

Medial patella luxation is a condition where the patella (knee-cap) does not stay in its normal position in the groove on the end of the femur (thigh bone) and will pop-out, or luxate, to the medial (inside) surface of the knee.

What causes medial patella luxation?

To understand the cause of medial patella luxation (MPL), we need to understand a little of the anatomy of the knee. Surprisingly, the structure of the knee joint is similar between dogs, cats, and humans. The patella is a small bone in the knee joint that functions as part of a “pulley-mechanism” to extend the knee. When the quadriceps muscles of the thigh contract, they pull on a strong tendon that crosses the knee joint and inserts on the front of the shin bone (tibia). The patella is a small bone within this tendon and it normally slides in a groove on the end of the femur. When the patella stays within this groove, extension and flexion of the knee can occur smoothly. When it pops out of the groove, the extensor mechanism malfunctions, pressure distributions across the knee are altered, and lameness can occur.

MPL may be due to a combination of congenital and anatomic variations as well as trauma, and can often affect both hind limbs simultaneously. Congenital causes are most common in small- and toy-breed dogs, including Maltese, Poodles, Yorkshire Terriers, and others. This is most likely due to changes in their anatomy that come along with centuries of breeding to produce these small dogs from their original wolf ancestors. Larger breed dogs and cats may also be affected by medial patella luxation, however, due to trauma or congenital causes.

Signs of MPL are dependent on the cause and severity of the condition. If due to congenital changes, it is usually first noticed around 6 to 12 months of age and may become progressively worse or more frequent over time. Typically, pets that have suffered MPL experience sudden, non-weight-bearing lameness, which may quickly and completely resolve after a few hops or after stretching the leg into extension. Mild cases may never show clinical signs. In more severe cases, persistent and severe lameness and pain are often noted.

How is medial patella luxation diagnosed?

Medial patella luxations (MPLs) are diagnosed based on physical examination by a veterinarian. In some cases, X-Rays are helpful to confirm the diagnosis and to evaluate for other concurrent conditions. MPLs are graded on a scale of severity from 1-4. Grade 1 is the most mild, with the patella in place most of the time but able to be manually luxated during examination when pressure is applied. Grade 2 luxations will occur spontaneously, with the patella popping freely into and out of the groove. Grade 3 luxations mean the patella is luxated at most times but can still be replaced manually into the groove. Grade 4 luxations are the most severe, as they indicate that the patella is permanently out of its groove and cannot be replaced without surgical intervention. Grade 2 and higher luxations are typically

progressive over time, as the repeated luxation of the patella leads to wear on the bone and the development of arthritis, as well as other changes to the bones and muscles of the limb. For this reason, it is typically recommended to perform surgical repair of clinical grade 2 or higher luxations.

MPL may also be seen concurrently with other conditions, especially injuries to the cranial cruciate ligament (similar to the ACL in humans). This is because the patella and its associated ligament are strong stabilizers of the knee joint, and if they are not in their normal position, the other, smaller structures may be at risk for injury.

How is medial patella luxation treated?

Medial patella luxation (MPL) of grade 2 or higher typically requires surgical treatment. In most cases, surgical treatment involves several mini-procedures performed together during a single surgery. These procedures may include deepening the groove of the end of the femur, releasing muscles that are placing excessive medial strain on the patella, tightening the soft tissue (ligaments and fascia) that hold the patella in place, and adjusting the insertion point of the patellar tendon on the tibial crest (front portion of the shin bone). The latter procedure involves making a small cut in the bone, which allows the tendon to be transposed, and securing the bone in place with stainless steel pins. MPL corrections may also be performed in conjunction with stabilization procedures for CCL tears, if required.

Because surgery requires general anesthesia, bloodwork is required to assess the pet's health and must be performed within two weeks of the date of the procedure. Pain management is a high priority both during and after surgery and may include a combination of therapies.

Complications following surgery are usually mild and associated with incision redness, swelling, or bruising. Rarely, re-luxation of the patella can occur post-operatively, requiring an additional surgical repair; however, this is typically limited to the most severe luxation grades. Some animals will reject the metal pins placed to transpose the tibial crest over time, which leads to the pins backing out of the bone, typically within the first three to 12 months. If this occurs, the pins can usually be removed through a minor procedure.

What is the post-operative recovery and care?

After surgery, strict activity restriction is required to allow for healing, with no running, jumping, or playing permitted. Dogs will often begin using the operated leg in the first one to two weeks following surgery. The total healing period is typically two to three months, during which your pet will be allowed to experience gradually increasing walks and exercise under the guidance of the surgeon and rehabilitation practitioner.

Medial Patella Luxation (MPL)



Physical therapy is a key component to the pet's smooth recovery, improving comfort, encouraging normal usage of the limb, and maintaining or improving muscle mass. Physical therapy is typically started in the first seven to 14 days following surgery, and may include a home exercise plan or appointments with the rehabilitation practitioner, dependent on the pet's needs.