Health & welfare

Cruciate disease explained

Vet James Grierson provides an overview of this crippling condition and explains how it can be managed.

The knee (stifle) joint plays an important role in allowing dogs free movement of the hindlegs, and any disease that affects it can impact mobility.

In dogs, the knee is a hinge joint, which is essentially made up of two major bones and one smaller bone. On one side is the femur (like our thigh) and on the other is the tibia (like our shin); the smaller bone is the patella (knee cap). There are two cartilage cushions (called menisci), situated between the femur and tibia, that act like shock absorbers for the knee (see Figure 1).

Cruciate disease affects the knee joint, and some of the breeds commonly affected by the condition include Labrador Retrievers, Golden Retrievers, Rottweilers, Mastiffs, West Highland White Terriers and Yorkshire Terriers.

WHAT IS CRUCIATE DISEASE?

Cruciate disease is the most common orthopaedic condition affecting dogs, and it can affect one or both knee joints. The cranial cruciate ligament — one of the supporting ligaments of the joint — breaks down and then snaps. Typically, the cruciate ligament degenerates over time (two to 18 months), resulting in an intermittent problem — until, one day, the weakened ligament will snap completely, perhaps as your dog runs across the garden. This leads to excessive movement between the femur and tibia, sometimes called a cranial drawer or tibial thrust by vets, and leads to cartilage damage, followed by development of osteoarthritis (degenerative joint disease).

DIAGNOSING CRUCIATE DISEASE

Cruciate disease is usually characterised by an abnormal hindlimb gait. Symptoms will vary depending on whether or not the ligament is partially torn or completely torn (See ‘Typical clinical signs’ on page 41). At home, owners may notice their dog appears stiff or lame on rising, is reluctant to jump into the car, sits down on walks and is weak in one or both hindlimbs; some report that their dog sits with the knee rotated outwards.

More severe cases may have non-weight bearing lameness on the affected leg after running, and some cases appear to be paralysed in the back legs when both ligaments rupture together. It's important to remember, though, that other conditions can cause similar signs in dogs and so examination by a vet is vital.

A diagnosis can often be

Cruciate disease doesn't just affect older dogs — it can occur between the age of six months and 15 years.

Risk factors

- Rottweilers are five times more likely to rupture their cruciate ligament than other breeds.
- If your dog is obese, he is four times more likely to rupture his cruciate ligament than a dog of normal bodyweight — so keeping your dog slim is very important.
- Females are twice as likely as males to rupture their cruciate ligaments.
- Dogs aged less than two years are less likely to sustain cruciate rupture than dogs older than eight years.
- Rottweilers have the highest odds for bilateral cruciate rupture, and Golden Retrievers the lowest odds.
If your dog is obese, he is four times more likely to rupture his cruciate ligament than a dog of normal bodyweight.

The anatomy of a dog's knee joint.

Typical clinical signs

- **Subtle (partial tear)** — abnormal gait characterised by stiffness on rising or subtle intermittent lameness following exercise. Some owners report on/off lameness over a period of 12-18 months prior to complete ligament rupture.
- **Severe (complete tear)** — sudden onset lameness following running with non-weight bearing lameness.

SURGICAL OPTIONS

There are many surgical techniques for managing this condition, which have evolved over the years. The most common techniques performed are replacement of the ligament with tissue from the dog, such as skin or fascia (a layer of fibrous tissue that connects muscles to other muscles), or replacement of the

Common misconceptions

- **Cruciate rupture is due to an acute trauma causing the ligament to rupture.** This is not true in the vast majority of cases. The exact cause of cruciate disease is unknown, but there are many theories. Only a small minority are due to an acute direct trauma, with most being secondary to inflammation in the ligament that leads to the rupture when it can no longer take the strain (much like a thick rope that starts to fray before it snaps completely).
- **Cruciate injuries only occur in older dogs.** This is often stated but is not true. While older dogs (eight years plus) are more likely to develop cruciate disease than younger dogs, it can also occur in individuals less than two years of age; the range is six months to 15 years.
Health & welfare

ligament with artificial material such as nylon.
Recent research has shown that the best outcome for dogs with a ruptured cranial cruciate ligament is achieved by altering the bones to neutralise the forces in the joint, meaning the cranial cruciate ligament is no longer needed. There are a number of similar techniques that involve cutting the bone (an osteotomy) and moving it – for example, a tibial tuberosity advancement (TTA; see Figure 2) or tibial plateau levelling osteotomy (TPLO). Although these techniques are all slightly different, they achieve the same effect, and these osteotomies are now considered to be the gold standard in management of this condition.

Think of the cruciate ligament as a handbrake on a car – the handbrake is needed to park your car on a hill, but if the handbrake fails (the cruciate ligament ruptures; see Figure 3) the car will roll away (this is the cranial drawer/tibial thrust that your vet feels). To solve the problem, you have to park your car on a flat area and there is no need for the handbrake. So we cut the dog’s bone and move it so that there is no longer a slope in the joint (see Figure 4).

Strit control is necessary following these procedures to minimise complications and ensure that they are a success; typically, dogs will initially need to be confined for six weeks.

LONG-TERM MANAGEMENT
Cruciate disease is the most common orthopaedic condition in dogs, but with prompt diagnosis, appropriate management and surgery, the vast majority can return to relatively normal levels of exercise.

It must be remembered, though, that osteoarthritis is inevitable following cruciate injuries; maintaining a lean body weight is the most effective way to minimise the impact of osteoarthritis in the long term.

Close consultation with your veterinary surgeon in conjunction with a specialist orthopaedic surgeon will help you decide how best to manage your dog’s condition.

---

About the author
James Grierson BVetMed, CertVR, CertSAS, DipECVS, FHEA, MRCVS, RCVS is a recognised specialist in small animal surgery and currently works at Anderson Moores Veterinary Specialists in Hampshire specialising in orthopaedic surgery.

---

He’s priceless, but his treatment isn’t.

Visits to the vet can leave you feeling worse off.
So we’ve increased the vet fee limit on Extra cover to up to £7,500 per eligible condition to help reduce the costly pain of unexpected visits to the vet.
Leaving you both feeling better.

Tesco Pet Insurance is arranged, administered and underwritten by Royal & Sun Alliance Insurance plc.

Apply at tescobank.com
or call 0845 246 3854
First dial 18001

Pets must be at least 8 weeks old when cover starts. We do not insure certain breeds of dogs and we do not cover pre-existing medical conditions. Exclusions, excesses and monetary limits apply. Full policy details are online at tescobank.com

*£7,500 cover is available on a Tesco Pet Insurance Extra policy.

---

42 April 2012 Dogs Monthly

www.dogsmonthly.co.uk