

# CCL INJURIES & TREATMENT OPTIONS



Baxter receiving laser therapy\*

**Cranial cruciate ligament injuries in dogs are very common and pet parents can easily get confused with all the letters of the alphabet that fly about as part of their dog's diagnosis. We cover the A-Z of cruciate ligament injuries (and every letter in between).**

Most people know at least one person who has torn their ACL (anterior cruciate ligament). In fact, you may even have suffered this injury yourself. Like people, dogs also have a knee joint that is held together with a series of ligaments. The knee in the dog is the stifle, and the equivalent of the ACL in a dog is the CCL (cranial cruciate ligament), which is responsible primarily for front-to-back stability.

If your dog suffers a CCL injury, the most common symptom is sudden onset lameness. Whenever your dog pulls up lame and that lameness lasts for more than a day, a visit to the veterinarian is always recommended. In the physical exam, the vet will manipulate the hind leg to test for 'draw' in something called the drawer test.

Picture a drawer that pulls out from your favourite piece of furniture. In the drawer test, the veterinarian puts pressure on the top of the leg (femur) while pulling on the lower leg below the knee to bring it forward in a test of stifle stability. When the ligament is injured, it will be much easier for the lower leg to be drawn forward – leading to a diagnosis of cranial cruciate ligament incompetence (or instability).

Once instability is diagnosed, most vets will recommend X-rays of the joint to obtain further information about the condition of the bones as part of making a treatment recommendation.

A CCL injury is not a life-threatening diagnosis, but the diagnosis creates a need for the dog owner to make a choice based on their dog's anticipated level of activity and, of course, their financial situation.

## Considerations upon diagnosis

Dogs can suffer partial or complete tears of the ligament.

"What dog owners must understand is that any injury to the ligaments in the stifle will result in instability of the joint," says Dr Alastair Coomer, registered specialist Animal Surgery with Veterinary Specialists Auckland.

"Cartilage can be compromised and the wear and tear will inevitably cause osteoarthritis." Dr Coomer recommends that the first question owners should ask themselves is: How normal do I want my dog to be?

"If the owner wants to run with their dog, the dog needs a solution to match that lifestyle decision. If the dog has a more sedate lifestyle, such as a house dog that goes for moderate walks each day, the solution needs to match that level of activity.

"If the solution chosen matches the anticipated level of activity of the dog, then the vast majority of all dogs will remain comfortable and active for the rest of their lives."

**Once an owner faces a CCL tear diagnosis, it's really important to be honest about the dog's current level of fitness and, importantly, its weight. Weight loss figures in most rehabilitation plans, regardless of which treatment option an owner chooses. The more weight a dog carries, the more pressure there is on their joints, and the risks of re-injury are greater.**

*\*Baxter was 7-years old when he suffered a partial tear of this left CCL. His mother opted for conservative management. Pictured here at age 13, Baxter (now 14) receives regular massage and laser therapy along with a daily dose of anti-inflammatory medication and SYNOVAN™ injections.*

## THE OPTIONS

### OPTION 1

**Conservative management** involves an initial period of crate rest/restrained exercise and anti-inflammatory medication leading to a period of restricted and moderated exercise. Some owners will opt for complementary therapies which may include the addition of supplements to the diet (such as glucosamine, chondroitin, green-lipped mussels, or proprietary blends such as Mobilize or 4Cytel), acupuncture, or low-level laser therapy. The period of conservative management is a minimum of several weeks and can last up to 12 weeks before the owner is confident enough to allow the dog back to its normal level of activity.

A less common conservative management practice in New Zealand is the fitting of an orthotic brace after the initial period of crate rest. Impressions of the dog's leg along with measurements are sent to a specialist manufacturer; once the custom-made brace is received, its fitting can be overseen by an experienced rehab or veterinary practitioner. A desensitisation and adjustment programme are needed to get the dog accustomed to wearing its brace. Since braces are manufactured overseas, exchange rates and delivery times to New Zealand are possible factors for why surgical options are considered as preferences.

In considering conservative management, size does matter. A smaller dog with an exercise profile that is low to moderate has the best chances of recovering under a conservative management strategy. As the dog ages, wear and tear on the stifle is likely to become more pronounced and they are likely to become regular users of non-steroidal anti-inflammatory drugs to manage their comfort and mobility. Dogs may go on to using therapies such as hydrotherapy, massage and other physical therapy techniques to build and maintain muscle strength, too.

### OPTION 2

**Extracapsular surgical repair** is a joint stabilising technique which is the least expensive of the surgical options. It was once the only surgical option available to owners and is still commonly used by veterinary practices without need for referral outside the practice. In this surgery, a heavy nylon cord is sutured to the outside of the leg to stabilise the stifle joint by mimicking the function of the damaged cruciate ligament. The goal of this surgery is to stabilise the joint sufficiently for the body to lay down scar tissue which will stabilise the joint on a permanent basis. For larger and/or active dogs, this surgery doesn't have a great success rate. Vet practices may give their clients a booklet for a 10 to 12-week recovery period with some opting for professional physical therapy support as well.

**In some areas of New Zealand, the only surgical option available locally to owners is extracapsular surgical repair and dog owners will need to travel if they want other surgical options for their dog.**

The more advanced surgical techniques described in options 3-5 aim to realign the stifle joint in some way with screws, implants or plates.

### OPTION 3

**Tibial tuberosity advancement (TTA)** is one of the advanced surgical techniques which has existed since the early 2000s. The aim of this surgery is to realign the stifle joint by surgically moving the tibial crest forward and securing it with a plate implant. This changes the force exerted on the tibia (top of leg) by the quadriceps muscle group moving it backward which stabilises the joint.

If your family GP vet offers this surgery, it is because he/she has likely attended post-graduate training in the technique. Christchurch-based company OssAbility has created a system involving its own surgical implants, surgical guides and support for each vet using the technique by the company's orthopaedic surgeon and founder, Dr Brent Higgins. The TTA technique has weight limits and conformation shape limits which makes it suitable for most – but not all – dogs. Physical therapy follow-up is always recommended.

### OPTION 4

**TRIPLE TIBIAL OSTEOTOMY (TTO)** is a technique developed by a New Zealand veterinary orthopaedic surgeon, Dr Warrick Bruce. Like the TTA, it aims to change the angle of the stifle joint and, therefore, reduce the stress on the ligaments of the knee. There are still a few veterinarians who have been trained in the TTO technique and offer it but it is very much an 'Australasian' procedure. Over the last decade, it has taken a back seat to the TTA procedure when being recommended as a surgical technique. Physical therapy follow-up is always recommended.

### OPTION 5

**Tibial plateau levelling osteotomy (TPLO)** is the universal standard-of-care surgical procedure for a CCL injury because the technique has no size or conformation limits and has the highest success rates. Although some GP vets will have had training in TPLO and offer it, it is most commonly conducted by specialist surgeons who have undergone residency training and are registered as veterinary surgeons with the Veterinary Council of New Zealand. These surgeons, like Dr Coomer, are members of the New Zealand Institute of Specialist Veterinary Surgeons. For specialist veterinary surgeons, the TPLO procedure is so common that they perform them several times a week. In Dr Coomer's words, "I've done thousands in my 15-year specialist training and career". Physical therapy follow-up is always recommended.

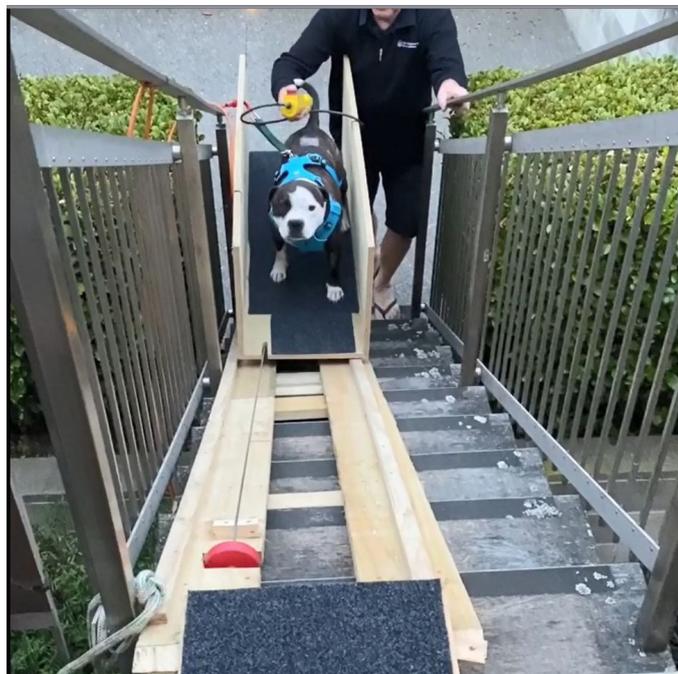
**Although rare, there is always a risk of infection with any surgery. Implants used in the TTA, TTO and TPLO surgeries have been known to become infected**

No matter which option an owner chooses, the dog will have a period when limited mobility is needed to allow the body to heal. This is where every dog owner who has

crate trained their dog will benefit from a less stressful recovery period. Whenever a period of restricted exercise is required, there is pressure on owners who must meet their normal work and family commitments alongside the needs of their dog, who will require regular medications and on-lead visits outside for toileting.

Questions to ask when your dog has a CCL injury

- Does my dog have a partial or a complete tear?
- What surgical procedure does my vet recommend and why?
- Does my dog have other conditions, such as hip dysplasia, which have a bearing on the success of the surgery?
- Are there other surgical options available which my vet may not offer? And where will they refer me for these?
- For the veterinarian doing the surgery, how much experience have they had with the surgical technique?



**ABOVE:** Eddie, a 4-year old Staffordshire Bull Terrier, is one of the statistics – after rupturing one CCL, he then ruptured the other months later. TTA surgery was performed on both. Here, he rides in his purpose-built stair lift made by his dad. Stairs cannot be used when a dog is recovering from a cruciate ligament surgery and many dogs are too heavy for owners to carry outside.

**ABOVE RIGHT:** Eddie's right hind leg, five weeks post-surgery, looking 'normal' and with re-growth of fur. Eddie has not yet reached the midway point of a 12-week rehabilitation programme.

**RIGHT:** Dr Alastair Coomer performing TPLO surgery on a Yorkshire Terrier.

- How much will the procedure cost?
- What are my care requirements immediately after surgery?
- What requirements are there for physical rehabilitation after the surgery?
- Do I have insurance to cover the costs of surgery and rehabilitation?
- When can I expect my dog to be able to return to his/her normal level of activity?
- Does my dog need to lose weight and increase fitness?

**Even with the most robust of surgical techniques, the TPLO, it is estimated that at least 50 per cent of the dogs who have suffered a partial or full rupture of the CCL will go on to damage the CCL in their other leg. Many owners face the need to fund a second surgery and rehabilitation for their pet.**

Virtually every dog, whether they have had a surgical repair or not, will develop osteoarthritis as they reach their later years. Consequently, a good wellness programme involving fitness, weight management and nutrition are recommended.



Kathleen Crisley  
Principal Therapist  
[www.balanceddog.co.nz](http://www.balanceddog.co.nz)