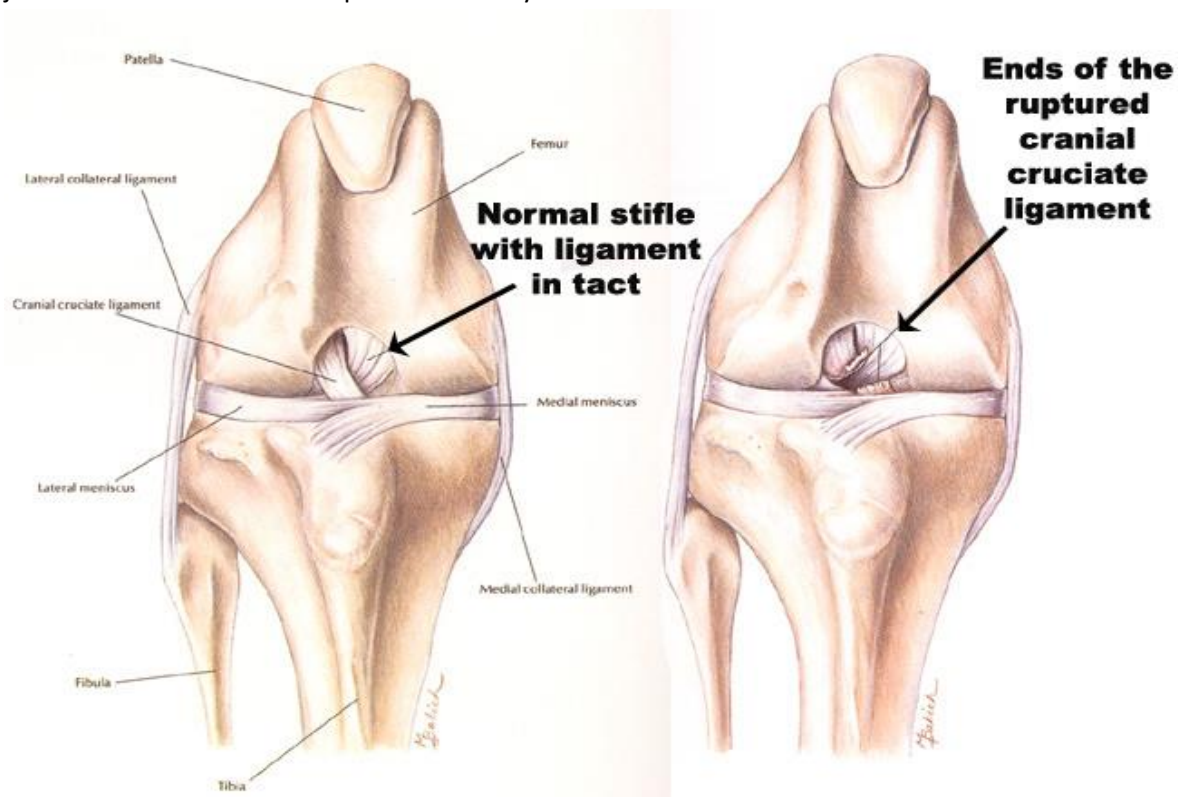


Cranial Cruciate Ligament Rupture/ Tibial Plateau Leveling Osteotomy (TPLO)

The cranial cruciate ligament (CrCL) is situated within the knee (or stifle) joint and helps to maintain stability and proper positioning between the femur, or thigh bone, and the tibia, or shin bone. Specifically, it prevents the tibia from moving forward in relation to the femur. When the CrCL ruptures, there is instability in the joint, and every time a step is taken, the tibia moves abnormally in relation to the femur. When examining the knee, manipulation of the joint to test for this instability is what provides for a diagnosis of a ruptured CrCL. When pressure is placed on the back of the tibia, it will slide forward. This is termed a positive “drawer” test, because the tibia slides forward like a drawer opening. Instability, as well as inflammation from the presence of injured tissue in the joint, cause pain and decreased limb function. In dogs, a CrCL tear is only rarely due to a single traumatic episode. Rather, it is more typically a chronic stress injury where the ligament slowly weakens and then ruptures subsequent to relatively normal activity. It is unknown what causes this weakening of the ligament. As the ligament is positioned within the joint space, and surrounded only by joint fluid, there is no supporting tissue to allow for healing. In general, surgical treatment is recommended to improve the joint environment as well as provide stability.

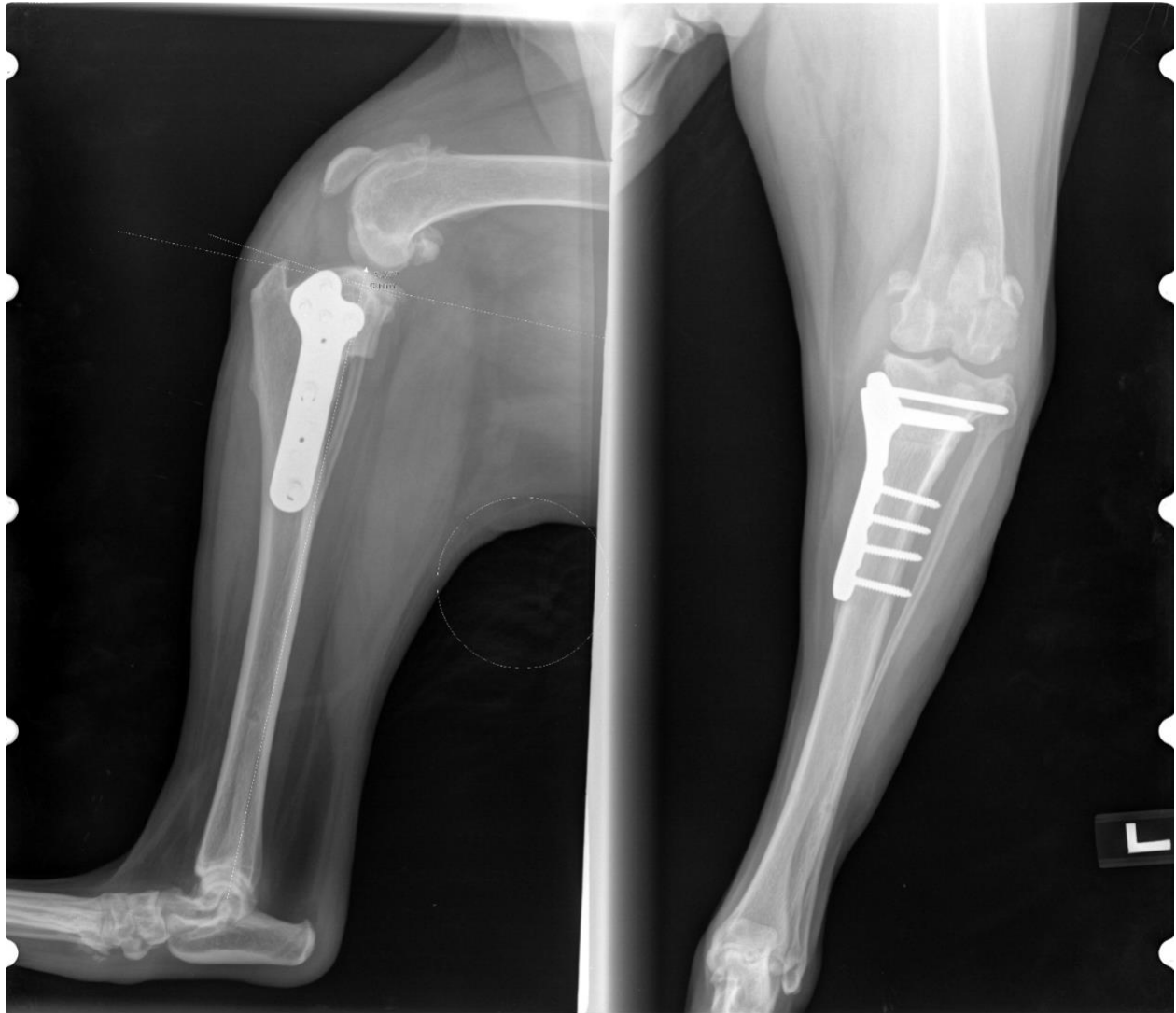


Treatment – Intra-articular component –

The first part of the procedure to treat a CrCL rupture involves an arthrotomy, an incision into the joint. This allows direct visual inspection of the CrCL and confirmation of the injury. The torn ends of the ligament are removed to reduce the amount of inflammatory products in the joint. The menisci are examined as well. There are two menisci in the knee joint, one on the inside (medial) half of the tibia and one on the outside (lateral) side of the tibia. When the CrCL ruptures, the ensuing instability causes abnormally high forces to be put on the menisci, which can cause injury to the meniscus. Up to 50% of dogs with CrCL ruptures will have secondary meniscal tears. If a torn meniscus is discovered, the torn portion is removed. If the meniscus is intact, it is left in place.

Treatment - Stabilization – Tibial Plateau Leveling Osteotomy

The goal of the Tibial Plateau Leveling Osteotomy procedure is to return the knee to stability while the patient is moving. This is accomplished by rotating the top of the tibia (tibial plateau) to a predetermined degree (leveling). This is accomplished by performing a curved cut (osteotomy) in the top of the tibia. After the tibial plateau is rotated, a stainless steel bone plate is applied across the osteotomy with screws securing it to the bone. This plate holds the tibial plateau in its new position until the bone cut heals. This is a permanent change in the bone.



After Care –

Postoperatively, it is imperative that restrictions are placed on the patient's activity level. There must be adequate time for the cut in the bone to heal, and this takes a minimum of 8 weeks. The implants used are strong, but all surgical implants must be protected. Stairs, running/ jumping and playing with other dogs and off leash activity are things that can overstress the repair and cause issues.

Physical therapy is very helpful in providing a more rapid return to function, as well as a better overall outcome. This involves cold therapy, manipulations and strengthening exercises, therapeutic laser therapy, and electro-muscle stimulation.

Outcome -

Most dogs do very well with stabilization by the TPLO method. That said, it is impossible for any procedure to completely normalize the knee joint after it is injured. The joint will never be perfectly pristine again. In most cases, though, the functionality of the joint is very good. With the TPLO, the expected function is ~85-90% at 4-5 months post-op.

Complications -

As with any surgery, there are potential issues with complications. Anesthesia associated complications are very low due to a modern anesthetic regimen and proactive monitoring of vital signs in the OR. Incisional issues occur occasionally, but can usually be managed by some combination of medication, bandaging and/or a cone collar to prevent licking. Implant failure is possible, but the risk can be controlled by adequate postoperative restriction of activity. The other potential complication is a postoperative meniscal tear. If this occurs, it is necessary to perform an additional procedure to remove the torn meniscus. Studies show this occurs in 5-10% of cases.