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The Effect Of Suggested Exercises Using Rubber Bands In The Rehabilitation Of Patients With Partial Rupture Of The Hamstring Muscle

[1]Asst. Prof. Emad Kadhom Ahmed

Abstract

The importance of the research came in the development of exercises to rehabilitate the rupture of the sympathetic muscle using rubber bands, which would rehabilitate the athlete from the injury that hinders him from performing his duties in his specialized sport because of these means of ease in performance and the desire that they do not lead to pain And to the dangers of use as a result of excessive use because they have light and controlled weights and in bright colors that motivate practice by the injured athlete, as well as they are new, modern tools that always arouse the desire of the injured athlete to use them, which makes him feel help to restore his position as soon as possible, and the study aimed to prepare suggested exercises using the tapes Rubber bands in rehabilitating people with partial rupture of the hamstring muscle, and identifying the effect of exercises suggested using rubber bands in rehabilitating those with partial rupture of the hamstring muscle. (100%) of the research community, a clinical diagnostic examination of the injury was carried out by a specialized doctor, and a radiological examination of the research sample was carried out under the supervision of a medical team specialized in the twin muscle from the specialized staff at Baquba Teaching Hospital after clarifying the idea of research and selecting the sample, and after: The presence of a partial rupture of one of the twin muscles was found to the members of the research sample, and field research procedures included conducting experiments and The tests, which included (pain degree, force sensor, kinetic range), the rehabilitation program, first unit, started on Thursday, 17/1/2019 at three in the afternoon, and the exercises ended on Tuesday, 26/2/2019, and the total of them was (18) units and time (35-40) minutes for each qualifying unit, and the researcher concluded The rehabilitative exercises using rubber bands have a positive effect in the rehabilitation of partial rupture of the hamstring muscle for athletes through the evolution of the research variables , and the researcher recommends adopting the method set in the rehabilitation of the hamstring muscle because of the results shown by the development of the research sample.

Keywords: elastics, partial rupture, gluteus maximus

[1] University of Diyala, Faculty of Physical Education and Sports Sciences.

Introduction

The athlete's return to playing after injury without undergoing rehabilitation is a big mistake. The return of the athlete and his continuation in his training or competitive curriculum will lead to a doubling of the injury and the athlete may not feel pain despite the injury taking a new structural form and this leads to a chronic state of recurring injury. Most of the players are exposed to various sports injuries, which stand in the way of developing their levels. Therefore, we find that these injuries are increasing with the increasing requirements for sports through increasing their own loads, which is expressed through the increase in repetitions with high stress due to poor planning of training programs and the inappropriateness of the components of the training load with The ability of the athlete, all of which are factors that cause sports injury and are called training errors, and moving from one surface to another in different heights and medical installation causes injury, as well as the invalidity of sports equipment and tools for training or roughness in play leads to injury. There are many methods that can be used in the rehabilitation of injuries and are specialized to increase the muscle strength of the injured or the athlete, and all methods are based on providing the muscle with sufficient resistance to change the adaptation of the muscle, and that the selection of exercises depends on the level of injury or the level of the athlete or ability or goal, and that some exercises need devices High costs, while others lack focus on the affected part. Hence, it is recommended to use rubber bands as they are low-cost, easy to use, portable, easy to store, and the diversity of exercises performed, as well as providing a diversity of resistances with the speed of movement with resistance and determination of strength compared to other methods of development Strength and rehabilitation. (2002, 145) Hughes , CJ,) , the more this competition, the more different injuries occurred in the athletes in general in the nervous and muscular systems, and when exercising, they put pressure on the joints, ligaments, tendons, and vertebrae, especially the twin muscle injury, which many athletes are exposed to, as well as as a result of the excessive and repeated use of these muscle and the goal of rehabilitation at the speed of enabling athlete to return properly and healthy as soon as this step is more important for the athlete from the person of others sports and here comes the role of rehabilitation specialist, it must be a special program put the status of the injury to accelerate the return of the player to heal or to his The importance of research in developing exercises to rehabilitate the rupture of the sympathetic muscle using rubber bands, which would rehabilitate the athlete from the injury that hinders him from performing his duties in his specialized sport because of these means of ease in performance and the desire that they do not lead to pain and to the risks of use as a result Excessive use because it has light and controlled weights and bright colors that motivate the injured athlete to practice, as well as they are new, modern tools that raise the stakes The injured athlete always wants to use it, which helps him to restore it as soon as possible.

The study aims to:-

Preparing suggested exercises using rubber bands to rehabilitate those with partial rupture of the hamstring muscle.

Identifying the effect of suggested exercises using rubber bands in the rehabilitation of those with partial rupture of the hamstring muscle.

The researcher assumes that:

1. There are significant differences between the pre and post tests using rubber bands in rehabilitating those with partial rupture of the hypogastric muscle.

2- Research methodology and field strength:

1.2. Research Methodology: The researcher used the experimental method in the style of a single experimental group with a pre and post test to suit the nature and objectives of the research.

2.2. Research sample : The research sample included a number of players with partial rupture of the twin muscle of both sides (medial and lateral), their number (6) players from different games, they constituted (100%) of the research community. A clinical diagnostic examination of the injury was carried out by a specialist doctor, and a Radiological examination of the research sample and under the supervision of a medical team specialized in the twin muscle from the specialized staff at Baquba Teaching Hospital, after clarifying the idea of research and selecting the sample, and after it was revealed that there was a partial rupture of one of the twin muscles to the members of the research sample.

. Table (1)

It shows the number of injured according to the type of game and the destination of the injury

T	Game type	the injured	side of the affected muscle	
			right	left
1	The Plane	3	2	1
2	swimming	1	1	-
3	arena and field	2	-	2
Total		6	3	3

The researcher conducted the homogeneity of the research sample in (age, height, weight) as shown in Table (2).

Table (2)

The description of the research sample shows (age, height, weight)

T	Variables	measruing unit	Arithmetic mean	Mediator	standard deviation	torsion modulus
1	Age	year	22.500	22.500	1.516	0.774
2	the weight	kg	778,833	79.00	3.250	0.537
3	height	poison	178.33	178.00	3.141	0.469
4	training age	year	4.333	4.500	0.816	-0.857

3.2. Equipment and tools used in the research:

camera type (Sony(2 pcs for testing and experiment photography, a type of computer)Dell) No.(2), No.(Weight)meter, No.(2) Stopwatch, No.(2)CD), data dump form, tape measure (10 m), rubber bands, force sensor (EK3200), from company (Mark), johnometers, different weights and weights, rubber bands, x-rays and resonances.

4.2. Tests used in the research:

3-4-1-1 Force sensor test : (Hind Ali Thabet: 72:2014)

Objective of the test : To measure the muscle strength of the twins by placing the support on the metatarsals and the heels.

Device specifications :Ek3200(from company)Mark), holds an international certificate, stores information inside the device and transfers information from the device to the calculator through its own program. It measures the strength of each individual muscle and muscle groups during tension and relaxation. It also measures the pull force and the pushing force of the affected muscle.

Description of performance : The casualty stands with the head in its normal, erect position. The device is placed on the affected hypogastric muscle and takes the measurement once in the case of the metatarsals and once in the case of the ankles and takes the measurement.

Figure (2)
Demonstrates force sensor

3-4-1-2 Optical Symmetry : (We weres me & low nk , 1990, 227)

Objective of the measurement : To measure the degree and intensity of pain for injury to the gluteus maximus.

Performance description : The patient is presented with a sheet of paper divided into ten squares numbered from (1) to (10) starting from right to left, and that each square has a performance time of (5 seconds), meaning that after the end of (5 seconds), it moves to the square after it, It asks to determine the degree of pain felt during the movement of the affected part in the position that is selected.

Calculation of degrees : The degree of pain that the patient feels when moving the affected part to the maximum possible extent is recorded, and a degree of (10) is considered one of the most extreme pain that the injured person cannot bear.

Note : The researcher measured the degree of pain by means of a visual analogue scale in two different positions, the first position of leaning on the metacarpals and the level of pain was measured, and the second position of leaning on the heels and the level of pain was measured.

3-4-1-3 Test of the range of motion of the ankle joint : (Halalah Burhan: 2014:79)

The purpose of the test : To measure range of motion during forward and backward stretching.

Tools used : a gonometer, an examination bed, a paper and a pen.

Performance description : Long sitting on the examination bed and then bending the unaffected knee and extending the affected leg and marking three connections: the first point on the knee joint from the lateral side, the second point on the lateral heel joint, and the third point the end of the little toe of the foot, coloring them in red and connecting them with lines between them In order to determine the angles through the gonometer, where the patient pushes the fingers forward as much as possible, that is, he feels the feeling of pain and fixes it and then returns them to the normal position and then calculates the angles, and so on for the extension to the back as shown in Figure (3).

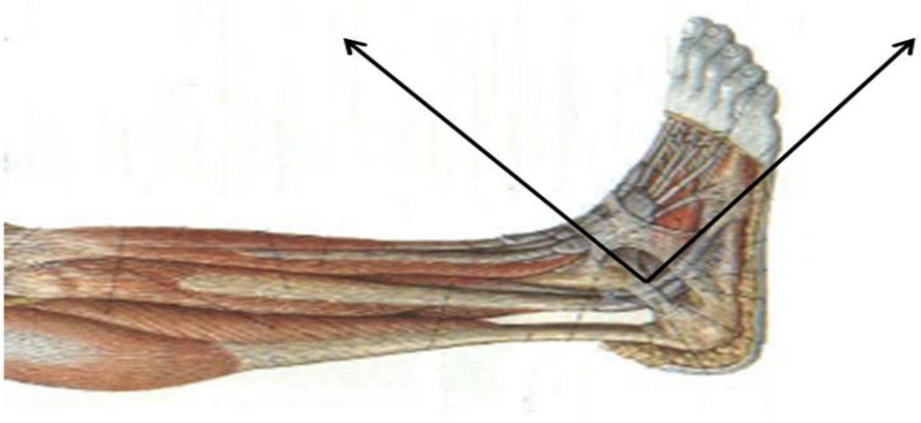

Figure (3) Describes the method of measuring the range of motion of the ankle joint towards the front and back

6.2. Survey experiments:

1.6.1 Pilot experiments:

It was conducted at four o'clock in the afternoon of Saturday, 5/1/2019, in the physiology lab in the College of Physical Education and Sports Sciences, on a sample of (2) players. The aim of this experiment was as follows:

- Knowing the suitability of the tests to the level of the research sample members.
- Ensuring the validity of the test location and its suitability for carrying out the tests.
- Identify the extent to which the sample members understand the tests used.
- Ensuring the number and efficiency of the auxiliary work team members.
- Know how long it takes to run tests and how long it takes to run each test.
- Preparing the assistant work team and introducing them to the work mechanism and distributing tasks among them
- The possibility of applying the magnetic field approach to the individuals of the research sample.

7.2. tribal tests

The two researchers conducted the tribal tests on Tuesday and Wednesday on January 15-16, 2019 on all members of the research sample, after completing all the research requirements.

8.2. Qualifying program:

In order to follow the proper scientific context to reach the most accurate results to solve the research problem and in order to achieve the goals, the researcher developed a set of rehabilitation exercises for the twin muscle for athletes with partial rupture. The researcher applied these exercises for a period of (6) weeks after two to three weeks of taking the treatment by individuals The sample, as the researcher prepared these exercises according to the following:

Observing the principle of diversity in performing exercises within the training unit so that the sample members do not feel bored.

Follow the principle of gradation from easy to difficult and from simple to complex.

Observe the principle of repetition in the exercises.

Use of auxiliary tools in training units.

The curriculum was applied in three stages, each stage consisted of (4-8) exercises.

The curriculum was implemented with three qualifying modules per week.

The curriculum is implemented in cooperation with the specialist doctor to consult him in the event of any complications that prevent the application of the curriculum.

The duration of performing the qualifying exercises is from (35-40) minutes.

The program contains exercises (fixed - mobile) whose purpose is to develop muscle strength.

One qualifying unit contains (4) exercises.

The exercises within the qualifying unit consist of a repetition of (6-12) times.

There is a gradation of iteration through the program units.

Perform some exercises using the red and blue rubber bands.

During the qualifying program, the researcher used rest between exercises and between groups.

The researcher took into account the principle of the gradual increase in the training load by using exercises with tapes with light resistances down to tapes with high resistances.
The researcher took into account the diversification and change in the rehabilitation exercises used in terms of the type of exercises, their basic conditions and the tools used.
The qualifying program for the first unit started on Thursday, 17/1/2019 at 3:00 p.m., and the exercises ended on Tuesday, 26/2/2019, with a total of (18) units and a time of (35-40) minutes for each qualifying unit.
9.2. Post tests:
The researcher conducted the post-tests for the research sample on Wednesday and Thursday, 27-28/2/2019), after the expiry of the qualifying exercises period, and using the same method of the pre-test.
10.2. Statistical means: The researcher used the statistical bag (SSPS) to process the results.
3. Presentation, analysis and discussion of the results.
3-1 display test results (tribal dimensions) in the sensor power mode of attribution to harrow and ankles analyzed and discussed:
Table (3)
It shows the values of the arithmetic mean and standard deviation in the test (pre- and post-test) for the two strength variables from placing the reference on the combs and heels

T	Variables	measruing unit	the test	Meaning	std. Deviation
1	The force of bracing the combs	kg	tribal	6.333	1.033
			dimensional	8.500	1.517
2 T	Strength from placing the support on the ankles	kg	tribal	4.167	1.169
			dimensional	6.333	1.211

Table (4)
It shows the values of the mean differences and deviations, the standard error of the means, and the value of (T) And(Sig) for the test (pre- and post-test) in the two variables of strength from placing the attribution on the combs and heels

T	Variables	Meaning	std. Deviation	std Error Meaning	T	Sig
1	The force of bracing the combs	-2.167	.753	.307	7.050	.001
2	Strength from placing the support on the ankles	-2.167	.408	.167	13,000	.000

Degree of freedom = 5...significant at (Sig) □ (0.05).

3-1-2 Presentation, analysis and discussion of the results of the test (pre- and post-test) in measuring optical symmetry by placing the chain of transmission on the combs and heels:

Table (5)

It shows the values of the arithmetic mean and standard deviation in the test (pre- and post-test) for the two visual symmetry variables from the position of reference on the combs and heels

T	Variables	measruing unit	the test	Meaning	std. Deviation
1	Optical symmetry from the point of reference on the combs	Degree	tribal	3.167	1.169
			dimensional	6.167	.753
2 T	Visual symmetry from placing the support on the ankles	Degree	tribal	2.667	.816
			dimensional	5.500	1,049

table (6)

It shows the values of the mean differences and deviations, the standard error of the means, and the value of (T) And(Sig) for the test (pre- and post-test) in the two variables of visual symmetry from the position of the reference on the combs and heels

T	Variables	Meaning	std. Deviation	std Error Meaning	T	Sig
1	Optical symmetry from the point of reference on the combs	3.000	1.095	.447	6.708	.001
2	Visual symmetry from placing the support on the ankles	2.833	.753	.307	9.220	.000

Degree of freedom = 5...significant at (Sig) (0.05).

3-1-3 Presentation, analysis and discussion of the results of the test (pre- and post-test) in the two variables of range of motion of the ankle joint towards the front and back:

Table (7)

It shows the values of the mean and standard deviation in the test (pre- and post-test) for the variables of range of motion of the ankle joint towards the front and back

T	Variables	measruing unit	the test	Meaning	std. Deviation
1	joint range of motion Ankle forward	Degree°	tribal	120.333	4.926
			dimensional	138,333	6.346
2	joint range of motion ankle backward	Degree°	tribal	114.167	3.971
			dimensional	93,833	2.994

Table (8)

It shows the values of the mean differences and deviations, the standard error of the means, and the value of (T) And(Sig) for the test (pre-post) in the variables of range of motion of the ankle joint for the front and back

T	Variables	Meaning	std. Deviation	std Error Meaning	T	Sig
1	Forward range of motion of the ankle joint	-18.000	4.858	1.983	9.076	.000
2	posterior range of motion of the ankle joint	20.333	5.164	2.108	9.645	.000

Degree of freedom = 5...significant at (Sig) □ (0.05).

In the above tables, the results of the tribal and dimensional measurements of the research variables, for the experimental group of the research sample, showed the emergence of moral differences between them in favor of the dimensional measurements. These tapes provide different and multiple resistances along the path of movement and thus reflected on the increase in strength in two directions, the first (muscular) by increasing the muscular section and the second (nervous) in increasing the number of motor units i.e. mobilizing them and normalizing the nervous system and the intensity of the loads for exercises by providing the amount of nerve impulses necessary to work As well as strengthening the joint ligaments through strap exercises, and this is consistent with what he mentioned (Phil Page & Todd Ellen Becker, 2012, 7"The rubber bands have a positive effect on muscular strength because they add resistances forward, backward, both sides and all directions, which is positively reflected in improving muscular performance and strengthening joint ligaments," he adds (2006, 44, Ed McNeely and David Sandler"The rubber bands develop the level of muscle strength and improve the level of muscle balance, as they activate some special muscles that cannot be activated thanks to the devices." The researcher believes that the rubber bands have advantages in providing a variety of resistances with the ease of using the tapes in their different forms and resistances and the ease of changing the angles of muscular work And in different directions, in addition to that it has the possibility of increasing the resistance with the diversity of its tapes, which reach (18 kg) and more with the increase in the number of tapes , and this is consistent with what each of (, 2012, 8 Phil Page & Todd Ellenbecker) that "the rubber bands have priority over the rest of the methods in the development of strength and rehabilitation, and that the rubber bands have priority over several methods because of their advantages in stimulating the muscles and thus developing muscle strength.

Conclusion

In light of the results obtained by the researcher researcher concluded that the exercises qualifying using tapes and rubber effect positively in the rehabilitation of a partial tear of the muscle Altaamah athletes through the development of research variables , and the researcher recommends the adoption of the curriculum subject in the rehabilitation of gemellus muscle what showed results from the development of the research sample.

Emphasizing that the rehabilitation programs must contain fixed and mobile exercises and the use of weights and resistances, taking into account the kinetic ranges of the joints associated with

the injured muscle, as this helps to speed up treatment, and the need to use rubber bands because of its positive impact in rehabilitating the partial muscle rupture injury for athletes.

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Supplement (1)
Some exercises for the rubber bands used