



Patellofemoral Syndrome

Runner's Knee



A step-by-step guide to causes, concerns and proper treatment **for your knees**

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Patellofemoral Syndrome

What is it?

Patellofemoral Syndrome—also called Chondromalacia or Runner's Knee—is the inflammation of the cartilage of the kneecap (patella), which prevents it from gliding smoothly within the femoral groove, found at the end of your thighbone (femur). When inflamed, the now softened cartilage of the patella doesn't track properly in this groove, causing a roughening of the patella's undersurface and discomfort in the knee.

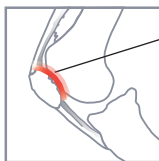
Symptoms

The most common symptoms of Runner's Knee are pain under and around the kneecap. It may be a sharp pain or dull ache made worse by kneeling down, by walking down stairs, by prolonged sitting, and/or during sporting activities that require squats or deep knee bends. Cracking or clicking sensations around the kneecap may also be experienced.

Knee Straight



Knee Bent



Pain

Causes

- ▶ **Foot Mechanics:** Excessive rolling-in (over-pronation) of the feet can cause the lower leg to rotate inward (tibial torsion), thus placing the knee in a compromised position.
- ▶ **Muscular Factors:** Weak inner thigh muscles and tight hip, thigh and-calf muscles can all contribute to Patellofemoral Syndrome.
- ▶ **Skeletal Factors:** Asymmetrical kneecaps, knock knees, and a large Q-angle (wide hips) can contribute to Runner's Knee. For this reason, women are more susceptible to this injury.
- ▶ **Training Methods:** Training too much too soon and over-use are key causal factors. Excessive mileage, and uphill/downhillrunning also increase your risk.
- ▶ **Trauma:** Repeated or direct stress on your knee, as well as a history of Runner's Knee, also makes this injury more likely.

Most Effective Treatments

While there are many effective treatments for Runner's Knee, you should combine as many treatment options as possible to hasten the healing and recovery process:

- ✔ **Rest** your knee as much as possible, using pain as your guide. If you feel pain or mild discomfort in your knee then rest is necessary. Switch to activities that avoid placing direct weight on your bent knee, such as swimming.
- ✔ **Ice** your knee for 15 minutes twice daily and after activity to reduce pain and inflammation. A bag of frozen peas works well.
- ✔ **Medication** such as aspirin, ibuprofen or other anti-inflammatory drugs may be prescribed by your doctor to reduce inflammation.
- ✔ **Custom Foot Orthotics** can play an important role in the rehabilitation of Runner's Knee. By correcting faulty foot mechanics, orthotics improve your lower leg and knee alignment, allowing the muscles around your knee to function properly while reducing soft tissue strain on the knee. Correct mechanical alignment also increases the effectiveness of strengthening exercises and other physiotherapy activities.
- ✔ **Proper Footwear** should not be overlooked as your feet are the foundation for your body and can affect the functioning of your entire muscular-skeletal system.
- ✔ **Sport Medicine Products** such as patellar stabilizing braces and athletic taping supplies can help to maintain normal patellar tracking.



Consult your physiotherapist before starting any therapeutic strengthening and stretching exercise program. For your reference, here are some exercises that will help balance the musculature around your knee and help prevent further injury.

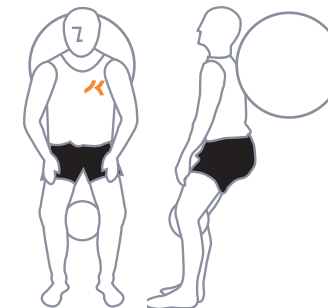
(Diagram 1) Ilio Tibial Band Stretches: Stand near a wall with the left leg crossed in front of the right. Lean the trunk towards the left and extend the right arm over the head. The goal is to feel a stretch over the right hip and down the outside of the right leg. Hold this stretch for at least 30 seconds. Repeat this on the opposite side and alternate 5 times each session. Perform this routine twice daily for the best results.



(Diagram 2) Quadriceps Stretch: Using a strap wrapped around the lower leg, bring it up until you feel a gentle stretch down the front of the thigh. Remember to remain standing straight pushing the hips forward. Hold this stretch for 20-30 seconds and repeat on the opposite side. Alternate 5 times per session and perform this routine at least twice a day.



(Diagram 3) Static Quad Extension: Sit on the floor with a pillow or rolled-up towel under your knee. With your toe pointed towards the midline of your body, push your thigh into the floor and lift your heel off the ground. Hold for five seconds and repeat 15 times per leg. Perform this exercise at least twice daily.



(Diagram 4) Shallow Squats: Using an exercise ball against a wall, do a controlled squat keeping your knees directly over your feet and in line with your second toe. Repeat 10-20 times per session and perform several times a day. To enhance the effect of this exercise place a firm nerf ball or pillow between the knees, holding it there while the movement is completed.