

Canine Cruciate Disease

What is cruciate disease?

Cranial Cruciate Ligament (CCL) disease is the most common condition affecting the stifle joint in dogs and is acknowledged as being a major cause of osteoarthritis and degenerative joint disease because of the instability and inflammation accompanying the ligament rupture.

Several factors can contribute to the development of canine cruciate disease, including:

- Breed disposition: certain breeds of dog such as Labrador Retrievers, Mastiff, Rottweiler are genetically predisposed to cruciate ligament injuries.
- Trauma: Sudden twists, falls or collisions can cause trauma to the knee joint, leading to ligament damage.
- Chronic degenerative changes: most cruciate ligament disease occurs secondary to chronic degenerative changes within the ligament. The ligament goes through a degenerative process resulting in a progressive deterioration in its structure and function.
- Conformation: Dogs with conformational abnormalities produce extra or abnormal forces on the ligament resulting in injury. In these dogs the tibial plateau tends to be steep. (see x-ray picture)

Rupture of the CCL (whether a partial or full rupture) results in marked instability of the stifle joint with accompanying pain and lameness. This instability leads to progressive degenerative changes within the joint – thickening of the joint capsule, damage to the menisci, muscle wastage (particularly to quadriceps) and bony changes.

Treatment options:

The aim of treatment for cruciate disease is to alleviate pain, restore the joint stability, improve mobility, and slow down the degenerative process. The choice of treatment depends on various factors, including the severity of the injury, the dog's size, age and conformation and the owner's preferences or financial position.

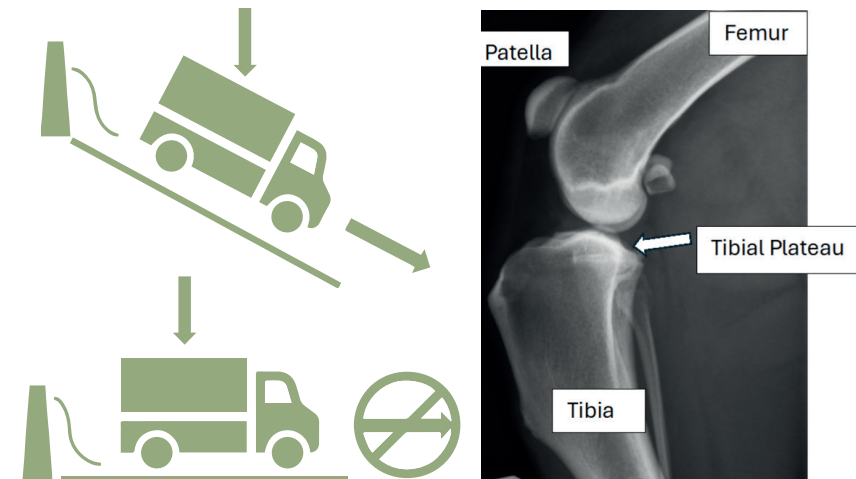
Treatment options include:

Conservative management (rest, pain relief, weight management, physiotherapy hydrotherapy and, of course, massage therapy)

Surgical intervention:

- Extracapsular repair – the damaged ligament is replaced with a synthetic suture to stabilise the knee joint. The aim is to allow the joint to fibrose and tighten up, thereby stabilising it.
- An osteotomy procedure (where the tibia is cut) such as a Tibial Plateau Levelling Osteotomy (TPLO), Tibial tuberosity advancement (TTA) or Cranial Closing Wedge Osteotomy (CCWO). These procedures aim to provide stability during the weight bearing phase of gait, by eliminating the slope of the tibial plateau and changing the stabilising dynamics of the joint.

Whichever option is chosen the joint will always be examined during the procedure. This will allow for inspection of the ligament and to tidy up frayed ends and inspection of the menisci.



The slope of the hill represents the tibial plateau, and the truck represents the femur.

The rope represents the cranial cruciate ligament. If the rope is torn, the truck will roll down the hill. Likewise, if the cranial cruciate ligament is torn the femur will slide down the slope of the tibial plateau. If the truck is placed on a level hill it will not roll forwards down the hill.

The aim of a tibial plateau levelling surgery is to reduce the slope of the tibial plateau and therefore reduce the tendency for the femur to slide off the tibial plateau. A dynamically stable joint is created even when there is no cruciate ligament present.

ACTIVITIES OF DAILY LIVING

By following some simple steps you can help your dog to manage his Cranial Cruciate Ligament



FLOORING

Today's modern homes can be a difficult environment for a dog living with cruciate disease. Laminate and tiled floors may cause a dog to slip and slide. This can result in further trauma and sprains to the cruciate ligament. Use antislip tape, mats and runners to help prevent slipping.



CARS

Jumping into a car can be particularly troubling for a dog with cruciate disease as the knee joints are "loaded" to enable them to propel themselves upwards. Dogs should be lifted into the car where possible or use a non-slip ramp or steps to help them in and out.



STAIRS

Should be avoided where possible, particularly coming downstairs as this places the knee joint through greater flexion. If your dog must go up and down stairs, try and limit the frequency. Consider using a stair gate to prevent access.



EXERCISE

Is important for both physical health and mental stimulation however it must be done carefully. Too much running around, twisting and jumping is likely to exacerbate the condition and cause further sprains to the ligament.



BODY WEIGHT

Maintaining a healthy weight is crucial for dogs with cruciate disease as excess body weight puts additional strain on the joints and therefore the cruciate ligament. Adipose (fat) tissue also releases destructive enzymes which contributes to further damage of the cartilage of the joint



PLAY

Is important for the wellbeing of the dog, but it is important to find toys that will have less of an impact on the cruciate ligaments. Avoid games like "chuck-it" ball throwers or games that encourage your dog to jump up on his hind legs.

The clinical signs of cranial cruciate ligament disease include:

Lameness: Dogs may exhibit lameness or a reluctance to bear weight on the affected limb.

Inflammation: A joint effusion (excess joint fluid) and heat around the joint may be palpable.

Muscle atrophy: In chronic cases muscle atrophy (wastage) occurs - especially of the quadriceps muscle.

Medial Buttress: To try and stabilize the knee, over time the joint capsule thickens and becomes fibrotic. This is felt as a firm, hard swelling on the inside aspect of the knee. Occasionally clicking may be heard as the dog is walking. This clicking sounds is usually because of damage to the menisci – C shaped cartilage pads that provide cushioning during weight bearing.

Owners may notice that their dog has difficulty in rising from a sitting position, they may sit in an awkward position with the knee turned outwards, they may be reluctant to go for walks or run around or have trouble climbing the stairs or jumping into the car.

How can Clinical Canine Massage help?

Clinical Canine Massage Therapy is an excellent modality to use in the management of cruciate ligament disease whether that is part of a conservative management programme or part of the rehabilitation following surgical intervention.

Massage can help to reduce the pain, inflammation and swelling associated with cruciate disease.

Massage can aid mobility and improve joint range of motion of the affected knee.

Massage can help to address areas of overcompensation in the other hind limb and stifle which will be bearing more weight whilst the injured stifle recovers. It will also help to address areas of overcompensation resulting in high tone and trigger points (hyperirritable bands of focal point tension in the muscle tissue) of the back, neck and forelimb muscles.