

Spaying Your Female Dog

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Adapted from VIN.com

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Surgical sterilization of the female dog, commonly referred to as spaying, is one of the most significant aspects of care an owner can provide for their female dog. The benefits to the dog far outweigh simply not having puppies, though as pet overpopulation looms as a societal problem, it is important to consider the bigger picture as well and be part of the solution rather than part of the problem.

Spaying involves the removal of the uterus and ovaries. It is a major surgery but a very commonly performed one, most safely performed while a female dog is still in puppyhood, prior to her first heat cycle.

All the Reasons you Should Spay your Female Dog

Mammary Cancer Prevention

There is a very clear correlation between early spaying and prevention of mammary cancer (aka breast cancer). A female dog will usually have her first heat around 6-7 months of age. A female dog spayed *before* her first heat will have a near-zero chance of developing mammary cancer. After subsequent heats the risk of mammary cancer increases significantly.

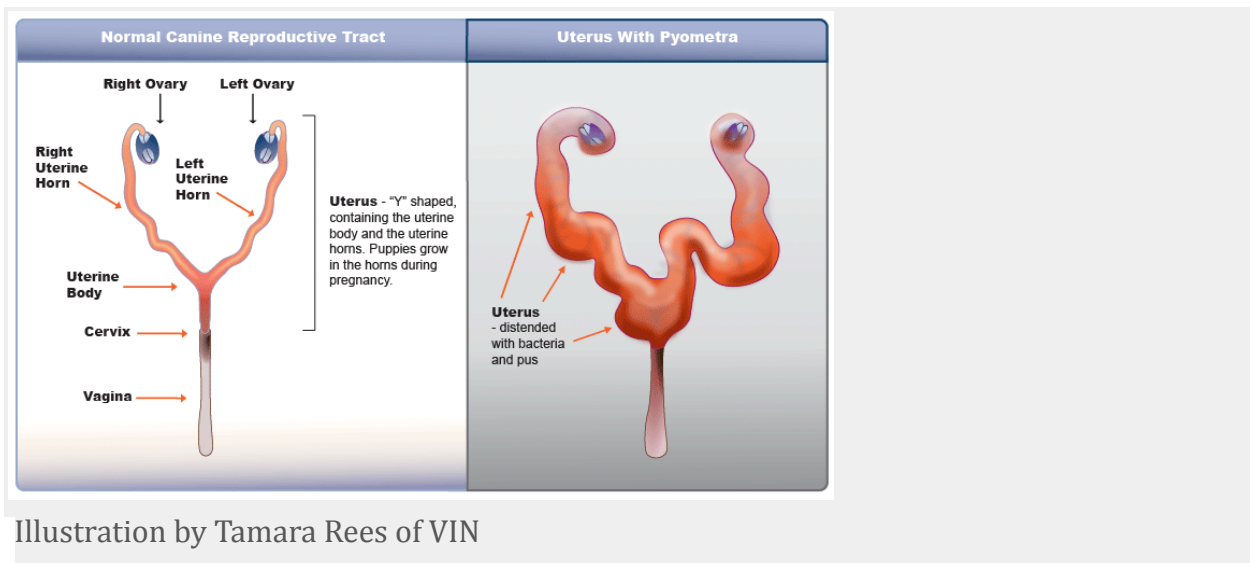
- After the first heat, the incidence of mammary cancer is up to 7%
- After the second heat, the risk is 25% (one in four!)
- After the third heat, the risk is 40% or higher!

It is easy to see that an early spay can completely prevent what is frequently a difficult and potentially fatal form of cancer.

But is it too late if a dog is already past her third heat? No, in fact, spaying is important even in female dogs who already have obvious tumors to prevent spread of the tumors. Spaying is crucial in preventing as well as treating mammary cancer. Also, since the uterus is removed, spaying prevents other complications such as pyometra.

Pyometra Prevention

Pyometra is a life-threatening infection of the uterus that generally occurs in middle-aged to older female dogs in the six weeks following heat. The hormone progesterone, which primes the uterus for potential pregnancy, does so by causing the proliferation of the blood-filled uterine lining and suppressing uterine immune function. In heat, it is thus easy for bacteria in the vagina to ascend to the uterus to cause infection. The uterus with pyometra swells dramatically and is filled with pus, bacteria, dying tissue, and toxins. *Without treatment, the dog is expected to die. Emergency spay is the recommendation if her life is to be saved.*



- Pyometra is an extremely common disease of unspayed female dogs. One in four unspayed female dogs who have survived to age 10 will get it.
- ***Without treatment, the dog will die.***
- Treatment involves surgery on a potentially unstable patient. Mortality rates with surgery have been reported as high as 17%.
- Treatment is expensive, usually 2-3 times the cost of a routine spay
 - This is due to increased tissue size and blood supply, resulting in a longer procedure. There are also increased drug costs for antibiotics, fluids, pain medication, and the extra care needed for a critically ill patient.

- **Spaying prevents the whole thing.**

Older, unspayed female dogs have an irregular heat cycle. There is no end of cycling comparable to human menopause. If you still decide against spaying, be familiar with the signs of pyometra, which include loss of appetite, lethargy, vomiting, excessive thirst, and usually (but not always) obvious vaginal discharge.

Simple Convenience

Female dogs come into heat every eight months or so. There is a bloody vaginal discharge and local male dogs are attracted. Often there is an offensive odor. All of this disappears with spaying, not to mention the inconvenience of an unplanned litter of puppies to house, clean, feed, and adopt out.

It's Not Just a Good Idea; in Some Places, It's the Law

For instance, the spaying of female dogs has been mandatory in the city of Los Angeles since 2008, which means it is not legal to own an unspayed female dog in that city. Exceptions include law enforcement dogs, dogs currently in competition training, service dogs, and dogs with a medical exemption. Fines begin at \$100. The city came to this resolution largely because of the huge expenses associated with its overcrowded shelter system and its euthanasia rate of approximately 4,000 unwanted dogs and cats per month. This problem comes down to one of population control; education has been inadequate to solve the problem as has simply charging \$100 vs \$10 to license unsterilized dogs. Spaying provides irreplaceable health benefits to the pet, convenience to the pet owner, benefit to the community, and it is now legally required. Check the laws in your area, or ask your veterinarian.

Now That We Know Why it is a Good Idea to Spay, What Exactly Happens?

It is important that the patient has not been fed for at least eight hours prior to surgery. Anesthetic medications commonly induce nausea and vomiting can be dangerous in a sedated patient (vomit can be inhaled/aspirated leading to pneumonia).

A preoperative evaluation is performed; blood work is recommended for older females and may be recommended as a normal pre-anesthetic consideration. An intravenous catheter may be placed to facilitate the administration of anesthetic drugs, for

any fluid administration, and for use in case of emergency. This necessitates shaving a small patch of skin on one of the legs.

A tranquilizer or other pre-anesthetic medication may be administered to ease the induction of anesthesia.

A medication is given intravenously to induce sleep. This medication is called an induction agent and lasts only long enough to establish the maintenance of anesthesia by the inhalant anesthetic (gas). Once the dog is asleep, a tube is placed in her throat to ensure that a clear airway is maintained throughout the procedure.

Sometimes a cough is noted for a couple of days after surgery. This may have been caused by the tube in the throat. Such coughs only last a couple of days; anything that persists longer should be re-evaluated.

The tube is hooked up to a machine that delivers a specific concentration of inhalant gas mixed with 100% oxygen. A technician is assigned to monitor this pet so that the concentration of inhalant gas can be changed as needed and the patient's mucous membrane color, heart rate, respiration, and other parameters are followed.

In the surgical prep area, the abdomen is shaved and scrubbed. The bladder is emptied and the patient is moved to a surgical suite, where she is draped with surgical cloths or papers to isolate the area where the surgery will take place.

An incision is made on the midline of the abdomen, and the three points where the ovaries and uterus attach are tied off and cut. The abdomen is checked for bleeding and two or three layers of stitches are placed to close the incision.

It is helpful to know that should the skin stitches come out, there are two layers below holding everything closed. Sometimes skin stitches are not placed but if they are present, you will need to return in 10-14 days to have them removed. Sometimes the skin layer is omitted in which case returning will be unnecessary unless there is a problem.

The patient is continuously monitored until they are awake enough to remove the breathing tube. The patient is kept in an observation room until she is able to walk.

You can expect your dog to come home at the end of the day for overnight observation, but she will need strict rest, just what you would expect to be needed after a major abdominal surgery.

What to Expect at Home

Your dog will have pain medication for the next few days, as well as a mild sedative to assist with activity restriction.

Activity should be restricted for 10-14 days following surgery. Excessive activity can lead to swelling or fluid accumulation under the incision or even worse, a tear in the internal incision line. If a fluid pocket forms, it should resolve on its own after a few weeks. If something has torn inside, obviously the situation is more serious so it is wise to have any incision swelling inspected at the veterinarian's office. Fluid drainage from the incision would also be a reason for a recheck.

Some nausea may occur in the first couple of days after surgery and it would not be unusual for the pet to refuse the night after surgery. If your pet is not eating by the day after surgery, we want to hear from you!

As noted above, a cough may persist for a couple of days as a result of the throat tube. This should not persist for longer than a couple of days.

All dogs must wear an Elizabethan or "E" collar to restrict access to the stitches. Dogs have been known to lick their incision to "tend the wound", but this leads to damage and infection, and they can even open the incision completely! The e-collar is awkward at first but your dog will get used to it. It must be used strictly for 10-14 days until the incision is healed.

What About Behavioral Changes?

The female dog's reproductive tract is dormant for most of the year. It only activates for the three-week period of heat. This means that from a behavioral standpoint, the female dog acts spayed most of the time. This said, there has been a documented slowing of metabolism after spays and it may be necessary to use a reduced-calorie food in an adult dog. Check with your veterinarian about nutritional recommendations.

What Age to Spay?

A lot of factors go into this question. As mentioned, dogs have a huge problem with mammary cancer development, and spaying before the first heat cycle (generally before the ages of six to eight months) removes this problem as a consideration. Spaying before the first heat is protective against an extremely common form of cancer and there is no question about it. Further, spaying while the dog is of a smaller size makes for less trouble with bleeding in surgery and an easier recovery after surgery. Larger dogs are a more difficult surgery and are generally more costly to spay.

For some breeds, there is an increased incidence of urinary incontinence associated with spaying before the age of one year.

For larger breeds, the situation becomes more complicated. The problem for large-breed female dogs is that some breeds have a higher incidence of joint and bone issues or increased incidence (albeit small increases) in other types of cancers when they are spayed young.

Issues regarding joint and bone problems, urinary incontinence, and cancers other than mammary cancer are highly dependent on breed such that findings for one breed do not hold true for another. To help clarify recommendations for different breeds, this research from UC Davis may be helpful:

<https://www.frontiersin.org/articles/10.3389/fvets.2020.00388/full>. Field those questions to your regular veterinarian to find the best pathway for your own pet.