

Broken Leg Greyhounds

The following is an informal guide to the care of post surgical greyhounds. The author has had 15 years experience in direct contact with greyhound injuries, post surgical care, rehabilitation and management of complications.

The decision for an adoption group to take on these special needs dogs should not be taken lightly and medical follow-up is essential to the successful outcome of any surgery. While this guide may seem to downplay the role of the surgeon, the two groups, both the surgeon and rehabilitator, need to work in conjunction towards 100% recovery.

The BREAK

While we think of broken legs as a truly broken bone, this is not always the case when we refer to greyhounds. Most cases of “broken legs” in racing greyhounds are in fact, hock dislocations or fractures of the small bones that make up the hock.

The general consensus seems to be that there is a “10 day window” in which the repair should be made. Later than that, the bone will start healing even if bones are out of their normal alignment.

Front leg, radius/ulna fractures are much less common but can occur especially during a collision and fall during a race. These breaks are extremely painful for most dogs in the first 24 hours but they heal up faster than a fracture or dislocation of the hock. Also uncommon are the Tibia/fibula fracture, which can occur in the rear leg.

The Mechanics of Repair

The veterinarians who are responsible for the repair of these breaks may or may not be orthopedic specialists. Many vets who are not orthopedic specialists and have not gone through this extensive training are fully capable and qualified to accomplish these repairs. With the most common types of racing greyhound injuries that occur during a race, there are 3 major types of surgical repairs. These require hardware such as plates, pins and screws.

Some other techniques are “figure 8” wires and “type 2” fixtures (Fix-a-TOUR). The “type 2” fixture are external mechanical devices that are much less frequently used. A more complicated break may use one or more of the above methods for a proper repair. Some less severe fractures only require casting and additional healing time.

Plates: Stainless steel plates used with stainless steel screws are usually 3 to 5 inches long. They are usually measured by the amount of screw holes. (i.e., 8-hole plate, 12-hole plate) These plates are placed directly on the bone and a repair such as an arthrodesis or fusing of the joints may occur.

Pins: Pinning is a surgical repair utilizing long stainless steel rods or “pins”. A hole is drilled thru the bone and a pin is placed down the shaft. This provides added strength to the bone until the fracture site is healed.

Screws: Screws are used to simply put small fracture fragment(s) back into it's normal position. Screws are also used to secure the plates to the bone.

Figure 8 Wires: Just as it sounds, “Figure 8” wiring is a surgical repair technique using a wire wrapped around 2 screws to repair the fracture. This is usually done when the break is in a bad position and a plate can not be used.

Type 2 Fixatures: This type of repair uses internal/external screws and outside rod(s) to stabilize the break. The “halo” used on a human is an example of a type 2 fixature.

The Casting, Rehab and Follow-up

Although great skill and care is required to repair the actual break, the follow-up and aftercare of a greyhound with a broken leg will be much more work.

Due to the nature of the greyhound's body, the size of the surgical plate, and the manipulation of the skin, tendons and bone, moderate to severe swelling and edema will occur in approximately 40% of the cases of surgical repair. This rate is considered **normal** in greyhounds. Depending on the severity of the swelling, the incision may break open exposing the plate underneath. If this should happen, hot soaks and daily rewraps of a “Robert Jones” bandage (using a spoon or hard splint) will be needed.

Fortunately, not every greyhound will need surgical repair and some do very well with casting or splinting only. This is determined through examination and x-ray to see how many of the smaller bones are displaced. Unfortunately, fracture repair is not a perfect science. Even with the best care from the vet and after care from the group, some repairs will not turn out as expected and the limb may appear crooked. In these cases, the results are usually cosmetic only and the dog will have fairly good function with the leg. Follow-up surgery for merely cosmetic reasons should not be undertaken.

One of the prime rules to remember is that every broken leg dog must be evaluated separately and each may require a different means of repair and recuperation.

With surgical cases, every greyhound will need to be placed on antibiotics such as Clavamox, Clindamycin, Baytril and the newer antibiotics such as Zeniquin or Levaquin.

Baytril, although a very good antibiotic for the past 12 years, has been overused and some strains of bacteria are becoming resistant to this drug.

In most cases, full recovery will take 6 months to a year before a greyhound should have full run of a backyard. Until then, leash walking is recommended. This recovery time depends on the severity of the break.

The Start

The toes are the best way to tell if a greyhound is going to have a swelling problem so it is most important to have a soft cast that keeps the toes visible. Hard casting is not recommended for a greyhound because of frequent cast changes that would have to be done if swelling should occur.

Unless there are medical complications with your greyhound's surgery, he or she can come home the next day after surgery. It is important that they receive antibiotics. Make sure that you observe the leg and toes and look for any swelling.

First, one must determine if the incision on the dog's leg is going to remain closed and heal well without the intervention of having to hot soak the leg. Unwrapping and re-bandaging of the leg should be done in the first few days. Manual observation will tell if the incision site looks healthy and healing. A leg that is healing well and has a minimum of swelling will probably not have to be soaked.

At any time during the healing process, if the toes are swollen or there appears to be an odor, you **MUST** un-wrap the leg. Should the swelling cause the incision site to open up, hot soaks should be done daily to every other day. Instead of the normal medical routine, hot packs to the leg **ARE** recommended in these cases.

The Hot Soak

What you will need is a large thick bucket that will hold approximately 1 to 1-1/2 gallons of tepid water. The water should be very warm but not so hot as to scald. To that, add a squirt of iodine - just enough to disinfect the water (usually 1 to 2 teaspoons). Too much iodine will irritate the wound and slow the healing process. The water will look like very weak tea.

Contrary to what you might think, scabbing over of the wound should be avoided. What we are trying to acquire is granulation tissue. Granulation tissue has a certain appearance that once seen, can be readily recognized. Pale pink in color, it also has the appearance of bumps or granules in the flesh. The flesh is the meaty part of the tissue under the skin. Good granulation tissue will have the appearance of dark raw chicken meat rather than raw beef.

Using a large rag, soak the dog's leg for 10 to 15 minutes. When the rag has cooled, warm it back up in the bucket of water and place back on the leg. After placing the wet rag onto the leg, if you wrap a plasticized potty pad or bag around it, the heat will retain longer. Repeat as necessary to provide optimum heat and soak time. If there is swelling present, you may want to massage the leg in an upward motion. This will move the edema or fluid that has gravitated to the toes up the leg and help control any additional swelling. If you are dealing with an open wound, such as exposure of the plate, not only is the hot soak method recommended but it is **essential** for healing. It is also quite common for fluid to leak out from around the opening of the wound. Massaging will also help in accomplishing this. The use of a "potty pad" or plastic sheet under the leg is recommended and it will also keep your work field clean.

Depending on the swelling and the size of the wound opening, hot soaks should be done every day to every other day. Once you get a feel for the wounds you are working on, you will begin to know how often it should be done.

*Keep your area and supplies clean and sanitized by using a 10% solution of bleach (1 part bleach to 10 parts water) on the buckets, rags, and pads.

The Wrap

Wrapping broken legs is easy and only requires keeping a few supplies on hand. We will point out many shortcuts to the normal medical methods of wrapping as most groups are working on shoestring budgets and need to make the most of every dollar spent.

You will need first aid cotton (which is available in one pound rolls) or some groups have used leftover cotton batting from sewing projects. The latter can be washed and cleaned with bleach and can be used over and over. We have also had luck with using cotton batting that is used in horse wraps. This also may be available at your local farm store.

These are the padding part of the cast. You will also need rolled gauze (4" size is best to use) and some type of top wrap such as Vet wrap or Ace type bandages. For a greyhound that needs daily or twice daily soaks, Ace bandages are best to use so that supplies are not wasted. The end of an Ace bandage can be secured with yes, A loop of Duct tape!

The hardware of this "Robert Jones" bandaging system is a spoon splint supplied by your veterinarian or long plastic shaft which supplies the support to this splint. We have had dogs chew or break this spoon splint and we've had to resort to making splints from 2" PVC plumbing pipe. A 2" pipe can be split into thirds to make the proper radius. Make sure to grind rough edges and use enough padding.

Robert Jones Bandage: A "Robert Jones" bandage is comprised of a splint approximately 6" to 8" long used with padding (First Aid Cotton), rolled gauze and vet wrap or ace bandages.

Once the leg is soaked and dried, you are ready to wrap. Lay the dog on their side on a comfy sofa or raised dog bed. The more comfortable they are, the less likely it is for them to squirm. Having a “second hand” there just to pet and hold the dog is a good idea.

If there is an open wound, a coverlet or telfa pad is used. One of the best coverlets or wound dressings that we use is a sanitary napkin. Sanitary napkins with dry weave and anti leak plastic on one side are very useful. These are clean, dry, individually wrapped, rarely stick to the wound and very absorbent. These are perfect for the purpose we are using them for.

To prepare the wound before wrapping, a few different preparations can be used for coating or treating the wound. If the wound is healing well and there are no dead tissues, simply use a triple antibiotic. (Neosporin or it’s generic) Use liberally as a topical agent.

A mastitis cream found at your local farm store can also be used and infused into the wound areas and under healing tissue if need be. Amoximast (mastitis ointment) is an example of a mastitis ointment. These are usually more liquefied than a triple antibiotic and can be used in place of a Neosporin.

When dealing with an ugly wound with dead tissues or if the wound looks rough and angry with ragged edges, you can use Granulex, Trypzyme or Metazyme. These are necrotic sprays that “eat” dead skin cells. Necrotic sprays or ointments are best to use when dead skin is present (black in color) or if the wound looks rough or angry. These are particularly used early in the wound care process if swelling has broken open the incision. When the healthy pink granulation tissue comes in and you no longer see ugly red tissue, then discontinue the use of the necrotic spray and switch to antibiotic cream or ointment.

IMPORTANT POINT: When the granulation has started and the wound, though open, has clean edges and looks healthy, use of an antibiotic salve or ointment is then required.

EMT gel is not recommended on the larger wounds as it tends to heal the skin too fast without letting the flesh granulate first. **DO NOT USE ANY CREAM OR OINTMENT THAT CONTAINS Cortisones** such as PANALOG or Hydrocortisone. Cortisones slow down the healing process considerably. The use of an oral cortisone such as prednisone will also severely delay fracture healing.

AT NO TIME SHOULD HYDROGEN PEROXIDE BE USED ON ANY OPEN WOUND! Hydrogen Peroxide damages living skin cells. We are trying to GROW skin when covering a wound.

If there is no open wound, padding can be used alone without any pad or coverlet. How much absorbent material and padding will depend on the drainage of the wound if one is present. Select a wad of first aid cotton approximately 10” X 10” square. First aid cotton

is easy to pull and reshape. Place the cotton and wrap around the leg. You may also choose to use the cotton batting for padding. Wrap as many layers as needed to achieve a 1" UNIFORM thickness. If an open wound is present, a sanitary napkin is perfect to use. For an open wound that tends to drain a lot, this will "wick" the fluids away from the body. These will also trap the fluids within the pad, keeping the wound cleaner. Place pad or gauze pad directly on the area after treating the wound.

Using rolled gauze, firmly wrap the entire materials up carefully, making sure not to have any light or tight areas in the wrapping.

A "light on cotton" (not enough padding) would be an area that does not have enough cotton, whereas you can just tear off more cotton from your stock and add it to your casting material. A "tight on skin" area would be a portion of the rolled gauze that would come in direct contact with the skin. The rolled gauze should not do this as it tends to bind or tighten on the skin after time. This may happen especially at the top of the cast or near the toes. Always expose the toes during your wrap and never cover them as they will be your gauge to how tight your wrap is. It is most important to have a uniform thickness of cotton and a uniform tension in the wrap.

Your cast padding and gauze should extend past the calcaneus or "Heel" of the greyhound by 2" to 4" if you are wrapping a rear hock.

Weird Fact: Racing Greyhounds break their right rear leg almost all the time. In an informal count, almost 95% of all track injuries are right rear.

Wrapping past the heel will lock in the cast. Stirrups or strips of stabilizing tape will NOT need to be used. The use of tape directly on the skin tends to irritate the skin and promote swelling down into the toes but not back up the leg.

Now it is time for the splint placement and final wrap of Ace bandage or vet wrap, using care to make sure your final wrapping is not too tight. An over-tightening of this final overwrap will actually cause severe swelling and possible damage to the circulation of the foot, toes or leg. Using a firm grip, pull out approximately 6" of vet wrap and place on the rolled gauze. Make one pass around the leg before placing the splint on. In doing this, you will also help the splint to have a non slip surface to cling to. Place the splint on the back of the hock extending 1" past the toes. Many splints may have a rounded edge and this should be placed at the bottom, nearest the toes.

Now start wrapping the vet wrap but this is a "pull as you go" process. Pull out approximately 6" of wrap and stretch slightly while wrapping around the leg. One to two layers of vet wrap should be sufficient. Make sure you have no "tight" areas that will rub against the skin. Vet wrap has this magical self-tightening property that can be wonderful yet potentially dangerous. Now is the true test.

Allow your dog to get up and walk. If they normally have been placing their weight on the leg or foot, they should be doing so now. If you have a successful wrap, you should hear a click of the splint on the floor when the dog walks on it. Over the next hour, make sure there is no added swelling in the toes. The dog should be comfortable and not pick or pester at the wrap. If you should see additional swelling within the first few hours, simply un-wrap and rewrap the vet wrap. This should do the trick.

Have no fear, this all may sound very complicated but soon, with a few wraps under your belt, it will become much easier and you will get a feel for the proper wrapping procedure.

The Complications

Besides swelling, some of the other complications are infection (change antibiotic or use an “antibiotic cocktail”), loss of skin, or direct intervention (dog chewing on cast). If the latter should be the case, use of a racing or kennel muzzle with a stool guard (poop cup) is the best option. If a stool guard is not available, simply use duct tape to wrap the entire front of the plastic muzzle. As long as the greyhound has a small bucket of water, don’t worry, they can drink. After all, they have worn these muzzles for their entire adult life and are much more comfortable with them than we are. An “Elizabethan Collar”, the standard veterinary solution tends to just frustrate your greyhound as well as make them look very, very silly. There will be plenty of time to make your greyhound look silly later.

If your greyhound does not want to use the leg, physical therapy will have to be done starting about the 6th week.

At any time during the healing process, if the open wound you are dealing with does not appear to be making forward progress, professional advice should be consulted. The wound should be improving if not every day, then in a three day span. Healing “stand still” (no forward progress but not looking worse either) is common. Just keep at it and be patient.

Pay attention to your dog and their reaction to the bandage. If it has been a few days since their last bandage change and they start to pester the leg, this is usually a sign of discomfort and you should remove the bandage, hot soak and redress it.

Swelling is common in greyhounds but downward or what I call angular swelling is quite common too. This type of swelling is recognized by the pattern of edema in a “pooling fashion. This happens when a wound is higher up on the body but the edema “pools” or collects lower sometimes as far as the toes. We had a greyhound that had knee surgery. Edema occurred in the foot, nowhere near the surgery site. Although ice packs are recommended occasionally for swelling in the first 48 hours for the incision site, hot packs and massage are recommended for off site edema or swelling.

Occasionally, a sequestrum or bone chip may migrate and actually come out of an open wound. This does not happen often but I never seem to get use to it. These chips are not essential to the healing process and are “spare parts” therefore just remove it and don’t worry about it.

Buried stitches tend to irritate the wound and can be removed if they are not holding good skin or flesh together. Your greyhound will be incredibly co-operative with you as you poke and prod. A painful greyhound is sometimes a sign that there is something wrong. Observation is the key to proper healing.

A bad smell from the bandage or the wound is a warning that something is NOT RIGHT. A sour or putrid smell coming from the cast is a sign of infection. Hot soak the leg until the smell is no longer detected but if it persists despite cleansing, professional vet help should be sought.

With longer surgical procedures, a spay or neuter and dental at the same time is not recommended. A waiting time of a minimum of 2 weeks between these procedures **is recommended**. This allows the greyhound to fully recover from the stress of anesthesia and the extra effort the body will need to utilize for the fracture repair process.

The Rehabilitation

The rehab process should not be started until the wounds have healed and usually start after week 6. Six weeks is the standard time in which the bone has healed and the bone “knitting” process has occurred. There are a few graduated methods of rehab with greyhounds and most tend to tolerate these very well.

Slow Walking is a low impact method of therapy and just as it sounds, it is simply walking the greyhound slow, very slowly. At a snails pace, walk your dog on a leash for about 15 minutes. The very slow pace will encourage your grey to place more weight on the affected foot.

The Raise and Hold method can be used inside, even while you and your greyhound watch TV together. Have a seat in a chair and while your dog stands in front of you, simply support their chest and raise their weight off the floor. This will make them put all their weight on one back foot but will eventually make them put weight on the affected foot. This therapy should be done in graduated time intervals starting with just a few minutes and extending to several minutes. This depends how long the dog will tolerate this therapy.

Wheelbarreling uses the above technique but involves pushing the dog backwards while holding the weight of the dog in the front quarters. These two techniques will only be effective when used on greyhounds that have rear broken legs.

Alternative foot therapy works by the method of encouraging use of the “bad (broken) leg” while discouraging use of the “good (non broken) leg”. Take out the trusty vet wrap again and wrap up the toes of the UN-broken leg, making sure that the wrap is firm but not too tight. A marble or coin can be placed in the void between the toes so that it is uncomfortable for them to place weight on that foot. These results can also be achieved if you use a boot or sock. This form of therapy should only be used after the dog has completely healed and after the 4 month period.

Down the Road

Although many of the medical devices or hardware can stay in the leg indefinitely, stainless steel hardware can and will reject. Removal of this hardware should be avoided until at least the 6 month post surgical period. Six months will ensure that the bone has properly healed and the support structure is no longer needed. Signs of plate, pin or screw rejection are not only just one of the following symptoms but sometimes a combination of several of them.

These signs are:

Non-healing wound at the surgery site especially after initial healing has been done

Severe limping not responding to physical therapy

Black areas or blood blisters under the skin

Swelling or skin hot to the touch

Fever or lethargy

Sudden non use of leg

If any or several of these symptoms should occur, professional help should be sought.

Antibiotics can be tried for a 1 to 2 week trial period but if problems persist, surgery to remove surgical hardware should be done. This can be scheduled which your surgeon.

X-rays will also help determine the prospect of a new surgery to remove hardware.

Working with Your Vet

It is very important to have a good working relationship with your vet. There may be many times that questions come up that can just be answered by a quick phone call. A vet participating in adoption work will make sure you have different medications on hand for treatments and will work with you instead of telling you, “Please bring the dog in to the office” when any complications arise. You may already have some medical knowledge if you’ve been dealing with these greyhounds in an adoption setting.

The COST..... The actual cost of an 8 hole stainless steel plate is approximately \$100.00 to \$150.00. The screws that are used range from \$8.00 a piece and up. With a huge discount, we have found veterinarians that will charge \$600.00 per surgery. The retail cost, or cost to the end consumer of these types of surgeries can be upwards of \$3,000.00! You may be able to find vets who are willing to work with your group at a discounted rate.

When our vet was presented with the first case of a central tarsal fracture back in 1994, it took many weeks of begging and prodding before a surgery was ever considered. He exclaimed, "I just don't know what to do!" This dog had an old break that had already healed (badly) and needed surgical intervention. It wasn't until we tracked down a vet that had done many repairs on racing dogs and she had the knowledge to repair this old break. She was gracious enough to supply pre-surgical and post-surgical x-rays and share her knowledge on the techniques of the surgery with our vet. Dolly now was able to get the surgery she needed and what we gained was important too, a vet with an interest in fixing broken greyhound legs.

Adoption Group Responsibility

As an adoption group for retired greyhounds, we know about responsibility. What does that mean when you deal with broken legs? We have an arrangement with our vet that provides care and all follow-up on the repaired or treated broken leg dogs. They keep the costs low to the adoption group. The new adoptive family has the assurance that should there be complications such as infection or plate/pin/screw rejection, the problem will be taken care of. If your vet is willing to do the same, this will help in convincing an adoptive family to take in one of these dogs. You may set guidelines down with your vet on what may or may not be covered such as x-rays, medications and follow-up. In the long run your vet will usually pick up many new clients and many satisfied greyhound owners this way. Long term commitment is the key for any greyhound adoption group but complications past the initial healing time are infrequent.

Knowledge is Power

We have covered most but not all aspects of greyhounds with broken legs. Should your group decide to start taking in some of these greyhounds, you will experience all these problems and then some. Help is always out there. Please check the following list of contacts for people willing to help.

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