



The effect of exercises accompanied by therapeutic to rehabilitate sciatic injury in football players

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Abstract

The research aims at identifying the effect of exercises accompanied by therapeutic methods to rehabilitate the sciatic labrum injury of football players. The researchers used the experimental method to suit it for applying the research and its procedures, using an experimental design with pre-, inter-, and post-measurements on one experimental group. This research is based on a sample that represents the research population with partial tear of the hip labrum from the age of (18:28) players registered in the Iraqi Football Association in first-class clubs. The research sample was chosen intentionally. Their number reached (17) cases for the doctor's diagnosis based on the results of the x-rays. The largest concentration of infected cases was calculated over a period of (10) years and was found to fall between (18:28) years. (2) were drawn as an exploratory sample, (1) was excluded for non-compliance, and the remainder (14) were for the experimental sample. The research results have shown that the positive effect of existing exercises. There are statistically significant differences between the pre- and post-measurements in favor of the post-measurement for the group. Rehabilitation exercises have a positive effect on those with partial tear of the hip labrum. Rehabilitation exercises influence restoring the range of motion and flexibility of the muscles working on the joint among members of the research sample.

تأثير تمارينات مصاحبة بوسائل علاجية لتأهيل اصابة الشفاه الوركى للاعبي كرة القدم

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الملخص

يهدف البحث الى التعرف على تأثير تمارينات مصاحبة بوسائل علاجية لتأهيل اصابة الشفاه الوركى للاعبي كرة القدم استخدام الباحث المنهج التجريبي وذلك لملائمته لتطبيق البحث وإجراءاته باستخدام التصميم التجريبي ذو القياس القبلي والبيني والبعدي على مجموعة تجريبية واحدة. هذا البحث على عينة قوامها يمثل مجتمع البحث المصابين بتمزق الجزئي الشفا الوركى من سن (28:18) من اللاعبين المقيدين بالاتحاد العراقي لكرة القدم بالأندية الدرجة الاولى ، تم اختيار عينة البحث بالطريقة العمدية ، بلغ عددهم (17) حالة لتشخيص الطبيب بناءً على نتائج الأشعة، تم حساب أكبر تجمع للحالات المصابة في حيز زمني مدته (10) سنوات وجد انها تقع بين (28:18) سنة، تم سحب (2) كعينة استطلاعية، واستبعاد (1) لعدم الالتزام والباقي (14) للعينة التجريبية. وقد أظهرت نتائج البحث أن التأثير الإيجابي للتمارين القائمة. وجود فروق ذات دلالة إحصائية بين القياسين القبلي والبعدي لصالح القياس البعدي للمجموعة، تمارينات التأهيلية لها تأثير ايجابي على المصابين بتمزق الجزئي الشفا الوركى، التمارينات التأهيلية لها تأثير على استعادة المدى الحركي ومرونة العضلات العاملة على المفصل لدى أفراد عينة البحث. الكلمات المفتاحية: كرة القدم، التمارينات التأهيلية ، التمزق الشفاه الوركى.

Research introduction:

The game of football is one of the games characterized by a large number of diverse movements and technical skills, defensive and attacking, and success in its implementation depends on the skill and physical effort made by the player on the field, and during the performance players are exposed to great pressure, whether in the match or training As a result of the nature of the game in terms of movements Suddenness and speed of movement to carry out attacking or defensive tasks, as the player relies on his legs and pushing them to move forward, sideways or backwards while performing skills, and moving from defense to attack or vice versa, which causes pressure and physical effort It has a significant effect on the muscles and joints of the body.

(Al-Bakri, Al-Ghamri) (2005) believes that the science of sports injuries has developed and become one of the basic sciences that accompanies sports movement and a basis for developing the player's ability to follow scientific methods that guarantee his complete recovery and his return to the competition arena with the full physical fitness that he had before the injury occurred.

Riad (1999) noted that although injuries are considered minor compared to road injuries and accidents, they may lead to complete disability sometimes, which

negatively affects athletic performance and the ability to continue the training process.

Riad Al-Najmi (1999) pointed out that the rehabilitation process is one of the most important stages in treatment, and it determines the return of the injured person to his normal position after the injury as quickly as possible. It is a continuous process that begins during the medical treatment of the injury and extends beyond physical therapy. (Khlaif, I. K., & Shnawa, T. F. 2022).

Samia (2002) states that therapeutic exercises are positions and movements aimed at returning the injured organ to its normal state that it was in before the injury.

Rushdie (2004) mentions that, in addition to rehabilitative exercises, physical therapy methods can be used, as this field is witnessing a major boom linked to progress and technological development in the field of multiple and varied devices and equipment, which has pleased workers in this field, including deep thermal treatments, which include electrothermal treatments, including Ultrasound, which is mechanical vibrations similar to sound waves, but with a high frequency higher than 20 kilohertz. . (Khlaif, I. K., Hussein, I. G., & Shnawa, T. F. 2022)

The hip labral tear is an injury that affects the labrum, It is the soft cartilage tissue that surrounds the hip joint socket which surrounds the outer edge of the hip socket. It is cartilage consisting of soft tissue that surrounds the edges of the hip joint in the hip socket, and gives it stability, in addition to facilitating the movement of the head of the leg bone and protecting the hip joint by reducing the pressure transmitted through the joint. It also tightly grips the bony structure (the ball) located at the top of the bone. The man, without friction between it and the hip socket.

There are two types of hip labral tears: (anterior): This type occurs in the front part of the hip, and is the most common, and often occurs because of pressure on the hip joint, or because of poor blood supply to the hip joint. As for the posterior type, this type occurs in the back part of the hip. It is less common, and often occurs because of performing movements that put pressure on the back of the hip joint, such as performing squats repeatedly. Athletes who participate in sports, such as ice hockey, football, American football, golf, and ballet, Higher risk of hip labral tear. Structural problems with the hip can also lead to a tear of the hip labrum. (Abed, I. S., Khlaif, I. K., & Salman, S. M. 2022)

Research problem:

The occurrence of injury is one of the most important problems facing sports teams in various competitions and sporting activities because it represents the most important obstacle in achieving victory. It may deprive teams of benefiting from the effort of a distinguished player and thus lead to the team losing and achieving achievements, as it represents many injuries in their various forms, whether to the competitor or the player himself. One of the negative aspects of practicing sports and what is associated with it is the loss of the player's ability and potential, the psychological impact, the delay in level, and the loss of the team's effort, and thus the loss of many championships. Both Al-Fattah and Shaalan (1993) point out that the factors causing sports injuries are the incompatibility and harmony of the work of the muscle groups working, such as training groups. Certain muscles and neglecting the training of other muscle groups, lack of interest in adequate and appropriate physical preparation by strengthening the body's muscles and increasing its resistance to fatigue, errors in the technique of the activity performed lead to the occurrence of chronic inflammation in the tendons and muscles.

Rerzeller (2001) confirms that the process of sports rehabilitation for the injured person is the result of the joint effort of both the coach and the doctor, and in many cases a physical medicine specialist must be added, and therefore there must be full cooperation and continuous communication between them and an agreement that the goal of sports rehabilitation is in the direction of facilitating the player's return. To training and competitions as quickly as possible and with a high degree of complete physical efficiency.

Through work in the field of motor rehabilitation, the researcher noticed the spread of the sciatic labral tear injury among players of various sports activities in general and football in particular, as this injury occurs as a result of excessive physical stress on the femur bone usually resulting from the increasing demands and loads of sports activities as well as rapid changes in the direction of the body due to the work of the abdominal and thigh muscles, which exert a tugging or pulling force on the thigh bone, which in some cases can lead to excessive stress and inflammation.

This is what prompted the researcher to try to prepare exercises that accompany therapeutic methods to treat sciatic labral tears in some football athletes.

Research Importance:

The research represents a serious attempt to find the causes of the sciatic labral tear injury and prepare various physical exercises with some therapeutic methods to help treat and rehabilitate the injury. The importance of treating this injury lies in

the fact that it is widespread in various sports fields and deprives players from participating with their teams in various competitions and tournaments for a long time. As a result of the many attempts by workers in the field of treating and rehabilitating injuries that are not based on scientific foundations in treating this injury, the researcher used various rehabilitative exercises with some methods to help treat this injury through exercises with the help of some physical therapy methods to treat sciatic labral tears in football athletes.

The Research aims:

- 1 - Preparing exercises accompanied by therapeutic methods to rehabilitate the sciatic labrum injury for football players.
- 2- Knowing the effect of rehabilitation exercises accompanied by therapeutic methods, prepared by the researcher, on improving the range of motion of the muscles working on the hip joint for individuals in the research sample.
- 3- Knowing the effect of rehabilitation exercises accompanied by therapeutic methods, prepared by the researcher, on improving the muscular strength of the muscles working on the hip joint for individuals in the research sample.

Research hypotheses:

- 1- There are statistically significant differences between the pre-, inter-, and post-measurements in improving the range of motion of the muscles working on the hip joint, in favor of the post-measurement.
- 2- There are positive, statistically significant differences between the pre-, inter-, and post-measurements in improvement of the hip joint, in favor of the post-measurement.

Research Methodology:

The researcher used the experimental method due to its suitability for applying the research and its procedures by using an experimental design with pre-, inter-, and post-measurements on one experimental group.

research community:

The research population represents those with a partial tear of the hip labrum, aged between 18-28 years, for first-class football clubs for the 2023-2024 season.

The research sample:

The research sample was chosen intentionally. Its number was (17) cases according to the doctor's diagnosis based on the x-ray results. The largest concentration of infected cases was calculated over a period of (10) years, and it was found to fall between (18-28) years. (2) were drawn.) as an exploratory sample, excluding (1) for non-compliance, and the remainder (14) for the experimental sample. Table No. (1) shows the statistical description of the homogeneity of the research sample data.

Table (1) Shows the statistical description of the research sample data in the basic primary variables before applying. Qualification curriculum n=14

| Statistical significance of characterization | | | | Basic initial variables |
|--|--------------------|----------|-------|-------------------------|
| Torsion coefficient | standard deviation | Mediator | SMA | |
| 0.55 | 2.68 | 22 | 22.21 | Age (years) |
| 0.24 | 4.40 | 173. | 174.3 | Length (cm) |
| -0.13 | 4.88 | 69 | 68.6 | Weight (kg) |

The nature of the research requires some conditions for the sample individuals, which are:

- 1- To be registered with the Iraqi Football Federation.
- 2- The injured person's consent to participate and attend the proposed rehabilitation program. They must be suffering from a tear of the hip labrum, according to the treating physician's report.
- 3- They must not be subject to any other rehabilitation program and do not have any other injuries.
- 4- To adhere to the proposed program throughout the period of conducting the research and to adhere to the instructions.
- 5- The injured player must have the desire to volunteer to participate in the rehabilitation program and submit a written acknowledgment of this.

Data collection methods:

- Arabic and foreign references.
- International Internet Information Network.
- Measurements and tests used.
- Observation and experimentation.
- Assistant work team.

Devices:

- Goniometer device to measure the range of motion of the joint.

- Dynamometer device to measure muscle strength (kg).
- Medical scale device for measuring weight (kg).
- Rest meter device to measure the total length of the body (cm).

Tools:

- Ice bags.
- Rubber bands in different colors and various ranges of motion.
- Iron bar.
- Various weights.
- Swedish seats.
- Foam rugs.
- Fox type whistle.

Measurements and tests:

1- Physical measurements (anthropometrics).

A- Height measurement: A recta meter was used to measure the total length of the body.

B- Weight measurement: A medical scale was used to measure weight.

2- Measuring the muscle strength of the back thigh muscles.

The researcher used a dynamometer to measure the static muscle strength of the posterior thigh muscles.

3- Measuring motor range. (Farhat, 2001) Appendix (1).

The researcher used a gynecometer to measure the range of motion of the hip and knee joints.

Exploratory experience:

To avoid mistakes and obstacles that the researcher may face when implementing the experiment, the researcher conducted the exploratory study on a sample of (2) players with partial tear of the hip labrum, from outside the research sample, on Monday, 3/15/2024.

Results of the survey: -

- Identify the most important problems that the basic sample may be exposed to during the application of rehabilitation exercises.
- Determine the devices and tools used in the research and the suitability of the devices and tools used in the research.
- Determine the actual time for the exercise.
- Determine the form used in the data.
- Training and knowledge of assistants how to deal with rehabilitation exercises.
- The extent of the injured people's response to the rehabilitation exercises used under study.

Tribal measurements: -

The pre-measurements were conducted on a group of members of the experimental research sample consisting of (14) injured individuals. After the injured player received a report from the specialist doctor and therapist allowing him to engage in rehabilitative exercises. The pre-measurements began with the first football player on Thursday, 3/18/ 2024 at Al-Zahraa Specialized Center for Physiotherapy and Physical Rehabilitation in New Baghdad.

Main experience:

During the application, the researcher took care of establishing the conditions related to the tests as follows:

- 1- Measurements were made for all sample members in one way.
- 2- The researcher used the same measurement tools for all members of the sample.
- 3- Perform the measurement in the same order and in a uniform sequence.
- 4- Considering individual training and the specific condition of each injury.
- 5- A good warm-up before performing the exercises.

Rehabilitation exercises:

The proposed rehabilitation exercises were prepared in three stages. The first stage took two weeks, the second and third stages took three weeks, and the total time necessary to implement the program practically took eight weeks. The qualifying stages contain different exercises to suit the stage that the player with a partial tear of the sciatic labrum is going through, and the training was done. At a rate of (4) training units per week, the number of training units for the injured over the course of eight weeks reached (36) training units. The time of the training unit was (45) minutes in the first stage, while the time of the training unit in the second stage became (50-60) minutes. In the third stage, it became (80-90) minutes Note: The therapeutic methods were used in every second qualifying unit of each week

Inter-measurements:

After applying the first and second phases of the program, which lasted more than four weeks, the measurements were repeated to evaluate the improvement in the condition of the joint and the athlete's condition under the same conditions as much as possible.

Dimensional measurements: -

The post-measurement was conducted on the research sample eight weeks after the start of the experiment, on Thursday, 5/20/2024, in the same order as the pre-measurements, under the same conditions, for each patient separately.

Statistical treatments:

The researcher used the statistical portfolio system (SPSS) to obtain the research results.

Results:

The significance of the differences between the pre-, inter-, and post-measurements of the affected limb in the research variables.

Table (2) (repeated F test) Differences between pre-, inter-, and post-measurements in the range of motion of the hip joint of the affected limb, n=14

| Type of difference | Moral Sig | (F)value Calculated | Error tests | Mean squares between tests | deviation | the middle | Variables |
|--------------------|-----------|---------------------|-------------|----------------------------|-----------|------------|-----------|
| Spiritual | .000 | 3761.423 | 1.967 | 7378.172 | 2.20892 | 17.4291 | Tribal |
| | | | | | 2.97245 | 43.2862 | Alpine |
| | | | | | 1.52817 | 63.2148 | Al-Baadi |

Significant < (0.05) at the degree of freedom (26:2).

Bonferroni Table (3)

| Al-Baadi | | The middle one | | Tribal | | Variables |
|----------|----------------------|----------------|----------------------|--------|------------------|-----------|
| Say | Media difference | Say | Media difference | Say | Media difference | |
| .000 | -45.791 [*] | .000 | -25.862 [*] | | | Tribal |
| .000 | -19.934 [*] | | | | | Alpine |

Significance < (0.05).

Table (4) (repeated F test) Differences between pre-, inter-, and post-measurements in the muscle strength of the hip joint of the affected limb, n=14

| Type of difference | Moral Sig | (F)value Calculated | Error tests | Mean squares between tests | Deviatio n | the middle | Variable s |
|--------------------|-----------|---------------------|-------------|----------------------------|------------|------------|------------|
| Spiritual | .000 | 1273.927 | .354 | 451.040 | .48594 | 4.6076 | Tribal |
| | | | | | .57120 | 10.8010 | Alpine |
| | | | | | .89340 | 15.9434 | Al-Baadi |

Significant < (0.05) at the degree of freedom (26:2).

Bonferroni Table (5)

| Al-Baadi | | Alpine | | Tribal | | Variables |
|----------|----------------------|--------|---------------------|--------|------------------|-----------|
| Say | Media difference | Say | Media difference | Say | Media difference | |
| .000 | -11.338 [*] | .000 | -6.195 [*] | | | Tribal |
| .000 | -5.145 [*] | | | | | Alpine |

Significance < (0.05).

Discussion of The Results:

The researcher found that there were statistically significant differences in the pre-, inter-, and post-measurements in the study variables (range of motor - muscle strength) as follows:

A- Discussing the results of the first hypothesis (motor range):

It is clear from Table (2)(3) that there are statistically significant differences between the pre-, inter-, and post-measurements in the variable range of motion of the hip joint, which indicates the positive effect of the rehabilitation approach used. The researcher attributes this improvement in the averages of the inter- and post-measurements of the range of motion variable, which may approach to 100% in the post-measurement of the three stages of rehabilitation exercises, where the first and second stages included various stretching exercises, while the third stage included exercises of higher intensity, longer time, and more exercises than the first and second stages, which had a positive effect on increasing and developing the range of motion of the joint and in all parts of the body. The directions are almost like a healthy foot, and sometimes even better.

Talha Hossam El-Din, Wafa Salah El-Din, Saeed Abdel Rashid, Nariman Al-Khatib, and Abdel Aziz Al-Nimr point out that flexibility exercises work to develop the muscle lengthening component and increase the elastic property of the muscles and ligaments together, which leads to increasing the range of motion of the joint.

It is also consistent with what Ashraf Shaalan mentioned that the rehabilitation curriculum includes stretching and flexibility exercises for the joints, in addition to their positive effect on the development of muscle strength, which leads to an increase in the range of motion of the joint, as there is a direct relationship between increasing the range of motion of the joint and increasing the muscle strength leading to range of motion movements.

B- Discussing the results of the second hypothesis (muscular strength):

It is clear from Table (4-5) that there are statistically significant differences between the pre-, inter-, and post-measurements in the muscular strength variable of the posterior thigh muscles, which indicates the positive effect of the rehabilitation approach used. The researcher attributes this improvement in the inter- and post-measurements in the muscular strength variable to the diversity in a selected group of Rehabilitation exercises that reduced the degree of pain in the affected limb, which helped the injured to work without fear or hesitation.

The results reached by the researcher are consistent with the results of Ahmed Abdel-Gawad's study, that rehabilitation programs in general work to improve the general physical fitness elements of the various muscles of the body.

The researcher takes into consideration the principle of progression in muscle strength exercises, agreeing with what Mattacola mentioned. We must gradually advance strength exercises from static strength to using weights, rubber ropes, and various resistances, while Yasser Shafi'i explained that gradually using the appropriate resistances in terms of intensity and volume helps improve muscle strength.

Conclusions:

The researcher concluded the following:

- 1- The selected rehabilitation exercises achieved a significant improvement in the range of motion of the posterior thigh muscles.
- 2- The selected rehabilitation exercises achieved a significant improvement in the muscle strength of the hip joint of the affected limb.
- 3-Use Exercises qualifying restriction search with alert electrophoresis and waves above acoustic from the positive impact on infected people from where it will alleviate the sharpness the pain.

Recommendations:

Considering the research objectives and hypotheses and the conclusions of the statistical treatments, the researcher recommends the following:

- 1- Be guided by the rehabilitative approach prepared by using rehabilitative exercises when rehabilitating a partial tear of the sciatic labrum so that rapid treatment and rehabilitation can be achieved, and complications avoided.
- 2- Interest in conducting more research to identify sciatic labral injury in reducing the degree of pain and balance and speeding up the rehabilitation of various sports injuries.
- 3- It is necessary to pay attention to muscle strength exercises and range of motion exercises during the warm-up period in training units and before matches.
- 5- Continuation in exercises Power muscle and prolongation until finish from the program qualifying.

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