International Journal of Psychosocial Rehabilitation, Vol. 24, Issue 02, 2020
ISSN: 1475-7192

The Use of Special Rehabilitative Exercises to Treat a Torn Ligament of the External Ankle Joint in Athletes

Assistant Prof. Dr. Wissam Shallal Mohammed[1], Assistant Prof. Dr. Qusay Salah Mal Allah[2], Assistant Lecture. Athar Hakim Waheed[3]

Abstract---*The importance of the study is to develop a set of rehabilitative exercises, especially those that are commensurate with the injury. The focus of the study for athletes in athletics may treat them and improve the condition of the joint and its return to its normal position. The research problem is to study the injury that occurs in the ankle joint, which is the tearing of its external ligaments by putting a set of standardized exercises Which suits the type of injury with the use of a set of therapeutic methods to rehabilitate this injury among athletes in athletics, where the aim of the research is to identify the effect of exercise on the muscle strength working on the ankle joint, the range of motion and the degree of pain. As for the research methodology, the researcher used the experimental approach to suit the nature of the problem represents the research community and they are The players with torn external ligaments of the ankle joint within the Najaf governorate clubs in the jumping and jumping activities for athletics, which numbered (4) players. The researcher used tests of range of motion, strength and pain of the ankle joint. The duration of the rehabilitation program was (4) weeks, with (3) rehabilitative units per week. If the statistical bag (spss) was used to extract the results, they were discussed in a scientific and thoughtful manner supported by Arab and foreign sources. M appeared with a set of recommendations, including a clear improvement in range of motion, strength and degree of pain of the ankle joint resulting from rehabilitative exercises. In light of the conclusions, the researcher recommends paying attention to muscle strength and range of motion exercises in training units, which leads to protecting the player as much as possible from injuries. As well as attention to the rehabilitation period, which comes after the treatment period, due to its great importance in re-healing the injured part and returning to the stadiums as soon as possible.*

Type of Paper--- Review
Keywords: *Special Rehabilitative Exercises, Treat a Torn Ligament, External Ankle Joint in Athletes*

Definition of research:

Introduction and the importance of research:

Athletics is one of the sports that needs all the physical characteristics and the diversity of those activities and the difficult training curricula for athletes that require patience and perseverance because they are individual activities that require patience and adaptation by the athlete and are the opposite of differential games in which there is a spirit of harmony and fun between the players and the distribution of effort Among them, despite this, there is what we call the risk of injury that follows the athlete in the slightest negligence that the athlete neglects, whether poor warm-up, incorrect movement during exercise, competition, or high effort disproportionate to his physical ability and other causes of these injuries are different, including muscles, ligaments and joints, so the occurrence of injury has become It is inevitable. Fortunately, few injuries that occur in sports activities threaten the life of the athlete. Recent studies have confirmed that

[1,3] *College of Physical Education and Sports Sciences, Al-Muthanna University, Iraq*
[2] *College of Physical Education and Sports Sciences, Albasrah University, Iraq*

most of the injuries suffered by athletes are muscular and articular, and among these common injuries is the injury that the researcher decided to study, which is an injury that tears the outer ligaments of the ankle joint. He wanted from the importance of his study to develop a set of rehabilitative exercises and some treatment methods that are commensurate with the injury axis Ace for athletes in athletics that may treat them and improve the condition of the joint and its return to its normal position

Research Problem:

The administrators and workers of the physiotherapy centers have been interested in establishing a physiotherapy unit in clubs and sports institutions in order to be close to the athletes with the aim of performing the first treatments at the moment of the injury and reducing its aggravation and the return of the injured to his normal position as most of the injuries that occur are either in the joint or the muscle Working on it Through the above, the researcher wanted to study the injury that occurs in the ankle joint, which is the rupture of its external ligaments, by developing a set of standardized exercises that suit the type of injury with the use of a group of treatment methods to rehabilitate this injury among athletes.

Research Objectives:

- Preparing special rehabilitative exercises to rehabilitate a torn injury of the outer ligaments of the ankle joint for athletes
- Learn about the effect of exercise on muscle strength working on the ankle joint
- Learn about the effect of exercise on the range of motion of the ankle joint.
- Learn about the effect of exercises on the degree of pain of the ankle joint.

Research hypotheses:

- Rehabilitative exercises and treatment methods affect the rehabilitation of a torn injury of the outer ligaments of the ankle joint in athletes.
- There are statistically significant differences between the pre and posttests in the strength variable of the leg muscles
- There are statistically significant differences between the pre and posttests in the variable range of motion of the ankle joint.

Research fields:

- The human field: The (4) players in the event of jumping and jumping in athletics
- Time range: for the period from 5/6/2018 to 5/2/2019
- Spatial field: The Solidarity Sports Club hall and the Physiotherapy Center in Najaf Teaching Hospital

Research methodology and field procedures:

Research Methodology:

The researcher used the experimental approach to suit the nature of the problem. The experimental design with one experimental group.

Research Society and Sample:

The research community, which is the players with torn external ligaments of the ankle joint, within the clubs of Najaf Governorate were represented in the activities of jumping and jumping for athletics, which numbered (4) players, and the research sample was determined by the intentional method, and with this the sample represented 100% of the research community.

Sample homogeneity:

Table (1) homogeneity of the research sample

Coefficient of torsion	standard deviation	Mediator	Arithmetic mean	measuring unit	Variables

.1240	3.234	70	72.23	Kg	the weight
0.773-	.2220	1.67	1.66	meter	Length
.8990	.3340	18	19.24	Year	Chronological age

devices, tools and means of gathering information:
devices and tools:

- Computer.
- A range of motion measuring device (genometer).
- A medical scale to measure weight and height.
- Almoltjem device to measure the strength of the ankle joint
- Stop Watch

means of gathering information:

- Arab and foreign sources.
- Experts and specialists.
- Forms.
- The World Wide Web (the Internet).

field research procedures:
Tests used in the research:

Measuring the muscle strength of the muscles working on the ankle joint (1):

The researcher used the dynamometer to measure the static muscle strength as follows:

- Measuring the strength of the muscles working on the ankle joint:
- The injured player takes a seated position.
- The device is placed above the knees with the palm of the foot fixed in the front area on the edge of the device from the lower base and hands placed on the chest, and then the feet are raised and lowered.

The injured player shall perform one attempt for each weight.

Measurement is done in kilograms, and its parts.

Measuring the motor range of the ankle joint:

The gynometer was used to measure the range of motion of the ankle joint (extension, flexion).

* Method of performance: From the sitting position on the bench, the patient extends the affected leg, and then the gene meter is placed from the lateral side of the ankle joint so that the center of the device is on the lateral top of the ankle and the two ends of the device extend one with the leg and the second with the length of the foot as shown in the following figure

(Bend) (Tide)

* How to register. By reading that appears on the device

The visual analogue scale (V.A.S):

The visual gradient scale (VAS) was used to measure the intensity of the perception of pain (cm), as this scale is widely used in many studies due to its ease of use, when a sound and rapid report is required about the pain that the patient feels, and this scale is a divided paper To ten units (cm), so that a degree of zero is indicated for the absence of pain, while a degree of ten is indicated for the maximum pain intensity that the person cannot bear, and the injured is required to mark the line from (0-10 cm) as he gives an index number of the severity of pain or Reducing or ending the pain. This is agreed upon by David (1994), and by the American Pain Foundation (2006).

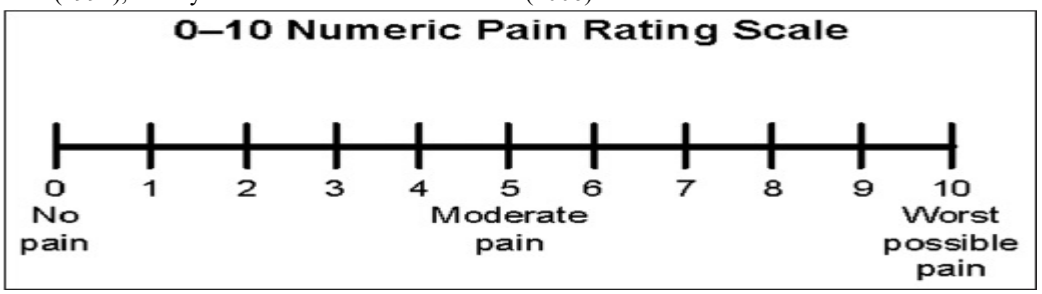

Figure (7) Measuring the degree of pain

pre-tests:

The pre-tests of the research sample were conducted on (12/5/2018), by (measuring the degree of pain and measuring the maximum strength of the muscles working on the ankle joint, and measuring the range of motion of the ankle joint), respectively, in the Physiotherapy Center in Najaf Teaching Hospital and Club Hall Solidarity for fitness and bodybuilding.

Curriculum of Rehabilitation Exercises:

Rehabilitation exercises were prepared that focus on strength, flexibility and agility elements that were performed inside and outside the hall and using several auxiliaries that were performed during the duration of the rehabilitation program (4) weeks at a rate of (3) rehabilitation units as the repetitions, stresses and rest times were determined

dimensional tests:

After completing the prepared qualification program, the post-examinations were conducted on the (4) injured members of the research sample in the place of the tests themselves and their procedures accompanied by the assistant work staff and under the supervision of the researcher, on (2/5/2019).

statistical methods:

The researcher used the appropriate statistical methods to search and used the Statistical Bag System for Educational and Social Sciences (Spss).

- The arithmetic mean.
- Standard deviation.
- Mediator.
- Coefficient of torsion.
- Test (t) for cross-linked samples.

Presentation, analysis and discussion of research results:

Presentation, analysis and discussion of the results of the motor ranges:

Table (2) shows the results of the pre and post tests for the range of motion and strength of the research sample

Indication of differences	Level of morale	Values" t" Calculated	standard deviation	Arithmetic mean	Measurement	measuring unit	Measurements	No
moral	0.004	4.563	2.676	25	Tribal	Degree	Tide movement	1
			1.443	40	Dimensional			
moral	0.007	3.551	2.112	17.15	Tribal	Degree	Bending movement	2
			1.675	27.10	Dimensional			
moral	0.000	7.520	0.656	40 . 6	Tribal	Kg	Ankle joint strength push up	3
			2.231	10 . 15	Dimensional			

Error level (0.05) and degree of freedom (3)

The method by which the rehabilitative unit was taken out had an effective effect in raising the level of test results for the range of motion of the joint for the members of the research sample. (Kawthar Abdel Aziz) points out that the selected exercises must be structured exercises in order for us to reap their fruits and achieve the goal of which is the rehabilitation of the various body systems, such as the joints and muscles () As for determining the intensity of the rehabilitative exercises applied, this determination relates to the range of joint movement that Muscles work on it, as the greater this range (which occurred in the results of the dimensional tests) means the greater the motor duty of the working muscles, so it is possible to train the muscle fibers with the speed and strength required during the range of motion according to the resistance to which these fibers are exposed, and it must match this intensity With the resistance used during the exercise (). The negative and positive therapeutic exercises are one of the means of locomotor rehabilitation, and it is one of the most important steps of movement therapy for the injured. Rehabilitation exercises have an important role in maintaining the health and fitness of the injured individual and what that happens in the psychological state of the injured (). And that the development that occurred to the variables of motor range and strength did not come by chance, but rather came as a result of the nature of the prepared curriculum and what it included in the use of the applied curriculum on the basis of rehabilitative exercises, which contributed to the development and growth of strength in exchange for a decrease in the degree of injury, which indicates the harmony of the vocabulary of the prepared curriculum with each other. In terms of the use of static, moving and different exercises because of the clear impact left on the development of strength that increases with the increase in the use of rehabilitative exercises, and this is consistent with what confirms (Jefri and Falkel, 1986) that “the development of moral strength is done by choosing fixed and moving exercises that are performed during the rehabilitation program to reach results Better for the development of the strength attribute "(). Also, the level of strength is not necessarily a mental design, but it can be dependent on the efficiency of the nervous system in activating and improving the muscular function, as the increase in the rate of force here is due to the coordination in the work of the working, auxiliary and counter muscles as a result of nervous adaptation. Therefore, making any effort must be matched by a rest period that brings it to its natural state.

Presentation, analysis and discussion of pain score results:

Table (5) the arithmetic mean and their differences, standard differences deviations, the calculated (t) value, and the significance of the differences for the pre and post tests for the degree of pain for the research group

Indication of differences	Level of morale	Values" t" Calculated	standard deviation	Arithmetic mean	Measurement	measuring unit	Measurements
moral	004 .0	3.357	0.777	34 . 7	Tribal	Degree	Degree of pain
			1.765	23 . 3	Dimensional		

Error level (0.05) and degree of freedom (3)

The researcher attributes that these differences came as a result of the return of the injured part to its pre-injury, strength and normal range, as well as the disappearance of infections and swellings, and these results are consistent with what Abdul-Halim Al-Husseini (2009) reached, that “the use of water therapy in rehabilitating various injuries leads to a reduction of swelling And the infections that result from these injuries and thus the disappearance of pain and the return of the injured to normal activity. "

This is consistent with what Ahmad Hilmi Salih (2009) and the American Pain Foundation (2006) have confirmed that exercise is a common method in rehabilitation programs to treat pain, as it not only maintains health, but also helps relieve pain over time. Helps control joint pain and swelling due to joint inflammation.

Conclusions and Recommendations:

Conclusions:

- Rehabilitative exercises were effective in rehabilitating the torn external ligamentous injury of the ankle joint.
- A clear improvement in the range of motion of the ankle joint as a result of rehabilitative exercises.
- A clear improvement in the strength of the muscles working on the ankle joint.
- A clear improvement in the degree of pain.

Recommendations:

In light of the information and data contained in the course of the research and based on his findings, the researcher recommends the following:

- Conducting studies similar to other sports.
- Attention to following up with the injured because of its positive impact that raises the morale of the injured and their commitment during the implementation of the rehabilitation units.
- Paying attention to muscle strength and range of motion exercises in the training units, which leads to protecting the player as much as possible from injuries.
- Paying attention to the rehabilitation period, which comes after the treatment period, due to its great importance in re-healing the injured part and returning to the stadiums as soon as possible.

References:

1. Abu Al-Ela Ahmed Abdel-Fattah; Sport Biology and Athlete’s Health, Arab Thought House, Cairo, 2000.
2. Ahmed Helmy Saleh: Rehabilitation Exercise Program and its Effect on Carpal Tunnel Syndrome Without Surgery, Master Thesis, Faculty of Physical Education, Tanta University, 2009.
3. Ahmad Muhammad Khater: Measurement in the Mathematical Field, Part 2, 4th Edition, Cairo, Dar Al-Kitab Al-Hadith, 1996.
4. Ahmed Mohamed Saad; The effect of a training program on some components of physical fitness and blood for beginners handball, PhD thesis, Suez Canal University, Port Said, 1996.
5. Ahmad Muhammad Khater; Measurement in the Mathematical Field, Part 2, 4th Edition, Cairo, Dar Al-Kitab Al-Hadith, 1996, pp. 260-262.

6. Kawthar Abdel Aziz Matar; A battery of skill performance tests to select junior folk arts groups Conference Researches: A Future Vision for Physical Education and Sports in the Arab World, Helwan University, College of Physical Education, Volume (1), 1993, p. 129.
7. My grandfather al-Husseini Alywa; Sports Injuries between Prevention and Treatment, The Egyptian Nahda Library, 2nd Edition, 1997 AD, p. 86.
8. Abdel Halim Kamel Al-Husseini; A proposed rehabilitative exercise program for chronic inflammation in the inguinal region for football players, Master Thesis, Faculty of Physical Education for Boys, Alexandria University 2009, p 103.
9. Ahmed Helmy Saleh Rehabilitation exercise program and its effect on carpal tunnel syndrome without surgery, Master Thesis, Faculty of Physical Education, Tanta University 2009, p.95.
10. Gideon Ariedi: Resistance Exercises and muscle fiber typing. New York, kinelc human, 1994, pp 33-34.
11. Keffry E. Lkel: Methods of training in sport physical therapy, Bernhard T. editor in publishing Churchill Living Stone, U.S.A., New York, 1986, p. 66.
12. www.painfoundation.org//Traitment Option: A guide for people Living with pain, American Foundation-, 2006) Jennifer Person.
13. American sport education program, 2nd, elders (UK), human kinetics.), Coaching youth basketball, 1996. P41-42.

Margins :

1. Ahmed Muhammed Khater al-Qiyas in the field of sports, vol 2, 4, Cairo, Dar al-Kitab al-Hadith 1996 AD 260-262
2. American Physical Education Program: Second Edition, Leeds (United Kingdom), Human Kinetics), Youth Basketball Training, 1996. pp. 41-42.
3. Kawthar Abdul Aziz Matar. A set of skill performance tests for selection of junior folk art groups; The Research Conference on the Future Vision of Physical Education and Sports in the Arab World, Ja Spangel Helwan, College of Physical Education, Vol. 1, 1993, p. 129.
4. Gideon Aridi: resistance training and writing muscle fibers. New York, Kennelick Man, 1994, pp. 33-34.
5. Wajdi Al-Husseini Aliyo; Sports injuries between prevention and treatment, The Egyptian Nahda Library, Second Edition, 1997 AD, p. 86.
6. Keffry E. Lkel: Training Methods in Sports Physical Therapy, Bernhard T. Editor, Churchill Living Stone USA, New York, 1986, p. 66.
7. Abdul Halim Kamel Al-Husseini. A proposed rehabilitative exercise program for chronic inflammation in the inguinal region for football players, Master Thesis, College of Physical Education for Boys, Alexandria University 2009, p. 103.
8. Ahmed Helmy Saleh, Rehabilitation Exercise Program and Its Impact on Carpal Tunnel Syndrome Without a Track, Master Thesis, Faculty of Physical Education, Tanta University, 2009, p. 95.
9. www.painfoundation.org//Traitment Option: A Guide for People Living With Pain, Foundation of America -, 2006) Jennifer Pederson.