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The use of a special nutritional training program to improve the muscular activity of the muscles of the lower extremities and the achievement in the long jump

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***Abstract**:*

Long jump competitions are interesting competitions for the player and spectator, and the long jump competition requires a great deal of muscular strength associated with speed (strength distinguished by speed) and also requires the player to have complete control over performance and physical ability and to possess some special physical attributes.

The importance of the research lies in the interest in athletics activities, including the long jump. Therefore, scientific methods of measurement and training must be adopted.

The research problem crystallized in the presence of weakness in the muscular strength of the lower extremities and the level of achievement of the research sample, according to the opinion of the researchers. The study aimed to identify the level of electrical activity of the muscles of the lower extremities and the level of achievement for the research sample under study. The researchers assumed that there were statistically significant differences between the pre and posttests in the values of the electrical activity of the target muscles and the level of achievement in favor of the post test for the research sample under study.

The researchers used the experimental method on 5 of the long jump effectiveness players, and after analyzing and treating the values of the studied functional indicators for the research sample, the researchers reached several conclusions, including that the training and nutritional program had a clear effect on improving the work of the muscles targeted in the study through the results in the post test.

Recommendations were

Key words: electrical activity of the lower extremities ((E M G) - long jump

1. INTRODUCTION

At the present time, a number of scientific devices have appeared, as the exercise physique has come to measure most of the functional indicators in the direct way and with accurate results almost free of errors in the case of correct use of them, and from these devices or supplies is the (EMG) device, as through it we obtain the values of the muscle activity of the target muscles And help by providing training programs and improving achievement.

The importance of research lies in the interest in the activities of athletics, especially the effectiveness of the long jump. Therefore, scientific methods must be adopted in training and the need to use appropriate means to

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explore the functional capabilities inherent in the athlete's body, represented by the functional capabilities of the nervous and muscular systems during sports training, as well as providing the requirements for muscular work.

The research problem was discovered through the observation and follow-up of the researchers and the knowledge of what the world uses in terms of methods and means in

training players, especially players of jumping and jumping activities. Therefore, they proceeded to try this on the research sample to identify the characteristic of strength and the level of electrical muscle activity of the two men and what is going on inside the muscle and develop it first and improve the level of achievement Secondly, the level of physical capabilities is also recognized through physical tests for effectiveness

Accordingly, the researchers aspire to find effective programs in training and nutrition through the use of weight training exercises and nutritional supplements to raise the functional and physical level and to improve the level of achievement of the research sample. The study aimed to identify the level of electrical activity of the leg muscles and the level of achievement of the research sample under study, as well as the effect of some nutritional supplements associated with weight training exercises on the level of electrical activity of the leg muscles and the achievement of the research sample.As the researchers assumed the existence of statistically significant differences between the pre and post tests in the values of electrical activity of the target muscles and the level of achievement in favor of the post test of the research sample under study. The human field consists of a group of players who represent Diyala club players for the event of the long jump, which is 5 players, and the time period for the search is from 2/1/2020 until 3/18/2020 at the Al-Kateen Forum and the yard of the College of Physical Education.

2. RESEARCH METHODOLOGY AND PROCEDURES:

Research methodology: The researchers used the experimental approach with pre, inter- and post-test for one group for its suitability with the nature of the research problem.

Research sample: The selection of the sample is the main thing for the researcher's work, as it is considered one of the basic matters in scientific research. On this basis, the sample was chosen from Diyala club players for the triple leap within the athletics team, and the total number of the sample was (7) runners who were chosen by the deliberate method. The researchers selected (5) players from them for the purpose of the study and tests. One of the total sample was excluded after a week due to lack of commitment to training, and one of

Research tools, devices and means of gathering information:

- HP p4 Portable Calculator.

- Electronic electromyography (E M G) device. -
Italian height and weight measuring device.
- Electronic stopwatch.
- Camera phone to record the exams
- And the references.

- The global network of information (the Internet). -
Personal interviews.

Search procedures:

Determine the studied variables in the research:

The researchers, according to their expertise in the field, have identified the most important functional and physical indicators under study that are related to the players' activity and that pertain to the nervous system, in agreement with the trainer concerned with training. Exploratory experience:

The researchers conducted an exploratory experiment at 4:30 pm on Wednesday (12/28/2019) due to the importance of this experiment in order to obtain accurate results.

And it was conducted on a player from outside the research sample under study and from the

Research community itself and testing them on using the (E M G) device to closely examine

The obstacles or problems that may arise in the stages of testing, as well as to ensure their

Safety when applying the tests.

Determine search tests:

1- Electromyography device (E.M.G).

The goal of the device: to measure the variable peak electrical activity of the target muscles. Description of the device and method of measurement: The electro-microphone device, symbolized by the acronym EMG, is used to study the electricians of the muscles, this device has the ability to detect record and store the EMG signal, which is a biological signal that represents the electrical currents generated within the muscle during its contraction. The measurement is done by installing the electrodes of the device on The target muscle during the effort, and it is linked to the portable calculator via Bluetooth for a specific distance. Long jump stability test:

The purpose of the test: to measure the strength of the leg muscles.

Tools: rough, flat ground that does not slip the individual, draw the starting line, tape measure

Performance specifications:

The laboratory is standing behind the starting line, the feet are slightly apart and the arms are high. Then the laboratory swings the arms forward down behind with the knees bent and the torso tilted forward until it reaches what resembles the starting position for swimming, then swings the arms forward strongly with the legs extending along the torso and pushing the ground with the feet strongly with an attempt Jump forward as far as possible.

Scoring: The laboratory is given two attempts and the best attempt is scored for him (Ali

Salman Abd: 2013: 56).

Achievement test:

The purpose of the test: the long jump achievement test.

Equipment: a court with legal measures long jump, a tape measure.

Performance specifications:

The tester stands on the close-up range and performs the long jump.

Scoring: Each laboratory is given two attempts and the best attempt is scored.

The main experiment:

Pre-test:

After the preparations made by the researchers, including recording and recording information about the research sample such as age, height and weight. The pre-tests for the research sample were conducted in the arena of the Al-Kateen Sports Forum in Diyala, as the pre-test took place at 4:00 pm on Sunday 2/1/2020 when the functional (electrical activity) and physical tests were taken for the research sample.

Special Nutritional Training Curriculum:

The researchers used, in agreement with the trainer, a set of special exercises that depend mainly on weight training, which is the process of using weights added to the torso and legs of the subjects of the research sample, gradually increasing the weights and starting from one kilogram of weight per man or adding weights to the player's torso through the pectoral for carrying weights It is added as it is distributed and arranged according to the training units during the research study period.

During the training units, doses of nutritional supplements are given twice a day and four days a week for protein. It is Gold Standard Whey Protein: it contains high levels of all essential amino acids. Taking it as a dietary supplement may raise the level of muscle growth by more than 40% the dose is for the players one time during the training unit and the length of the study period of ten weeks.

Post-test for research indicators:

The post-test of the research sample was conducted after 10 weeks from the date of the pre-test, and after training within the prepared program, the sample was subjected to regular training units with doses of nutritional supplements. The post-test took place at three o'clock in the evening also on the corresponding Saturday

(18/3/2020) in the external yard of the College of Physical Education at the University of Baghdad with the same procedures that were followed in the pre-test.

The results or data extracted from the used device and the physical test were collected, unloaded and arranged for the purpose of treatment statistically. Statistical means:

The researchers relied on the SPSS statistical package, using the parameter statistics in processing the results of the values of the studied functional indicators under study. Presentation and discussion of results:

Display the arithmetic mean and standard deviations of the functional index values of the research sample.

Table (1) shows the arithmetic mean and standard deviations in the test (pre and post) for the values of the peak electrical activity index of the studied muscles of the research sample.

Statistical processors		The test	Pre	The test	Post
Electrical activity		Arithmetic	standard	Arithmetic	standard
	(Microvolt)	mean	deviation	mean	deviation
Right leg	Twins	**00.128**	**.1.**	**0.305**	**01.2**
	straight	**.32112**	**0132**	**0.31.5**	**.70.0**
Left leg	Twins	**0.3125**	**31.4**	**007205**	**..10.**
	straight	**..11.4**	**31.0**	**..0106**	**..134**

The above table shows the arithmetic mean and standard deviation of the peak electrical activity index for the target muscles of the legs, which is the straight thigh muscle and the twin muscle in the leg, as the vertex was calculated when the two legs were sequenced in (long jump) and with the measurement unit of microvolt.

It was found in the table that there are differences in the activity peak indicator between the pre and post test for most of the results of the research sample players.

Table (2) shows the arithmetic mean, the standard deviation of the differences, the standard error, the calculated (T) value, the error rate and the type of significance for the two tests (pre-post) in the studied research variables for the research sample.

Variables	o differences	the differences	standard error	degree of freedom	Calculated v	mistake percentage	indicatio n
Right twin	9.83	5.81	2.91	4	3.38	0.043	moral
right rectus	40.03	15.50	7.75	4	5.17	0.014	moral
left twin	15.43	18.72	9.36	4	1.65	0.198	insignifi cant
left rectus	0.90	6.96	3.48	4	0.26	0.813	insignifi cant

Under error level = 0.05

Discussing the results of the peak electrical activity indicator for the research sample: Through the results obtained from Table (2), which refers to the search index, the top of electrical activity, it was found that there is a clear change and a significant difference for this indicator when comparing the error rate with the value (0.05) between the pre and post test, which is a positive indicator indicating improvement. The activity of the target muscles of the research sample thus indicates an improvement in the level of muscle strength of the rectus thigh muscle and the twitch muscle of the right leg in the hopscotch stage. The level of muscle strength of the twin muscle in the right leg of the right man also improved in the step phase, and in the end the researchers see through the results an increase in the muscle strength of the right leg of the research sample players during the period of using special exercises and the period of administering the nutritional supplement doses used on the players of the research sample. And because of that, the sample adheres to the units. The daily training during that period and to the effectiveness of nutritional supplements and exercises prepared by the researchers and used by the coach, which thus represents a positive response to the muscles of the players and he achieves the goal of this study.

Concerning this, (Abu Al-Ela Ahmed Abdel Fattah: 1997) indicates that electro-mapping for muscle activity (E.M.G) is an important method or method for studying the characteristics of the activity of the muscular nervous system, and this method mainly depends on recording the electrical activity of muscles during their contraction).

Table (3) shows the arithmetic mean and standard deviations in the test (pre and post) for the values of the jump from stability and achievement of the research sample.

Statistical		Pre-Test		Post-Test	Measuring
processors					unit
Variables	Mean	deviation	Mean	deviation	
Jumping	2.3..	6.26	2.76	4.76	Meter
stability					
(Long jump) achievement	6.2	0.34	6.8	0.39	Meter

Table (4) shows the arithmetic mean, standard deviation of the differences, the standard error, the calculated (T) value, the error rate and the type of significance for the two tests (pre-post) in the variable of jumping from stability and achievement of the research sample

Variables	A	A	Standard	Degree	Calculate	Standar	Significanc
	difference	Difference	d error	of	d (T)	d error	e
	s	S		freedo			
				m			
Jumping	.3.25	.3.5	1.75	4	1.86	0.160	Non-Sign
stability							
achievement	0.56	0.21	0.11.	4	.3.162	0.041	Sign

Discussing the results of physical tests (jumping from stability and achievement) for the research sample players:

Through the results obtained by the researchers from Table 4 and 5 for the above physical variables, it was found that there is a marked change in the result of the jump from stability between the arithmetic mean between the pre and posttest, but the differences were not significant.

As for the long jump achievement variable, as the results showed that there are significant differences between the pre and posttest of the players 'performance in the research when comparing the error rate with the error level (0.05).

This indicates a clear improvement in the performance and achievement of the players, and this confirms the existence of a clear effect by nutritional supplements and weight training exercises or added weights on the improvement of achievement, according to the researchers' opinion.

This achieves the study objective.

3. CONCLUSIONS:

Through the results obtained by the researcher through the statistical treatment of the data, he reached several conclusions, which are:

1- For a special nutritional training program effect on the improvement of the work of the muscles targeted in the study through the results in the post-test effect on the improvement of the work of the muscles targeted in the study through the results in the post-test.

2- The presence of a clear development and improvement of the peak electrical activity index of the rectus thigh muscle and the twitch muscle of the right leg in the hopscotch stage and the step for long jump in the post test.

1. There is an effect of used special nutritional training program on improving the level of achievement of the long jump for the studied sample. Recommendations:

In light of the findings, the researcher recommends the following:

1- The use of special nutritional training program and jumping activities in view of the positive results achieved by these exercises, including adaptations of the nervous and muscular system.

2- The necessity of using periodic job tests and measurements by coaches to predict the effectiveness of the training curriculum used on the players and the level of achievement.

4. REFERENCES:

[1] 4 Abu Zaid, Magdy; 1987, Chronic Physiological Adaptations of the Respiratory System for Deep Divers and Short Distance Swimmers, Journal of Sports Culture, University of Basra

[2] Abu El-Ela Abdel-Fattah, Ahmed Nasr El-Din Radwan: Physiology of Physiology, 1st Edition, Arab Thought House, Nasr City, 1993.

[3] Bahaa El Din Salama: Athletics Bulletin, Cairo, Regional Development Center, 2002.

[4] Qasim Hassan Hussein, Physiology, Principles and Applications in the Mathematical Field, Baghdad: Al-Hikma Press for Printing and Publishing, 1990.

[5] 4-Robert.A. Robert & Scott O. Roberts. In the book "Exercise Physiology For Performance, Fitness & Health", Pub "Mc. Graw Hill", U.S.A. 2000.