Post-operative Information: Radius Fracture (External Fixation)

Your pet has had a fracture of the radius and/or ulna (i.e. broken forearm) repaired with a system called an External Fixator. This consist of threaded metal pins that are surgically attached to the radius 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; it is generally unnecessary to put implants on the ulna, since this is a thin, non-weight bearing bone. 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.

ACTIVITY RESTRICTION x 8 weeks

- Please keep your pet in a comfortable, safe indoor location with no free access to stairs for the next 24-48 hours as he/she recovers from anesthesia and surgery. Your pet may be groggy for the first 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 veterinarian for assistance with medication adjustments or return for exam & additional pain medications as needed.

- Confine your pet to one level/section of the house on carpeted floors. Use baby gates, etc. to prevent access to slippery floors or stairs. Do not allow jumping on/off furniture. Confine to a small area/room/crate when unattended. Please do not allow any playing, running, jumping. For dogs, use a short leash when going outside to urinate/defecate.

- 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.

INCISION CARE

- 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. *Problems to call your veterinarian about*: persistent pus-like discharge, pink/fleshy tissue growing out of pin tracts, pins that move.

- 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 often suffer from inflammation (and signs listed above) due to the motion in these areas; careful attention to bandaging in these areas is important.

- Do not allow your pet to lick or chew the incision or bandages as this can compromise the incision and predispose to infection. If necessary, please use an E-collar if you must leave your pet unattended. A large, tube sock with the toes cut off can also be pulled up over the apparatus to prevent self-trauma and bandage destruction.

BANDAGE CARE AND TECHNIQUE

- The goal of bandaging of external fixators is to immobilize the skin relative to the pins; if the pins rub back and forth on the skin, the tracts will become inflamed and pin loosening can occur.

- 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.

  (<u>If provided/available</u>, 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.)

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.
- Return to your veterinarian in 10-14 days for a progress exam. Skin healing and leg function will be evaluated, sutures will be removed, and any physical therapy questions 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.

PHYSICAL THERAPY REGIMEN

(We can also recommend professional physical therapy assistance in the Twin Cities. Studies have shown that a formal program can decrease post-operative recovery time. Please let your veterinarian know if you are interested in a referral.)

- 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.

- *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 forearm. 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. *Focus on the wrist.* Repeat this motion 15-20 times twice daily. This exercise should not be performed to the point of pain or resentment. Continue 4 weeks.

- *Week 3*: Massage-- Have your pet lie on his/her good side. Perform both superficial skin massage and deeper muscle massage. Skin massage around the forearm 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 forearm and upper limb 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, 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.