Proximus Journal of Sports Science and Physical Education
Volume 3, Issue 05, May 2026
https://proximusjournal.com/index.php/PJSSPE
ISSN (E): 2942-9943

THE EFFECT OF SPECIAL EXERCISES ON THE REHABILITATION OF QUADRICEPS (ANTERIOR) HIP TEAR INJURY IN PLAYERS OF MISAN GOVERNORATE FOOTBALL CLUBS

Mokhles Makki Ati
College of Physical Education and Sport Sciences – Msian University
mukhalas@uomisan.edu.iq
Ahmed Mahdi Shalash
College of Physical Education and Sport Sciences – Msian University
ahmed.m.sh@uomisan.edu.iq

Abstract
The research encapsulates the exploration of sports activities that engender enjoyment and exhilaration, highlighting the significant advancement of sports within Misan clubs. Notably, football occupies a prominent position due to its widespread popularity and the individual and collective skills it embodies, alongside the display of talent, creativity, and suspense it fosters. This prominence is further underscored by the local and international significance of these activities, as well as the intense competition and direct engagement among players. This research aimed to develop specialised exercises for the rehabilitation of athletes with quadriceps muscle tears from Misan football clubs. The significance of the study lies in assessing the efficacy of these targeted exercises on the injury, while also offering valuable insights to professionals in Misan clubs and rehabilitation centers. The researchers sought to address this issue and derive meaningful conclusions. Positive research may aid in identifying the optimal rehabilitation strategy for quadriceps injuries, thereby facilitating further investigations into other prevalent injuries among football players. This study employs an experimental method with pre- and post-measurements conducted on a sample of clubs in Misan governorate, comprising twelve (12) injured players, of whom six (6) constitute the experimental group, while the remaining six (6) serve as the control group. The researchers demonstrated statistically significant differences between the pre-measurements and post-measurements of the experimental group for the restoration of quadriceps muscle efficiency, favouring telemetry. The findings indicated no statistically significant differences between the pre-measurement and post-measurement of the control group receiving standard treatment.

Keywords: Special exercises, Injury rehabilitation, Muscle tear, Thigh, Quad (anterior).

Introduction

Upon examining the sports activities that provide enjoyment and excitement, it is apparent that there has been significant advancement in the various sports pursued by Misan clubs, particularly in football. This sport holds a prominent position due to its widespread popularity and the individual and collective competencies it showcases, as well as the skills, creativity, and suspense it engenders. Additionally, its relevance in both local and international contexts, coupled with the intense com In leagues and competitions, numerous sorts of injuries manifest during games, particularly in football, influenced by multiple aspects, including psychological and social elements, which frequently exacerbate injury incidence (Ammar, 1989). for injuries owing to its beneficial effects on recovery and restoration to pre-injury status, as sports injuries pose a significant risk to athletes in elite teams (Watins, 1996). Consequently, the athlete must ascertain the characteristics of performance and the strain on the thigh muscles to execute the movements (Ibrahim, 1984). Therefore, the injured individual must promptly rehabilitate functional capacity with suitable physical therapy interventions for the injury. (Mervat, 1998).

Proximus Journal of Sports Science and Physical Education
Volume 3, Issue 05, May 2026
https://proximusjournal.com/index.php/PJSSPE
ISSN (E): 2942-9943

Research Problem :

The incidence of muscle injuries attained a notable percentage during the examination of several football clubs in Misan Governorate. Continuous monitoring revealed that one of the challenges confronting players post-injury was their prolonged cessation from play, leading to the team's loss of integral components during competitions. Additionally, the prevalence of injuries among football players manifested significantly, resulting in functional alterations at the injury site, including physiological and anatomical changes that restrict muscular movement. Osama (2002), protracted recovery and prevalence of knee joint and thigh muscle injuries among players in football stadiums and clubs in Misan Governorate prompted researchers to undertake this study. This research is grounded in scientific principles and aims to develop a rehabilitation program for quadriceps muscle injuries, as well as to examine the program's efficacy in the rehabilitation of such injuries.

The importance of the research:

The lack of study on the specialist exercises suggested by researchers for quadriceps rehabilitation is significant. Exercises are an essential element of physical therapy (Mukhtar Salem, 1978) and markedly improve the effectiveness of injury treatment and rehabilitation when integrated with other therapeutic methods. When different muscle tissues experience internal and external factors that cause temporary or permanent functional and anatomical abnormalities, depending on the injury's severity, specialised athletic movements are utilised for various pathological disorders. These movements fulfil both preventive and therapeutic functions, with the objective of restoring the body to a normal or rehabilitative condition. This entails the implementation of essential concepts of sensory and motor function, which augment the capabilities of muscles and nerves by selecting suitable actions and positions customised for the body (Samia Khalil, 2004). The initiative aims to concentrate on the clubs of Misan Governorate and provide their staff with research, thereby assisting in the resolution of specific difficulties pertaining to physical therapy and sports rehabilitation. Consequently, the researchers decided to examine this issue and produce beneficial results that could enhance the rehabilitation of quadriceps injuries, thereby enabling additional investigation into other common ailments among football players.

Research Objectives :

1. Preparing and designing a rehabilitation program with special exercises for the rehabilitation of quadriceps (anterior) quadriceps.
2. Knowing the effect of special exercises in the rehabilitation program on players with quadriceps (anterior) quadriceps.

Research Hypotheses

1. There are statistically significant differences between the pre- and post-measurements in favor of the first group that uses the proposed rehabilitation program with its own exercises to restore the efficiency of the injured quadriceps (anterior) muscle .
2. There are significant differences between the pre- and post-measurements of the second research group that uses conventional treatment to restore the efficiency of the injured anterior quadriceps muscle and in favor of the post-measurements .

Research Areas

Human Area: (12) Twelve players with quadriceps in front who are referred to Misan Teaching Hospital and Al-Hakim Hospital.

Time Area : - From 27/10/2022 to 21/1/2023

Spatial Area: - Misan Teaching Hospital - Al-Hakim Hospital - Physiotherapy Unit - Sports Hall of the Faculty of Physical Education and Sport Sciences at Misan University.

Methodology

Proximus Journal of Sports Science and Physical Education
Volume 3, Issue 05, May 2026
https://proximusjournal.com/index.php/PJSSPE
ISSN (E): 2942-9943

Research Methodology

To suit the nature of the research problem , the researchers used the experimental method in its research procedures.

Research Sample

The research sample consisted of twelve (12) players with quadriceps (anterior) muscle tear injury, six (6) players, of whom represent the first group (experimental) and the other six (6) players represent the other group (control).

Devices and tools used:

1. Computer (HP).
2. Electronic stopwatch .
3. Digit type camera number /1.
4. Medical ball, 5 kg / 2 pcs.
5. Different range of weights, (sandbags, starting from 1 kg – 2 kg).
6. Measuring Ruler.
7. Weighing scale .

Homogeneity of the research sample

Table 1: Showing the homogeneity of the research sample

Age		Length		Weight	
M	SD	M	SD	M	SD
24.39	3.76	176.9	9.81	69.3	7.2

Table (1) shows the standard deviation is less than the arithmetic mean in the variables of age, height and weight in the homogeneity of the research sample.

Search Procedures

Exploratory Experiment

This is a preliminary experimental study conducted by the researcher on a small sample to select appropriate research methodologies and tools prior to the main investigation. From Saturday, May 11, 2022, to November 11, 2022, the researchers conducted an exploratory experiment on two injured athletes at Misan Teaching Hospital, aimed at identifying the challenges associated with tests, measurements, the functionality of devices and tools, their validity, and a comprehensive understanding of the intricacies of exercise performance.Qualifying employed in research.

Qualifying Program :

On Monday, November 14, 2022, the researcher commenced the primary experiment and implemented the vocabulary of the proposed program over an eight-week period, following consultations with experts in injury rehabilitation and sports training. This involved a comprehensive review of previous studies, precise identification of research variables, selection of appropriate tests aligned with the study's nature, and establishment of parameters, including the duration in weeks and weekly training units, to prepare the research sample for the exercise phase aimed at injury rehabilitation and program objectives through the determination of suitable exercise methods and the appropriateness of the regimen. Each stage possesses scores reflecting the performance level of the sample, the overall duration of the program's workouts, and the designated time allocated for each stage.

Tests used in the research :

First: Trunk flexion test.

Purpose of the test : It is to measure flexibility.

Tools : Ruler and bench.

Proximus Journal of Sports Science and Physical Education
Volume 3, Issue 05, May 2026
https://proximusjournal.com/index.php/PJSSPE
ISSN (E): 2942-9943

Performance: The ruler is fixed perpendicular to the bench and is listed from zero to one percent, so that the number (50) is parallel to the surface of the ruler and the number (100) is for the lower edge of the chair, the indicator moves on the ruler, from the long sitting position, the tester performs with the feet folded by bending his torso forward and down, and the pointer moves with his fingers to the maximum distance and stabilizes at the last two seconds, and the torso is bent slowly and the knees are extended when performing.
Calculating grades: From the two attempts, the largest distance is recorded measured in centimeters.
Second: Test Name: - Running from the Moving Beginning (30 meters).
Objective: To measure the transition velocity.
Tools used : A whistle and a stopwatch, and three parallel lines determine the distance between the first and second lines (10 meters) and between the second and third lines (30 meters), the first line is the place of starting from standing, the second is the place where the stopwatch is operated, and the line for the third is the end .
Performance: At the whistle, the tester starts from the first line by continuous acceleration to reach the highest possible speed of the second line and maintain this speed to pass the third line.
Recording: Recording the best time for a single attempt that the tester takes from the moment he passes over the second line to the end of the third line.
Third: The name of the test (jumping from steadfastness):
Purpose: Measuring the muscular capacity of the legs.
Used tools: Yard.
Performance: The tester stands behind the starting line with our feet slightly apart and the metatarsal in touch with the starting line.The arms are swinged with the knees bent halfway, the torso leaning forward in a position similar to the start of swimming, and the arms are swinging forward with the legs extended to push the ground with the feet and jump forward as hard as possible.
Registration: The distance to the jump is measured from the starting point to the last impact at the farthest distance.
Calculating grades : - From the two attempts, you score the best one.
Fourth: The name of the test is to sit from reclining:
Purpose : Measuring muscular endurance.
Used Tools : Mattresses
Performance: Lying on the back with the arms crossed on the chest with the knees bent at an angle of 90 degrees. Attempts are performed in 60 seconds so that you touch the elbows and touch the mattress with the shoulders each time.
Calculating grades: From the three attempts, the best ones were calculated.
After the test used in the research, the researchers reached the preparation of their proposed program after the investigation, survey, and the results of the opinions of the two experts, scientific references, and studies in the rehabilitation, which is as follows:
Preparation and design of the program :-
The researchers based their rehabilitation program, which included specific exercises, on the scientific principles necessary for restoring the strength of the injured muscle over a duration of eight weeks, with three sessions per week, to assess its effects on the sample participants (Tariq, 1994). The appropriateness of the frequency of weekly practice sessions and the duration of each training unit for the selected sample members, who participated in the program at 10:30 AM on Tuesday, November 15, 2022, until January 22, 2023, across its three phases. The initial phase involved pain management for two weeks following the injury, commencing with cooling and stabilisation of the ligaments. Subsequently, employ cognitive activities for the

Proximus Journal of Sports Science and Physical Education
Volume 3, Issue 05, May 2026
https://proximusjournal.com/index.php/PJSSPE
ISSN (E): 2942-9943

afflicted area and both static and dynamic exercises for the unaffected region. Additional static exercises for the damaged area and the adjacent joint, along with workouts aimed at enhancing metabolic efficiency, respiration, and blood circulation for the remainder of the body .

The second step, aimed at enhancing flexibility, follows the first stage and lasts for two weeks. It involves performing exercises for respiration, blood circulation, and metabolism for the injured individual, beginning with non-resistance exercises, progressing to gradual resistance, followed by mobile exercises with significant resistance for the healthy limb, as well as static and therapeutic exercises in a water medium, and various vigorous static and dynamic exercises for both the healthy and injured areas. The final phase involves rehabilitation and strength enhancement over four weeks, with three sessions per week. Following recovery and the alleviation of pain, both static and dynamic exercises are administered to the affected and unaffected areas with maximal intensity. This includes walking exercises, jumping activities for both lower and upper limbs utilising weights and medicine balls, diverse exercises aimed at enhancing physical fitness components such as strength, speed, and flexibility, as well as therapeutic exercises conducted in an aquatic environment for both healthy and injured limbs.

Results

Viewing, analyzing and discussing the results

Table 2: The arithmetic mean, standard deviation, and value (v) of the pre- and post-measurements of the experimental group

Variables	Pre test		Post test		T	Sig
Strength	1.78	0.22	6.15	0.97	2.36	0.000
Speed	4.63	0.64	4.32	0.43	1.97	0.000
Endurance	24.62	3.76	30.74	3.60	2.80	0.000
Flexibility	54.14	2.11	41.46	0.47	3.47	0.000

Significance Level (5 0.0)

Presentation and discussion of the results of the first study impose, which states : There are statistically significant differences between the pre- and post-measurements in favor of the first group that uses the proposed rehabilitation program to restore the efficiency of the injured quadriceps (anterior) muscle .

In computing the arithmetic mean and standard deviation of the pre-measurement and dimensional measurement of the experimental group in the research tests, the program successfully rehabilitated the connective thigh muscles and determined the score value (T). Table (2) presents the arithmetic mean and standard deviation of the pre- and post-measurements for the experimental group, with the estimated score value (T) ranging from 1.97 to 3.47. The value exceeds the tabular (T) of (1.94) at the significance level of (0.05), indicating statistically significant differences between the pre- and post-measurements of the research tests, favouring the dimensional measurement. The response to the initial hypothesis is as follows: "Statistically significant differences exist between the pre- and post-measurements, favouring the first group that employs the recommended rehabilitation program to enhance the effectiveness of the quadriceps (damaged anterior). This suggests that the formulation of the proposed rehabilitation program for anterior quadriceps muscle injuries among players of first division football clubs in Misan Governorate is significantly impactful, and the selected organised exercises have yielded results in achieving the rehabilitation goals for various bodily systems, including muscles and joints (Kawthar, 1993). The researchers assert that the rehabilitation program's efficacy, along with its diverse exercises, including resistance training, was adequate for enhancing health and physical fitness. Attention to these aspects is growing progressively, aligning with the stipulations of Bahaa Salameh (Bahaa, 2002).

Presentation and discussion of the results of the second study imposing

Proximus Journal of Sports Science and Physical Education
Volume 3, Issue 05, May 2026
https://proximusjournal.com/index.php/PJSSPE
ISSN (E): 2942-9943

Table 3: The arithmetic mean and standard deviation of the pre- and post-measurement of the control group

Variables	Pre test		Post test		T	Sig
Strength	1.71	0.26	1.85	0.25	0.85	0.000
Speed	5.06	0.56	4.83	0.30	0,82	0.000
Endurance	22.70	1.87	27.88	7.85	1,60	0.000
Flexibility	53.00	5.21	46.58	10.91	1.67	0.000

Significance Level (5 0.0)

To answer the hypothesis of the second study, it reads (There are significant differences with statistical significance between the pre- and post-measurements of the second research group that uses conventional treatment to restore the efficiency of the injured anterior quadriceps muscle and in favor of the post-measurements).

Table (3) presents the arithmetic means and standard deviations of the pre-measurements and dimensional measurements for the control group. The calculated values of (t) for the variables of the proposed program ranged from (0.82 to 1.67), which is less than the tabulated (t) value of (2.09) at the significance level of (0.05). There is evidence indicating that no statistically significant changes exist between the pre- and post-measurements of the research tests for the second experimental group that utilised traditional muscle therapy in rehabilitating the injured anterior quadriceps. This affirms that the conventional rehabilitation program for anterior quadriceps muscle injuries among players in first division football clubs in Misan governorate is ineffective. It elucidates the rationale for the subsequent study, indicating that there are statistically significant differences between the pre-measurements and post-measurements of the second research group utilising traditional treatment to restore the functionality of the injured anterior quadriceps muscle, favouring the post-measurements. The enhancement of moral strength was achieved through the selection of both fixed and mobile exercises incorporated into the rehabilitation program to attain superior outcomes in strength development (Lkel, 1986). The researchers attribute this outcome to the conventional treatment administered in healthcare facilities for minor pain, which alleviates just inflammation and fails to completely resolve the injury. The disparities between the two groups utilising the proposed program were evident, attributed to the implementation of training and rehabilitation activities grounded in specialised physical and rehabilitation exercise programs based on scientific principles, which positively influence the body, thereby affecting the muscles, joints, and ligaments (Abul Ela Ahmed, 2000).

Conclusions :

The researchers reached the conclusions after processing their data and extracting their results, analyzing and interpreting them, which are as follows :

1. There are significant differences with statistical significance between the pre- and post-measurements in favor of the first group that used the proposed rehabilitation program to restore the efficiency of the injured quadriceps (anterior) muscle .
2. There are no significant differences in statistical significance between the pre- and post-measurements of the second research group that uses conventional treatment to restore the efficiency of the injured anterior quadriceps muscle.

Recommendations:

After the researchers have drawn the results of their field of research, they recommend the following:

1. Emphasizing the benefit of the research results by applying the proposed program in the rehabilitation of the anterior quadriceps muscle injury for football players .
2. In sports rehabilitation programs, studies and research on players and specialists in activities in general and football in particular should be intensified .

Proximus Journal of Sports Science and Physical Education
Volume 3, Issue 05, May 2026
https://proximusjournal.com/index.php/PJSSPE
ISSN (E): 2942-9943

3. Developing specialized centers for physical therapy and sports rehabilitation and paying attention to rehabilitation and training programs in the faculties of physical education and sports sciences as well as sports clubs .
4. Research scientific research problems similar to other similar and non-similar injuries .

References

1. Abou Ela Ahmed Abdel Fattah: Sport Biology and Athlete Health, Egypt, 2000.
2. Ammar Abd al-Rahman Q. Baa: Sports Medicine, Dar Al-Kutub for Printing and Publishing at the University of Mosul, 1989**.**
3. Bahaa El-Din Salameh: Biochemical and Physiological Properties of Sport, Cairo, Dar Al-Fikr Al-Arabi, 2008.
4. Ibrahim Al-Basri, : Sports Medicine, Football Injuries, 3rd Edition, 2nd Edition, Dar Al-Nidal for Printing, Publishing and Distribution, Beirut, 1984.
5. Internet: Physical Education and Sport Sciences Library, Misan University.
6. Kawthar Abdel Aziz Matar, "Battery of Skill Performance Tests for the Selection of Junior Folk Arts Team", Conference Research: A Future Vision for Physical Education in the Arab World, Helwan University, Faculty of Physical Education. Vol. 1, 1993.
7. Keffry . Lkel methods of traning in sport physicai : Bernhard T.editor in pubishing Churchill living stone .us . new york ,1986 .
8. Mervat El-Sayed Youssef: Studies on the Problems of Sports Medicine, Radiation Library, Cairo, Printing and Publishing, 1998.
9. Mukhtar Salem: Stadium Injuries, 1st Edition, Al-Marrekh Publishing House, Riyadh, 1978.
10. Osama Riyad : Sports Medicine and Stadium Injuries, General Secretariat of Sports Medicine, Riyadh, 2002.
11. Samia Khalil: Sports injuries. University of Baghdad, College of Physical Education for Girls, 2004.
12. Watins and Peabody(1996),sport tninires in children and adoles cents treateb at sport injury clinic, sport meatphys fitness.