

KNEE PAIN – KNEECAP (PATELLOFEMORAL)

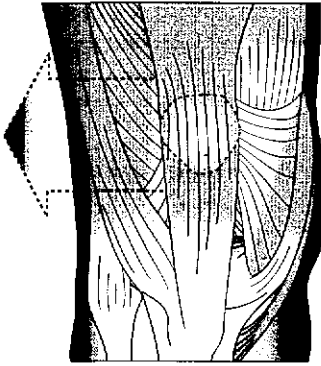


Fig. 1 – Misaligned patella

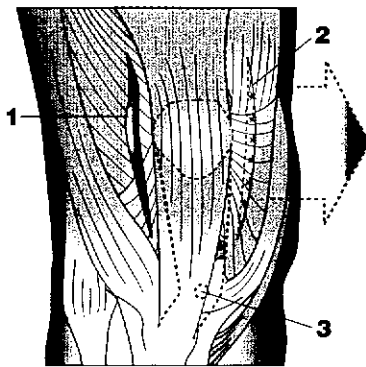


Fig. 2 – Three corrective procedures

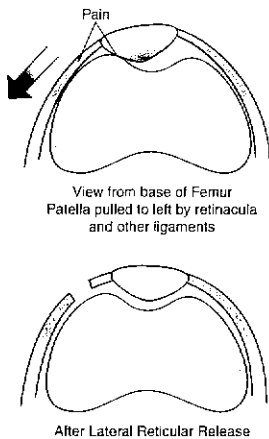


Fig. A – Lateral Reticular Release

Knee pain can have many causes, but there are three that seem to be most common; torn cartilage, arthritis, and problems with the kneecap. Here we will discuss how pain caused by the kneecap can be diagnosed and treated. Information sheets are also available about knee pain due to a torn cartilage and arthritis.

The kneecap is shaped like a flattened and rounded wedge, facing back toward the thighbone (*femur*). The femur has a groove that allows the “point” of the kneecap to slide up and down when the joint is bending. When the leg is straight, the kneecap sits above and to the outside (lateral) of that groove and “centers” as you bend your knee. The surfaces of the knee joint are covered with a layer of white cartilage (*articular cartilage*). This cartilage provides a very smooth, low friction gliding surface for the joint. If the kneecap does not slide into its groove normally, it will cause pain by pulling on the ligaments on the outside of the knee and wearing down the gliding cartilage between the kneecap and the femur.

People suffering from inflammation of this area usually describe burning pain on the front of the knee when they sit with bent knees for a long time, squat, or kneel. It is painful to arise from sitting or to go up or down stairs. Sometimes they will even report a painful feeling of their knee “giving way”.

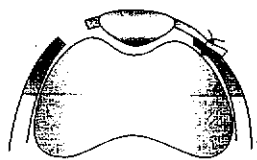
Kneecap pain in young people is due to normal growth in the “growth plates” that are at the ends of the bones. As these grow, all the soft tissue (muscles, ligaments and tendons) have to stretch to keep up. A young person in a rapid growth spurt may be “tight” until their tendons have stretched to adjust to their new length. If this situation is combined with running or jumping sports, the strained ligaments will often become inflamed around the sides of the kneecap (common for girls) or where the patella tendon inserts into the tibia (common for boys).

continued on back

Knee Pain – Kneecap (Patellofemoral), *continued from front*



Further adjustment still needed



After Medial Plication

Fig. B – Medial Plication

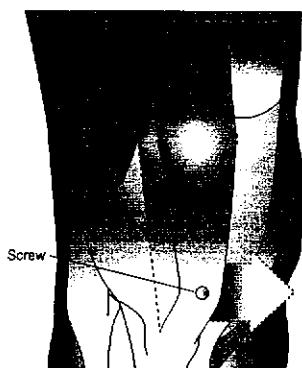


Fig. C – Tibial Tubercle Transposition

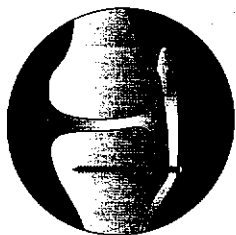


Fig. C – Transposition Side View

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Treatment, especially for young people, is directed at the thigh muscles (*quadriceps*) by stretching and strengthening them, and balancing them with the back thigh muscle (*hamstring*). A knee brace that cups the kneecap in the right position can help during exercise. Sometimes this exercising is best started with the help of a physical therapist to make sure that it is being done correctly. After learning how, the patient can do these exercises at home.

This exercise and bracing routine, with an anti-inflammatory medication if needed, is generally the first type of treatment used for all ages, although it is less likely to help older patients.

If non-surgical treatment isn't helpful, arthroscopic inspection and realigning the kneecap (*patellar realignment*) may be helpful. Arthroscopy has been a very useful tool in kneecap inspection, but it does have some drawbacks in this case. Since you are under general anesthesia, the muscles are very relaxed and the surgeon, rather than your muscles, is bending the knee. There is also more fluid than normal in the knee so the surgeon can see clearly. Still, it can usually help determine if the gliding cartilage is in good shape and the kneecap might benefit from realignment. Realigning the kneecap can involve three different types of procedures (see Fig. 2); the ligament to the outside (*lateral*) of the knee may be cut to allow the kneecap to slide into the normal position (Fig. A), the inside (*medial*) ligament may be tightened (Fig. B), and/or the tendon that attaches to the shinbone may be shifted to the inside (Fig. C).

With each additional surgical step, getting the patient back to normal activities will take longer, so they are only used in more difficult cases. This surgery, though, can at least partially benefit patients who have quite a bit of arthritis if gentle pressure on their kneecap shows it can be shifted to the inside where it would slide on cartilage that is less worn.

Hopefully, this information has been interesting and helpful to you. As with any general information, some of it may not apply to your case and it is not intended to take the place of an orthopedic evaluation and personalized treatment plan. If you still have questions, please do not hesitate to discuss them with Dr. Nickel.

