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The effect of a rehabilitation approach for the anterior rectus femoris tear injury and its impact on developing the range of motion of the hip joint for football players

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Abstract---The research included the introduction and the importance of the research The importance of the research in developing a proposed rehabilitation approach in the treatment of anterior rectus femoris muscle rupture and its impact on developing the range of motion of the hip joint treatment of the anterior rectus femoris muscle rupture and knowing its effect on the development of the range of motion of the hip joint. The research aims to prepare a rehabilitative approach in the treatment of rupture of the anterior rectus femoris muscle and to identify its impact on the development of the range of motion of the hip joint for football players. Positive effect in treating anterior rectus femoris muscle rupture and identifying its effect in developing the range of motion of the hip joint for football players) 25-30 year. As for the temporal domain for the period from 1/4/2022 to 10/30/2022, as for the spatial domain, the Basra Medical Rehabilitation Center and Physiotherapy and golds gym center)) As for the second chapter, it included theoretical studies, including sports rehabilitation, the basic movements of the hip joint. As for the third chapter, it included the research methodology and its field procedures, in which the research method was used. The researcher used the experimental method. Used in the research, the test of the flexion and flexion range of the hip joint, and it included pre and post tests. The fourth chapter included presentation, analysis and

discussion of the results. The fifth chapter included conclusions and recommendations, as the results showed that the approach contributed to increasing the range of motion of the hip joint. The researcher recommends the need to pay attention to physical therapy, rehabilitation and shaping Physiotherapy centers within sports clubs due to the necessity of preventing and preventing sports injuries.

Keyword--rehabilitation, sports, physiotherapy

Introduction to research

Introduction and the importance of research

In recent times, sports injuries have become a preoccupation for all workers in the sports field, especially in the field of physical therapy and rehabilitation, and that the wrong technical performance when performing a certain movement leads to the deviation of the force axis from its correct path, leading to a high effort, which causes the The occurrence of injury, and as a result of the inadequacy of the floors of stadiums and sports halls and the misuse of equipment and other sports supplies leads to an injury in the lower extremities, "including ruptures of ligaments and joints, which is one of the most common injuries, which reaches 55% of the total injuries. Hence the importance of this research in Develop a proposed rehabilitation approach in the treatment of the anterior rectus femoris muscle rupture and the rehabilitation of the muscles working on the hip joint, which makes it "able to perform the special activity of this joint and lead the movement and make it focus naturally on inputs that enable it to return the movement of the joint naturally and in a short period, since the movement of the lower extremity It depends mainly on the safety and efficacy of this vital joint

Research problem

After reviewing studies and research in sports activities, it was found that the occurrence of injuries is inevitable, and as it is one of the basic problems facing the individual, it has become one of the goals of medical sciences because of its negative effects and dimensions on the individual, as many specialists and researchers point out In the field of physical therapy and injuries, there is a continuous increase in the individual's exposure to injuries, so there is a need for curricula and therapeutic exercises to rehabilitate various injuries in addressing this problem to prepare a proposed integrated rehabilitative curriculum using rehabilitation exercises with different frequencies and different means as they are important and effective in removing cases of dysfunction of muscles and joints and finding The best way to reach the degree of complete recovery of the anterior rectus femoris muscle, to develop the range of motion of the hip joint, and to quickly return the player to the court.

Research Objectives

- 1) Preparing a rehabilitative approach in the treatment of anterior rectus femoris muscle rupture and identifying its impact on developing the range of motion of the hip joint for football players.

- 2) Identifying the results of the differences between the tribal and remote range of motion tests among the injured players.

Research Hypotheses

- 1) The rehabilitation approach has a positive effect in the treatment of the anterior rectus femoris muscle tear and its impact on developing the range of motion of the hip joint in football players.
- 2) There are statistically significant differences between the results of the tribal and dimensional motor range tests in the research sample and in favor of the post tests.

Research Areas

The human field: Athletes with ruptures of the anterior rectus femoris muscle, whose number is (5) athletes, and their ages ranged from (25-30) years. Time range: for the period from 1/4/2022 to 10/30/2022 Spatial domain: Basra Center for Medical Rehabilitation and Physiotherapy, Treatment and Rehabilitation Laboratory in the College of Physical Education and Sports Sciences, Gold's Gym Center.

Theoretical studies

Sports rehabilitation: It is the treatment and training of the injured to restore functional ability in the shortest possible time, by using several means commensurate with the type and severity of the injury and in line with the type of activity practiced and to ensure that the injury does not recur.

Physiotherapy

It is one of the procedures used to treat some disabilities resulting from diseases or injuries and by using therapeutic exercises: heat, cold, electricity rays, ultrasonic vibrations, in addition to massages, and all of this is under the supervision of specialists in order to determine the necessary treatment (Abbas Hussein :2013:p121).

Anatomical section of the (hip) joint (Fouad Al-Samarrai : 1988: p223)

The hip joint is one of the strongest joints of all the body, as it consists of the articulation of the head of the femur with the free right acetabulum. The joint is a group of strong body muscles as well as ligaments, so we say that the anatomical structure of the joint made it strong, and that strength came at the expense of flexibility compared to the shoulder joint, and that group of muscles surrounds the joint from all sides. 120-130 degrees) as for the extension from (10-20 degrees). The basic movements of the hip joint (Ayed Fadl:1999:p 85) are (extension, flexion, adduction, abduction, outward twisting, and inward twisting).

Research methodology and field procedures

Research Methodology:

The researcher used the experimental method, due to its relevance to the nature of the research problem to be solved, because the experimental method is based on experiment and field testing.

Research community and its sample

In order to reach accurate research results, the researcher conducted a field survey of doctors of bone, joint and fracture diseases, physiotherapy and rehabilitation centers in Basra Governorate and Basra clubs participating in the Iraqi League for the first degree for the sports season (2021-2022) and for the time period from 1/ 04/2022 until 1/10/2022, and the sample was chosen in an intentional way, and the sample included athletes with rupture of the anterior rectus femoris muscle (of moderate severity). The number of athletes was (5) injured, where the researcher obtained each injured in a different time period About the other injured, and thus the research sample constituted (50%) of the total injured athletes in the time period for their collection. Which requires their condition to conduct a rehabilitation approach to return them to practice sports activity again as they were before the injury occurred, and their injury was diagnosed by the specialist doctor by means of magnetic resonance rays, and the ages of the research sample ranged from (25-30) years, who are among the ranks of conservative clubs Basra football club.

Homogeneity of the sample

To ensure the homogeneity of the sample members and the correctness of the distribution among its members, the researcher used the coefficient of variation for the results of the field survey in the measurements (age, training age, height, weight). From (1%) the homogeneity is considered high, and if it exceeds (30%), it means that the sample is not homogeneous.

Devices, tools and means of collecting information used in the research

Arab and foreign references and sources. Standardized tests of the normal range of motion of the hip joint. Information network. Sample information form. A questionnaire form for the opinions of experts and specialists. A genomic device (Gonimetry) to measure the normal range of motion of the joints of the body. bed for examination and diagnosis

Tests of range of motion of the hip joint (Muhammad Adel:1995: p25)

Testing the range of motion of the ankle joint in case of stretching

Purpose of the test: This test aims to measure the range of motion of the hip joint in the case of extension using a genomics device. Where the measurer stands at the side of the laboratory (the injured) while he is standing on the bench and the genomic device is placed on the lateral side of the hip area of the injured, and the moving arm of the device moves with the mediastinal axial line of the hip, and the

other remains fixed in its first position and the angle between the two arms of the goniometer is read, which represents the angle of flexion for the hip joint. The goniometric index indicates the measurement of the range of motion of the hip joint in degrees (0-15), as in

Tests of range of motion of the hip joint (Wadiah Yassin:1999:p160)

Testing the range of motion of the hip joint in case of extension:

Purpose of the test: This test aims to measure the range of motion of the hip joint in the case of extension. using a goniometric device. Where the measurer stands at the side of the laboratory (the injured) while he is standing on the bench and the goniometric device is placed on the lateral side of the hip area of the injured, and the moving arm of the device moves with the mediastinal axial line of the hip, and the other remains fixed in its first position and the angle between the two arms of the goniometer is read, which represents the angle of flexion for the hip joint. The goniometric index indicates the measurement of the range of motion of the hip joint in degrees (0-15), as in

A test of the range of motion of the ankle joint in case of flexion (Arabic

Language Dictionary:1984:p.79)Purpose of the test: This test aims to measure the range of motion of the hip joint in case of flexion.Using the goniometric device. Where the measurer stands next to the patient (laborator), when he is standing on the bench, and the moving arm moves with the movement of the joint inward and parallel to the longitudinal mesial line of the affected joint with the other arm remaining fixed on its first position and the angle between the two arms of the device is read, which is It represents the flexion angle of the hip joint of the patient, and the goniometric index indicates the measurement of the range of motion of the hip joint for the laboratory in degrees (0-55) degrees.

The two exploratory experiments

The first reconnaissance experiment: “Conducting the reconnaissance experiment leads to avoiding the shortcomings, while specifying the place, time and duration of the experiment” (Wajih Mahjoub: 1988:p.239) The researcher conducted the first exploratory experiment on (Thursday) corresponding to 15/6/2022, and the researcher was briefed on the physical therapy devices and how to work on the devices for rehabilitation of injuries. Physiotherapist, how to use the device on the affected area, and determine the time of each rehabilitation session. How to measure the range of motion of the hip joint was also presented. The second exploratory experiment related to the vocabulary of the proposed.

Rehabilitation curriculum

The researcher conducted the second exploratory experiment related to the qualifying curriculum, which was conducted on (Sunday) corresponding to 5/22/2022 to find out the exercises used in the rehabilitation curriculum on (1) athletes with partial muscle rupture anterior rectus femoris

Field Research Procedures:

Tribal tests: The researcher conducted tribal tests on the research sample of (6), on Wednesday and Thursday (10-11/6/2022), and the researcher recorded the tribal results of the measurements with all the tests of the study. After the members of the research sample were identified from the athletes with partial rupture of the anterior rectus femoris muscle and who are subject to the proposed rehabilitation curriculum for the purpose of rehabilitating them to practice sports activity again.

The proposed rehabilitative approach (the main experiment)

“The purpose of giving rehabilitative exercises is to return the injured muscle to its normal position, where it is necessary to give rehabilitative exercises that strengthen the muscles and not to use long exercises” (Lamia Thafeef:1988:p.246) With the rupture of the anterior rectus femoris muscle and by examining them by the clinically specialized doctor as well as by means of magnetic resonance rays, the researcher implemented the proposed rehabilitation method and applied it to the research sample, as the implementation of the rehabilitation method takes a period of (6) weeks and the rehabilitation method included (18) rehabilitation units and from On Sunday (20/6/2022) until Thursday (29/7/2022) by (three) units during the week, and the duration of each qualifying unit ranges between (45-60) minutes, and the purpose of these exercises is to rehabilitate and strengthen the rectus femoris muscle as well. The working muscles of the hip joint as well as increasing the range of motion of the hip joint and returning their range of motion to the normal range.

Post tests: The researcher conducted the post tests and the test was conducted for the period from Monday (6/8/2022), and the researcher adopted the same sequence and procedures that were carried out in the tribal tests for the injured to perform them in the post tests. After completing the application of the proposed qualifying approach to the sample affected by the hip joint, the researcher conducted the post-tests, which were conducted on Monday, 3/9/2022, which are the kinematic range tests (extension and flexion) of the hip joint by means of a genomic device.

The statistical methods used in the research: percentage law, arithmetic mean, standard deviation, coefficient of variation. The law of the rate of evolution. T-test law for correlated samples.

Presentation

The fourth chapter presents, analyzes the results and discusses the range of motion tests for the hip joint (flexion, extension):

Indication	Evolution ratios	Probability value	The calculated t value	Post test		pretest		Measuring unit	variables
				Deviation	The middle	deviation	The middle		
Moral	18.3	0.00	18.66	0.60	45.28	0.89	35.85	dejee	bending
Moral	21.90	0.00	14.48	0.52	17.55	1.54	10.70	dejee	tide

The table shows us the values of the arithmetic means, the pre and dimensional standard deviations, the calculated (t) value, the significance, the probability value, and the evolution ratios for the kinetic range tests (extension, flexion) of the hip joint through what was presented. Between the pre-test and the post-test and in favor of the post-test, the researcher attributes these moral differences and the rate of development in the natural range of the hip variable to the effect of the prepared rehabilitation program, which contained flexibility exercises (negative and positive) that had a positive role in restoring the motor range of the injured muscle and thus its effect on the movements of Extension of the hip joint, and what you indicate that "the growth of flexibility is achieved in more than ten training units, that is, its integration is sufficient to use more than six weeks in order to reach the important part of the possibility of growth of kinetic capacity, which is related to improving muscular stretch" (Abu El-Ala Abdel:1997: p.98) and this is consistent with what The researcher intended him to give rehabilitation exercises to restore the flexibility of the anterior rectus femoris muscle and thus show its effect on the knee joints and hip. In addition to the importance of flexibility, it helps the athlete to perform movement freely and contributes to protecting him from injury, as "the greater the flexibility of the muscles, the less the possibility of injury, and the greater the flexibility of the joint, the better the athlete's performance on that joint" (Osama Riad:2001:pg.46) The range of motion obtained by the hip joint in the tests (before the curriculum) was the preference in favor of the tests after the curriculum and this is a natural result of the flexibility of the joint. In which the researcher, since the beginning of the curriculum, has been using therapeutic flexibility exercises and because they have a great role in improving the range of motion, as their use at the beginning of the curriculum is considered as an alternative to warm-up exercises as well as gradual units to give exercises of flexibility to the affected muscle in line with the nature of the changes caused by the exercises, as the effectiveness of the qualifying curriculum To develop muscular strength, it increases dramatically in the event of an increase in the motor performance capacity of the knee and hip joint, "and thus helps to use the properties of the rubber components of the affected muscle at the beginning of the movement" (Haddadin Ghadeer:2001:p.31) During the restoration of voluntary control of the skeletal muscles through exercises of strength, elongation, speed, range of motion and Balance" (Bryan L, Calcareus:2009:P56)

Chapter Five Conclusions and Recommendations:

Conclusions

The rehabilitation approach contributed to increasing the range of motion and the strength of the muscles working on the hip joint, which achieved a good result in returning the injured to their normal position.

Recommendations

The researcher recommends the need to pay attention to physiotherapy and rehabilitation and the formation of physiotherapy centers within sports clubs for the need to avoid and prevent sports injuries. Emphasis on the use of physiotherapy devices before starting the therapeutic exercises and the rehabilitation approach and for semi-acute injuries

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