

Tibia Fracture (External Fixation)



One of the most useful and efficient ways to convey information to you about your pet is via the written word. We carefully craft these notes to give you helpful information and accurate expectations around your pet's surgical experience.

Please read this. *Please save it and read it during each stage of the recovery process.* Surprises make for a stressful time for everyone.

Photo and video examples may be found on our website: www.directvetsurg.com in the Pet Owner Portal under "DVS Resources".

Your pet has had a fracture of the tibia (i.e. broken shin bone) repaired with a system called an External Fixator. This consist of threaded metal pins that are surgically attached to the bone and connected on the outside with a bar(s) and clamps that are bridging the fracture providing stability until the bone heals to its original strength. These patients will have their implants removed once the bone has healed sufficiently. During the healing period, there are implant care activities that must occur to maintain a healthy external fixator while it is in place. The benefits of this system allow for complete implant removal; pets will not have any long-term activity restrictions.

GENERAL INFORMATION

Please keep a note of your questions as you and your pet progress thru recovery and address them to your primary care veterinary team. Our surgery group will contact your primary care team on **Day 2** (after their phone follow-up with you) and **Day 14** (after your recheck visit with them) to check in on your pet's progress and see if you have had any concerns or questions. This method will maintain continuity in care and an accurate patient medical record.

First few days postop

MONITORING

Please keep your pet in a comfortable, safe, indoor location without free access to stairs for the next 24 hours as he/she recovers from anesthesia and surgery.

Your pet may be groggy for the next few days. He or she may whine or appear more anxious than usual; this may indicate pain/discomfort or side-effects of the medications. Please call your primary care veterinary team for assistance with medication adjustments or return for exam and additional pain medications as needed.

Monitor appetite and attitude. *If both do not steadily improve over the next 2-3 days, please call your primary care veterinary team or return for progress evaluation and problem-solving.*

You can expect your pet to have a bowel movement within 5 days. Some animals take longer than others depending on when they last ate prior to surgery and when they started eating after surgery. It may be abnormal in color and consistency for 2-3 days. If you have any concerns, please speak with your primary care veterinary team.

Please confirm that your pet has urinated within 24 hours of returning home. If he/she does not, or you notice any problems related to urination, please speak with your primary care veterinary team.

Closely supervise your pet's movements over the first 3-4 days when s/he will be groggy from anesthetics and pain medications. Do not allow access to dangerous situations/locations (i.e. stairs, furniture, small children, other pets). Limit activities to necessary events only (on leash/out to go to the bathroom; access to food/water.)

MEDICATIONS

It is likely that you have been prescribed one or more medications (given by mouth) for your pet over the first 2-3wks of recovery. During the discharge appointment or shortly thereafter, please make sure you understand:

- what each medication is being used to treat,
- what side-effects may develop, and
- whether or not the medication should be refilled and continued.

BANDAGE CARE

A padded bandage *will have been* applied to the external fixator. The goal of the bandaging with external fixators is to immobilize the skin relative to the pins; if the skin moves back and forth around the pins, the tracts will become inflamed, and pin loosening can occur. This bandage also protects you and furniture from the sharp edges of the metal external fixator device.

The “fluff-n-stuff” bandage works well to achieve this goal. Gauze squares are unfolded (“fluffed”) and crumpled into a loose ball and “stuffed” under the bar next to the pins. This is continued until all pins are surrounded by fluffed gauze. This arrangement of gauze is “captured” by elastic bandage material wound around the apparatus from top to bottom, but *NOT around the leg*. The elastic bandage material can be passed in a figure-8 over the top of the pins to complete the bandage. Additional squares of gauze can be incorporated into this arrangement to protect the environment from sharp ends of pins/bars.

****Note:** *do not fold the gauze up into a tight wad*; this arrangement is not forgiving enough on the skin and can result in local pressure sores.

(If provided/available, you may also use surgical sponges to “stuff” under the bar next to and around pins. Cut one or more slits in the sponge and stuff it around the pins under the bar. Capture this arrangement with the elastic bandage as described above.)

This bandage should be changed weekly. You may adjust for a longer or shorter wear period depending on pin tract health. If tracts are dry, extend wear by 1-2 days; if tracts are moist or granulation tissue is present, shorten the wear by 1-2 days (and be careful to pack the problem pins more firmly with fluffed gauze or sponges.)

If there is any question on how things look during bandage changing, please take a photo and email to your primary care veterinary team with questions/concerns and ask for guidance.

Week 1-2 postop

MONITORING

Please look at the incision and pin tracts during bandage changes. They should be dry, slightly red along the margins and slightly swollen/thick on the edges. Over several days, they should lose redness and swelling.

Pin tracts start out as 1cm holes in the skin and gradually reduce to contact the pin. The pin tracts should have no redness, bulging pink tissue (i.e. granulation tissue) or pus-like discharge (crusting on the bandage is normal.) Pins closest to joints that move often suffer from inflammation (and signs listed above) due to the motion in these areas; careful attention to bandaging in these areas is important.

Problems to call your veterinarian about:

- incision gapping (the edges should be exactly touching)
- ongoing incision or new discharge (other than small amount of crusting)
- incision swelling (other than slightly raised skin near edges).
- persistent pus-like discharge from pin tracts,
- pink/fleshy tissue growing out of pin tracts
- pins that move.

Some bruising is normal and will resolve in 5-7 days. The occasional patient will have more extensive bruising and/or swelling on day 2-3. If this develops, please let your primary care veterinarian know; a visit or sending photos will help them characterize the issue and decide on a course of action. The vast majority of the time, this is a transient issue that will follow a typical 5-7 day course resolving.

Do not allow your pet to lick or chew the incision. Pets tend to want to lick early in the healing period and scratch later in the healing period; this can compromise the incision and predispose to infection. If necessary, please prevent access to the incision by using creative clothing options (ex. backward long-sleeved T-shirt worn as "pants"), an E-collar or other devices, if you must leave your pet unattended. See www.directvetsurg.com, Pet Owner portal→Pet Links and DVS Resources

Your pet should start touching his/her toe down within the first 2 weeks. Thereafter, leg use should steadily improve each week. By 6 weeks, he/she should be 90% recovered. If he/she suddenly deteriorates or does not appear to be progressing well enough, please return to your veterinarian for exam; x-rays may be needed to diagnose the problem.

Your pet will feel like fully using the leg before the bone is healed. Please continue restrictions during this difficult time when he/she is feeling "too" well! Failure to do so may cause serious healing problems.

PROGRESS EXAMS

Please return for initial bandage change and wound evaluation with your veterinarian in 2-5 days. You may discuss at that time your comfort with at-home bandage management versus outpatient bandage care at your veterinary clinic.

Please return to your primary care clinic in 10-14 days for a progress exam. Skin healing will be evaluated, sutures (if present) will be removed, use of the limb will be assessed and any questions you have will be addressed.

If your pet is doing well, the next visit will be 4-6 weeks after surgery. Leg function will be evaluated, x-rays will be taken of the fracture site to judge healing, and physical therapy recommendations will be adjusted. Some pins may be removed after reviewing these first post-operative x-rays; this is called “dynamizing” the external fixator. This will speed up the healing (called “callus formation”). Additional x-rays will be needed in 4-6 weeks depending on initial healing.

All implants will be removed while your pet is under heavy sedation once the fracture is sufficiently stable. This is an additional procedure not accounted for in the initial surgical costs.

It may be beneficial to have some oral sedatives to use before your visit, since quality x-rays require careful patient positioning (and cooperation). Please discuss with your primary care veterinary team at least a week before your scheduled x-ray visit.

DIET

The **most** beneficial and **least** expensive treatment for orthopedic health (and general health) over the lifetime of your pet is maintaining your pet on the lean/thin side of normal his/her whole life. Any orthopedic condition can progress with arthritis over time due to excessive wear & tear; carrying less body weight will relieve some of this stress from the joints. Good parameters to monitor body condition are:

- 1) you should be able to feel the ribs and pelvic bones, but not see them;
- 2) your pet should have an “hour glass” figure when viewed from above looking down;
- 3) your pet should have a tucked-up belly when viewed from the side.

RESTRICTIONS

Avoid any rigorous activity for 8 weeks; no running, jumping, playing or anything that feels like “exercise”. For dogs, short, leashed walks around the yard to urinate/defecate are fine. Walking around one level of the house is fine. Prevent all pets from jumping up and down

from furniture, etc. A bad landing or an awkward take-off can result in serious repercussions.

Minimal, supervised/assisted access to stairs is advised during restricted period. Use baby gates, etc. to prevent free access to stairs during this restricted period. When helping dogs navigating stairs (up and down), have a hand/leash on collar/harness and a leash/safety-strap under the belly to prevent slips, stumbles, falls.

Please use a short (~6ft), hand-held leash when dogs are outside to urinate/defecate. Confine your pet to a small area/room/crate when unattended. Please do not allow your pet to run, jump or play during this restriction period.

The *Help 'em Up harness* (see company website) is a very useful tool that your dog can wear during the restricted period that allows you to have a quick "handle" to grasp by the shoulders and by the rump to assist your pet to rise and lie down, climb/descend stairs, save from a slippery floor, etc.

If your pet's personality-type challenges these restrictions, discuss options for medicinal-assistance for your pet to make restrictions easier to manage (i.e. Trazadone, Gabapentin, Tramadol, other).

PHYSICAL THERAPY REGIMEN

Our lives are often very busy, so if you must err, err on the "do less" side of these instructions. Less physical therapy will result in a slower return to function, but more aggressive physical therapy by a non-professional too early may result in failure of the implants and surgical repair. Cats (and some dogs) often resist physical therapy dramatically; avoid any activity that results in major uncooperative behavior.

Week 1: Apply ice packs (wrapped in thin cloth) to the incision area twice daily for 10-15 minutes. Baggies of frozen peas work well for this, or make an ice pack by freezing 2 parts isopropyl alcohol to one part water in a ziplock bag. Continue 5 days.

Week 2: Range of Motion Exercise-- Have your pet lie on his/her good side. Apply a warm compress to shin area. Grip the foot with one hand; slowly and gently push the foot up into flexion of all joints; hold for 5 seconds. Slowly pull the foot and push the leg down and back into full extension of all joints; hold for 5 seconds. Repeat this motion 15-20

times twice daily. This exercise should not be performed to the point of pain or resentment. Continue 4 weeks.

Month 1-2 postop

RESTRICTIONS

Your pet will feel like fully using the leg before the bone is healed. Please continue restrictions during this difficult time when he/she is feeling "too" well! Failure to do so may cause serious healing problems.

ONGOING PHYSICAL THERAPY REGIMEN

Week 3: Sit/stand Exercise (for dogs)—Have your pet repeatedly sit and stand for 15-20 repetitions twice daily. Use small treats to encourage participation. Continue 4 weeks.

Week 5: Massage-- Have your pet lie on his/her good side. Skin massage around the thigh and knee involves using your fingers loosely on the surface of the skin, applying enough pressure to move the skin relative to the underlying tissues. Muscle massage of the thigh involves deeper kneading and pushing of the muscles. Perform massage for 10-15 minutes twice daily. Continue 4 weeks.

Week 7: Active exercise (for dogs) -- Place your pet on a short leash and have him/her walk at your side. Walk outside on even/solid footing for 10 minutes twice daily. Continue 4 weeks.

Swimming is wonderful rehabilitation exercise (for some dogs) when performed correctly. You may allow controlled swimming after all pins are removed. Controlled swimming requires that your pet not jump or leap into the water; walking into the water until it is deep enough to swim is required. Throwing balls to fetch often results in sudden jumping and lunging, which can cause serious problems in the healing phase. Do not over-extend your pet; start with short excursions (5 minutes) and increase duration and frequency gradually.

Long-term lifestyle

After the fracture is fully healed and pins removed, there are no restrictions on activities for your pet. A gradual return to full function should occur, to allow for a smooth return of

muscle function and strength following the restricted period. Because everything is removed, no ongoing implant related issues are anticipated.

Checklist:

HOME MONITORING AND PROGRESS CHECK-IN WITH VETERINARY TEAM

- Pet attitude and appetite—Are these improving daily? What are your observations? What are your specific concerns?

- Pet mobility—Is this improving daily? What are your observations? What are your specific concerns?

- Incision health—Is redness and swelling going away? Is there discharge or moisture? (Photos taken close-up and at different angles are helpful for your primary care veterinary team.)

- Pet pain level—What are your observations? What are your specific concerns?

- Other

Based on your own experience through this, we welcome and encourage suggestions to this information that may help future patients and their people. Pay it forward! (directvetsurg@gmail.com)

--The DVS Crew