

Postoperative care for cranial cruciate ligament injury

(Extracapsular stabilization)

Your pet has sustained an injury to one of the major ligaments stabilizing the knee joint. The result of this type of injury is an unstable knee joint. This instability is the reason for the lameness which you have observed and will result in degenerative arthritis. Many dogs (and cats) that sustain this injury are overweight. If this is the case, weight loss is imperative. Additionally, 30-40% of patients that injure their cruciate ligament, will suffer the same injury in the opposite limb. Maintaining an optimal body weight speeds the recovery process and may reduce the potential for injury to the opposite limb.

The surgery performed used extra-articular nylon sutures (outside the joint) placed to stabilize the joint in a normal alignment (*see picture below*). Fibrous scar tissue will develop over time to enhance the stabilization. The sutures prevent abnormal motion in the joint and minimize but do not prevent the development of arthritis. Limb function is improved, but the affected joint may never be totally normal.



Sutures are removed by your veterinarian 10-14 days following surgery. The dog should not be bathed or allowed to swim until the skin sutures are removed. The incision should appear clean and dry, with skin edges well apposed and no redness or discharge from the site evident. If the patient wants to lick or chew at the surgical site an Elizabethan collar (looks like a big lampshade) may need to be applied until the sutures are removed. Licking at the skin incision does not promote healing and can encourage infection.

It is critical that the patient have enforced rest during the first 8 weeks following surgery. A small room, playpen, cage or small run should be suitable confinement. Dogs should be on a hand-held leash at all times when outside for the first 2 months following surgery. If excessive activity is allowed too soon following surgery, stabilization of the knee can be lost requiring additional surgery. Intermittent ice therapy of the surgical site during the initial 24-48 hours following surgery may help to reduce swelling and discomfort. After the initial 48 hours you should begin gentle flexion and extension (bending and straightening) of your pet's knee for 5-10 minute sessions three times daily. Continue this therapy until the dog starts to use the affected limb well.

It is not uncommon for your pet to carry the limb for two weeks following surgery. By 2-4 weeks they will usually start to touch the foot on the ground and by 6-8 weeks they usually start to bear considerable weight on the limb. After 8 weeks exercise can gradually be increased. Swimming, if possible, is excellent therapy during this stage. By 12-16 weeks your pet should have returned to normal activity. Any significant deviation from this timetable should prompt you to contact your veterinarian for a reevaluation of your pet's knee.

Unfortunately, arthritis involving the knee joint may result in some intermittent lameness or stiffness on the affected limb long term. Also, a very small proportion of dogs do have a reaction to the stabilizing suture that requires a second surgery for removal of this material. Some patients will also have subsequent damage to the meniscus (cartilage) of the knee joint following the repair that requires a second surgery to remove the damaged cartilage. With a gradual return to normal activity good function can be expected on the limb.

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 may result in failure of the procedure.

- Week 1
 - Apply an ice pack to the knee 10-15 minutes four times a day for the first 24-36 hours following surgery (if the bandage is not present). An ice slurry can be made by mixing 2 parts isopropyl alcohol to one part water in a zip lock bag and freezing. This is kept in the freezer except when in use. Use a towel between the skin and ice pack for comfort.
 - When swelling and redness have resolved (3 days postop), begin application of a warm compress (a damp towel warmed in water) to the knee for 10 minutes three times a day before performing 10 slow repetitions of range of motion (ROM) exercises.
 - ROM Exercise--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 then slowly pull the foot and push the thigh down and back into extension of the knee. Concentrate on the extension movement. Flex and extend only to your pet's comfort limit. Do not go to the point of creating pain or resentment. Following ROM, apply ice packs to the surgical site for 10 minutes
 - After the third day, begin slow leash walks of 3-5 minutes duration three times daily. Use a short leash during the walks outside when your dog must urinate or defecate.
- Weeks 2 and 3
 - Apply the warm compress and continue flexion and extension of the knee as described above. Now slowly push the foot up into full flexion of all joints; hold for 5 seconds. Slowly pull the foot and push the thigh down and back into full extension of all joints; hold for 5 seconds. Repeat this motion 10 times twice daily. Again, do not go to the point of creating pain or resentment. Follow each session with 5-10 minutes of ice packs.
 - Slow leash walks for 10 minutes 1 to 2 times a day is acceptable.
- Weeks 4 and 5
 - Sit/stand Exercise (for dogs)—Have your pet repeatedly sit and stand for *10 repetitions twice daily*. Use small treats to encourage participation. Do not push down on his/her rump. Continue 4 weeks.
 - Massage—your pet may stand or lie down. Perform both superficial skin massage & deeper muscle massage. Skin massage around the knee joint involves using your hand loosely conformed to the surface of the skin; enough pressure is applied to move the skin relative to the underlying tissues. Muscle massage of the thigh and shin involves deeper kneading and pushing of the muscles. Perform massage for *10-15 minutes twice daily for 4 weeks*.
 - Increase the slow leash walks to 20 minutes 1 to 2 times a day.
- Weeks 6 and 7
 - Active exercise-Place your pet on a short leash and have him/her walk at your side. Walk outside on even/solid footing for *30 minutes once or twice daily*. Continue 4 weeks, gradually increasing time and distance.
- Weeks 8 - 10
 - At the end of week 8, the dog should be reexamined by your veterinarian for evaluation of limb usage.
 - Increase the slow leash walks to *30-40 minutes once or twice daily*. The pace should be slow enough to ensure full weight-bearing on the affected limb.
 - Have your dog slowly climb a flight of stairs 5-10 times twice daily.
 - Jogging exercise-On a short leash, intermittently jog and walk your dog for 10 minutes twice daily. Continue 4 weeks, gradually increasing time and distance.
 - Swimming is wonderful rehabilitation exercise when performed correctly. You may allow controlled swimming after week 8. 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, this can cause serious problems in the healing phase. Do not over extend you pet; start with short excursions (5 minutes) and increase duration and frequency gradually.
- Week 11 and 12
 - Light play exercise-On a long leash; encourage playing and romping with your dog for 15 minutes twice daily. Use toys for teasing and tugging. Continue 2 weeks.
 - Healing should be complete and your dog can return to full activity by the 12th-16th week.

LONG TERM LIFESTYLE

Following the 12 week recovery period, there are no recommended limitations to their lifestyle. A gradual return to full function should occur, to allow for a smooth transition back to normal activity. If stiffness and lameness develop over time, intermittent use of anti-inflammatory medications can help improve limb function. Occasionally the implants that were placed in your dog's knee will cause irritation and lameness. If necessary, these are easily removed once complete healing has occurred. It is very common (30-40% of patients) for both knees to develop cruciate ligament tears. Prevention is difficult; the most effective thing you can do toward prevention is to maintain your pet on the thin side of normal weight.