Patellar Tendonitis (Jumper's Knee)

What is patellar tendonitis?

Patellar tendonitis, also called jumper's knee, is inflammation in the band of tissue (the patellar tendon) that connects the kneecap (patella) to the shinbone (tibia).

How does it occur?

The most common activity causing patellar tendonitis is too much jumping. Other repeated activities such as running, walking, or bicycling may lead to patellar tendonitis. All of these activities put repeated stress on the patellar tendon, causing it to be inflamed.
Patellar tendonitis can also happen to people who have problems with the way their hips, legs, knees, or feet are aligned. This alignment problem can result from having wide hips, being knock-kneed, or having feet with arches that collapse when you walk or run, a condition called over-pronation.
The patellar tendon may sometimes tear completely, or rupture, during strenuous activity.

What are the symptoms?

Symptoms may include:

- pain and tenderness around the patellar tendon
- swelling in your knee joint or swelling where the patellar tendon attaches to the shinbone
- pain with jumping, running, or walking, especially downhill or downstairs
- pain with bending or straightening the leg
- tenderness behind the kneecap.

If your patellar tendon is ruptured, usually you will have sudden severe pain and you will be unable to straighten your leg or walk.

How is it diagnosed?

Your health care provider will examine your knee to see if you have tenderness at the patellar tendon. He or she will also have you run, jump, or squat to see if this causes pain. Your feet will be examined to see if you have a problem with over-pronation. Your provider may order x-rays or an MRI of your knee.

How is it treated?

Treatment may include:

- applying ice to your knee for 20 to 30 minutes every 3 to 4 hours for 2 to 3 days or until the pain and swelling go away
- taking anti-inflammatory medication or a pain medication prescribed by your health care provider
- wearing a band across the patellar tendon, called an infrapatellar strap, or a special knee brace; the strap or brace will support your patellar tendon, preventing it from becoming overused or more painful

- wearing custom-made arch supports called orthotics if you have a problem with over-pronation.

If your patellar tendon is ruptured, you will need surgery right away to repair it.
You will be given rehabilitation exercises to help you return to your sport or 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 play basketball.

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 knee 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:

- Your injured knee can be fully straightened and bent without pain.
- Your knee and leg have regained normal strength compared to the uninjured knee and leg.
- Your knee is not swollen.
- You are able to jog straight ahead without limping.
- You are able to sprint straight ahead without limping.
- You are able to do 45-degree cuts.
- You are able to do 90-degree cuts.
- You are able to do 20-yard figure-of-eight runs.
- You are able to do 10-yard figure-of-eight runs.
- You are able to jump on both legs without pain and jump on the injured leg without pain.

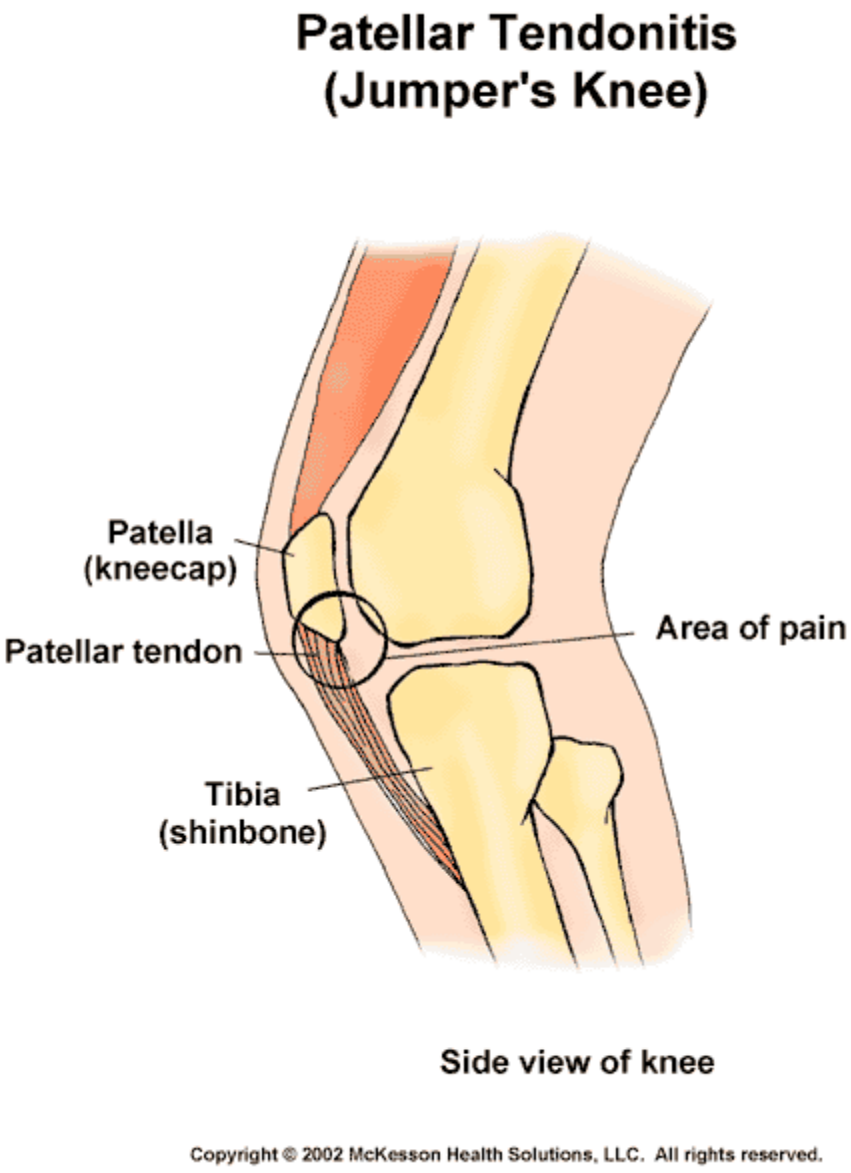
How can I prevent patellar tendonitis?

Patellar tendonitis is usually caused by overuse during activities such as jumping or running or biking uphill. It can best be prevented by having strong thigh muscles.
Avoid activities which may aggravate the pattelofemoral joint:

- Squatting
- Deep knee bends
- Excessive bending
- Sitting "Indian" style
- Sitting back on your heels
- Kneeling directly on knee caps
- Excessive stair or hill climbing
- Wearing high-heel shoes
- Riding bike with a low seat
- Breaststroke in swimming
- Performing seated leg exercises against resistance starting at 90° of knee bend

The following may also help prevent injury:

- When you exercise, wear shoes that fit properly and are right for the activity.
- Gently stretch before and after exercising.



Patellar Tendonitis (Jumper's Knee) Rehabilitation Exercises

You can start doing the patellar mobility exercise as soon as it is not too painful to move your kneecap. You can do the hamstring stretch right away. When the pain in your knee has decreased, you can do the quadriceps stretch and start strengthening the thigh muscles using the rest of the exercises.

- **Patellar mobility:** Sit with your injured leg outstretched in front of you and the muscles on the top of your thigh relaxed. Take your index finger and thumb and gently press your kneecap down toward your

foot. Hold this position for 10 seconds. Return to the starting position. Next, pull your kneecap up toward your waist and hold it for 10 seconds. Return to the starting position. Then, try to gently push your kneecap inward toward your other leg and hold for 10 seconds. Repeat these for approximately 5 minutes.

- **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.
- **Quadriceps stretch:** Stand an arm's length away from the wall, facing straight ahead. Brace yourself by keeping the hand on the uninjured side against the wall. With your other hand, grasp the ankle of the injured leg and pull your heel toward your buttocks. Don't arch or twist your back and keep your knees together. Hold this stretch for 15 to 30 seconds. Repeat 3 times.
- **Quadriceps isometrics:** Sitting on the floor with your injured leg straight and your other leg bent, press the back of your knee into the floor by tightening the muscles on the top of your thigh. Hold this position 10 seconds. Relax. Do 3 sets of 10.
- **Straight leg raise:** Lie on your back with your legs straight out in front of you. Tighten up the top of your thigh muscle on the injured 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.
- **Step-up:** Stand with the foot of your injured 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 injured leg and straighten the knee as the uninjured leg comes off the floor. Lower your uninjured leg to the floor slowly. Do 3 sets of 10.
- **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 1 foot away from the wall and a shoulder's width apart. Place a rolled up pillow or a soccer-sized ball between your thighs. Keeping your head against the wall, slowly squat while squeezing the pillow or ball at the same time. Squat down until you are almost in a sitting position. Your thighs will not yet be parallel to the floor. Hold this position for 10 seconds and then slowly slide back up the wall. Make sure you keep squeezing the pillow or ball throughout this exercise. Repeat 10 times. Build up to 3 sets of 10.
- **Knee stabilization:** Wrap a piece of elastic tubing around the ankle of your uninjured leg. Tie the tubing to a table or other fixed object.
    A. Stand on your injured leg facing the table and bend your knee slightly, keeping your thigh muscles tight. While maintaining this position, move your uninjured leg straight back behind you. Do 3 sets of 10.
    B. Turn 90° so your injured leg is closest to the table. Move your uninjured leg away from your body. Do 3 sets of 10.
    C. Turn 90° again so your back is to the table. Move your uninjured leg straight out in front of you. Do 3 sets of 10.
    D. Turn your body 90° again so your uninjured leg is closest to the table. Move your uninjured leg across your body. Do 3 sets of 10.

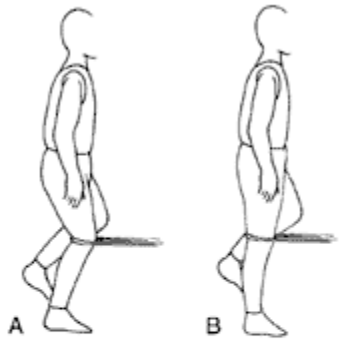
    Hold onto a chair if you need help balancing. This exercise can be made even more challenging by standing on a pillow while you move your uninjured leg.

- **Resisted knee extension:** Make a loop from a piece of elastic tubing by tying it around the leg of a table or other fixed object. Step into the loop so the tubing is around the back of your injured leg. Lift your uninjured foot off the ground. Hold onto a chair for balance, if needed.
    A. Bend your knee about 45 degrees.
    B. Slowly straighten your leg, keeping your thigh muscle tight as you do this.

    Do this 10 times. Do 3 sets. An easier way to do this is to perform this exercise while standing on both legs.

Patellar Tendonitis (Jumper's Knee) Exercises

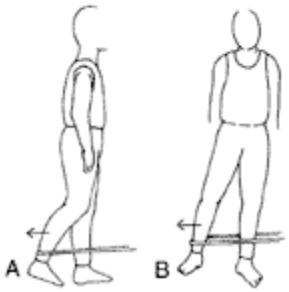
Patellar mobility



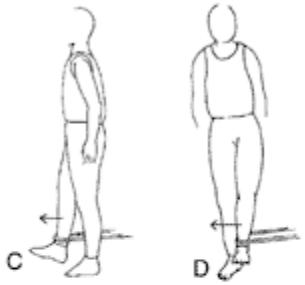
Resisted knee extension

Standing hamstring stretch

Quadriceps stretch

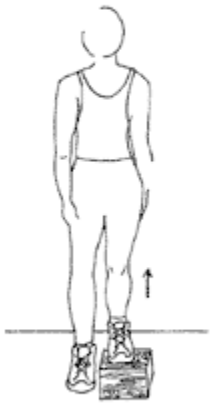


Straight leg raise



Knee stabilization

Wall squat with a ball



Step-up

Quadriceps isometrics