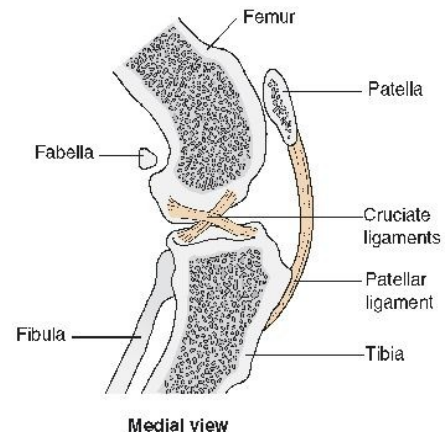


# Ruptured Anterior (Cranial) Cruciate Ligament

## Normal Anatomy of the Knee

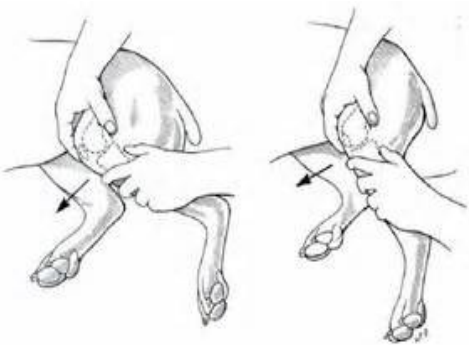
The knee consists of the femur, the tibia, the knee cap (patella) and small fabella. Cartilage wedges called meniscus fit between the femur and tibia to cushion the joint. Ligaments hold the joint together and allow the knee to bend in certain directions but also prevent the joint from bending incorrectly. The two ligaments that cross inside the joint are the cranial and caudal cruciate ligaments. The cranial cruciate ligament prevents the tibia from slipping forward from out underneath of the femur.



## Making the diagnosis...

A rupture or tear of the cranial cruciate ligament is a common knee injury of dogs with a sudden onset of rear leg lameness. The dog's leg is usually painful resulting in minimal weight bearing of the affected rear leg. Patients are often playing roughly when a sudden lameness occurs. A cranial ligament rupture is commonly an injury in young athletic dogs that missteps or an overweight older patient that have weakened ligaments causing partial tears of the ligament through the years. This latter case eventually ends in a complete tear with significant arthritis development. Regardless of the cause of injury, the knee can be swollen and arthritis can quickly develop.

The 'drawer sign' is a key physical exam finding that is demonstrated with a cranial cruciate ligament tear. The veterinarian stabilizes the position of the femur with one



hand and manipulates the tibia with the other. If the tibia moves forward, then the cruciate ligament is ruptured. 'Indirect drawer' can be felt when the veterinarian stabilizes the femur with one hand and flexes the ankle with the other hand. The tibia will move forward when the ligament is torn. Swelling on the side of the knee joint (medial buttress) can be felt if the injury occurred some time ago. Sedation may be necessary to demonstrate the drawer sign because the patient is tense or too painful.

See Reverse...

Radiographs are very helpful to determine the degree arthritis especially since arthritis can develop rapidly in an unstable joint. Occasionally when the cranial cruciate ligament tears, a piece of bone where the ligament attaches to the tibia can break off and should be surgically removed. The degree of arthritis impacts the surgical prognosis of the ligament repair.

## **What if the cruciate rupture is not surgically repaired?**

The knee joint is unstable when the cranial cruciate ligament is torn. This instability causes abnormal wear between the femur, tibia, and patella. As a result, the joint starts to develop degenerative changes (arthritis). Arthritis causes chronic pain and loss of joint motion. Degenerative changes to the joint are evident 1 to 3 weeks after rupture in some patients. This process can be slowed or stopped by surgical intervention but cannot be reversed. A rupture that is left untreated can cause a tear in the meniscus creating more joint abnormalities and degenerative changes to the cartilage and joint.

## **What does surgical repair entail?**

The veterinarians at Oceana Veterinary Clinic perform an extracapsular repair. The knee joint is opened and inspected. The torn cruciate ligament remnants are removed. Any excessive bones spurs or torn meniscus are also removed. A strong suture is passed around the fabella behind the knee and through a hole drilled in the front of the tibia. This tightens the joint to prevent the drawer movement, effectively taking over the role of the cruciate ligament.

A tibial plateau leveling osteotomy can also be performed at a referral hospital such as MSU's College of Veterinary Medicine. With this surgery, the tibia is cut and rotated in a manner that the natural weight-bearing for the dog actually stabilizes the knee joint. The knee joint must still be opened and have cruciate ligament remnants removed as well as any damaged meniscus and/or bone spurs. This procedure typically costs more than the extracapsular repair.

## **What should be expected after surgery?**

Your dog may carry the affected leg for up to 2-3 weeks after surgery. Your dog then will gradually increase use of the leg over the next 2 months, eventually to normal. Your pet will require at least of 8 weeks of exercise restriction after surgery (leash walks only with no running, jumping, etc). Physical therapy will be key to your pet's recovery. Your dog will also need to come in at 1, 2, and 4 weeks post surgically to evaluate the knee and remove the skin sutures.