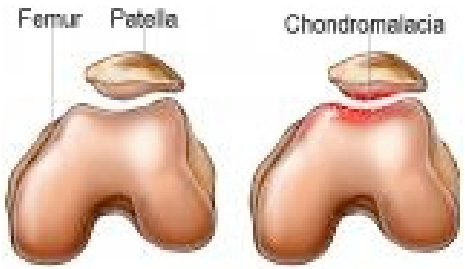
Patellofemoral Pain Syndrome

Patellofemoral pain is a common knee problem. If you have this condition, you feel pain under and around your kneecap. The pain can get worse when you're active or when you sit for a long time. You can have the pain in only one knee, or you can have pain in both knees.

The exact cause of patellofemoral pain is multi-factorial. It probably has something to do with the way your kneecap (called the "patella") moves on the groove of your thigh bone (called the "femur"). Increases or unbalanced pressure contributes to pain. Normal wear on the cartilage is called **CHONDROMALACIA**, and begins in your early 20's. Overuse can exacerbate wear and inflammation of the cartilage.

Overuse and Overload
Because bending the knee increases the pressure between the patella and its various points of contact with the femur, patellofemoral pain syndrome is often classified as an overuse injury. However, a more appropriate term may be "overload," because the syndrome can also affect inactive patients. Repeated weight-bearing impact may be a contributing factor, particularly in runners. Steps, hills and uneven surfaces tend to exacerbate patellofemoral pain. Once the syndrome has developed, even prolonged sitting can be painful ("movie-goer's sign") because of the extra pressure between the patella and the femur during knee flexion.



What can I do to help my knee get better and hurt less?

• **Take a break** from physical activity that causes a lot of pounding on your legs, like running, volleyball, or basketball. If you want to keep exercising, try swimming or another low-impact activity. You may want to try working out on nonimpact elliptical trainers, which are popular at gyms. Because these machines support your body weight, they put less stress on your knees. As your knees feel better, you can slowly go back to your normal sports. But do this slowly, and increase the amount of time you do the sports activity by only about 20% a week.

• Do the **exercises** shown in this handout. Each exercise should take only a few minutes. Doing them twice a day is a good start. The most important ones are usually the stretches . These help to relieve the pressure on the kneecap and balance the way it moves on the femur.

• It would help to bring your running shoes in for Dr. Re to see. Old shoes without proper arch and heel support can contribute to knee pain. I recommend using a **Dr. Scholl's Dynastep** insert in all walking and exercise shoes. This insert is much less expensive than a custom-made orthotic and can be purchased at your local CVS or at www.Amazon.com.

• A **NSAID** medication may be prescribed to help control inflammation of the cartilage. take the medication daily for 2 - 3 weeks, and after that only as needed (please review warnings and side effect profile provided by the pharmacist).

Be patient!
Keep stretching to get better. Patellofemoral pain can be hard to treat, and your knees won't get better overnight. It might take six weeks or even longer for your knee to get better. You'll be less likely to get this pain again if you stay in good shape, but don't make sudden changes in your workouts.

Rest
Avoid activities that cause pain or make the symptoms worse the next day, particularly the activity that started the problem. Avoid squats and leg press exercises at the gym.

Cold Therapy
A bag of frozen peas makes a great cold pack. Use it over a thin towel for 20-30 minutes to help control pain, especially after aggravating activity. Then place it back in the freezer for later use. To keep your hands free, use an elastic wrap to hold the ice pack in place.

Arch Supports
Prevent pronation (fallen arches) and improve patellar alignment during running and other weight bearing exercises. Use in your athletic shoes - and even in your daily shoes, if you have more constant symptoms

Home Stretching, Exercise & Physical Therapy
Stretching and quadriceps exercises will increase flexibility, decreases pressure and improves patellar alignment. Although we start with a home exercise program, most patients will require at least a short course of Physical Therapy to teach, demonstrate and reinforce specific stretching, posture and strengthening exercises.

Medication.
You may receive a prescription for NSAID medication to relieve inflammation and pain while you begin rehabilitation and your body's natural healing process progresses. They should be used daily for 2–3 weeks, and then only as needed once your symptoms begin to resolve.
Glucosamine 1500mg + Chondroitin Sulfate 1200mg each day may be useful as a nutritional supplement from Whole Foods, GNC or CVS
Occasionally, a corticosteroid injection may be recommended as a more potent anti-inflammatory to supplement your treatment program. Infrequent side effects include post-injection pain, skin discoloration or atrophy and 1/10,000-30,000 risk of infection.

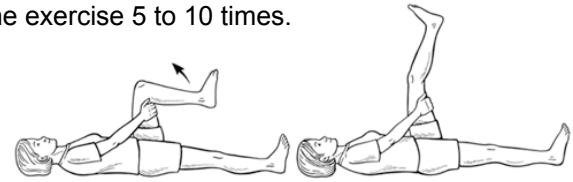
Surgery
Surgery may be required to treat knee pain that does not resolve after 6-9 months of treatment. This usually is an arthroscopic procedure to remove damaged cartilage and release tight ligaments

Here are some exercises to help your knee pain. After you do all the exercises as shown in the drawings, reverse your position and do the exercises with your other leg, so both knees get the benefit of stretching.

1. Iliotibial band and buttock stretch (right side shown). Position yourself as shown. Twist your trunk to the right and use your left arm to "push" your right leg. You should feel the stretch in your right buttock and the outer part of your right thigh. Hold the stretch for 10 to 20 seconds. Do the exercise 5 to 10 times.

2. Iliotibial band stretch (right side shown). Position yourself as shown, with your left leg crossed in front of your right leg. Hold your hands together and move them toward the floor. You should feel a stretch in the outer part of your left thigh. Hold the stretch for 10 to 20 seconds. Do the exercise 5 to 10 times.

3. Hamstring stretch. Position yourself as shown in the drawing. Bend your left knee. Grip your thigh with your hands to keep the thigh steady. Straighten your left leg in the air until you feel a stretch. Hold the stretch for 5 to 10 seconds. Do the exercise 5 to 10 times.

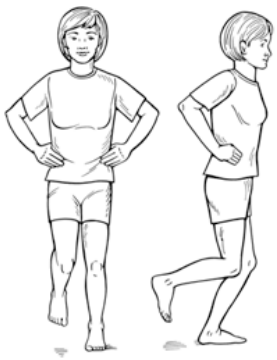


4. Calf stretch. Position yourself against a wall as shown. Keep your left heel on the ground to feel the back leg stretch. Hold for 10 to 20 seconds. Do the exercise 6 to 10 times.

5. Hip and buttock stretch (right side shown). Position yourself as shown, with your right leg over your left leg, and place your hands over your right knee. Pull the knee slightly toward you while sitting up very straight. Hold the position for 20 seconds and then rest for several seconds. Do the exercise 6 times.

6. Hip adductor strengthening. While sitting, squeeze a rubber ball between your knees. Hold the squeeze for 5 to 10 seconds. Do the exercise 5 to 10 times. (If you don't have a ball, put your hands or fists between your knees and then squeeze.)

7. Hip abductor strengthening (left side shown, front and side views). Position yourself as shown, standing on your left leg with the knee slightly bent. Slowly raise your right foot about 30 degrees, hold for a few seconds and then slowly lower the foot and straighten both legs. Do the exercise 10 times. Don't let your pelvis tilt (be crooked), and don't let your knees turn inward during bending.



8. Quadriceps strengthening: straight leg lift. Position yourself as shown. Raise your right leg several inches and hold it up for 5 to 10 seconds. Then lower your leg to the floor slowly over a few seconds. Do the exercise 5 to 10 times.