



## Patellar Tendinitis (Jumper's Knee)

Exercises:  
10 seconds  
10 times  
1 time per day

### DESCRIPTION

Patellar tendinitis is characterized by inflammation and pain at the patellar tendon, just below the kneecap. This structure is the tendon attachment of the quadriceps (thigh) muscles to the lower leg. This structure is important in straightening the knee or slowing the knee during bending or squatting. Patellar tendinitis is usually a grade 1 or 2 strain of the tendon. A *grade 1 strain* is a mild strain with a slight pull without obvious tearing (it is microscopic tearing), no loss of strength, and the tendon is the correct length. A *grade 2 strain* is a moderate strain with tearing of tendon fibers within the substance of the tendon or at the bone-tendon junction. The length of the tendon is usually increased, and strength is decreased. A *grade 3 strain* is a complete rupture of the tendon.

### COMMON SIGNS AND SYMPTOMS

- Pain, tenderness, swelling, warmth, or redness over the patellar tendon, most often at the lower pole of the patella or at the tibial tubercle, the bump on the upper part of the lower leg
- Pain and loss of strength (occasionally) with forcefully straightening the knee, especially when jumping or when rising from a seated or squatting position, or with bending the knee completely, as in squatting or kneeling
- Crepitation (a crackling sound) when the tendon is moved or touched

### CAUSES

- Strain from a sudden increase in the amount or intensity of activity or overuse of the quadriceps muscles and patellar tendon
- A direct blow or injury to the knee or patellar tendon

### FACTORS THAT INCREASE RISK

- Sports that require sudden, explosive quadriceps contraction (jumping, quick starts, or kicking)
- Running sports, especially running down hills
- Poor physical conditioning (strength, flexibility), such as with weak quadriceps or tight hamstrings
- Flat feet

### PREVENTIVE MEASURES

- Appropriately warm up and stretch before practice and competition.
- Allow time for adequate rest and recovery between practices and competition.

- Maintain appropriate conditioning that includes cardiovascular fitness, thigh and knee strength, flexibility, and endurance training.
- Taping, protective strapping or bracing, or an adhesive bandage may be needed for several weeks after healing is complete to help prevent recurrence.
- Wear arch supports (orthotics).

### EXPECTED OUTCOME

Patellar tendinitis is usually curable within 6 weeks if treated appropriately with conservative treatment and resting of the affected area.

### POSSIBLE COMPLICATIONS

- Prolonged healing time if not appropriately treated or if not given adequate time to heal
- Recurrence of symptoms if activity is resumed too soon, with overuse, with a direct blow, or when using poor technique
- Untreated, tendon rupture requiring surgery

### GENERAL TREATMENT CONSIDERATIONS

Initial treatment consists of medication and ice to relieve pain, stretching and strengthening exercises of the quadriceps and hamstring muscles, and modification of the activity that initially caused the problem. These all can be carried out at home, although referral to a physical therapist or athletic trainer for further evaluation and treatment may be helpful. Rarely, a leg cast may be recommended for 10 to 14 days to immobilize the tendon and allow the inflammation to settle down. Uncommonly, crutches may be needed for the first few days to weeks, until there is good control of the quadriceps muscles and no limp exists. An arch support (orthotic) or a patellar tendon brace may be prescribed to reduce stress to the tendon. Surgery to remove the inflamed tendon lining or degenerated tendon tissue is rarely necessary and is only considered after at least 6 months of adequate rehabilitation and rest.

### MEDICATION

- Nonsteroidal antiinflammatory medications, such as aspirin and ibuprofen (do not take for 7 days before surgery), or other minor pain relievers, such as acetaminophen, are often recommended. Take these as directed by your physician, and contact your doctor immediately if any bleeding, stomach upset, or signs of an allergic reaction occur.

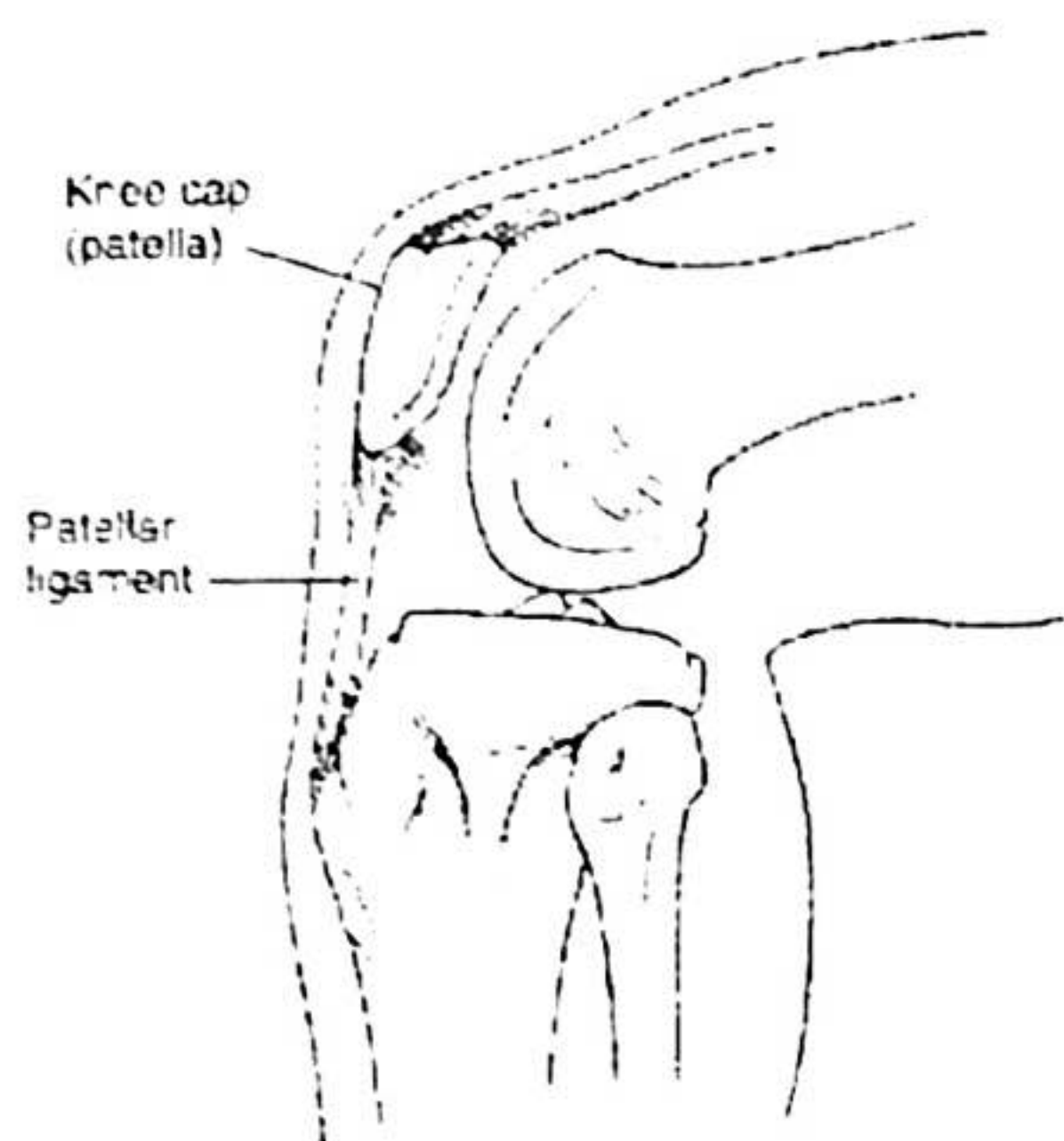


FIGURE 1

- Pain relievers may be prescribed. Use them only as directed, and take only as much as you need.
- Cortisone injections are not given, because they may weaken tendons; it is better to give the condition more time to heal than to use cortisone.

### HEAT AND COLD

- Cold is used to relieve pain and reduce inflammation. It should be applied for 10 to 15 minutes every 2 to 3 hours as needed and immediately after any activity that aggravates your symptoms. Use ice packs or an ice massage.
- Heat may be used before performing stretching and strengthening activities prescribed by your physician, physical therapist, or athletic trainer. Use a heat pack or a warm soak.

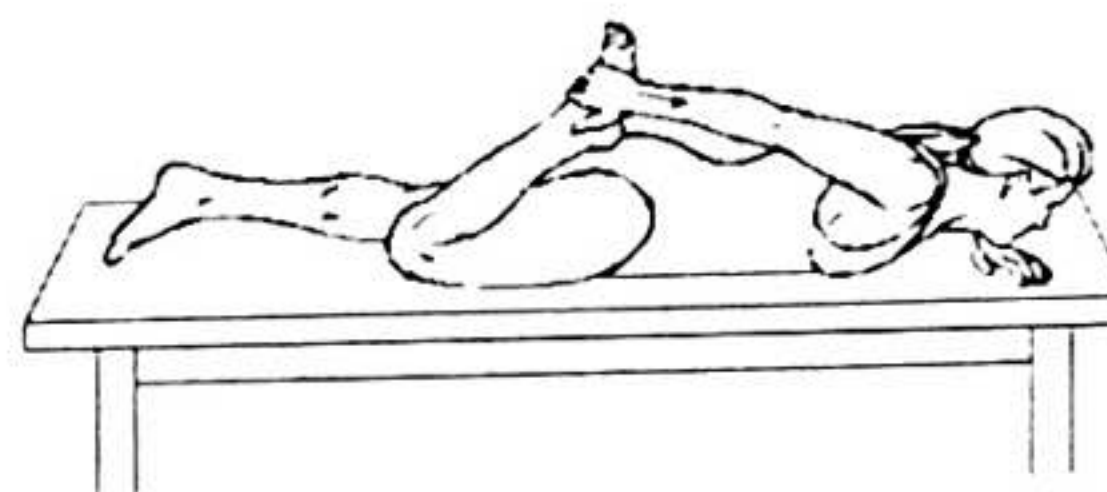
### WHEN TO CALL YOUR DOCTOR

- Symptoms get worse or do not improve in 2 weeks despite treatment.
- New, unexplained symptoms develop. Drugs used in treatment may produce side effects.



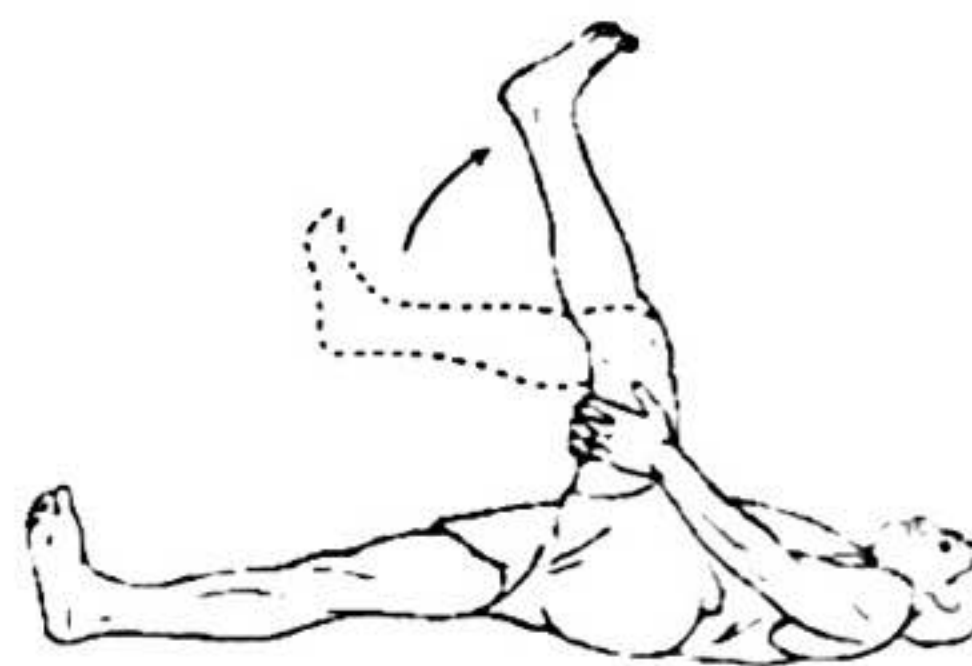
These are some of the *initial* exercises you may use to start your rehabilitation program, until you see your physician, physical therapist, or athletic trainer again, or until your symptoms resolve. Please remember:

- Flexible tissue is more tolerant of the stresses placed on it.
- A *gentle* stretching sensation should be felt.



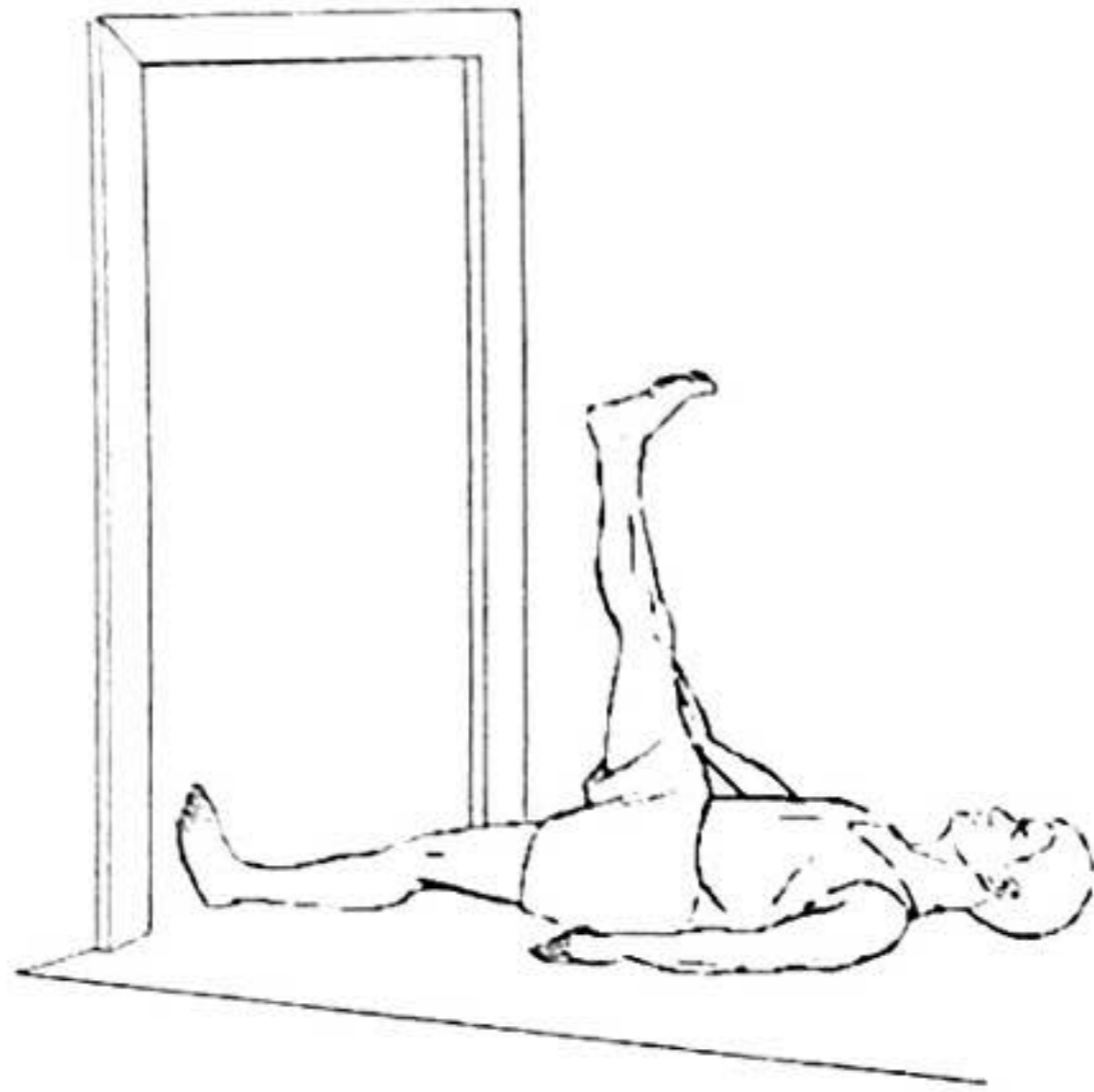
### RANGE OF MOTION • Quadriceps Stretch

1. Lie on your stomach as shown.
2. Bend your knee and grasp your toes, foot, or ankle. If your leg feels too tight to do this, loop a belt or towel around your ankle and grasp that.
3. Pull your heel toward your buttock until you feel a stretching sensation in the front of your thigh.
4. Keep your knees together, and hold this position for \_\_\_\_ seconds.
5. Repeat this exercise \_\_\_\_ times, \_\_\_\_ times per day.



### RANGE OF MOTION • Hamstrings Stretch

1. Lie on your back with your leg bent and both hands holding on to it behind your thigh as shown. Your hip should be bent to 90 degrees, and your thigh should be pointing straight at the ceiling.
2. Straighten your knee out as far as you can. Keep your thigh pointing straight toward the ceiling, and keep the other leg flat on the floor.
3. Hold this position for \_\_\_\_ seconds.
4. Repeat this exercise \_\_\_\_ times, \_\_\_\_ times per day.



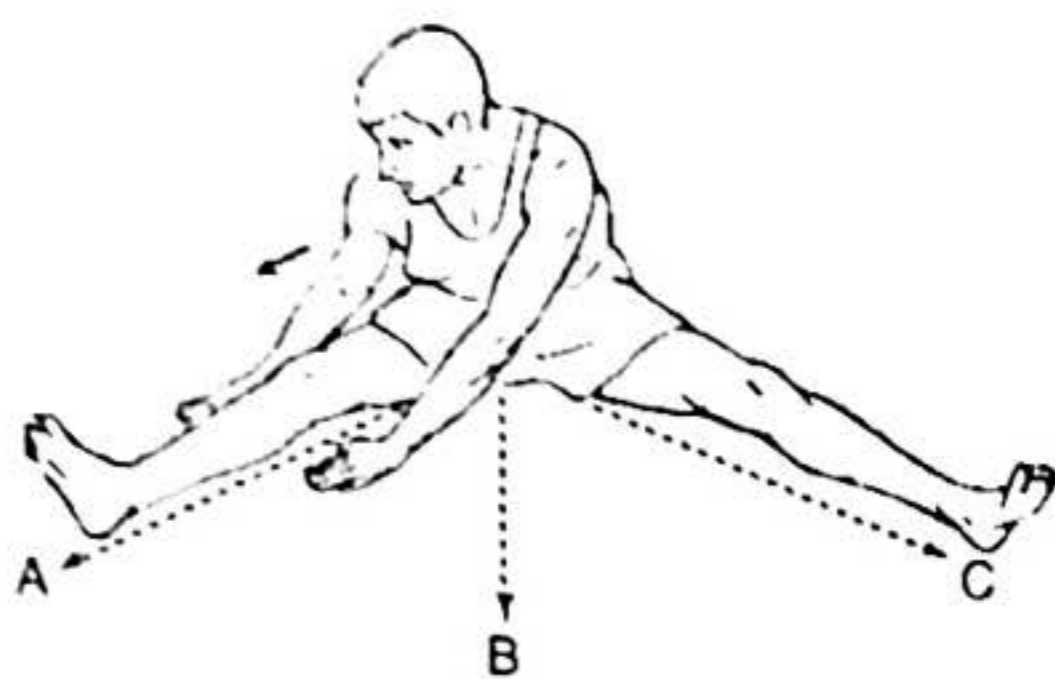
### RANGE OF MOTION • Hamstrings, Doorway Stretch

1. Lie on your back near the edge of a doorway as shown.
2. Place the leg you are stretching up on the wall, keeping your knee straight. Your buttocks should be as close to the wall as possible; the other leg should be kept flat on the floor.
3. You should feel a stretch in the back of your thigh. Hold this position for \_\_\_\_ seconds.
4. Repeat this exercise \_\_\_\_ times, \_\_\_\_ times per day.



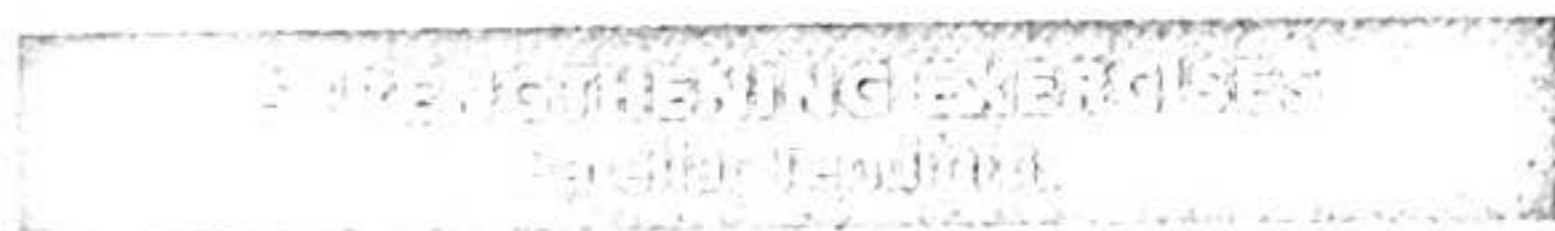
### RANGE OF MOTION • Hamstrings, Ballet

1. Stand and prop the leg you are stretching on a chair, table, or other stable object.
2. Place both hands on the outside of the leg you are stretching. Make sure that your hips are also facing that leg.
3. Slide your hands down the outside of your leg. Lead with your chest, keeping your chest upright and your back straight. Do not hunch over at the shoulders, and keep your toes pointing up.
4. You should feel a stretch in the back of your thigh. Hold this position for \_\_\_\_ seconds.
5. Repeat this exercise \_\_\_\_ times, \_\_\_\_ times per day.



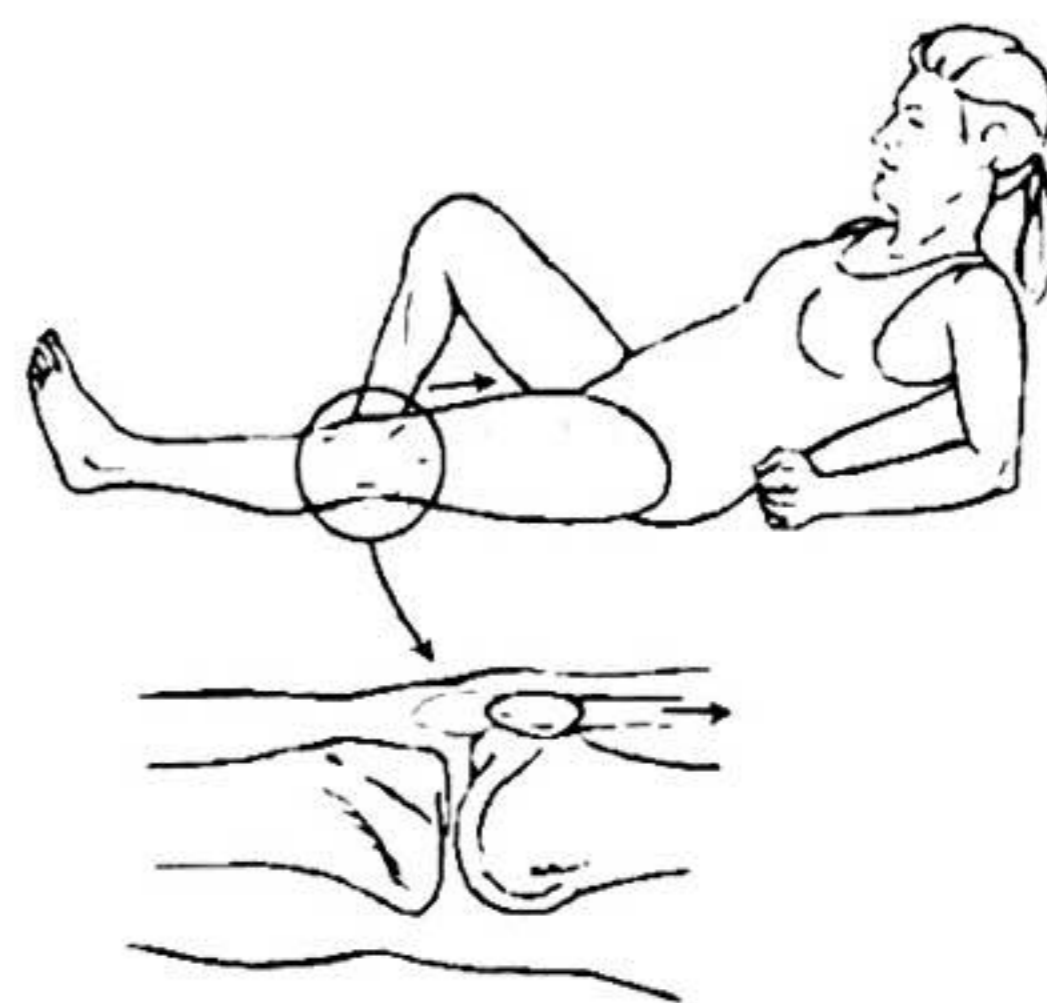
### RANGE OF MOTION • Hamstrings/ Adductors, V-Sit

1. Sit on the floor with your legs spread as widely as possible in front of you. Your knees should be straight.
2. Lean over one leg with your chest upright, and reach for your toes (position A).
3. Hold this position for \_\_\_\_ seconds. Relax and return to the starting position.
4. Reach forward between your legs (position B).
5. Repeat for position C.
6. Repeat this exercise \_\_\_\_ times, \_\_\_\_ times per day.



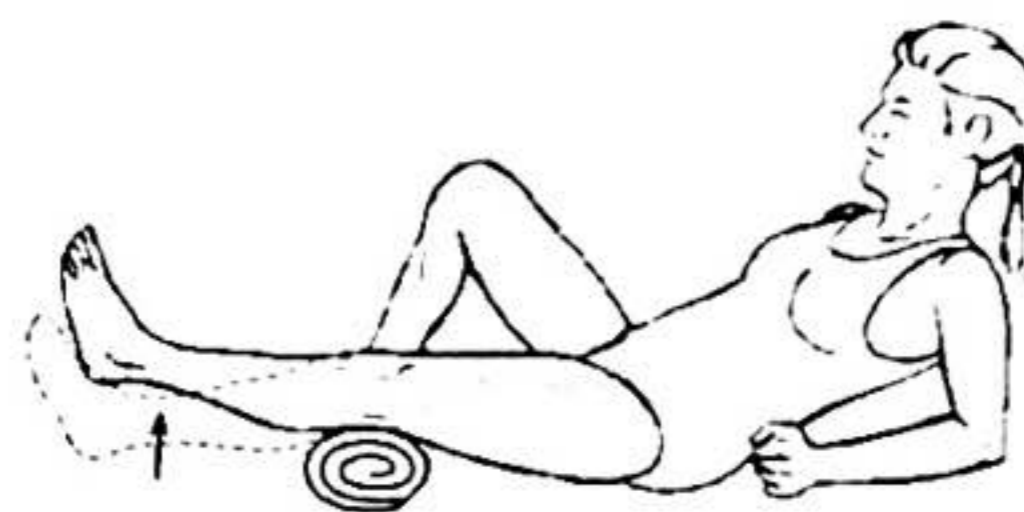
These are some of the *initial* exercises you may use to start your rehabilitation program, until you see your physician, physical therapist, or athletic trainer again, or until your symptoms resolve. Please remember:

- Strong muscles with good endurance tolerate stress better.
- Do the exercises as *initially* prescribed by your physician, physical therapist, or athletic trainer. Progress slowly with each exercise, gradually increasing the number of repetitions and weight used under their guidance.



### STRENGTH • Quadriceps, Isometric

1. Lie flat or sit on the floor with your leg straight.
2. Tighten the muscle in the front of your thigh as much as you can, pushing the back of your knee flat against the floor. This will pull your kneecap up your thigh toward your hip.
3. Hold the muscle tight for \_\_\_\_ seconds.
4. Repeat this exercise \_\_\_\_ times, \_\_\_\_ times per day.



### STRENGTH • Quadriceps, Short Arcs

1. Lie flat or sit on the floor with your leg straight.
2. Place a \_\_\_\_ inch roll under your knee, allowing it to bend.
3. Tighten the muscle in the front of your knee as much as you can, and lift your heel off the floor.
4. Hold this position for \_\_\_\_ seconds.
5. Repeat this exercise \_\_\_\_ times, \_\_\_\_ times per day.

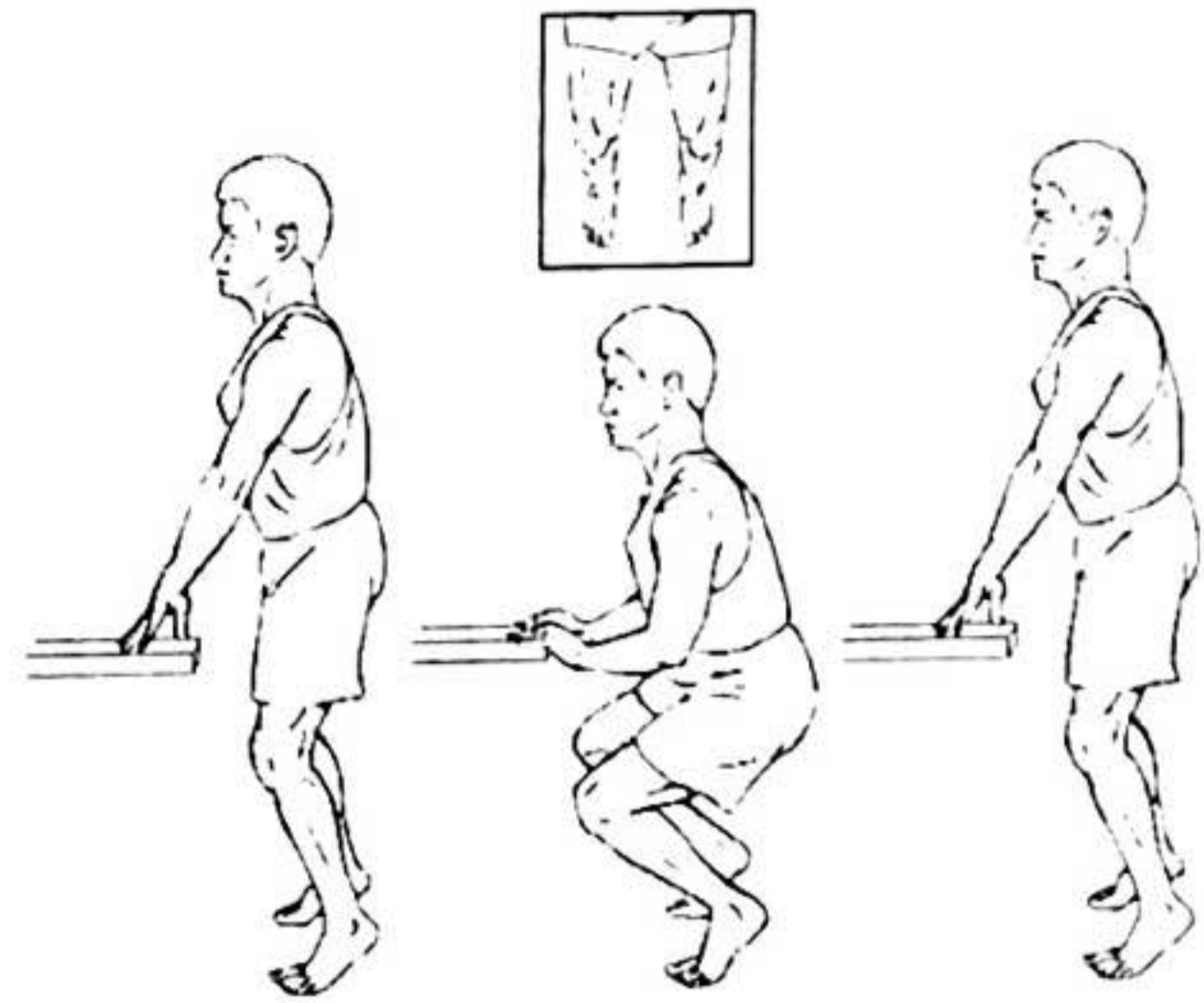
If allowed by your physician, physical therapist, or athletic trainer, a \_\_\_\_ pound weight may be placed around your ankle for additional resistance.



### STRENGTH • Quadriceps, Seven Count

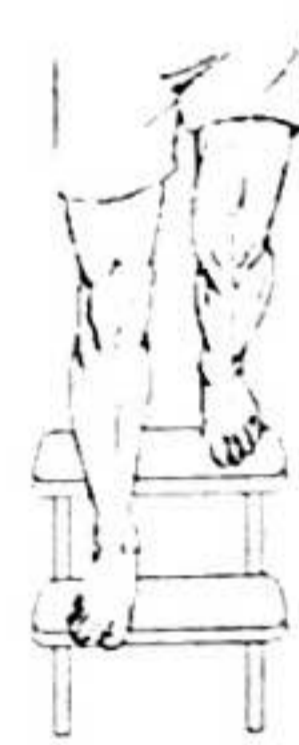
The quality of the muscle contraction in this exercise is what counts, not just your ability to lift the leg.

1. Tighten the muscle in the front of your thigh as much as you can, pushing the back of your knee flat against the floor.
2. Tighten this muscle *harder*.
3. Lift your heel 4 to 6 inches off the floor, and tighten this muscle *harder*.
4. Lower your leg back down to the floor, keeping the muscle in the front of your thigh as tight as possible.
5. Tighten this muscle *harder*.
6. Relax.
7. Repeat this exercise \_\_\_ times, \_\_\_ times per day.



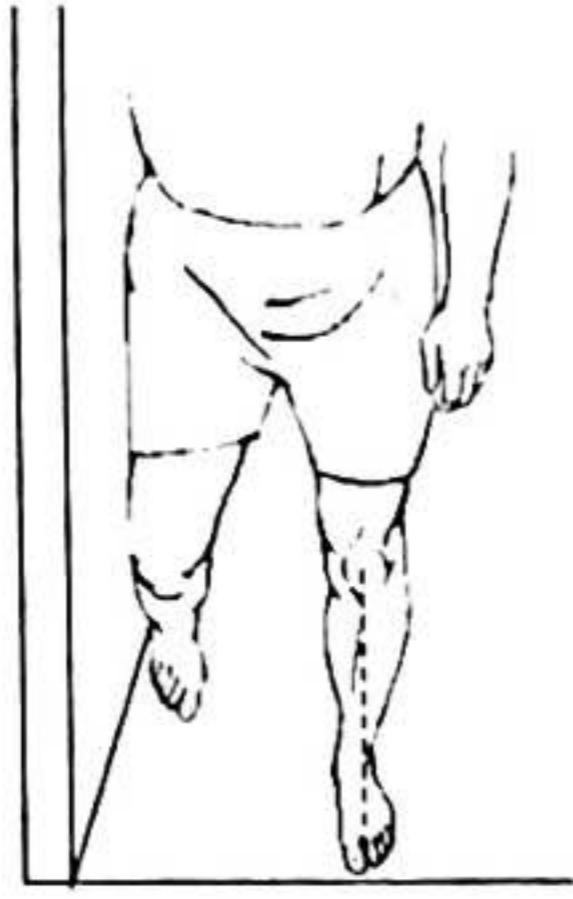
### STRENGTH • Quadriceps

1. Stand with your feet shoulder width apart, and place equal weight on both legs. Keep your kneecaps in line with your toes.
2. *Slowly* bend both knees, keeping *equal weight* on both legs, and return to a standing position. *Do not bend your knees more than 90 degrees.*
3. You may use the edge of a table or counter for balance if needed.
4. Repeat this exercise \_\_\_ times, \_\_\_ times per day.



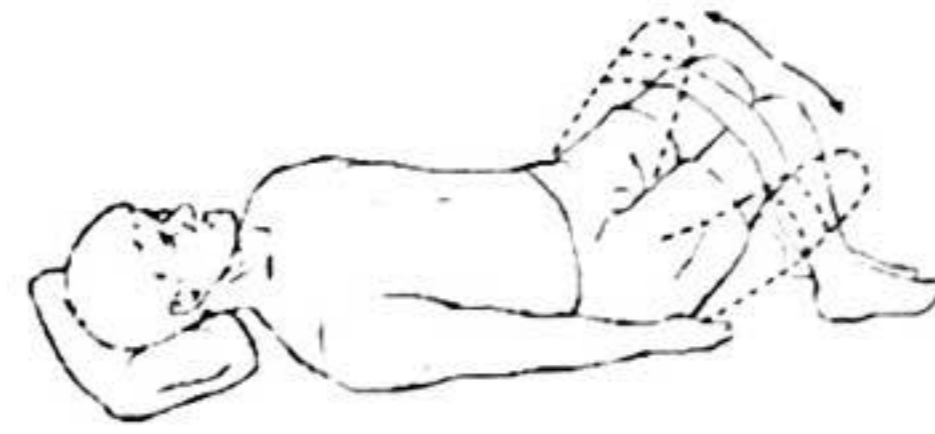
### STRENGTH • Quadriceps

1. Stand on the edge of a step or stair with your kneecap in line with your second toe. Use a stair rail for balance as needed.
2. *Slowly* step down and touch the heel of your opposite leg on the stair below you. Return to the starting position. Do not go into a painful range. Stop short of the step if necessary to avoid any pain.
3. Repeat this exercise \_\_\_ times, \_\_\_ times per day.



### STRENGTH • Hip Abduction

1. Stand next to a wall with the knee of your uninjured leg bent to 90 degrees. Place that leg against the wall as shown in the drawing.
2. Make sure that your kneecap is in line with the toes of the leg you are standing on, and push the bent knee of the leg that is against the wall into the wall.
3. Do not let your body move away from the wall. To do this the hip muscles of the injured leg (shaded area) will have to contract.
4. Hold this position for \_\_\_\_ seconds.
5. Repeat this exercise \_\_\_\_ times, \_\_\_\_ times per day.



### STRENGTH • Hip External Rotation

1. Lie on your back with your hips and knees bent and your feet together, flat on the floor.
2. Place an elastic band around your legs at your knees as shown in the diagram.
3. Spread your knees apart, keeping your feet together.
4. Hold this position for \_\_\_\_ seconds.
5. Repeat this exercise \_\_\_\_ times, \_\_\_\_ times per day.