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The Effect Of Rehabilitative Exercises Accompanied By Reflexology Massage In The Moderate Rupture Of The Ankle Ligaments Of Athletes

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ABSTRACT

Background: *During the researcher's follow-up and observation, he found great importance for the study of this subject, as he repeatedly observed the occurrence of sports injuries, especially the injury of the ankle ligaments. The ankle joint, where the ankle joint is considered one of the joints most susceptible to injury in football, and the research aims to prepare rehabilitative exercises accompanied by reflexive massage and determine their effect in rehabilitating the partial ankle ligament rupture. Babylon and they were deliberately chosen from the Babylon, Hilla and Al-Qasim Babel clubs. The sample was divided into two groups, with a rate of (9) for each group. The researcher also prepared rehabilitative exercises accompanied by reflexive massage, which included negative exercises, self-exercises, and positive exercises. The most important conclusions are that the combination of rehabilitative exercises using reflexology massage before doing rehabilitative exercises, and reflexology massage, when doing rehabilitation. The exercises have a positive and effective effect in the disappearance or reduction of pain and improve both the range of motion and the strength of the injured ligaments represented in (bending, stretching, external and internal dimensions) and improving the motor balance of the injured foot in the subsequent measurement.*

Keywords : Rehabilitative Exercises, Reflexology Massage, Ankle Ligaments Of Athletes.

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INTRODUCTION

Injuries differ from one physical area to another. Injuries to the lower part of the body are different from the upper part of the body, even if this follows various sporting events and activities. However, the injury to the lower part affects the movement of the individual, whether he is in job or home duties when performing his work in the required manner. (Siham Al-Sayed Al-Ghamry: 2002)

Ankle joint injuries are the most common types of injuries in the lower extremities, and these injuries are usually accompanied by many negative side effects. Perhaps the most prominent of these negative side effects is limiting the movement of the joint, as the ability of the joint to move decreases when the area is exposed to injury, which causes a disability in functional muscle work, and this reduces from the ability of the joint to move, as continuity determines the movement that would lead to stiffness of the joint, as for the muscles and ligaments, they are exposed to

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shortening and limitation in movement (Hamdi Ahmed Al-Sayed: 2012).

The importance of the research comes in developing rehabilitative exercises with adhesive tapes, which is the main axis in the rehabilitation of sports injuries, especially the injury of partial rupture of the ankle ligaments, with the use of some auxiliary means such as (adhesive tapes and massage), as it aims to reduce cases of dysfunction of the affected part by taking care of the manifestations of weakness of some muscles And the ligaments surrounding the ankle joint, by performing exercises to develop and develop muscular strength endurance and joint flexibility, the player can recover his condition close to normal or natural, and bring the players to the state they were in before the injury or as close as possible to it, and the possibility of benefiting from this study by those interested And specialists and workers in the field of sports injuries and physical and sports rehabilitation, and employing them in similar cases to shorten the rehabilitation time and the player's return to the stadium at a faster time.

Research problem:

Through the follow-up and observation of sports, the researchers found great importance for the study of this subject, as they noticed the recurrence of sports injuries, especially the rupture of the ligaments of the ankle joint, and the subsequent inability to move and maintain body balance as a result of the rupture of the ligaments. Therefore, it is necessary to take care of this joint and study the best methods and means to rehabilitate it after the injury.

And that most of the players, when they suffer a partial rupture of the ankle ligaments, take a period of rest and then return to the field based on their personal desires, and here lies the problem and the danger. The future of the sports player, especially if some of them are good and influential players in their team, whose absence affects the results and causes material, moral and technical losses to their teams.

Research objectives

The research aims to:

1- Preparing exercises with adhesive tapes accompanied by massage in the rehabilitation of ruptured ankle ligaments for athletes.

2- To identify the effect of exercises with adhesive tapes accompanied by massage in the rehabilitation of ruptured ankle ligaments of athletes

Research hypotheses

The researchers assume:

1- The exercises with adhesive tapes and the accompanying massage have a positive effect in rehabilitating the rupture of the ankle ligaments of athletes.

Areas of research

1 -The human field: Athletes with partial rupture of the ankle ligaments in Babylon Governorate.

2 -Time range: - For the period from 10/2/2018 to 1/22/2019.

3 -Spatial field: - Medical treatment and rehabilitation center in the city of Hilla.

Research methodology and field procedures

Research Methodology: The researchers used the experimental approach by designing two equal groups, and the pre and post-test.

The research community and its sample

The research community identified athletes with partial rupture of the ankle ligaments, and they were identified by the intentional method after diagnosing their condition by the specialist doctor * at the Medical Rehabilitation Center of Babylon Governorate, the Rehabilitation Center for the Disabled, in which the research was applied, and they numbered (10) athletes from various games.

The research sample was chosen by the intentional method from the research community, and they numbered (8) patients with partial rupture of the ligaments of the medial and lateral ankle of the right and left foot, representing the clubs of Babylon, Hilla and Al-Kifl, and they were randomly distributed into two groups, each group (10), and (2) were excluded from the sample for their lack of commitment Attending rehabilitation units.

Table (1) Sample homogeneity

Variants	F calculated	Statistical significance
the age	1.77	random
training age	1.08	random
Height	1	random
Bloc	1.74	random
injury time	1	random

The tabular value of (F) is (2.18) at a degree of freedom (9) and a level of significance (0.05).

Methods, devices and tools used in the research

The means used: Observation - pain scale to measure the degree of pain - tests and measurements - a goniometer to measure the range of motion of the joint - a Chinese medical balance - an iPhone 6 mobile camera - (1) Lenovo computer (Chinese origin) number (1). Wooden bench of various heights - adhesive tapes - scissors for cutting adhesive tapes, an antiseptic to disinfect the skin before applying the adhesive tape - a wooden chair (24- Field research procedures:

Determine and describe the measurements and tests used in the research

A test measuring the degree of pain through a special questionnaire, which the researchers designed according to the natural angles of the joint:

1. Pain during movement Flexing the back of the foot (1-10 degrees) according to the natural joint angles (2-30)

2. Pain while moving the sole of the foot (1-10 degrees) according to the natural joint angles (30-60).

3. Pain during movement medial flexion of the foot (1-10 degrees) according to the natural joint angles (24-50).

4. Pain during movement lateral flexion of the foot (1-10 degrees) according to the natural joint angles (5-30).

- **First:** the back-of-the-foot bending test.
- **Second:** Flexing the sole of the foot downward: (Siham Al-Sayed Al-Ghamry: “2002, pg. 52)
- **Third:** Testing the medial bending of the foot inwards: (Hamdi Ahmed Al-Sayed: 2012, p. 225-227)
- **Fourth:** Examination of lateral flexion of the foot outward: (Ali Salloum Jawad: pg. 79-80)

Exploratory experience

The exploratory experiment is one of the important required procedures to identify the appropriateness of the selected tests according to the objectives set for the study. Each patient was referred to the specialist doctor to find out the availability of the required information in the form and to match the information provided by the patient with the clinical examination by the specialist doctor on (9/2). /2020) on a sample of (4) soccer players with partial rupture of the ankle ligaments, for the purpose of knowing the following:

1. The extent of the safety, efficiency and validity of the tools and devices used in the research.

2. Determine the difficulties and negatives that may appear during the main experiment.

3. Determine the appropriate t3-4-3- Pre-measurements and tests: Pre-measurements and tests were carried out on (10/3/2019) to obtain preliminary data for the level of pain in the negative phase, and after a week had passed, and on the basis of which the measurements and physical tests were conducted for the selected research sample.

The main experience

Due to the difference in the timing of the injury from one player to another, the timing of applying the basic experiment of the research differed according to the availability of the sample in terms of tribal measurements, program implementation and post measurements. The application was done with the first player on (3/10/2020)ime for a reflexology massage.

Rehabilitation with reflexology for the first experimental group

After using rehabilitative exercises and adhesive tapes for the two groups, we use reflexology massage for the first experimental group. Reflexology massage is an easy and natural method, as it works to stimulate the body's self-healing processes, as it works to shorten the rest period by restoring motor functions to a large extent. It also works to relieve pain and activates the passage of blood in the affected tissues, and the patient was placed on a bed lying on the back comfortably and the affected foot was raised by placing a pillow under the leg and doing a slow and circular wiping of the fingers around the ankle in order to prepare the foot for the reflexology massage and then press the therapist’s thumb on the side External and internal around the ankle up to the ankle key at the bottom of the foot. The area for rehabilitating the ankle ligaments injury. The reflexology session for the partial rupture of the ankle ligaments takes (10) minutes.

Rehabilitation exercises

The researchers prepared the rehabilitative exercises for the rehabilitation of the partial rupture of the ankle ligaments for athletes. The researchers began using rehabilitative exercises with adhesive tapes, and the repetitions were determined depending on the susceptibility of the injured person, and by recording the number of total repetitions until the feeling of pain, and the time period for the total repetitions was also recorded to benefit from them in knowing the time of each repetition, and the median was extracted to know the number of repetitions that the patient starts with. The researcher relied on the patient's feeling of fatigue as an indicator to determine the intervals of rest, for a period of 4 days per week, and the total duration of

the program was (6) weeks, and the total number of rehabilitation units (24).

Statistical means

The statistical methods used are Post-tests: Post-tests were conducted for the research sample after the end of the main trial period, and in the same style, conditions and conditions for conducting the pre-test method as possible, as it was applied with the last player 1/22/2020.

The arithmetic mean / median / standard deviation / Levine test / simple correlation (Pearson) test (T) for independent and correlated samples. Presentation, analysis and discussion of the results: Presentation and analysis of the results of the differences between the pre and post measurements of the research variables for the first experimental group.

Table (2) It shows the arithmetic means, standard deviations, the calculated (t) value, and the statistical significance of the test (pre and post) - the percentage of pain at the maximum angle.

The exams	Tribal		After me		F	F2	value (t)	Statistical significance
	s-	P	s-	P				
Bend the back of the foot upward	7,6	1	1,30	0,89	63	403	24.23	moral
Bend the sole of the foot down	7	1,41	1,40	0,77	56	330	13.15	moral
Bend the foot inward	7,60	1,42	1,40	0,77	62	398	15.98	moral
Flex the lateral foot outward	7,30	1,38	1,40	0,77	59	357	18.79	moral

The tabular value of (t) is (2.26) at a degree of freedom (9) and a level of significance (0.05).

Table (2) of the description and statistical inference shows the results of the measurements of the research variables (degree of pain) before and after. ,41,1, 1.42, 1.38) and their arithmetic mean in the dimensional measurement were (1.30, 1.40, 40.1, 1.40), and with standard deviations (0.89, 0.77, 1.77, 1, 77), and for the purpose of finding out the differences between the pre and post measurements, the researcher used the (T-test) test for related samples, so the values of this test were calculated respectively (24, 23, 15, 13, 18, 79, 89, 15), all of which are greater than the tabular value The corresponding value of (2.26) at the degree of freedom (9), and the level of significance (0.05), and this confirms the significance of the differences and in favor of the results of the dimensional measurements.

Table (3) Shows the arithmetic mean, standard deviations, and the calculated value of (t) for the test (pre and post) - the ratio of the motor range at the maximum angle.

The exams	Tribal		After me		F	F2	The calculated t-value
	s-	P	s-	P			
Bend the back of the foot upward	7.40	1.41	29.10	1.30	217	4159	40.29
Bend the sole of the foot down	40.40	1.73	64.20	1.09	238	5700	37.90
Bend the foot inward	26.80	1.34	48.80	1.34	220	4872	36.92
Flex the lateral foot outward	11.70	1.44	29.30	1.04	176	3118	36.98

The tabular value of (t) is (2.26) at a degree of freedom (9) and a level of significance (0.05).

Table (3) of the description and statistical inference shows the results of the measurements (motor range) before and after. The values of their arithmetic mean in the pre-measurement were respectively (40.7, 40.40, 80.26, 70.11), and with standard deviations (1.41). , 1.73, 34.1, 1.44) and its arithmetic mean in the post-measurement came (29.10, 64.20, 80.48, 29.30), with standard deviations (1.30, 1.09, 1.34, 1.04), and for the purpose of knowing the differences between the pre and post measurements, the researcher used the test (T. Test) for associated samples, so the values of this test calculated respectively were (40.29, 37.90, 36.92, 36.98), which are all greater than the corresponding tabular value of (2.26) at a degree of freedom (9), with a level of significance (0.05), and this confirms a significant Differences in favor of the results of telemetry.

DISCUSSION

Discuss the results of measurements and pre and post tests in the pain variable It is clear from Table (2), where there is a difference between the pre-measurement and the post-measurement. This difference is due to the positive effect of the rehabilitative exercises, which have an important and auxiliary role in reducing pain and healing from the injury of partial rupture of the ankle ligaments and returning as quickly and as best as possible to the stadium, where the negative and static comprehensive rehabilitative exercises work. Positivity has a positive role in rehabilitation, and the gradation in these exercises was from difficult to easy and within the limits of pain, all of which leads to a reduction and disappearance of pain in the injured part. This is consistent with what he confirmed. Ekim A, Armagan indicated that rehabilitative exercises are one of the effective forms that are used to reduce pain and inflammatory conditions. (Ekim: 2007, 74).

Also, the use of reflexology massage after completing the exercises performed by the injured leads To get rid of the wastes of metabolic processes and improve joint movement by increasing blood flow to the affected part and relieving pain (this was confirmed by Abu Al-Ala) that reflexology massage works by stimulating pain receptors in the skin and muscles, and this stimulation reaches the hypothalamus in the brain, which in turn forms Responses through the nervous system to prepare the body to face pain In addition to the activity of the hypothalamus, the gland above the kidney is also activated to increase the secretion of the hormone adrenaline, which collects in the areas of pain. (1).

Discussing the results of the motor range of the first and second experimental groups in the pre and post measurements It is clear from Table (3) that there is a statistically significant difference between the pre and post measurement of the first experimental group, and the researcher attributes the difference to the rehabilitative exercises in its three stages, which contained stretching and flexibility exercises for the injured joint, as it works to increase the range of motion of the joint, and this is consistent with the study (Abdulaziz Adnan Bunyan - (The rehabilitation program to improve the muscle sensory receptors on the rupture of the ligaments of the ankle joint of football players has a positive effect on the range of motion of flexing the injured ankle upwards and extending the injured ankle downward. (Abdulaziz Adnan Banyan: 2014, p. 34).

Muhammad Qadri Bakri and Siham Al-Ghamry also indicated that stretching, flexibility and jumping exercises work to restore the motor memory of the affected organ, as well as restore the speed of the voluntary contractile reaction of the injured organ, in addition to restoring the speed of the relaxation reaction of the injured organ. (Muhammad Qadri Bakri and Siham Al-Sayed Al-Ghamry, 2013, p. 88)

Massage also has an important role to help in recovery from sports injuries, especially

injury to the ankle ligaments of football players, as it works to reduce the burden on the feet or hands that have been exhausted from exercises, and massage promotes general relaxation, and this is consistent with (Mai Muhammad Al-Wahsh) where she mentioned that massage helps the healing power It helps the body to recover from sports injuries, especially the partial rupture of the ankle ligaments, without resorting to external medications. Reflexology massage also helps to reduce tension, which makes this area relaxed and thus performs its functions better. (May Muhammad Al-Wahsh: 2008, p. 124).

CONCLUSIONS

1. Rehabilitation exercises using adhesive tapes before performing rehabilitative exercises and massage after performing rehabilitative exercises has a positive and effective effect in reducing and disappearing pain in pre and post measurements.
2. The use of adhesive tapes before performing rehabilitative exercises and massage after performing rehabilitative exercises has an advantage and a positive effective effect in improving and rehabilitating the partial rupture of the ankle ligaments, and thus the injured players return to practicing their specialized activities in a short period of time and with high efficiency.

RECOMMENDATIONS

1. Paying attention to the rehabilitation period due to its great importance in re-healing the injured part and returning to the stadium as quickly and as best as possible.
2. The need to use adhesive tapes in all rehabilitation programs to reduce the degree of pain and reduce the time taken by the injury.
3. Spreading health awareness regarding the use of adhesive tapes and massage as important rehabilitative means and complementary to exercises when rehabilitating ligament injuries.

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APPENDICES (1)

Some of the qualifying units: The negative phase, the first week, the time of unity : 10:8 minut

T	Exercise	time	T	Mg	Rest beteen mug	Exercise time	Notes
1	Sit on the chair of the injured leg on the knee of the healthy leg, raise the instep up with the help of the therapist	8 s	-	4	10s	62 s	1. The injured person performs the exercise before the pain limits 2. Rest between one exercise and another 2 minutes 3. This module will be repeated for the second day
2	Sit on a chair with the injured leg on the knee of the good leg, lower the instep with the help of the therapist	8 s	-	4	10s	62 s	
3	Sitting on a chair with the injured leg on the knee of the good leg, lowering the palm of the affected leg down with the help of the therapist	8 s	-	4	10s	62 s	
4	Sit on the chair of the injured leg on the knee of the good leg, raise the palm of the injured leg up with the help of the therapist	8 s	-	4	10s	62 s	