



## Chelsea Animal Hospital Inc.

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Alternatively Speaking: What's Up With Those Knees?  
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In our last article we discussed ways to avoid injuries while having summer fun. Fall may be here, but unfortunately injuries happen year-round. Since so many lameness complaints involve knees, we thought it would be good to follow up and focus on them in detail. Dogs (and even cats) can have a number of different problems with their knees, including arthritis, loose knee caps, and unfortunately sometimes bone cancers. While cats or specific breeds of dogs can be prone to certain knee problems, if we lump them all together the cruciate injuries are arguably the most frequent issue involving the knee. Since a little knowledge can go a long way towards prevention, let's learn about cruciate injuries.

Most people have heard of cruciate ligaments, it is a common injury for humans too. To understand why involves a look at anatomy. Unlike the hip or elbow, knee joints lack interlocking bones. The thigh simply sits on top the shin bone, with cartilage shock-absorbing pads (menisci) cushioning between them. What keeps them aligned are the ligaments around the joint, along with the leg's muscle and tendon attachments. However when you think about stress to the knee, it is not being pushed to the side, or backwards. Whether upright or on 4 legs, most activity involves forward motion so the thigh is constantly pushing downward on the shin, which naturally wants to pop forwards under that pressure. The cruciate ligaments don't allow that to happen. Located inside the knee joint, they cross diagonally, anchoring the bones so they stay in line and any weight is transferred down to propel the body forward. Like any ligament in the body, they are incredibly strong to bear this pressure. But they do have their limits.

This brings us to why cruciate ligaments are so prone to injury. In people it is typically a result of trauma, like when playing football or skiing. But for dogs this is not usually the case. Take "Hackett" for instance, who we talked about in the last issue's article. He went out into the yard to play, and came back on 3 legs. For dogs injury happens during regular activities, because for them the ligament has been weakening slowly for some time until it suddenly gives way. Why are the ligaments weak? There are several reasons. For Labradors and Newfoundlands, there is a genetic link to faulty ligaments and affected dogs' knees can give out as young as a year old. Genetics play a role in body type also. A dog's knee is not straight like ours, their leg angles forward from hip to knee and then back to the foot. This angle can be excessive, like in German Shepherds whose sloped rear end throws their feet behind the body straining the back and hips. The opposite is an 'upright' conformation, where the leg is too straight. This can happen in any breed but commonly in Labrador Retrievers that have a tall slim build versus the classic stocky hunting dog. Studies have shown this lanky build may result when male Labs are neutered before puberty, because puberty hormones signal a stop to bone growth and the surgery delays that. The straighter leg creates a constant forward strain on the knee like a skier always going downhill, making them prone to injury.

The other big contributor to weak ligaments is dietary promoted inflammation. Eating excessive processed carbs, combined with being more than 10% over ideal body weight promotes inflammation that can weaken ligaments, affecting more than just knees. Weak hip ligaments allow excess motion that damages growing puppy hip (hip dysplasia), and weak cruciate ligaments suffer small tears over time until they fail. From a Chinese perspective, the ligaments and tendons need good blood circulation to maintain full strength, otherwise they become dry and brittle. So dogs with the Chinese diagnosis of Blood Deficiency may have ligament problems in general, as well as other signs of poor circulation to their extremities such as dry dander, thin dry coats, anxious personalities and restless dream-filled sleep. Blood Deficiency is often linked to a diet lacking blood-rich meats and organs.

The good news is that knowing what to look for allows us to support against cruciate injuries before that injury occurs. In our practice we discuss including fresh ligaments or bone broth in your dog's diet, or supplements

that provides those nutritional tissues. A glucosamine may be added to reduce inflammation in at-risk joints. Chinese herbs and food therapy can help soften Blood Deficient tendencies and avoid or minimize the issues that imbalance causes over time. Simple steps like keeping lean and trim, especially during growth, has a huge impact too. This is best done by providing at least part of the diet as a fresh, canned or dehydrated food that has little or no processed carbs. Dry dog food is convenient but not ideal to feed as the sole diet. Whether corn, wheat, rice, peas, lentils, potatoes or chickpeas, a starch is a starch and in processed form only contributes to weight gain and inflammation, especially in a species designed to eat meats and carcass parts, not bread. Labrador owner should discuss the pros and cons of delayed neutering with their vets. It is not the right choice for every dog but the evidence is good that waiting may improve the chances of healthy knees. Lastly, encourage low impact exercises like swimming, hiking and walking while avoiding Frisbee and fetch games that involve a lot of twisting, skidding and jumping on an at-risk knee.

In case prevention isn't successful, know the early signs of injury. Most people don't have trouble noticing when their buddy can't use a hind leg. But the more important symptom to act on is the limp that lasts for a day or two, but then gets better. This may be an innocent strain or muscle pull, but more often it is a small tear in the cruciate ligament. It can still hold the bones in place, so feels better after the initial pain of the tear. Suspect this injury if your dog hurt themselves just during normal play or activity, or if they haven't had arthritis or ongoing issue to explain why their leg would be suddenly sore. Most cruciate injuries can be diagnosed with a physical exam, although some dogs may need a sedative to relax the joint for that exam especially if they are painful, or need xrays. Early intervention is critical since this is the best opportunity to manage the issue without surgery. Left unaddressed, the ligament will continue to suffer small tears until it gives out and the knee can no longer support weight at all.

So let's say you are at the vet's and a partial tear is diagnosed, or at least suspected, what happens then? Modifying and restricting activity is important while giving the ligament time to heal. Not being in pain just means the acute inflammation of injury has passed, but it takes 8 weeks for a ligament to repair a tear, and then as many months for that new repair to be as strong as the original ligament was. That means avoiding heavy activity for a while, perhaps even just short leash walks in the beginning. In the meantime, we want to take all the steps mentioned above for preventative support, but also add herbs and supplements that enhance circulation to the joint while reducing inflammation to promote healing. Acupuncture and massage is also helpful to this end. Studies looked at dogs a few years after cruciate injuries and showed that a combination of weight loss and physical therapy can be as effective as surgery, especially for partial tears or tears in animals under 30 pounds.

For complete tears of the ligament, the joint has lost its stability and can't hold the body's weight. Surgery is the only way to immediately return that function. For large, active dogs, it still is the treatment of choice in most cases, however medical management is not impossible for a really dedicated owner and the right patient. Even when surgery is pursued, all the above supports are still important for several reasons. First, the weakness that existed in the torn ligament exists in the opposite leg, which is now bearing abnormal weight while the injured leg is out of commission. This is why we caution to expect a similar injury in the other leg within the next 2 years, unless proactive measures are taken. Secondly, most of the herbs and supplements used help with circulation to the knee, and that aids in healing after surgery. Finally, these measures are also supporting ligaments in the whole body, which all share the same vulnerabilities and can suffer strains over a lifetime. Addressing ligament health has body-wide orthopedic benefits for your pet and is a worthwhile investment to make early on.

So if you have a breed prone to knee problems, or a dog with a body type that puts their knees at risk, you can certainly get good pet insurance and/or start saving for knee surgery early on. You may have enough saved up by the time you need it. But consider putting some of those dollars towards a nourishing diet and supports to strengthen and promote healthy joints and ligaments, and both you, your dog and your wallet will be happier for the effort.

*Dr. Anne Carroll is owner of the Chelsea Animal Hospital where she and her associates practice conventional medicine and surgery as well as several alternative modalities including traditional Chinese acupuncture and Chinese herbal medicine. For more information on alternative veterinary medicine visit their website at [www.chelseaanimalhospital.com](http://www.chelseaanimalhospital.com).*