

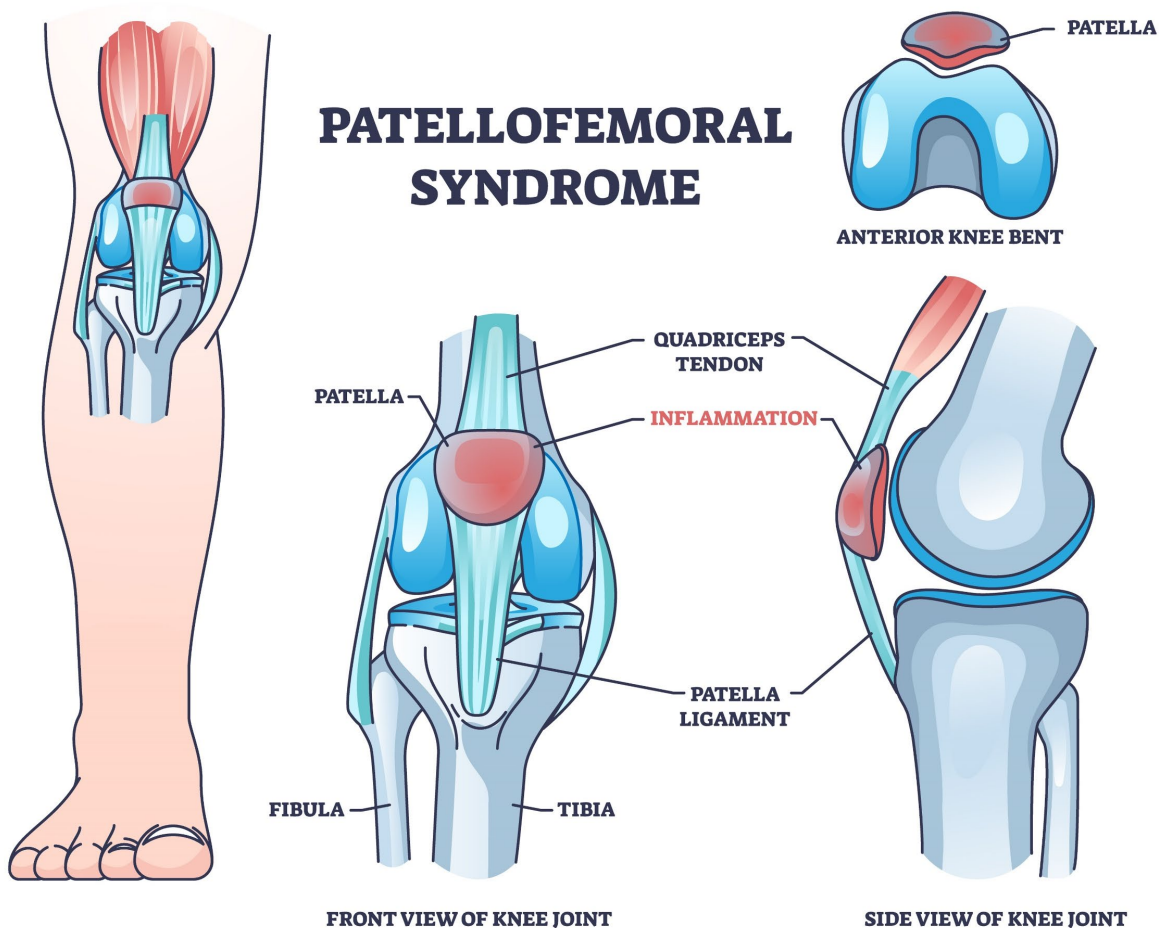
Patellofemoral Pain Syndrom (PFPS)

What is patellofemoral pain syndrome?

Patellofemoral pain syndrome refers to pain behind the kneecap. It has many names, such as patellofemoral disorder, patellar malalignment, runner's knee, and chondromalacia.

How does it occur?

Patellofemoral pain syndrome can occur from overuse of the knee in sports and activities such as running, walking, jumping, or bicycling. The kneecap (patella) is attached to the large group of muscles in the thigh called the quadriceps. It is also attached to the shin bone by the patellar tendon. The kneecap fits into grooves at the end of the thigh bone (femur) called the trochlea. When you bend and straighten the knee too much, you can irritate the undersurface of the kneecap and cause pain. Patellofemoral pain syndrome can also be from the way your hips, legs, knees, or feet align (line up). This alignment problem can be from having weak hip and core stability, wide hips, and being knock-kneed (when the knees touch each other even when ankles are apart).



Autry Orthopedic Center Sports Medicine

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Approved by PFE 3/21/25

What are the symptoms?

The main symptom is pain behind the kneecap. You may have pain when you walk, run, or sit for a long time. The pain tends to get worse when walking downhill or downstairs.

How can I prevent patellofemoral pain syndrome?

Patellofemoral syndrome is usually caused by overuse during activities such as jumping, running, or biking uphill. You can prevent it by:

- Slow increases in activity
- Paying attention to proper biomechanics (function and movement)

How is it treated?

- **Ice:** Place an ice pack on your knee for 20 minutes on and off, as many times as you need to in a day
- **Elevation:** Elevate (lift) your knee by placing a pillow under your leg when your knee hurts
- **Use Pain Medicine:** If pain continues after icing, take ibuprofen or acetaminophen for pain control
- **Relative Rest:** Avoid activities that can hurt your knee (especially running, jumping and other high impact activities). Cross-train as you are able to.
- **Home Exercise Program:** Do the exercises your healthcare provider or physical therapist recommends (on the next page)
- **Braces:** Braces may provide comfort and do not cause any harm, but have not been shown to treat the issues that cause the pain

When can I return to my sport or activity?

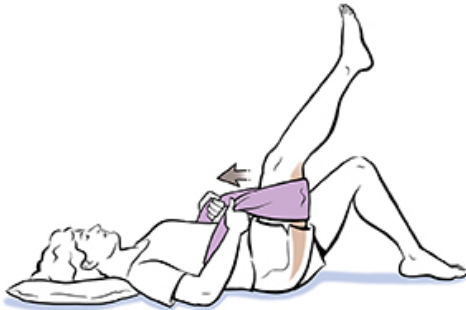
The goal of rehabilitation is to get you back to your sport or activity as soon and as safely possible. If you return too soon, you can make your injury worse and lead to more time away from sport. Everyone recovers from injury at a different rate. Returning to your sport or activity will depend on how soon your symptoms and biomechanics improve. It will not be by how many days or weeks it has been since you started having pain. In general, the longer you have symptoms before you start treatment, the longer it may take to get better. Your medical provider will let you know when you are ready to return to play during your follow-up assessment.

Home Exercise Program

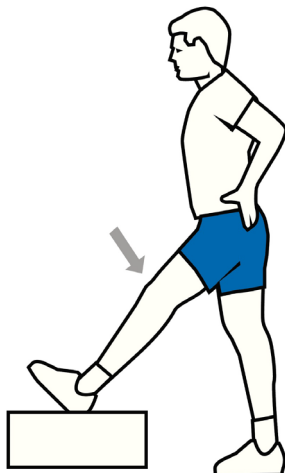
Here are some exercises for you to do at home to help PFPS and get you back to your normal activities. Some activities have options, so you can choose which one works better for you.

1. Hamstring Stretching

- **Hamstring Stretch Against the Wall:**
Lie on the floor with one leg on the wall while extending the other leg through the door.



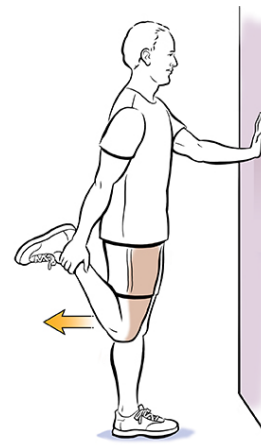
- **Standing Hamstring Stretch:** Place the heel of your foot on a higher surface. Keep your knee straight and lean forward. Bend at the hips until you feel a mild stretch in the back of your thigh. Do not roll your shoulders and bend at the waist when doing this because you will stretch your lower back instead.



Hold this for 30 seconds.
Do this twice on both sides.

2. Quadriceps Stretch

Stand an arm's length away from the wall, facing straight ahead. Keep one hand against the wall for balance. With your other hand, grasp (hold) the ankle of the opposite leg and pull your heel toward your buttocks. Don't arch or twist your back.



Hold for 30 seconds. Do this twice on both sides.

3. Iliotibial Band Stretch

Standing cross one foot over the other, then lean in the opposite direction of the forward leg. Reach your arm of the back leg over your head.



Hold for 30 seconds. Do this twice on both sides.

4. Gastrocnemius/Soleus Stretch

Facing a wall put your hands at about eye level. Keep back leg straight and heel on floor, lean into wall until a stretch is felt in your calf. Hold for 30 seconds. Next, keep your back leg a little bent and heel flat on the floor. Lean into the wall until you feel a stretch in your other calf.



Do three (3) sets of 30 second holds with the knee slightly bent and then with the knee straightened (total of six (6) holds on each side).

5. Isometric Quad Sets

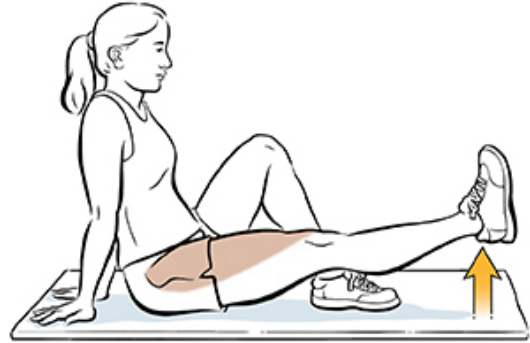
Sit or lie on your back with leg straight. Tighten your quadriceps muscle on the front of the thigh. This movement should press the back of your knee downward and the kneecap to move a little toward your hip. Try to lift the heel off the floor a little when the knee is fully extended. Hold this position for 10 seconds, then relax and repeat.



Do three (3) sets 10 times (hold for 10 seconds each time).

6. Straight Leg Raise

Sit or lie on your back with your feet out in front of you. Place the foot of the leg that is not injured flat on the floor. Pull the toes of the injured leg towards you. Contract your quadriceps, and lift your leg up 8 to 10 inches, hold for three (3) seconds, then slowly lower down.



Do three (3) sets 10 times (a total of 30) on both sides.

7. Prone Hip Extension

Lie on the floor on your stomach. Place your forehead on your forearms. Contract your glute then raise your leg and keep your knee straight about six (6) to eight (8) inches off the ground. Hold for five (5) seconds then gently lower down.



Do three (3) sets 10 times (a total of 30) on both sides.

8. Side-Lying Leg Lift (Abduction)

Lying on your side, stack your hips over each other. Pull your toes of your top leg towards your head. Contract your quadriceps (thigh muscles) and keep your knee straight. Raise your top leg eight (8) to 10 inches, hold for three (3) seconds, then gently lower down.



Do three (3) sets of 10 repetitions (total of 30) on both sides.

9. Double Leg Bridges

Lie on your back with your knees bent and heels close to your bottom. Slowly push up through your heels and raise your hips towards the sky. Push up until your body is in one straight line from your shoulder to your knee. Squeeze your glutes at the top and hold for three (3) seconds. Slowly lower your hips back to the floor and repeat.



Do three (3) sets of 10 repetitions (a total of 30) on both sides.

10. Side-Lying Clams

Lie on your side with your knees bent and feet together. Keeping your ankles together, raise the top knee towards the ceiling, pivoting at the hip. Hold for three (3) seconds with your feet together, then lower down. There should be no movement in your lower back.



Do three (3) sets of 15 repetitions (a total of 45) on both sides.

11. Side-Lying Leg Lift (Adduction)

Lying on your side, stack your hips over each other. Place your foot of the top leg on the floor, just in front of your bottom leg's knee. Pull your toes of your bottom leg towards your head. Contract your quadriceps. Keeping your knee straight, raise your bottom leg four (4) to six (6) inches. Hold for three (3) seconds, then gently lower down.

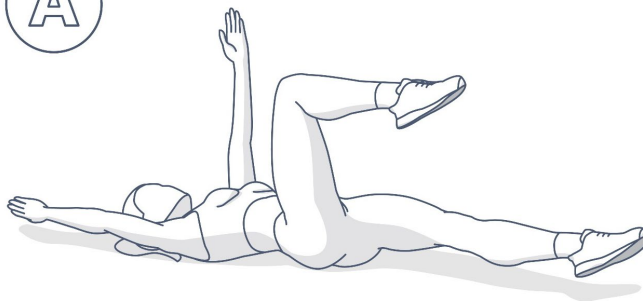


Do three (3) sets 10 times (a total of 30) on both sides.

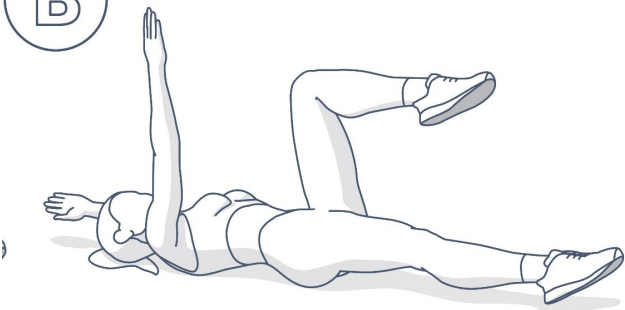
12. Dead Bug

While lying on your back with your knees bent, slowly lower one foot and the opposite arm. Return to the starting position and then repeat on the opposite side (one rep). Keep your low back flat on the floor the whole time.

A



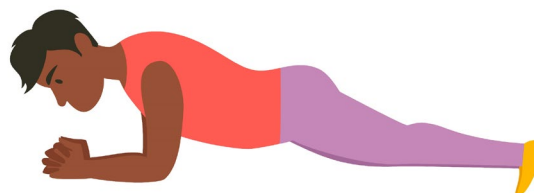
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Do three (3) sets of 10 repetitions (a total of 30) on both sides.

13. Forward Planks

Begin face down with your forearms resting on the mat, shoulder-width apart, elbows bent at 90 degrees. Contract your abdominal (stomach) muscles and push off the floor, rising on your toes. Try to keep a straight line from your shoulders, hips, knees, and ankles. Avoid hips from sinking low or rising too high. Hold for 20 to 60 seconds and keep good form.



Do three (3) sets of 20 to 60 seconds (a total of three (3) holds).

14. Wall Squat

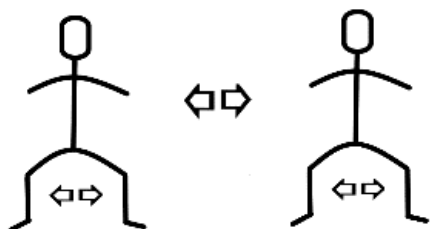
Lean on a wall or closed door on your back, slide your body down until your thighs are parallel (going the same way) with the floor. Then, go back up. Your feet should be shoulder-width apart and about two feet away from the wall. Knees should bend in line with the 2nd toe and not pass the front of the foot.



Do three (3) sets of 45-second holds (a total of 3).

15. Lateral Walks (Crab Walks)

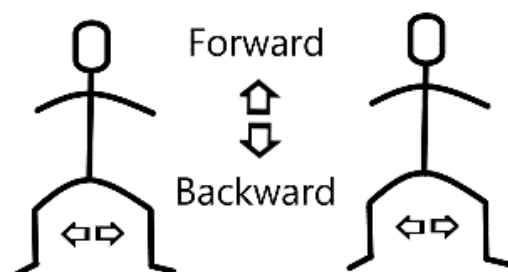
Start in an athletic position with your feet shoulder-width apart and knees bent a little. Push your hips back like you are sitting in a chair, keeping your knees apart so that your knee aligns (lines up) with your second toe. Take 10 small steps in the lateral (right or left side) direction of your choice. Once you complete 10 steps in one direction, do 10 steps going in the other direction. This will be a one (1) set.



Do three (3) sets of 10 steps (a total of 30) in each direction laterally (side to side).

16. Monster Walks (Forward and Backwards)

Start in an athletic position (with your feet shoulder width apart and knees slightly bent). Push your hips back like you are sitting in a chair, keeping your knees apart so that your knee lines up with your second toe. Face forward and keep your athletic stance. Step forward with your right foot, swinging your other arm (left), in cadence (at the same time) with your step. Switch the arms and legs each step as you do ten steps forward. Then, walk ten steps backward in the same pattern.



Do three (3) sets of 10 steps (a total of 30) forward and backward.