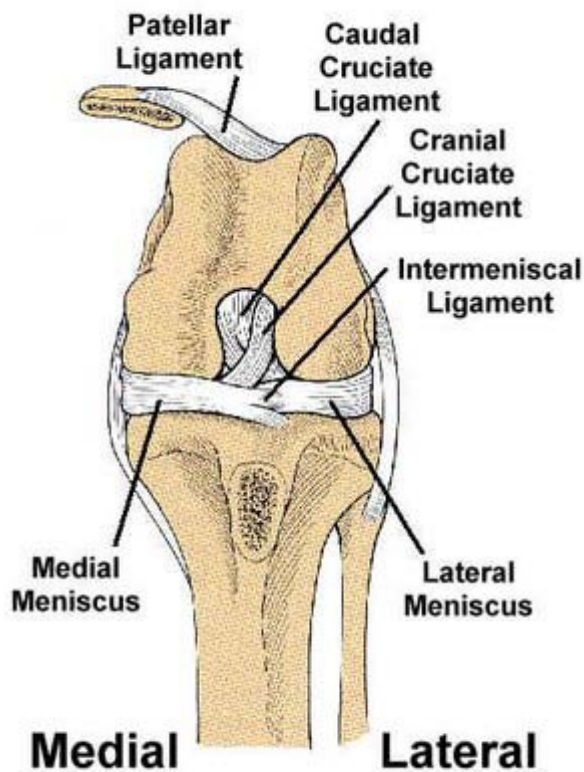




Anterior Cruciate Ligament Injury in Dogs

The anterior cruciate ligament (ACL) – also referred to as the cranial cruciate ligament (CCL) – is an important stabilizer of the knee. It prevents forward motion (anterior drawer), hyperextension and twisting between the thigh bone (femur) and the shin bone (tibia).



How does the ACL become injured?

The ACL can undergo a sudden (acute) or ongoing (chronic) injury.

In dogs, acute injury of the ACL usually occurs while playing fetch, roughhousing or running over uneven terrain. Like knee injuries in people, or sudden, sharp turns/stops with the foot planted can overcome the strength of the ligament. When the force placed on the ligament surpasses its strength it will cause a mild sprain, partial tear or complete tear. Often this type of injury appears to be acute, but is actually the result of an ongoing but untreated chronic weakening process. Chronic ACL injury can be the result of daily wear and tear, poor conformation or autoimmune related disease.

Symptoms: ACL injury is the most common cause of lameness in the hind leg of the dog. It is often diagnosed as “hip dysplasia” or “arthritis” when in actuality the lameness is due to anterior cruciate ligament injury.

Symptoms of a severe or complete tear of the ACL include consistent toe touching to non-weight bearing lameness as well as changes in posture such as the inability to sit straight or rocking weight forward onto the front legs. Some dogs may exhibit a painful

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541-312-2114



response to manual palpation of the joint while others may not. Mild swelling can be detected with experienced hands but is often difficult to visualize.

With a sprain or mild tearing of the ACL, there is usually intermittent lameness that often resolves with rest and anti-inflammatory treatment. Symptoms may include mild, intermittent lameness, inability to sit straight and mild to moderate muscle atrophy. Muscle atrophy can be palpated or visualized when comparing the affected limb to the other limb. Mild swelling can be detected with experienced hands but is often difficult to visualize.

Pain and Discomfort: Acute injury is often followed with brief vocalization and a stressful or anxious response indicating pain and discomfort. However, when an acute injury becomes chronic the outward display of pain seems to wane. In many cases dogs seem to be just as happy and ready to play with an injured ACL as they are with a normal ACL so assessing pain can be difficult. When a dog that has an injury to the ACL is not fully weight bearing, they are showing lameness and this is likely both a pain response as well as an uncertainty about walking on a leg with an unstable joint.

Predisposing Factors to ACL Injury:

- Lack of conditioning coupled with obesity is a common factor in many dogs that have sustained an injury to their ACL.
- Dogs that play weekend warrior are predisposed to knee injury.
- Dogs over 5 years are more prone to injury.
- Dogs that have untreated, chronic injury of the ACL are likely to sustain a full rupture within 12-18 months of the original injury.
- Untreated patella luxation predisposes dogs to chronic tearing of the ACL.
- Dogs that have been treated long term with high doses of corticosteroids (prednisone), dogs that have Cushing's disease or dogs that have immune mediated joint diseases are all more likely to injure their ACL.
- Dogs that have already had surgery for ACL injury in one limb are 30-70% more prone to injury in the other limb within two years.

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Diagnosis: The diagnosis is made by your veterinarian and usually includes gait/lameness evaluation and manual palpation of the joint to assess instability and severity of the injury. Your veterinarian may also recommend x-rays and possibly joint fluid analysis to further stage the injury. Radiographs are used to gauge the overall joint structure and secondary problems such as osteoarthritis rather than on the ligament or soft tissue injury itself. Joint fluid analysis is used to identify inflammation and if present, whether it is high grade (acute), low grade (chronic) or infectious. For those who prefer a definitive diagnosis of the severity of the injury diagnostic arthroscopy can be performed. Diagnostics are almost always followed by surgical treatment of the injury if enough evidence of ACL injury is identified.

Treatments: Although the treatment of choice for an ACL Injury is usually surgery, treatment can range from conservative treatment to surgery depending on the cause, severity, size, age and lifestyle of the dog. Your veterinarian will help you decide the best approach for your dog.

Initially, mild sprains can often be managed conservatively. Treatments may include rest, ice, non-steroidal anti-inflammatories (NSAIDS), glucosamine/chondroitin supplements or injections, stem cell injections, physical rehabilitation and lifestyle change recommendations.

Moderate to severe injuries generally require surgical intervention in order to stabilize the joint and minimize the progression and severity of secondary osteoarthritis. In addition to surgery non-steroidal anti-inflammatories, glucosamine/chondroitin supplements or injections, stem cell injections, physical rehabilitation and lifestyle change recommendations may be recommended.

Surgical Intervention: The primary goal of surgery is to return stability to the knee so that excess motion during weight bearing is minimized. There are several surgical procedures available which accomplish this goal. Your veterinarian may refer you to a [board certified surgeon \(a specialist\)](#) if your dog requires surgery. Most often, a determination of which procedure to perform is made by assessing size, lifestyle, breed, age, surgeon preference and financial consideration.

Minimizing Risk: Be sure to maintain a lean body weight. A 55lb dog who should weigh 50 lbs is carrying 10% more body weight than necessary. To a person, 5 lbs isn't much, but to a medium sized dog 5 lbs is the difference between being overweight or ideal weight.

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Be sure your dog is conditioned for the activities you choose to do together. A dog who is used to going for 15 minute leash walks 2 times a week is not likely fit enough to go for an 8 mile run.

Limit ball/frisbee throwing. The fast starting, turning and stopping are all actions that place chronic wear and tear on the knee joint, especially the ACL.

Understand that if your dog has had a sprain of the ACL, there is already higher risk of complete tear and so necessary changes in activity and lifestyle are recommended.

Physical rehabilitation after injury or surgery can reduce the risk of re-injury in a mild sprain, help prevent post operative complications and minimize compensatory problems such as injury to the opposite ACL.

This x-ray shows arthritic changes in the knee joint of a dog common with chronic ACL tears.



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