International Journal of Psychosocial Rehabilitation, Vol. 24, Issue 04, 2020
ISSN: 1475-7192

The Effect of Special Exercises According to Strength Reserves On Maximum Strength And Muscle EMG Of Weightlifters

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Abstract

The importance of the research lies in types of strength and the differences between maximum strength and great strength. The problem of the research lies in describing this type of strength and how to train to develop it.

The aim of the research was to identify the effect of special exercises according to strength reserve on weightlifters' maximum strength.

The researcher used the experimental method. The subjects were (6) weightlifters. He conducted maximum strength tests of arms and legs. The data was collected and treated using proper statistical operations.

The researcher concluded that training according to strength reserves have a positive effect on maximum strength and muscle EMG

The researcher recommended the necessity of defining the highest strength as one type of strength and differentiating it from maximum strength.

Keywords : Strength Reserves. EMG. Maximum Strength

I. Introduction

1-1 Introduction to the research and its importance

Types of strength are still under the philosophy of the science of training needs a lot of reconsideration in proportion to the progress made in various areas of sport, and perhaps (the superpower) is one of the types

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Received: 15 Jan 2020 | Revised: 5 Feb 2020| Accepted: 30 Mar 2020

of power that left an open dialectic is still the subject of discussion among those concerned, as the wheel of human sporting progress does not believe in doubt as much Trying to touch the actual reality inside the field, but in relation to the superpower's association with the problems of interpretation, it is necessary to shed light on all its mysteries, methods and field methods to show them in a field that is applicable and codified away from the randomness and emergency conditions that the prevailing belief about that was that they appear under the weight of mobility and the result of the panic Fear, hypnosis, electrical stimulation, and the like. Hence the importance of research lies in the possibility of proving that there are modern methods of training the superpower scientifically codified on the one hand, as well as putting these methods in the hands of our trainers to use it correctly on the other hand.

1-2 Research problem

The superpower is one of the most important types of power that the prevailing idea around it is still that it appears only under a certain emergency, such as panic, fear, electrical stimulation and other things that pass on the human being, but this represents a reality that suffers from some doubt, especially as the scientific development in various fields of science, especially mathematics From it, he did not leave an order that passes randomly, but some field ideas started trying to raise suspicion through experimentation and research on the reasons behind the results, and from that the problem of research was formed in that the great power did not take the largest part of the research in a manner commensurate with its importance, it is not required by an emergency to appear, but rather There are codified training methods by which it is possible to develop this important physical characteristic as a form of strength, and by this we try to research this access to these methods in order to solve the problem of randomness in classifying situations in which the superpower appears and there is no better way than training with a negative range of movement

1-3 Research Objectives

1- Prepare special exercises according to the strength reserve

2- knowing the effect of special exercises according to the strength reserves in the maximum **.**
.strength of the weightlifters

3- Knowing the effect of special exercises according to the strength reserves at the top of the electrical activity of the muscles of the weightlifters

1-4 Research hypotheses

1-There are positive effects of special exercises according to the strength reserves in the
.maximum strength of the weightlifters
2-There is a positive effect of special exercises according to the strength reserves at the top of
.the electrical activity of the muscles of the weightlifters

Received: 15 Jan 2020 | Revised: 5 Feb 2020| Accepted: 30 Mar 2020

1-5 Research Areas

1-5-1 The human field: - Some students of the physical college and sports sciences / University of .Baghdad from trainees

1-5-2 Timeframe: - Wednesday 28/1/2018 until 26/3/2018

1-5-3 Spatial domain: - Weightlifting Hall / College of Physical Education and Sports Science

II. Theoretical and previous studies

2-1Theoretical studies

2-1-1 Types and shapes of strength

That strength is the main element that must be developed among the elements of physical fitness, it follows that according to the type of activity and the amount of its need for strength, strength may appear individually when performing one of the activities and when it appears deprived of any association with another ability, then this is a type of (types of strength) as in (strength) Great - the maximum force) In contrast, there is a correlation of strength with some other physical abilities, so the force appears differently as a result of its association with another ability and then we can call it (forms of force) as in (the force characterized by speed - the force characterized by elongation - as well as the explosive force) and this distribution is most prominent What matters to us is (the superpower) as a type of force that appears in its abstract form, as performance does not require any speed or length, but there is a specificity for that type when training

2-1-2 Strength training exercise

Many sources emphasize that there are precautions that exceed the extreme limits that a person makes in certain cases, thereby confirming that the human being does not use all his powers in natural situations and situations but rather needs an external stimulus to provoke him towards the exclusion of these limits that exceed the extremes and this is what they call the superpower, but the most important thing comes Through clarifying the extent of trust in this vision and whether it really is that the superpower (the subject of the research) does not come out except under the influence of a specific emergency or are there methods by which these precautions can be taken out by force, especially with athletes in power activities and perhaps the answer to these questions is explained by one of the training methods that I confirmed Some sources (passive training method) which is a special exercise for specific muscle groups, the content of training with intensity of up to (130%), i.e. exceeding the athlete's maximum abilities, as such exercises aim to stimulate muscle groups with high rates that exceed the threshold of arousal excitation but the movement of the exercise Towards ground gravity and a resistance to the weight of the weight by the player provided that there are two assistants who recover the iron to its first position and then return the player Performing to repeat next and so on. This is confirmed by (Mohamed Reda) in that the use of intensity that exceeds the athlete's maximum strength by athletes who have a strong background of strength training includes the application of this intensity using the method of decentralization shrink by the upper-level quadrants who use percentages between (110-120%) of Maximum intensity for each exercise (2-3)

times per week, taking into account the availability of assistants to the athlete when performing this intensity to avoid injuries during the exercise

III. Research methodology and field procedure

3-1 Research Methodology

The researcher has adopted the experimental method in order to suit the research procedures and the table shows

3-2 Research community and its sample

The researcher chose a random sample consisting of (6) students from weightlifters in the College of Physical Education and Sports Science in the third stage, whose weights range from (70-80) kg and homogeneity has been calculated in the scale (time age, body weight, training age) as shown in Table (2) The value of the torsion coefficient came between (± 1)

sekwense	standard deviation,	medean	mean,	The unit of measuremt	Variables
0.30	1.632	20.500	20.666	**age**	Chronological age
0.575	6.96	77.500	76.166	**kg**	the weight
0.166	12.92	42	42.500	**month**	Training age

3-3 The means, tools and devices used

Observation - measurement and testing - iron weights - weightlifting tablets from 1-25 kg - medical scale - camera - electrical signal planning device

3-4 Field research procedures

3-4-1 Determine the tests used in the research

The researcher identified the physical test that is commonly used in the sport of weightlifting to measure the maximum strength of the muscles of the two men (squat) and also (anesthesia) to measure the muscles of the arms as well as to measure the electrical activity of the muscle groups involved in performing the same tests. The researcher relied on identifying these tests on scientific sources as follows: :

first. Physical tests

(1-Test name: Back Squat - Bear (knee bent and extended from standing with iron load

Devices and tools used in the test: - Shaft iron (bar), iron tablets, different weights, leather belt

Purpose of measurement: - To measure the maximum strength of the quadriceps femor muscles

Method of performance: The player stands and holds the iron behind the neck on the shoulders from the back and grabs the iron from the sides with both hands and when given the starting signal the player bends the knees **.**completely and re-stands again

Recording method: Three attempts are awarded to the player. The best attempts are measured in terms of weight lifted

:(2-The name of the test is anesthetic (bending the arms and extending them from flatbed lying flat

Test purpose: To measure the maximum strength of the arms of the arms

: Used equipments **-**

.1-I saw an iron weighing (20) kg

.2-(Iron discs of different weights from (0.5 kg to 25 kg

.(3-Mastaba special exercise in pressure bar iron with two hands (Anesthetic Press

The method of performance: The player lies on the flat level, and carries the iron from the carrier over the chest and grabs the iron from the sides with both hands of equal dimensions, and when given the starting **.**signal, the player moves the full bending of the arms to the chest level and then the full extension of the arms

Recording method: Three attempts are awarded to the player. The best attempts are measured in terms of weight lifted -

Secondly. Physiological tests

1- Measuring the electrical activity of muscles

(EMG)

The electrical activity of the front rectal muscles of the thighs has been recorded, by linking a device to measure the electrical activity of the muscles to the femoral straight muscle during the performance of the (physical) squat back - dorsal tests, as well as the electrical activity of the three-headed brachial muscles, by linking the device to measure the electrical activity of the muscles of the humeral during Performing the anesthetic test, and the results were analyzed and the highest electrical signal of the muscle (peak) was extracted in a unit of measurement (micro volt)

3-4-2 Exploratory experience

It is a mini-experiment for the used tests, in which some conditions are available to benefit from its results, as well as identifying the total time of the tests and defining the auxiliary team * with what is required of them. 2

players

3-4-3 Tribal tests

The pre-test was conducted on (Tuesday) on (30/1/2018) for the following tests, respectively

1 - the back squat test and at the same time measure the electrical signal of the muscles working in this test (the great femoral straight muscle)

2- Anesthesia test at the same time measuring the electrical signal for the muscles working in this test (humeral triceps muscle)

* The assistant work team: - M. Ali Kamel (College of Engineering Al-Khwarizmi) - Student Mukhallad Abdul Karim (College of Physical Education and Sports Science)

3-4-4 The main experience

The main experiment was conducted on the same sample as from Thursday (1/2/2018). Exercises were used in the passive range of the movement according to a measured and studied method, taking into account the availability of safety and security requirements in terms of providing experienced assistants as well as the use of special straps. In the joints, the secure devices, etc., and then the way of performing these exercises .came in proportion to the nature of the exercises with high intensity

The stress came above 100%, at the forefront of the training unit in the main section -

.The intensity was increased between (10% -30%), alternating the maximum in the training units -

The number of iterations ranged between (3-5) repetitions -

(Number of groups (3-4

The rest period between groups is (3-4) minutes -

(Period of rest after exercise with a negative range (3 minutes -

One exercise was taken in the training unit in this manner, taking into account the specificity of this -
.high intensity, as the exercise came at the beginning of the main section

I use this exercise for three training units per week -

training units were conducted in this manner from (1/2/2018) to (24/3/2018 (26) -

.(

3-4-5 dimensional tests

.(Dimensional tests were conducted on Monday (26/3/2018

Under the same circumstances in which I conducted the tribal tests, taking into account the similar
- :performance of my agency

1-The back squat test and the same time measuring the electrical signal for the muscles working in this
(test (the great femoral straight muscle

2-Anesthesia test at the same time measuring the electrical signal for the muscles working in this test **(**(humeral triceps muscle

3-5 Statistical Methods

.The researcher used the SPSS

Standard error	**t**	**f-**	**f-**	**Std.d**	**m-**	**mesurment**	**Teste**	
0.010	11	0.833	9.166	11.762	112.50	Tribal	**Maximum Strength of Arms (Bing (Press**	**1**
				11.690	121	Posti		
				14.791	121.66	Tribal	**Maximum strength of two legs (rear .(squatting**	**2**
				14.142	140.00	Posti		
0.002	10	1.66	18.333	116.83	1147.5	Tribal	**Measuring the electrical activity of the arms of the arms**	**3**
				131.90	1236	Posti		
0.023	3.243	27.49	89.16	453.50	1631.3	Tribal	**Measuring the electrical activity of the arms of the arms**	**4**
				427.82	1721	Posti		

(Moral under error level ≤ (0.05) and degree of freedom (5)

(Torsional coefficient, mean, standard deviation, T-test for symmetric samples

Received: 15 Jan 2020 | Revised: 5 Feb 2020| Accepted: 30 Mar 2020

IV. Results are presented and discussed

4-1 Present the results of the pre and post tests of the maximum strength and electrical activity of the muscles to the research group.

4-1-1 Discuss the results of the maximum strength and electrical activity of the muscles of the legs and arms

The researcher attributes the superiority of the dimensional results to the tribalism in the maximum force for using exercises in the negative range method from the movement performed by the research group, which was performed in a sufficient period, i.e. through 26 training units due to the specificity that these exercises carry in proportion to the type of performance practiced by the research sample to lift the two (Bing Press, and Dibani) as well as the levels of stress that exceed the sternum in this type of training formation of weight training exercises in which the orientation is for the type at the expense of the quantum and in other words, the increase of the stresses above the maximum in weight training. This is confirmed by (Adel Abdel-Basir) that "each group of exercises It should be prepared in a way that gives an effective impact in developing all capabilities related to the type of activity. " In addition to what was stated by (Ahmed Abdullah) "as he confirms that the development of the maximum force follows the necessity of coordination between the type of strength training according to the nature and type of the systolic muscular method, then the planning process to achieve the goal of the development of strength, and it became clear that exercises of the maximum strength achieve the required return using (6) Iterations) or less. " This is consistent with what the researcher used of iterations in the exercises in a negative range method that ranged between (3-4) iterations and this matter imposes on us the use of high stresses up to (130%) down and at the same time, the use of the stress in this amount works within the first phosphogenic energy system that It depends entirely on the excitability of fast-contracting white muscle fibers with higher efficiency and muscle groups differently from what it is used to in traditional exercises, as well as these muscles are mainly targeted by excitement of the nervous system at a higher rate than the maximal due to the number of repetitions and intensity targeted in exercises in the range The negative from the movement, which here the researcher confirms to break the state of physiological stagnation, as these exercises worked to stimulate the muscle fibers more and the reason is due to the beginning of their work under the roof of a higher intensity than usual and whose main training goal is to start with a threshold for the motor units up to a higher stress in the exercise to confirm The muscle in the usual maximal exercises in all conditions does not reach its highest contraction to preserve the integrity of the tendons and ligaments from injury, which confirms that there are efforts to A dunia is stored in the player that is not used even in its highest training cases, but rather appears under specific conditions which are called (the superpower) and this is confirmed by (Abu Al-Ela Ahmad) "Despite the muscle reaching its maximum contraction, the nervous system does not recruit all the muscle fibers in the maximum contraction (100% (Thus, the effect of training with the highest intensity can be reached to the motor units with the highest differential threshold, so high intensities must be used in order to mobilize the motor units through a few repetitions to avoid fatigue and injury. "This explains completely the use of exercises with a negative

range of movement to employ a case of raising a ceiling Training strengths are the first set of repetitions performed by the player in order to mobilize the highest-impact motor units with the highest differential threshold in muscular action. On the other hand, this works to employ work for added energy in a way that exceeds its predecessor in the player, that this energy is represented by increasing the maximum voltage of the first system of phosphorous energy due to the high nervous mobilization due to the exercises used in the negative range, as well as the excitement of added energy due to the increase in the effectiveness of white fibrosis and its ability To mobilize a greater amount of (ATpase) enzymes present on the myosin heads that increase the effectiveness of contractions, as well as employ the ability of tendons and ligaments to increase their effectiveness by bearing higher thresholds, which reflects positively in the development of maximal achievement by intensity rates of (10-20%) above achievement The maximum in the type of exercise, and this is confirmed by some data from the Russian researchers transferred from them (Wadih Yassin), which confirms that it is possible to develop the added energy of the extremity from (2 - 3.5) times more than normal, since the possibility of provoking it works to stimulate muscle fibers and increase their contractual efficiency and all Soft tissue is also when working concurrently, whether in weightlifting and throwing exercises or concessions, and on the other hand is a good performance that depends on the development of special exercises so this is a The added energy can be used and increased in more extreme working conditions when performing the art of performance. It can reach (35-40%) of the potential energy and this energy greatly affects the achievement.

The nervous system comes as a substitute for the first method, as it is resorted to with the aim of raising the adaptation process to develop the speed of the frequency of nerve fluids () (), which is a major requirement in weightlifting exercises as the high-speed frequency of the nervous flow makes the muscle operate with a very high contraction, which leaves adaptations They are reflected in the form of maximal contractions resulting from the impression on the extreme instantaneous action and the amount of height of the curve that represents the peak of the muscle contraction when measuring the signal. The biochemical bases of the maximum strength capabilities develop moderately, with a rapid movement times contraction (60 mm / s) and development due to the nerve cell that controls the muscle fiber. The rapid motor units in weight training exercises are fed by neurons with larger bodies and the axis is thicker than Slow units, which reduces the resistance to the speed of transmission of the nerve signal, and this difference from the slow units has a physiological effect, as the fast units are characterized by the power of stimulation or counseling and the speed of the nerve signal (). The characteristic character of weightlifting exercises that the high levels of muscle strength are used quickly imposes on the player’s body adaptations to increase the transmission of the nerve signal, which is a clear indication of the type of kinetic units that the weightlifting players possess, which affects muscle contraction very strongly and at very high speeds. All of this is the researcher's opinion that the exercises with the negative range of the movement were effective in developing the overall signal.

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Received: 15 Jan 2020 | Revised: 5 Feb 2020| Accepted: 30 Mar 2020

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Received: 15 Jan 2020 | Revised: 5 Feb 2020| Accepted: 30 Mar 2020