Evaluation of the foundations and principles of choosing exercises in rehabilitation programs for patients with knee joint injuries after surgical operations in some governorates of Upper Egypt

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The introduction:

The scientific development and the expansion of human activity in a way that suits the progress in various sciences, arts and technology and the emergence of fine disciplines made non-scientific methods of limited impact in achieving the desired results from training or rehabilitation operations, and the employment of what science has reached in the field of sports in general and modified physical activity in particular requires Relying on the best methods and the most appropriate scientific methods on which rehabilitative and motor exercises are based, especially those related to injured individuals and rehabilitating them to return to performing their daily motor duties naturally, and motor therapy: “It is one of the means of physical therapy, and it means the scientific use of body movements and various different means based on the foundations of Anatomy, physiology, educational and psychological sciences for preventive and curative purposes, with the aim of maintaining functional functioning and rehabilitating tissue before, during and after injury. Thus, kinesthetic therapy relies on a method that is the most effective among the means of natural forces (movement) in order to prevent, treat and rehabilitate in the event of injury, disease or disability. (Samiya Khalil: Electronic Library, Iraqi Academy).

In the field of rehabilitation of the injured today, specialists seek to apply scientific methods in selecting therapeutic exercises, and this is what Samia Khalil went to in therapeutic exercises, saying: “Specific movements for different pathological conditions whose purpose is curative and preventive in order to return the body to a normal or rehabilitative state.” (Samiya Khalil: 1990 AD)

Despite the difference in human movement in terms of shape, purpose, and variation in its characteristics, they agree and unite in the possibility of defining it, as achieving and implementing movement results in moving the body or one of its parts from one place to another, and often this movement has a purpose, either material or social, or both. Together, it is known that human movement occurs as a result of the work of the skeletal, muscular and nervous system, as well as result of the integrity of the ligaments and the efficiency of the joints that form the angles of movement and thus form the rest of the body's organs. (2)

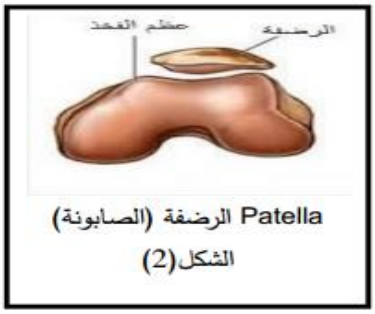
Regulated and organized movements through the practice of various sports activities are considered a means to maintain physical fitness, as it represents the basic rule in the field of sports for health, which made it acquire a privileged position among specialists.

In order to achieve this distinction, the individual can practice different types of sports activities such as running, swimming, cycling, etc., as these activities lead to important physiological changes that improve the level of public health, such as developing the efficiency of the circulatory and respiratory systems, maintaining body weight, getting rid of excess obesity, and so on. (1:15)

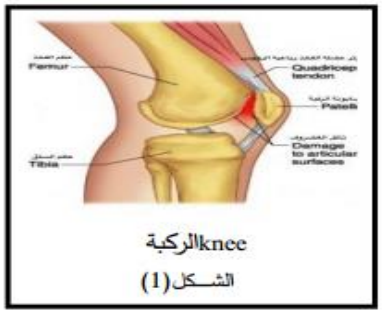
This bright side in it is sports, recreation, high skills, etc. And the dark side is injuries during competitions or sports preparations, so many researchers have been preoccupied with many problems that individuals in general and players in particular are exposed to in the modern era, which limit their motor activity and thus their efficiency, and they tried Through motor activities programs, it contributes to solving these health problems.

The worrisome thing in the human body that is affected by the increase in weight and the most susceptible to injury are the joints and the knee joint in particular and the most injured because it is exposed to body weight all the time with or without exercise. This joint is constantly responsible, and it may be exposed to many diseases that lead to the obstruction of the musculoskeletal systems with regard to the functioning of the knee joint and the muscle groups working on it.

The knee joint is the following form of the largest synovial joints in the human body, as it consists of the articulation of the lower end of the femur with the upper end of the tibia bone, as well as the posterior surface of the patella bone (the following form with the front surface of the end of the femur, and it is a large joint with a capsule It is a synovial joint and is a flat, uniaxial joint surrounded by a strong ligament and muscles, so it is rare for it to be dislocated. (12:136)



(الصابونة) الرضفة Patella
الشكل(2)



الركبةknee
الشـــكل(1)

The position of the knee joint presents a real challenge to those who treat it, as it is considered a weak joint from an anatomical point of view, because it is located between two strong joints, namely the strong thigh joint and the stable ankle joint, which affects the instability of this joint and makes it vulnerable to injuries.(11:214)

Knee joint injuries varied between the destruction of smooth surfaces by some diseases such as rheumatoid arthritis and arthritis, ligament injury and acute decomposition of the joint, which results in the joint becoming very painful, causing joint deformity that can only be treated with various anti-inflammatory drugs and surgical intervention. , And when the knee loses its functions, the pain immediately increases, and it ends up stopping the movement completely. After the surgical intervention, the matter calls for motor and functional rehabilitation using therapeutic exercises of all kinds, negative and positive. These therapeutic exercises, negative or positive, are considered one of the most important branches of physical therapy. Physical therapy is used in the treatment of many injuries, rehabilitation and prevention of these injuries. The health and fitness of the average individual or athlete, and due to the importance of therapeutic exercises and their connection to modern technical progress, the person applying therapeutic exercises had to have a lot of information about treatment methods and different types of sports, as well as focusing in the rehabilitation stages on protecting the areas prone to injury, and this type of treatment requires Or rather, help the injured person to return to the natural and appropriate condition that makes the patient recover, and to study in-depth the specialty “kinetic rehabilitation” and get a full knowledge of it. Effective. There must be plans and foundations in choosing the appropriate exercises that nourish and strengthen the knee and restore its normal position by the supervisor of this process. (3)

Research goals and need:

Most of the research and scientific theses that we had access to did not address the reality of rationing the training loads for the selected exercises in the rehabilitation process in the specialized centers. Through previous studies, I noticed that these studies have touched on issues related to knee ligament injuries or to strengthen the large muscles working on the knee joint, including The quadriceps femoris muscle, as well as the lack of research, especially in the field of physical education, which tries to find a way to help rehabilitate the injured knee after surgeries with appropriate exercises. Occupational, as the therapeutic role of exercise is evident through the individual's motor performance according to his physical abilities.

Research aims:

- Working out how to restore the efficiency of the group of flexors and extensors of the affected knee joint by selecting and applying appropriate sports exercises based on the foundations of the science of sports training.
- Work on how to restore the motor efficiency of the affected knee joint in the shortest possible period by following sports exercises and measured loads according to the principles of modern sports training.

Search questions:

- Is the selection of rehabilitation specialists in rehabilitation centers therapeutic exercises for the injured (at the level of the knee after surgical operations) based on scientific grounds?
- Does the rehabilitation specialist choose therapeutic exercises during the rehabilitation process on the basis of severity?
- Does the rehabilitation specialist choose therapeutic exercises during the rehabilitation process on the basis of volume (frequency)?

Research hypotheses:

- Specialists working in rehabilitation centers choose therapeutic exercises on scientific basis.
- The rehabilitation specialist chooses therapeutic exercises during the rehabilitation process based on severity.
- The rehabilitation specialist chooses the therapeutic exercises during the rehabilitation process based on the volume (repetition).

Some search terms:

Training load: "Matveev" is defined as the amount of impact specific to the various organs and systems of the individual during the exercise of physical activity. (8 : 51)

Training load intensity: The intensity of a single exercise load is defined as "the degree of difficulty or strength characteristic of performing the exercise performed." (14:67)

The volume (capacity) of the training load: the total sum of all the times, the number of performance times, the lengths of the distances, the heights, the amount of resistance, or the weight of the weight used in the implementation of one exercise. (14: 73)

Rest between sets of the training load: The concept of rest between sets of the training load means the length or shortness of the period or periods of time that the players spend in positive or negative rest between each initial performance and the next one, or between sets of performance. (14: 79)

Isometric contraction: It is a fixed muscle contraction in which there are no changes in the length of the muscle during the contraction, and no movement of the joint occurs as a result of this contraction.(1:109)

Isotonic contraction: It is a mobile muscle contraction in which the intensity is constant, and the change is in the length of the muscle.

(10: 265)

Rehabilitative exercises:

One of the means of physical kinetic sports therapy for the purpose of employing the purposeful measured movement, whether in the form of exercises or functional or skillful physical work, in order to work to restore the basic functions of the injured member and rehabilitate him physically to return efficiently to practicing sports or daily activity.

(13: 78)

Physical therapy:

One of the basic natural means in the field of integrated treatment of sports injuries, and some diseases by employing the measured movement aimed at restoring the injured person to his basic functions, as well as the injured member. (13: 20)

Previous studies:

- The study of "Hudhayfa Helmy Youssef Ali" (2018 AD) (5), entitled "The Effect of a Rehabilitation Exercise Program on the Efficiency of the Knee Joint after the Reconstruction of the Cruciate Ligament in Athletes". The front cross after the surgical intervention, by studying the following objectives: the muscular strength of the muscles working on the knee joint, the range of motion of the knee joint, the degree of knee infiltration, the circumference of the thigh and leg muscles, balance, the researcher used the experimental approach, which included (6) injured players The anterior cruciate ligament was cut, and they were treated surgically with a surgical endoscope, and their ages ranged from (18-25) years. Significant in the strength of the muscles working on the knee joint of the affected limb compared to the healthy limb, the program used has a positive effect on the degree of balance of the affected leg compared to the final measurements and the final measurement, the used program showed a significant improvement in the circumference of the thigh and leg muscles when comparing the injured limb with the healthy limb, which led The proposed program to return the size of the knee to the normal position before the injury, water exercises and training on moving walking with a gradual increase in height and placing a weight in the foot clearly helped the speed of the player's return to the practice of his specialized activity.
- The study of "Sari Abdel Rahim, Sebei Youssef" (2021 AD) (6), entitled "The Effect of a Rehabilitation Program on Improving Walking after the Cruciate Ligament of the Knee Joint Was Severed", the study aimed to use a rehabilitation program for the anterior cruciate ligament and to reveal its effect on improving walking in a person who underwent surgery. He had surgery for the anterior cruciate ligament, the researchers used the case study approach, and the sample included a person who had cut (b) the cruciate ligament at the level of the right knee joint, and one of the most important results of the proposed rehabilitation program played an important role in improving the range of motion of the knee joint after the cruciate ligament injury, Thanks to the proposed rehabilitation program, the muscle tone of the knee joint has been restored.

Exploratory study:

There is no doubt that to ensure the good conduct of any field research, the researcher must carry out an exploratory study to find out the suitability of the field of study for the field research procedures and to ensure the validity of the tool used and the difficulties that the researcher

may encounter. Therefore, we have conducted an exploratory study in the physical rehabilitation centers in the cities of Assiut and Sohag, which was the purpose Among them are the following:

- Getting acquainted with specialists in physiotherapy, physiotherapy and motor rehabilitation.
- Taking a clear idea of the reality of motor rehabilitation in the centers in terms of the available means and devices

There was a field visit to some centers, where I met the specialists and a set of questions were asked for the purpose of fact-finding and obtaining sufficient information about the original community of the study, where I found great understanding and cooperation from the specialists who gave great care and attention to the subject of the study and facilitated our task in achieving the goals.

The method used: the basis for selecting adapted exercise exercises for the rehabilitation of patients after surgeries at the level of the knee joint, which dictates that we choose the descriptive approach that depends on collecting field data and one of the best research methods.

Descriptive Approach: The descriptive approach aims first at collecting sufficient and accurate data and information about the phenomenon, and then analyzing what was collected in an objective manner, in order to reach the factors affecting that phenomenon. (4: 30)

Research community and sample:

Research community:

The process of sampling is choosing a part of a group of matter so that this part represents the whole group, and in order to judge the whole using the part, we must care about the way we choose this part until we get the most accurate results, and this part that we choose and use in judging the whole is called (by sample). Intentionality) As for the selection method, it is called (the sampling method), and the sampling method that we use must be able to provide us with a sample representative of the total population, the most faithful representation, so that all the characteristics of the community, including the difference between its units, are reflected in the sample as best as the sample size allows. (9:282)

And since it is known that one of the most important problems that the researcher encounters is the problem of choosing the sample on which the research is conducted, because every measurement or result that he comes out with depends on this sample, so the researcher was forced to

conduct his research on a limited sample and not on the entire original population, because conducting the research The entire indigenous community costs the researcher an enormous amount of time, effort, and money. The sample is considered one of the basic tools in scientific research and its main objective is to obtain information and data on the original community for research, where the research sample is information about the number of units that are withdrawn from the original community for the subject of the study so that it is faithfully represented. (7: 95)

We distributed (10) questionnaire forms to specialists in physiotherapy, physiotherapy and motor rehabilitation.

Data collection tools:

Questionnaire:

The questionnaire was prepared based on the objectives and hypotheses of the research. The questionnaire included a list of (20) questions, to be answered with an (X) mark in the selected box, and it is directed to the sample members of specialists in order to obtain information about the subject or problem to be studied. The application form is through a personal interview.

- In it, we mention the choice of the questionnaire as one of the survey tools, then we divided the questionnaire into axes.
- The first axis: addresses the first hypothesis.
- The second axis: deals with the second hypothesis.

Research areas:

Spatial domain: With regard to the place where the questionnaire was distributed in three (3) motor rehabilitation centers in Minya, (6) centers in the city of Assiut, and one (1) in Sohag, a total of (10) centers in some governorates of Upper Egypt.

Centers: Assiut, Sohag, Minya

Total 6 1 3 10

Temporal field: The study began since the beginning of December (2018 AD), when it began to work on collecting the theoretical primary material from references, and after that the introductory side was started, and after that we touched on the theoretical side, and as for the practical side, work began after the end of the theoretical side and it was distributed

The questionnaires were sent to those in charge of the motor rehabilitation centers. The distribution of the study questionnaires extended from May 20 to the end of May 2019.

View and analyze the results of the questionnaire and the characteristics of the sample:

Table (1) Characteristics of the sample

	Repetition	percentage
Asyut	7	70.00
Minya	3	30.00
the total	10	100.00

We note from the above table that the percentage of specialists residing in Assiut is (70%) and the percentage of specialists residing in Minya is (30%).

Table (2) Frequency and percentage of experience in years

Experience in years	Repetition	percentage
from 5 years	1	10%
1-6 years old	4	40%
more than 10 years old	5	50%
the total		100%

We note from the above table that the percentage of specialists with experience of less than (5) years is (10%), while those with experience from (6-10) years are (40%) and those with experience of more than (10) years are (50%). From this we conclude that Most of the specialists have more than (10) years of experience

Presentation and analysis of the results of the first objective: Three hypotheses were chosen from each axis.

The first hypothesis states that: the rehabilitation specialist chooses the therapeutic exercises during the rehabilitation process on the basis of intensity. To make sure of their validity or not, the Ca2 test was applied.

Presentation of the results of the first question: Work on raising the ratio of movable to fixed muscle work within the training unit for the rehabilitation of the injured knee joint.

Table (3) shows the results of the Ca2 test for the degrees of specialists in the first question

	Repetition	percentage	enough squared	Df	Sig	Significance level	Significance of differences
not agree	1	10%	9.80	2	0.00	0.05	D
OK	8	80%					
Strongly Agree	1	10%					
the total	10	100%					

We note from the table that among (10) specialists there are (8) whose answers were in agreement with the work to raise the ratio of movable to fixed muscular work within the training unit for the rehabilitation of the injured knee joint with an estimated percentage of (80%), while we found the number of strongly agreeing is (80%). 1) by (1%), which is the same percentage for those who do not agree, and it is evident from the results of the table that the value of Ca2 was (9.80) at a degree of freedom (2), and the level of significance (0.007), and since the latter is smaller than (0.05), the value of Ca2 is statistically significant .

This indicates that the difference between the answers of the respondents with regard to working to raise the ratio of mobile to fixed muscle work within the training unit for the rehabilitation of the injured knee joint is statistically significant.

It is clear to us through the results reached that the rehabilitation specialist during the rehabilitation process works to raise the ratio of mobile to fixed muscle work within the training unit to rehabilitate the injured knee joint.

Presentation of the results of the second question: “Intensification of fixed and mobile muscle work groups

Table (4) shows the results of Ca2 for the degrees of specialists in the second question

	Repetition	percentage	enough squared	Df	Sig	Significance level	Significance of differences
not agree	0	0%	6.40	1	0.01	0.05	D
OK	1	10%					
Strongly Agree	9	90%					
the total	10	100%					

We note from the table that among (10) specialists there are (9) specialists whose answers were strongly in agreement with the intensification of fixed and mobile muscle work groups with an estimated percentage of (80%), while we found the number of those who agreed was (1) with a rate of (1%), The value of Ca2 was (6.40) at a degree of freedom (1) and a level of significance (0.01), and since the latter is smaller than (0.05), the value of Ca2 is statistically significant.

This indicates that the difference between the answers of the respondents regarding the intensification of the injured fixed and mobile muscle work groups is statistically significant.

It is clear from the results obtained that the rehabilitation specialist, during the rehabilitation process, works to focus on intensifying the fixed and mobile muscle groups in his rehabilitation program for the injured knee.

Presenting the results of the third question: "I work on increasing the intensity of the load during the training unit

Table (5) shows the results of the Ca2 test for the degrees of specialists in the third question

	Repetition	**percentage**	**enough squared**	**Df**	**Sig**	**Significance level**	**Significance of differences**
not agree	0	0%	6.40	1	0.01	0.05	D
OK	1	10%					
Strongly Agree	9	90%					
the total	10	100%					

We note from the table that among (10) specialists there are (9) specialists whose answers were strongly in agreement with working on an increase in the intensity of pregnancy during the training unit by an estimated percentage of (80%), while we found the number of those who agreed was (1) with a percentage of (1). %), and the value of Ca2 was (6.40) at a degree of freedom (1), and the level of significance (0.01), and since the latter is smaller than (0.05), the value of Ca2 is statistically significant.

This indicates that the difference between the answers of the respondents regarding working on an increase in the intensity of pregnancy during the training unit is statistically significant.

It is clear to us through the results obtained that the rehabilitation specialist works during the rehabilitation process to focus on the increase in the intensity of the load during the training unit.

The conclusion of the first hypothesis: based on the results reached, we found that the rehabilitation specialist during the rehabilitation process works to raise the ratio of mobile to fixed muscle work within the training unit for the rehabilitation of the injured knee joint, and they also focus on intensifying the fixed and mobile muscle work groups in his rehabilitation program for the injured knee They also consider it necessary to increase the intensity of the load during the training unit.

Accordingly, it can be said that the hypothesis which states that "the rehabilitation specialist chooses therapeutic exercises during the rehabilitation process on the basis of severity" has been fulfilled.

Presentation and analysis of the results of the second hypothesis: The second hypothesis states that: “The rehabilitation specialist chooses the therapeutic exercises during the rehabilitation process on the basis of volume (repetition), and to make sure of their validity or not, the Ca2 test was applied.

View the results of the first question: “No more than the repetition of the fixed muscle contraction of the affected knee joint.” A table showing the results of the Ca2 test for the specialists’ scores in the first question.

Table (6) results of the Ca2 test for the degrees of specialists in the first question

	Repetition	percentage	enough squared	Df	Sig	Significance level	Significance of differences
not agree	0	0%	3.60	1	0.058	0.05	D
OK	8	80%					
Strongly Agree	2	20%					
the total	10	100%					

We note from the table that among (10) specialists there are (8) whose answers were in agreement with the work to raise the ratio of movable to fixed muscular work within the training unit for the rehabilitation of the injured knee joint with an estimated percentage of (80%), while we found the number of strongly agreeing is (80%). 2) By (20%).

It is clear from the results of the table that the value of Ca2 was (3.60) at a degree of freedom (1), and a level of significance (0.058), and since the latter is greater than (0.05), the value of Ca2 is not statistically significant.

This indicates that the difference between the respondents' answers regarding not increasing the frequency of the fixed muscle contraction of the affected knee joint is not statistically significant.

It is clear to us through the results reached that the rehabilitation specialist during the rehabilitation process works to increase the repetition of the fixed muscle contraction of the injured knee joint within the training unit for the rehabilitation of the injured knee joint.

Presentation of the results of the second question: “More than the repetition of the mobile muscular contraction of the affected knee joint.

Table (7) shows the results of the Ca2 test for the degrees of specialists in the second question.

	Repetition	percentage	enough squared	Df	Sig	Significance level	Significance of differences
not agree	0	0%	6.40	1	0.01	0.05	D
OK	1	10%					
Strongly Agree	9	90%					
the total	10	100%					

We notice from the table that among (10) specialists there are (9) specialists whose answers were strongly in agreement with the intensification of fixed and mobile muscle work groups with an estimated percentage of (80%), while we found the number of those who agreed was (1) with a rate of (1%), The value of Ca2 was (6.40) at a degree of freedom (1) and a level of significance (0.01). Since the latter is smaller than (0.05), the value of Ca2 is statistically significant.

This indicates that the difference between the answers of the respondents with regard to increasing the repetition of the moving muscle contraction of the affected knee joint is statistically significant.

It is clear to us through the results obtained that the rehabilitation specialist works during the rehabilitation process to increase the repetition of the mobile muscle contraction of the injured knee joint.

Presentation of the results of the third question: He saw starting with isometric exercises by repeating 10 times of stability before moving on to positive exercises.

Table (8) shows the results of the Ca2 test for the degrees of specialists in the second question

	Repetition	percentage	enough squared	Df	Sig	Significance level	Significance of differences
not agree	0	10%	9.80	2	0.07	0.05	D
OK	8	80%					
Strongly Agree	1	10%					
the total	10	100%					

We note from the table that among (10) specialists there are (8) whose answers were in agreement with starting the isometric exercises by repeating (10) times of stability before moving on to positive exercises with an estimated percentage of (80%), while we found the number of those who strongly agree is (1) by (1%), which is the same percentage for those who do not agree, and it is evident from the results of the table that the value of Ca2 was (9.80) at a degree of freedom (2), and a level of significance (0.007), and since the latter is smaller than (0.05), the value of Ca2 is statistically significant .

This indicates that the difference between the answers of the respondents with regard to starting the isometric exercises by repeating (10) times of stability before moving to the positive exercises is statistically significant.

Through the results obtained, it becomes clear to us that the rehabilitation specialist works during the rehabilitation process to focus on starting with the isometric exercises by repeating (10) times of stability before moving to the positive exercises during the training unit.

The conclusion of the second hypothesis

Based on the results reached, and they focus on increasing the repetition of the mobile muscle contraction of the knee joint, we found that the rehabilitation specialist during the rehabilitation process works to increase the repetition of the fixed muscle contraction of the injured knee joint within the training unit for the rehabilitation of the injured knee joint in their rehabilitation program, and they also They consider it necessary to start with isometric exercises with (10) repetitions of stability before moving on to positive exercises.

Accordingly, it can be said that the hypothesis according to which the rehabilitation specialist chooses the therapeutic exercises during the rehabilitation process on the basis of volume (repetition) has been fulfilled.

Conclusions:

Based on the results reached, represented in the rehabilitation specialist choosing therapeutic exercises during the rehabilitation process on the basis of intensity and repetition, the specialists working in rehabilitation centers rely on therapeutic exercises in preparing their rehabilitation programs for the knee joint on the scientific bases used in the completion of sports programs, and from the foregoing, The general hypothesis that states: “The specialists working in rehabilitation centers choose therapeutic exercises on scientific grounds” has been achieved.

Through the results above, the researcher reinforces this work in the hypotheses proposed and presented as solutions and support for intensity and strength as one of the foundations of the exercises chosen in the rehabilitation of the knee after injury or disease and after surgery is that the strengthening (intensity) or the process of intensifying muscle contractions represented by the repetition of the series of exercises means strengthening the muscle And the amplification of muscle cells, and this is what supports the first hypothesis by Professor "Wissam Shalal Muhammad" in his article "A proposed rehabilitative approach to rehabilitate the muscles working on the knee joint after the operation of the anterior cruciate ligament ACL" in the variable of strength "the quadriceps muscle", which concluded that the force increases with the increase in the use of Physical exercises and decrease in the case of not moving the part, and it may agree with "Jeffrey and Falkl" (1986 AD) that the development of moral strength is done by choosing fixed and moving exercises that are performed during the training curriculum to reach better results for developing the characteristic of strength. (15)

In addition, raising the level of strength does not have to be muscular hypertrophy, but rather it can be dependent on the efficiency of the nervous system in activating or improving muscular function.

As well as increasing the training sessions and specialized exercises (isometric and isotonic) increases the frequency of muscle contractions, which leads to the growth and development of strength in a better way, and this agrees with both Breneh and Levy & Bema that regular exercises for maximum strength due to the building of more number of muscle fibers Myofibrils and hypertrophy In working muscle cells, as the increased pressure occurs as a positive result in the growth of ligaments, tendons and bones.

Recommendations:

At the end of this study, which included both theoretical and practical aspects, by analyzing and interpreting the results that we reached during the field side, and in the light of these data and results supported by theory, as well as knowing the basis for selecting rehabilitative exercises for patients and athletes injured at the level of the knee joint after surgeries in rehabilitation centers. In some centers of Upper Egypt, the questionnaire was applied for this purpose

In the end, it can be said that this subject was as difficult and inaccessible as it was, and although the effort exerted was little compared to the importance of the subject of the study and its role in examining the accreditation of specialists in motor rehabilitation centers and the need to refer to the scientific foundations reached by the science of modern sports and medical training, especially the side of Modified physical activity, and thus we hope that we have succeeded in methods with this important topic and open the way for there to be a deeper and more accurate research in this area and field, and our great hope is that this study will benefit those who see its content and benefit from it.

Based on the above, we can conclude the recommendations and proposals for the study:

- The need to rely on the scientific foundations of motor rehabilitation and exercises modified according to injuries and modern therapeutic methods.
- Encouraging specialists to learn and train in the field of sports rehabilitation.
- Encouraging research and studies in the field of sports and motor rehabilitation for people with special needs.
- Expanding and integrating modified sports training and sports medicine in motor rehabilitation within the modified sports training.
- For treatment of sports injuries.

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