



TPLO HOME RECOVERY PROGRAM



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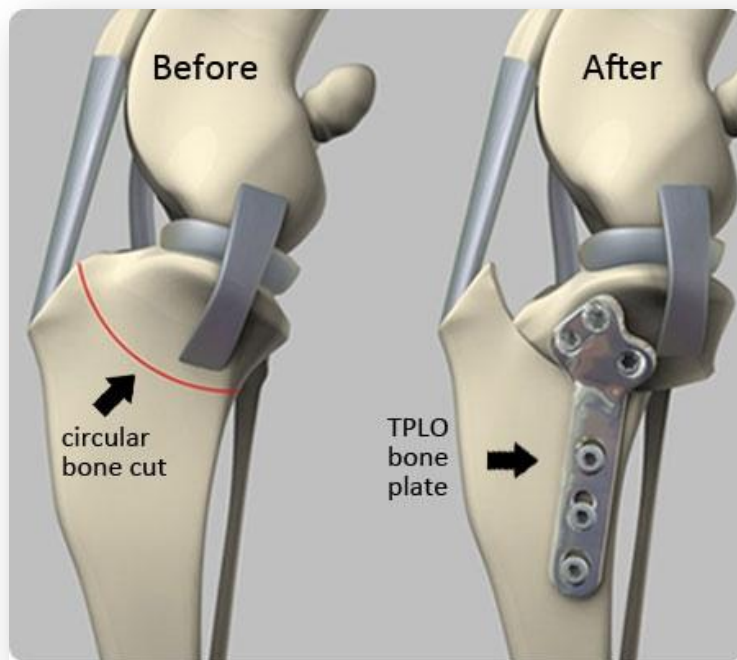
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The Cranial Cruciate Ligament (CCL)

There are a number of ligaments in a dog's stifle (knee) that contribute to joint stability. The Cranial Cruciate Ligament (CCL) is the primary ligament responsible for limiting "cranial drawer" motion (excessive forward and backward sliding of the femur on the tibia bone). When a dog has a partial tear or ruptures this ligament the joint instability causes inflammation and pain which is why your dog favours the leg. Osteoarthritis, also known as OA, degenerative joint disease, or degenerative arthritis, is a form of arthritis caused by inflammation, breakdown, and the eventual loss of cartilage in the joints. There are many factors that lead to the progression of osteoarthritis; failure to stabilize this joint will accelerate this process.

What is a TPLO?

The TPLO (Tibial Plateau Levelling Osteotomy) procedure neutralizes the effect of this drawer motion. A circular cut is made in the top of the tibia and the smaller portion of bone is rotated to reduce the slope of the tibia. A special surgical grade stainless steel plate is used to hold the two bone segments together. Over time the bone segments will heal together to provide life long stability.



This booklet serves as a guide during the important post-operative healing period following your pet's TPLO surgery. Included in this booklet is a week-by-week recovery schedule along with visual aids and descriptions to help guide you through the various exercises. Please follow this program.

Preparing For your Pet's Recovery at Home

Preparing your Home:

Prior to your pet coming home, you should determine where you are going to confine your dog during this post-operative period. Making your dog as comfortable as possible is as important as having a good rehabilitation plan. As your dog's mobility is to be restricted, we recommend that you utilise the following:

- A dog crate that is large enough that he/she can stand up and turn around
- A gated off area such as the kitchen
- Confinement to a room

Surfaces such as hardwood floors, tile, linoleum, etc. can be very slippery. We suggest that you place some throw rugs with rubber backing or yoga mats on these surfaces to make it easier for your dog to walk around.

House Rules:

- **No jumping at all! No jumping on/off the bed! No jumping on/off the couch! No jumping on you!** Overextension of the knee could compromise the repair of your dog's leg and delay the healing time.
- **Stairs:** For the first 2 – 4 weeks following surgery, stairs should be limited to a short flight to get in or out of the house. Your pet needs to be on a short leash and slowly guided up and down 2 – 3 stairs (use the Thera-Band sling provided under their belly for support). If you have stairs in your home, limit your dog's access to them with something like a baby gate to prevent unsupervised use of stairs. Longer flights of stairs should not be used for strength training but are allowed with supervision after the 4 weeks post surgery as long as your dog is consistently using their leg and is not allowed to run or jump up the stairs.
- **No active play!** Refrain from active play with your dog and do not allow him/her to play with other dogs until your veterinarian tells you otherwise (likely after the 8 week post operative x-rays to confirm bone healing).

TPLO Home Recovery Program

Uncontrolled pain can slow down the healing process and delay your pet's recovery. We have supplied medications to alleviate this post surgical pain. It is important that you give all medications as directed so that your pet is most comfortable. This does not mean that they should have free reign because they, "Feel good". Your pet still needs to be restricted to avoid compromising the surgery which may lead to prolonged recovery and potentially additional surgeries. After the surgery your dog is going to limp on the surgically repaired leg for a period of time. This is because your dog has lost muscle and the leg is weaker and may get sore from building muscle as you progress through your program. Your dog should be placing some weight on the surgical leg (even just touching toes to the floor) within 7 days from the date of the surgery. Over the course of the next few weeks the degree of limping should decrease. If your pet is too active during recovery, his/her limp may become more severe. In this case, you should apply ice 3-4 times a day, allow 24 hours of rest and give any prescribed pain medication. Call your veterinarian if there is no improvement after the 24 hour period.

- **No licking!** Allowing your dog to lick at the incision will compromise the healing process. Licking introduces bacteria to the area and, in severe cases, can cause infection to not only the incision but to the bone itself. This type of complication can delay the healing significantly and potentially do permanent damage to the leg. **Infection due to licking is the most common complication following TPLO surgery and is totally preventable.**

Monitor your pet's incision site

NORMAL	ABNORMAL
Swelling around the incision and the surgical leg for the first week	Swelling that lasts longer than a week
Bruising on the leg	Discharge that is not clear, is blood tinged, or any discharge after the first few days
A small amount of clear or blood tinged discharge from the incision (for first few days only)	Large amounts of discharge or bleeding
Mild discomfort around the incision and the leg itself	Discomfort that continues after pain medications and icing
Warm to the touch around the leg	Discomfort that causes your pet to cry out or bite

*****NOTE*** If any of the abnormal signs appear, contact your veterinarian**

The incision should be healed 10 – 14 days after the surgery. The sutures will need to be removed at this time. Please make an appointment so that we can assess the incision site and your dog's recovery/progress.

Week by Week Recovery Program

The weekly recovery program described in the following pages is invaluable for ensuring your pet's recovery. This program has been designed to:

- Accelerate your pet's recovery to full function of the leg
- Reduce pain and muscle atrophy (muscle loss and weakness)
- Strengthen muscles to help stabilize and support the joint
- Enhance the healing of the affected bone and tissue due to increased blood flow
- Restore normal joint range of motion
- Decrease the risk for future injury
- Recognize when veterinarian intervention is required

The physical therapy exercises should be started slowly and cautiously. It is best to time these approximately 30 minutes after you administer your dog's pain medications so that he/she is most comfortable. It is unfair to ask a dog to exercise when it hurts to do so. Watch for signs of discomfort such as struggling or significant resistance to the exercises. Signs of pain can include: decreased appetite, excessive panting, vocalization, aggression or decreased interaction with family members, altered posture (hunched posture), restlessness, flinching when touched, elevated heart rate and respiratory rate, and/or dilated pupils. If your dog is stiff and reluctant to allow further manipulation you may need to reduce the amount of physical activity and/or request additional pain medications from your Veterinarian. Your dog may be tentative at first but his/her comfort level will increase as you progress.

Please remember: Adequate rest and physical therapy are the keys to obtaining and maintaining normal limb function. If your dog does not appear to be making positive progress, has any complications, or you have any questions, please contact us anytime.

*****NOTE***** It is extremely important to follow this program guideline as closely as possible to ensure proper recovery. The exercises described in this package should be performed in the order they are listed. Please refer to our website for video examples of the described exercises: www.edmontonveterinary.com

Rehabilitation Plan: Day 0 - 14 after surgery

The first 24 – 48 hours following your dog's surgery he/she may have a bandage on the affected leg. This bandage has been applied to protect the incision as the skin is sealing and to provide some compression to minimize swelling. Manual therapy can begin as soon as the bandage is removed; 2 days following surgery. **The following routine should be done daily until your pet is consistently using their leg and has full range of motion in the knee (when you can bend and straighten the surgical leg the same amount as the non-surgical leg).** At that point, it is still recommended once to twice a week as he/she will be building muscle and compensating for the surgical leg (The other limbs and lower back will often have muscle tension and discomfort).

1) Massage and Passive Range of Motion (PROM)

Massaging your dog's leg is important for relaxing the muscles prior to performing the exercises for rehabilitation. Lay your pet on his/her side on a comfortable surface with the surgical limb up. Target the muscles above and below the joint. Start the massage by pressing down on the muscles with the heel of your palm. You should not move your hand over the skin, but instead press down hard enough to move the skin over the tissues below. Using the heel of your palm, it's unlikely that you will press too hard and possibly injure healing tissue. If your dog shows no signs of discomfort, go back and massage the same areas with the balls of your fingers, where your fingerprints are, not the tips. This provides a deeper massage. Then run the flats of your hands over the whole massaged area. Finally, flex and extend the affected limb several times, gently, until a little resistance is felt. Support the joint while doing this to prevent any twisting of the limb. If you have time, your dog will also greatly benefit from this therapy on the other limbs as they have been compensating for the injured leg. It is also a great way to practice your technique on a "healthy" limb to build your confidence ☺

- Frequency and Duration: 2 – 3 times daily for approximately 15 minutes



Rehabilitation Plan: Day 0 - 14 after surgery

3) Controlled leash walks

This exercise requires your dog to be on a short lead very close to your body so that you have complete control of him/her. Leash walks must be done slowly and for short periods of time to build up strength in the leg. For the first few days any walks outside should be for urination or defecation only. By the end of the first week, your dog should be able to walk for 5 minutes per walk. The slower you walk your dog the more inclined he/she will be to place weight on the leg. Make sure to support the hind end under the belly with your Thera-Band sling if needed. This is particularly important on slippery surfaces. Your dog will benefit more from several short walks in one day rather than a single long walk. If your dog has been sent home with a bandage, please ensure the bandage does not get wet when he/she is outside. If this happens, it needs to be removed immediately. Placing a heavy plastic bag or dog bootie on to go outside should eliminate this possibility. Controlled leash walks benefit your dog by:

- Keeping the muscles strong and lubricating the joints
 - Encouraging use of the affected limb
 - Decreasing pain
 - Positively rewarding your dog emotionally
- Frequency and Duration: 3-4 times daily up to 5 minutes per walk

4) Ice Therapy

After completing the above exercises it is especially important to apply cold therapy to the affected knee to reduce pain and inflammation. You can use gel ice packs from the drugstore, frozen bags of popcorn kernels, or bags of crushed ice. Wrap the ice material in a towel before applying. Place the ice on both the inside and outside of the knee.

- Frequency and Duration: after exercise for 10 – 15 minutes

5) Heat Therapy

By the **third** day you can begin applying heat to the affected leg at the very start of your therapy session **prior to massaging**. Heat will draw blood to the area to enhance circulation at the surgical site, which aids the healing process. A variety of products are available such as “Magic Bags” or other heat products from the drugstore. Do not use topical products such as gels or creams. Check the temperature before applying heat to the area and make sure that you use a light towel in-between the product and the skin. Do not apply heat to the joint if it is inflamed (swollen) and warm to the touch.

- Frequency and Duration: prior to massage for 5 – 10 minutes

Activities to Build Strength and Body Awareness

The following exercises will be incorporated into the next 12 weeks of recovery. The intent of this program is to gradually increase strength, balance, and body awareness so that your pet can return to normal activity. All of these exercises are demonstrated on our website for your reference at www.edmontonveterinary.com.

These two pages provide detailed descriptions of the exercises. Please follow the schedule indicated on the table on the following page.

1. **Controlled Leash Walks:** Walks should be on a 6' lead with the dog by your side. Up until this point, you have been walking up to 5 minutes per walk 3 – 4 times per day. From this point on, you can add 3 – 5 minutes per walk per week. This activity should only be increased if your pet is consistently using his/her leg at a walk. You can incorporate activities such as: Figure 8 patterns, walking up and down curbs in a S-pattern, gentle inclines (hills), stepping over obstacles/through long grass or snow, and short trotting intervals (10 steps) into these walks to make them more challenging and to increase muscle mass and strength.
2. **Weight Shifting Exercise:** Have your pet stand squarely on a non-slip surface and gently nudge the hind end from side to side for 10 repetitions. This will help with balance and core strength and will lay the groundwork for further core conditioning. For a further challenge, have your pet stand with the front legs elevated (first on a stable surface like some stairs, and then on an unstable one like a cushion, air mattress, or FitPAWS equipment). This will force more weight onto the hind end.
3. **Exercises to increase body awareness:** These exercises have you walking your dog on a leash in a “figure 8” pattern and/or through a series of obstacles in a “weave” pattern. This exercise helps to encourage the use of the leg and increases proprioception (Proprioception is the knowledge of where all one's body parts are in space). Another great exercise to help with proprioception is walking slowly through the rungs of a ladder laid on the ground. As your pet walks slowly through this obstacle, they must carefully think about where they are putting their feet. Drop treats in between the rungs to make this an extra fun game 😊

4. **Cookie Stretches:** Have your pet stand squarely on a non-slip surface and guide his nose to each hip, up, and then down for one repetition. Do this 5 times working up to 10 repetitions. Once he is comfortable with this exercise, you can place him on an unstable surface such as a couch cushion (on the floor), air mattress, or FitPAWS giant disc/balance pad/peanut (available for purchase) to further challenge him. This exercise will help with spinal mobility and core strengthening.
5. **Sit-to-Stand:** This exercise is a “Doggy Squat”. Have your pet sit squarely and then stand for 5-10 repetitions. They have a tendency to cheat and use their non-surgical leg to push up so it is often helpful to have their surgical leg against a wall as you perform this exercise. This can also be incorporated into daily walks or, at feeding time, you can use part of his kibble to entice him to do this exercise.
6. **Three Legged Standing:** Have your pet stand squarely on a non-slip surface and then gently lift one leg off of the ground and hold for 5 – 10 seconds. Alternate with all but the surgical limb. Once your pet becomes good at this exercise, you can try **two legged standing** by lifting diagonal legs (left front and right hind) and vice versa.
7. **Wading in water:** Once your pet has their sutures removed, they are able to walk in water that is up to hip height. The buoyancy of the water will displace some of your pet’s weight and take some pressure off of the joints. There is also resistance in the water so they are also working on strength and flexibility.
IMPORTANT: If your pet will not walk in a controlled manner and likes to leap in water then this is not a good activity until after the 8 week x-ray is assessed by your Veterinarian.
8. **Walking in deep snow or in long grass:** Walking in deep snow and in longer grass will make your pet pick their legs up higher which will build strength. This should only be done if you have your dog on a short leash and have control of them.
9. **Swimming:** Swimming is allowed after the 8 week x-rays have been assessed and you have the go ahead from your Veterinarian. The uncontrolled kicking action can be harmful in the early stages of your pet’s recovery so it is important to be aware of this. Swimming is a great cardiovascular workout and is great for weight loss.
10. **Tug:** Tug games are a great way to burn energy and to work on strength. The best tug toys have a bungee cord in the tug rope to prevent jarring to your dog’s neck or your shoulders when the taut rope suddenly stops the dog.

Stage of Recovery	Exercise/Manual Therapy	Frequency	Time/Repetitions
0 – 14 days post op	Follow the manual therapy routine listed on pages 3 & 4	Daily	2 – 3 times per day for the first week or until range of motion is normal compared to the opposite limb
AT THIS TIME YOU WILL NEED TO MAKE AN APPOINTMENT TO HAVE THE SUTURES REMOVED. WE WILL ALSO ASSESS YOUR PET'S PROGRESS AND MAKE ADJUSTMENTS TO YOUR REHABILITATION PROGRAM AS NEEDED			
Weeks 3 & 4 post op (If patient is consistently using the leg)	Manual therapy as above	1 – 2 times per week	~ 30 minutes
	Ice Therapy	As needed (after exercise or if your pet overdoes it and is sore)	15 minutes
	Controlled Leash Walks	3 times per day	10 minutes
	Weight Shifting	Once a day	2 minutes
	Figure 8/weaves/ladder	Once a day	2 minutes
	Cookie Stretches	Once a day	5 repetitions working up to 10
	Sit-to-stand	Twice a day	5 repetitions working up to 10
	Three legged standing	Twice a day	2 repetitions working up to 4
Weeks 5 – 8 post op	Manual therapy as above	1 – 2 times per week	~ 30 minutes
	Ice Therapy	As needed (after exercise or if your pet overdoes it and is sore)	15 minutes
	Controlled Leash Walks. Add in short trot intervals and hills into each walk to increase fitness	3 times per day	Add 3 – 5 minutes per walk per week to a maximum of 20 minutes per walk or 60 minutes total per day
	Walking in water/snow/long grass	3 times per week	Incorporate into total walk time (up to 60 minutes for the day)
	Weight Shifting: add unstable footing (air mattress, couch cushion) for further challenge	1 – 2 times per day	4 minutes, add 1 minute per session per week
	Cookie Stretches	1 – 2 times per day	Add 3 - 5 repetitions per session per week up to 15 reps/session
	Sit-to-stand	Twice a day	Add 3 - 5 repetitions per session per week up to 15 reps/session
	Two legged standing	Twice a day	30 seconds each side
AT THIS TIME YOU WILL NEED TO MAKE AN APPOINTMENT FOR A FOLLOW UP X-RAY TO ASSESS BONE HEALING. YOUR VETERINARIAN WILL INFORM YOU IF YOU ARE OKAY TO PROGRESS TO THE FOLLOWING ACTIVITIES:			
Weeks 8 – 12 post op	Activities can be continued as above with the addition of any of the following		
	Off leash activity	Daily	20 minutes working up TO 60 minutes
	Tug	Daily	5 minutes
	Swimming	Daily	5 minutes working up to 20 minutes over several weeks

ADDITIONAL RECOMMENDATIONS FOR LONG TERM JOINT HEALTH AND QUALITY OF LIFE

1. **Weight Management:** The **number one way** that you can extend the lifespan and quality of your pet's life is by maintaining a lean and fit body condition. Studies show that dogs that are maintained at an ideal weight for them will likely live 15% longer than dogs that are overfed. This translates to 2 years longer in a dog the size of a Labrador Retriever. We use a body condition scoring system that scores your pet out of 9 points where 5 out of 9 is ideal. A copy of this chart is included in this package. If your dog has a body condition score above 6, it is strongly recommended that you feed your dog a weight management diet. Increased body mass significantly increases your dog's risk of developing osteoarthritis.
2. **Joint Health:** We have stabilized your dog's stifle (knee) with this surgery but with any injury to a joint, there is an increased chance of developing osteoarthritis. Osteoarthritis develops over time with inflammation in joints and leads to the formation of osteophytes (bone spurs) around the joint, which can cause pain. There are a couple of ways to supplement your dog to provide the "building blocks" for preserving cartilage and increasing joint lubrication, shock absorption, and mobility:

- a. **Disease Modifying Osteoarthritis Drug:** Cartrophen VET is of plant origin and is administered as a series of subcutaneous injections (under the skin). The protocol is one injection weekly for 4 weeks and then once a month for maintenance.

- b. **Oral joint supplements:** These "Nutraceuticals" given orally as a tablet or powder on their food. There are many choices of joint supplements on the market. We recommend one that is formulated for dogs for best absorption, effect, and palatability.



- c. **Joint Mobility Prescription Diets:** We recommend a food that is specifically formulated to maintain joint health. Purina and Hill's have put significant research into their joint mobility diets and are highly recommended by our Veterinary team.

Both diets have moderate protein to maintain lean body mass, high levels of omega 3 fatty acids, and natural sources of Glucosamine and Chondroitin.

Note: If your dog has a Body Condition Score of 7/9 or higher, we recommend a weight management diet to reduce your pet's weight first and then switch to a joint mobility diet.



ADDITIONAL RECOMMENDATIONS FOR LONG TERM JOINT HEALTH AND QUALITY OF LIFE

- 3. Omega 3 Fatty Acids:** Research is showing that omega-3 fatty acids, especially EPA, may be helpful in reducing the inflammation associated with arthritis. You may supplement these separately or choose one of the above joint mobility diets which have superior levels.
- 4. Life-long physical fitness:** Physical activity is important for your dog's overall health and wellbeing. Dogs with regular physical activity live longer, healthier lives and have less behaviour problems.



SPECIAL CASES

We perform the TPLO surgery on a variety of dogs at different life stages. For most young healthy dogs, this program will be sufficient to get them back to the activity level they were at prior to their injury and surgery. Others may have other physical challenges and pre-existing conditions to deal with as they recover such as:

- **Osteoarthritis**
- **Bilateral knee surgeries**
- **Hip dysplasia**
- **Back pain**
- **Muscle pain and Myofacial Trigger Points**
- **Chronic pain and muscle weakness**
- **Obesity (BCS >7/9)**

For these special cases, a consultation can be arranged with our Certified Canine Rehabilitation Practitioner (CCRP), Penny Radostits. Penny will work with our doctors to find the right combination of pain management pharmaceuticals and physical modalities (therapeutic laser, massage, Chiropractic, targeted exercises, etc) to help your pet's recovery and restore mobility and quality of life.

After 12 weeks...

By now, your dog's repaired tibia should be healed completely as long as there have been no post-operative complications. Although the bone may have healed, there is still plenty of conditioning required for the muscles and tissues that support the knee joint. As a rule, it takes 2 – 4 times as long to build muscle as it does to lose it. This means that for every 1 week of inactivity leading to muscle atrophy, 2 – 4 weeks are needed to rebuild that muscle mass. It may take 6 months before your dog's hind legs have equal muscling. **Studies show that there is a 60% chance that your dog will injure the cranial cruciate ligament in the OTHER leg.** This is why it is so important to keep your dog lean and active for life. If you have any questions regarding your dog's level of fitness at this time, please discuss this with your Crestwood rehabilitation team.

NOTES: _____

GOOD LUCK!

