

Disables Your Poor Pup – Can Cause Her to Collapse in Pain

This is singlehandedly the most common soft tissue injury seen in veterinary medicine today. But why was it so common? Learn how to radically lower your pup's risk.

Reviewed by Dr. Becker

STORY AT-A-GLANCE

- Cranial cruciate ligament (CCL) rupture is the most common soft tissue injury in today's dogs
- Manganese deficiency could be a contributor in cases of non-traumatic, gradual deterioration of the cruciate ligaments
- Managing CCL injuries non-surgically requires a treatment protocol that includes natural supplements, medications as necessary, physical therapy and gentle exercise
- It's also extremely important in both preventing and treating CCL injuries to feed dogs a homemade fresh food diet balanced for optimal nutrient intake, including an appropriate amount of manganese
- There are several ways to rehabilitate CCL, so it's best to visit a specialist to see what treatment works best for your pet

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Cranial cruciate ligament disease is an all-too-common problem in dogs today. In fact, CCL injuries are the most common soft tissue injury seen in veterinary medicine today.¹ If you've had a pet with a CCL injury, you know how serious and debilitating this condition can be.

Categories of Canine Patients with CCL Damage

Dogs with CCL injuries commonly fall into one of these four categories:

1. Trauma (like being hit by a car)
2. Size, weight, breed, sex hormone and vaccine status
3. Dogs eating poor-quality processed diets (usually with very low-quality synthetic vitamins and minerals added to meet AAFCO minimum nutrient requirements)
4. Dogs eating homemade prey model diets fed by misguided pet parents who believe any type of fresh food is all that matters, recipes are unnecessary and "balance will occur over time," and without intentional additions to meet specific nutrient deficiencies

The cases of overt trauma were rare and easy to identify and the only logical reason for healthy dogs to suddenly tear a ligament would be a traumatic accident. However, the vast majority of dogs with this injury were tearing their ligaments in non-traumatic ways, such as getting on the couch, slipping on the grass or fetching a ball in the backyard.

Large and giant breed dogs have more CCL injuries than smaller dogs. Genetics may play a small part,² but other dogs with CCL damage didn't fit into the first three categories. Desexed (spayed and neutered) animals have more CCL damage than intact animals. Sex hormones appear to have a protective effect on the musculoskeletal system.

Overweight or out-of-shape dogs tax their ligaments more than lean dogs, but what about patients that weren't fat or out of shape? They were active and healthy, they weren't over-vaccinated and they weren't desexed.

It's possible nutrition was a cause for the majority of CCL injuries. Specifically, a lack of dietary manganese. This mineral is required for healthy, strong ligament development and maintenance. A dog's manganese requirements are high and food sources vary on the amount of manganese present.

Healthy Cranial Cruciate Ligaments Are Essential to Your Dog's Mobility

The cruciate ligaments are bands of fibrous tissue. Each knee joint ("stifle") in a dog's back legs has two cruciate ligaments, which connect the femur (the bone above the knee joint) with the tibia (the bone below the knee joint).

The cruciate ligaments are the main stabilizers of your dog's knee joint. They cross over each other, with one band running from the inside to the outside of the knee joint, and the other from the outside to the inside. In humans, the CCL is called the anterior cruciate ligament (ACL).

Inside the knee joint between the femur and tibia is cartilaginous material called the meniscus. The job of the meniscus is to absorb shock and assist with load bearing, and it can be damaged when there is injury to the cruciate ligaments.

CCL injuries are seen in dogs of every size and age, but certain breeds are overrepresented, including the Akita, Chesapeake Bay Retriever, Labrador Retriever, Mastiff, Newfoundland, Rottweiler, Saint Bernard and Staffordshire Terrier. Research has identified a genetic component for the disease in Newfies and Labs.

Breeds unlikely to develop CCL disease include the Basset Hound, Dachshund, Greyhound and Old English Sheepdog. The condition is almost never seen in cats.

Most CCL Ruptures Occur After Years of Gradual Deterioration

Rupture of the CCL is a very common reason for hind limb lameness, pain and arthritis of the knee in affected dogs. Ruptures can be partial or complete.

The word "rupture" or "tear" draws a mental picture of an injury to a healthy ligament that occurs suddenly (acutely). However, according to the American College of Veterinary Surgeons (ACVS), in the vast majority of affected dogs, the ligament has been gradually deteriorating over a period of months or years.³

When the CCL tears or ruptures, the knee bones no longer move normally, and your dog will have difficulty putting weight on the leg without it collapsing. That's because the tibia is no longer supported by the cruciate ligament and thrusts forward when any weight is exerted on the leg.

Indeed, with complete tears (picture a rope torn in half), only surgical correction or replacement will make the joint completely functional again. The type of surgical technique selected and the competence of the surgeon have a lot to do with outcome success, along with rehabilitation therapy and long-term joint support.

However, the majority of dogs suffer from recurring sprains rather than complete ruptures (picture a frayed rope). In these situations, avoid surgery as long as possible by instituting an intensive management protocol. CCL injuries are painful for your dog, and without proper treatment, permanent joint damage can result. Unfortunately, estimates are that from 40% to 60% of dogs with CCL disease in one knee go on to develop the problem in the other knee.

Treating CCL Disease Non-Surgically

Treating CCL disease non-surgically involves three essential strategies:

- Controlling pain
- Supporting and improving joint health, slowing degenerative joint disease (DJD)
- Restoring function and strength to the injured leg

The supplement, exercise and dietary regimen is based on each dog's specific circumstances, age, activity level and job (for example, agility athletes and police dogs have different ligament stress than other dogs).

There is no "one size fits all" treatment approach when a dog is diagnosed with CCL damage. Partnering with a proactive integrative veterinarian who will adjust treatment protocols as your dog's body dictates is a critical part of managing "joint dogs" throughout their lifetime.

Natural Supplements and Medications

Instituting chondroprotective agents (CPAs) as soon as possible helps reduce further damage to joints. For genetically predisposed breeds this means beginning CPAs proactively, at 6 months to 1 year of age. The most commonly used CPAs are perna mussel (green-lipped clam), eggshell membrane, glucosamine sulfate, MSM and cetyl myristoleate.

Dogs who have had substantial CCL injury should be on progressive joint supportive protocols for the rest of their lives to slow degenerative joint disease in the injured knee and improve ligament resiliency in the opposite knee.

Medications should be given as long as necessary to control both the pain of the CCL injury, as well as any maladaptive pain that has developed as a result, such as low back pain.

In addition, injections of Adequan and platelet-rich plasma therapy⁴ help slow joint degeneration and promote joint fluid production in cases of chronic knee problems. Prolotherapy, which involves injecting small amounts of various natural substances into the soft tissues of a damaged joint, can be beneficial for these patients as well.

In addition, incorporate many natural anti-inflammatories for long-term management. It's important to always give CPAs with anti-inflammatories, including:

- Devil's claw
- SOD
- Feverfew
- Serrapeptase
- Scutellaria
- Turmeric and ginger
- Boswellia
- Willow bark (not for cats)
- SAmE
- Proteolytic enzymes

There are some excellent homeopathic remedies and Chinese herbs that can be beneficial as well, but these natural treatments should be given in addition to CPAs, not in place of them.

Physical Therapy and Exercise

There are several orthopedic braces that can be beneficial for limiting range of motion and supporting the rest of the body (including the over-stressed, opposite knee joint). It's important to match the type of brace to the breed of dog, so work with an animal rehab therapist to determine which brace may be beneficial for your dog.

Once a dog's pain and lameness are improved, a physical rehabilitation program can be instituted to improve function and rebuild strength. Water therapy is very beneficial in helping dogs recover from CCL injuries, because it helps build strength and muscle mass with little to no discomfort.

On an underwater treadmill, your dog can exercise in a normal posture without putting excess weight on damaged joints. Water also provides resistance during movement, which helps strengthen muscles. During this time, mix it with other strategies such as laser therapy, the Assisi loop,⁵ acupuncture and electro-acupuncture to help alleviate joint pain.

Chiropractic care can help your dog's postural imbalances and may help reduce compensatory stress on the other knee. In addition, massage is excellent for tight, overworked muscles.

It's important to note that even with intense therapy, there are cases where complete rupture eventually occurs. That's why many dogs end up requiring CCL surgery to maintain an excellent quality of life. Every patient and situation are different, so the challenge is always finding the methods of treatment that are most suitable and helpful for the individual pet and his family.

Dietary and Additional Recommendations

Don't guess at your dog's diet. Feed a homemade, fresh food diet you know is balanced for optimal nutrient intake, including 3.1 mg of manganese per 1,000 kcal (calories). This is the average amount of manganese provided by the canine ancestral diet.

You can up- or down-regulate genetic potential by what you feed your dog. If dogs are eating a ligament-supportive diet, they should not have degenerative cruciate damage over time. Here are recommendations for feeding a manganese-rich diet:

- Follow a homemade recipe that gives amounts of manganese per serving or 1,000 kcal
- Call the pet food company and ask what guidelines they follow, or how much manganese (per 1,000 kcal) is in their food, so you know you are meeting optimal intake for your dog
- Supplement as necessary (with whole foods or a supplement such as Standard Process E-Manganese) to meet Mn requirements

In addition, it's very important to keep your dog lean and well-conditioned, preferably intact (opt for an ovary-sparing spay or vasectomy, when possible), and titered versus over-vaccinated. If your dog has sustained a CCL injury, partner with a good **canine rehabilitation facility** and **proactive integrative veterinarian** to offer your dog the best chance of recovering from this common injury.

Sources and References

[Veterinary Practice News, September 14, 2018](#)

¹ [Can Vet J. 2003 Oct;44\(10\):845-846](#)

² [University of Liverpool, September 2013](#)

³ [American College of Veterinary Surgeons](#)

⁴ [dvm360, April 1, 2014 \(Archived\)](#)

⁵ [Assisi](#)
