



# Cruciate Ligament Rupture



## Cruciate Ligament Rupture: An Overview

A cruciate ligament rupture is a rip, or tear, of one of the cruciate ligaments. The cruciate ligaments are ligaments (connects one bone to another bone) which stabilize the knee. They are located within the knee joint forming an “X” pattern and connect the femur to the tibia. There are two cruciate ligaments, the cranial (anterior) and the caudal (posterior). A cranial cruciate ligament (CCL) rupture is the most common and is what will be discussed in this article. The CCL functions to stabilize the tibia. It keeps the tibia from sliding out of position and also prevents hyperextension and twisting. A rupture can occur in one or both of the rear legs and there are multiple factors associated with it. Any breed of dog is able to have a cruciate ligament rupture but they are normally seen in large dogs. Overweight dogs are at a higher risk of tearing their CCL than dogs at a healthy weight are due to increase stress put on the knees.

## Causes of Cruciate Ligament Rupture

The most common cause of a CCL rupture is sudden trauma. This trauma can be caused by any movement that puts excessive pressure on the knee such as stepping in a hole while running, twisting while the foot remains planted, landing wrong when jumping or general rough play. This acute rupture is normally seen in young, large dogs. A chronic rupture is also possible. In this type of injury the ligament degrades over time. As this occurs the ligament will tear partially causing symptoms to come and go. Eventually a complete tear will occur. This type of rupture is normally seen in older dogs (5-7yrs) and in most cases will involve both rear legs.

## Prevention of Cruciate Ligament Rupture

Prevention of cruciate ligament rupture is difficult. However, there are some steps you can take to decrease the potential for injury. Maintaining a healthy weight and a regular exercise program are the most important things to consider. Additionally, if a dog has had an early diagnosis of an orthopedic health issue, such as patellar luxation, she may be more prone to cruciate ligament rupture. To decrease the probability, surgical correction of these orthopedic issues is recommended as soon as possible.

## Symptoms of Cruciate Ligament Rupture

Lameness in the rear leg is the most common sign of a CCL rupture. Other symptoms can include pain and swelling of the joint. Crepitus, a crackling sound, may be heard when the dog walks due

to bone rubbing on bone. A popping or snapping sound may also be present if there is damage to the cartilage in the knee in addition to the ligament rupture.

## Diagnosing Cruciate Ligament Rupture

Diagnosing a CCL rupture begins with the history of the animal. The history is taken to inform the veterinarian if there has been recent trauma to the leg or if this is a reoccurring injury. A radiograph is usually then performed. An x-ray will not show the ligaments within the knee but will show the overall structure and position of the bones. The test which provides the most conclusive diagnosis is the drawer test. This test is performed by having the veterinarian hold the femur stable and move the tibia. If the tibia is able to move forward (like you are pulling out a drawer) it is considered a positive drawer test and indicates a CCL rupture. Another test commonly performed is the tibial compression test. In this test the femur is held in place and the ankle is flexed. If the tibia moves abnormally it indicates a CCL rupture. An ultrasound is the most definitive in diagnosing cruciate ligament ruptures because you can see the ligaments on an ultrasound. This is particularly useful in cases where the drawer test is inconclusive such as with chronic onset or partial tears.

## Treating Cruciate Ligament Rupture

There are both surgical and conservative means by which cruciate ligament ruptures can be treated. In most cases a combination of both is preferred. In small dogs, under 25 pounds, surgery may not be necessary and can be treated with only conservative methods. For dogs over this weight surgery is almost always recommended. The conservative treatment methods prescribed include weight reduction (if the dog is over weight), physical therapy, NSAIDs for pain and inflammation, and rest. The goal of surgical treatment is to stabilize the joint. There are many techniques which are currently being used including fibular head transfer, and tibial plateau leveling. No one way has been proved to be better than another. Your veterinarian

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ian can give you more information all the techniques and determine which one would be best for your dog.

### Caring for dogs with Cruciate Ligament Rupture

Rest and restricted activity is almost always required for dogs with cruciate ligament ruptures. If your dog has been diagnosed and treated for a CCL rupture it is important to follow your veterinarian's instructions. This usually requires leash walking and crate rest for around 8 weeks following surgery. The dogs diet should be watched very carefully as any excess weight can put stress on the knees. Physical therapy may also need to be performed to help strengthen the joint and return it to normal.

## The AKC Canine Health Foundation and Cruciate Ligament Rupture

The AKC Canine Health Foundation has funded 10 grants, totaling over \$300,000, focused on many aspects of cranial cruciate ligament ruptures. There are two grants currently active which are focusing on the causes of chronic type CCL ruptures. The hope is to find better treatment methods to help those dogs that have cruciate ligament ruptures and to find preventative measures to stop other dogs from experiencing a rupture.

*This article is provided by the AKC Canine Health Foundation whose mission is to advance the health of all dogs and their owners by funding sound, scientific research and supporting the dissemination of health information to prevent, treat, and cure canine disease. For more information or to support their work visit [www.akchf.org](http://www.akchf.org).*

