



A radiograph of a tibial plateau leveling osteotomy repair.



A radiograph of a tibial tuberosity advancement repair.

Your pet suffered a cruciate ligament injury. Now what?

Here's an overview of the different repair options for your pet.

What it is

In dogs, the stifle joint is the articulation between the femur (thigh bone), patella (knee cap) and tibia/fibula (shin bone). It is similar to the human knee and has several important soft tissue structures, including the cranial and caudal cruciate ligaments, the meniscus, and the patellar and collateral ligaments. The cranial cruciate ligament (CCL) is responsible for keeping the stifle joint stable.

CCL disease is the No. 1 cause of limping in dogs. The injury can be a result of a sudden trauma or long-term degeneration of the ligament. While some dog breeds are predisposed to CCL injury, many other factors are thought to contribute. A CCL injury is diagnosed with a thorough clinical examination, radiographs and, occasionally, arthroscopic surgery or magnetic resonance imaging (MRI).

How to fix it

Medical (nonsurgical) management.

Options for nonsurgical management include rest, physical therapy, anti-inflammatory medications and joint health supplements. While medical management can be effective, results are often incomplete or inconsistent, so several surgical options are available.

Surgical management. Surgery is commonly recommended to better stabilize the joint and prevent further joint degeneration and discomfort. Several procedures can be used, depending on the specific CCL injury. In general, surgical options can be categorized into two main categories: ligament replacement techniques and biomechanical techniques.

Ligament replacement techniques can be further subdivided into intra-articular or extra-articular techniques. Intra-articular techniques involve transplanting tissue from another anatomic region and implanting it within the stifle to replace the previously torn CCL. Because of the complexity of these procedures and the long healing process, ligament replacement techniques have largely fallen out of favor.

Extra-articular repair techniques use synthetic materials placed outside the joint anchored at relatively fixed points that allow the material to stabilize the stifle joint. This material is tightened and eventually scars, offering more joint stability.

Biomechanical repair options are becoming more popular and involve manipulating how the tibia orients in relation to the femur to neutralize the biomechanical deficiencies of the injured area. The procedures involve changing the tibial anatomy and inserting metallic hardware to maintain the new position.

Common procedures are typically named with acronyms and include the TPLO (tibial plateau leveling osteotomy), TTA (tibial tuberosity advancement) and, most recently, the CBLO (center of rotation angulation [CORA]-based leveling osteotomy). The selection of each procedure depends on the individual characteristics of the patient and the comfort and availability of each technology to the veterinary surgeon. Despite the variation in surgical treatment strategies, the complications are fairly similar and most commonly include implant failure and infection.