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Patellar Subluxation

An Unstable Kneecap

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Image of the knee joint

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The patella, or kneecap, is one of three bones that come together at the knee joint. All of these bones have a layer of cartilage at points where their surfaces come into contact. The patella is also enveloped by a tendon. This tendon connects the quadriceps muscle of the thigh to the shin bone (tibia) below the knee.

Patellar Subluxation

The kneecap slides up and down a groove on the end of the thigh bone as the knee bends. This groove is called the trochlea. The kneecap is designed to fit in the center of this groove, and slide evenly within the groove. In some people, the kneecap is pulled towards the outside of the knee. As this happens, the kneecap does not slide centrally within its groove.

Also called patellar subluxation, patients who experience an unstable kneecap have a kneecap that does not slide centrally within its groove. Depending on the severity of the patellar subluxation, this improper tracking may not cause the patient any problems, or it may lead to [dislocation of the patella](#) (where the kneecap fully comes out of the groove). Most commonly, the tracking problem causes discomfort with activity, and pain around the sides of the kneecap. Patellar subluxation is a condition that usually affects adolescent, and sometimes younger children.

Causes of Patellar Subluxation

There are dozens of factors implicated in the cause of patellar subluxation. The bottom line is that it is probably the contribution of several factors that lead to instability of the kneecap. Possible factors include:

- A wider pelvis
- A shallow groove for the kneecap
- Abnormalities in gait

What else may be causing kneecap pain?

The most common cause of [kneecap pain](#) is chondromalacia, or an irritation of the cartilage on the undersurface of the kneecap. Patellar subluxation and chondromalacia can go hand in hand, but they should be considered separate entities. That said, if chondromalacia is being caused by subluxation, then the instability of the kneecap must be addressed for treatment to be successful. Other causes of kneecap pain include osteoarthritis, patellar tendonitis (Jumper's knee), and plica syndrome.

Treatment of Patellar Subluxation

Treatment of the unstable patella is first to ensure that the patella is not dislocated. Your doctor can determine by examining your knee and obtaining x-rays, to see if the kneecap is outside of its groove. In patients with a kneecap dislocation, the kneecap may need to be repositioned, or "reduced." Treatment of patellar subluxation includes:

- **[Physical Therapy](#)**
Traditionally, patients were sent to physical therapy to strengthen their VMO (part of the quadriceps muscle) to realign the pull on the kneecap. More recent research has shown that this is probably not the critical factor in eliminating kneecap problems. Focusing instead on strengthening of the hip abductors and hip flexors (so-called pelvic stabilization exercises) offers better control of the kneecap.
- **Bracing and Taping**
Bracing and taping of the kneecap are also a controversial topic in the rehabilitation of kneecap problems. These often provide symptomatic relief, but are certainly not a long-term solution. Certainly if symptomatic relief is found with a brace or tape, it is certainly appropriate to continue with this as a treatment.
- **[Better Footwear](#)**
Footwear contributes to the gait cycle. Motion control running shoes may help control your

gait while running and decrease the pressure on the kneecap.

Surgery for Patellar Subluxation

Some patients are not cured by simple treatments, and it may be determined that surgery is needed, especially in patients who have significant pain or recurrent dislocation. By looking into the knee with an arthroscope, the surgeon can assess the mechanics of the knee joint to ascertain if there is an anatomic malalignment that could be corrected. One common malalignment is the result of too much lateral tension that pulls the kneecap out from its groove; this can place increased pressure on cartilage and lead to dislocation. For this problem, a procedure known as a [lateral release](#) can be performed. This procedure involves cutting the tight lateral ligaments to allow the patella to resume its normal position.

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