

Got Knee Pain?

By Phil Armiger, MPT, Physical Therapist G2 Sports Therapy

Anterior knee pain may appear to arise "out of the blue" without any particular incidence or trauma, though, with careful investigation probable cause can usually be determined. In most cases the onset of anterior knee pain can be linked to a significant change in activity level. Overly aggressive entry into running, cycling, aerobics, or weightlifting programs may over stress the patello-femoral joint causing inflammation and pain. Rapid increases in volume or intensity may also cause the onset of patellofemoral irritation whether the sport be hiking, running or basketball. Carrying heavy loads, excessive lifting or squatting, climbing stairs or ladders are all activities that may lead to patello-femoral pain.

The Mechanism

Your patella is essentially a pulley which increases the mechanical advantage of your quadriceps - those without it, experience a 30% loss in force production. As your knee flexes (as when lowering into a squat) your patella travels in a ready made groove down the femur then travels up the same route as your knee extends. Abnormal forces such as muscular imbalance, weakness of the hips, or quads, or excessive foot pronation, may cause the patella to track laterally (outside) of its groove. This may cause friction behind the patella, and eventually inflammation and breakdown of the cartilage. This inflammation and pain is what we think of as patello-femoral, or anterior knee pain. A much more advanced form of this tissue breakdown in which there is measureable cartilage breakdown is called chondromalacia patellae.

Factors Which May Contribute to the Development of Patello-femoral Pain

Structure

Individuals with excessive pronated feet (generally, lowered arches), and/or larger Q-angles (essentially, the deviation from a straight line between the upper and lower leg) at the knees, may be more likely to develop patello-femoral pain.

Weakness

Weakness is also a predominant factor in the development of patello-femoral pain. Weakness of the quads and thighs in general may increase the chances of developing dysfunction and pain. Less obvious is the need for hip strength. Since the musculature which directly attaches to the knee can do little to control its position in terms of varus (bowlegged), or valgus (knock-kneed), positions, movements, and strength in the hip abductors and external rotators becomes critical. Additionally, strength in the foot and ankle can also help control the movement of the knee.



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Footwear

Often ignored, the type of footwear can be a large factor in the development and management of patello-femoral pain. Shoes with poor torsional stability allow the feet, and hence knees to roll in (or out) excessively. This places excessive stress on the knee joint via a change in angle between the upper and lower legs, essentially asking the patella to track to the outside of its normal path. You can assess torsional stability in a shoe by twisting it between the heel and the forefoot.

What You Can Do!

The first and most important thing you can do to help deal with patello-femoral pain is to STOP HURTING YOURSELF. You must find out which activities you are participating in that may be aggravating your pain (be honest!) and then either stop, or modify them so that they no longer cause you pain. Working through the pain will NOT work - it will only exacerbate the pain and the injury.

Apply ice regularly. Ice your knee 10 -20 minutes up to every 2 hours as able. The most important time is immediately after activity. Anti inflammatory medications may be prescribed or recommended by your physician.

Wear supportive footwear, especially during your workouts. If unsure consult with a trusted footwear specialist or specialty running store such as Super Jock n Jill, the Running Company, or Footzone.

Strengthen your hips, especially the abductors and external rotators. Strengthen your quads and hamstrings as able - in a pain free manner. You may have to use isometric (they can be isometric at the knee, but isotonic at the hip) or exercises which are limited in range of motion at the knee. Strengthen the foot and ankle, consider the use of wobble boards or other unstable surfaces to be sure the strengthening also challenges proprioception (your body's sense of position and movement) and function. Ask one of our personal trainers for help in designing a program or to guide you through a pain free workout.

If you adhere to the above and your condition does not improve over the course of 3-4 weeks, it may make sense to see your doctor so that he or she can rule out any serious pathology and refer you to a rehabilitation specialist if necessary.

