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# SIMITRI STABLE IN STRIDE® POST-OPERATIVE CARE

As with all orthopedic procedures, post-operative care and rehabilitation are important for patient comfort and return to function. Post-operative care after Simitri Stable in Stride® surgery includes:

- Immediate post-operative care
- Rehabilitation program

## A. Immediate Post-operative care

Post operative care of the Simitri Stable in Stride® patient is similar to the care provided after other cranial cruciate ligament procedures and should include:

- Antibiotics
- Analgesics (if required) and anti-inflammatories
- Light bandage for 24 hours (bandage from toes to above incision)
- Icing to begin immediately post-operative to be repeated TID while in clinic
- Elizabethan collar 10 – 14 days
- Belly band when walking in case of fall (should not be used for support)

In general patients can be discharged the day after surgery with written home care/rehabilitation instructions. Professional animal rehabilitation can also be included into the program.

## B. Home care/rehabilitation

After implantation of the Simitri Stable in Stride® implant the stifle is immediately stable and most dogs will be weight bearing at the walk within 24 hours. Rehabilitation of the muscles of the affected limb can start immediately bearing in mind the need to allow the soft tissues to heal. Owner's should be provided with written instructions for home care and rehabilitation program and informed that it takes approximately **four months** for dogs to fully recover and that their pet **cannot be allowed any uncontrolled activity** during this healing period. The follow should be recommended:

- Kenneling when unsupervised during first 2 months
- Leash control for 4 months
- Prevention of weight gain (or supervised weight loss program if dog is obese)
- Begin rehabilitation exercises the day after surgery and gradually increase in frequency and intensity
- Discontinue exercises and contact veterinarian if there is sudden or continuous pain
- Mild intermittent lameness may occur during healing however any sudden increase in lameness or non-weight bearing should be investigated by a veterinarian

The following is the current at home rehabilitation program and recheck schedule provided to our clients after Simitri Stable in Stride® surgery, patient reassessment is recommended at 4, 8, 12 and 16 weeks prior to progressing to the next level of rehabilitation. The following can be adapted as per surgeon and rehabilitation therapist's preferences:

## Rehabilitation Program: Weeks 1 and 2

### Day 1 - 7 (Week 1)

The day your pet arrives home is a day off from rehabilitation. Your pet is permitted outside for a 5-10 minute, completely controlled leash walk as needed for relief, allowed food, water and to sleep. Ice the surgical leg (see description) as directed. Treat the following day as day 1 of the rehabilitation program. Bruising and swelling of the lower leg is normal and expected. Swelling will be at its maximum four days after the surgery and then begin to subside.

- Massage, passive motion exercises (10 repetitions) and surgical leg icing (15-20 minutes) are done two to three times daily (see description)
- Hip extension / flexion exercises (10 repetitions) are done two to three times daily (see description).
- Your pet will generally begin to bear weight on the surgical leg one to two days after surgery.
- 5-10 minute, slow, **completely leash controlled walks**, with good footing, on level ground, are encouraged up to three to four times daily for elimination (see description). Going slowly will encourage your pet to bear weight on the operated limb.
- Your pet can do stairs and cross slippery surfaces under control with belly band support. (see description)
- When unsupervised, your pet must wear the Elizabethan collar until suture/staple removal.
- **When unsupervised your pet must be confined to a suitable kennel, or a small room. (see description)**
- Give all medications as directed.

### Day 7 – 14 (Week 2)

- Apply a heat pack (see description) to the outside side of the knee joint (see description) prior to muscle massage and passive motion exercises.
- Continue all passive motion exercises as described for Day 1 to 7. **Increase to 15 repetitions.**
- 10-15 minute, slow, **completely controlled leash walks**, with good footing, on level ground is encouraged three to six times daily for elimination (see description).
- Your pet can navigate stairs under leash control without belly band support; however continue to use the belly band when crossing slippery surfaces.
- When unsupervised, your pet must wear the Elizabethan collar until suture/staple removal.
- Ice packs can be used on the surgical leg after exercise sessions
- When unsupervised your pet must be confined to a suitable kennel, or a small room. (see description)
- Give anti-inflammatory medications (NSAID's and nutraceuticals) as directed.
- **Skin staples can generally be removed between 10-14 days after surgery.**
- **Underwater treadmill exercises can begin after staple removal.**

## Rehabilitation Program: Weeks 3 to 8

### Weeks 3 – 4

- Your pet no longer needs to be kenneled when unsupervised but must still be confined to an enclosed area that has good footing and prevents uncontrolled exercise or vigorous play with other pets.
- Belly band support is no longer required.
- Heat, massage, passive motion exercises and icing can be reduced to twice daily.
- **Controlled leash walks** on level ground with good footing can increase to 20-30 minutes three to six times daily (see description).
- Hip extension exercises (15 repetitions are performed twice daily).
- Swimming, or water walking exercises can begin (see description)
- Sit to stand exercises should begin on the 14th. day after surgery (see description)
- Continue giving anti-inflammatory medications (NSAID's and nutraceuticals) as directed.

### Weeks 4 – 8

- **A four week postoperative assessment is needed to assess your pet's progress before progressing to the next level of rehabilitation.**
- Hip extension / flexion exercises (15 repetitions are performed twice daily).
- Swimming, or water walking exercises can continue (see description)
- Unlimited leash controlled walks of 30 minutes or more, with good footing, on level ground are permitted. At this time another dog can be brought along for company. (see controlled walks description)
- **Completely controlled leash walks** on hills can begin (see description).
- Ten sit to stand exercises daily (see description).
- Heat, massage, passive motion, hip extension exercises and icing can be decreased to twice per day.
- When unsupervised continue to confine your pet to a small enclosed area (see description)
- Continue giving anti-inflammatory medications (NSAID) as directed.

**Remember hip flexor injuries can occur at any time. They are most common 4-12 weeks after surgery. They coincide with your pet's increase in activity. Clinically your pet will hold its leg up quite high. If you suspect there is an issue, contact your veterinarian for advice.**

## Rehabilitation Program: Weeks 8-16

### Week 8-12

- **An eight week postoperative assessment is needed to assess your pet's progress before proceeding to the next level of rehabilitation.**
- Continue to monitor your pet's comfort with the frequency and intensity of exercise. Slowly increase frequency and duration of **completely controlled leash walks** on both level ground and hills. Always ensure good footing.
- Hip extension / flexion exercises
- Swimming, or water walking exercises can continue (see description)
- Ten sit to stand exercises daily (see description).
- Passive motion exercises, heat and ice can be discontinued.
- Decrease the dosage of NSAID's and nutraceuticals as directed by your veterinarian.

Should your pet experience any pain or discomfort with this increase in exercise, discontinue the exercise and contact your veterinarian as soon as practical

### Week 12-16

- **A twelve week postoperative assessment is needed. A thorough discussion of long term NSAID usage and the program to return to full function over the next month will be covered.**
- Decrease the dosage of NSAID's to the 10 kilogram dose. A combination of low dose NSAID's and nutraceuticals can be extremely helpful in limiting the progression of degenerative joint disease.
- Hip extension / flexion exercises (15 repetitions) can be decreased to once daily.
- Swimming, or water walking exercises can continue (see description)
- **Supervised controlled off leash activity in an enclosed space can be initiated** (see description). This activity will increase in duration and intensity over the next 1-2 months.
- **A final sixteen week postoperative assessment is needed to discuss long term NSAID usage and the time frame for return to full function.**

**If you have any concerns at all about your pet's recovery. Please do not hesitate to contact your veterinarian as soon as practical.**

## Rehabilitation Descriptions:

**Kennel rest/confinement:** For the first two months after surgery, your pet must be confined to a suitably sized kennel when your pet is unsupervised. That means anytime you are unable to completely control your pet's activity (i.e. sleeping, eating, working, using the washroom, or when away from the home). The kennel must be large enough for your pet to stand up turn around and lie down without significantly touching the sides. If your pet has an aversion to being in a kennel, or is simply too large, please discuss this with your veterinarian so a suitable and safe alternative can be arranged. After two months your pet can be confined to an enclosed space such as a small room, with good footing, no stairs and no other pets. If you are unsure of the suitability of the space please discuss this with your veterinarian.

**Belly Band support:** A belly band is a sling that is placed in front of the back legs and hangs 1-2 inches (2-5 cm.) below the level of the belly. **The belly band should normally not touch your pet's belly.** It is only to be used as a method of supporting your dog's body weight in the event of a fall. This is especially important when ascending or descending stairs and when walking across slippery surfaces. The belly band can be as simple as a thin towel. Commercial support products are available. It is generally only needed for the first week after surgery.

**Muscle massage:** Gently, but firmly massage the muscles of the entire surgical leg for 5-10 minutes. Begin at the toes of the foot and move up the leg, be sure to include the muscles of the hip and lower back. This is done before the passive motion exercises. It helps to warm up the muscles and most dogs generally love it. Remember the muscles and joints of our legs are the same as theirs. However, if you are unsure where these muscles are or how to do the massage properly, do not hesitate to ask for assistance and instructions. Take your time and don't be afraid, you cannot cause any damage. Until the surgical staples are removed, stay away from the incision.

**Passive motion:** Passive motion exercises should be done after the muscle massage. These exercises consist of the gentle flexing and extending of all the joints of the surgical leg. These exercises help increase the range of motion of each joint. Begin at the toes of the foot and move up the leg to include the ankle, knee and especially the hip. The muscles of the hip always tighten secondary to knee injuries. As you work on each joint, extend and flex the joint as far as possible, with your pet remaining comfortable. If possible, as you reach full extension and flexion, hold the joint in position for 3-5 seconds and release. Go very slowly, be gentle but firm, and as you progress don't be afraid to ask for just a little more.

**Icing process:** This is particularly important for the first 7 days after the surgery. An ice pack, or a frozen bag of peas placed in a pillow case can be applied directly to and wrapped around the outside of the knee joint. **Keep the ice pack away from the incision line until the sutures/staples are removed.** If your pet will allow, ice packs should be left in place for 15-20 minutes. The icing process should be done two to three times a day and should always be done after the passive motion exercises. It dramatically helps control inflammation and swelling.

## Rehabilitation Descriptions:

**Heat pack:** A heat pack is applied to the outside of the affected knee joint and to the hip joint for 10 minutes prior to the muscle massage and passive motion exercises. **For the hip joint, the heat starts on the second day after surgery. For the knee joint, the heat starts on the eight day after surgery.** This warms up the area, increases blood flow and makes the muscles and soft tissues more pliable. There are commercial products available such as wheat bags and reusable gel packs. **Be very cautious with this process to prevent burns.** Make sure the pack is warm and not too hot (depending on the product you may have to wrap the heat pack in a towel before applying). Check it against your own skin; if it is too hot for you, then it is too hot for your pet. **Never leave a pet unattended with a heat pack in place.** Electric heat pads are generally too hot for pets.

**Hip extension / flexion exercises:** While rehabilitation of the knee joint is our primary concern, the restoration of normal range of motion of the hip joint is equally as important. Due to the chronic nature of stifle (knee) injuries, hip flexure and extensor muscles undergo significant contracture (shortening) and as a result postoperative injuries to these muscles are very common. They are characterized by the patient holding the limb several inches off the ground. Hip rehabilitation exercises greatly reduce their incidence and severity. There are two exercises we will have you perform. Resistance pulls and hind limb extension / flexions. For the **resistance pulls**; one person sits behind the dog and places their hands around the front of each thigh (femur) at about the halfway mark, an assistant stands or sits in front and out of reach of the pet and asks the pet to move towards them (treats help). The person holding the thighs resists this movement for 3-5 seconds and then slowly releases. This very gently stretches out both hips simultaneously. For the **hind limb extension / flexion exercises**, have your dog either stand up or lay on its side with the surgical leg on top. Use your heat pack (see description) to warm up the hip muscles. Perform a thorough massage of the hip and lower back musculature. If you are unsure exactly where these muscles are located, please call and ask for assistance and a description of the technique. Once the hip has been warmed and massaged, gently grasp the surgical leg about midway up the thigh (femur). Gently push the surgical leg forward. This flexes the hip, hold for 3-5 seconds and release. Repeat the hip flexion process 5-10 times per session. The same process can be repeated for the hip extensions. Instead of pushing the leg forward, it is now pulled backwards. This will stretch the muscles of the hip. As you pull backwards your pet will begin to resist, when that occurs hold the leg in the extended position. Once your pet begins to relax, extend the leg a little more, hold for 3-5 seconds and then slowly release. Repeat the hip extension process 5-10 times per session. Regardless of the technique used, remember these muscles are always tight. Go slowly it may take several weeks for the hip muscles to fully loosen.

**Swimming / water walking exercises:** After suture/staple removal, if the opportunity arises and your pet enjoys the water, aquatic therapy is excellent for your pet's recovery. Water allows your pet to use the surgical limb with a significantly reduced weight load. Ensure there is safe access for both you and your pet. Pet flotation devices are available. Have your pet walk or swim for 5-10 minutes initially and gradually increase to 20 minutes. No explosive activity is allowed. No stick throwing.

## Rehabilitation Descriptions:

**Sit to stand exercises:** These should begin on day 14 after surgery. Initially, 5 daily and with each passing week increase by an additional 5. At the six week mark you should be at 120 daily. Prior to this exercise you should warm up your dogs legs with a 5 minute figure of '8' pattern walk. Once warm, have your pet sit squarely, hold for a few seconds and then ask your pet to stand. **It is critically important that your pet sits as squarely as possible.** There are two methods to help your pet sit squarely. The first method involves you kneeling down or sitting directly behind your dog with you dog facing away from you. Have a leg on either side of the dog. Give the command to sit. If you notice as your pet sits that the surgical leg is moving out to the side, gently push it back underneath. The second method is to have your pet sit with the surgical leg next to a wall. As the dog sits, the wall prevents the surgical leg from moving away from underneath the body. In the early days your pet may not be able to perform this exercise properly. Go slowly it may take two to three weeks for your pet to start sitting normally.

**Completely controlled leash walks:** These are leash walks that are meant to have your pet use its leg as soon as possible. Your pet should be comfortable throughout this process. Initially the walks should be very slow and always done on good footing. The slow pace will encourage your pet to bear weight on the surgical leg. As things progress, allow your pet to choose the walking pace. If possible have your dog walk on your left side one day and your right side the next day. This allows the dog to bear the majority of the body weight on the surgical leg one day and gives the leg a rest the next day. If your pet resists switching sides, and some do, then walk your dog in a figure "8" pattern changing direction each day. This is very important, as it encourages your pet to use the surgical leg. Four weeks after surgery, going with another dog is also very helpful. It stimulates your dog mentally and gives them something else to focus on. Please ensure that the dogs are compatible and can both be easily kept under control.

**Supervised controlled off leash activity in an enclosed space:** Controlled off leash activity allows your pet the freedom to move at its own pace. You are able to initiate some play at this time. Go slowly at first. Ensure that there is good footing. Remember your pet should remain completely comfortable and controlled during this activity. No other pets are allowed to participate in off leash activity until after the twelve week period.

**Uncontrolled activity:** This includes any off leash, unsanctioned, or unsupervised activity regardless of the location or duration. Your pet must remain under complete control for the first four months.

**Medications:** Pain control medications such as tramadol are generally only needed for the first 2-3 days. Antibiotics are generally given for the first 3 days. Non-steroidal anti-inflammatories (NSAID's) are given at full lean body weight dose for the first 8 weeks and then will be tapered on the advice of your veterinarian. Nutraceuticals can work in conjunction with NSAID's in modifying joint inflammation. Unfortunately the injury your pet has sustained will cause some degree of degenerative joint disease (arthritis). Long term, low dose treatment may be necessary to slow this process. Please refer to the "Long term NSAID usage" handout provided.

## **Minor Complications:**

**Edema:** Swelling at or below the surgical site is called edema. It is usually seen during the first three to five days after surgery. It is often most visible around the ankle area. It is completely normal and fully expected. It will resolve by itself. The icing process, massage and passive motion exercises will all help to resolve edema. **If it does not resolve by the 7<sup>th</sup> day after surgery, contact you veterinarian for advice.**

**Seroma:** This is a fluid swelling at the surgical site. If it occurs, it will be located on the inside of the joint and over the implant. It may be several centimeters in diameter. It is often an indication that the patient has been licking the incision, or is being either too active or far more commonly, not active enough. It will always resolve by itself. **Under no circumstances should a seroma ever be drained.** The icing process, massage, passive motion exercises and controlled leash walking are all critical in minimizing seroma formation and are also very helpful in resolving this situation. **If a seroma occurs, contact you veterinarian for advice.**

**Surgical site redness:** This is almost always a result of the dog licking at the incision. It is very important to allow the skin to heal. **Licking, of any amount, is the number one cause of post-operative incisional inflammation, infection, skin ulceration and seroma formation.**

**Infections can be devastating. Skin ulceration will cause a delay in rehabilitation. Do not permit your pet any access to the incision until the staples are removed.** Please keep the Elizabethan cone on when needed to prevent licking and allow the incision to heal, especially when you cannot directly supervise your pet. Do not put any creams or ointments on the incision unless directed by a veterinarian.

**Hip Flexor injuries:** These can occur at any time during the first four months of the recovery process. The injury is characterized by significant pain on extension of the hip and reluctance to use the affected limb. The pet will almost always carry the affected limb flexed and held completely off the ground. If you suspect this injury has occurred, contact your veterinarian immediately for Advice.