



Limb Amputations

Limb Amputation in Dogs & Cats

- Limb amputation is a surgical procedure commonly performed in dogs & cats to remove a diseased or injured limb, either front or rear.
- Dogs function exceptionally well on three legs and are able to run, walk, and play without pain or discomfort. Dogs do not suffer the psychological distress of losing a limb the same way a human does. The primary purpose of the limb is in movement. Because dogs do not need to perform fine motor skills they easily adapt to having only three legs.
- Amputation can be performed on animals of all ages and breeds. Some older animals may take a little longer to adapt to life on three legs, depending on the underlying reason for the amputation.

Indications for Limb Amputation

- **Osteosarcoma:** One of the most common indications for a limb amputation in dogs is treatment of osteosarcoma, which is the most frequently diagnosed canine bone tumor. This tumor tends to occur in large and giant breed dogs. It may occur in young dogs (12 to 18 months of age), but is more common in older animals. The most common locations are just above the carpus (wrist), the proximal humerus (just below the shoulder joint), and around the bones of the knee joint. Amputation is an excellent way to control the local disease, which is the actual tumor on the limb. Unfortunately this is a malignant tumor and it has almost always spread elsewhere by the time an amputation is performed.
- **Soft tissue sarcomas** are another type of tumor that can develop on the limbs. These tumors are malignant, but tend to be slow to spread to other parts of the body.
- They are locally aggressive (that is, they damage and invade the structures at their location). If they occur on a limb it is often difficult to get rid of the tumor in its entirety while maintaining muscles, tendons, nerves, ligaments and bone needed for normal limb function. Thus, amputation may be the surgical procedure of choice.
- In addition to surgery, radiation therapy or combinations of radiation/chemotherapy may be appropriate for certain limb tumors. Treatment options can be discussed with your veterinarian or with a surgical or oncological specialist.
- As in humans, even when money is not an issue, amputation may be the treatment of choice for limb trauma where nerve supply or blood supply is severely damaged or bone and soft tissue injury is beyond what can be repaired by modern surgical techniques. Damage to the nerves that supply the limb, for example following trauma that results in pelvic fractures, may be irreversible, resulting in a non-functional limb that drags. This may result in abrasions of the paw through failure of the animal to pick up the leg properly. Amputation may be indicated in such cases.
- **Severe trauma.** Amputation may be recommended when there are accident-caused multiple fractures and extensive trauma to the muscles, tendons and ligaments of the limbs. When primary repair is too costly. Amputation may be recommended in cases of fractured or traumatized limbs as a less expensive option to treating a complicated medical or surgical problem.
- If your pet has suffered severe limb trauma your veterinarian may recommend amputation after performing an orthopedic and neurological evaluation. Other organs such as the lung, heart, or bladder may also be injured, necessitating that your dog be stabilized prior to surgery to allow any life-threatening problems to be treated.
- In cases of tumors, biopsy is usually performed initially to define the tumor type. This allows your veterinarian to plan the best treatment regime and to give you an idea of the prognosis.

- Some limb tumors are so large that amputation is the only effective treatment option. Alternatively, x-rays of the limb may show severe bone destruction that has resulted in a fracture. In such cases there may be no option to amputation, but a biopsy may provide information regarding the prognosis.
- Dogs undergoing an amputation for a tumor should have blood work and a urinalysis performed to ensure that they are otherwise healthy.
- A series of chest x-rays may be performed to determine if there is evidence that the tumor has already spread to the lungs.
- Biopsies can be taken by removing a small wedge or core of tissue or by using biopsy needles when a sample of abnormal bone is required. A pathologist will examine the tissue and the results should be available in a few days. When the biopsy contains bone, the sample will need to be de-calcified before it can be looked at with a microscope. This may take a few days to two weeks, depending on the nature of the sample.
- Local lymph nodes on or around the affected limb will be evaluated for enlargement. In some cases, a needle may be inserted into the nodes to aspirate cells. Such aspirates can then be examined microscopically for evidence of tumor spread.

Pre operative Evaluation:

- Prior to general anesthesia your pet may have blood drawn to evaluate for underlying or concurrent health problems.
- Chest X-rays are often be taken when tumors are present to determine if there is evidence that the tumor has spread to the lungs

Surgery:

- Amputation will be preceded by the administration of pain-killers or analgesics, usually morphine derivative drugs. By administering them prior to surgery they serve to block pain receptors in the brain before the pain begins. They may be given in the form of an injection or administered via a patch that is placed on a shaved area of skin approximately 6-8 hours prior to the surgery.
- For hind leg amputations an epidural analgesic can be performed to reduce postoperative pain. Nerves will be cut during the procedure and these will be blocked with a local anesthetic to further reduce discomfort.
- Pain-killers will be continued after surgery to ensure a smooth, comfortable recovery. Oral analgesics or anti-inflammatory drugs may be sent home with your pet for a week or so after the procedure.
- For forelimb amputations, the limb can be removed at the level of the humerus but removal of the scapula with the limb is more cosmetic.
- With hind leg amputations, the level of the amputation will depend upon where the lesion is located. The most common location for amputations to be performed is at the upper third of the thigh bone (the femur). At this site, muscle that has been cut can be brought over the end of the bone to provide a smooth stump.
- If a tumor exists above or around the knee this level of amputation may be too close to the lesion, necessitating that the amputation be performed at the hip joint.
- If a tumor exists even higher up the leg, then not only the limb but a portion of the pelvis may need to be removed in order to help ensure complete removal of the tumor.
- After forelimb amputations a soft padded bandage is usually placed over the surgical site. The bandage provides protection for the wound and thus makes the animal more comfortable. It also reduces swelling and fluid accumulation at the surgical site. For hind limb amputations bandages are seldom applied.
- If the tumor involves the scapula, resection of the scapular bone may be performed. Up to 80 percent of the scapula can be removed without compromising limb function.
- As in humans, dogs can be fitted with a prosthesis following an amputation. For this procedure the amputation is performed lower down on the front leg (below the elbow) to leave an adequate stump for application of a carefully and specifically fitted prosthesis. Many dogs function normally with a prosthesis; tolerating the artificial limb extremely well.
- Bone tumors are often painful and thus your pet may actually feel better soon after the limb is removed. The ability of a dog to get up and move around the day after surgery often depends on the amount of limb function prior to the procedure.
- Many dogs with bone tumors will not have used the leg for some time and are therefore well adapted to life on three legs. The tumor becomes extremely painful in its own right whether the leg is used or not.

- Amputation takes away the painful tumor and these pets are already used to the change in gait the surgery produces and, therefore their recovery is often surprisingly quick.
- If the tumor is not producing a significant lameness, if a dog is overweight, has other orthopedic problems such as hip dysplasia, or is an old pet, getting up and around after surgery may be more difficult and more support and encouragement may be needed.
- If a tumor is suspected, X-rays are taken of the limb and typically a biopsy will be obtained to confirm the diagnosis prior to amputation.
- The majority of dogs are up and about the day following the amputation. Some assistance may be necessary to help get larger dogs outside, particularly if they are overweight or were not lame before surgery.

Surgery Time:

The procedure takes about 1.5 hr to 2 hrs to perform in most cases, including the needed time for preparation and anesthesia.

Risks & Complications:

- The overall risk of this surgery is low.
- The major risks those of general anesthesia, bleeding (hemorrhage), postoperative infection and wound breakdown (dehiscence) over the surgery site.
- Overall complication rate is low, but serious complications can result in death or the need for additional surgery.

Hospitalization:

- The pet is usually sent home same day or next day.
- For extensive surgery, hospital stays vary depending on overall health of the pet.

Post operative care & prevention:

- Dogs return home with prescriptions for oral analgesics or anti-inflammatory drugs.
- After surgery there will be an incision that needs to be assessed daily for swelling, redness or discharge. Contact your veterinarian if you have questions or concerns.
- Bruising and fluid accumulation around incisions are common. Owners can apply hot packs for a few minutes two or three times per day.
- They must remain indoors until their surgical sites heal and stitches or staples are removed.
- Stitches or staples need to be removed in 10-14 days. Do not allow your pet to lick or chew at the surgical site. An Elizabethan collar may be necessary to prevent this from occurring.
- There is little that you can do to prevent your pet from developing a tumor that might necessitate amputation. However, if trauma is the cause, steps can be taken to avoid it from occurring in the first place.
- Ensuring that your dog remains on a leash and providing adequate fencing will reduce the chance of your pet getting hit by a car.

Artificial leg:

- According to the Dogs' Health Symptoms website, the critical consideration of where to amputate, at the leg, shoulder or hip, "depends partly on the reason for the surgery, and whether or not you intend to give your dog a prosthetic leg." The site says a prosthetic limb provides a dog with almost full functionality.

"Many dogs function normally with a prosthesis, tolerating the artificial limb extremely well," Unfortunately, when a dog's leg requires complete amputation, as is the case with bone cancer, a prosthetic limb cannot be attached.

- "Generally it is easier for a pet to adapt to a hind leg amputation than a forelimb amputation, because most dogs bear more weight on their front legs than their rear legs,".
- "It is common to feel worried and maybe even ashamed when deciding on an amputation of your pet's limb," Dogs' Health Symptoms says. "But rest assured that even though your dog's life will certainly change, it will move on to be healthy and happy just as it used to be, after the surgery is completed."
- Depending upon the cause of your dog's limb amputation surgery, and whether or not there was an underlying disease or other condition at fault, you are going to have to work with your veterinarian about rehabilitating the animal so that he can get back to good health and emotional stability.

Exercising a "Tripod" Three legged dog:

- Most often, dog owners are going through the experience of their lovable pet having a limb amputation for the first time, and hopefully the last. What is common among all of these people is the thought that they should not exercise their dog once it is back home and getting used to living with three legs. This could not be further from the truth.
- Amazingly, within a week or two, dogs pretty much forget that they are missing a limb altogether. These doggie "tripods" (as they are called) can jump around, run, swim, play, and even climb stairs just as good as other dogs. They adapt very quickly to getting used to having only three limbs.
- Not only is it a delight to see your dog back to normal, with the exception of a hop or a limp (of which the animal does not notice after a while), watching this quick healing process take place is also an up lift to your emotional experience as well.

Take care and watch out for your dog:

- Although your dog will bounce back to normal as soon as possible, and with vigorous energy and excitement, you still need to take a bit of care and use caution in order to help him prevent injuries, at least at first.
- For example, dog amputees that have a prosthetic leg installed face great danger when it comes to slippery floors. This hazard can cause your dog to have a terrible fall or possibly knock the prosthetic limb off in the process, if he has one. To prevent this from happening it is wise that you replace any hard surfaces in the house with rugs or better yet, have a carpet installed for long-term security.
- Another situation to keep an eye on after limb amputation is your dog's remaining healthy limbs, especially the leg which is opposite of the amputated one. Dogs can live a long and healthy life with only three legs, but of course if another of his healthy limbs starts to decline in any form or fashion, this can cause a serious mobility problem.
- What you need to do is make sure that his other limbs are strong enough to hold the extra weight. Watch his movements on a daily basis and make sure that he is not getting slower or weaker. Should this happen, you must use a harness if necessary, anything that can help remove the extra weight. It is better to utilize a harness and keep his healthy legs strong instead of creating a situation where the dog will be immobile for the rest of his life.

If you have any questions please feel free to contact us using the information below.

Thank You,



Dr. Reddy and Team
Seven Oaks Pet Hospital
Phone- (813)929-4100
Email- clientcare@sevenoakspet.com
27027 State Rd. 56, Wesley Chapel,
FL, 33544