

# LET'S TALK CRUCIATE INJURIES

featuring Dr. Andy Roark & Dr. Jennifer L. Wardlaw

## What is the cruciate?

The cranial cruciate ligament (CrCL) is one of the most important stabilizers inside the canine knee (stifle) joint, the middle joint in the back leg. In humans the CrCL is called the anterior cruciate ligament (ACL).

## What does the CrCL do?

1. Prevents hyper-extension
2. Prevents excessive internal rotation
3. Prevents tibial thrust (this is like when your knee gives out on you)

## What does presentation look like with this injury?

1. Most dogs don't whine or cry although they might be lame on that limb. These dogs are holding up the limb, not using it at all or using it less than the other limb.
2. Dogs are more painful with very recent CrCL tears.

## What might your veterinarian discover on physical exam, and what visual cues are they looking for?

During physical exam, your veterinarian may feel scar tissue in the knee between the femur and the tibia (called medial buttress). If this scar tissue is felt there is a 99% chance your pet has CrCL disease. Specific palpation techniques that veterinarians use to assess the CrCL include the 'cranial drawer test' and the 'tibial compression test.' These tests can confirm abnormal motion within the knee consistent with rupture of the CrCL.

## How does this happen?

Obesity plays a substantial role as well as significant activity by poorly conditioned animals (weekend warriors).

## Genetics play a part. Some breeds are more predisposed, such as:

- Labrador Retrievers
- Rottweilers
- Pit Bulls
- "Doodles" (at a very young age)



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## **When is the average age of onset?**

Normally we see the first injury in dogs who are 3-5 years of age.

## **What about partial tears?**

Owners will bring in a pet who is lame most of the time but will have days where they seem to be improving. Partial tearing of the CrCL is common in dogs and 50% of the tears in large breed dogs will progress to a full tear over time. Dogs under 15 pounds may be able to get by with conservative (non-surgical) treatment. 25% or less tearing is diagnosed with ultrasound, pain on cranial drawer/tibial thrust testing, and/or a needle microscope. This is before there is physical instability.

## **Why does it matter how much of the ligament is torn?**

At 25% or less tearing, stem cells and physical rehabilitation show the most benefit to potentially repairing the CrCL injury without surgical intervention.

In dogs or cats under 15lbs, injuries that do not improve with physical rehabilitation and muscle-building should be re-evaluated for meniscal tear.

## **What are alternate leg injuries?**

50% of dogs that have CrCL injuries in one knee will develop a similar problem in the other knee within 2 years. In Dr Wardlaw's personal experience with obese patients, if at the time of surgery there is effusion in the uninjured knee on radiographs (regardless of stability), she is seeing them back within 6 months for a CrCL injury to the other knee.

## **What habits should we be putting in place to prevent this?**

1. Keep them skinny: obesity is a huge contributing factor
2. Preventative quality joint supplements (fish oil, glucosamine and chondroitin)
3. Proper activity (work up to 2 mile hikes) and muscle-building
4. Don't overdo exercise, especially when they are young

## **Preventative exercise resources:**

<https://www.topdoghealth.com/>

<http://jennwardlaw.com/?p=465>



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## What supplement guidelines are there?

1. MSM by itself is unlikely to help and is often not palatable by cats
2. Supplements are nutraceutical and not vitamins and minerals - a balanced diet is key
3. Don't add calcium, vitamin C or bone meal
4. Don't use human supplements, they are not the same!
5. Make sure you have an unflavored or hydrolyzed option if you've got a pet with food allergies

Related: *Watch the Cone of Shame episode on joint supplements here.*

## Treatment Options:

In animals who are 15 pounds or less, we can attempt nonsurgical conservative treatment. Increase comfort by using physical rehabilitation every day, nutraceuticals, and pain management.

If you are not seeing improvement within 3 months, surgery should be considered.

**Surgical options include:** Lateral Suture (Extra-capsular suture stabilization also called “Ex-Cap suture,” “lateral fabellar suture stabilization,” and the “fishing line technique”)

This technique is easy to learn, inexpensive to perform and provides stabilization support for the knee while it heals on its own. Rehab needs to follow this procedure and because you are tightening the knee, there is more limited range of motion.

On larger dogs, extra-capsular stabilization techniques are not successful and osteotomy-based techniques (which cut the bone) are preferred because of their success in even the most athletic patients.

Tibial Plateau Leveling Osteotomy (TPLO) allows for rapid healing (short leash walks at 4 weeks) and less arthritis progression over time.



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Age isn't a concern in which surgery to choose, but hormone disorders are a consideration due to extended healing time. Age is a concern for owners and a full geriatric work up is important to making a good surgical decision.

## **As a pet owner should I choose a TPLO and TTA?**

The decision between TPLO and TTA is based purely on the opinion of your surgeon and their personal technical experience.

## **What about laser therapy?**

One laser episode pre-TPLO shows increased healing post surgery.

6 jules per cm squared on both sides of the knee, not just over the incision post-op.

## **Medial Patellar Luxation:**

1: Wiggles but doesn't dislocate - doesn't need surgery

2: Wiggles but pops out- may not need surgery

## **Scale of 3's:**

If the patient bunny hops for 3 days despite pain meds - needs surgery

If the patient holds the leg up 3 times in 3 weeks despite pain meds - needs surgery

If the intermittently hold it up or they skip and it's not better within 3 months - needs surgery

3: Wiggles, pops out and doesn't go back easily - needs surgery

4: Dislocated and isn't going back in - needs surgery

Grades 1 and 2 need rehab to prevent progression.

For more information on CrCL injuries, please see: <https://www.acvs.org/small-animal/cranial-cruciate-ligament-disease>

