

Lateral Fabellar Sutures

What is the Function of the Cranial Cruciate Ligament?

Many tendons and four ligaments (medial and lateral collateral and cranial and caudal cruciate) are involved in providing stability to the stifle (knee joint). The cranial cruciate ligament (CCL) provides the same stabilizing effect to the canine stifle as the anterior cruciate ligament does to the human knee. The CCL prevents forward motion of the tibia (shin bone) relative to the femur (thigh bone). If the CCL tears the femur will shift back on the top of the tibia (tibial plateau) during weight bearing and abnormal forces will be transferred to the soft tissue structures (joint capsule) surrounding the knee resulting in pain and inflammation. Tearing of the medial meniscus is also common with complete CCL tears especially if left untreated. Chronic instability yields chronic inflammation that drives the development and advancement of osteoarthritis (OA) finally resulting in a progressive decline in rear limb function and comfort.

CCL Tear Diagnosis

Rupture of the cranial cruciate ligament is diagnosed by taking a thorough history and performing a comprehensive physical examination. X-rays of the knee can help in making a diagnosis by eliminating other causes of knee pain and revealing some typical degenerative changes associated with CCL tears. The classic history of a patient with a CCL tear is one of an acute onset of three-legged rear limb lameness after rigorous activity followed by a gradual return to light weight bear on the affected limb within 1-5 days. There are a few specific manipulations that are utilized during physical exam to reveal stifle laxity, which is also known as cranial drawer or cranial tibial thrust. Stifle laxity or looseness between the tibia and femur cannot exist if the cranial cruciate ligament is intact. The presence of cranial drawer is diagnostic for CCL rupture. In cases where a partial CCL tear is suspected, a definitive diagnosis is made prior to surgical repair by direct or arthroscopic visualization of the tear.

Treatment

To neutralize the stifle laxity (cranial drawer) a *prosthetic ligament* is surgically implanted to somewhat mimic the function of an intact cranial cruciate ligament. This technique utilizes at least two heavy gauge nylon or braided suture loops placed around the lateral fabella or through a femoral bone tunnel and then looped through a bone tunnel drilled in the front of the tibia. These sutures (the prosthetic ligament) prevent the abnormal cranial drawer motion when a patient bears weight on the limb. With restricted activity, physical therapy and time, scar tissue will develop around this *prosthetic CCL* to help provide long-term joint stability. If the prosthetic ligament is overstrained to the point the sutures stretch or tear before adequate scar tissue forms, the function of the knee will be poor due to the reintroduction of joint laxity or simply failure of fixation.

