

# Effect of rehabilitation program on improvement of muscle strength and accuracy and its relationship to the level of achievement of the air pistol for special needs of patients with acute elbow

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## **Abstract:**

*The scientific development included all life facilities and entered all fields, including the field of sports rehabilitation for the disabled, and new methods of rehabilitation or developing old methods appeared every day in a way that was compatible with the requirements of new life and the extent of progress achieved in it, so it became necessary to find easy and comfortable ways to provide improvement and development for the disabled. Lateral condyle inflammation of the elbow joint and the causes of injury and the importance of research lies in the use of well-established and moving therapeutic exercises through setting up a rehabilitation program that helps the athlete to improve tangible in his condition as well as to achieve good development in a record time, so the researcher decided to develop a program to rehabilitate the injured elbow joint and increase his ability to Endurance and the development of muscle strength and accuracy of the archer and the goal of the research is to prepare a rehabilitative program using an ultrasound device and therapeutic exercises for the injured elbow joint for air gun players (10 meters) for people with special needs and to identify the effect of the prepared program on improving muscle strength, accuracy and the level of achievement of air pistol players (10) Meters for people with special needs. To achieve the goal of the research, the researcher assumed that there are differences of opinion Statistical significance between the results of the pre and post -tests in muscle strength, accuracy and level of achievement for the research group, and statistically significant differences between the results of the post tests in muscle strength, accuracy and level of achievement of the group. As for the research method, the researcher used the experimental method for its suitability and the nature of the problem. Of the players of the national team for the effectiveness of air weapon shooting (10) meters for the air pistol for people with special needs and the five injured in the lateral*

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*condyle of the elbow joint and the number (5) were injured. As for the conclusions, the rehabilitation program had a positive effect on the improvement of the brutal bite in the injured tennis elbow, muscle strength and accuracy as well as It has a positive effect on improving the level of achievement with the air pistol for those with special needs and the recommendations are to adopt the rehabilitative approach prepared by the researcher that includes therapeutic exercises with an ultrasound device for its effective effect in treating injury as well as improving muscle strength, accuracy and the level of achievement with the air pistol 10m for people with special needs and the need Pay attention to exercise use Treatment methods aimed at strengthening the injured muscles of athletes*

*In addition to the interest of the player and coach about the injury at the time of its occurrence with regard to treatment and the use of the necessary means and giving it sufficient time to recover before returning to the stadiums to avoid repeated and chronic injuries.*

**Keywords:** *rehabilitation, Endurance, acute elbow.*

## **I. Introduction:-**

The concept of injury acts as a major obstacle that works to limit the individual's tender and capabilities in practicing his daily life naturally, and treating and rehabilitating the injured as quickly as possible is a very important goal for his return to his normal or semi-normal condition. As part of the rehabilitative work and its impact on rehabilitating the injury through a program that includes ultrasound therapy as well as rehabilitative exercises that help to develop muscle strength and lost accuracy in air pistol shooters 10m for people with special needs who suffer from lateral condyle in the elbow joint as this helps Exercises with ultrasound therapy to rehabilitate the parts of the body that are below the injury level.

### **Research problem: -**

The research problem lies in the fact that sports injuries are still increasing continuously and pose a certain risk to the level of the performance of players in various sporting events. Sports injuries often occur during competitions and training and increase the more intense sports competition, especially injuries of the motor system, due to the pressure exerted during the effort on the joints And the ligaments, muscles, tendons, and vertebrae of the spine, which may cause acute or chronic injury in them. It is worth noting that sports injuries may also occur in recreational sports, school sports programs and sports for the disabled, and the rate of injuries increases if sports training is done in an unscientific manner or by using sports equipment that is inappropriate for age or The individual's physical fitness and other matters that cause injury.

### **Research objectives:**

The research aims to achieve the following: -

1- Preparing a rehabilitative program using an ultrasound machine and therapeutic exercises for the injured elbow joint for 10 meter air pistol players with special needs.

2- Knowing the effect of the program of using the ultrasound machine and therapeutic exercises on improving muscle strength, accuracy and level of achievement for (10) meters air gun players with special needs

### **Research hypotheses**

To achieve the goal of the research, the researcher assumed the following: -

1- There are statistically significant differences between the results of the pre and post tests in muscle strength, accuracy, and achievement level for the research group.

2- There are differences of statistical significance between the results of the dimensional tests in muscle strength, accuracy, and the level of achievement of the research group.

### **Research community and sample: -**

The research community was chosen by the deliberate method, which is freely chosen on the basis that it fulfills the objectives of the study that the researcher carries out. Therefore, the researcher adopted the experimental approach in the one group with the two pre and post tests in order to suit the research objectives, as the research sample included injured athletes from the national team players for the effectiveness Shooting people with special needs according to the regulations of the International Federation who are officially registered in the Federation's records, who suffer from a lateral condylar infection of the elbow joint, who were deliberately selected and who had a recent injury and they represent a percentage (33.33%) of the total research community of (15) players .

Determine the most important tests for the capabilities in question that were nominated by experts and specialists: -

The most important tests were determined for muscle strength, accuracy and level of achievement. These tests were nominated by researchers and trainers in the field of physical therapy and shooting for people with special needs. Due to the large number of these candidate tests, they were presented to a group of experts and specialists in order to choose the most suitable one by placing a tick (correct) in front of the appropriate test .

Steps to implement the research:

The researcher followed the following steps:

- 1- Determine the type of sample
- 2- Determining the appropriate tests for the capabilities under consideration
- 3- Conducting pilot experiments
- 4- Verify the scientific weight of the tests
- 5- Preparing the proposed rehabilitation program and presenting it to some specialists and experts.

**Pre-tests: -**

Pre-tests were conducted for the search variables and at exactly ten o'clock in the morning, consideration was given to fixing the conditions related to the tests in order to try to find the same conditions as possible in the post-tests.

**Suggested Rehabilitation Approach: -**

The researcher prepared the rehabilitation program after taking the opinions of experts and specialists, and relying on some foreign and Arab sources, as the implementation of the program continued for a month and a half at the rate of (2) rehabilitation units per week, and thus the total number of rehabilitative units is (12) units, and the prepared rehabilitation program contained the following: -

- 1- Determining the duration of implementation of the program (12) units, at a rate of (2) rehabilitative units per week
- 2- Rehabilitation unit time ranges between (30-40) minutes
- 3- The intensity ranges from 30% - 50% of the maximum intensity of the player
- 4- This included a set of static and moving exercises, and these exercises ranged from easy to difficult.

**Post- tests:**

After the end of the program implementation period, the researcher conducted the post-test, and the researcher was keen to provide the same conditions in which the pre-tests were conducted, in terms of place, time, tools, and the method of carrying out tests and calculating grades in the presence of the same assistant work team who conducted the pre-tests.

Presenting and analyzing the results of the pre and post -tests of the experimental group and discussing them:

The researcher applied the tests on the main research sample for the experimental research group consisting of (5) national team players for shooting effectiveness with special needs.

Table (1) shows the results of the pre- and post- tests of the experimental group in the medical ball throw test weighing (1 kg) for the national team players for the effectiveness of shooting with special needs							
Test	measuring unit	Pre-Test		Post-Test		T	Significance
		A	STD	A	STD		
Medical ball throw test weighing (1 kg)	M	3.820	0.217	4.740	0.483	4.822	Sign

By looking at Table (1), which shows the results of the pre and post test for the experimental group in the medical ball throw test weighing (1 kg), it becomes clear to us that the arithmetic mean of the pre-test was (3,820), and with a standard deviation (0.217), while the arithmetic mean was in The post test is (4,740), with a standard deviation (0,483).

When using the law of (T-Test) for correlated samples, the value of (T) calculated (4,822) appeared below the level of significance (0.01), which indicates its significance at a level of significance (0.05) and with a degree of freedom (4), and thus the difference is statistically significant and in favor of the Post-test.

Table (2) shows the results of the pre and post tests for the experimental group in testing the accuracy of shooting by hand on overlapping rectangles for the national team players for the effectiveness of shooting with special needs							
Test	measuring unit	Pre-Test		Post-Test		T	Significance
		A	STD	A	STD		
Test accuracy of shooting by hand on overlapping rectangles	D	7.200	1.789	11.600	0,548	5,047	Sign

By looking at Table (2), which shows the results of the pre and post test for the experimental group in testing the accuracy of the aiming by hand on the overlapping rectangles, it becomes clear to us that the arithmetic mean of the pre-test reached (7,200) degrees, with a standard deviation (1,789), while the arithmetic mean in the post test reached (11,600) degrees, with a standard deviation (0.548).

When using the law of (T-Test) for correlated samples, the value of (T) calculated (5,047) appeared below the level of significance (0.01), which indicates its significance at a level of significance (0.05) and with a degree of freedom (4), and thus the difference is statistically significant and in favor of the test.

Table (3) shows the results of the pre- and post- tests of the experimental group in the real firing test of the air pistol for the national team players for the effectiveness of shooting with special needs							
Test	measuring unit	Pre-Test		Post-Test		T	Significance
		A	STD	A	STD		
Real shot test air pistol	D	2.880	0.756	4.940	0,720	11,588	Sign

By looking at Table (3), which shows the results of the pre and post test of the experimental group in the real firing test of the air pistol, it becomes clear to us that the arithmetic mean of the pre-test reached (2,880) degrees, with a standard deviation (0.756), while the arithmetic mean in the post test was ( 4,940) degrees, standard deviation (0.720).

When using the law of (T-Test) for correlated samples, the value of (T) calculated (11,588) appeared below the level of significance (0.01), which indicates its significance at a level of significance (0.05) and with a degree of freedom (4), and thus the difference is statistically significant and in favor of the post-test.

The presence of significant differences between the results of the pre and post tests and in favor of the dimensional group of the research sample in the test of muscle strength, accuracy of correction, level of achievement, and the researcher attributes that this development to the qualifying training curriculum prepared by the researcher was consistent and consistent with the researcher's individual assessment of the characteristics of those individuals who supervised their training Muscular strength is the ability of the muscular nervous system to overcome resistance that requires a high degree of speed of muscle contractions, taking into account their individual differences. As Magda Obeid defined it as "the difference of individuals in their mental, mood and environmental levels, which are the individual deviations of the collective mean in different characteristics" (1). The researcher attributes the tests (the medical ball throw test weighing (1 kg), the test of accuracy of shooting by hand on the overlapping rectangles, the real firing test of the air pistol) and that the results of these tests led to the effectiveness of the exercises used to qualify the player and that the training curriculum prepared for the members of the research sample with Disability, and this result confirms that the use of skill training that was used in the rehabilitative training curriculum has contributed to the development of their skill capabilities, as the researcher agrees, "as the disabled need sports more than a normal person, but it is important to them, as in addition to his physical development that develops his endurance ability. Patience, interaction with others, and self-confidence."(2) The researcher believes that the qualifying training curriculum contained various and different paragraphs to keep the disabled person away from the angle of boredom and boredom, which reflected negatively on his skill performance and limited mental response, as well as making appropriate repetitions for their abilities to master the skill. This was confirmed by Maysam, "Providing incentives helps increase the excitement of performing more mental repetitions in the service of physical performance" (3).

The researcher agrees that "it is a selected group of physical exercises intended to correct the deviation from the normal state or treat the injury that hinders the member from performing his full function and helps him to return to the normal or close to it" (4), she attributes to the accuracy results of the players and was statistically significant In favor of the post-test of accuracy, it is the ability of the individual to control his voluntary movements towards a specific target, or it is the control of the motor apparatus towards a specific target (5)

## **II. Conclusions and recommendations**

### **Conclusions: -**

According to the objectives and hypotheses of the research, and within the limits of its sample, procedures, and results of statistical treatment of data, the following was reached:

1- The rehabilitative program positively affected the improvement of the lateral condyle in the injured tennis elbow, muscle strength and accuracy

2- The rehabilitative program positively affected the improvement of the level of achievement with the air pistol for the injured with relatives

special needs

### **Recommendations: -**

1- Adopting the rehabilitative approach prepared by the researcher that includes therapeutic exercises with electrical stimulation device for its effective effect in treating injury as well as improving muscle strength, accuracy and level of achievement with the air pistol

2- The need to pay attention to the use of therapeutic exercises aimed at strengthening the injured muscles of athletes

3- Attention of the player and coach to injury at the time of its occurrence with regard to treatment and the use of the necessary means and giving them sufficient time to recover before returning to the stadiums to avoid repeated and chronic cases of injury.

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