

# Knee Cap Pain

## What is anterior knee pain?

Pain around the front of the knee is often referred to as patellofemoral pain. This pain may be caused by soft cartilage under the kneecap (patella), abnormal tracking (or alignment) of the kneecap, an irritation of the soft tissues around the front of the knee, or referred pain from other areas such as the back or hip. It is one of the most common causes of knee pain in young active patients. Symptoms typically wax and wane for long periods of time, and are worse with squatting, stairs, and prolonged sitting. Patients may or may not have a specific history of trauma.

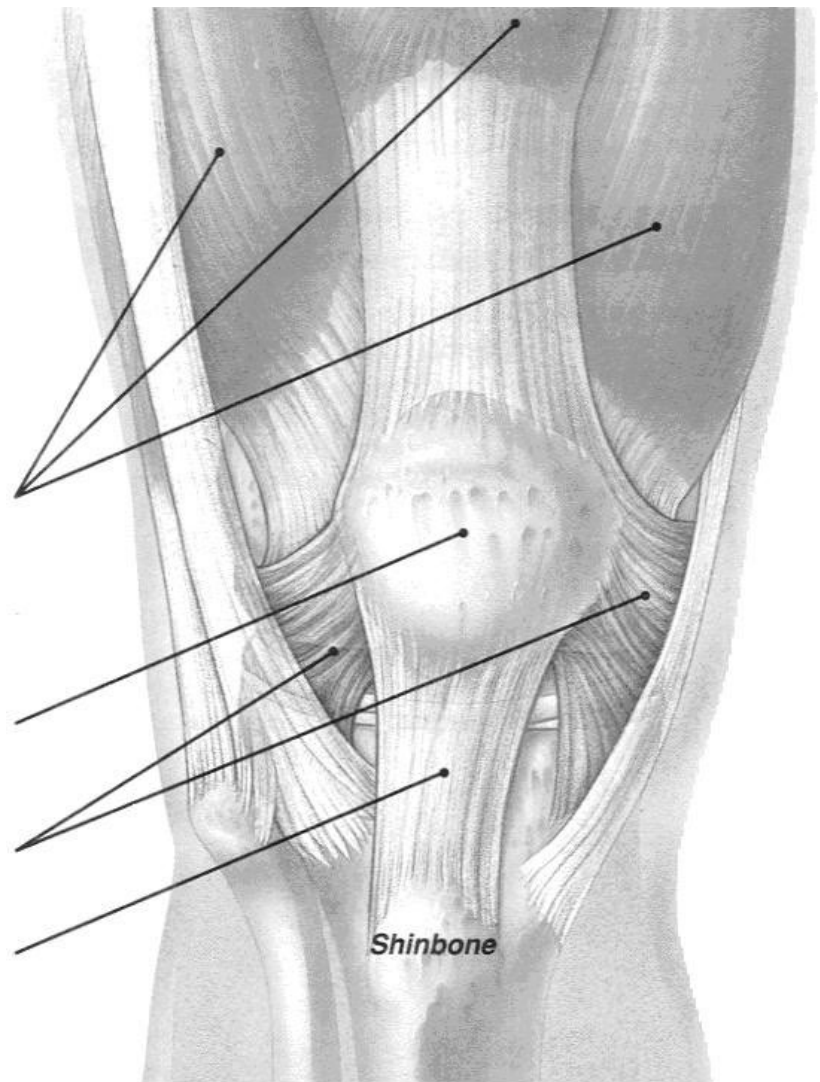
The knee cap (patella) is a flat triangular bone about two inches wide. It is just one of several parts that make up the knee joint. Other parts of the knee are muscles, tendons, ligaments and cartilage. The kneecap plays a special role: it protects the knee joint and also gives your muscles the extra leverage they need to straighten the leg more efficiently.

**Quadriceps muscles** at the front of your thigh hold the kneecap against the thigh bone and help straighten the leg. Other muscles on the inside of your thigh (**adductors**), back of your thigh (**hamstrings**), and back of your shin (**calves**) help the quadriceps move your leg.

The **kneecap (patella)** anchors your quadriceps muscles as they contract, and protects the bones and other tissues underneath it.

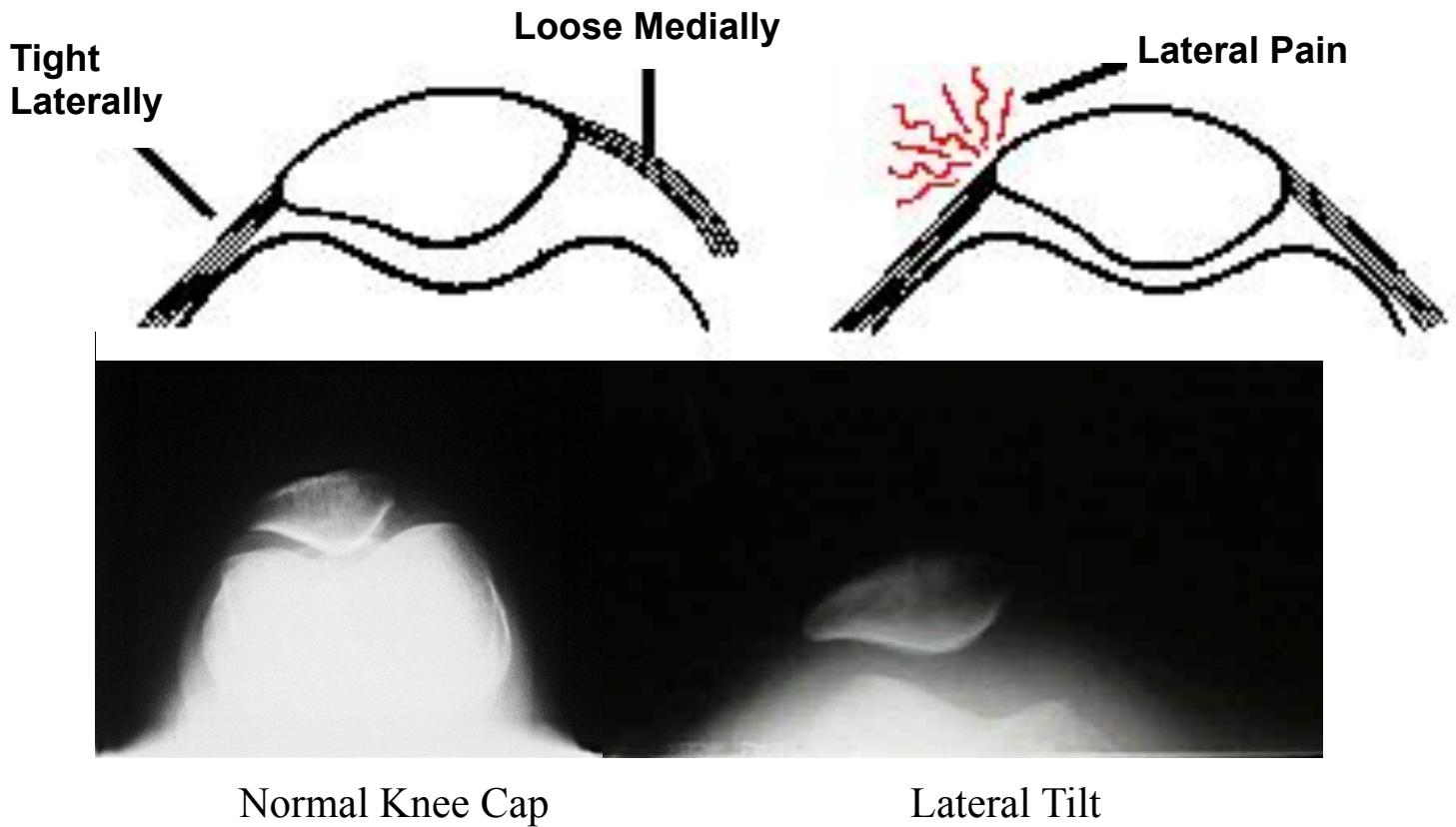
**Retinacula** are fibrous bands on the sides of the kneecap. They help hold the kneecap in place.

**The patellar tendon** is a fibrous cord that connects the patella to the shinbone.



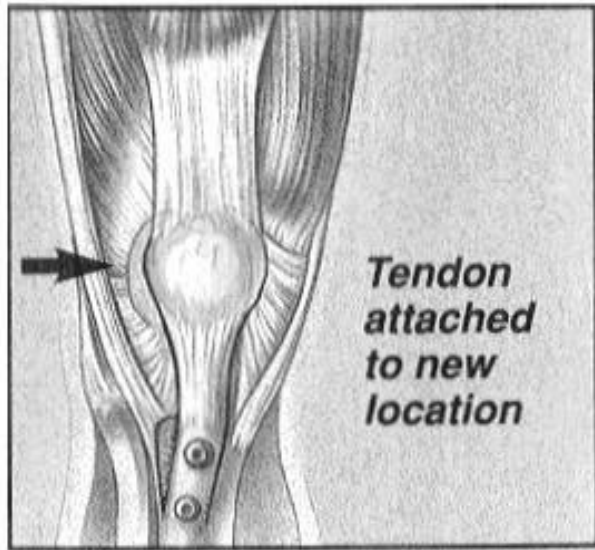
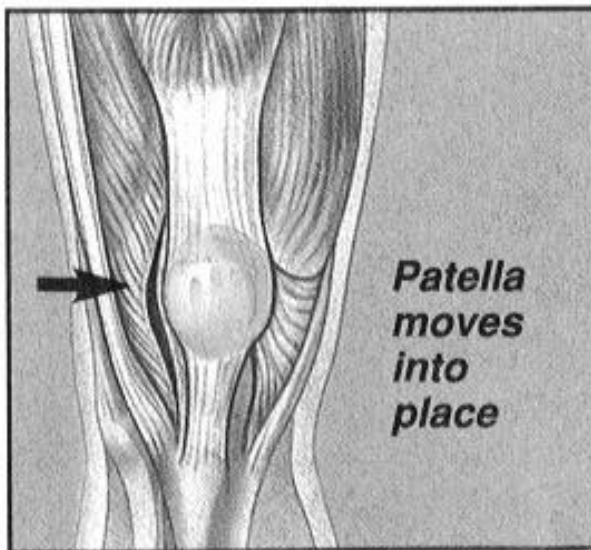
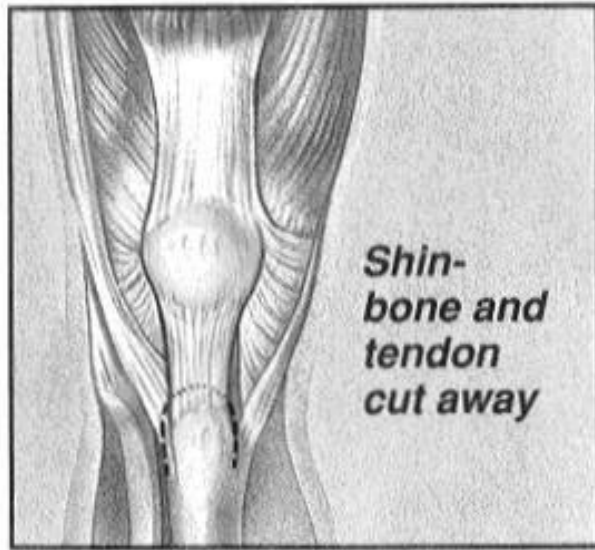
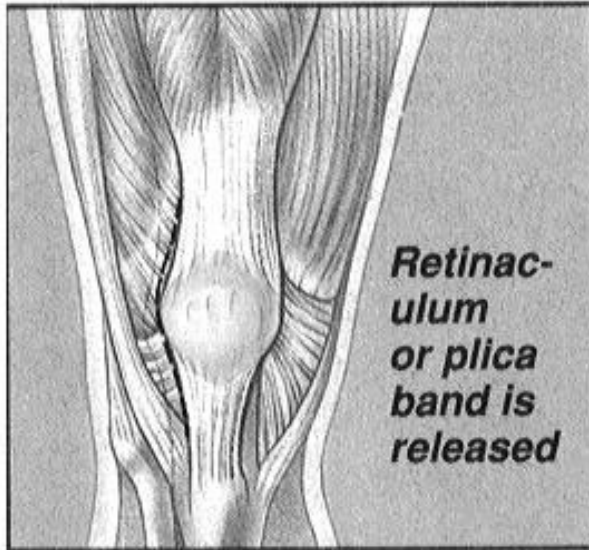
### **Patellar Malalignment (Subluxation)**

Some patellofemoral pain is caused because the kneecap is abnormally aligned. This can cause abnormal stresses to the supporting tissue around the kneecap, and possible wear to the cartilage under the kneecap. Kneecap malalignment is most commonly seen in young women whose kneecap tends to pull or tilt to the outside. In severe cases, the kneecap may actually dislocate. Anatomic variations such as a tight fibrous band (lateral retinaculum) attached to the outside of the kneecap, and an abnormal attachment of the patellar tendon on the shinbone, are often seen in these patients. Other contributing factors include weak thigh muscles (particularly the vastus medialis obliquus or VMO), a knock knee deformity, and flat feet.



Treatment is initially directed at decreasing symptoms and improving function. Symptomatic treatment with icing, anti-inflammatory medication, and activity modification is encouraged. Physical therapy is helpful to correcting underlying muscle weakness (VMO) and improving overall flexibility. Knee braces which help hold the kneecap in proper alignment, and arch supports to correct flat feet, may be beneficial. A small percentage of patients with debilitating symptoms who do not respond to conservative treatment may be candidates for surgery.

Surgical treatment usually involves an arthroscopic procedure (lateral release) to release the tight tissue that tethers the kneecap to the outside of the knee. Occasionally, a larger open operation is needed to move the attachment site of the patellar tendon. This involves cutting a small portion of the shinbone and moving it over to correct the maltracking. Both of these procedures are performed on an outpatient basis.



**A lateral release** is a surgical procedure performed through small nicks in the skin. By cutting the retinaculum, the pull on the kneecap is reduced. The kneecap is then able to move into its proper place and pressure underneath the kneecap is usually reduced.

**Transferring the patellar tendon** establishes a balanced pull from the quadriceps muscle to the lower leg. Part of the tendon and the underlying bone are moved to a new location and anchored by screws. This surgery is done through an open skin incision.