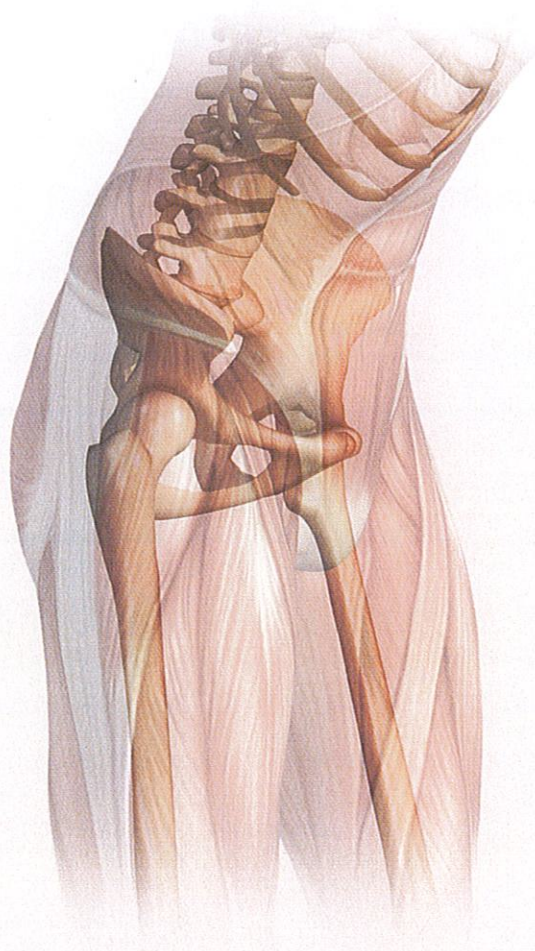


## PART 7

# *The Hip, Thigh, and Pelvis*



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# FEMUR FRACTURE

## What is a femur fracture?

Your femur is your thighbone. It extends from your hip to your knee. A fracture is a crack or a break in a bone. Types of fractures include the following:

- **SIMPLE** - There is only one fracture line, and the bone is broken into 2 pieces.
- **COMMINUTED** - There is more than one fracture line, and there are more than 2 bone fragments at the fracture site.
- **CLOSED** - The skin in the fracture area is not broken, and the break is not exposed to the outside.
- **OPEN (COMPOUND)** - The skin over the fracture is broken, exposing the broken bone.
- **PATHOLOGICAL** - The bone has been weakened or destroyed by disease so that it breaks easily.
- **STRESS** - There is a hairline crack in a bone, sometimes not even visible on an X-ray, which is caused by repeated injury or stress on the bone.

## How does it occur?

Femur fractures, except for stress fractures, are caused by events that involve a lot of force. Because the femur is a very large bone it takes a lot of force to cause a fracture. Examples of accidents that might break the femur include falling from a height or having a high-speed collision, such as while skiing or snowmobiling.

## What are the symptoms?

Symptoms of a femur fracture include:

- severe pain
- swelling and bruising
- inability to walk
- visible deformity at the site of fracture
- the feeling that the bone in your thigh is moving

When you break your femur, you may lose a lot of blood in the thigh. You may feel numbness, coldness, or tingling in your foot or lower leg if the blood supply to these areas is injured. If you lose a lot of blood, you may go into shock.

## How is it diagnosed?

Your healthcare provider will review your symptoms and order X-rays of your leg. Because of the great force needed to break a femur, your provider will check to be sure there are no injuries to other areas such as your pelvis, knee, and lower leg.

## How is it treated?

Most femur fractures need to be fixed in surgery. Your leg may be placed in traction in the hospital before surgery is done.

Methods used to fix a femur fracture include surgery to insert:

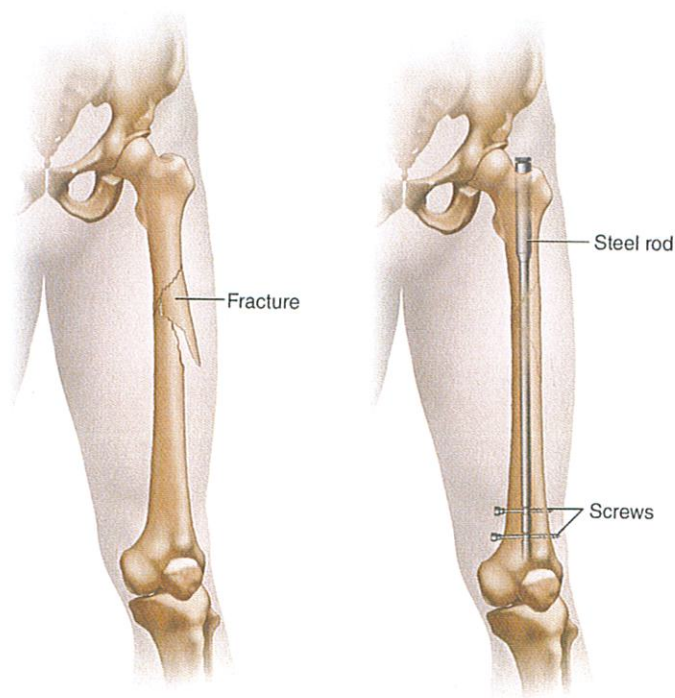
- steel screws
- steel plates and steel screws
- steel rods, which can be placed down the center of the shaft of the femur

In healthy adults, casts are rarely used for femur fractures. A body cast that includes the entire injured leg and part of the uninjured leg is commonly used for femur fractures in young children.

Breaks at or near the knee joint usually require plates and screws or just the screws. Shaft fractures, as in the mid thigh, are usually fixed with a rod.

You will need to use crutches for 8 to 12 weeks after surgery. Your healthcare provider and physical therapist will tell you whether or not you should put weight on your injured leg, which will depend on how bad the fracture is and how it has been treated.

## FEMUR FRACTURE



Before Surgery

After Surgery

While you are still healing after surgery, you will begin physical therapy to regain strength in your muscles and to loosen up your joints. (Muscles are usually injured in a femur fracture, and your hip and knee commonly become stiff due to the injury and surgery.)

Complete recovery may take many months, depending on how bad the fracture was and the extent of any other injuries. The break itself should heal in about 4 months. Your healthcare provider will take X-rays regularly to see how the bone is healing. Full recovery, however, requires the muscles and joints to heal as well. Your provider and physical therapist will assess the recovery of your muscles and joints by measuring joint mobility and the return of muscle strength, flexibility, and coordination. Your healthcare provider may decide to remove the plates, screws, or rods sometime after your leg has fully healed.

### When can I return to my sport or activity?

Returning to your sport or activity after a femur fracture can be a long process. It may take a year before you can return to some sports. When your bone is healed and you have done some basic rehabilitation, you will begin rehab activities and exercises specific to your sport. It may take a few months to complete this recovery phase, after which you can return to your sport. It usually takes months after you return to your sport to reach your preinjury level of performance.

The following list gives some general requirements that you might be expected to meet in order to return safely to your sport:

- you have full range of motion in the injured leg compared to the uninjured leg
- you have full strength of the injured leg compared to the uninjured leg
- you can sprint straight ahead without pain or limping
- you can do 45-degree cuts, first at half-speed, then at full-speed
- you can do 20-yard figures-of-eight, first at half-speed, then at full-speed
- you can do 10-yard figures-of-eight, first at half-speed then at full-speed
- you can jump on both legs without pain, and you can jump on the injured leg without pain

### How can I prevent a femur fracture?

Femur fractures are usually caused by accidents that cannot be prevented. This type of fracture rarely occurs in common team sports. However, it is important to use good judgment in sports such as skiing, rock climbing, snowmobiling, and horseback riding. It is also important to have a good diet with enough calories and calcium.

# GLUTEAL STRAIN

## What is a gluteal strain?

Your gluteal muscles are the muscles in your buttocks. A strained muscle is when the muscle fibers are stretched or torn.

## How does it occur?

A gluteal strain usually occurs with running or jumping. It is often seen in hurdlers or dancers.

## What are the symptoms?

A gluteal strain causes pain in the buttocks. You may have pain when walking up or down stairs and pain when sitting. You have pain moving your leg backward.

## How is it diagnosed?

Your healthcare provider will examine your hips, buttocks, and legs and find that you have tenderness in the gluteal muscles.

## How is it treated?

Initially, you should put ice packs on your injury for 20 to 30 minutes every 3 to 4 hours for 2 or 3 days or until the pain goes away. Your healthcare provider may prescribe an anti-inflammatory medicine (adults aged 65 years and older should not take non-steroidal anti-inflammatory medicine for more than 7 days without their healthcare provider's approval). You will be given a set of rehabilitation exercises.

While you are recovering from your injury, you will need to change your sport or activity to one that does not make your condition worse. For example, if running causes you pain, change to swimming.

## When can I return to my sport or activity?

The goal of rehabilitation is to return you to your sport or activity as soon as is safely possible. If you return too soon you may worsen your injury, which could lead to permanent damage. Everyone recovers from injury at a different rate. Return to your sport or activity will be determined by how soon the injured area recovers, not by how many days or weeks it has been since your injury occurred. In general, the longer you have symptoms before you start treatment, the longer it will take to get better.

You may safely return to your sport or activity when, starting from the top of the list and progressing to the end, each of the following is true:

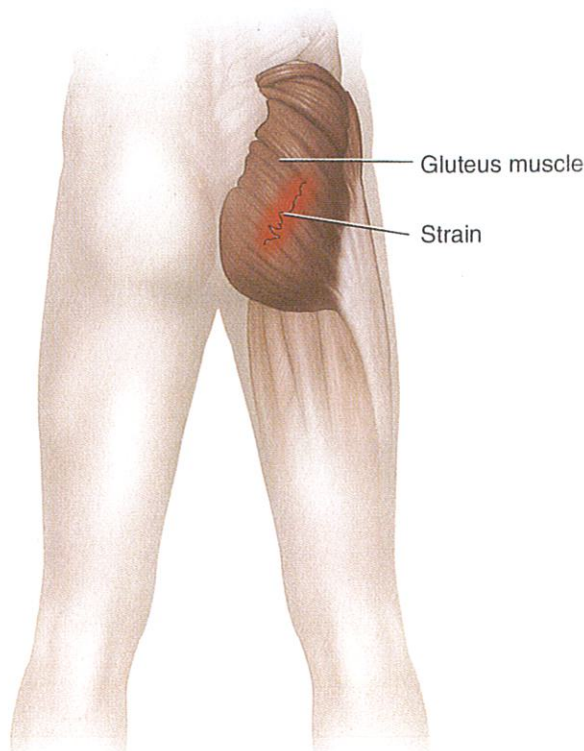
- you have full range of motion on the injured side compared to the uninjured side

- you have full strength of the injured side compared to the uninjured side
- you can jog straight ahead without pain or limping
- you can sprint straight ahead without pain or limping
- you can do 45-degree cuts, first at half-speed, then at full-speed
- you can do 20-yard figures-of-eight, first at half-speed, then at full-speed
- you can do 90-degree cuts, first at half-speed, then at full-speed
- you can do 10-yard figures-of-eight, first at half-speed, then at full-speed
- you can jump on both legs without pain and you can jump on the leg on the injured side without pain

## How can a gluteal strain be prevented?

Gluteal strains are best prevented by warming up properly and doing stretching exercises before your activity.

## GLUTEAL STRAIN



# GLUTEAL STRAIN REHABILITATION EXERCISES

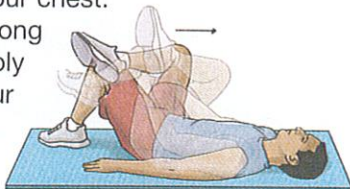
You can stretch your gluteal muscles using the first 2 exercises right away.

**1. SINGLE KNEE TO CHEST STRETCH:** Lie on your back with your legs straight out in front of you. Bring one knee up to your chest and grasp the back of your thigh. Pull your knee toward your chest, stretching your buttock muscle. Hold this position for 15 to 30 seconds and return to the starting position. Repeat 3 times on each side.



SINGLE KNEE TO CHEST STRETCH

**2. GLUTEAL STRETCH:** Lying on your back with both knees bent, rest the ankle of one leg over the knee of your other leg. Grasp the thigh of the bottom leg and pull that knee toward your chest. You will feel a stretch along the buttocks and possibly along the outside of your hip on the top leg. Hold this for 15 to 30 seconds. Repeat 3 times.



GLUTEAL STRETCH

You can begin strengthening your gluteal muscles as soon as the sharp pain goes away and you only have a dull ache when doing the gluteal isometrics exercise.

**3. GLUTEAL SETS:** Lie on your stomach with your legs straight out behind you. Squeeze your buttock muscles together and hold for 5 seconds. Release. Do 3 sets of 10.



GLUTEAL SETS

You can begin strengthening your gluteal muscles as soon as the sharp pain goes away and you only have a dull ache when doing the gluteal sets. After gluteal sets become easier, you can do the next 3 gluteal strengthening exercises.

**4. PRONE HIP EXTENSION (BENT LEG):** Lie on your stomach with a pillow underneath your hips. Bend one knee, tighten up your buttocks muscles, and lift your leg off the floor about 6 inches. Keep the leg on the floor straight. Hold for 5 seconds. Then lower your leg and relax. Do 3 sets of 10.



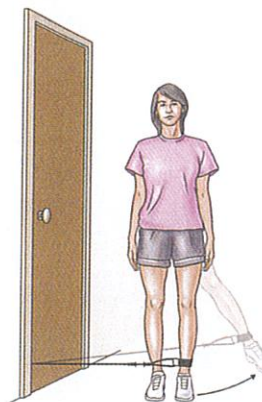
PRONE HIP EXTENSION (BENT LEG)

**5. RESISTED HIP EXTENSION:** Stand facing a door with elastic tubing tied around one ankle. Knot the other end of the tubing and shut the knot in the door. Pull your leg straight back, keeping your knee straight. Make sure you do not lean forward. Do 3 sets of 10.



RESISTED HIP EXTENSION

To challenge yourself, move farther away from the door so the tubing provides more resistance.



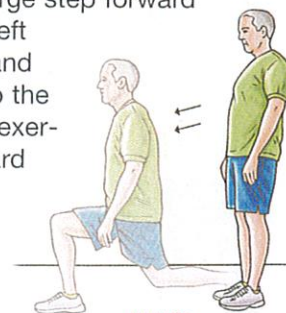
RESISTED HIP ABDUCTION

**6. RESISTED HIP ABDUCTION:** Stand sideways near a doorway. Tie elastic tubing around the ankle on your leg which is away from the door. Knot the other end of the tubing and close the knot in the door. Extend your leg out to the side, keeping your knee straight. Return to the starting position. Do 3 sets of 10.

To challenge yourself, move farther away from the door.

After the gluteal strengthening exercises become easy, strengthen your buttock muscles by doing lunges.

**7. LUNGE:** Stand and take a large step forward with your right leg. Dip your left knee down toward the floor and bend your right leg. Return to the starting position. Repeat the exercise, this time stepping forward with the left leg and dipping the leg on your right side down. Do 3 sets of 10 on each side.



LUNGE

# GROIN STRAIN

## What is a groin strain?

A strain is a stretch or tear of a muscle or tendon. People commonly call such an injury a “pulled” muscle. The muscles in your groin help bring your legs together. There are two muscles that may commonly get injured in a groin strain: the adductor magnus (the large muscle running down the inner side of the thigh) and the sartorius (a thinner muscle that starts on the outside of your hip, crosses your thigh and attaches near the inside of the knee).

## How does it occur?

A groin strain most commonly occurs when you are running or jumping or when there is a forced push-off or cut.

## What are the symptoms?

You will have pain or tenderness along the inner side of your thigh or in the groin area. You will have pain when you bring your legs together. You may have pain when lifting your knee up.

## How is it diagnosed?

Your healthcare provider will take note of your symptoms and will examine your thigh and hip.

## How is it treated?

Treatment may include:

- applying ice to the strained muscle for 20 to 30 minutes every 3 to 4 hours for 2 or 3 days or until the pain goes away
- taking an anti-inflammatory medication prescribed by your healthcare provider (adults aged 65 years and older should not take non-steroidal anti-inflammatory medicine for more than 7 days without their healthcare provider’s approval)
- wearing a supportive bandage called a thigh wrap or taping your thigh or groin
- doing the rehabilitation exercises you are given

While you are recovering from your injury, you will need to change your sport or activity to one that does not make your condition worse. For example, you may need to swim instead of run.

## When can I return to my sport or activity?

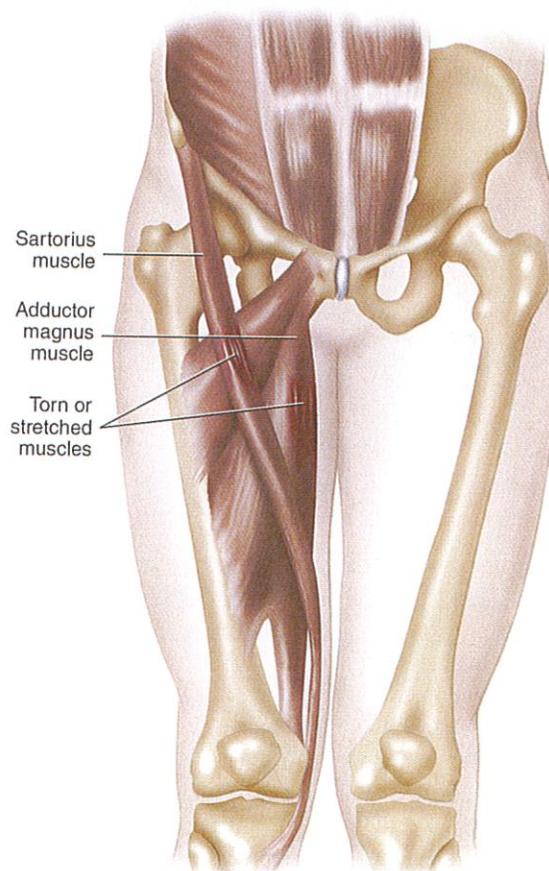
The goal of rehabilitation is to return you to your sport or activity as soon as is safely possible. If you return too soon you may worsen your injury, which could lead to permanent damage. Everyone recovers

from injury at a different rate. Return to your sport or activity will be determined by how soon your groin area recovers, not by how many days or weeks it has been since your injury occurred. In general, the longer you have symptoms before you start treatment, the longer it will take to get better.

You may safely return to your sport or activity when, starting from the top of the list and progressing to the end, each of the following is true:

- you have full range of motion in the injured leg compared to the uninjured leg
- you have full strength of the injured leg compared to the uninjured leg
- you can jog straight ahead without pain or limping
- you can sprint straight ahead without pain or limping
- you can do 45-degree cuts, first at half-speed, then at full-speed
- you can do 20-yard figures-of-eight, first at half-speed, then at full-speed

## GROIN STRAIN



- you can do 90-degree cuts, first at half-speed, then at full-speed
- you can do 10-yard figures-of-eight, first at half-speed, then at full-speed
- you can jump on both legs without pain and you can jump on the injured leg without pain

## How can I prevent a groin strain?

A groin strain is best prevented by warming up properly and doing groin muscle stretching exercises prior to your activities. This is especially important in activities such as sprinting or jumping.

## GROIN STRAIN REHABILITATION EXERCISES

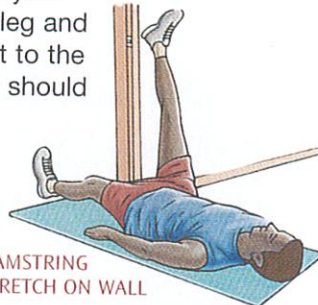
Begin stretching your groin muscles as soon as you can tolerate a stretch to that area.

- 1. HIP ADDUCTOR STRETCH:** Lie on your back, bend your knees, and put your feet flat on the floor. Gently spread your knees apart, stretching the muscles on the inside of your thigh. Hold this for 15 to 30 seconds. Repeat 3 times.



HIP ADDUCTOR STRETCH

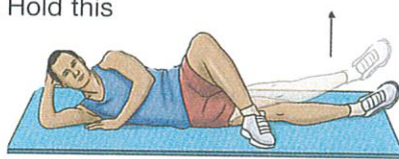
- 2. HAMSTRING STRETCH ON WALL:** Lie on your back with your buttocks close to a doorway, and extend your legs straight out in front of you along the floor. Raise one leg and rest it against the wall next to the door frame. Your other leg should extend through the doorway. You should feel a stretch in the back of your thigh. Hold this position for 15 to 30 seconds. Repeat 3 times.



HAMSTRING STRETCH ON WALL

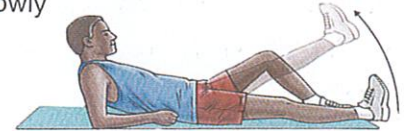
You may do the next 2 exercises when the pain in the groin muscles decreases.

- 3. SIDE-LYING LEG LIFT (CROSS OVER):** Lie on your side with your top leg bent and that foot placed in front of the bottom leg. Keep your bottom leg straight. Raise your bottom leg as far as you can comfortably and hold it for 5 seconds. Keep your hips still while you are lifting your leg. Hold this position for 5 seconds and then slowly lower your leg. Do 3 sets of 10.



SIDE-LYING LEG LIFT (CROSS OVER)

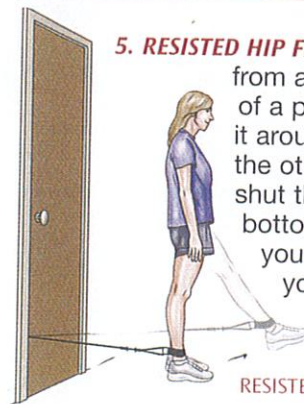
- 4. STRAIGHT LEG RAISE:** Lie on your back with your legs straight out in front of you. Bend one knee and place the foot flat on the floor. Tighten up the top of your thigh muscle on the opposite leg and lift that leg about 8 inches off the floor, keeping the thigh muscle tight throughout. Slowly lower your leg back down to the floor. Do 3 sets of 10 on each side.



STRAIGHT LEG RAISE

When the leg lifts become easy, it is time to start strengthening your thigh muscles and groin muscles using the elastic tubing exercises.

- 5. RESISTED HIP FLEXION:** Stand facing away from a door. Tie a loop in one end of a piece of elastic tubing and put it around one ankle. Tie a knot in the other end of the tubing and shut the knot in the door near the bottom. Tighten up the front of your thigh muscle and bring your leg forward, keeping your knee straight. Do 3 sets of 10.



RESISTED HIP FLEXION

- 6. RESISTED HIP EXTENSION:** Stand facing a door with elastic tubing tied around one ankle. Knot the other end of the tubing and shut the knot in the door. Pull your leg straight back, keeping your knee straight. Make sure you do not lean forward. Do 3 sets of 10.



RESISTED HIP EXTENSION

**7. RESISTED HIP ABDUCTION:**

Stand sideways near a doorway. Tie elastic tubing around the ankle on your leg which is away from the door. Knot the other end of the tubing and close the knot in the door. Extend your leg out to the side, keeping your knee straight. Return to the starting position.

Do 3 sets of 10.

To challenge yourself, move farther away from the door.



RESISTED HIP ABDUCTION

**8. RESISTED HIP ADDUCTION:**

Stand sideways next to a door. Tie a loop in one end of the tubing and slip the loop around the ankle of your leg which is closest to the door. Make a knot in the other end of the tubing and close the knot in a door. Bring your leg with the tubing across your body sideways, crossing over your other leg and stretching the tubing. Return to the starting position.

Do 3 sets of 10.



RESISTED HIP ADDUCTION

# HAMSTRING STRAIN

## What is a hamstring strain?

A strain is a stretch or tear of a muscle or tendon. People commonly call such an injury a “pulled” muscle.

Your hamstring muscle group is in the back of your thigh and allows you to bend your knee. It is made up of three large muscles: the biceps, semimembranosus, and semitendinosus.

## How does it occur?

A hamstring muscle strain usually occurs when these muscles are contracted forcefully during activities such as running or jumping.

## What are the symptoms?

There is often a burning feeling or a popping when the injury occurs. You have pain when walking or when bending or straightening your leg. A few days after the injury, you may have bruising on your leg just below the injury.

## How is it diagnosed?

Your healthcare provider will examine your leg and find tenderness at the site of the injury.

## How is it treated?

Treatment may include:

- applying ice packs to your hamstrings for 20 to 30 minutes every 3 to 4 hours for 2 to 3 days or until the pain goes away
- elevating your leg by placing a pillow underneath it
- wrapping an elastic bandage around your leg for compression to keep the swelling from getting worse
- taking anti-inflammatory medicine according to your healthcare provider’s prescription (adults aged 65 years and older should not take non-steroidal anti-inflammatory medicine for more than 7 days without their healthcare provider’s approval)
- using crutches if it is too painful to walk

As you return to your activity, you may be given an elastic thigh wrap to give extra support to your hamstrings. While you are recovering from your injury, you will need to change your sport or activity to one that does not make your condition worse. For example, you may need to swim or bicycle instead of run.

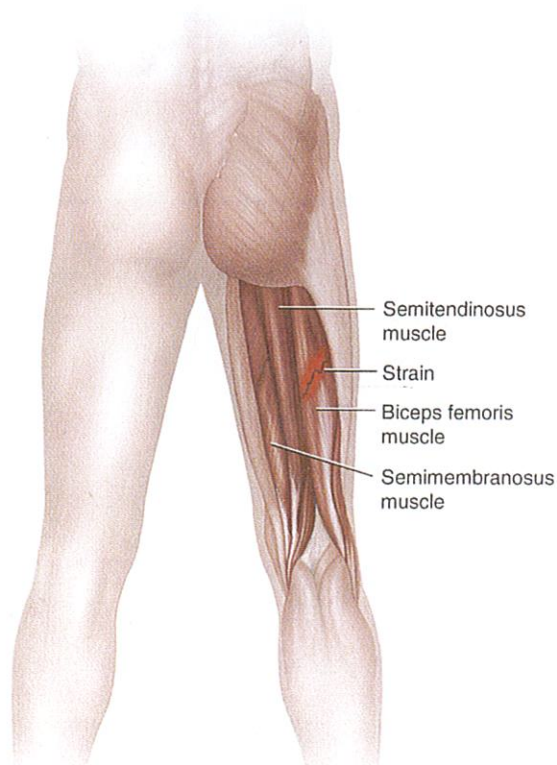
## When can I return to my sport or activity?

The goal of rehabilitation is to return you to your sport or activity as soon as is safely possible. If you return too soon you may worsen your injury, which could lead to permanent damage. Everyone recovers from injury at a different rate. Return to your sport or activity will be determined by how soon your leg recovers, not by how many days or weeks it has been since your injury occurred. In general, the longer you have symptoms before you start treatment, the longer it will take to get better.

You may safely return to your sport or activity when, starting from the top of the list and progressing to the end, each of the following is true:

- you have full range of motion in the injured leg compared to the uninjured leg
- you have full strength of the injured leg compared to the uninjured leg
- you can jog straight ahead without pain or limping
- you can sprint straight ahead without pain or limping

## HAMSTRING STRAIN



- you can do 45-degree cuts, first at half-speed, then at full-speed
- you can do 20-yard figures-of-eight, first at half-speed, then at full-speed
- you can do 90-degree cuts, first at half-speed, then at full-speed
- you can do 10-yard figures-of-eight, first at half-speed, then at full-speed

- you can jump on both legs without pain and you can jump on the injured leg without pain

### How can I prevent a hamstring strain?

A hamstring strain is best prevented by warming up properly and stretching your hamstring muscles prior to your activities. This is especially important in sprinting or jumping.

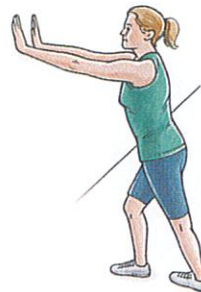
## HAMSTRING STRAIN REHABILITATION EXERCISES

You can begin gently stretching your hamstring right away by doing the standing hamstring stretch. Make sure you do not feel any sharp pain, only a mild discomfort in the back of your thigh when you are doing this stretch.

**1. STANDING HAMSTRING STRETCH:** Place the heel of your leg on a stool about 15 inches high. Keep your knee straight. Lean forward, bending at the hips until you feel a mild stretch in the back of your thigh. Make sure you do not roll your shoulders and bend at the waist when doing this or you will stretch your lower back instead. Hold the stretch for 15 to 30 seconds. Repeat 3 times for each leg.



STANDING HAMSTRING STRETCH



STANDING CALF STRETCH

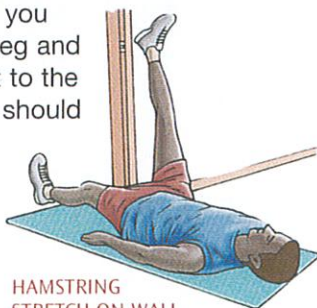
**3. STANDING CALF STRETCH:** Facing a wall, put your hands against the wall at about eye level. Keep one leg back with the heel on the floor, and the other leg forward. Turn your back foot slightly inward (as if you were pigeon-toed) as you slowly lean into the wall until you feel a stretch in the back of your calf. Hold for 15 to 30 seconds. Repeat 3 times.

Do this exercise several times each day.

After the standing hamstring stretch has become easier, you can do the standing calf stretch. You should stretch your calf muscle because it attaches near where your hamstring ends using the standing calf stretch.

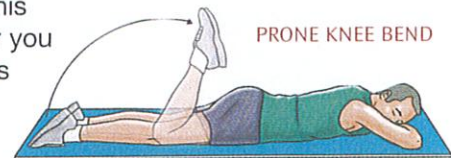
When the pain is gone, start strengthening your hamstrings using the following exercises.

**2. HAMSTRING STRETCH ON WALL:** Lie on your back with your buttocks close to a doorway, and extend your legs straight out in front of you along the floor. Raise one leg and rest it against the wall next to the door frame. Your other leg should extend through the doorway. You should feel a stretch in the back of your thigh. Hold this position for 15 to 30 seconds. Repeat 3 times.



HAMSTRING STRETCH ON WALL

**4. PRONE KNEE BEND:** Lie on your stomach with your legs straight out behind you. Bend your knee so that your heel comes toward your buttocks. Hold 5 seconds. Relax and return your foot to the floor. Do 3 sets of 10. As this becomes easier you can add weights to your ankle.



PRONE KNEE BEND

**5. PRONE HIP EXTENSION:** Lie on your stomach with your legs straight out behind you. Tighten up your buttocks muscles and lift one leg off the floor about 8 inches. Keep your knee straight. Hold for 5 seconds. Then lower your leg and relax. Do 3 sets of 10.



PRONE HIP EXTENSION

**6. RESISTED HAMSTRING CURL:** Sit in a chair facing a door (about 3 feet from the door). Loop and tie one end of the tubing around the ankle of one leg. Tie a knot in the other end of the tubing and shut the knot in the door. Bend your knee, bringing your foot down to the floor, and allow your foot to slide along the floor and move back underneath the chair, stretching the tubing. Slowly let your foot slide forward again. Do 3 sets of 10.



RESISTED HAMSTRING CURL

You can challenge yourself by moving the chair farther away from the door and increasing the resistance of the tubing.

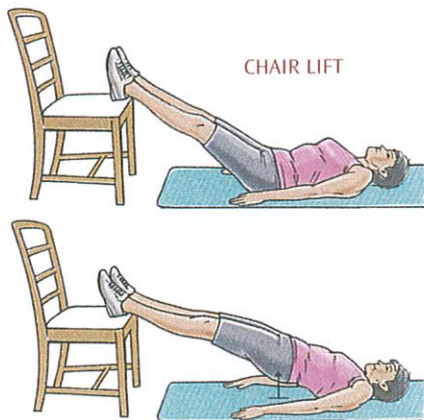
After your hamstrings have become stronger and you feel your leg is stable, you can begin strengthening the quadriceps (the muscles in the front of the thigh) by doing lunges.

**8. LUNGE:** Stand and take a large step forward with your right leg. Dip your left knee down toward the floor and bend your right leg. Return to the starting position. Repeat the exercise, this time stepping forward with the left leg and dipping the leg on your right side down. Do 3 sets of 10 on each side.



LUNGE

**7. CHAIR LIFT:** Lie on your back with your heels resting on the top of a chair. Slowly raise both hips off the floor. Hold for 2 seconds and lower slowly. Do 3 sets of 15.



CHAIR LIFT

# HIP FLEXOR STRAIN

## What is a hip flexor strain?

A strain is a stretch or tear of a muscle or tendon, a band of tissue that connects muscle to bone. The tendon may be inflamed. Inflammation of a tendon is called tendonitis. The hip flexor muscles allow you to lift your knee and bend at the waist.

## How does it occur?

Hip flexor strain occurs from overuse of the muscles that help you flex your knee or do high kicks. This injury occurs in bicyclists, athletes who jump or run with high knee kicks, athletes like soccer players who do forceful kicking activities, and people who practice the martial arts.

## What are the symptoms?

You have pain in the upper groin region where the thigh meets the pelvis.

## How is it diagnosed?

Your healthcare provider will examine your hip and thigh. You will have tenderness at the muscle and tendon.

## How is it treated?

Treatment may include:

- putting ice packs on the injured area for 20 to 30 minutes every 3 to 4 hours for 2 to 3 days or until the pain goes away
- taking anti-inflammatory medicines prescribed by your healthcare provider (adults aged 65 years and older should not take non-steroidal anti-inflammatory medicine for more than 7 days without their healthcare provider's approval)
- doing rehabilitation exercises to help you return to your activity

While you are recovering from your injury, you will

need to change your sport or activity to one that does not make your condition worse. For example, you may need to swim instead of bicycling or running.

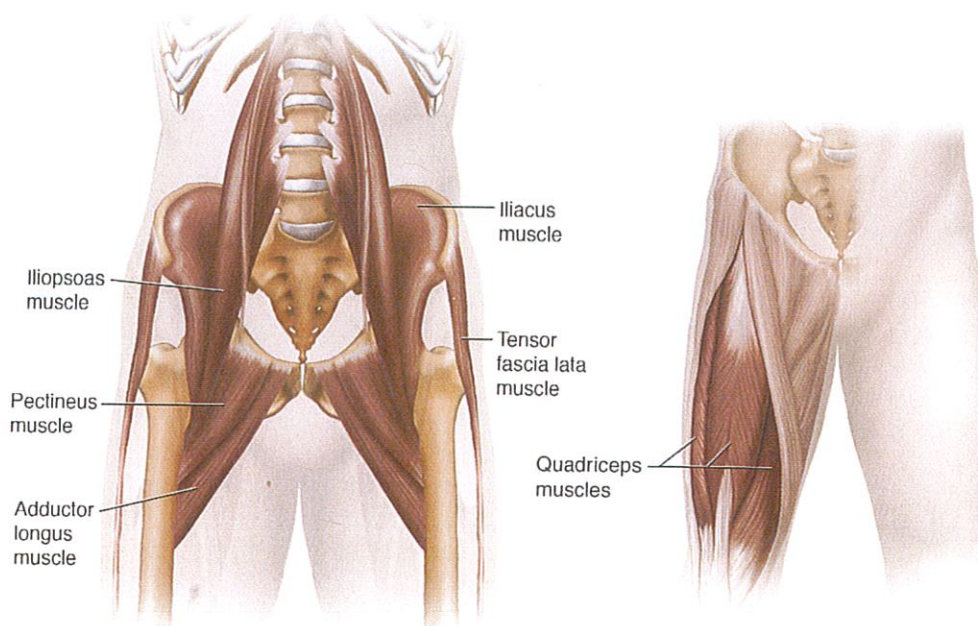
## How long will the effects last?

The length of recovery depends on many factors such as your age, health, and if you have had a previous hip flexor injury. Recovery time also depends on the severity of the injury. A mild hip flexor strain may recover within a few weeks, whereas a severe injury may take 6 weeks or longer to recover. You need to stop doing the activities that cause pain until the hip has healed. If you continue doing activities that cause pain, your symptoms will return and it will take longer to recover.

## When can I return to my normal activities?

Everyone recovers from an injury at a different rate. Return to your activities will be determined by how soon your hip recovers, not by how many days or weeks it has been since your injury has occurred. In general, the longer you have symptoms before you start treatment, the longer it will take to get better. The goal of rehabilitation is to return you to your normal activities as soon as is safely possible. If you return too soon you may worsen your injury.

## HIP FLEXOR STRAIN



You may safely return to your activities when, starting from the top of the list and progressing to the end, each of the following is true:

- you have full range of motion in the leg on the injured side compared to the leg on the uninjured side
- you have full strength of the leg on the injured side compared to the leg on the uninjured side

- you can walk straight ahead without pain or limping

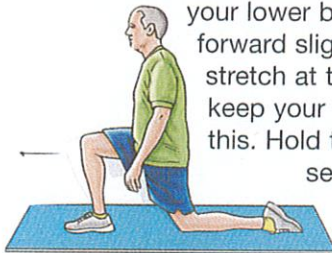
### How can I prevent a hip flexor strain?

Hip flexor strains are best prevented by warming up properly and doing stretching exercises before your activity. If you are a bicyclist make sure your seat is raised to the proper height.

## HIP FLEXOR STRAIN REHABILITATION EXERCISES

You can begin stretching your hip muscles right away by doing the first 2 exercises. Make sure you only feel a mild discomfort when stretching and not a sharp pain. You may do the last 3 exercises when the pain is gone.

**1. HIP FLEXOR STRETCH:** Kneel, then put your one leg forward, with the foot resting flat on the floor. From this position, tighten your stomach muscles, flatten your lower back and lean your hips forward slightly until you feel a stretch at the front of your hip. Try to keep your body upright as you do this. Hold this position for 15 to 30 seconds. Repeat 3 times on each side.



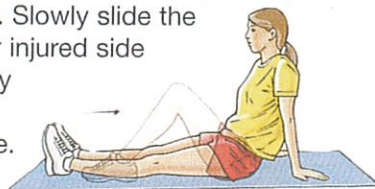
HIP FLEXOR STRETCH

**2. QUADRICEPS STRETCH:** Stand an arm's length away from the wall with your injured leg farthest from the wall. Facing straight ahead, brace yourself by keeping one hand against the wall. With your other hand, grasp the ankle of your injured leg and pull your heel toward your buttocks. Don't arch or twist your back. Keep your knees together. Hold this stretch for 15 to 30 seconds.



QUADRICEPS STRETCH

**3. HEEL SLIDE:** Sit on a firm surface with your legs straight in front of you. Slowly slide the heel of the leg on your injured side toward your buttock by pulling your knee to your chest as you slide. Return to the starting position. Do 3 sets of 10.



HEEL SLIDE

**4. STRAIGHT LEG RAISE:** Lie on your back with your legs straight out in front of you. Bend the knee on your uninjured side and place the foot flat on the floor. Tighten the thigh muscle of the other leg and lift it



STRAIGHT LEG RAISE

about 8 inches off the floor, keeping the thigh muscle tight throughout. Slowly lower your leg back down to the floor. Do 3 sets of 10.

**5. RESISTED HIP FLEXION:** Stand facing away from a door. Tie a loop in one end of a piece of elastic tubing and put it around one ankle. Tie a knot in the other end of the tubing and shut the knot in the door near the bottom.



RESISTED HIP FLEXION

Tighten up the front of your thigh muscle and bring your leg forward, keeping your knee straight. Do 3 sets of 10.

# HIP POINTER

## What is a hip pointer?

A hip pointer is a deep bruise on the top portion of your pelvis, called the iliac crest.

## How does it occur?

A hip pointer is caused by a direct blow to the iliac crest. This injury most commonly occurs in a contact sport such as football, when a helmet is driven into the iliac crest.

## What are the symptoms?

You have tenderness in the top portion of your hip.

## How is it diagnosed?

Your healthcare provider will examine your hip and pelvis. He or she may get an X-ray if he or she thinks there might be a fracture to that part of the iliac bone.

## How is it treated?

At first, treat your injury with ice packs for 20 to 30 minutes every 3 to 4 hours for 2 to 3 days or until the pain goes away. A hip pointer needs time to heal itself. Protect yourself from further injury by placing padding over the injury.

## When can I return to my sport or activity?

The goal of rehabilitation is to return you to your sport or activity as soon as is safely possible. If you return too soon you may worsen your injury, which could lead to permanent damage. Everyone recovers from injury at a different rate. Return to your sport or activity will be determined by how soon your hip recovers, not by how many days or weeks it has been since your injury

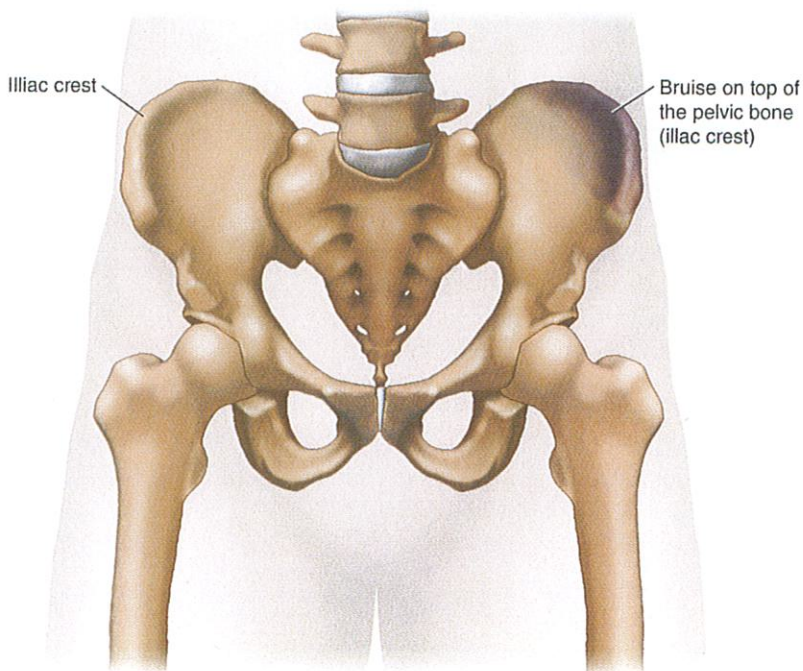
occurred. In general, the longer you have symptoms before you start treatment, the longer it will take to get better.

You may return to your sport or activity after a hip pointer when you have no pain when walking or running. You will usually have pain with contact to the hip pointer for several weeks after the injury. If a pad taped over the hip pointer provides enough protection during contact, you may continue participating in your sport or activity.

## How can I prevent a hip pointer?

A hip pointer is usually not preventable. However, if you are playing a contact sport it is important to wear proper protective padding over this area of your body.

## HIP POINTER



# MERALGIA PARESTHETICA

## What is meralgia paresthetica?

Meralgia paresthetica is an irritation of one of the nerves that goes to your upper, outer thigh.

## How does it occur?

The nerve that allows you to feel your upper outer thigh starts in your low back. As this nerve leaves the lower abdomen on its way to the thigh it can become trapped. No one really knows exactly why this happens. In some cases, a low back injury may cause a disk to push on the nerve. Some other causes may include:

- being very overweight
- diabetes
- wearing tight belts or pants

## What are the symptoms?

Symptoms can include burning, tingling, numbness, or pain in the upper, outer thigh. The skin may be very sensitive if anything touches it.

## How is it diagnosed?

Your healthcare provider will review your symptoms and examine your back, abdomen and thigh. An X-ray, CT scan or MRI may be done of your back, pelvis, or hip to see where the nerve is getting trapped. Many times these tests are normal. Your provider may also order a test to see how well the nerves are working, called a nerve conduction test.

## How is it treated?

In many cases the symptoms go away without treatment. Treatments may include:

- Wear looser clothing.
- Lose weight if needed.
- Your provider may recommend a cortisone-like injection in the nerve.
- In some cases surgery may be done to release the trapped nerve.
- If the problem is due to a disk problem in your back, your provider may recommend treatment for your disk.

## How long will the effects last?

The symptoms may last for weeks to months.

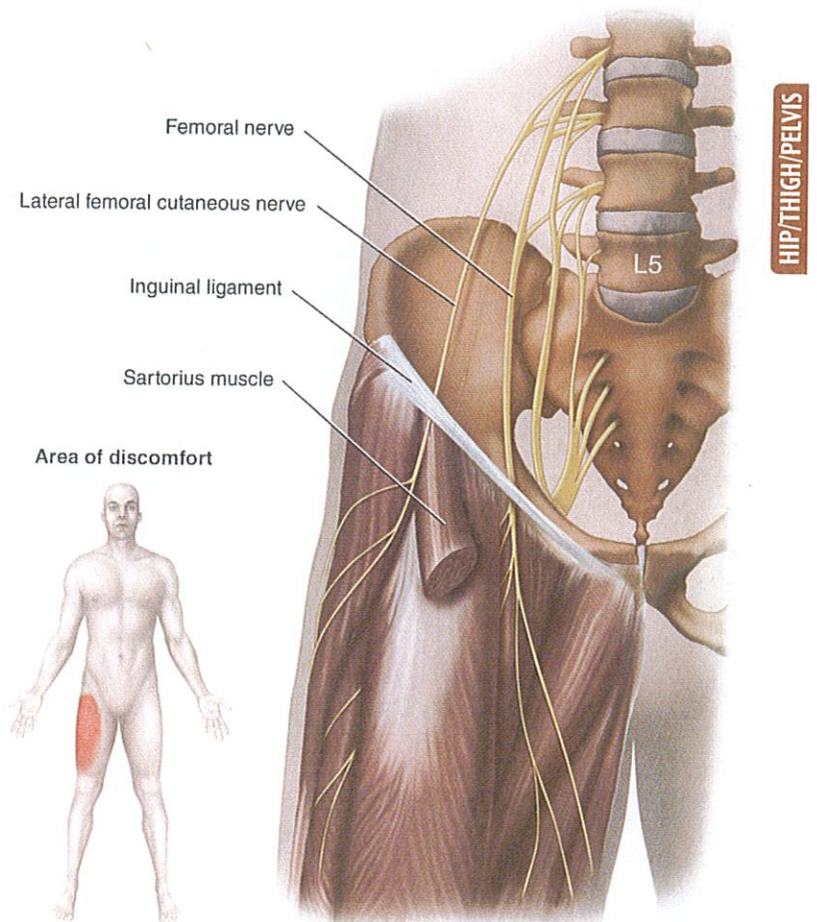
## When can I return to my sport or activity?

You may continue your sport unless you are too uncomfortable to participate. If your athletic clothing or body positions make your symptoms worse, you may need to try to change them.

## What can I do to help prevent meralgia paresthetica?

Wear looser clothing and belts and maintain a healthy weight.

## MERALGIA PARESTHETICA



# OSTEITIS PUBIS

## What is osteitis pubis?

Osteitis pubis, also known as pubic symphysis, is pain and inflammation at the pubic symphysis. The pubic symphysis is where the right and left pubic bones meet. Your pubic bones are a part of the pelvis at your lower abdomen and groin.

## How does it occur?

Osteitis pubis usually occurs from activities that you do often and repeat the same movement over and over, such as running or jumping.

## What are the symptoms?

The most common symptom is pain directly over the pubic symphysis. The pain may begin gradually and may sometimes move to different places along the groin and pelvis. You may have pain in the groin, at the muscles that attach to the pelvis, and at the pubic bone.

## How is it diagnosed?

Your healthcare provider will ask about your symptoms and examine you. You may have tenderness at your pubic bone or at the muscles that attach to the pubic bone. You may have an X-ray. Sometimes scans such as a bone scan or an MRI are needed to check for irritation at the pubic symphysis.

## How is it treated?

This problem requires rest until the symptoms go away. If running causes pain, you should swim or bicycle instead. You may need to rest from all activities. Participating in activities that cause pain will mean that healing will take longer. Sometimes it takes 2 to 3 months or longer for symptoms to go away. Anti-inflammatory medicines (such as ibuprofen) and putting an ice pack on the area for 20 to 30 minutes 3 to 4 times a day will help. Osteitis pubis requires more rest than rehabilitation and most of all requires patience (adults aged 65 years and older should not take non-steroidal anti-inflammatory medicine for more than 7 days without their healthcare provider's approval).

## When can I return to my sport or activity?

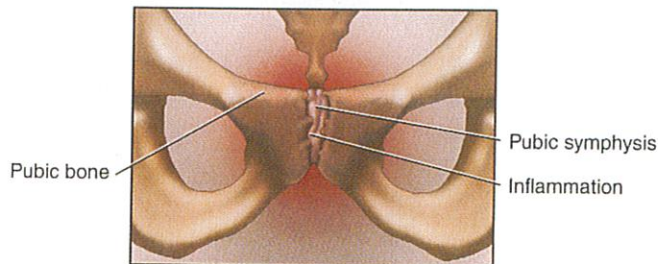
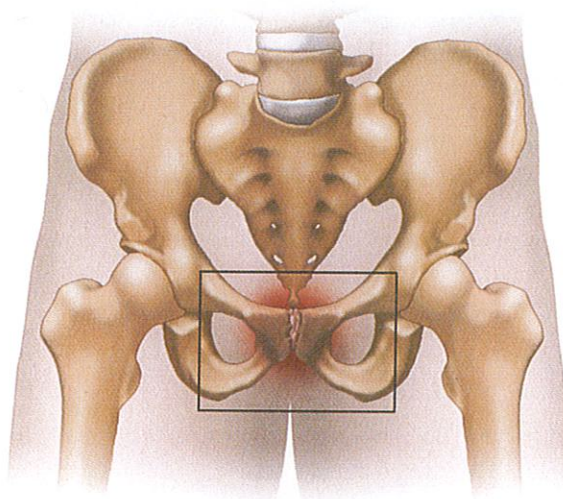
The goal is for you to return to your sport or activity as soon as is safely possible. If you return too soon you may worsen your injury, which could lead to long-term damage. Everyone recovers from injury at a different rate. Return to your sport or activity will be determined by when your pain goes away, not by

how many days or weeks it has been since your injury occurred. In general, the longer you have symptoms before you start treatment, the longer it will take to get better.

You may safely return to your sport or activity when, starting from the top of the list and progressing to the end, each of the following is true:

- you do not have any pain or tenderness over the pubic bone
- you can jog straight ahead without pain or limping
- you can sprint straight ahead without pain or limping
- you can do 45-degree cuts, first at half-speed, then at full-speed
- you can do 20-yard figures-of-eight, first at half-speed, then at full-speed
- you can do 90-degree cuts, first at half-speed, then at full-speed
- you can do 10-yard figures-of-eight first at half-speed, then at full-speed

## OSTEITIS PUBIS



# PELVIC AVULSION FRACTURES

## What is a pelvic avulsion fracture?

There are several muscles in the thigh that attach to various parts of the pelvis. An avulsion is the tearing away of a body part from its point of attachment. An avulsion fracture occurs when a tendon that attaches a muscle to a bone pulls part of the bone away.

## How does it occur?

An avulsion fracture may occur after sudden, forceful contraction of the muscle. It is often seen in athletes with tight muscles. Common sites for avulsion fractures include where the sartorius muscle attaches to the top front of the pelvis; where the rectus femoris muscle attaches to the front of the pelvis; where the hamstring muscle group attaches to the part of the pelvis called the ischial tuberosity (the part of your pelvis that you sit on).

## What are the symptoms?

You have pain at the attachment site of the muscles. There is tenderness and swelling.

## How is it diagnosed?

Your healthcare provider will review your symptoms and examine the injured area. Since the muscle has been torn away from its attachment site, it is possible that you may not be able to perform a muscle function. Your healthcare provider may order an X-ray that would show a piece of bone pulled away from its muscular attachment site.

## How is it treated?

These avulsion fractures require rest. In general, they will heal with 4 to 6 weeks of rest. You may need to use crutches for most of this time. If the bony fragment is large or is torn away from its original site by a significant distance, surgery may be required.

At the time of the initial injury you should apply ice to the area for 20 to 30 minutes every 3 to 4 hours for 2 to 3 days or until the pain goes away. Your healthcare provider may prescribe anti-inflammatory medicines (adults aged 65 years and older should not take non-steroidal anti-inflammatory medicine for more than 7 days without their healthcare provider's approval).

## When can I return to my sport or activity?

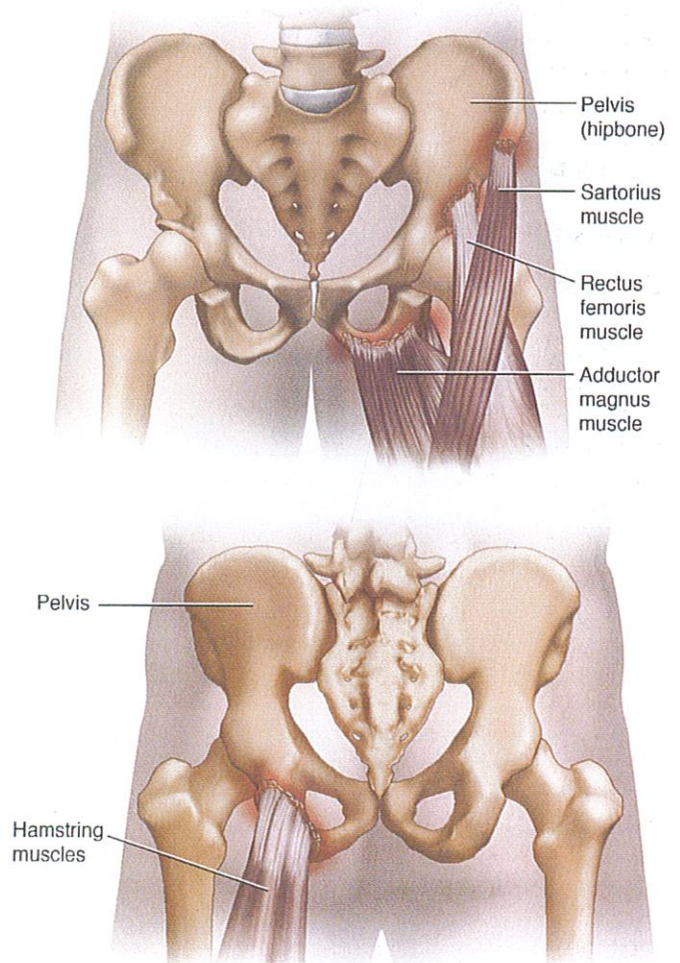
The goal of rehabilitation is to return you to your sport or activity as soon as is safely possible. If you return too soon you may worsen your injury, which could lead to permanent damage. Everyone recovers

from injury at a different rate. Return to your sport or activity will be determined by how soon the injured area recovers, not by how many days or weeks it has been since your injury occurred. In general, the longer you have symptoms before you start treatment, the longer it will take to get better.

You may safely return to your sport or activity when, starting from the top of the list and progressing to the end, each of the following is true:

- you have full range of motion in the injured leg compared to the uninjured leg
- you have full strength of the injured leg compared to the uninjured leg
- you can jog straight ahead without pain or limping
- you can sprint straight ahead without pain or limping

## PELVIC AVULSION FRACTURES



- you can do 45-degree cuts, first at half-speed, then at full-speed
- you can do 20-yard figures-of-eight, first at half-speed, then at full-speed
- you can do 90-degree cuts, first at half-speed, then at full-speed
- you can do 10-yard figures-of-eight, first at half-speed, then at full-speed
- you can jump on both legs without pain and you can jump on the injured leg without pain

### How can pelvic avulsion fractures be prevented?

Since tight muscles are a common cause of avulsion fractures, be sure to do stretching exercises to prevent these injuries from happening again. Warm up properly and stretch your thigh, hamstring, and groin muscles before your activity.

# PIRIFORMIS SYNDROME

## What is piriformis syndrome?

Piriformis syndrome refers to irritation of the sciatic nerve as it passes through or next to the piriformis muscle located deep in the buttock. Inflammation of the sciatic nerve, called sciatica, causes pain in the back of the hip that can often travel down into the leg.

## How does it occur?

The piriformis muscle is located deep in the buttock and pelvis and allows you to rotate your thigh outward. The sciatic nerve travels from your back into your leg by passing through or next to the piriformis muscle. If the piriformis muscle is unusually tight or if it goes into spasm, the sciatic nerve can become inflamed or irritated. Piriformis syndrome may also be related to intense downhill running.

## What are the symptoms?

You have pain deep in your buttock that may feel like a burning pain. The pain usually travels down across your lower thigh. Your pain may increase when you move your thigh outward, such as when you are sitting cross-legged.

## How is it diagnosed?

Your healthcare provider will talk to you about when your symptoms began. Since your sciatic nerve begins in the back, it can be irritated from a back injury, such as a herniated disk. Your provider will ask if you have had any injuries to your back or hip. He or she will examine your back to see if the sciatic nerve is irritated there. He or she will examine your hip and legs and move them to see if movement causes increased pain.

Your healthcare provider may order X-rays, a computed tomography (CT) scan, or a magnetic resonance image (MRI) of your back to see if there is a back injury. There are no X-ray tests that can detect if the nerve is being irritated at the piriformis muscle.

## How is it treated?

Treatment may include:

- placing ice packs on your buttock for 20 to 30 minutes every 3 to 4 hours for the first 2 to 3 days or until the pain goes away

- resting
- taking prescribed anti-inflammatory medicines or muscle relaxants (adults aged 65 years and older should not take non-steroidal anti-inflammatory medicine for more than 7 days without their health-care provider's approval)
- learning and doing stretching exercises of the piriformis muscle

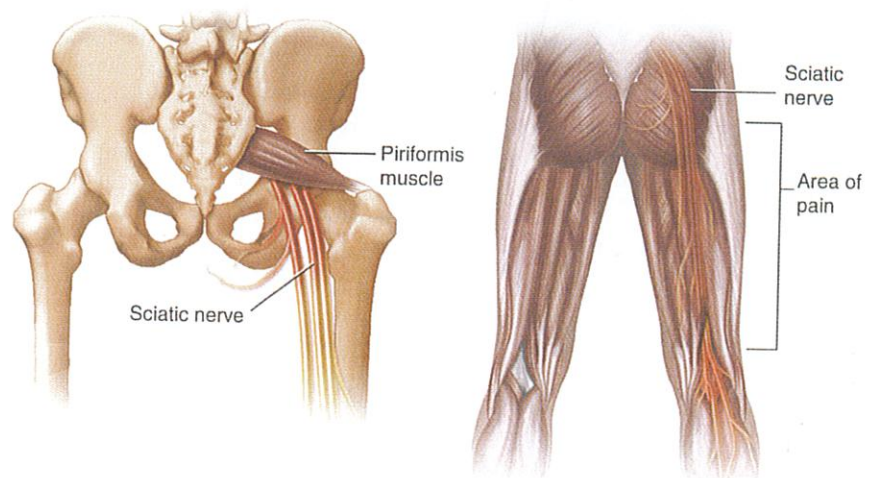
## When can I return to my sport or activity?

The goal of rehabilitation is to return you to your sport or activity as soon as is safely possible. If you return too soon you may worsen your injury, which could lead to permanent damage. Everyone recovers from injury at a different rate. Return to your sport or activity will be determined by how soon the nerve recovers, not by how many days or weeks it has been since your injury occurred. In general, the longer you have symptoms before you start treatment, the longer it will take to get better.

You may safely return to your sport or activity when, starting from the top of the list and progressing to the end, each of the following is true:

- you have full range of motion in the affected leg compared to the unaffected leg
- you have full strength of the affected leg compared to the unaffected leg
- you can jog straight ahead without pain or limping
- you can sprint straight ahead without pain or limping

## PIRIFORMIS SYNDROME



- you can do 45-degree cuts, first at half-speed, then at full-speed
- you can do 20-yard figures-of-eight, first at half-speed, then at full-speed
- you can do 90-degree cuts, first at half-speed, then at full-speed
- you can do 10-yard figures-of-eight, first at half-speed, then at full-speed

- you can jump on both legs without pain and you can jump on the affected leg without pain

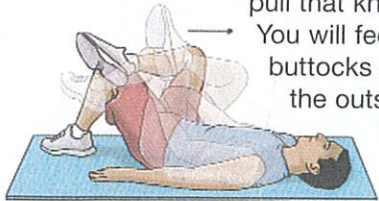
### How I prevent piriformis syndrome?

Piriformis syndrome is best prevented by stretching the muscles that rotate your thigh inward and outward. It is important to have a good warm-up before starting your sport or activity.

## PIRIFORMIS SYNDROME REHABILITATION EXERCISES


You may do all of these exercises right away.

**1. GLUTEAL STRETCH:** Lying on your back with both knees bent, rest the ankle of one leg over the knee of your other leg. Grasp the thigh of the bottom leg and pull that knee toward your chest. You will feel a stretch along the buttocks and possibly along the outside of your hip on the top leg. Hold this for 15 to 30 seconds. Repeat 3 times.



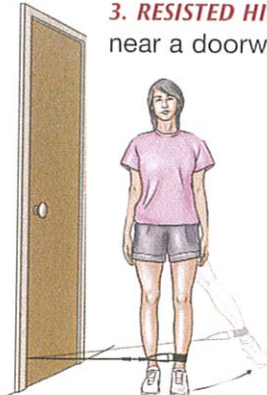
GLUTEAL STRETCH

**2. STANDING HAMSTRING STRETCH:** Place the heel of your leg on a stool about 15 inches high. Keep your knee straight. Lean forward, bending at the hips until you feel a mild stretch in the back of your thigh. Make sure you do not roll your shoulders and bend at the waist when doing this or you will stretch your lower back instead. Hold the stretch for 15 to 30 seconds. Repeat 3 times for each leg.



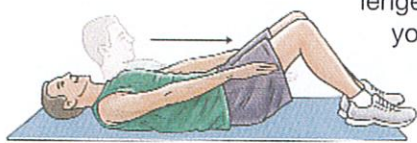
STANDING HAMSTRING STRETCH

**3. RESISTED HIP ABDUCTION:** Stand sideways near a doorway. Tie elastic tubing around the ankle on your leg which is away from the door. Knot the other end of the tubing and close the knot in the door. Extend your leg out to the side, keeping your knee straight. Return to the starting position. Do 3 sets of 10. To challenge yourself, move farther away from the door.




RESISTED HIP ABDUCTION

**4. PARTIAL CURL:** Lie on your back with your knees bent and your feet flat on the floor. Tighten your stomach muscles and flatten your back against the floor. Tuck your chin to your chest. With your hands stretched out in front of you, curl your upper body forward until your shoulders clear the floor. Hold this position for 3 seconds. Don't hold your breath. It helps to breathe out as you lift your shoulders up. Relax. Repeat 10 times. Build to 3 sets of 10. To challenge yourself, clasp your hands behind your head and keep your elbows out to the side.



PARTIAL CURL

**5. PRONE HIP EXTENSION (BENT LEG):** Lie on your stomach with a pillow underneath your hips. Bend one knee, tighten up your buttocks muscles, and lift your leg off the floor about 6 inches. Keep the leg on the floor straight. Hold for 5 seconds. Then lower your leg and relax. Do 3 sets of 10.



PRONE HIP EXTENSION (BENT LEG)

Repeat this exercise for the other leg.

**QUADRUPED ARM/LEG RAISE:** Get down on your hands and knees. Tighten your abdominal muscles to stiffen your spine. While keeping your abdominals tight, raise one arm and the opposite leg away from you. Hold this position for 5 seconds.

Lower your arm and leg slowly and alternate sides. Do this 10 times on each side.



QUADRUPED ARM/LEG RAISE

# QUADRICEPS CONTUSION (THIGH BRUISE) AND STRAIN

## What is a thigh bruise (quadriceps contusion) and strain?

A thigh bruise is a bruise (contusion) to the large group of muscles in the front of the thigh that help straighten the leg. These muscles are called the quadriceps. A thigh bruise is also called a charley horse. A strain is a partial tear of a muscle and is often called a pulled muscle.

## How does it occur?

A thigh bruise is caused by a direct blow to the muscles of the thigh. A strain may be caused by overuse or by an abrupt movement of the thigh in activities such as sprinting or jumping.

## What are the symptoms?

You have pain in the middle of your thigh and have difficulty walking or running. You may have difficulty bending or straightening your leg or lifting your knee. An area of your thigh may be swollen and discolored.

A thigh bruise or strain usually heals without complications. However, a large bruise may bleed a lot into the quadriceps muscle. This bleeding is called a hematoma. The hematoma may become calcified and form a hard lump in the quadriceps muscle. This lump is called osteomyositis ossificans and may cause stiffness or a bump in the muscle that may be very long lasting.

## How is it diagnosed?

Your healthcare provider will ask about your symptoms and examine your thigh. If your provider suspects an area of calcification, an X-ray may be ordered.

## How is it treated?

Right after your injury your healthcare provider may wrap your leg in a bent-knee position and place ice over your thigh. This will put a maximum stretch on the thigh muscles, keeping them from becoming too tight or stiff during healing.

Other treatment may include:

- putting ice packs on your thigh for 20 to 30 minutes every 3 to 4 hours for 2 or 3 days or until the pain goes away
- lying down and elevating your thigh by putting a pillow under it

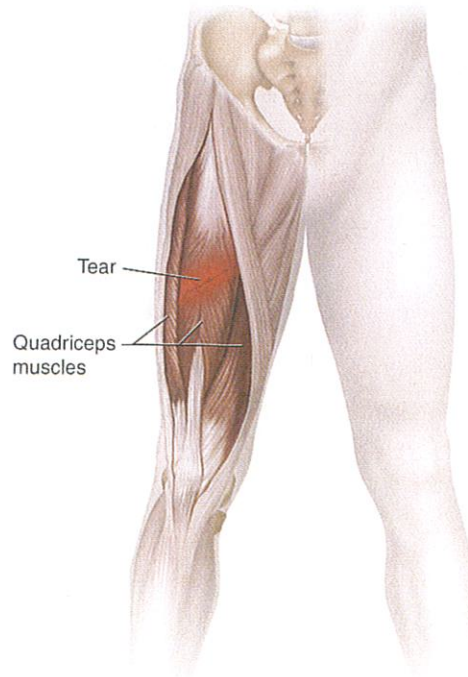
- taking an anti-inflammatory medicine prescribed by your healthcare provider (adults aged 65 years and older should not take non-steroidal anti-inflammatory medicine for more than 7 days without their healthcare provider's approval)
- wearing an elastic thigh wrap when you return to sports
- having prescribed physical therapy, which would include rehabilitation exercises and deep tissue treatments such as ultrasound or electrical stimulation.

While you are recovering from your injury you will need to change your sport or activity to one that does not make your condition worse. For example, you may need to swim instead of run.

## When can I return to my sport or activity?

The goal of rehabilitation is to return you to your sport or activity as soon as is safely possible. If you return too soon you may worsen your injury, which could lead to permanent damage. Everyone recovers from injury at a different rate. Return to your sport or activity will be determined by how soon your thigh recovers, not by how many days or weeks it has been

## QUADRICEPS CONTUSION (THIGH BRUISE) AND STRAIN



since your injury occurred. In general, the longer you have symptoms before you start treatment, the longer it will take to get better.

You may safely return to your sport or activity when, starting from the top of the list and progressing to the end, each of the following is true:

- you have full range of motion in the injured leg compared to the uninjured leg
- you have full strength of the injured leg compared to the uninjured leg
- you can jog straight ahead without pain or limping
- you can sprint straight ahead without pain or limping
- you can do 45-degree cuts, first at half-speed, then at full-speed
- you can do 20-yard figures-of-eight, first at half-speed, then at full-speed

- you can do 90-degree cuts, first at half-speed, then at full-speed
- you can do 10-yard figures-of-eight, first at half-speed, then at full-speed
- you can jump on both legs without pain and you can jump on the injured leg without pain

### How can I prevent a thigh bruise or strain?

A thigh bruise usually occurs from a direct blow to the thigh, which may not be preventable. However, in contact sports such as football be sure to wear the proper protective equipment. Strains are best prevented by warming up and stretching properly before your activity.

## QUADRICEPS CONTUSION (THIGH BRUISE) AND STRAIN REHABILITATION EXERCISES

You may do all of these exercises right away.



QUADRICEPS STRETCH

**1. QUADRICEPS STRETCH:** Stand an arm's length away from the wall, facing straight ahead. Brace yourself by keeping one hand against the wall. With your other hand, grasp the ankle of the opposite leg and pull your heel toward your buttocks. Don't arch or twist your back. Keep your knees together. Hold this stretch for 15 to 30 seconds. Repeat 3 times on each side.

**2. QUAD SETS:** Sitting on the floor with one leg straight and your other leg bent, press the back of your knee of your straight leg into the floor by tightening the muscles on the top of your thigh. Hold this position 10 seconds. Relax. Do 3 sets of 10.



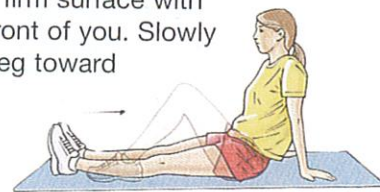
QUAD SETS

**3. STRAIGHT LEG RAISE:** Lie on your back with your legs straight out in front of you. Bend one knee and place the foot flat on the floor. Tighten up the top of your thigh muscle on the opposite leg and lift that leg about 8 inches off the floor, keeping the thigh muscle tight throughout. Slowly lower your leg back down to the floor. Do 3 sets of 10 on each side.



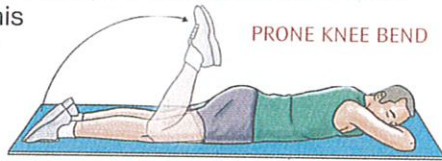
STRAIGHT LEG RAISE

**4. HEEL SLIDE:** Sit on a firm surface with your legs straight in front of you. Slowly slide the heel of one leg toward your buttock by pulling your knee to your chest as you slide. Return to the starting position. Do 3 sets of 10.

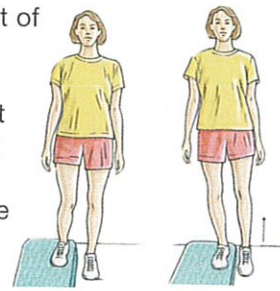


HEEL SLIDE

**5. PRONE KNEE BEND:** Lie on your stomach with your legs straight out behind you. Bend your knee so that your heel comes toward your buttocks. Hold 5 seconds. Relax and return your foot to the floor. Do 3 sets of 10. As this becomes easier you can add weights to your ankle.



**7. STEP-UP:** Stand with the foot of one leg on a support (like a block of wood) 3 to 5 inches high. Keep your other foot flat on the floor. Shift your weight onto the leg on the support and straighten the knee as the other leg comes off the floor. Lower your leg back to the floor slowly. Do 3 sets of 10.



When you have no pain with walking or climbing stairs you can begin the next 2 exercises.

**6. WALL SQUAT:** Stand with your back, shoulders, and head against a wall and look straight ahead. Keep your shoulders relaxed and your feet 1 foot away from the wall and a shoulder's width apart. Keeping your head against the wall, slide down the wall, lowering your buttocks toward the floor until your thighs are almost parallel to the floor. Hold this position for 10 seconds. Make sure to tighten the thigh muscles as you slowly slide back up to the starting position. Do 3 sets of 10. Increasing the amount of time you are in the lowered position helps strengthen your quadriceps muscles.



HIP/THIGH/PELVIS

# SNAPPING HIP SYNDROME

## What is snapping hip syndrome?

Snapping hip syndrome is a condition in which you feel a snap on the outside portion of your hip as you walk or run. It may happen only occasionally or it may happen all the time.

## How does it occur?

Several groups of muscles cross the hip as they pass from the thigh bone to the pelvis. When you bring your knee forward during walking, you may have a feeling of snapping in the hip. The snapping usually occurs because of tightness in a muscle called the iliopsoas or tightness in a muscle called the tensor fascia lata.

## What are the symptoms?

You feel snapping in your hip as you walk or run.

## How is it diagnosed?

Your healthcare provider will examine your hip and thigh. He or she may be able to feel the muscle group that is snapping as the leg moves forward.

## How is it treated?

Since this problem usually occurs because some muscles are too tight and some muscles are too loose, you will be given exercises to both strengthen and stretch your hip and thigh muscles. Your healthcare provider may prescribe an anti-inflammatory medicine if this area is painful (adults aged 65 years and older should not take non-steroidal anti-inflammatory medicine for more than 7 days without their healthcare provider's approval). If this area becomes inflamed, your provider may recommend that you put ice packs on the area for 20 to 30 minutes every 3 to 4 hours for 2 to 3 days or until the pain goes away.

## When can I return to my sport or activity?

The goal of rehabilitation is to return you to your sport or activity as soon as is safely possible. If you return too soon you may worsen your injury, which could lead to permanent damage. Everyone recovers from injury at a different rate. Return to your sport or activity will be determined by how soon your hip recovers, not by how many days or weeks it has been since your injury occurred. In general, the longer you have symptoms before you start treatment, the longer it will take to get better.

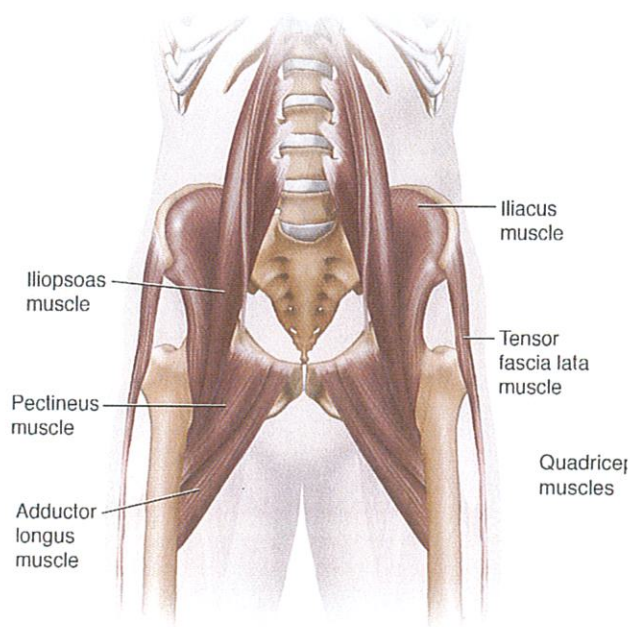
You may safely return to your sport or activity when, starting from the top of the list and progressing to the end, each of the following is true:

- you have full range of motion in the affected hip compared to the unaffected hip
- you have full strength of the affected hip compared to the unaffected hip
- you can jog straight ahead without pain or limping
- you can sprint straight ahead without pain or limping
- you can do 45-degree cuts, first at half-speed, then at full-speed
- you can do 20-yard figures-of-eight, first at half-speed, then at full-speed
- you can do 90-degree cuts, first at half-speed, then at full-speed
- you can do 10-yard figures-of-eight, first at half-speed, then at full-speed
- you can jump on both legs without pain and you can jump on the affected leg without pain

## How can I prevent snapping hip syndrome?

Snapping hip syndrome may be prevented by stretching the muscles that cross the hip from the pelvis to the thigh bone.

## SNAPPING HIP SYNDROME



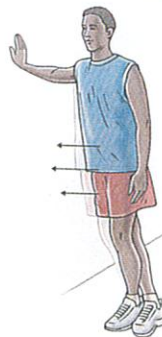
# SNAPPING HIP SYNDROME REHABILITATION EXERCISES

You may do all of these exercises right away.



QUADRICEPS STRETCH

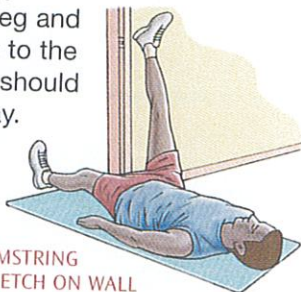
**1. QUADRICEPS STRETCH:** Stand an arm's length away from the wall, facing straight ahead. Brace yourself by keeping one hand against the wall. With your other hand, grasp the ankle of the opposite leg and pull your heel toward your buttocks. Don't arch or twist your back. Keep your knees together. Hold this stretch for 15 to 30 seconds. Repeat 3 times on each side.



**5. ILIOTIBIAL BAND STRETCH: SIDE-LEANING:** Stand sideways near a wall. Place one hand on the wall for support. Cross the leg farthest from the wall over the other leg, keeping the foot closest to the wall stable. Lean into the wall. Hold the stretch for 15 seconds and repeat 3 times.

ILIOTIBIAL BAND STRETCH: SIDE-LEANING

**2. HAMSTRING STRETCH ON WALL:** Lie on your back with your buttocks close to a doorway, and extend your legs straight out in front of you along the floor. Raise one leg and rest it against the wall next to the door frame. Your other leg should extend through the doorway. You should feel a stretch in the back of your thigh. Hold this position for 15 to 30 seconds. Repeat 3 times.



HAMSTRING STRETCH ON WALL

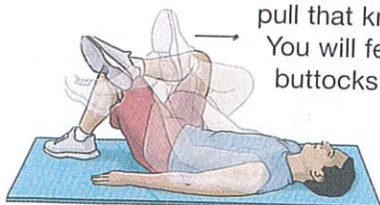
**6. PRONE HIP EXTENSION:** Lie on your stomach with your legs straight out behind you. Tighten up your buttocks muscles and lift one leg off the floor about 8 inches. Keep your knee straight. Hold for 5 seconds. Then lower your leg and relax. Do 3 sets of 10.



PRONE HIP EXTENSION

HIP/HIGH/PELVIS

**3. GLUTEAL STRETCH:** Lying on your back with both knees bent, rest the ankle of one leg over the knee of your other leg. Grasp the thigh of the bottom leg and pull that knee toward your chest. You will feel a stretch along the buttocks and possibly along the outside of your hip on the top leg. Hold this for 15 to 30 seconds. Repeat 3 times.



GLUTEAL STRETCH

**7. SIDE-LYING LEG LIFT:** Lying on your side, tighten the front thigh muscles on your top leg and lift that leg 8 to 10 inches away from the other leg. Keep the leg straight. Do 3 sets of 10.



SIDE-LYING LEG LIFT

**4. ILIOTIBIAL BAND STRETCH: STANDING:** Cross one leg in front of the other leg and bend down and touch your toes. You can move your hands across the floor toward the front leg and you will feel more stretch on the outside of your thigh on the other side. Hold this position for 15 to 30 seconds. Return to the starting position. Repeat 3 times.



ILIOTIBIAL BAND STRETCH: STANDING

# TROCHANTERIC BURSTITIS

## What is trochanteric bursitis?

Trochanteric bursitis is irritation or inflammation of the trochanteric bursa. A bursa is a fluid-filled sac that acts as a cushion between tendons, bones, and skin. The trochanteric bursa is located on the upper, outer area of the thigh. There is a bump on the outer side of the upper part of the thigh bone (femur) called the greater trochanter. The trochanteric bursa is located over the greater trochanter.

## How does it occur?

The trochanteric bursa may be inflamed by a group of muscles or tendons rubbing over the bursa and causing friction against the thigh bone. This injury can occur with running, walking, or bicycling, especially when the bicycle seat is too high.

## What are the symptoms?

You have pain on the upper outer area of your thigh or in your hip. The pain is worse when you walk, bicycle, or go up or down stairs. You have pain when you move your thigh bone and feel tenderness in the area over the greater trochanter.

## How is it diagnosed?

Your healthcare provider will ask about your symptoms and examine your hip and thigh.

## How is it treated?

Treatment may include the following:

- putting ice packs on your thigh for 20 to 30 minutes every 3 to 4 hours for 2 to 3 days or until the pain goes away
- taking anti-inflammatory medicine prescribed by your healthcare provider (adults aged 65 years and older should not take non-steroidal anti-inflammatory medicine for more than 7 days without their healthcare provider's approval)
- getting a corticosteroid injection into the bursa to reduce the pain and swelling

While you are recovering from your injury you will need to change your sport or activity to one that does not make your condition worse. For example, you may need to swim instead of running or

bicycling. If you are bicycling, you may need to lower your bicycle seat.

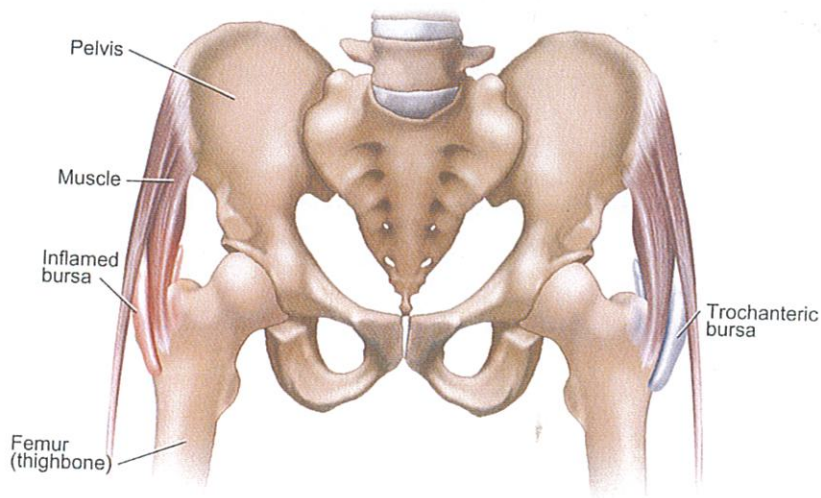
## When can I return to my sport or activity?

The goal of rehabilitation is to return you to your sport or activity as soon as is safely possible. If you return too soon you may worsen your injury, which could lead to permanent damage. Everyone recovers from injury at a different rate. Return to your sport or activity will be determined by how soon your leg recovers, not by how many days or weeks it has been since your injury occurred. In general, the longer you have symptoms before you start treatment, the longer it will take to get better.

You may safely return to your sport or activity when, starting from the top of the list and progressing to the end, each of the following is true:

- you have full range of motion in the injured leg compared to the uninjured leg
- you have full strength of the injured leg compared to the uninjured leg
- you can jog straight ahead without pain or limping
- you can sprint straight ahead without pain or limping
- you can do 45-degree cuts, first at half-speed, then at full-speed
- you can do 20-yard figures-of-eight, first at half-speed, then at full-speed
- you can do 90-degree cuts, first at half-speed, then at full-speed

## TROCHANTERIC BURSTITIS



- you can do 10-yard figures-of-eight, first at half-speed, then at full-speed
- you can jump on both legs without pain and you can jump on the injured leg without pain

## How can I prevent trochanteric bursitis?

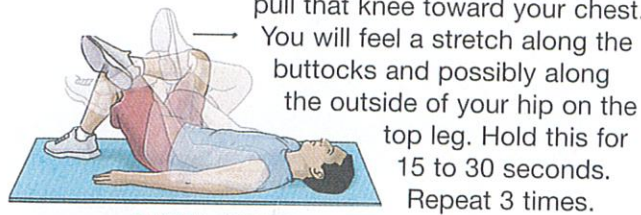
Trochanteric bursitis is best prevented by warming up properly and stretching the muscles on the outer side of your upper thigh.

# TROCHANTERIC BURSTITIS REHABILITATION EXERCISES

You can begin stretching the muscles that run along the outside of your hip using the first 3 exercises. You can do the strengthening exercises when the sharp pain lessens.

## Stretching exercises

**1. GLUTEAL STRETCH:** Lying on your back with both knees bent, rest the ankle of one leg over the knee of your other leg. Grasp the thigh of the bottom leg and pull that knee toward your chest.



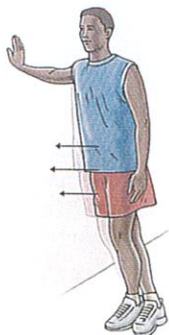
GLUTEAL STRETCH

You will feel a stretch along the buttocks and possibly along the outside of your hip on the top leg. Hold this for 15 to 30 seconds. Repeat 3 times.

**2. ILIOTIBIAL BAND STRETCH: STANDING:** Cross one leg in front of the other leg and bend down and touch your toes. You can move your hands across the floor toward the front leg and you will feel more stretch on the outside of your thigh on the other side. Hold this position for 15 to 30 seconds. Return to the starting position. Repeat 3 times.



ILIOTIBIAL BAND STRETCH: STANDING

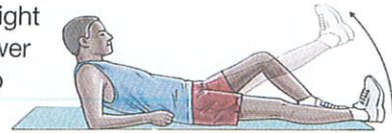


**3. ILIOTIBIAL BAND STRETCH: SIDE-LEANING:** Stand sideways near a wall. Place one hand on the wall for support. Cross the leg farthest from the wall over the other leg, keeping the foot closest to the wall stable. Lean into the wall. Hold the stretch for 15 seconds and repeat 3 times.

ILIOTIBIAL BAND STRETCH: SIDE-LEANING

## Strengthening exercises

**4. STRAIGHT LEG RAISE:** Lie on your back with your legs straight out in front of you. Bend one knee and place the foot flat on the floor. Tighten up the top of your thigh muscle on the opposite leg and lift that leg about 8 inches off the floor, keeping the thigh muscle tight throughout. Slowly lower your leg back down to the floor. Do 3 sets of 10 on each side.



STRAIGHT LEG RAISE

**5. PRONE HIP EXTENSION:** Lie on your stomach with your legs straight out behind you. Tighten up your buttocks muscles and lift one leg off the floor about 8 inches. Keep your knee straight. Hold for 5 seconds. Then lower your leg and relax. Do 3 sets of 10.



PRONE HIP EXTENSION

**6. SIDE-LYING LEG LIFT:** Lying on your side, tighten the front thigh muscles on your top leg and lift that leg 8 to 10 inches away from the other leg. Keep the leg straight. Do 3 sets of 10.



SIDE-LYING LEG LIFT

**7. WALL SQUAT WITH A BALL:** Stand with your back, shoulders, and head against a wall and look straight ahead. Keep your shoulders relaxed and your feet 2 feet away from the wall and a shoulder's width apart. Place a soccer or basketball-sized ball behind your back. Keeping your head against the wall, slowly squat down to a 45 degree angle. Your thighs will not yet be parallel to the floor. Hold this position for 10 seconds and then slowly slide back up the wall. Repeat 10 times. Build up to 3 sets of 10.



WALL SQUAT WITH A BALL