

Cranial Cruciate Ligament (CCL)

RUPTURE



Cooper, a lovely, 5 year-old yellow Labrador Retriever came to us shortly after his adoption from LRAS. He had been surrendered to LRAS following the death of his owner's husband. Cooper was spending long days alone while his owner was at work, and it was becoming difficult for her to care for him financially. Shortly after his surrender, it was noticed that Cooper was limping in his left hind leg. On his physical exam, Cooper had some swelling over his stifle (knee) joint, and showed signs of pain when he knee was extended. A tear in cranial cruciate ligament was suspected, and Cooper was admitted for examination and radiographs (x-rays) under sedation.

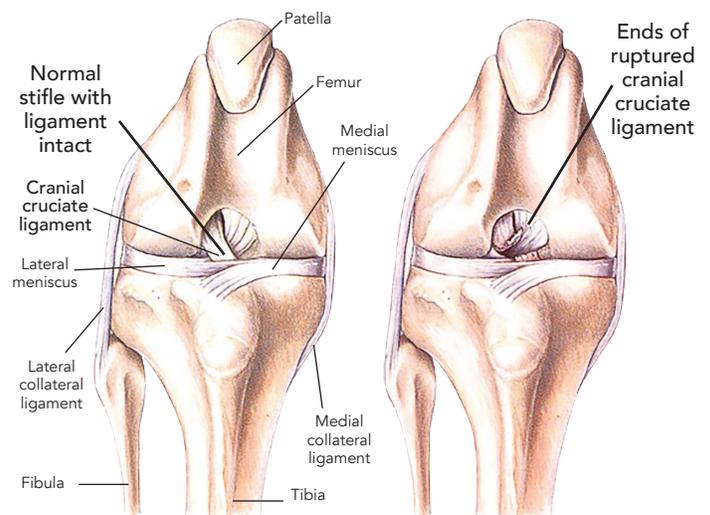
? What is a cranial cruciate ligament tear?

Cranial cruciate ligament (CCL) rupture is the most common cause of hind leg lameness in large breed dogs. The cruciate ligaments are soft tissue structures in the stifle or 'knee' that help to stabilize and join the femur (the thigh bone) and the tibia (the shin bone). CCL tear or rupture typically occurs due to a slow progressing, degenerative process and is rarely due to a sudden, acute trauma. Poor physical condition, obesity and genetics all play a part in the process, and Labradors in particular, are at a higher risk due to genetics. Studies show that up to 60% of dogs that develop a cruciate ligament injury will develop a similar problem in the other knee.

? What are the signs of a cruciate injury?

Clinical signs of CCL rupture include:

- sudden lameness in a hind leg, ranging from 'toe touching' to completely non-weight bearing;
- difficulty with the stairs, jumping into the car or onto the furniture;
- muscle wasting or atrophy in the affected leg;
- some dogs that are limping may be found to have a partial ligament tear, but this commonly progresses to a full tear as time goes on.



Cooper was sedated, and we performed a drawer test, as well as assessed for tibial thrust. A drawer test assesses the stifle joint for stability. A positive drawer test occurs when appropriate force is placed on the stifle, and the tibia (shin bone) moves in a forward motion as compared to the femur (the thigh bone). In a non-affected stifle, there should be minimal to no motion between these two bones. Tibial thrust creates a similar motion when the bones are manipulated in a different manner. Cooper showed both a positive drawer and tibial thrust, and we confirmed our suspicion of a torn CCL.

Cooper's stifles and hip joints were then radiographed while he was still sedated. Radiographs are performed in order to assess the degree (if any) of osteoarthritis present in both the stifles and hips to determine future prognosis. Radiographs can also assess for any concurrent injuries. Fortunately for Cooper, he had very minimal joint disease present, which gave him a great prognosis post-surgery!



Following Cooper's diagnosis, we discussed treatment. Surgery to stabilize the knee is the treatment of choice, as it provides the best outcome, the fastest return to normal function and activity, and the best long term prognosis. The various surgical options were discussed, and a TPLO was chosen as the best option for Cooper.

Cooper had surgery, and stayed in hospital for 1 week afterwards. This important hospital stay allowed for **twice daily physiotherapy, the necessary bed rest, and careful supervision**. Although he was weight bearing by the day after surgery, a successful long term outcome requires assistance when getting up, support when walking, and going outside to use the washroom.

At a weight of over 100lbs, our hospital has the necessary equipment and staff to properly support Cooper in doing all of these tasks. By the time he went home, Cooper was weight bearing very well on his left hind leg! His family learned the techniques to continue therapy at home,

and he was allowed a very gradual return to exercise over the ensuing 18 weeks.

The first 8-12 weeks at home following surgery are critical in ensuring success - too much unrestricted activity can have disastrous results. Luckily, Cooper's family strictly followed our recommendations. Radiographs were done at 8 weeks and 18 weeks post-surgery, and at the 18 week mark, Cooper was cleared to return to regular activity!

Cooper has healed beautifully from his surgery, and we couldn't be happier with his progress. He's not done here however! His new, dedicated family is working to keep his weight down (as obesity plays a large part in CCL tears!), as well as maintaining his fitness level to ensure good muscle mass. Although studies show that Cooper may be genetically prone to rupturing his other CCL, keeping him in tip top shape will ensure a faster healing time, should he ever need TPLO surgery again.

? What is the treatment for a cruciate ligament injury?

A CCL tear is best treated as a surgical repair, as it ensures the best outcome, with decreased osteoarthritis and pain. Various surgical techniques are used to repair torn CCLs, including:

- Extracapsular repair
- TTA (Tibial Tuberosity Advancement)
- TPLO (Tibial Plateau Leveling Osteotomy)

? What are the benefits of TPLO surgery over other surgical options?

TPLO surgery has become one of the most commonly performed orthopedic surgeries on dogs that have torn their CCL, and has proven itself to be an extremely effective, long term solution to a such a common, painful problem. Because it is a highly specialized surgery requiring very specialized equipment, the cost is higher compared to some other options, but the benefits are significant! The major benefits of the surgery stem from the fact that it completely alters the dynamics of the knee and essentially renders the cruciate ligament unnecessary.

Benefits include:

- the surgery provides immediate stabilization of the knee, allowing the dog to begin to use the limb almost immediately after surgery;
- the immediate stabilization reduces the amount of osteoarthritis that will inevitably form over time following a CCL injury;
- a decreased amount of exercise/mobility restriction post-operatively compared to other surgical options.

? "I read online that cruciate ligament tears can heal with rest, and don't always need surgery. My Lab only limps after a lot of activity. Can we skip the surgery and just give him pain medication instead?"

Unfortunately, all medium and large breed dogs should be treated with some type of stabilization surgery following a CCL tear. Although some studies show that 60% of dogs under 10kg will improve with medical management, medium and large breed dogs do not fare as well. With constant movement and the ensuing load on the joint, the knee remains unstable and will become increasingly arthritic. Arthritis is not reversible, and once it is present, pain in the joint increases. As well, in order for medical management to even have a chance of working, cage rest needs to be **strict** - dogs need to be kept in the crate at all times except for breaks to go out to the washroom for a minimum of 6 weeks, and often longer. This is nearly impossible for most dog owners!

Dogs that only limp intermittently often have a **partial tear** of the CCL, however these will all eventually progress to a full tear. This may be actually the optimal time to repair the injury, as typically little to no arthritis has occurred secondary to the instability. The less arthritis that is present in the joint, the better the chance that the dog will return to normal function!

Written by Dr. Kristin Baird

Dr. Baird is a veterinarian at the Oakville Animal Clinic located at 218 Kerr Street in Oakville, Ontario, and is a friend of LRAS. She enjoys spending time with her Lab, Kayley.



The photo of the yellow Lab on page 14 is Buddy, another sweet Lab who was rescued by LRAS.