Table No. 3, but if we go back to Table No. 2, which concerns the descriptive statistics, we find an improvement or difference in the arithmetic mean between the pretest and the post test, which is a positive indicator indicating the presence of relative adaptations of the respiratory system and gas exchange, As this indicator, the lower its percentage, the better it is, which means more oxygen is consumed or entered into the cells of the body, and thus its percentage in the exhaled air decreases as the regulated and regular exercises lead to a positive functional response to the vital organs in the body, especially the respiratory system.

Table (4) shows the arithmetic mean, standard deviation, and value T Calculated and the significance between the pre and posttests in the achievement index for 1500 m runs of the research sample

Variables	Arithmetic mean	standard deviation	QF	P. P	Values T Calculated	mistake percentage	indication
The pretest	3.69	0.04	0.06	0.02	5.69	0.005	**moral**
Post test	3.64	0.05					

In the data of the above table, it was found that there is a difference in the time of completion, as the indication indicated the existence of significant differences between the pre-test and the post-test with the achievement values of 1500 meters of the research sample studied during the period of the used training program ,as the results indicate the effectiveness of the training program - food in improving the level of achievement, even if relatively The researchers believe that continuing with such training for a longer period achieves higher achievement. The reason for the improvement is also due to hypoxic exercises (the oxygen deficiency mask), which led to positive functional adaptations for runners and led to a significant improvement in the tolerance of the runner and increase his efficiency ,as was previously explained.

Conclusions

1. The existence of an improvement in the functional status of the runners through the improvement of most of the studied functional indicators between the pre and posttest of the studied research sample
2. The Muscle Fatigue Index has a major role in preparing training programs to develop the functional ability of players and legalize the training load and must be approved by coaches
3. The importance of identifying the index data functional runners and are permanently allows them to prepare programs of training of effective serve in improving the situation functional and physical have.
4. The effect of the training program - food used in improving most of the functional indicators and the level of achievement of the research sample.
5. Using similar training programs for longer periods of time to further improve job indicators and achievement.

6. Adopting effective and appropriate nutritional programs in line with the physical effort of runners and with various activities.

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