

# Inga's Saga of the Torn Cruciates - A Journey Through Surgery & Recovery

by Kari Gilje

## Part I - Surgery or Conservative Management?

Inga began limping off and on in the fall of 2013, and for quite a while we thought we were just throwing the ball too much on the weekends, so we would stop all ball play for a couple of weeks (but still take her on her daily off leash walks) and she would improve temporarily.

Then in mid-December we noticed she would not put any weight on the foot for a few minutes after getting up from a nap or in the morning. That's when we headed to the vet.

Our vet suggested we try a couple of weeks of limiting Inga's activity and giving her Rimadyl (anti-inflammatory) and Tramadol (pain medication) to see if that would resolve it. He was doubtful that this would solve the problem, but he thought it was worth a try. So we walked her on leash only for several weeks, and limited other potentially damaging activities - i.e. no ball/fetch, no allowing racing or "zoomies" inside or out, no playing tug, etc.

Inga was a little better after a few weeks of medication and reduced activity, but we could see she still was not putting her full weight on her right rear foot. At that point, our vet (and later the 2 surgeons we went to) thought it was a partial tear of her cranial cruciate ligament, or CCL.

He took x-rays of Inga's rear stifle ('knee') joints and her hips, just to rule out any hip issues. While she was anesthetized for the x-rays, he also performed what is called a 'drawer test' on her stifles. This involves moving the femur in relation to the tibia, similar to pulling and pushing a drawer. The vet feels for any looseness in the joint, which is referred to as cranial drawer instability. Our vet thought he felt the tiniest bit of looseness, but not very much. The radiologist thought he saw a very small amount of inflammation around her right stifle joint, which indicates there might be a cruciate tear (you can't see soft tissue like ligaments on an x-ray). So even these two tests were not conclusive.

The problem was that Inga didn't really act like she was in any real pain, and wanted to be just as active as always. If it weren't for the off and on limping after more ball throwing than usual, we would not even have guessed there was anything wrong. She never whined or yelped.

It was hard to believe she had a torn cruciate ligament — we had avoided activities that involved jumping up and landing on her hind legs (like frisbee or tossing the ball high in the air), she was not overweight (a major cause of torn cruciates), and she was in good condition (1-2 hour off leash hike every day, up and down hills on dirt roads and trails).

We debated whether to try strictly conservative management or go for surgery. We talked to many people about the pros and cons of each option, including owners of Entles and some other breeds who had done one or the other (or both approaches), a friend who is a vet and another who is a vet tech, and we met with a veterinarian certified in canine rehabilitation (there are less than 400 of these vets in the US). After considering all the stories and advice, we decided that Inga had a better chance of getting back to 'normal' if we went with surgery.

With conservative management, we would have to severely restrict Inga's activity for up to a year, and even then, there would be no way to know if enough scar tissue had developed to stabilize the knee (ligaments do not actually regenerate or repair themselves). We also worried that if we didn't do surgery, the ligament would eventually tear all the way, and then Inga would be in pain and we would

have to do surgery on an emergency, rather than a planned, basis. And in our research we learned that damage to the CCL is a major cause of progressive osteoarthritis in the knee joints of dogs.

We fretted and stressed (and researched) over surgery vs non-surgery and then which type of surgical repair. It was nerve-wracking to try and decide, and I worried a lot about 'what ifs,' like what if the surgery went wrong, or what if we didn't do surgery and she never got back to 'normal' activities.

There were two types of surgical repairs we could choose - the traditional lateral suture repair or tibial-plateau-leveling osteotomy (TPLO). There is another repair, called a tibial tuberosity advancement (TTA), but this technique is not done by any surgeons in our area, so we didn't consider it. One piece of advice we heard over and over was once we had chosen a surgeon, go with the type of repair he or she was most comfortable and experienced with.

Our vet offered us the option of having a traveling surgeon come to his clinic do the surgery, or refer us to a local veterinary surgeon who did nothing but various types of surgeries. We decided pretty quickly that a surgery as serious as a cruciate repair should be done by a board-certified veterinary surgeon, and in a clinic dedicated to surgery rather than a general practice vet clinic. I just felt more comfortable going that route, and living in the Seattle metropolitan area, there are plenty of choices.

So we decided to seek opinions from two veterinary surgeons, both diplomates of the American College of Veterinary Surgeons (board-certified). Fortunately, we have good pet insurance - Trupanion would cover 90% of the surgery and x-ray costs. However, our pet insurance does not cover initial exams or 2nd opinions, but I felt that talking to more than one surgeon was important - it is exactly what I would do for myself, and that finding a surgeon we felt really comfortable with was the best thing I could do for Inga.

Both surgeons said Inga was in the weight range (40 lbs) where she could have either surgery. But once they factored in her age (3) and her activity level (through the roof!), they both said that the TPLO would give her a far better chance of reaching 100% of her pre-surgery activity levels and allow her to go back to almost all her normal activities. The 2nd surgeon told us that the lateral repair gets most dogs back to 75-80% of their pre-surgery level, while the TPLO gets them in the 90-100% range.

So we went with the TPLO. We chose the surgeon we did for several reasons:

1. We felt comfortable with him. His skills seemed good (as best those of us who aren't in the veterinary field can judge) and his communication skills with us were excellent.
2. We felt comfortable with the clinic as a whole, and the clinic was highly recommended by a vet who is a friend of ours in Seattle. The clinic also had 24 hour staffing (it's both an ER and a surgical clinic), so we knew there would be staff there with Inga all night (she needed to stay one night). The other surgeon we went to see did not have staff there overnight.
3. We wanted to have access to a rehabilitation vet and have guidance on how to best help Inga recover, and liked the idea that the surgeon and rehab vet were part of the same clinic and could coordinate and be on the same page from surgery through full recovery.

Because Inga was not in pain and was able to walk on leash and get around fine, we had the luxury of taking our time to research and make decisions. We were even able to schedule the surgery for the best week and day for our work and the girls' school schedules. Obviously that would not have been possible had she torn her cruciate completely in a sudden, traumatic event.

We scheduled Inga's surgery for mid-February and began to read up and ask for advice on what we needed to do to get ready for 12-16 weeks of very restricted activity.

## Resources:

TPLO description: <http://www.vetsurgerycentral.com/tplo.htm>

Lateral suture description: <http://www.vetsurgerycentral.com/cruciatelrt.htm>

Summary of options: <http://csu-cvmb.colostate.edu/Documents/orthopaedics-cruciate-ligament.pdf>

Article on treatment options:

<http://www.veterinarypracticenews.com/vet-practice-news-columns/complementary-medicine/treatment-options-for-canine-cruciate-disease.aspx>

One individual's experiences and advice: <http://www.lauriebryce.com/tplo/>

I highly recommend joining the 2 Facebook groups, "Orthodogs" and "Canine Cruciate Recovery (TPLO, CM etc.)" (formerly called "TPLO Treatment for Canines"). Both are a wealth of resources (including documents you can download) and support.



Above - Inga about a month before surgery - not putting weight on her right rear leg.

Below - Inga after arriving home from her surgery ... in her x-pen, wearing the 'cone of shame.'



## Part II - Surgery & Preparing for Recovery

In Part I I talked about discovering Inga's injury and the research and decision-making that led up to scheduling her for a tibial-plateau-leveling osteotomy (TPLO). In this article I'll talk about preparing for Inga's surgery and recovery, and the surgery itself and the first couple of weeks afterward.

Inga's surgery was scheduled for mid-February and since we had a few weeks, we spent time preparing for 12-16 weeks of very restricted activity.

We used the great advice on the Orthodogs Facebook group (especially the files they have) to get the house ready. After such an intense and expensive surgery, the last thing you want is for your dog to slip and fall during the critical recovery period, so we bought inexpensive non-slip carpet runners and put them in 'paths' around the entry halls and kitchen where we have hardwood floors. Fortunately we still had 'baby' gates up, which would effectively limit Inga's maximum area to the family room and kitchen. We borrowed/bought two more baby gates and installed one at the bottom of our stairs and one at the top. The surgeon recommended that for the first 6 weeks we carry Inga up and down the stairs. She sleeps upstairs with us, so she would be carried up and bedtime, and carried down in the morning. We didn't want to take the chance that one of us would accidentally open the bedroom door and she would bolt down the stairs in the morning.

Knowing how much Inga (and Blue) love to look out our door with a full length window to the backyard, and knowing how excited she could get if she saw someone walking a dog down the path next to our yard or a squirrel, we covered the bottom half of the glass with heavy paper. For the front door, we disconnected the doorbell and put up a sign asking delivery people to leave packages without knocking, and neighbors to call us rather than knocking.

Inga has never been allowed on the furniture, so barricading the sofa or preventing her from jumping on our bed was not an issue. But if your dog is used to being on furniture or sleeping on the bed, you might need to barricade sofas and even plan to put your mattress in the floor.

We also borrowed two x-pens (the tall folding wire fences that you see people use at dog shows or in puppy class to partition off part of the room), and we had a plastic white folding fence. We used these to fence off the family room so Inga could be with us most of the time when we were home, and we used one x-pen to confine her to a smaller area when we could not be with her. And we had a large wire crate that we could put Inga in if we needed to.

I was really worried about how we would keep Inga occupied and mentally busy, since she couldn't get her usual 2-4 mile walk and constant playtime with Blue. I bought several packages of frozen raw marrow bones, and also filled some 'empty' marrow bones with a mixture of canned pumpkin, yogurt, cream cheese, peanut butter, kibble and cooked chicken. I froze these so they would take at least a few minutes for Inga to consume.

The next step was setting up some household rules — and getting the whole family on the same page. Our rules included: on harness and leash for all trips outside to potty or when moving Inga from room to room downstairs; carrying her up and down stairs; keeping baby gates closed; no leaving her unattended unless she was in the x-pen or crate; keeping cone on for first 2 weeks whenever we were not watching her. The hardest rule for our daughters was no friends were allowed over for the first month because Inga gets way too excited over any visitors, especially kids! We also warned friends and neighbors not to knock or visit for first few weeks. And finally, we had to keep Inga and Blue separated by baby gates or x-pen fencing because we didn't want to take the chance

that they might try to play. Fortunately, Blue seemed to understand he was not to rough-house with Inga, and when we did allow him to come into the part of the family room where she was, he just lay down next to her for a nap - it was so sweet!

I made arrangements with my office to work from home full time for the first 2-3 weeks, and I cancelled Inga's weekly doggie daycare slot for the next 2 months. I kept Blue's daycare slot on the schedule so he would get some dog playtime (they usually go once a week, on the day I cannot work from home).

We were ready! Inga went in for her tibial-plateau-leveling osteotomy (TPLO) on February 19, 2014. Of course she was not allowed to eat anything after midnight the night before, and experienced one of the most tortuous things an Entle can: no breakfast the morning of the surgery! We dropped her off at 7:30 am at the Animal Surgical Clinic of Seattle. The surgeon, Dr. Allen Johnson, called me as soon as he had taken the x-rays and moved her joint around (she was under anesthesia by that time) and said he still saw evidence of a partial tear. Next, his surgical nurse called me when they had opened up the joint and reported that there was indeed a tear, but that her meniscus was intact. If they had gotten to this point and found no tear in the ligament they would not have proceeded with the surgery. By noon the repair was complete — Dr. Johnson called to say all had gone smoothly, and Inga was in the recovery area. We called to check on her that evening, and the veterinary nurse said other than complaining vocally for several hours as she came out of anesthesia (which we could hear in the background!), she was doing fine. The nurse explained that the whining was the “drugs talking,” and Inga's wish to not be confined to a kennel, and not likely due to pain. We picked her up the next afternoon, along with prescriptions for Rimadyl (anti-inflammatory), Tramadol (painkiller), Trazadone (sedative) and antibiotics (just as an extra safeguard). Apparently she did not want to potty for the clinic staff, and so when we picked her up she had not gone in over 24 hours! We took her outside, and after a couple of sniffs, she urinated for what seemed like several minutes. Just transporting her required extra planning - I put a crate in the back of our SUV, and made sure I picked her up before we even got close to the car, because I was afraid she might suddenly try to jump in on her own!

Once we were home, Inga was ready to eat, and took her medications very willingly (we wrapped them in cream cheese). Analise kept Inga company in the x-pen, playing games on her laptop while Inga rested. If one of us was not sitting right next to her and watching her, we put the 'cone of shame' on. Inga was pretty content to just rest for the next few days.

The first two weeks after surgery were the hardest, especially the nights. Inga had a rough time — the first couple of nights we decided it was mostly about the anesthesia wearing off, but after that it seemed to be all about having to wear the cone. We had planned to have her sleep in her fabric crate in our room, but she had such a hard time turning around in the crate with the cone on that we let her sleep on her regular dog bed, and fenced off a small area around our bed and hers. But that still didn't resolve her discomfort. She would get up and come to the side of our bed, and if the feeling that someone was staring at me in my sleep didn't wake me up, her high pitched whining sure did! It sounded so pitiful! At first we wondered if she was in pain, but we had given her medication right before bed, so it seemed more about the cone. Mike or I would lay on the floor with her for a while, and after a couple of nights of that, Analise offered to 'camp' on the floor with Inga in her room. She laid out her sleeping pad and bag and put Inga's bed right next to it. She slept with a comforting hand on Inga, and did that for the rest of the two week period until the cone could come off. It was so tempting to take that cone off during the night, but we didn't want to risk having her lick the incision and introduce infection.

For the first week, Inga did not put her foot down. When we took her out to go potty, she figured out how she could balance on three legs. I was getting a little concerned, but finally she began putting

some weight on it and using it part of the time when walking. She also began to act more lively, which was a bit frightening, considering we needed to restrict her activity for at least the next 16 weeks!

We did have a very scary incident at about 10 days post-surgery. Our room doesn't have a door between the bedroom and bathroom sections, and the bathroom has a tile floor. We did not have enough non-skid carpet runners to cover all the tile, so when Inga was in our room for the night, we put a barrier of laundry baskets up on their sides as a sort of fence. On this morning, Inga was in the bedroom and I had gone to the bathroom side. Suddenly I see her sailing over the laundry baskets, and then when she lands on the slippery tile, her legs slip around and she gives a very loud yelp of pain. I was beside myself, thinking she had undone the surgical repair perhaps by wrenching the screws loose that held the plate in place, or breaking the bone, or something. I immediately called the clinic, and they told me that everything was probably just fine, but to give her a little extra pain medication and keep an eye on her. As it turned out when we went back for the two week check up and x-rays, she was just fine. Lesson learned: put up a taller barrier!

We did not do any type of physical therapy exercises or walking during the first two weeks post surgery, other than taking Inga out to the backyard with both her harness and leash on to go to the bathroom. We made use of the dog bones I'd prepared as well as putting peanut butter and other treats inside a Kong to keep her busy. Meanwhile, we had reduced her meals by about 25% so she wouldn't gain too much weight while she was unable to exercise.

Those first two weeks seemed so long! But finally it was time to head back to the surgical clinic for Inga's first check up and if she got a good report, her first session with the rehabilitation veterinarian.

In the next section I will talk about Inga's rehabilitation and recovery.

Video of Inga walking in the backyard 4 days after surgery:  
<http://youtu.be/igbLJXTI5AI>



Above: Inga 3 days post-op, with her shaved leg and epidural patch.

Below: The girls and Blue keep Inga company in the fenced-off family room.



### **Part III - Post-Op Recovery & Rehab**

The first two weeks after Inga's surgery seemed like they would never be over, but finally we were ready to go back to the surgical clinic for Inga's first check up and if she got a good report, her first session with the rehabilitation veterinarian. The surgical clinic is a 45-60 minute drive from our house. Of course I could not let Inga jump in or out of the car, so I got her crate in the back of our SUV along with a bone and her soft bed, and carried her to the car and into the crate. I had already put her harness on, and I also brought along her first Halloween costume - a bumble bee. Why the costume? We discovered (quite by accident) when she was a puppy that having her harness or costume on (or both!) kept her from being so wild and jumping up on visitors. So I figured we would use the costumes to keep her from being wild and bouncy while she recovered from her surgery.

When we arrived at the clinic, I put the costume on over her harness, hooked the leash on, lifted her to the ground and we headed inside. The clinic staff chuckled at the dog in a bumble bee costume, but they understood why!

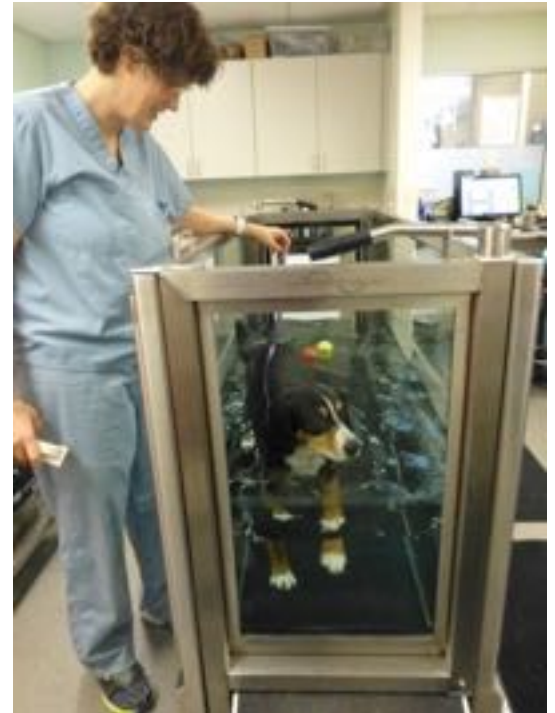
Inga's surgeon, Dr. Allen Johnson, looked her over, asked me how the last two weeks had gone, and said everything looked really good. The best part was that Inga no longer had to wear the cone, which meant we would all sleep better at night. Dr. Johnson also wanted us to stop the two medications Inga was on, Tramadol (a pain reliever) and Rimadyl (anti-inflammatory & pain reliever), and only give them as needed. He was concerned about her overdoing it if she could not feel any pain (Entles overdoing it?! Never!). We were also given the go ahead to start some rehab work, including Inga's first underwater treadmill session. The rehabilitation veterinarian, Dr. Kari Johnson (no relation to Dr. Allen Johnson), took Inga and I down the hall. She showed me some range of motion exercises I could do, and said we could start doing two or three 10-minute walks each day.

The walks needed to be slow to ensure she put her weight onto the repaired leg. She also measured Inga's thighs and recorded the measurements — her surgery leg was about 4 centimeters smaller than her good leg. Dr. Kari told us that the goal was to get to the point where the circumference of both thighs was equal — and that would be the point where Inga would truly be considered fully recovered from her surgery and ready to go back to activities like running off leash, fetching the ball, agility, skijoring, etc. I asked how long that might be — Dr. Kari said 5-6 months. Even with a good rehab protocol, she said you really can't force the muscles to get back to normal any sooner than that.

Then we got Inga ready for her first underwater treadmill session. Like many Entles, she is not a big water dog, and will not wade past her belly. The underwater treadmill looks like a giant fish tank that can open at either end. The dog walks up a ramp on one end, and into the dry tank. Then the door is shut and water is slowly added, up to about the chest level. Inga started off with just five minutes of pretty slow walking that first session. And the vet had her wear a life jacket, just to make her feel more supported and comfortable in the water.

Dr. Kari also gave Inga a cold laser treatment and an injection of Adequan, both of which are believed to help reduce the amount of future arthritis in the repaired joint. We had actually started Inga on weekly injections of Adequan several weeks prior to her surgery, doing them ourselves at home after Dr. Kari gave us a demonstration. We would continue monthly Adequan injections for 4-5 months post-surgery.

I paid for a package of four underwater treadmill/cold laser treatment/physical therapy sessions, and we did those between weeks 2 and 8 - as much to give her some safe activity to do as to help her recover muscle. If I had lived closer to the clinic I might have taken her there 2-3 times a week for the treadmill! I did not have the extra rider on my insurance, so I paid for the rehab package out of pocket, but my pet insurance does offer a separate rider that covers physical therapy treatments. But the cost of the therapy visits was minuscule compared to the cost of the surgery itself, which was 90% covered.



*Dr. Kari Johnson working with Inga during an underwater treadmill session.*



*Inga wearing her bumble bee costume to help keep her calm on one of her first post-surgery walks.*

We started that first week of rehab with some range of motion exercises and 2-3 short (10 minute) walks a day. The goal was to keep the walks slow enough that she would be forced to use her repaired leg and put weight on it. The first time we got ready for a walk, I was incredibly nervous that something would go wrong - what if she saw a squirrel, another dog or someone she knew and wanted to greet? I was so afraid she would lunge in excitement and injure the healing leg. So I put her Freedom No-Pull Harness on (with the leash clipped to the front ring for better control), and put her bumble bee costume on over that. Maximum embarrassment would equal minimum bounciness, I figured! I got treats, poop



bags, and before I took her outside, I went out to look up and down the street to make sure there was nothing she could get excited about. By the time we actually got out the door and started walking I was sweating bullets and my heart was racing! We walked a very slow five minutes in one direction (you don't go very far in five minutes) and then turned around and came back. Fortunately we saw no people or animals and made it back home safely. I am sure I burned ten times more calories on that walk than Inga did - mostly from stress! Inga was overjoyed to be outside on a walk for the first time in two weeks!

Over the next three weeks we went to the clinic once a week for an underwater treadmill session (working gradually up to about 15 minutes) and added some other physical therapy type exercises. One of these was walking over poles placed at odd intervals on the ground (or on top of something just a few inches high) several times a day to get her 'foot feel' (proprioception) back. We also did weaving around cones and figure eights to get her to use the leg in different ways. Along with these exercises we started increasing the length of her two daily walks and either having her carry a little weight in her back pack (1/2 pound in each side) or making a portion of the walk up and down a hill. By week six post-surgery we were doing two 25-40 minute walks each day with a little bit of trotting, and going up and down the stairs in our house three times a day (all of this on leash, at a controlled pace).

At week eight we returned to the clinic for her follow up x-rays and learned the bone was almost 100% healed - fantastic news! We had our final underwater treadmill session, and then measured Inga's thighs again. Her surgery leg had increased in circumference by three centimeters over the last 6 weeks, but it was still two centimeters smaller than her good leg. That two centimeter difference did indeed take another three months to disappear.

Dr. Kari prepared a rehab/activity schedule for Inga for weeks 9-16 and we discussed when she could return to various activities and how to gradually re-introduce them.

Some of the exercises were strength building, others just getting her balance and feel back. They included having her go from a stand to a sit and back 20 times per day, using our FitPaws disc (which she had used a lot pre-injury) for balance (starting with low inflation, then increasing it gradually over 1-2 weeks), and using a longer leash to allow Inga to do some trotting back and forth. But even the trotting was controlled and increased gradually. We started with trotting for about 1 minute, then walking for 4 minutes, then repeat. During this time we also continued the earlier things like walking hills and working up to 6 sets of stairs daily. The idea was to add a little bit each week and gradually build up to her pre-surgery activity level and crazy, but normal, Entle antics.

At this time we also could have added swimming as an activity, substituting for a walk. But, like many Entles, Inga is not a big water dog, and we didn't have anyplace close enough and safe enough for her to swim in anyway. We did discover come summer that Inga seemed to have become more comfortable with swimming when we went to my family's cabin on Puget Sound and she readily swam to retrieve big sticks, which she had not really done before. We could only credit the underwater treadmill sessions with making her more comfortable in the water. She still doesn't jump in and swim without a really, really good reason, however — a very big stick!

At week 11 post-op we began allowing some supervised off-leash freedom around the yard (at first we used a long line for more control and to avoid the zoomies), but still did not let Inga play fetch or play with other dogs. We also increased the proportion of trotting to walking. I don't usually like flexi-leashes, but to allow Inga to trot more I began using one as we started to resume our logging road and trail walks. I also made sure I took only Inga (Blue got his own walk) and that we went places and at times when there were not likely to be too many other people or dogs.

The other discovery I made was that Inga was much more cranky with other dogs we might meet on walks around the neighborhood than she had ever been prior to her injury. I could not let her get close to other dogs, especially if they were smaller — she would growl at them and lunge at them, even if they were friendly. I think she was feeling defensive about the repaired leg, and just didn't feel secure letting other dogs get close to her.

Twelve weeks was a big marker, the point at which we gradually returned to normal activities - I could let Inga begin to gradually start running and playing with Blue. Dr. Kari recommended any activities be added at the rate of 5 minutes a day for a week, then increased to 10 minutes a day the next week, and so on.

And she recommended being very precise with how activities were added back — for example, throw a toy or ball 10 times, 10 feet in distance, (and low to the ground) the first week. Then the next week add a few more throws or increase the distance thrown. Because Inga loves her chuck-it ball, Hol-ee roller ball and Jolly ball so much, we had hidden all of them away in the garage until this point. Now we got out the Jolly ball (not the regular small chuck it ball), and I began with her on a long line to avoid having her run off and zoom around the yard with it. I asked her to sit and wait while I threw the ball a few feet away, then released her to go get it (she did have a good sit and wait for the ball before her surgery, so that helped). She was so excited to be able to play with the ball again!

Week 12 was also when I started taking her back to doggie daycare once a week. I had arranged ahead of time with the daycare that Inga would be in the 'senior' dog section rather than her usual younger dog crowd. And I brought very specific written instructions for the staff — no throwing the ball, try to avoid any really rough and tumble play with other dogs, avoid the zoomies, etc. I also explained that I was worried Inga might react badly to the other dogs coming up to her, given how she had behaved on neighborhood walks. Fortunately, the main staff member who runs the 'senior' (or 'casual' as it is now called) dog group has experience with TPLO recovery with her own dogs, and completely understood the restrictions, and Inga did just great! Lindy has become Inga's favorite daycare staff member, and now every Tuesday morning she takes Inga into the big play room with the rubber mats and throws the ball for her a few times, nice and low to the ground, and controlled (but oh, so fun for Inga!).

Other activities that began at 12 weeks post-op including allowing Inga to jump into and out of the car on her own, and playing tug of war (her other favorite game!) for small amounts of time.

The biggest concern once you are past the first 8-12 weeks of healing the leg that had the surgery is the other knee is vulnerable to injury. This is why the dog cannot return to more vigorous activities as long as the two legs have a difference in muscle mass, which can be up to 7 months after surgery.

Some of the activities Dr. Kari said Inga should not do until her legs were equal in circumference were:

- Going up and down the stairs at her own (fast) pace. (We have a 2 story house.)
- Skijoring
- Agility
- Full bore running, jumping, or wild dog play
- Full bore off leash hiking (running up and down the trail, jumping on and off rocks and logs, etc)

Dr. Kari recommended keeping some Rimadyl and Tramadol on hand, and if something happened where Inga overdid it and seemed to be favoring the repaired leg, we could give her 1-2 doses and of course back off on the activity.

By late June (surgery was February 19) we were taking Inga on short hikes again, and starting to let her be off leash for part of the hike. We bought a better dog pack for her, and had her wear that on hikes, with just a couple of pounds in it. The pack not only helped her build up her strength, but like the bee costume, it kept her calmer, less likely to do wild and crazy things. I still worried that she would do something sudden or just go too hard and end up limping at the end of the day. While we were on vacation in June I kept a very close eye on her, but never saw any signs that she was having trouble.

In August, just before the 6-month post-surgery mark, we went on a family vacation to the Oregon coast, where Inga really had full freedom for the first time, fetching sticks on the beach, running off leash with her Corgi pal, Blue, and charging up and down the big sand dunes. This was the first time since her surgery that we let her run so much, and play a little fetch (we did not, however, bring a ball to the beach) and chase seagulls. She climbed off and on logs and rocks and had a great time!

Every evening I looked for evidence of a limp, or stiffness, and found none -- this made me unbelievably happy! I brought her medications along just in case, but I never had to give her any.

At this point the circumference of her thighs was finally equal - we had reached the big goal!

Of course I may never stop worrying completely about her injuring the other leg, but I definitely do some things differently now. We rarely throw the regular size balls anymore, and never with a Chuck-it. We usually throw bigger balls (like the Jolly ball or net ball - Hol-ee Roller) and often make her wait to fetch them until they land. It seems that the larger balls result in less twisting and diving as she goes after them, and hopefully that helps prevent the other cruciate from tearing. I am also more careful to make sure she is warmed up with walking and other activities now before we do any kind of sudden acceleration activities like fetch.

Looking back and hearing others' stories, I think we hit upon the right surgeon and rehab vet — their guidance and protocol was to have activity/exercise start at week 2 post-op and gradually build up with very specific activities and time limits over the next few months. We continued building back up to her normal activities and full off leash activity for 6 months. I think that balance of restriction and activity was the biggest factor in Inga's terrific recovery.

The best feedback along this journey came from Inga's favorite doggie daycare staff member, Lindy. Lindy told me after Inga had been back at doggie daycare for a few months that she has never, ever seen a dog recover so well and so completely from a torn cruciate, and that I must have found the right surgeon, the right rehab vet, and done a great job following all the instructions. Seeing Inga now, a little over a year later, back to being a wild and crazy Entle made all the months of worrying, restrictions and rearranging our routines to care for Inga so worthwhile!

Here is a playlist of videos of Inga's rehab and recovery:

[https://www.youtube.com/playlist?list=PL\\_IQhGgQhr-Ac2mg4oMSn\\_ZnLcxLxiwOh](https://www.youtube.com/playlist?list=PL_IQhGgQhr-Ac2mg4oMSn_ZnLcxLxiwOh)

If you would like to know more, you can email me at [health@nemda.org](mailto:health@nemda.org). I have links to websites we used for research, a document with Inga's rehabilitation schedule and timeline, what we did to prepare for her recovery at home, family 'rules' we set up to keep her safe, etc. I'm happy to share that information with you!

## Entlefest Presentation on Cranial Cruciate Ligament Tears Provided Great Information!

As we all know, Entles have strong muscular builds and high activity levels. Their propensity to do everything 'all out' can result in CCL tears. Kimberly Carlson, DVM and Diplomate, American College of Veterinary Surgeons, gave a very informative talk on cranial cruciate ligament tears (CCLs) at Entlefest. It was a full room as she began what was supposed to be a one-hour presentation. It quickly became clear that we had a lot of questions, and Dr. Carlson offered to stay and answer them. So the one hour talk became a two-hour seminar full of excellent information, plus hands-on examinations of three Entles (including Inga) whose owners were concerned they might have a CCL tear.

Dr. Carlson began by telling us that there are a lot of unanswered questions around why one dog tears a CCL and another doesn't. There just have not been enough studies done on any of the various factors that vets and other experts speculate might cause CCL tears in dogs. Some of the causes that have been put forth include:

- Obesity — being overweight or obese puts more stress on the joints (and often overweight dogs are not in good physical shape, which means a tear can happen more easily). Not every obese dog tears its CCL, but this is considered a big factor.
- Dogs with an excessive slope to their tibial plateau. Many veterinary surgeons will talk about this as a factor, but so far no proven correlation has been found.
- Early spaying or neutering (before growth plates close) - there is some evidence to say this may contribute to a CCL injury, but it is still controversial.
- Dogs with disorders that break down their ligaments (like Cushings disease) seem to have a higher CCL risk.
- Dogs with luxating patellas seem to have a greater risk of tearing CCL.

It is likely that multiple factors cause CCLs to tear. Once a dog has torn one side, there is a 50% or greater chance that eventually the other side will tear as well. This certainly proved true for Inga!

Most dogs Dr. Carlson sees have a chronic (not an acute, traumatic single event) injury, where the fibers of the ligament tear a little at a time. While you would think that resting your Entle and restricting his or her activity would allow a partially torn CCL to heal, Dr. Carlson said that the torn ligament fibers don't heal because of the chemical nature of the joint fluid - it actually seems to prevent the ligament from repairing itself. There is a lot of research going into learning how to get ligaments to regenerate.

Something else that happens with a torn CCL is arthritis, and there is no way to predict how much arthritis each dog will develop or how much they will be affected by it.

Dr. Carlson briefly went over the surgical options to repair a torn CCL, which include lateral suture, TPLO (tibial plateau leveling osteotomy) and TTA (tibial tuberosity advancement). She now recommends TPLO or TTA on all sizes of dogs because she finds their recovery and long term activity level is much better than with lateral suture, even with small dogs.

The biggest problems she sees during recovery are 'operator error' - meaning owner error! First, owners don't follow the recommendation for keeping the 'cone of shame' on anytime they are not watching the dog closely (including at night) at least until the first post-op check, usually two weeks after surgery. The dogs lick the incision and introduce bacteria, and then get an infection. The second big problem is that owners fail to restrict the dog's exercise and activity during recovery.

Dr. Carlson recommends that dogs recovering from CCL surgery follow a rehabilitation or physical therapy program. This could mean using an underwater treadmill as well as a very gradual increase in walking and other activities over several months following the surgery.

Following her presentation and a terrific question and answer period, Dr. Carlson offered to examine a few dogs whose owners thought they might have a partial cruciate tear. This included Inga — just a week before Entlefest, we noticed Inga was limping a little after she first got up from a nap. And it was the left leg - the 'good' (unrepaired) leg. I immediately got a sinking feeling — I recognized that limp from when she tore her CCL almost 2 years ago on the right side. So it was actually a relief to have Dr. Carlson there to examine her, and she did find, through the 'drawer' or tibial thrust test, that Inga most likely had a tear.

I think most of the Entlefest attendees would agree that Dr. Carlson's presentation was very informative and gave us all a lot of valuable knowledge around this very common injury. We really appreciate Josette Kimes arranging for Dr. Carlson to come and speak!



*Dr. Carlson examines Winston while owner Jen Davis keeps him busy with treats and fellow Entle owner and veterinary technician Suzanne Olszowiec helps hold him.*

## **Update: Inga's Saga of the *Other* Torn Cruciate**

I wrote in the last issue of the Entlebook about the presentation on cruciate ligament tears at the Entlefest in Tahoe, and said we strongly suspected Inga had torn the CCL on her left side (the unrepaired side ... she had the TPLO (tibial plateau leveling osteotomy) surgery on her right rear leg in February 2014).

As soon as I returned from Entlefest, I contacted the veterinary surgeon and scheduled Inga for her second TPLO on September 10, 2015. As I write this, we are now at 20 weeks post-surgery, and she is doing fantastic!

When I first suspected she had torn the other side, I was really upset. Even though I knew the chances of tearing the other side after the first one had torn were at least 50%, it was still a huge blow, especially after all the careful rehab and extremely controlled and gradual return to full activity after the first TPLO. The thought of going through it all again ... ugh!

However, I soon realized that I was not as stressed as the first time around. I knew how to prepare the house, knew what to expect in those first two weeks after surgery (the hardest period!) and how to

rehabilitate her. And, best of all, I had the comfort of knowing I already had a fantastic veterinary surgeon and rehab vet.

I was more relaxed throughout Inga's recovery this time. I didn't worry as much about each stage and whether the tiniest slip would set her back. I also realized that once she had fully recovered, I would no longer have to worry about her tearing a cruciate in the 'other leg' because now both legs were done! She was going to be a "bionic dog" from here on out!

Inga definitely had a faster recovery this time (and it was fast the first time). I think there were several reasons. Compared to the first TPLO, she was more active right up until her surgery date. I knew she had a partial tear much sooner (the first time it took a couple of months to diagnose it, and meanwhile we were restricting her activity and she was losing muscle mass), and I was also less worried about it progressing to a full tear since that had not happened the first time. We were careful - no ball throwing, no sheep herding - but we did not restrict her to on leash walks as we did the first time. She continued to go on our daily hikes, and did several hikes at Entlefest. So when she did go in for surgery, she had not lost nearly as much muscle mass in the injured leg as the first time, and that helped her recover faster.

Because Inga was in such great shape and had done so well after the first TPLO, the rehab vet accelerated the activity schedule and had her doing a bit more and doing it sooner.

We did 5 underwater treadmill and rehab therapy sessions with the vet, and she gave me a schedule laying out a rehab plan with increasing walk times and specific exercises for Inga up through about 14 weeks post-op. The vet gave me a tremendous compliment — she told me she had instructed about 1000 clients with TPLOs and had never seen anyone retain this level of accurate detail on the post-op and rehab/therapy instructions.

Inga seemed to know the drill, too, and was less depressed than the first time. It's tough for an Entle to be so inactive for so many weeks! Of course I think she really loved having me or Analise camp on the floor with her every night during her recovery, and getting more smoked bones and peanut butter stuffed Kongs than usual!

She's now fully recovered, back to running through the woods, playing tug, rough housing with her Corgi housemate, Blue, and occasionally playing fetch. We even took her out for her first skijoring trip a few weekends ago!

I've been hearing from more Entle owners that their dog has been diagnosed with a CCL tear, and asking for advice and information, so this is definitely an injury to watch out for. If you missed the previous articles on Inga's "Saga of the Torn Cruciate," you can check the NEMDA Forums and find the series of 3 articles in these past issues:

November 2014

February 2015

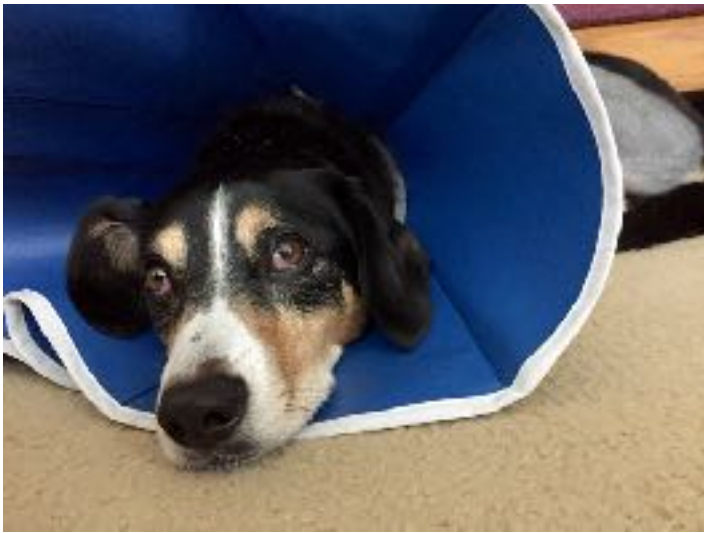
May 2015

You can also see videos from Inga's post-op rehab and recovery on these two YouTube playlists:

Rehab/recovery from Inga's first TPLO: [https://www.youtube.com/playlist?list=PL\\_IQhGgQhr-Ac2mg4oMSn\\_ZnLcxLxiwOh](https://www.youtube.com/playlist?list=PL_IQhGgQhr-Ac2mg4oMSn_ZnLcxLxiwOh)

Rehab/recovery from 2nd TPLO: [https://www.youtube.com/playlist?list=PL\\_IQhGgQhr-A5bKI2pCqSW-BfbbWvoU9H](https://www.youtube.com/playlist?list=PL_IQhGgQhr-A5bKI2pCqSW-BfbbWvoU9H)

If you have questions or would like to know more, you can email me at [health@nemda.org](mailto:health@nemda.org)



*Sad Inga with her 'cone of shame' on.*



*Out for a potty break after arriving home from surgery.*



*Back on the underwater treadmill after TPLO #2*



*Enjoying freedom after 4 months of rehab and recovery!*