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Effect Of Electrical Muscle Stimulation In Some Of The Bio-Kinetic Variables On Long Jum

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Abstract:

Sport has been one of the main axes of human life since ancient times, and in recent years there has been a remarkable development of the development of answers and solutions to many of the questions that appeared at the time,
This was evidenced largely by the positive gradation in the level of records, which has not stopped to the present time and in the effectiveness The long jump that depends on speed and strength is the efficiency of the long jump.
The jumping event requires speed in the rough run and explosive force when upgrading and advancing in order to achieve the longest distance possible by jumping,
So the importance of research is to know the effect of the use of electric stimulation The problem of research is the lack of real data on the amounts of the variables of the Quintet, which leads the basis in the development of Appropriate training programs to reach the peak of achievement and also through the researcher's knowledge of previous studies in the long jump, found the reliance on classical training methods without using other methods that can achieve better results
The researcher conducted the field experiment and then the post-test and obtain real data to serve the sports field, the researchers entered the data to the census and get results to serve achievement,
and the researchers concluded.
1- The regulated diversity of the frequency values of electric stimulation in the development of strength for the muscles when seeking and pushing the long jump players and electric stimulation with the exercises of the trainer developed the achievement.

The researchers recommended
1- the importance of the adoption of sessions and training electrical stimulation at different levels of different in terms of intensity of current and the importance of the inclusion of the trainer's exercises with the sessions of stimulation of muscle groups.

1. INTRODUCTION:

Sport is one of the main axes in human life since ancient times, and recent years have been characterized by an amazing development that has developed answers and solutions to many questions that appeared at the time, and this has been demonstrated largely through the positive gradation in the level of records, which has not stopped until the present time and in the effectiveness The long jump that depends on the characteristic of speed and strength is the effectiveness of the long jump, where the jumper needs speed in the approximate run and the explosive force when rising and rising in order to reach the longest possible distance of the

jump and this is why the long jump jumper must develop these qualities of special strength for effectiveness and speed in order to reach The best level and that the use of electrical stimulation contributes to the development of physical abilities. The study and analysis of this activity from the mechanical and physiological side that helps in reaching accuracy in terms of its importance in drawing accurate results that develop and improve the skillful performance of the achievement of effectiveness in the service of sports training and the rest of other sciences, As the biochemical variables and electrical activity associated with the muscle groups contributed to the performance of the motor stages of the skill and Especially for the effectiveness of the long jump and what happens from the momentary push of the moment of rise and what happens to the body of biochemical variables, and this requires studying the link between biomechanics and physiology according to the scientific vision that promises to reach the higher levels, as it is used correctly by setting doses according to different levels of stimulation Electrophoresis, so stimulation doses are important and necessary to direct the work to invest the strength of the player and through him to achieve goals

Therefore, the importance of research lies in knowing the effect of using electrical stimulation for the muscles of players according to the principles of mechanical strength and achievement for young long jump players and biomechanics is linked in most laws, so it requires the use of devices for development and laboratory or field requirements for real and clear data, so it requires the adoption of devices that are compatible and objective work so that they perform the goal The subject is for the purpose of the study.

2. RESEARCH PROBLEM:

The progress of achievement in the long jump event depends on the followers of modern scientific methods when applied in various aspects surrounding the process of sports training through all the mathematical sciences that serve the achievement of this event, as the researchers found there is a problem in the Iraqi figure not reaching the level of ambition, which reaches the Iraqi number for young people (7.52 AD), the Arabic number (8.12 AD), the Asian number (8.17 AD), the global number (8.34 AD) and the lack of real data about the quantities of the Kinetic variables that lead the basis when developing appropriate training programs to reach the peak of achievement and also by informing researchers about previous studies In the effectiveness of the long jump, I found relying on classic training methods without using other methods that could achieve better results, by relying on Kinetic variables, so the researchers decided that using the electrical stimulation device for muscles at the beginning of the main section motivational sessions as a means with the trainer's curriculum as this method has advantages To develop the force exerted on the working muscles during performance and through it the greatest possible muscle strength is produced through the work of small muscles a They cannot be developed during normal training, that is, they are not stimulated when the brain sends a trigger.

3. RESEARCH AIMS:

-Identify some Kinetic variables and carry out the long jump of the research sample.

-To identify the effect of the use of electrical stimulation on some Kinetic variables and to achieve the long jump among the sample members.

-To identify the contribution percentages of each variable to achieve the long jump among the sample members.

Hypothesis search:

-The existence of statistically significant differences between the pre and post tests of the two groups (experimental and control) in the research variables among the members of the long jump research sample.

-There are statistically significant differences between the post tests of the two groups (experimental and control) in the research variables and in favor of the experimental group.

Research areas

-The human field: the players of the National Center for Giftedness Sports for Athletics in Baghdad Governorate for the youth long jump event.

-Time domain: the time period from 3/15/2018 to 9/15/2018.

Spatial domain: The Ministry of Youth and Sports stadium for athletic talent for athletics in Baghdad governorate.

4. RESEARCH METHODOLOGY:

The approach was chosen, of course, with the nature of the problem to be solved, and accordingly the researchers used the experimental approach, which includes "investigating the causal relationships between the variables responsible for forming the phenomenon or event or influencing them, directly or indirectly, with the aim of stopping the effect and role of each of these variables" (6: 51) and by the method of equivalent experimental and control groups for the purpose of comparison, and the two groups are equal in all their properties except for the experimental variable.

5. COMMUNITY AND SAMPLE RESEARCH:

For the purpose of conducting the research and implementing its vocabulary in an accurate scientific way, the research community was identified as the players of the Specialized Center for the Care of Athletic Talent / Athletics School in the long jump event, where the original community was (10) players, and the researchers selected them by the research sample in an intentional way, they are the youth group and their ages Twenty years, when players were excluded due to their commitment to training, and their number reached (8) players, 80% of the original community, and the researchers divided them into the two groups depending on achievement.

Devices and tools used:

1 -DYNAFOOT3 foot dynamic device from the French company TECHNO CONCEPT.

2 -The E.M.S.

3 -A program for analyzing and extracting the results (Software Dynafoot3) using a device

Computer (laptop).

4 -Electronic stopwatch count.

5 -A tape measure.

6 -HP electronic calculator.

7- Joinus type manual calculator.

Pre-test:

The test "is the means of evaluation, measurement, diagnosis, and guidance in the various curricula, programs and plans for all levels and stages of age, as it clearly indicates the extent of progress and success in achieving objective goals" (8: 267). The researchers conducted the pre-test on Friday, 6/4/2018, with the help of the assistant work team. The test is one-time, through which all the dependent variables are measured as follows: -

Procedures for installing the Dynafoot device:

The strength is measured through the Dynafoot system, and after it with the help of the work team, where the names of the players were first recorded and the data for each player was taken and the most important thing was what needed to be known during the entry of each player's data before his test, and then the data for each player was entered and this was done for the rest of the players, and after This is done to prepare the appropriate bear for the player's foot and test achievement for the effectiveness of the long jump:

Achievement test for the effectiveness of the long jump:

1 -The aim of the test: to measure the distance of the long jump (achievement).

2 -Tools used: playground and field, long jump pit, tape measure, registration form.

3 -Performance description: All players were tested, and the beginning was taken to take the measurement on setting the approximate run. After that, the player ran into the field and then jumped over the (long) jafara. Three attempts were given to each player and the measurement is made from the last after the player leaves him inside the jaft during the attempts and then Score the feat.

Calculating the score for the test is six attempts, all of which are scored, and the best achievement is calculated.

Field experiment:

The researchers started the field experiment from the date corresponding to 7/4/2018 on Saturday to the date corresponding to 2/6/2018 on Saturday. The total number of units for the experimental group was (24) (see Appendix (3) showing a sample of the curriculum), noting that the sessions were extended for an additional day due to a holiday on the day of the elections, as it was applied during the special preparation period.

Where the experimental group was:

The preparatory section includes a general and special warm-up period, which takes (15) minutes.

As for the main section, it takes (60-65) minutes, it is divided into two parts, the first (30) minutes includes motivation, and the second part (35) minutes includes the exercises followed by the trainer during the training units, as they were coordinated alternately for the purpose of avoiding the effort on the muscle groups or injury in giving exercises The high intensity and the iron were not given the stimulation, and this was agreed upon before the start of the program, as three frequencies of electrical stimulation were adopted during the stimulation period, as the researchers started using electrical stimulation with a different frequency from (40-70) hertz.

The researchers used during (6) sessions the first for two weeks at a frequency of (40-50) hertz at a time of (8) seconds and (6) and the second sessions for two weeks at a frequency of (50-55) hertz at a time of (10) seconds and (6) and the third sessions for two weeks at a frequency (60-65) Hertz at a time of (12) seconds and the (6) and the last sessions at a frequency of (65-70) Hertz. In the first week the time was (14) seconds, and in the last week at a time of (15) seconds, and the closing section is given a simple jog and relaxation exercises (See Appendix (2) researchers explain muscles stimulation).

As for the control group, it has undergone the same number of training units prepared by the coach of the National Center for Sports Talent Care. One training unit contains warm-up and four skill and physical exercises, at the rate of four training units per week for a period of eight weeks, and then a post-test.

Post-tests:

The post-test was conducted at the Specialized Center for Sports Gifted at exactly ten in the morning, corresponding to 2/6/2018 on Saturday, and after the researchers were keen to create the same conditions in which the pre-tests were conducted, the post-test was performed, which includes measuring strength with a DYNAFOOT device with achievement for the players long jump.

Presenting the results of the research variables for the two experimental and control research groups between the pre- and post -tests, analyzing and discussing them.

Table (1) shows the differences in the pre and post- tests in the time force curve variables for the two experimental control groups

Variables	Groups	Pre-test		Post-test		The calculated T value	The level of significance	Contribution ratios	Significance
		A	STD	A	STD				
Contact time	Experimental group	0.12	0.01	0.10	0.01	8.660	0.003	0.98	Sign
	Control group	0.13	0.01	0.12	0.01	2.324	0.103	0.80	Non-sign
Impact time	Experimental group	0.06	0.008	0.03	0.00	4.371	0.022	0.93	Sign
	Control group	0.06	0.10	0.04	0.00	3.464	0.04	0.89	Sign
The maximum impact force	Experimental group	101830.2	664.9	112291.5	2300.8	7.244	0.005	0.97	Sign
	Control	10221	130	10700	278	3.825	0.03	0.91	Sign

	group	1.2	0.3	5.2	9.2				
Payment time	Experimental group	0.073	0.017	0.043	0.005	3.674	0.035	0.90	Sign
	Control group	0.08	0.00	0.05	0.00	8.660	0.00	0.98	Sign
Maximum thrust	Experimental group	95128.0	1998.9	102490.0	1832.4	31.604	0.000	0.95	Sign
	Control group	95395.7	876.8	99676.5	1265.6	5.284	0.01	0.95	Sign
Achievement	Experimental group	5.83	0.01	6.29	0.01	65.054	0.00	0.99	Sign
	Control group	5.83	0.01	6.24	0.01	42.526	0.00	0.99	Sign

Table (1) shows the arithmetic mean and standard deviations of the research variables. The table shows the two values of (t) for each variable and at the level of significance (0.05) and the percentages of the contribution of each variable with achievement. All differences appeared significant for the two groups. It is more positive for the experimental group than the control group, and this strengthens the research as a result of employing electrical stimulation in a way that serves the skillful performance, such as stimulating the muscles of the skill and according to the type of skill, for example in the skill that needs strength, the direction of stimulation is directed to the force, i.e. the stimulation of the fast fibers (large muscles) either in stretching The focus is on the slow fibers during stimulation (9: 443).

Table (2) shows the results of the research variables for the two groups of experimental and control research in the test, analyzed and discussed

Variables	Experimental group		Control group		The calculated T value	The level of significance	Contribution ratios	Significance
	A	STD	A	STD				
Contact time	0.10	0.01	0.12	0.01	2.954	0.025	0.76	Sign
Impact time	0.03	0.00	0.04	0.00	2.828	0.030	0.76	Sign
The maximum impact	112291.5	2300.8	107005.2	2789.2	2.924	0.026	0.77	Sign

force								
Payment time	0.04	0.00	0.05	0.00	3.273	0.017	0.80	Sign
Maximum thrust	102490 . 0	1832 .4	99676. 5	1265 .6	2.527	0.045	0.72	Sign
Achievem ent	0.10	0.01	0.12	0.01	2.954	0.025	0.76	Sign

Table (2) shows the arithmetic mean and standard deviations of the research variables and the two values of (t) and at the error level at a significance level (0.05). The table shows the contribution ratios of each variable with achievement in the post-test for both groups and for the benefit of the experimental group. The use of electrical stimulation according to scientific principles and foundations through the gradation of intensity and repetitions and their time has led to a positive development of all the variables of the upgrading phase in terms of strength and time. Inferring from this increase in the amount of development in the nervous-muscular system as one of the basic factors that must be provided by the player when performing rapid movements, as the moral differences were for the control group with a little development rate compared to the experimental group where the intervention was large and positive and strong and this reinforces the motivational sessions followed By researchers with trainer exercises.

6. CONCLUSIONS AND RECOMMENDATIONS:

Conclusions:

- 1 The rated diversity in the frequency values of electrical stimulation contributed to the development of the strength of the leg muscles acting upon contact and propulsion of the long jump players.

2 -The use of electrical stimulation with the exercises followed by the trainer contributes effectively to the development of muscle strength.

3 -The use of modern technology in measurement and development effectively contributes to the economy with the effort and time expended by the coach and the player in developing achievement

4 -The development of achievement in the long jump depends mainly on the overall development of the physical characteristics and performance variables of the player.

Recommendations:

1 -The importance of adopting electrical stimulation sessions and training according to different specific levels in terms of current intensity.

2 -The importance of including a trainer's exercise curriculum with stimulation sessions for muscle groups.

3 -Emphasis on the final aspect of effectiveness (achievement) and develop it by relying on analytical devices to indicate weaknesses and strengths and work to develop them.

4- Conducting a study using special devices and electrical stimulation in developing the working muscle groups from the beginning of the rough jog to the end of the landing phase.

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