
Triple Pelvic Osteotomy (TPO)



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 surgery on the pelvis to correct the conformational abnormalities associated with hip dysplasia (i.e. hip "looseness"). The TPO procedure, when performed in a young dog, will rotate the acetabulum ("socket" of the hip joint) to better cover and contain the femoral head ("ball" of the hip joint), thus providing improved support for the hip. Three separate skin incisions and cuts in the bone of the pelvis are made to allow rotation; these cuts are then stabilized with bone plates and screws. These implants are surgically attached to the bone, bridging the main cut to provide stability until the bone heals to its original strength. Healing time is required before the bone is strong enough to accept normal activities. The majority of patients will have their implants for their entire life, and do not have 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 s/he recovers from anesthesia.

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 s/he 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.)

Please look at the incision when you get home; knowing what "normal" looks like is helpful later when trying to understand if the incision is healing abnormally. Photos are helpful for you and us, when communicating from a distance.

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 (IF PRESENT)

A clear, plastic bandaid may have been applied to the incision (Tegaderm). This will protect the incision from infection from the environment and a wayward pet tongue! It is useful for 2-3 days. You may remove it like a "bandaid" at any time.

Week 1-2 postop

MONITORING

Please look at the incision twice daily. It should be dry, slightly red along the margins, slightly swollen/thick on the edges with a light crust down the center. Over several days, it should lose redness and swelling. A wet/weepy incision is an unhappy incision.

Problems to call your veterinarian about:

- gapping (the edges should be exactly touching)
- ongoing or new discharge (other than small amount of crusting)
- swelling (other than slightly raised skin near edges).

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

For the first 1-2 weeks, your pet may need assistance when walking on slippery floors (rear foot of operated limb tends to slip outward postop); use a belt/band under his/her belly to prevent slipping (or harness mentioned below). Continue this protective measure until s/he is very strong on all legs.

PROGRESS EXAMS

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.

Your pet should start touching his/her toe down within the first 2 weeks. Thereafter, leg use should steadily improve to 90% normal at 6-8 weeks. If you notice a sudden deterioration in leg use at any time after surgery, please see your veterinarian for exam.

Please return for postoperative x-rays in 8wks to evaluate healing and implant stability. It may be beneficial to have some oral tranquilizer/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

Do not make any adjustments to your pet's diet until s/he has resumed normal attitude, appetite, energy level and bathroom habits. Be aware that the above activity restrictions may cause weight gain. To prevent this, you may feed 3/4 of the usual amount of food during the next 2 months. Your veterinarian will re-weigh your pet at the progress exams to monitor body condition.

The **most** beneficial and **least** expensive treatment for hip arthritis and 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.

Glucosamine/chondroitin supplements ("chondroprotectants") may have some beneficial effects in patients with previous orthopedic injury, but this has not been clearly established. High-dose (medicinal dose) fish oil may improve comfort in arthritic joints longterm. You and your veterinarian should discuss whether or not these products would be helpful for your pet.

RESTRICTIONS

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.

Studies have shown that a formal PT program can decrease post-operative recovery time. Please let us or your veterinarian know if you are interested in a professional physical therapy referral in the Twin Cities.

COLD THERAPY

- From day 1 to 5.
- 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 double ziplock bag.
- Apply ice packs (wrapped in thin cloth) to the incision areas for 10-15 minutes twice daily.

MASSAGE

- From week 1 onward

- As tolerated by patient
- Warm therapy *before/during*
- Superficial skin massage near incisions and up to 6" away—using palms and a relaxed but firm touch, move the skin around in circular motion and gentle bunching motion. Continue 5min several times daily, or longer as tolerated
- Deep muscle massage—using fingers and hands, kneed muscles of the rump using firm, slow motions of pushing and squeezing. Continue 5 minutes daily, or longer as tolerated.
- Before/during massage, you can apply a warm compress to the rump/incision areas. Microwave a damp cloth/towel for brief 5-10sec intervals until warm but very comfortable held on your own forearm for 30 sec.

PASSIVE ROM

- From week 1 onward
- As tolerated by patient; increasing degree of flex and extend until easily achieve full range.
- Warm therapy *before* and cold therapy *after*.
- Have your pet lie on his/her good side. Grip the front of the thigh with one hand and hold the foot with the other. Slowly push the foot up into flexion of knee and hip (hold 2 seconds) and then slowly pull the foot and push the thigh down and back into extension of knee and hip (hold 2 seconds). Concentrate on the extension movement. Repeat this motion slowly and smoothly 10 times twice daily. Flex and extend only to your pet's comfortable limit. Do not go to the point of creating fighting or resentment.
- Before ROM, apply warm compress to rump and groin area: microwave a damp cloth/towel for brief 5-10sec intervals until warm but very comfortable held on your own forearm for 30 sec.
- After ROM, apply ice packs (wrapped in thin cloth) to the incision areas for 10-15 minutes.

Month 1-2 postop

PROGRESS EXAMS

Please return for **postoperative x-rays in 8wks** to evaluate healing and implant stability. It may be beneficial to have some oral tranquilizer/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.

RESTRICTIONS

Avoid any rigorous activity for **8 weeks**; no running, jumping, playing or anything that feels like “exercise”. 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.

Your pet will feel like fully using the leg before the bone is healed. Please continue the restrictions during this difficult time when s/he is feeling “too” well! Failure to do so may cause serious healing problems; plate and screw problems are directly related to the amount of activity the patient has during this recovery period.

PHYSICAL THERAPY REGIMEN

WEIGHT SHIFTING

- From week 3 onward; add to daily routine multiple times daily
- As tolerated by patient and when foot naturally “toe-touching” when standing still.
- “Hip bump”: While standing or squatting behind your dog, put your hands on either side of the rump/hip area. With right hand, push the right hip 1 inch toward the left; with left hand, push the left hip 1 inch toward the left. The goal is to have your dog shift weight between the right and left rear feet. Avoid pushing so far as to activate the “I’m tipping over” response!
- “Rump bounce”: While standing next to your dog, push your palm down onto their rump and bounce an inch or so. The goal is to have your dog shift their weight to accept this bounce with both rear feet. Some dogs will take this as their cue to sit; if this is the case, this exercise won’t be useful.
- “Opposite lift”: While standing or squatting in front of your dog, hold their head up with chin level to floor and pick up the front leg opposite their rear surgical leg. The goal is to have your dog shift weight onto both rear feet.
- “Elevated food”: Simply placing your pet’s food and water bowls in a higher position will encourage them to shift their weight back onto both rear feet. Cut out the top of a cardboard box, stack phone books, place on a step, or use custom food dish “furniture” to elevate the feeding station.

- “Step up”: Ask your pet to step up onto a curb or step and stand still. Repeat 5x before returning from a bathroom break. The goal is to encourage weight bearing on both back feet.

CONTROLLED WALK

- From week 3 onward; start 5 minutes 2x daily; increase 5 minutes each week.
- As tolerated by patient and when foot naturally “toe-touching” when standing still.
- “Slow walk”: Lay out a path that will allow you and your pet walk on one level of the house with non-slip flooring or in the yard. Place your pet on a short leash. Walk slowly enough so that your pet has to put each foot down and does not hop. The slower you walk, the more likely they are to put the foot down on the ground. |
- “Walk back”: If he/she is barely putting foot down, stop every few steps and ask your pet to back up a few steps. Moving a nutritional bribe toward their chest (under their nose) will encourage this movement.
- “Weaves”: Adjust your path, as leg use improves each week, to include obstacles around which you must weave. Walk around corners, around bushes, around chairs, all while moving slowly such that all four feet are on the ground.
- “Circles”: As leg use improves each week, add walking in large circles both directions, then smaller and small circles in both directions.

SIT-STAND

- From week 4 onward
- As tolerated by patient and when foot touches the ground with every step when walking.
- Have your pet repeatedly sit and stand for 10 repetitions twice daily. Do not push down on his/her rump. The goal is to achieve a natural sitting posture, so encourage proper knee/hip flexion squarely under your dog’s body. Have your pet sit next to a wall (or use your foot/shin as a blocker) so the knee doesn’t swing out to the side. Add this activity to each return from a bathroom break and encourage with small nutritional bribes.

STAIR CLIMBING

- From week 6 onward; start with climbing stairwell 2x daily (or equivalent); increase 2x daily each week.
- As tolerated by patient and when foot touches the ground with every step and ROM exercises are comfortable.
- On a leash and with rear-end safety sling/strap, slowly walk up and down stairs, moving slowly enough to encourage all four feet touching the stairs. Stop and settle 1-2 times as you go up to allow weight to shift to both rear feet.

CONTROLLED SWIMMING

- From week 6 onward; start 5 minutes; increase 5 minutes each week.
- As tolerated by patient and when foot touches the ground with every step and ROM exercises are comfortable.
- Controlled swimming requires that your pet not jump or leap into the water; please walk your dog into the water until he/she is deep enough to swim. Throwing balls to fetch often results in sudden jumping and lunging, which can cause serious problems in the healing phase.

EXERCISE WALKING

- From week 8 onward (after x-rays confirm healing); start 10 minutes; increase 10 minutes each week.
- As tolerated by patient and when foot touches the ground with every step and ROM exercises are comfortable.
- Maintain a short leash and walk slowly enough so your dog maintains a walk or slow trot next to you. Walk on solid footing and away from distractions that will cause sudden lunging, etc.
- As leg use improves, increase difficulty by weaving on and off curbs, around trees, up small rises and over low obstacles.

HIP STRETCH EXERCISE

- From 8 to 10 weeks, repeat this slow-motion stretch for 15-20 repetitions twice daily.
- Perform this exercise on carpeting with 2 people.
- If you have a large exercise ball (2-3ft diameter), place the front end of your dog across the ball.
- *Slowly* roll the ball forward so the hind quarters are stretched to the point when your pet takes a step forward with his/her hind feet.
- Slowly roll the ball backward so he/she steps backward.
- Repeat this slow-motion stretch for 15-20 repetitions twice daily. Continue 2 weeks.

- If you do not have an exercise ball but can safely lift the front end of your dog, use this technique.
- Kneel in front of your pet and lift his/her legs up to your shoulders (like s/he is hugging you); support his/her front end.
- Slowly rock backwards so your pet's hind quarters are stretched to the point when your pet takes a step forward with his/her hind feet.
- Slowly lean forward so he/she steps backward with the hind feet.

UNCONTROLLED EXERCISE

- From week 12 onward; start 10minutes; increase 10 minutes each week.
- As tolerated by patient and when only transient mild limp every step and ROM exercises are comfortable.
- Allow off-leash access to yard, etc. No ball chasing/fetching or rough play with other dogs.

WORKING OUT

- From week 16 onward; start 10minutes; increase 10 minutes each week.
- As tolerated by patient and when no limp during majority of day and ROM exercises are comfortable.
- Allow off-leash access to yard, etc. Free range of activities—fetch, rough housing, jumping.

Long-term lifestyle

After the bones have healed, 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.

Once bones are well healed, there is minimal risk to that site in the future. The plate and screws do not create any problems in the vast majority of patients. Occasionally these metal implants can become infected; it is believed these infections originate from bacteria normally found in the blood stream in patients with infections elsewhere in the body or from dental disease. Implants can also loosen or create bone pain caused by cold temperatures. On occasion metal implants will have to be removed months to years after the original surgery if they cause the patient problems. Please have your veterinarian evaluate any lameness or pain you notice associated with the operated leg. This implant removal is rarely indicated, but will require a second surgical procedure that is not accounted for in the original surgery fees.

If indicated, the opposite hip can be operated as early as 4 weeks after the initial procedure. This decision will be made based on patient age, x-ray findings before first surgery, and progress after the first surgery.

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