Thi Qar University Journal of Physical Education Vol 2 Issue 2

مجلة جامعة ذي قار لعلوم التربية البدنية

مجلة علمية محكمة تصدرها كلية التربية البدنية وعلوم الرياضة

The effect of quadruple position exercises on the rehabilitation of people with nonspecific low back pain

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Article history:
Received:22/ 2/ 2025
Received in revised from: 11/ 3 /2025
Accepted: 21/ 3/ 2025
Published online: 11/4/ 2025

Keywords:
Quadruped position, rehabilitation of patients, non-specific low back pain .

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ABSTRACT

The importance of studying the effect of quadruple exercise came as an innovative and safe way to promote physical rehabilitation. These exercises strengthen core muscles and improve balance and flexibility in the spinal area, which may help reduce pain and improve physical function. By evaluating the effectiveness of these exercises, the research contributes to providing effective therapeutic alternatives that contribute to reducing dependence on medications or surgical interventions, and enhance our understanding of the best therapeutic practices for non-specific low back pain, and the study aimed to prepare rehabilitation exercises in the quadruple position in the rehabilitation of people with non-specific low back pain for the research sample, and to identify the effect of quadruple position exercises in the rehabilitation of people with unspecified low back pain, and the researcher used the experimental approach in the method of one experimental group with a test Pre- and post-to suit the nature of the research and its objectives, the research sample was determined for the number of people with low back pain, from the auditors of the Rehabilitation Center for Physical Therapy and Joint Diseases at Baqubah Teaching Hospital and a number of clinics for joint diseases and fractures, and their number was (6) injured with medium severity, which does not exceed four months, and the field research procedures included experiments and tests, which included a test measuring the flexibility of the spine in front of, Back, right, left by (geniometer) device, test to measure the maximum muscular strength of the muscles working on the back, pain measurement test, rehabilitation exercises were applied for a period of (6) weeks after two to three weeks of taking treatment by the sample members and the duration of the rehabilitation exercises was (35-40) minutes, in light of the results obtained by the researcher The study showed that quadruple position exercises lead to a significant improvement in the level of pain in people with unspecified low back pain, with Increase in the ability to perform daily activities and physical movement These exercises also contributed to strengthening the core muscles that support the spine, which contributed to improving stability and physical stability, and the researcher recommends including quadruple posture exercises as an essential part of rehabilitation programs for patients with nonspecific low back pain, especially in the early stages of treatment, and it is recommended to educate patients and physical therapists about the benefits of these exercises and how to apply them correctly to ensure maximum benefit from it.

1 Introduction:

More than 80 percent of people will suffer from low back pain at some point in their lives, and this is a large percentage of people. Low back pain is the second most common reason to see a doctor immediately after the common cold. However, there are a large number of people who suffer from low back pain without having a specific condition or diagnosis. Their condition falls into the category of general low back pain or, more precisely, low back pain is not specified. (Brian Richey, 2021.125)

Back pain is remarkably common and affects both sexes and all ages, from children to the elderly, but it is most prevalent in middle-aged people. Back pain is one of the most common causes of temporary cessation of work, especially in heavy handicrafts, and those who are most prone to back pain are those who lift heavy loads in annoying positions. (Malcolm Jason:8:2002)

Cases of low back pain fall under several causes, including wrong sitting, or the use of body parts in the wrong posture, and people have suffered severe spinal injuries. Numerous studies have confirmed that 30-70% of people who have experienced acute low back pain are more likely to recur, leading to chronic condition. (Carpenter D. Brigham T, Welsch M, 1994.26)

Or that there are cases of birth deformity in the vertebrae themselves, called lumbarzition or lumbar sacrum, and these two cases mean the merger of the fifth lumbar vertebra with the first sacrum. Such cases cause great pain in the lumbar region, and thus lead to sensitivity of the nerve root coming out of this area and feeding the lower limbs, and this pain occurs as a result of a defect in the roots of the vertebral nerve, and the pain arises in the fourth and fifth lumbar vertebrae (and the first sacrum), and may be the cause of exposure For these pains is the result of lack of movement that consequently leads to weakness of the muscles of the body. (Rushdie: 101.1992)

Therapeutic exercises are one of the most effective means in the health preservation system to prevent diseases and injuries that the individual may be exposed to, and defines (Samia Khalil 1990) therapeutic exercises as "certain sports movements for different pathological conditions whose purpose is therapeutic prevention, in order to return the body to the normal state or rehabilitate it, and as the use of the basic principles of sensory and motor work that work in influencing the ability to meet muscles and nerves, by choosing certain movements and appropriate positions based on anatomy, physiology, educational and psychological sciences." (Khalil:13:1990)

Quad pose exercises are a set of exercises that use the body posture on four points supporting the hands and knees This position is used to improve strength, balance, and physical stability, and is safe and effective for strengthening muscles without too much pressure on the spine or joints.

Nonspecific low back pain is one of the most prevalent health problems among different age groups, and despite the multiplicity of treatment methods available, many sufferers still suffer from chronic pain and a negative impact on the quality

of their daily lives . Many researchers face a challenge in developing effective rehabilitation methods that contribute to pain relief and improve physical functions without the need for surgical intervention or extensive reliance on medications. Quad position exercises are one of the promising methods that have not been researched Its effect is deep enough in the rehabilitation of this category of injured. Therefore, the research problem arises in the lack of sufficient evidence about the effectiveness of these exercises in relieving nonspecific low back pain and improving motor performance, which calls for a scientific study to verify their feasibility and effectiveness in this context.

(Brian Richey, 2021,125)

Nonspecific low back pain is defined as pain in the lower back that cannot be attributed to a known and specific disease (such as infection, tumor, osteoporosis, lumbar fracture, skeletal deformity, inflammatory disorder, root syndrome, or cauda equina syndrome). In other words, there is no specific source; it may be caused by many different factors . Although it is common, more people do not go to the doctor when they suffer from low back pain than those who do. to the doctor in a ratio of two to one. Low back pain is not limited to any specific age or demographic category. Men and women, young and old alike, suffer from low back pain. In fact, we are seeing an increase in the number of adolescents suffering from low back pain and there are many contributing factors that can lead to low back pain. First, there are mechanical factors. Poor posture, wrong lifting technique, uncomfortable movements such as twisting or bending, and repetitive movements such as sweeping or shoveling can all lead to muscle strain or overuse injuries. These are rarely traumatic eventsAnother factor that can lead to low back pain is overweight or obesity. There are multiple reasons for this. First, being overweight increases pressure on the intervertebral discs. In addition, overweight or obese people tend to have their stomachs protruding more from the spine, which increases the pull on the lumbar spine towards curvature (lordosis), and increases pressure on the discs and lumbar muscles (erector muscles, lumbar square muscle, spinal stabilisers) to keep the trunk upright. We often see weakness in the body's core muscles (think of all the muscles from the ribs to the buttocks) when someone has low back pain. In this case, the question may be whether the chicken or egg came first. Did the weakness of the core muscles of the body lead to low back pain or did low back pain lead to muscle weakness.(Brian Richey, 2021,126)

Nonspecific low back pain is also one of the most common health problems that affect the quality of life and ability to function in individuals, although this problem is widespread, the available treatment and rehabilitation methods remain inadequate or inappropriate for all sufferers. Accordingly, this research highlights the importance of studying the effect of quadruple posture exercises as an innovative and safe way to promote physical rehabilitation. These exercises are concerned with strengthening the core muscles and improving balance and flexibility in the spine area, which may Helps reduce pain and improve physical function. By evaluating the effectiveness of these exercises, the research contributes to effective treatment

alternatives that reduce dependence on medications or surgical interventions, and enhances our understanding of best practices for nonspecific low back pain.

The study aims to prepare rehabilitation exercises in the quadruple position in the rehabilitation of people with low back pain that is not specified for the research sample, and to identify the effect of quadruple position exercises in the rehabilitation of people with unspecified lower back pain.

The researcher assumes that there is an effect of quadruple position exercises in the rehabilitation of people with unspecified lower back pain, as well as the existence of significant differences between the pre- and post-measurements and in favor of the dimensional measurements of the research variables.

2- Research Methodology and Field Research:

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

2.2. Research sample: The research sample was determined for the number of patients with low back pain, from the auditors of the Rehabilitation Center for Physical Therapy and Joint Diseases at Baqubah Teaching Hospital and a number of clinics for joint diseases and fractures, and their number was (6) injured with medium severity, which does not exceed four months, and the diagnostic clinical examination of the injury was conducted by the doctorsSpecialists and conducting radiological examination, and the researcher conducted homogeneity of the research sample in (age, height, weight) as shown in Table (1).

Table (1) shows the description of the research sample in (age, height, weight)

Torsional coefficient	Standard deviation	Broker	Arithmetic mean	Unit of measurement	Variables	t
.000	1.41421	28.0000	28.0000	year	lifetime	1
-.185	4.03320	80.0000	79.6667	kg	Weight	2
.711	.04037	1.7900	1.8050	poison	Length	3

3.2. Devices and tools used in research:

Dinometer to measure the strength of the spine, a geonometer to measure angles, electronic medical scale, stopwatch, clinical examination by a specialist in joints and bones, registration form, tape measure.

4.2. Measurements and tests used in the research:

1- Test to measure the flexibility of the spine in front, behind, right, left by a device (genometer).

The measurement is as follows: (Marcia K. Andrson, Susan J. Hall and Malisa Marten, 2000, 74)

A- Test to measure the flexibility of the spine forward.

- **Purpose of measurement:** Measure the flexibility of the spine by flexing forward from a standing position.
- **Tools used:** Gynometer to measure the angle of flexion of the spine forward

- **Performance description:** The injured bend from a standing position forward to be legs fully straight and the midpoint is placed in the gynometer along the fifth lumbar vertebrae and the first sacral and one of the arms of the device is fixed and the second arm of the device is moved in a manner parallel to the curvature of the fur column forward and read the number of degrees confined between the arms on the protractor.

B- Flexirometry test of the back spine

- **Purpose of measurement** : Measurement of the flexibility of the spine by flexing back from a standing position.
- **Tools used:** Gynometer to measure the angle of flexion of the spine backwards.
- **Performance description:** The patient stands and leans back without bending his knees and the measurement is done by placing the midpoint in the gynometer along the fifth lumbar and sacral vertebrae and the first sacral and one of the arms is fixed and the second arm is moved in a manner parallel to the curvature of the spine to the back and read the number of degrees confined between the arms on the protractor.

C- Test to measure the flexibility of the spine for the right and left. (Susan J. Hall, 1995, 266)

- **Measurement Purpose:** Measurement of spinal elasticity by bending left and right from a standing position
- **Tools used:** Gynometer to measure the angles of flexion of the spine to the right and left.
- **Performance description:** From the standing position of the injured is bending on one of the sides and the geniometer is placed directly on the point between the fifth lumbar vertebra and the first sacral and the measurement, and the point was chosen between the fifth lumbar vertebra and the first sacral as the sources explained and confirmed that the range of motion in the lumbar region is more than any other part in the spine and reaches (6 degrees) and in the lumbar vertebra of the fifth and the first sacral flexion reaches (3 degrees).

2- Test to measure the maximum muscle strength of the muscles working on the back.

- **Purpose of measurement:** Measurement of maximum muscular strength of the spine.

(William D.MC. Ardle,2000,390)

- **Tools used :** Dinominer device to measure the strength of the spine
- **Performance description:** The test is done by standing the injured person on the base of the device so that the legs are extended from the knee joint and the injured person steps forward to the level at which he feels the beginning of pain as a result of bending The belt added to the device is placed on the

patient's back at the level of the lower corner of the scapula bone and the device is pulled and the result is recorded in kilograms, provided that the arms are to the side of the body and not holding anything that is free.

3- Pain Measurement Test: (Enaam Al-Najjar: 1996:46)

- **Purpose of the test:** to determine the degree of pain
- **Tools used:** Doctor's experience with the form to determine the degree of pain
- **Performance description:** From the position of lying on the back of the injured person on the medical bed and raising the legs to the top, the patient is asked about the degree of pain from (10 degrees as a maximum) and the degree of (zero as a minimum) and determines the degree of pain after completing the doctor's examination of the injured and asking questions to answer them, the degree of pain is determined according to a form prepared for this purpose.

6.2. Exploratory Experience:

The exploratory experiment was conducted on Monday, 2/9/2024 in the Physiology Laboratory at the Faculty of Physical Education and Sports Sciences on the same research sample, and the aim of this experiment was the following:

- Knowing the suitability of the tests to the level of the members of the research sample.
- Ensure the validity of the test venue and its suitability for carrying out the tests.
- Identify the extent to which the sample members understand the tests used.
- Ensure the number and efficiency of the assistant team members.
- Know the time it takes to carry out the tests and the time it takes to perform each test.
- Preparing the assistant work team, introducing them to the work mechanism and distributing tasks among them.

7.2. Pre-tests

The pre-tests were conducted for the sample members on Wednesday (4/9/2024) after completing the research requirements.

8.2. Qualifying exercises:

The rehabilitation exercises wereapplied for a period of (6) weeks after two to three weeks of taking the treatment by the sample members, as the researcher prepared these exercises according to the following:

- Taking into account 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 hard and from simple to complex.
- The curriculum was implemented with three rehabilitation units 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 the rehabilitation exercises is (35-40) minutes.

- The researcher took into account the diversification and change in the rehabilitation exercises used in terms of the quality of the exercises, their basic conditions and the tools used.
- The researcher took into account that the rehabilitation exercises are modern and of a completely different nature from the usual exercises that are used inside treatment centers.
- The researcher increased the frequencies gradually (5-10) times.
- The stability time in each exercise ranged (30s – 3 minutes) and the researcher took into account that gradation in the time of stability.
- Accurate diagnosis: The diagnosis of the condition is confirmed accurately by a specialist before starting the rehabilitation program and the quality and intensity of the appropriate exercises are determined.
- Correct posture: It is emphasized that maintaining the correct posture during the exercises must ensure that the spine is maintained in a neutral position (without excessive curvature forward or backward) with the weight evenly distributed between the hands and knees
- Motion control: It is emphasized to perform exercises slowly and in full control and avoid sudden or rapid movements as they may aggravate pain and movement control promotes stability and reduces stress on the joints and spine.
- Avoid pain : It is confirmed not to continue exercising if the patient feels sharp or uncomfortable pain.
- Start with simple and light exercises and then gradually in difficulty.
- The number of repetitions and combinations was carefully determined according to the condition of the sufferer.
- The rehabilitation program is designed and monitored by a physiotherapist.
- Emphasis was placed on improving balance and stability in the early stages of rehabilitation before moving on to muscle strengthening.
- Aim to strengthen the core muscles (abdominal muscles, lower back muscles, and pelvic muscles) was considered as they support the spine and help relieve pain.
- The implementation of the qualifying curriculum began on Sunday, 8/9/2024, and was completed on Sunday, 13/10/2024, and the total number of them was (18) units with a time of (35-40) minutes for each qualifying unit.

9.2. Post-tests:

The post-tests were conducted on Wednesday (16/10/2024) after the expiration of the qualifying exercises, and in the same pre-test method, and the researcher was

keen to prepare the post-tests in terms of spatial and temporal conditions for the pre-test.

10.2. Statistical Methods: The researcher used the statistical bag (SSPS) to process the results.

3. Present, analyze and discuss the results.

3-1 Presentation of test results (pre-post) in the variables of the research, analysis and discussion:

Table (2) shows the values of arithmetic media, standard deviations and standard errors for the variables of range of motion, strength of back muscles and degree of pain

Standard error	Standard deviation	Arithmetic mean	audition	Unit of measurement	Variables
1.16667	2.85774	41.8333	southern	degree	**Bending the trunk forward**
1.40040	3.43026	58.8333	Go away		
.84656	2.07364	24.5000	southern	degree	**Bending the trunk back**
.65405	1.60208	34.8333	Go away		
.68313	1.67332	25.0000	southern	degree	**Bend the trunk to the right**
.57735	1.41421	35.0000	Go away		
.49441	1.21106	17.3333	southern	degree	**Bend the trunk left**
.81650	2.00000	23.0000	Go away		
.92195	2.25832	18.5000	southern	kg	**Back strength**
.79232	1.94079	25.1667	Go away		
.34157	.83666	7.5000	southern	degree	**Degree of pain**
.33333	.81650	2.6667	Go away		

Table (2) shows us the values of the arithmetic mean and the values of standard deviations of the pre- and post-tests for the variables of range of motion, strength of the back muscles and degree of pain.

Table (3) shows the arithmetic media, standard deviations of differences, standard error, calculated T value for range variables, back muscle strength and degree of pain

Significance	Error rate	Value (T)	Standard error	p f	Q-P	Variables
D	.000	10.041	1.69312	4.14729	-17.00000	**Bending the trunk forward**
D	.000	49.015	.21082	.51640	-10.33333	**Bending the trunk back**

D	.000	38.730	.25820	.63246	-10.00000	**Bend the trunk to the right**
D	.001	7.059	.80277	1.96638	-5.66667	**Bend the trunk left**
D	.007	4.385	1.52023	3.72380	-6.66667	**Back strength**
D	.000	8.907	.54263	1.32916	4.83333	**Degree of pain**

.... Significant at (Sig) > (0.05) and degree of freedom (5).

- When comparing the results with the level of significance that amounted to (0.05), it was found that the differences are significant and in favor of the post-test of the variables of the range of motion, the strength of the back muscles and the degree of pain, as the quadruple position exercises are useful in rehabilitating people with low back pain and these exercises strengthen the basic muscles such as the abdominal muscles, lower back and muscles surrounding the pelvis, which supports the spine better and helps improve the stability of the trunk, which reduces stress on the spine during daily activities In addition, it works to improve the flexibility of the spine, which relieves muscle stiffness and promotes normal movement. The researcher believes that by strengthening muscles and increasing muscular balance and flexibility, these exercises can reduce pain and improve spinal functions in general, and quadruple position exercises are an effective and low-cost rehabilitation method compared to other options such as drug or surgical treatment, in addition to being safe and suitable for a wide segment of people with These exercises can help reduce dependence on painkillers and drugs that may have long-term side effects.

The researcher believes that the development of flexibility and strength of the muscle and its tendons and ligaments in through rehabilitation exercises performed in a wide range of movement, and when this extent that the muscle works without the appearance of manifestations of pain, it means that the exercises used worked to rehabilitate the area of the affected joint through the physiological change of the muscle in the amount of blood flow inside it due to giving a kind of focus in the amount of strength to the affected part, and sees (Nayef Mufaddali Jabour and Sobhi Ahmed Kabalan, 2012) that flexibility is The ability of the muscles and tendons connected to them and the ligaments attached to the joints to stretch to allow them to perform their movement in full or wide range, and flexibility contributes to reducing the incidence of sports injuries and muscle tears and in preventive work in general. (Jabour and Qabalan: 2012:240)

The researcher believes that the regularity of the sample in the practice of rehabilitation exercises led to the development of muscle strength of the muscles of the lower back and that any increase in the strength of the muscles helps in the performance of the normal function of the muscles, as he mentions (Medhat Qassem, 2018) "The goal of rehabilitation is a vital issue for the return of the

affected part to normal by strengthening the joints, muscles and ligaments that have been weakened by the injury and the goals of rehabilitation." (Qasim:18:2018)

This is confirmed (Jamal Sabry, 2011) "Muscular strength helps improve health by increasing muscle and joint stabilization and gives the ability to face many sudden injuries." (Sabri:415:2011)

The use of therapeutic exercises for the three groups has helped to strengthen the muscles working on the spine, which supports its stability, and the resumption of motor activities such as trunk movements for various directions, as the use of rehabilitation exercises contributed to this development and increase the freedom of movement of the trunk in various directions as well as reduce the degree of pain and increase the strength of the general muscles "and better than the effect of the initial treatment, which is usually non-steroidal anti-inflammatory drugs and analgesics, In addition, long-term use of these drugs in patients with persistent back pain may result in side effects that affect the cardiovascular system and the digestive system. The alternative, which is often used (cortisone injections) in the spine in the places adjacent to the place of pain, which may lead to some improvement in lumbar and sacral pain for a short period, but it is not without side complications and that taking these drugs reduces the ability of the intestine to absorb calcium and it also increases the loss of calcium in the urine.Hussein:97:2017)

These exercises carefully selected for groups working on the lower back contributed to reaching physical ability to better levels, which led to reducing the degree of pain and that these therapeutic exercises have local and general effects on the physiology of the body. "These bodily reactions appear in the muscles, bones, nerves, circulatory system and hormonal secretion system."(2006:11)

M. van Middelkoop, and other; 2010) noted that "moderate and regular physical activity helps improve physical fitness and does not increase the risk of chronic low back pain in patients with chronic low back pain."(M. van Middelkoop and other, 2010, 12)

While mentions (M. Kankaanpää, S, and other; 1999) found that "active rehabilitation is more successful in reducing pain and self-deficits and improving endurance in the lower back than passive treatment for controlling chronic low back pain."

(M. Kankaanpää, S, and other; 1999, 1034)

4. Conclusion:

- In light of the results obtained by the researcher, the study showed that quadruple position exercises lead to a significant improvement in the level of pain in people with nonspecific low back pain, with an increase in the ability to perform daily activities and physical movement, and these exercises also contributed to

strengthening the core muscles that support the spine, which contributed to improving stability and physical stability.

- The researcher recommends the inclusion of quadruple posture exercises as an essential part of rehabilitation programs for patients with nonspecific low back pain, especially in the early stages of treatment, and it is recommended to educate patients and physical therapists about the benefits of these exercises and how to apply them correctly to ensure the maximum benefit from them. It is suggested to design customized exercise programs that take into account the individual needs of those affected according to the degree of pain and severity of the condition, to ensure improved treatment outcomes.

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Appendix (1)
Samples of exercises used

Quad mode exercises:

The exercises presented here will be performed in the quadruple position (on the four limbs) and in the plank position These exercises are partially supported because you remain in contact with the ground at several points In some of these exercises, you will reduce the points of contact with the ground to challenge the stability of the trunk muscles.

1. Fixed Quad Position:

Goal: Learn how to hold in the quadruple position for a period of time. This is important because the development of stamina in this position is necessary to complete the rest of the exercises in this section.

Initial position: Holding the quad position can be a challenge for some people, so this is a good place to start. The correct quadruple position is on the hands and knees, with the knees directly under the hips and the hands under the shoulders. Shoulders should be comfortable and in a normal position. The head should be in a straight line with the spine and not hanging down.

Movement: To find a neutral position for the shoulders, rotate the shoulders by pushing the hands away from the chest as much as possible. Then let the chest drop toward the ground to bring the shoulder blades together. Now, look for the point that is in the middle and is usually the most comfortable. Consider keeping the shoulders away from the ears. Shoulders should be comfortable and stable at the same time. It must be stable enough to be able to hold in the same position if you are pushed a little from the sides or From the front and back.

2.Quad position with clicking on the opposite arm:

Objective: to force the spinal muscles to stabilize while minimizing assistance by removing some contact points.
Initial pose: Take a quadruple position with the spine straightened Keep the trunk as stable as possible.
Movement: While maintaining the quadruple position, take the right hand and click the left forearm (b). Return to the starting position of the quadrant and repeat the exercise with the other arm to add difficulty Instead of tapping the opposite arm, extend your arm to the side (c). When raising the arm, do not let the chest fall and do not swing from side to side. This exercise is not so much about tapping the arm as it is about keeping the quadrant position stable.

3. Hip stretching exercise in quadruple position:
Goal: To keep the spine in an upright position while the leg is extended. The trunk muscles must be fixed so that the lumbar muscles are not used to help as the glutes should only work to stretch the leg.
Initial position: Take a quadruple position with a neutral spine (see "Fixed quadruple position" Keep the trunk as stable as possible.
Movement: While maintaining the quadruple position, stretch one leg straight behind the body (b). Return the leg to the initial position and continue for a set number of repetitions before performing the exercise on the other leg. It doesn't matter what the foot is about; pull the toes towards the knee or face forward, whichever is more comfortable. While extending the leg, keep your hips stable and don't let them slide to the opposite side. Do not allow the lower back muscles to do the work; avoid arching the back.

4. Exercise the bird in the quad position:

Objective: To increase the challenge of the spine stabilizers by removing some of the points of contact, activating the rectus muscles ofthe spine, the middle gluteus muscle, and the gluteus maximus.

Initial position: Take a quadruple position with thevertebral column straightened and keep the trunk as stable as possible.

Movement: Raise one arm straight in front of the body with the opposite leg extended straight behind the body (b). This is a big balance challenge for most people. If you can't maintain a good quad posture, stretch the leg first and then settle down. When you feel stable, extend the opposite arm. Hold the position for one second, then return to the quadruple starting position before switching to raise the opposite arm and leg. Try to maintain the position for five seconds. Remember that Range of motion is not as important as maintaining stability. Avoid arching the back, rotating or swinging your hips in the opposite direction.

5.High Plank Exercise:

Goal: to activate the trunk muscles while maintaining a straight spine.

Initial position: Take a push-up position with your arms on a step or bench. You can also perform this exercise by leaning against the wall or with your forearms on

the bed; you will not perform the exercise using your entire body weight There should be a straight line that extends from the ears, shoulders, ribs, hips, knees, and ankles.

Movement : Maintain the plank position for as long as possible without lifting your hips up or allowing them to land (see figure for example using a step). This exercise may seem easy but is often done incorrectly. The body must be in a straight line. Hold this position for 10 seconds and work to reach stability for 30 seconds.

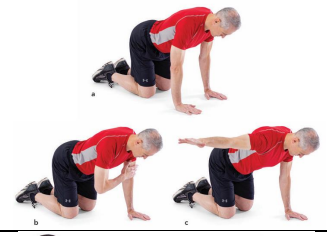
Appendix (1)

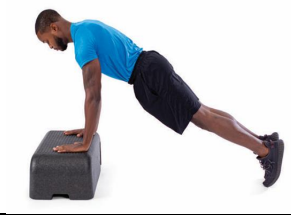
Sample of a rehabilitation unit

Day/ Monday **Week**: First **Unit**: First

Unit time / 25-30 minutes

Goal: To improve and strengthen the muscles of the bottom.

Exercise form	Comfort tween roups	Comfort tween rations	Number totals	Number petitions	Performance time or stability	Exercise mber
	-	2 min	-	3	15s	Exercise mber 1
	3 min	2 min	3	12	10s	Exercise mber 2
	3 min	2 min	3	12	10s	Exercise mber 3

	-	1 D	-	3	10s	Exercise mber 5