

The Effect of Physical and Therapeutic Exercises on Functional Rehabilitation in Shoulder Joint Injury for Basketball Players

¹Assist. Prof. Dr. Sameerah, ²Assist. Prof. Dr. Sahar Mohammed Salman
Received: 20- February -2023
Revised: 18- March -2023

¹Abdulrassol kadum alattabi University of Baghdad / College of Science
sameerah@sc.uobagdad.edu.iq Accepted:15-April-2023

²Saharmmm433@gmail.com

Objective: The study aimed to identify the effect of physical and therapeutic exercises on functional rehabilitation in the injury of the shoulder joint for basketball players

Research hypotheses: There are statistically significant differences between the results of the pre and post-tests for the research variables and in favor of the post-tests.

The experimental method was used for its relevance to the nature of the research, and the two researchers conducted their research on players with shoulder joint injuries, who numbered (8) players from basketball clubs, the category of applicants in the province of Baghdad. Weeks of (18) rehabilitation units and applied in (3) units per week (Saturday - Monday - Wednesday), and it was concluded that the rehabilitation curriculum led to an improvement in the results of the dimensional variables, which represent the range of motion of the shoulder joint, and it was concluded that the rehabilitation curriculum has a positive effect. In restoring the range of motion of the affected joint and improving the performance of the players.

Keywords: Physical exercises, therapeutic, functional rehabilitation, shoulder joint, basketball.

Introduction:

The development and continuous scientific advancement have had a clear and significant impact on the development of all fields, including the sports field, where this field has taken a wide space in the lives of people in all their interests, which required attention to the therapeutic sports movement to achieve the highest levels of sports achievement, whether using theoretical and applied sports sciences or Modern scientific and technical means, Rehabilitation and therapeutic exercises are among the sciences that fall under the umbrella of sports medicine, in which man has become interested in research in many of its branches and departments to find the best and harness it in the service of mankind. During the motor activity, in addition to the methods of training, prevention, and treatment of injuries, nutrition ... and all the variables that occur inside the body during physical activity (Adel Ali Hussein, 1995) (1), Rehabilitation, according to the World Health Organization (WHO), is defined as making use of a set of organized services in the medical, social, educational and professional fields in order to train or retrain the individual and bring him to the maximum level of functional ability (Majid Saeed Obaid, 2000) one of the synovial joints that has a wide range of motion in various directions, and this movement is closely related to the integrity of the ligaments, muscles, and wallet in the shoulder joint. To develop muscle strength, joint flexibility, and the degree of neurological compatibility to restore a normal state. The methods of treatment (rehabilitation) have different means and methods, including the therapeutic exercises developed by specialists and researchers, which also differed in terms of time, intensity, frequency, and quality of tests that measure the extent of the development of injury recovery and according to the type of injuries that occurred and the general health status of the injured individual in terms of pain relief, activity and delay Appearance of fatigue and range of motion, The importance of research in the use of physical and therapeutic exercises for some shoulder joint injuries for basketball players, because this joint is of importance in helping individuals perform their skill and physical duties since the movement of the upper limb depends mainly on the safety and effectiveness of this joint.

Research problem:

The researchers, who are specialists in the sports field, confirm that the number of injuries is increasing day by day among athletes, up to our time, as a result of the high and continuous effort exerted on the organs and members of the athlete's body and as a result of the repetition of certain movements in many sports activities and events that require the performance of movements of medium or high intensity. With high frequency and repetition during training, in addition to the poor planning of training programs or training units in terms of increasing the number of units and disproportionate components of the training load in proportion to the player's ability to achieve, in addition to the lack of validity of the stadiums and tools used during training and competitions and the performance of exaggerated movements such as Repetition of movements in which the hand is above the level of the head that may lead to injuries, including injuries to the shoulder joint, as this joint is one of the most complex and most mobile joints and the most vulnerable to injury in athletes.

Research objective:

- The study aimed to identify the effect of physical and therapeutic exercises on functional rehabilitation of the shoulder joint injury of basketball players.

Research hypotheses:

There are statistically significant differences between the results of the pre and post-tests for the research variables and in favor of the post-tests. Research fields:

Human field: Players Men's basketball club players.

Time field: (24-25/9/2021) to (3-4/2/2022)

Spatial field: People's International Basketball Hall / Baghdad Governorate.

Research Methodology:

The researchers used the experimental method for its suitability to the nature of the research, and the researchers adopted an experimental design with a pre-test and a post-test for one group. The scores of the pre and post-measurements are compared to test the significance of the differences.

Community and sample research:

The research sample was tested deliberately from players with shoulder joint injuries, and their number is (8) club players, the advanced category, who represent (electricity, oil, and police) in the province of Baghdad, with an injury degree of the medium type. (*) Injuries were diagnosed by: Dr. Badran Abdul Razzaq Ali / Specialist Physician / Director of the Specialized Center for Sports Medicine.

Tests used:

Where several variables and tests with different axes were selected, including physical tests and measurements of range of motion, and after they were presented to a group of experts with experience and specialization, the tests that obtained an agreement percentage (75%) and above were selected, and these tests are:

(A) test to measure the range of motion (flexion-extension-dimensions) of the arm at the shoulder joint by reading the degrees installed on the goniometer.

(B)) test to muscle strength test for the muscle group working on the shoulder joint to record the number of kilograms recorded on the dynamometer.

Pre-tests: 24-25/9/2021.

1- Suggested qualification program:

After reviewing many studies, research, and references related to the topic of research and the means of physical therapy and rehabilitation used in the treatment centers, a rehabilitation curriculum was prepared, the aim of which is to strengthen the muscle group working on the shoulder joint, achieve a balance between them and lengthen the ligaments related to the joint, which leads to an increase in the range of motion, The curriculum consists of six weeks with (18) qualifying units and it is applied in (3) units per week, namely (Saturday -

Monday - Wednesday). The qualifying unit consists of several means and according to the order during the performance, which is:

1. Using some rehabilitation methods using physical equipment, as follows: A- Use the infrared (infrared) device for a period of (5-10) minutes.

B - Using the magnetic waves device (ultrasound) for a period of (5-10) minutes.

C - Use the vibrating massage device for a period of (5-10) minutes. 2. Therapeutic and physical exercises:

The curriculum included exercises to increase the range of the joint and resistance exercises with the presence of repetition and with different intensity and rest periods between exercises for each device. In the sixth week, the therapeutic exercises also included a set of exercises to strengthen the muscles of the shoulder joint, which included exercises for raising, lowering, and rotating the arm. These exercises are given after physical therapy devices (physical therapy).

Post-tests:

Post-tests 3-4/2/2022

Statistical methods: Statistical portfolio researcher (SPSS)

Presentation of the results and discussion of the variables under study

(Table1)

It shows the arithmetic means, standard deviations, and the calculated and tabulated (T) value of the pre and post-tests for the variables under study.

Discussing the results:

The researchers attribute the moral differences of the variables under study to the effectiveness of the legalized and varied rehabilitation program, which includes different rehabilitation methods and exercises given according to correct angles of movement, which led to an improvement in the range of motion of the shoulder joint and by increasing the flexibility of the muscles surrounding the joint, as the rehabilitation curriculum helps prevent weakness And muscle atrophy, and it develops muscle strength and increases the flexibility of joints and ligaments "and stimulates the muscles and increases their ability to contract, and it regulates blood circulation in the joints and tissues and what surrounds them, and through it increases the range of motion of the joints (Sumaya Khalil, 1990) as it is clear that this approach was appropriate For the physiological variables, enter the muscle through the shoulder joint range, which caused the emergence of the large extent of this joint in order to achieve good muscular torque for flexing the movement, The two researchers also indicate that the positive and effective results of the exercises applied by the sample members improved the muscular work of the main muscles working in the joints of the affected arm, represented by the movement of the shoulder girdle and elbow and then the arm as a whole, which increased the players' ability to sense movement and improve the angles of the participating body parts to serve The fluidity of the movement of the arm with a fast and elaborate motor performance, as well as the increase of coherence and motor coordination and its importance in transferring the amount of movement from the trunk to the arms through the shoulder joint, and this was confirmed by (Talha Hossam Al-Din, 1993) That the main goal in sports that contain the skill of throwing or pushing Or kicking is to achieve speed in the movement of the limb far from the body, and the mechanics of the movement of these parts must be taken into account when choosing exercises for this type of performance, This is what the two researchers sought to achieve through the rehabilitation approach, which worked to develop the angles and angular velocities of the affected part of the body in the research sample through various physical exercises, the most important of which are flexibility exercises. In the joint due to the changes taking place and the compliance of each of the muscle tendons, muscle fibers and connective tissues (Hazza bin Muhammad Al-Haza'a, 2009) The two researchers

also add that the inclusion of pregnancy in the rehabilitation program had a great impact in improving the range of motion, as the program was prepared according to the controls for muscle lengthening exercises, and then these regulated exercises led to an improvement in the range of motion, and there were no complications of

injury due to the appropriate vocabulary and type of exercises used for the capabilities of The physical injured, and stated (Qasim Al-Mandalawi, Mahmoud Al-Shati, 1987) ", The rule of gradualness is a protection against disorders involved in the joints and muscle tendons, in other words, removing the state of rupture and (7) ,muscle spasm." (Fouad Al-Samarrai and Hashem Ibrahim, 1988) confirmed that stretching exercises are more effective when performed slowly and with full range of motion. Because the strong and rapid tension in stretching exercises gives negative results and may lead to injuries, and the lack of neural adaptation in the sensory receptors. To prevent it from elongating, and the rapid tension may cause a force in the wrong place and the area of injury, which may increase its complications, The subacromial joint consists of the clavicle-acromial joint and the coracocamius arch from above, the two tubercles, and the head of the humerus from below, with the subacromial bursa, which serves as a socket for this joint. (Ciullo, J. V., 1996), and this joint has two layers of muscles, the outer layer consists of the deltoid muscle and the large rotator cuff, and the muscles of the inner layer consist of the muscles of the rotator sleeve, which are: the supraspinal muscle, the subspinal muscle, the small rotator muscle, and the subscapularis muscle. By the great tuberosity of the humerus and by the fusion of the rounded sleeve (1994 Marc G. Soble, Alan) The upper face of the subacromial joint consists of the arch, which consists of the clavicle from clavicle from the front and continues to the acromioclavicular joint, and from the back it consists of the acromioclavicular bone and the plateau, and the anterior facet consists of the acromioclavicular belt and from below the subacromial bursa and the deltoid, and the lower facet of the joint consists of the two tuberosities and part From the anatomical neck to the head of the humerus The subacromial and subdeltoid bursa does not have any contact with the acetabular cavity unless there is a complete rupture of the musculoskeletal (10) tendon (Last, s anatomy 1990) (Cofield:, 1985) as the tendons of the rotator cuff muscles are combined and have the same place of impaction, The functional structure of the shoulder joint allows a high and large level of movement that differs from the rest of the joints, this movement depends on the harmony and congruence of the head of the humerus with the acetabulum, as well as The mechanics of rotating quantum movement and the deltoid muscle (David W. Stoller, 1996)

Conclusions and Recommendations:

The rehabilitation approach led to an improvement in the results of the - dimensional variables, which represent the range of motion of the shoulder joint (flexion, extension, dimensions, muscle strength of the muscles working on the shoulder joint).

Recommendations:

Emphasis on the adoption of the rehabilitation approach because of its role in restoring the range of motion of the affected joint, as well as in

References:

- [1] Adel Ali Hussein; (1995) Sports and Health, 1st Edition, Alexandria, Dar Al Maaref for Publishing.
- [2] Majed Saeed Obaid; (2000) Introduction to Rehabilitation of the Handicapped, 1st Edition, Amman, Dar Safaa Publishing.
- [3] Somaya Khalil; (1990) Therapeutic sports: Baghdad, Dar Al-Hikma.
- [4] Talha Hossam El Din; (1993) Biomechanics and theoretical and applied foundations, 1st edition, Cairo, Dar al-Fikr al-Arabi.
- [5] Hazza bin Muhammad Al-Hazza; (2009) Physiology of physical effort Theoretical foundations and laboratory procedures for physiological measurements, Part 1, Kingdom of Saudi Arabia, King Saud University, Scientific Publishing, and Press.
- [6] Qasim Al-Mandalawi, Mahmoud Al-Shat(1987) Mathematical Training and Records, University of Mosul, Dar Al-Kutub for Printing and Publishing.
- [7] Fouad Al-Samarrai and Hashem Ibrahim (1988) Sports Injuries and - Physiotherapy, 2nd Edition, Jordan, Amman, Middle East Printing Company.
- [8] Ciullo, J. V.,(1996) Shoulder injuries in Sports: Evaluation, Treatment, - and Rehabilitation. Human Kinetics, U.S.A.
- [9] Marc G. Soble, Alan D. Kaye, and Robert C. Guy. (1994) Rotator cuff - tear: Clinical experience with Sonographic detection. Journal of musculoskeletal radiology.

- [10] Last, s anatomy (1990) (eighth edition). Chapter 2. Upper Limb. Cofield: (1985) Current Concept review - Rotator Cuff diseases of the - Shoulder. Journal of bone and joint Surgery.
- [11] David W. Stoller, and Eugene M, Wolf :(1996), Magnetic resonance, Shoulder in orthopedic and Sports medicine, (Second edition), Chapter 9, the Shoulder, Lippincott, Raven.