



Animal Specialty Hospital of Florida

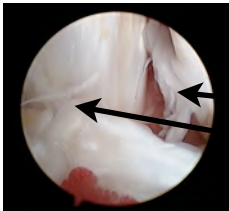
Exceptionally skilled. Uniquely compassionate.

CRANIAL CRUCIATE LIGAMENT DISEASE (ACL INJURY)

Tibial Plateau Leveling Osteotomy (TPLO), Tibial Tuberosity Advancement (TTA), Tightrope, and the Lateral Suture Technique

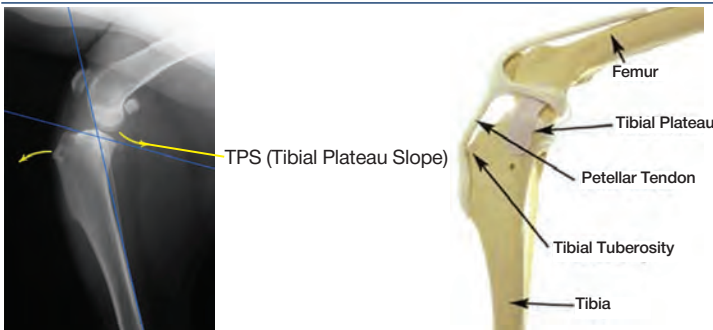
What is the CrCL and why is it important?

• The CrCL acts as a primary stabilizer of the stifle (knee) in conjunction with the PCL (posterior cruciate ligament or caudal cruciate ligament), the collateral ligaments, the patellar tendon, and the menisci.



Arthroscopic image of a ruptured CrCL and an intact caudal cruciate ligament.

- Muscles of the back leg, especially the quadriceps and the hamstring muscle groups act as secondary stabilizers of the stifle.
- The CrCL limits Cranial Tibial Thrust (CTT) or forward displacement of the tibia (shin) in relation to the femur (thigh).
- Primary contributing factors to CTT are the pull of the quadriceps muscle through the patellar tendon and the tibial plateau slope (TPS) when the dog bears weight.



Diagnosing CrCL injuries in dogs

- Dogs with CrCL injuries may present with a recent or a chronic incidence of limping and lameness in 1 or both rear legs.
- Knee effusion (swelling) is found on orthopedic examination in most dogs.
- Instability (CTT) can often be demonstrated on exam in dogs with a complete rupture of the CrCL.
- While the CrCL cannot be visualized on X- rays, variable degrees of osteoarthritic change and effusion are often present.
- Arthroscopic exam or an MRI can be helpful to confirm the diagnosis in some cases.

Treatment of CrCL injuries

- CrCL injuries in dogs, whether a partial or complete rupture, will not heal on their own.
- A concurrent injury to the meniscus is common, present in as many as 50% of dogs with a CrCL injury.
- Early surgical treatment is recommended to limit pre-existing osteoarthritis, restore stability to the knee and is the best treatment for CrCL injuries in dogs.
- 4 common techniques are currently used to stabilize a CrCL deficient knee in dogs and the techniques can be broadly divided into dynamic and static stabilization techniques.
- Dynamic stabilization can be accomplished by:
 - Altering the TPS (**TPLO**)
 - Altering the orientation of the patellar ligament (quadriceps muscle tendon) to the knee (**TTA**)
- Static stabilization can be accomplished by:
 - Tightrope extracapsular stabilization
 - Lateral suture technique
- The approach at ASH for optimal treatment of each individual patient:
 - Arthroscopy is used in most patients for evaluation of all joint structures and removal of the injured ligament/ meniscus.
 - Specific indications for a given procedure are made on an individual case basis and take into account the size of the dog, activity levels, and specific measurements taken on X- rays.

Prognosis

- Typically excellent (80-90%) for a full return to comfort and function after complete rehabilitation.
- Limiting Factors: osteoarthritis is inevitable with CrCL injuries. Pre- existing severe osteoarthritis will limit long term comfort.