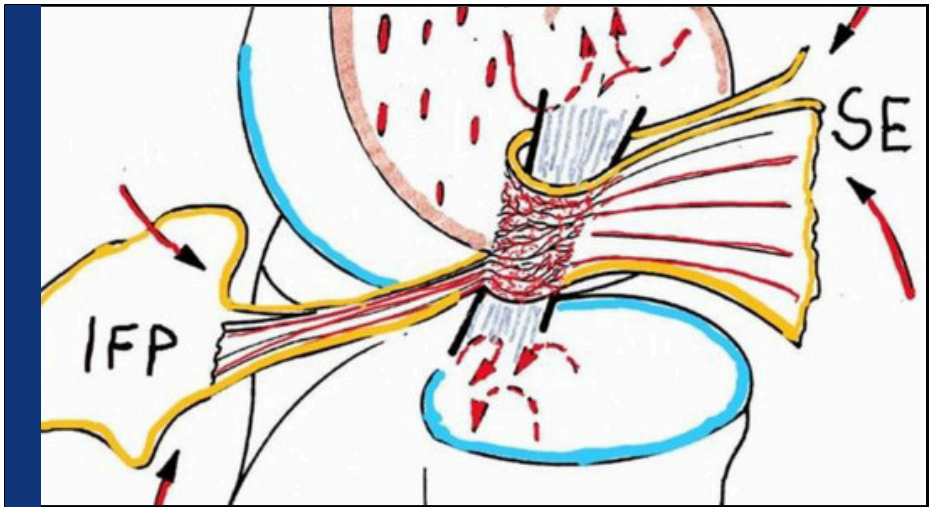
WINTER 2025

Rehab Chronicles

From Pawsitively Fit



Blood flow to CCL Source: Neibaur et al. 2023

THE CRUCIATE LIGAMENT EDITION

At any given time, at least half of my caseload have a diagnosis of cruciate ligament disease. Some may be recovering from surgery and some may be taking the non-surgical route. There are several things that I hear repeatedly when talking to owners:

- Surgery was the only option
- My dog NEEDS to have laser (often post-op at frequent intervals)
- No one told them about post-op rehab (or worse, they were told their dog didn't need rehab)
- Braces don't work

Clearly each owner and dog has their own set of circumstances. Age, health (both the owner's and the dog's!), finances and personal beliefs must be taken into account. So let's dive in!

- Shauna

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In This Issue

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RESEARCH CORNER:
Bracing for CCL tears: Does it work?

Frankly the biggest issues with bracing that I see are: 1. Too many opinions based on limited exposure and 2. Non-custom braces. **Unfortunately, there is a dearth of research into bracing the CCL-deficient stifle specifically.** More general research into animal orthoses and prostheses does highlight:

- **the need for custom products (i.e. molding or casting)**
- **the need for training of the owner for proper use to avoid negative consequences (eg. wounds)**
- **improved outcomes with gait retraining and rehab therapies.**

To my knowledge, there are only 2 research articles specific to bracing the CCL-deficient stifle.

Bertocci, et al. (2017) looked at the biomechanics of the CCL-deficient stifle during the stance phase of gait using computer models on a simulated 33kg, healthy, 5-year old male, neutered Golden Retriever. They concluded that joint biomechanics were improved, but not normalized, with bracing and that "*an orthosis may be a viable option to stabilize a CCL-D canine stifle joint*."

Hart et al. (2016) compared owner satisfaction between custom made stifle braces and TPLO surgery in large and medium dogs. While the clinical outcomes of a TPLO were better (lower rates of ongoing lameness) than the braced stifle, owner satisfaction was similar between both groups was similar (90% vs. 85%) with most owners stating they would choose the same treatment again.

What can we know?

Amazon braces do not work. Full stop. Braces that look like pants and suspenders that are sold as "custom" but are no more custom than knowing one needs a size 28 waist on a pair of pants, do not work. Locally, I recommend **V2 Innovations** for custom bracing or **Pawsability** in Toronto/Stayner. For a semi-custom brace, I have seen one brace from Posh Dog Knee Braces work well and their customer service was top notch. Braces may be a viable option when surgery is not.

125lb Akita Kuma wearing his semi-custom Posh Dog Knee Brace.

References:

1. Bertocci, G. E., Brown, N. P., & Mich, P. M. (2017a). Biomechanics of an orthosis-managed cranial cruciate ligament-deficient canine stifle joint predicted by use of a computer model. American Journal of Veterinary Research, 78(1), 27–35. https://doi.org/10.2460/ajvr.78.1.27
2. Hart, J. L., May, K. D., Kieves, N. R., Mich, P. M., Goh, C. S., Palmer, R. H., & Duerr, F. M. (2016). Comparison of owner satisfaction between stifle joint orthoses and tibial plateau leveling osteotomy for the management of cranial cruciate ligament disease in dogs. Journal of the American Veterinary Medical Association, 249(4), 391–398. https://doi.org/10.2460/javma.249.4.391

REHAB POST-CRUCIATE SURGERY

Food for thought

Back in 2009 my brother had surgery for an ACL tear. He went for rehab 3x/week for I don't even know how long. I can't imagine a human orthopedic surgeon NOT recommending rehab. When a dog has cruciate surgery more often than not they are handed a piece of paper with some guidance on what to expecting over the coming weeks but not much else. The gap between the two scenarios is VAST.

The reason for many (from both vet and owner) for this is clear - **It's all costly**. But is it more costly to spend thousands on a surgery that has less than ideal outcomes because the leg doesn't work properly? If no importance is placed on rehabilitation in the post-operative period then of course owners will not pursue it.

"Physiotherapy, even if often neglected in veterinary medicine, is mandatory for the recovery of correct functionally of the injured limb and for the return to normal daily sporting activities." (1)

Laser therapy

Many post-op protocols suggest a laser protocol of decreasing frequency starting at 3 times a week. When I get asked if I can offer laser therapy that often my answer is always "no." It's not feasible for a mobile practice and it's NOT needed. When I say to the owner "you won't look back in 6 months and wish you'd had that extra laser therapy session" they understand. And it's not research backed! (2,3) Possibly laser therapy is better as *part* of a rehab program but not on it's own.

Common post-op issues

There are obvious trends in what I see in post-op cruciate repairs that most dogs and their owners cannot overcome without support. Common issues and the potential causes include:

- Can't sit squarely
  - Pain or poor ROM of the stifle and/or the tarsus
  - Avoidance of cranial tibial thrust
  - Weakness
  - CCL disease of the contralateral leg
- Poor use of the repaired leg
  - Learned disuse
  - Lack of specific strengthening exercises
  - Ongoing pain and/or arthritis in repaired stifle
- Pain with increased activity
  - Concurrent injuries due to over use
  - Strength or endurance limitations in the repaired leg

So what's missing

From a 10,000ft view, guidance on navigating a specific dog's needs is missing. What do I mean? No two dogs emerge from surgery with the exact same capabilities or limitations. Some dogs need to be held back from day 1 so that they are allowing the leg to heal. Other dogs won't use their leg at all. The dog and owner benefit from specific instructions on what to do. THAT is what ensures a very expensive surgery has a good outcome.

Marrying a progressive, specific strengthening program to a dog's progress versus the number of weeks since surgery is important. Some dogs are ready for controlled, straight line running after 12 weeks. For some it's a lot longer and some never get there because of other limitations such as osteoarthritis. I've yet to see this distinguished on any post-op protocol.

When should rehab start?

My preference is to see a dog post-op within a week. Most owners are scared to touch their dog's operated leg and begin an sort of passive range of motion for fear they are going to hurt their dog. This can cause the leg to become stiff, more sensitive to pain and poorly used, further putting more stress on the opposite hind leg.

Karma with her front feet elevated and her hind feet on a balance disk to work her hind end strength and proprioception.

References:

1. Spinella, G., Arcamone, G., & Valentini, S. (2021). Cranial cruciate ligament rupture in dogs: Review on Biomechanics, ETIOPATHOGENETIC factors and rehabilitation. Veterinary Sciences, 8(9), 186. https://doi.org/10.3390/vetsci8090186
2. Chavez, Oscar A et al. "Photobiomodulation therapy in dogs undergoing TPLO after cranial cruciate ligament rupture shows promise but no statistically significant difference in a randomized trial." American journal of veterinary research vol. 85,2 ajvr.23.06.0138. 5 Dec. 2023, doi:10.2460/ajvr.23.06.0138
3. Kennedy, Katie C et al. "Effects of low-level laser therapy on bone healing and signs of pain in dogs following tibial plateau leveling osteotomy." American journal of veterinary research vol. 79,8 (2018): 893-904. doi:10.2460/ajvr.79.8.893