

## THE EFFECT OF A SUGGESTED REHABILITATION CURRICULUM IN THE TREATMENT OF PARTIAL RUPTURE OF THE GLUTEAL MUSCLES AND STRENGTHENING THE WORKING MUSCLES OF THE PELVIC JOINT IN FOOTBALL PLAYERS

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### Abstract

The purpose of this paper is to preparing a proposed rehabilitation curriculum and recognizing its effect on the treatment of partial rupture of the gluteal muscles and the strengthening of the muscles working in the pelvic joint in soccer players - knowing the effect of the curriculum in soccer rehabilitation partial rupture of the gluteal muscles. The researchers used the experimental method for its suitability to the nature of the research problem to be solved. Therefore, they used the one-group method with pre-and post-tests to suit the nature of the problem. The research community consists of (12) players, the research sample was chosen intentionally, as it included (10) athletes with gluteal muscle ruptures distributed as follows: An exploratory sample consisted of (4) players who were excluded from the study, and the sample to which the pilot study was applied consists of (6) players. Whereas, the researchers collected a sample of the injured athletes who attend the New Baghdad Specialized Center for Physiotherapy and Medical Rehabilitation from 2/1/2022 to 27/1/2022. The number of athletes with gluteal muscle ruptures during those period amounted to (32) injured athletes, as the researchers excluded a number of the research sample, who were tested by (50%) of the total of injured athletes in the time period of their collection and those who have been confirmed to the Specialized Center for Medical Rehabilitation and Physiotherapy, the sample was chosen in light of the diagnosis of the type of injury that was determined by the specialized doctor, and then the research sample was subjected to the rehabilitation approach proposed by the researchers. One of the most important results reached by the researcher is that: The proposed qualifying curriculum has a positive and significant effect on research variables among players with pelvic joint injuries, the results of the research variables showed the progress of the post-tests over the pre-tests, and the qualification of strength was better and faster than flexibility. One of the most important recommendations recommended by the researchers is that: Need to adopt the proposed rehabilitative approach to treat an injury (pelvis) and to strengthen the muscles working on the affected joint, necessity of adopting the tests and measurements that were used in the research and adopting them in future studies to evaluate the health status of injured athletes, and conducting research and studies similar to injury, as well as working on conducting research on all injuries to the body, whether the injured individual is an athlete or a non-athlete.

**Keywords:** Sport Psychology, Exercise, Football players

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### Introduction

The game of football is one of the most famous sports activities and the greatest and most beloved to the hearts of millions of children and youth of the world, who practice it in practice, and tens of millions who watch it in stadiums through television programmers, and that the simplicity of this game and the ease of its performance among young and old, is one of the most important reasons for what it has reached Fame and prestige, and perhaps the development of this game and the great height of the training load, as well as the movements performed by players such as: jumping, running, deceleration movements, and acceleration in starting, are among the most important reasons that led to the emergence of many sports injuries (Al-Waqqad. 2017, 9). Injuries occur in Sports in the muscles, ligaments, tendons, bones and articular surfaces, but the most area in which injuries occur are the muscles, as they constitute 35% of the total injuries in football, and the risk of muscle injuries increases (6) times higher during matches, and that 55% of these injuries affect the thigh: ( 17% affect the quadriceps femoris muscle, 30% affect the hip and inguinal region, 13% affect the hind leg muscle, and 37% involve the posterior thigh muscles, which consist of three muscles, and most muscle injuries occur The posterior femoral muscle is affected in the biceps femoris muscle, which constitutes 86% of the total injuries of the posterior thigh muscles (Al-Sulaiman. 2016, 25).

The requirements of the game necessitated that football players should have special specifications, as they are characterized by high speed to follow the fall of the ball with the speed of the great kinetic response to the time and place of the irregular ball fall, and its continuous follow-up throughout the playing time, as well as the types of muscular strength used from explosive force to hit the ball with maximum The strength and the least time and the strength characterized by the speed and the transitional speed of the two legs during the player's move to follow the fall of the ball, and their physical preparation should be commensurate with the specifics of the game for fear of injuries, as the players are not physically prepared, their muscles are not ready to face those burdens and gossip on the nervous systems muscles, and internal organs, especially the muscles of the legs, in which fatigue, muscle tension or even muscle tear occurs, muscle preparation has become very necessary to reduce the incidence of injuries to players. The importance of the research lies in rehabilitating the muscle tear injury to the gluteal muscles and working to develop and improve the characteristics of the muscular strength of the legs

and muscle flexibility of football players by using exercises within a proposed curriculum.

### Research Problem

The problem of research Injuries are one of the main problems facing the individual and have become one of the goals of medical science because of their important effects and the dimensions are negative on the individual. Many specialists and researchers in the field of physical therapy and injuries refer to the continuous increase in the individual's exposure to injuries due to kinetic errors, movement, muscle, and movement errors. Which occurs during the performance of his tasks or work requirements, as well as treatment and rehabilitation based on non-scientific grounds, which is one of the reasons for the early return of the infection or its expansion and recurrence. Although there are many scientific studies on the subject of injuries and ways to prevent them, However, in this self-injury and ways to prevent it is one of the basic problems in life, and that there is an important role for the different environments in the quality of injury where the injuries are which makes the rate of injury almost the most compared with other injuries. The occurrence of any muscle injury, the player loses the muscular strength of the legs and muscle flexibility.

By observing the nature of treatment for such injuries, the researchers found that there are no sports treatment methods that contribute to the treatment and rehabilitation of these injuries. Those injured in a way that ensures that they return to their sports activity within an appropriate period of time and that guarantees them a full recovery and that the injury does not recur or recur, therefore, the researchers decided to address this problem and prepare a proposed rehabilitative curriculum to speed up access to the degree of complete recovery of the gluteal muscles, as well as the stiffness and stiffness just as the individual athlete was before the injury occurred in order to reach the largest percentage of success in treating this injury.

**Research objective:** Preparing a proposed rehabilitation curriculum and recognizing its effect on the treatment of partial rupture of the gluteal muscles and the strengthening of the muscles working in the pelvic joint in soccer players - knowing the effect of the curriculum in soccer rehabilitation partial rupture of the gluteal muscles.

**Research hypotheses:** The proposed rehabilitation curriculum has a positive

effect in the treatment of partial ruptures of the gluteal muscles and the strengthening of the muscles working in the pelvic joint among football players.

Research fields:

- Human field: Those with partial rupture of the gluteal muscles and strengthening the muscles working in the pelvic joint in football players
- Time field: (2/1/2022) to (1/5/2022)
- Spatial field: New Baghdad Center for Medical Rehabilitation and Physiotherapy.

### Research Methodology and Field Procedures

#### Research Methodology

Since the nature of the problem determines the method used in the research, so the research problem imposed the adoption of the experimental method as the most appropriate method used for the research. "Deliberate or controlled change of the specific conditions of an incident, noting and interpreting the changes resulting from the same incident" (Mahjoub. 1993,237). Therefore, the one-group method with two pre and post-tests was used to suit the nature of the problem

#### Community and Sample Research

The research community consists of (12) players, the research sample was chosen intentionally, as it included (10) athletes with gluteal muscle ruptures distributed as follows: An exploratory sample consisted of (4) players who were excluded from the study, and the sample to which the pilot study was applied consists of (6) players. Whereas, the researchers collected a sample of the injured athletes who attend the New Baghdad Specialized Center for Physiotherapy and Medical Rehabilitation form 2/1/2022 to 27/1/2022. The number of athletes with gluteal muscle ruptures during those period amounted to (32) injured athletes, as the researchers excluded a number of the research sample, who were tested by (50%) of the total of injured athletes in the time period of their collection and those who have been confirmed to the Specialized Center for Medical Rehabilitation and Physiotherapy, the sample was chosen in light of the diagnosis of the type of injury that was determined by the specialized doctor, and then the research sample was subjected to the rehabilitation approach proposed by the researchers.

Means of collecting information, devices and tools used in research (Arabic and foreign sources - tests and measurements - examination bed - physiotherapy devices (Short rays, ultrasound, infrared) - Goniometry device for measuring the range of kinetic of the joint - Medical scale for weighing - Ruler for measuring length - Clock and time-clocks - Altimeters - Altimeters For the purpose of testing - the auxiliary staff - the measurements and tests used in the research.

Specifications of the tests: The performance of all the tests used in the research by the laboratory will be within the player's ability, so the researchers will take into account when performing each of the tests the individual differences among the members of the research sample.

#### Strength tests: Leg muscle strength test

- Test name: Leg muscle strength test (Hassanein. 1995, 6).
- The objective of the test: To measure the strength of the muscles of the legs.
- Tools used: A dynamometer to measure the strength of the muscles of the legs.
- Test procedures: Before the performance, the researcher explains the method of correct performance in front of the players, giving a correct model in front the players
- The player stands on the device and puts his feet in the place designated for that, as he bends the knees, the back is erect and the player looks forward in the horizontal direction - The player performs By holding the handle assigned to his hands by grasping it from the front with both hands - and when the player is ready, he begins to draw using his maximum strength, and then the arbitrator reads the pointer and records the number obtained by the player.
- Recording method: The player is given three attempts, between them a sufficient rest period, and the highest attempts depend on him.
- Flexibility test: the test of bending the trunk forward and down from standing on the box.
- The name of the test: Bend the trunk forward and down from standing on the box (Hassanin, 9, 1995).

- The objective of the test: To measure muscle flexibility.
- Tools used: a graduated ruler, a box installed on the ground.
- Test procedures: The tester stands on the box high with the feet joined and the knees extended fully and the torso is bent forward and down trying to pass the tips of the fingers of the hands at a level lower than the surface of the box and remain in this position to calculate the reading in centimeters, negative or positive, from the level of the surface of the box.
- Recording method: If the fingertips do not reach the level of the surface of the box, then the reading is in the negative and in centimeters - if it goes beyond the surface level to the bottom, the reading is in the positive and in centimeters.
- Directions: The knees should not be bent.

The researchers conducted an exploratory experiment in order to identify the obstacles and difficulties that may accompany conducting the tests to avoid them. In order to ensure obtaining objective results, as well as to establish the measurements and to know the timing of the application of the proposed rehabilitation curriculum exercises to injured athletes. The exploratory experiment was conducted on Thursday, 4/2/2022, on a sample that was removed from the study. The number of them was (4) athletes with partial ruptures of the gluteal muscles. On Sunday, 7/2/ 2022, the researchers conducted a second exploratory experiment in the place of conducting the research, for the purpose of knowing the following: - Addressing errors that may appear during the main experiment - Determining the time required for training and training, as well as training the extent of the consistency of the tests with the level and capabilities of the testers (athletic sufferers) - Training the working staff to help carry out the tests and record data

#### Pre- tests

After the individuals of the research sample were identified, the researchers conducted pre- tests on Thursday, 10/2/2022.

#### Qualifying Curriculum (Main Experiment)

The researchers conducted the main Trial on Saturday 12/2/2022. For a period of (6) weeks, comprising (24) rehabilitation units, which amounted to (4) rehabilitation units per week, and the time of one rehabilitation unit was between (40-50) minutes. The modified rehabilitation curriculum includes a gradient in the intensity of the physical load and the gradation in the difficulty of performing exercises for the affected joint, as the purpose of these exercises is to strengthen the muscles working on the pelvic joint, as well as to increase the range of kinetic and try to return its range of kinetic to its maximal speed range.

#### Post-Tests

The post-tests of the research sample were conducted at ten o'clock in the morning on Friday 1/4/2022, After completing the main six-week trial, the researchers were committed as much as possible to create the conditions in which the pre- tests were conducted in terms of time, place, tools and devices used and with the help of the same auxiliary staff.

**Statistical methods:** The search data was processed through the Statistical Package for the Social Sciences (SPSS).

### Results and Discussion

The researchers conducted tests for the research variables to rehabilitate the gluteal muscles affected by partial rupture in a sample of individuals, and the data was processed statistically to reach the objectives and hypotheses of the research (Tables 1 and 2).

#### Discussing the results of the tests for the members of the research sample

It is clear from tables (1) and (2) that there are significant statistically significant differences between the tribal and remote tests in the variable of muscular flexibility and muscular strength of the two men in favor of the post-test, and the reason for this is due to the effectiveness of the proposed qualification curriculum, the most important thing that researchers aim for is to rehabilitate the partial rupture of the gluteal muscles, using rehabilitation exercises to strengthen the working muscles in the pelvis, and thus obtain the flexibility of the joint and the hip joint. For this joint, as well as the correct selection of these exercises, determining the proportions and repetitions, and giving the appropriate rest between the exercises. This was confirmed by (Abdullah, 173, 2001) that "the treatment approach has an effective effect in restoring the affected part to work normally after selecting the exercises effectively and the effects on the effects of the antagonists." This has also confirmed (Mervat, 1998, 164) that "range kinetic exercises are standard exercises for the process

**Table 1:** shows the results of the arithmetic means, standard deviations, and the arithmetic mean difference (T) in the (muscle strength and flexibility) tests.

Tests	Measuring unit	Pre-test		Post-test	
		Arithmetic mean	Standard deviation	Arithmetic mean	Standard deviation
Leg muscle strength test	Kg	6.71	3.05	38.91	6.53
range of kinetic test	Degree	135.00	14.17	80.00	8.51

Indication level 0.05 at degree of freedom 6-1 = 5

**Table 2:** Shows the difference of the arithmetic mean, the standard deviation, the significance of the differences in the tests of (muscular strength and flexibility).

Tests	Measuring unit	arithmetic mean of difference	standard deviation of differences	T value calculated	Level Sig	Type Sig
Leg muscle strength test	Kg	32.19	7.08	11.14	0.000	Sig
range of kinetic test	Degree	55.00	14.09	9.56	0.000	Sig

of repositioning the natural pelvis." In addition, that each exercise works on a special muscle or group of muscles, which helps to stabilize the pelvic joint and thus obtain a wide range of kinetic. The researchers followed the rule of gradualness in increasing the volume of exercises, which led to a state of adaptation to work in a gradual manner that ensures the proper course of the qualification process. According to graded stages from the simple to the complex, which in turn leads to the need to rehabilitate and return the injured to a pre-injury state as much as possible. This is what was indicated by (El-Desouky and Mahmoud. 1999 ,68) "the importance of taking into account the gradation in the exercises developed from easy to difficult, especially the exercises aimed at improving the kinetic kinematics range of the kinetic kinematics." In its normal position, it contains objectives, including increasing the activity of the blood circulation, increasing the effectiveness and strength of muscles, eliminating muscle spasms, and controlling muscle spasms.

The researchers also believe that the importance of the rehabilitative physical exercises used in a regular manner made the pelvic joint to regain its activity and thus re-perform the various movements in this joint activity by increasing the neuromuscular compatibility, the muscles, ligaments and joints of the body must obtain a good range of kinetic. Which increases the flexibility and activity of the body. In addition, the development and improvement in the range of kinetic of the muscles that surround the pelvic region, as well as the development achieved in the range of kinetic of the anterior calcaneal joint. This is complemented by what was indicated (farj. 1998, 89) that "the decrease in pain and its removal increased enthusiasm and a sense of confidence during the performance of the exercises in the curriculum, especially the confusion". The researchers attribute this development in the post-test to the use of the preparatory curriculum in its entirety and the regularity in its application, and permanent supervision by researchers had a significant impact on this development. As for the muscular strength variable, the researchers see the reason for the development of that in what the rehabilitation curriculum contains, including fixed and mobile exercises, which as the force increases with the use of physical exercises and decreases in the event that the affected part is not moved, and this is consistent with what Jeffrey confirmed As "Strength development takes place through the use of fixed (isometric) exercises and mobile (isotonic) exercises performed during the preparatory curriculum to reach better results for the development of strength characteristics (Jeffry. 1986,76).

In addition, that the researchers' use in his exercises of the principle of gradualness in the rehabilitative load had a clear effect in increasing the muscular strength working on the affected pelvic joint without the occurrence of any significant injuries, and this was confirmed by (Al-Mandalawi and Al-Shati. 1987, 123). That "the rule of gradation is a protection against internal disorders in the joints and muscle tendons, that is, the exclusion of the state of muscle spasm" is consistent with what was mentioned (Wilke, D. 1998, 86). That "there is a need to increase the tension and the amount of work performed to develop the force while emphasizing the importance of the size of the resistance used and paying attention to its amount." The point of its impact and success and the amount of longitudinal tension of the muscle, as well as the point of contact with the muscle tendon and its relationship to the joint.

## Conclusions and Recommendations

### Conclusions

- The proposed qualifying curriculum has a positive and significant effect on research variables among players with pelvic joint injuries.
- The results of the research variables showed the progress of the post-tests over the pre-tests.
- The qualification of strength was better and faster than flexibility.
- Recommendations:
- The most important recommendations reached by the researchers:
- Need to adopt the proposed rehabilitative approach to treat an injury (pelvis) and to strengthen the muscles working on the affected joint.
- Necessity of adopting the tests and measurements that were used in the research and adopting them in future studies to evaluate the health status of injured athletes.
- Conducting research and studies similar to injury, as well as working on conducting research on all injuries to the body, whether the injured individual is an athlete or a non-athlete.

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