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Carbohydrate intake after high effort and its effect on antioxidants to eliminate free radicals in terms of catalase enzyme and achieve 400m sprint for youth

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Abstract--The development of the physiology of sports training and the continuous studies and research in this field in order to raise the level of achievement to the highest levels and the search for the best ways is what our research has found in the use of proper sports nutrition, which is the intake of liquid carbohydrates after high physical exertion in the period of rest or recovery after training, which stimulates the enzyme catalase and its reaction to get rid of free radicals and develop the oxidation system in the runner. It will quickly build the cells that were destroyed during training and quickly replace the energy stores with glycogen that have been depleted as a result of training loads of high intensity and rid the body of these free radicals and free radicals. Helps in the performance of the training units as required upgrading to high intensity and adapting to it raises the level of achievement for young runners in the 400m event.

Keywords---Carbohydrate, antioxidants, achievement for young.

Introduction

Introduction and importance of the research

The proper planning of sports training depends mainly on scientific field research and experiments because the training process aims to achieve sports achievement. Therefore, scientists and specialists in the field of sports training physiology seek to search for the elements of achievement related to the type of

training used and the means to ensure modern scientific methods, including the important role played by nutrition. Healthy sports, especially the intake of liquid carbohydrates after high physical exertion according to the physical and physiological requirements in athletics activities in general and the effectiveness of 400 m in particular, and that this event is characterized by its high intensity training and training programs for the development of the anaerobic energy system for runners to increase the efficiency of muscles in work with a certain percentage of The concentration of lactic acid in the muscles and blood, so energy waste occurs in the runner's body that must be eliminated and the functional organs return to their normal state, and the importance of research lies in the intake of liquid carbohydrates after high training and improving antioxidants in order to eliminate free radicals and electrolytes in terms of the enzyme catalase for the purpose of raising the level of Achievement for runners in the 400m event.

Research Problem

Despite the development of training and the diversity of training curricula in the exercises that carry speed for the effectiveness of 400 m and the high intensity that the runner reaches through following up and upgrading these curricula, it was noticed that the digital level of Iraqi achievement did not develop compared to the level of international achievement because of a very important problem, which is the presence of free radicals and electrolytes in cells and bodies Runners and their unfamiliarity with it, which requires scientific expertise to confront this problem by eating liquid carbohydrates after high effort for the purpose of eliminating it.

Research objective

To identify the effect of eating carbohydrates after high effort in getting rid of free radicals and electrolytes for the 400m youth runners.

Research objective

There is a significant relationship in the effect of eating carbohydrates after high effort to get rid of free radicals and the achievement of a 400m sprint for young people.

Research Areas

- The human field: Wasit governorate clubs runners for athletics for the 400m youth activity
- Time range: for the period from 10/5/2020 to 5/1/ 2021
- Spatial domain: Al-Kut Olympic Stadium

Research methodology and field procedures

Research Methodology

The experimental method was used for its relevance to the nature of the research, by eating carbohydrates after high effort to get rid of free radicals for athletes 400m effectiveness for young people.

Research community and sample

The research sample was chosen by the intentional method from the runners of the Wasit Governorate clubs, which numbered (6) runners, if they represented 100% of the research community, in a single group method with a pre- and post-test in order to fit the nature of the research, and homogeneity was carried out for the research sample members as shown in Table (1)

Table (1) Homogeneity of the individuals of the research sample

Indication	the difference	skewness	Median	deviation	the middle	measuring unit	Variables	No
Homogeneous	2.077	-0.211	165.500	3.430	165,167	meter	height	1
Homogeneous	6.620	-0.857	62.500	4.082	61.667	kg	weight	2
Homogeneous	2.961	0.000	18.500	0.548	18.500	year	the age	3
Homogeneous	19,365	-0.968	3.000	0.516	2.667	year	training age	4
Homogeneous	1.052	-0.385	2.830	0.030	2.824	milli mall	before the effort	5
Homogeneous	2.141	-0.120	2.910	0.062	2.905	milli mall	after the effort	6
Homogeneous	1.415	-0.131	54.000	0.766	54.133	second	achievement	

Devices and tools used in the research

1. A device for measuring height and weight
2. Whistle
3. Japanese electronic stopwatch
4. lenovo laptop
5. Medical syringes (5cc) to draw blood samples.
6. A tube to save blood containing EDTA, made in China
7. Compressive belt for the upper arm (Turnica)
8. Legal track for athletics (400m)

The pilot experiment

The exploratory experiment was conducted on two runners from outside the research sample, on Thursday, 8/10/2020, and on the track of the Kut Olympic Stadium, as blood was drawn after completing the 400m test.

Field Research Procedures

Laboratory measurements and physical tests used in the research

First: A blood sample (5CC) was drawn from the vein of each runner before the effort and it was placed in special test tubes containing the anticoagulant substance (EDTA), and the same drawing was made for the runners immediately after the effort.

Second: achievement test 400m

Test description: The runner sits on the starting line and starts from sitting, then the launcher instructs the runner to start and shoot so that the runner sets off to travel a distance of 400 m, a full circle around the field.

Tribal tests for the research sample

The tribal tests of the research sample were conducted on 10/10/2020 and on the Kut Olympic Stadium on the research sample for a period of one day at four o'clock in the afternoon with the help of the auxiliary work team, as a blood sample was drawn before the effort and then an achievement test was conducted at 400 m and then the blood sample was drawn immediately after the effort.

Carbohydrate intake during the training period

Carbohydrates were started from the date of 10/11/2020 until 9/12/2020 in the form of a liquid drink to be taken during the training units after the effort in training endurance of speed and endurance of strength on the days of the week (Sunday, Tuesday, Thursday) of each week (3) Units) by 24 units of carbohydrate intake during eight weeks and in the amount of one large cup for each runner.

Post-tests: The post-tests of the research sample were conducted on 12/12/2020 in the same manner as the tribal tests, and the same conditions, requirements, time and place were.

Statistical means

The statistical package (SPSS) was used to process the results.
Presentation and discussion of the results:

Presenting, analyzing and discussing the results of the catalase enzyme values for the members of the research sample

Table (2) It shows the differences in the pre and post-tests in the values of catalase enzyme before and after the effort for the individuals of the research sample

Indication level	Calculated t value	p	s	post test		pretest		measuring unit	Variables	No
				p	S	p	s			
0.011	3.909	0.039	-0.062	0.055	2.885	0.030	2.824	millimall	before the effort	1
0.004	5.171	0.029	-0.060	0.047	2.965	0.062	2.905	millimall	after the effort	2

In light of the data extracted for the members of the research sample, Table (2) shows the differences in the enzyme values in the pre and post-tests (before effort and after effort) for the members of the research sample. The interconnected samples for extracting the differences showed significant differences as their calculated value reached (3.909, 5.171) respectively at the significance level (0.011 and 0.004) respectively and the degree of freedom (5) between the pre and post tests and in favor of the post test.

Presenting, analyzing and discussing the results of achievement values for the members of the research sample

Table (3) It shows the differences in the pre and post-tests in the achievement values before and after the effort of the research sample members

Indication level	Calculated t value	p	s	post test		pretest		measuring unit	Variables	No
				p	s	p	s			
0.000	29,000	0.082	0.967	0.753	53.167	0.766	54.133	second	Achievement 400 m	

In the light of the data extracted for the members of the research sample, Table (3) shows the differences in achievement values in the pre and post tests for the members of the research sample. Significant as its calculated value amounted to (29,000) respectively at the level of significance (0.000), respectively, and the degree of freedom (5) between the pre- and post-tests and in favor of the post-test.

Discussing the results

Through the results in the table, there was a development in the achievement of the 400m sprinter in the post test, which indicates that the effect of carbohydrates has a clear role by taking it in the exercises of speed endurance and strength endurance, which are among the lactic exercises that have a role in improving the catalase enzyme before and after the effort and adapting between them from During compensation for the oxygen debt, which maintains the

cohesion of the bonds and ions of oxygen and activates the oxidation system for the purpose of getting rid of free radicals that are found in the cells of the body through the activity of catalase, which acts as an assistant in the elimination of these radicals with the activity of the oxidation system, which helps the healing process of runners and rebuild the cells that It was destroyed during training, and the enzyme catalase plays a role in defending against these roots, which helps the runner not to get tired and bored for the next training unit achievement.

Conclusions and recommendations

Conclusions

- The intake of carbohydrates had an effect in stimulating the enzyme catalase, which contributed to improving the level of achievement for the research sample.
- Carbohydrates have an effect in stimulating catalase to eliminate free radicals in the research sample.

Recommendations

- The researchers recommend the use of carbohydrates in liquid form after high intensity anaerobic exercise.
- The researchers recommend the use of tracking measurements during training for physiological variables.

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