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Rehabilitation Exercises Accompanying Ultrasound in the Rehabilitation of the Elbow Joint for Patients with Tendinitis, Aged (30-40) Men

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Abstract

The elbow joint is one of the important and mobile joints in a way that allows it to perform its functions. The injury occurs when the joint tendon and arm muscles are subjected to repeated partial ruptures as a result of excessive and repetitive work, as well as for the patient not being subjected to correct rehabilitation programs and only rest. From here, the researchers decided to study this problem by preparing rehabilitation exercises accompanying ultrasound and knowing their impact on the rehabilitation of the elbow joint. The sample included male patients aged (30-40) years, and the tests were determined, which included testing the range of motion of the elbow joint from the flexion position and the rotation outward position, the muscular strength test for the working muscles of the forearm and upper arm, and the visual symmetry test from the flexion position. The two researchers concluded that the prepared program contributed to improving the research variables as well as the kinematic ranges of the elbow joint. It was recommended that the prepared program should be generalized in physiotherapy centers.

Introduction and importance of research

The medical health sciences did not stand idly by towards this, but the treatment reached a high part of the accuracy of dealing with these injuries by means of guidance to find the best therapeutic and rehabilitative means and to stay away as much as possible from surgical interference. Among the best of these methods are rehabilitation exercises because of their developmental, therapeutic and psychological effects on the person suffering from elbow tendinitis. Rehabilitation exercises are among the sciences that fall under the umbrella of sports rehabilitation, which has become the subject of human interest, as he seeks to search for many of its branches and sections to find The best and harnessed in the service of humanity, and therapeutic exercises are an effective and natural method that does not expose the patient to any complications on other body functions because it is free of any harmful chemicals.

Modern techniques have also been used in physiotherapy on a large scale, prepared according to scientific bases, including ultrasound technology, which helps in treating pain, especially elbow tendinitis, diagnosed by the specialist doctor, because the technique has a great role in relieving pain, improving the effectiveness of muscle work and restoring the flexibility of the elbow joint. Hence the importance of the research in the rehabilitation of the elbow joint by using the rehabilitation exercises accompanying ultrasound.

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Research problem

The elbow joint is one of the joints that is able to move in a way that allows it to perform its functions, and the arm muscles often suffer frequent partial tears as a result of the patient's failure to undergo, in the first case of injury, rehabilitation programs prepared according to correct scientific methods, and only resting after the injury, all of this led to the need to use a program Rehabilitation accompanying ultrasound in improving the strength of the muscles working on the elbow, increasing the range of motion of the joint and relieving the degree of pain. Through our visit to physiotherapy centers and specialized hospitals, the researchers found a scarcity of rehabilitation programs that include standardized rehabilitation exercises for the rehabilitation of tennis elbow injury and only giving repeated exercises in each treatment session. From here, the two researchers decided to study this problem and find solutions by preparing rehabilitative exercises accompanying the method of ultrasound therapy in improving the strength and flexibility of the joint.

Research aims

1. Preparing rehabilitation exercises accompanying ultrasound in the rehabilitation of the elbow joint for people with tendinitis.
2. The effect of rehabilitative exercises accompanied by ultrasound on the rehabilitation of the elbow joint for people with tendinitis.

Research hypotheses

There are statistically significant differences between the pre and posttests of the research sample in the research variables.

Research areas

1. The human field: A sample of patients with tendinitis in the elbow joint, aged 30-40 years, men.
2. Time domain: for the period from 1/3/2021 to 15/4/2021.
3. Spatial domain: Dar Al Salam Center for Physiotherapy/ Baghdad.
4. Research methodology and field procedures.

Research Methodology

The two researchers used the experimental method for its suitability to the research problem.

The research sample

One of the most important things that must be taken into account is to obtain a sample that is honestly representative of the community.

The sample was selected from (6) patients with elbow arthritis, aged 30-40 years, at Dar Al-Salaam Center for Physiotherapy in Baghdad. They were selected after conducting medical and radiological examinations by specialized doctors.

Tools and devices used in the search

- ✓ Arab and foreign sources

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- ✓ The International Information Network (the Internet).
- ✓ Observation and experimentation
- ✓ Test and measurement.
- ✓ Bed (medical stamen).
- ✓ A paper form containing (10) boxes for the VAS pain test.
- ✓ Strength sensor to measure muscle strength
- ✓ Alkonyometer to measure the range of motion.
- ✓ Weight 1, 2, 3 kilograms
- ✓ 5 rubber ropes.

Research procedures

Main Research Tests

First: A test of the range of motion of the elbow joint from the flexed position

Objective of the test: To measure the range of motion of the elbow joint from the flexed position.

Instruments: goniometer

Doctors

Sadiq Ali Musa, anthologist

Ahmed Ibrahim Nehme, a doctor specializing in fractures

Second: To test the range of motion of the elbow joint from the outward rotation position.

The objective of the test: To measure the range of motion of the elbow joint from the position of rotation outward.

Instruments used: a goniometer.

Third: Testing the muscular strength of the muscles working on the elbow joint

- ✓ Testing the muscular strength of the forearm muscles.
- ✓ Tools used: force sensor.
- ✓ Objective of the test: To measure the strength of the forearm muscles.
- ✓ Testing the muscular strength of the humerus muscles.
- ✓ Objective of the test: To measure the strength of the humeral muscles.

Fourth: The V.A.S test from the bend position

Objective of the test: To measure the degree of pain from the flexed position

The tools used: the V.A.S form, the pain form.

Exploratory experience

The exploratory experiment was conducted on Monday, 1/3/2021 at ten in the morning at the Al-Salam Center for Physiotherapy, and its purpose was:

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- ✓ Getting to know the performance of rehabilitation exercises
- ✓ Safety of devices and tools
- ✓ Knowledge of the auxiliary work team for the work of the main experiment
- ✓ Avoiding possible errors in the main experiment

Rehabilitation exercises

Sound waves should be given for 15 minutes before giving rehabilitation exercises.

Qualifying exercises should be graded from easy to difficult.

Rehabilitation exercises should be of low intensity and then gradually to the most difficult.

Rehabilitation exercises should be varied and give rest periods between repetitions.

Give paragraphs a rest between groups.

It must be performed under the supervision of a therapist.

Tribal exams

The pre-examinations were conducted on Thursday, 4/3/2021 at ten in the morning in the Physiotherapy Hall at the Dar Al-Salaam Center.

Main experience

The main experiment was implemented on Sunday 7/3/2021 at ten in the morning in the medical treatment hall at the Dar Al-Salaam Center.

Dimensional tests

The post-tests were conducted on Thursday, 22/4/2021 at 10:00 am in the Physiotherapy Hall at Dares Salaam Center and under the same conditions under which the pre-tests were conducted.

Statistical means

Statistical bag (SPSS)

Presentation, analysis and discussion of results

Presentation, analysis and discussion of the results of the pre and posttests of the research sample in the tests of muscle strength and range of motion.

Table (1) shows the arithmetic means and standard deviations of the pre and posttests of muscle strength tests and the range of motion of the elbow joint

No	variables	Measuring Unite	Statistical significance		probability value		Wilcoxon value	post test	pretest
			standard deviation	Arithmetic mean	standard deviation	Arithmetic mean			
1	Forearm muscle strength	Km	0.031	2.048	6.229	21.800	2.24	15.400	morel
2	Muscular	Km	0.032	2.048	5.443	20.81	3.09	13.800	morel

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	strength of the humerus muscles								
3	Range of motion test from the flexed position	Degree	0.033	2.048	4.81	56.36	9.032	88.74	morel
4	Range of motion test from the rotate-out position	Degree	0.032	2.048	5.33	68.41	8.71	91.23	morel

Below the significance level (0.05) and the degree of freedom (5)

Presentation, analysis and discussion of the results of the pre and posttests of the research sample in the level of pain.

Table (2) shows the arithmetic means and standard deviations of the pre and post tests for pain level test (V.A.S).

No	variables	Statistical significance		probability value		Wilcoxon value	post test	pretest
		standard deviation	Arithmetic mean	standard deviation	Arithmetic mean			
1	Flexion pain test	8.27	1.034	3.51	1.22	2.042	0.041	morel

Results and Discussion

Through the results of Table No. (1, 2), which shows the arithmetic means, standard deviations, and Wilcoxin value for tests of strength, range of motion, and pain level, the Wilcoxin value for the forearm muscle strength test appeared (2.048), which is greater than the probability value (0.031), which means that the difference is significant and appeared To test the muscular strength of the humerus muscles (2.048), which is greater than the probability (0.032), and this means that the difference is significant, while the value appeared for the level of pain (2.042), which is greater than the probability (0.041), and this means that the difference is significant. The two researchers attribute the moral differences to the gradient used in The rehabilitation program in repetitions and diversity in rehabilitative exercises, and this is confirmed by (Jamal Sabiri 2012) “You must give repetitions as much as they need, and this appropriate amount of exercises contributes to increasing their strength and improves muscle contractions” (2:341).

One of the reasons for restoring muscle efficiency (the forearm, upper arm) is the correct start with stability exercises without movement, and this is supported by (Abdul Rahman Abdul Hamid 2004) “Exercises contribute to improving muscle strength despite not moving the joint or muscles, and it is one of the important methods in treating sports injuries.” (3:60).

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As for the kinetic range of flexion and outward rotation, significant differences appeared in Wilcoxen's value. The two researchers attribute the moral difference to the rehabilitation exercises accompanying ultrasound in developing and improving the range of motion, as the ultrasound method helps to increase the temperature of the internal tissues of the body and more effectively in It reduces the stiffness in the muscles and works to return the range of motion to its normal state and increases the collagen temperature in the tendons.

(Qassem Hassan Hussein 2000) asserts that "rehabilitative exercises contribute to increasing the flexibility of the joint and relieving pain in the muscles, ligaments and tendons" (4: 280). As for the level of pain, significant differences appeared between the two tests, the pre-test and the post-test through the value of Wilcoxen. The researchers attribute the moral differences to the rehabilitation program used, which includes exercises accompanying ultrasound, which contribute to relieving pain without exposure to any side effects, the use of stability and movement exercises and the use of waves Regular ultrasound contributed to reducing pain, and this was indicated by (JMMurnane 2004) "The ability of ultrasound to improve blood flow to the area that was injured and deliver oxygen to the cells that suffer from it." (5:3) and Samia Khalil (2010) confirms, "Ultrasound has the ability to relieve pain and quickly heal all kinds of infections, repair damaged cell parts and speed up healing" (6:59).

Conclusion

Through the results of the research, which achieved the hypotheses and objectives of the research, the researchers concluded that the program prepared by the two researchers, which includes the rehabilitation exercises accompanying the ultrasound, contributed to the improvement of the most important research variables, which are (muscular strength of the forearm muscles and humerus muscles) and also contributed to improving the kinetic ranges of the elbow joint from Flexion and outward rotation, and the exercises accompanying the ultrasound had a positive effect in relieving pain. The researchers recommend, through the conclusions, the generalization of the prepared program in physiotherapy centers, and also stresses the necessity of making illustrated brochures for the most important therapeutic exercises and conducting similar research for other injuries using ultrasound accompanied by rehabilitation exercises.

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Qualifying unit model

Giving 15 minutes of ultrasound before starting the rehabilitation exercises. This applies to all rehabilitation units

No	Exercise	Exercise performance time and stability	Repetition	Rest between repetitions	totals	Rest between groups
1	From a sitting position, the patient raises the arm to the side, then upwards, and returns to the position	5 s	10	5 s	2	120 s
2	From a sitting position in front of a wall, the injured person pushes the wall and remains stable	10 s	5	5 s	2	120 s
3	From a sitting position with a rubber rope in front of the patient, the patient pulls the rope and returns to the position	10 s	5	5 s	2	120 s
4	From a sitting position with the rope under the patient's foot, pull the rope to the side and return to the position	10 s	5	5 s	2	120 s
5	From a sitting position and carrying a weight of 1 kg, rotate the elbow with the weight outward and return to the position	10 s	5	5 s	2	120 s
6	From a sitting position and carrying a weight of 2 kg, bend and extend the elbow in front of the body and return to the position	10 s	5	5 s	2	120 s