

Medially Luxating Patella

The patella (kneecap) should reside at the bottom front of the femur in the trochlear notch. The patella is embedded within the tendon from the quadriceps muscle of the thigh. It goes on to attach at the tibial crest, just below the stifle joint on the front of the tibia.

Medial Patella Luxation (MPL) is a common cause of stifle (knee) arthritis and lameness. MPLs can occur secondary to trauma or, more commonly, as a developmental abnormality causing the patella to be displaced from the notch in the bottom of the femur where it is supposed to track. A blow to the stifle can cause tearing of the joint capsule or other supporting structures, leading to displacement of the patella. Most of the time, there is a deformity in the bone of the femur, tibia or both which contributes to abnormal placement of structures, like the femoral trochlea and the tibial crest, which leads to the inability for the patella to sit in the correct place. When the patella is dislocated, stress through the knee is not distributed properly, stressing other structures of the knee and leading to pain, arthritis, and difficulty walking.

MPLs are graded on a severity scale of 1-4:

Grade 1 means that the patella may be pushed out of the trochlea during an exam but moves immediately back into place.

Grade 2 means that the patella can be displaced, but it can easily move back to its normal location.

Grade 3 means that the patella is displaced more often than it is in place, but it can still be manually manipulated back into the trochlea.

Grade 4 MPLs are out of place and cannot be manually replaced.

Grades 2-4 may show varying signs of lameness, from mild to severe; very rarely do grade 1 MPLs cause any kind of problem. One of the most common problems we can see is that the pet is completely normal, and in a matter of seconds the pet is unable to use the affected leg at all. Some pets learn to stretch out the leg behind them to pop the patella back into place, and then they may be back to walking normally.

If lameness occurs with an MPL, or if the patella is dislocating with a high frequency, surgery should be considered. The goal of surgery is to create a straight line with the femoral trochlea and the tibial crest so that the patella will sit where it is supposed to. Most often, this can be done by moving the tibial crest laterally, which moves the patella with it. We use an instrument to make a cut in the bone through the crest, and we push the bone piece attached to the patellar ligament to the lateral side of the tibia. It is held in place while stainless steel pins are placed to keep it stable. If the trochlear groove isn't deep enough to capture the patella, it is deepened. The cartilage is preserved, bone underneath the trochlea is removed, and the cartilage is replaced, making the groove deeper. Often the joint capsule has contracted (tightened) on the inside of the stifle, and it has simultaneously stretched (loosened) on the outside of the stifle. A release of the joint capsule on the inside and removal of excess joint capsule on the outside will respectively loosen and tighten the capsule to keep the patella in place.

These 3 things are called tibial crest transposition, trochlear wedge or block recession, and joint capsule imbrication. There are times when this doesn't fix the luxation, often because there is too much torsion of the bone of the femur. In some rare cases, the femur may have to be realigned after it is surgically cut.

After surgery, we recommend that your pet have rest for 8 weeks as the tibial crest bone heals. We will send home a variety of physical therapy exercises, as well as icing and warm packing schedules and pain medications to help make your pet's recovery successful.

These abnormalities in the bones are often bilateral; therefore, many of these dogs have the problem on both knees. We recommend fixing the knee that seems to affect your pet the most first, wait about 4 weeks, and then potentially fix the other knee if it is needed. This combines recovery periods but doesn't overstress the surgical repair or cause your pet to walk only on the front legs during recovery, like we can see when both rear limb surgeries are done at the same time.

Information adapted from Veterinary Surgery: Small Animal, Second Edition, Elsevier Inc, 2018.