

Cranial Cruciate Ligament (CCL) Rupture in Dogs & Cats

Quick take

Cranial cruciate ligament rupture is the **most common cause of hind-leg lameness** in dogs and occurs in cats too (though less often).

The ligament inside the knee (stifle) that stops the shinbone from sliding forward tears or frays over time. The knee becomes painful, unstable, and develops arthritis quickly.

Surgery is the gold standard for most dogs and many cats because it restores stability, slows arthritis, and helps pets return to normal activity.

Small cats and very small dogs may do well with conservative therapy, but the best functional recovery is expected with the surgery.

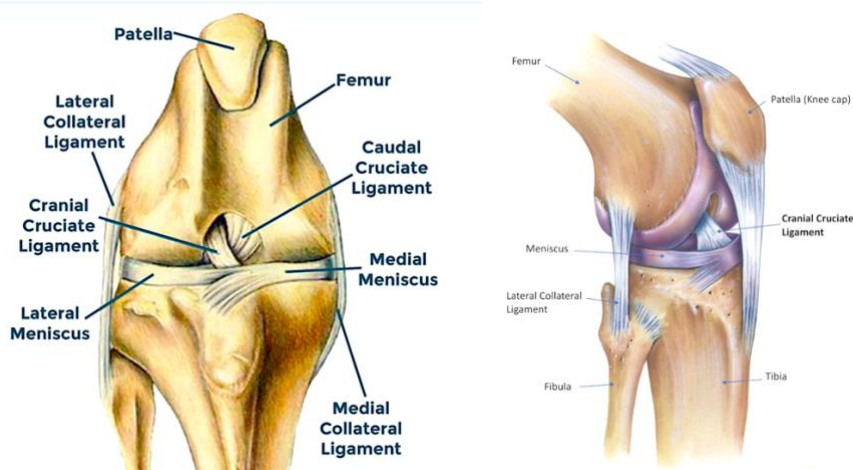
1) What's going on inside?

The cranial cruciate ligament (CCL) stabilizes the knee joint and prevents the tibia (shinbone) from sliding forward.

Unlike people, most dogs gradually degenerate the ligament over months to years - many tears are not sudden sports injuries.

Cats are more typically affected with traumatic injuries.

Eventually the ligament tears fully or partially → instability → inflammation → arthritis → meniscus damage (cartilage shock absorber inside the knee).



Why it happens

- Genetics (biggest factor)
- Conformation (steep tibial plateau angle)
- Obesity and poor muscle support
- Aging/degeneration
- Immune-mediated ligament weakening (suspected in some dogs)
- High-energy trauma (more common in cats)

Risk factors

- Medium & large breeds (Labradors, Rottweilers, Shepherds, Retrievers, Staffordshire breeds)



- Neutered dogs have higher reported risk
- Overweight dogs
- Active/athletic lifestyles on unstable knee
- ~40–60% of dogs tear the other knee later in life

2) What owners notice

- Hind-leg lameness (sudden or slowly worsening)
- Difficulty rising, jumping, using stairs
- Sitting with leg kicked out to the side (“sit sign”)
- Clicking in the knee (suggests meniscal tear)
- Muscle loss in the affected thigh
- Stiffness after rest

Cats: may just hide, rest more, jump less, or limp mildly — very subtle!

3) Diagnosis

Orthopaedic exam: “cranial drawer” or “tibial thrust” instability test

For complete rupture, physical assessment is usually enough to reach a diagnosis.

Partial ruptures can require additional tests as the physical changes can be more subtle.

Radiographs are often needed (rule out fractures, assess arthritis and bone position)

Arthroscopy in select cases

In cats, diagnosis may be more subtle — sometimes confirmed during surgery

4) Treatment options

Surgery (recommended for most dogs & many cats)

Procedure	Key idea	Typical use
TPLO (Tibial Plateau Leveling Osteotomy)	Alters shinbone angle to neutralize instability	Medium–large dogs, athletic dogs, dogs with steep tibial slopes, many cats
TTA (Tibial Tuberosity Advancement)	Advances patellar tendon to change knee mechanics	Medium–large dogs; good outcomes similar to TPLO in some studies and less optimal in some other studies
Lateral Suture / TightRope (extracapsular)	Synthetic ligament outside joint	Small dogs (<15–20 kg), some medium dogs; select cats
Arthroscopy	Scope-assisted joint cleaning & meniscus work	

- Success rate: generally **85–95%** return to comfortable function
- Working/athletic dogs often **~90%** back to activity with TPLO/TTA.



Conservative (non-surgical) therapy

Not a first line treatment, but may be appropriate for:

- Cats
- Very small dogs (<5–8 kg)
- Mild partial tears
- Minimal instability
- Patients not eligible for anaesthesia

Components:

- Strict rest initially (6–8 weeks)
- NSAIDs/pain meds
- Joint supplements, omega-3 Essential Fatty Acids
- Weight loss if needed
- Physical therapy / hydrotherapy
- Knee braces (variable benefit)

Outcome: pain can improve, but instability remains → arthritis progresses faster. Many dogs still end up needing surgery. More importantly, severe joint ankylosis is expected.

5) Surgery details (what's done & why)

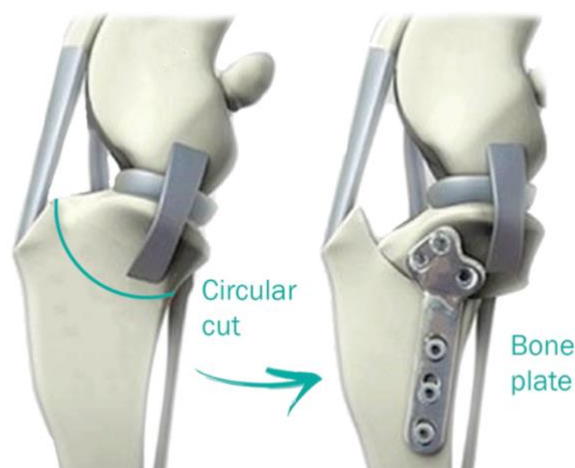
- **TPLO**

Curved cut in the top of tibia, rotate it, secure with plate and screws

Prevents forward slide of shin during weight-bearing

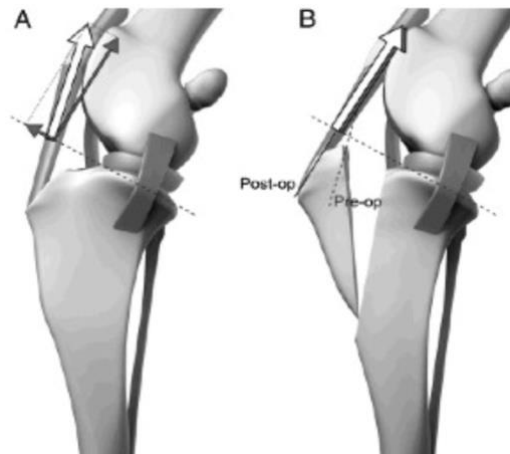
Advantages: excellent stability, works well for large/athletic breeds

Best functional recovery using force plate analysis comparison study



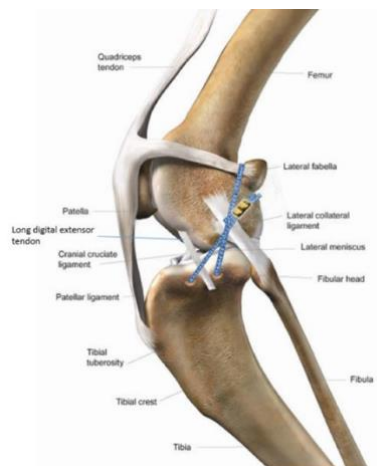
- **TTA**

Cut/advance front top portion of tibia, implant cage/plate
Changes quadriceps mechanics to stabilize knee



- **Extracapsular Suture / TightRope**

Strong nylon-like material recreates ligament function externally
Best in small dogs/cats; can stretch or loosen in heavy/active dogs



- **Meniscus treatment:** damaged meniscus trimmed or released during surgery — prevents painful catching/clicking.

6) Recovery & owner expectations

Hospital stay: typically 1 night (sometimes same-day)

First 2 weeks: strict rest, leash only, incision monitoring, pain meds

Weeks 3–8: gradual leash walks, rehab exercises



Week 8–12: X-rays to confirm bone healing (for TPLO/TTA)

Full recovery: 3–4 months for active dogs

Cats often recover faster but hide pain — restrict movement!

May not resume the same activity levels or resume jumping function

Rehabilitation/physiotherapy dramatically improves outcomes.

7) Complications & rates (approximate)

Complication rates vary by hospital, surgeon experience, and pet size/health.

After TPLO / TTA

Complication	Approx. rate	Notes
Infection	2–10%	More common if licking incision or resistant bacteria present
Implant issues/loosening	<5%	Rare with good technique
Meniscal “late tear”	2–10%	Less common if meniscus assessed/released
Fracture/implant breakage	<2%	Usually from excessive activity too early

After Extracapsular Suture

Complication	Rate	Notes
Suture stretch/rupture	Up to 20% in large dogs	Higher failure in >20–25 kg dogs
Infection	5–10%	

Cats

- Usually excellent outcomes
- Minor complications (mild postop lameness, implant irritation) occasionally
- Rare persistent instability

Prognosis:

Most pets regain **excellent comfort and mobility** with surgery + structured rehab.

8) Long-term management & prevention

- Maintain ideal body weight (top arthritis prevention step)
- Regular low-impact exercise (avoid explosive twisting)
- Joint supplements (glucosamine/chondroitin, omega-3s)
- Strengthening/glute/hamstring exercises after recovery
- Screening for and managing arthritis early
- Expect some arthritis long-term — but most dogs stay active and happy.



9) Selected veterinary resources

- ACVS (American College of Veterinary Surgeons) – CCL disease in dogs & cats
- VCA Hospitals – CCL tears & surgery options explained
- University veterinary hospital websites (e.g., UC Davis, Cornell, PennVet) CCL handouts
- Canine OA / COAST guidelines for long-term joint management
- These explain procedures without overwhelming medical jargon.

Bottom line

Cruciate ligament rupture is very common in dogs and occurs in cats too.

Surgery offers the best chance at long-term comfort and normal function for most dogs.

TPLO/TTA are preferred in medium–large dogs;

Extracapsular repairs are suitable for small dogs/cats.

Expect 3–4 months of recovery, but lifelong benefits.

Weight control, rehab, and early arthritis care are key to success.