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## Spaying your Female Dog

Wendy Brooks, DVM, DABVP

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Surgical sterilization of the female dog, commonly referred to as spaying, is one of the most significant aspects of female dog care an owner can provide. The benefits to the dog *far* outweigh simply not having puppies, though as pet over-population 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 removal of the uterus and ovaries. It is a major surgery but a commonly performed one, ideally performed while a female dog is still in puppyhood, prior to her first heat cycle.

### All the Reasons you Should Spay your Female Dog

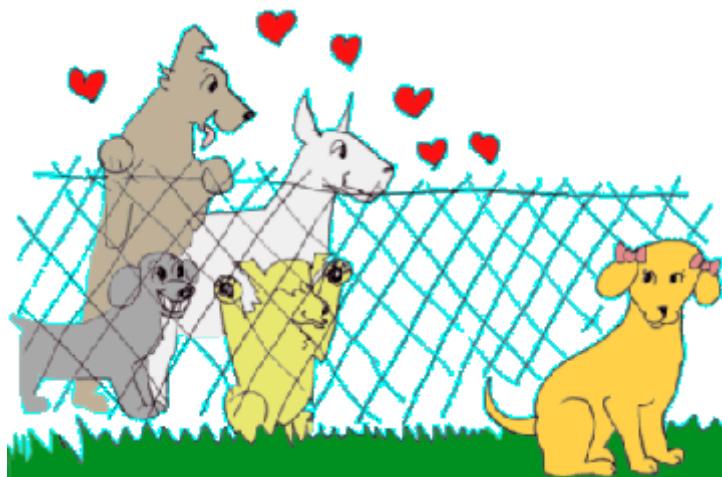
#### *Mammary Cancer Prevention*

A female dog spayed before her first heat will have a near zero chance of developing mammary cancer.

After the first heat, the incidence of tumor development climbs to 7% and after the second heat the risk is 25% (one in four!). 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 second heat? No, in fact spaying is important even in female dogs who already have obvious tumors. This is because many mammary tumors are stimulated by estrogens; removing the ovaries, the source of estrogens, will help retard tumor spread.

Spaying removes the uterus and both ovaries and is crucial in preventing as well as treating mammary cancer.

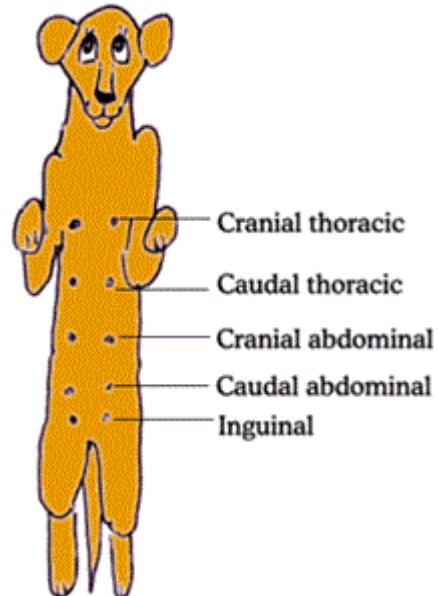


Graphic by MarVistaVet

Mammary cancer

## Pyometra Prevention

Pyometra is the 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 proliferation of the blood-filled uterine lining and suppressing uterine immune function. It is thus easy during heat for bacteria in the vagina to ascend to the uterus and 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. Despite her serious medical state, she must be spayed quickly if her life is to be saved.



Graphic by MarVistaVet

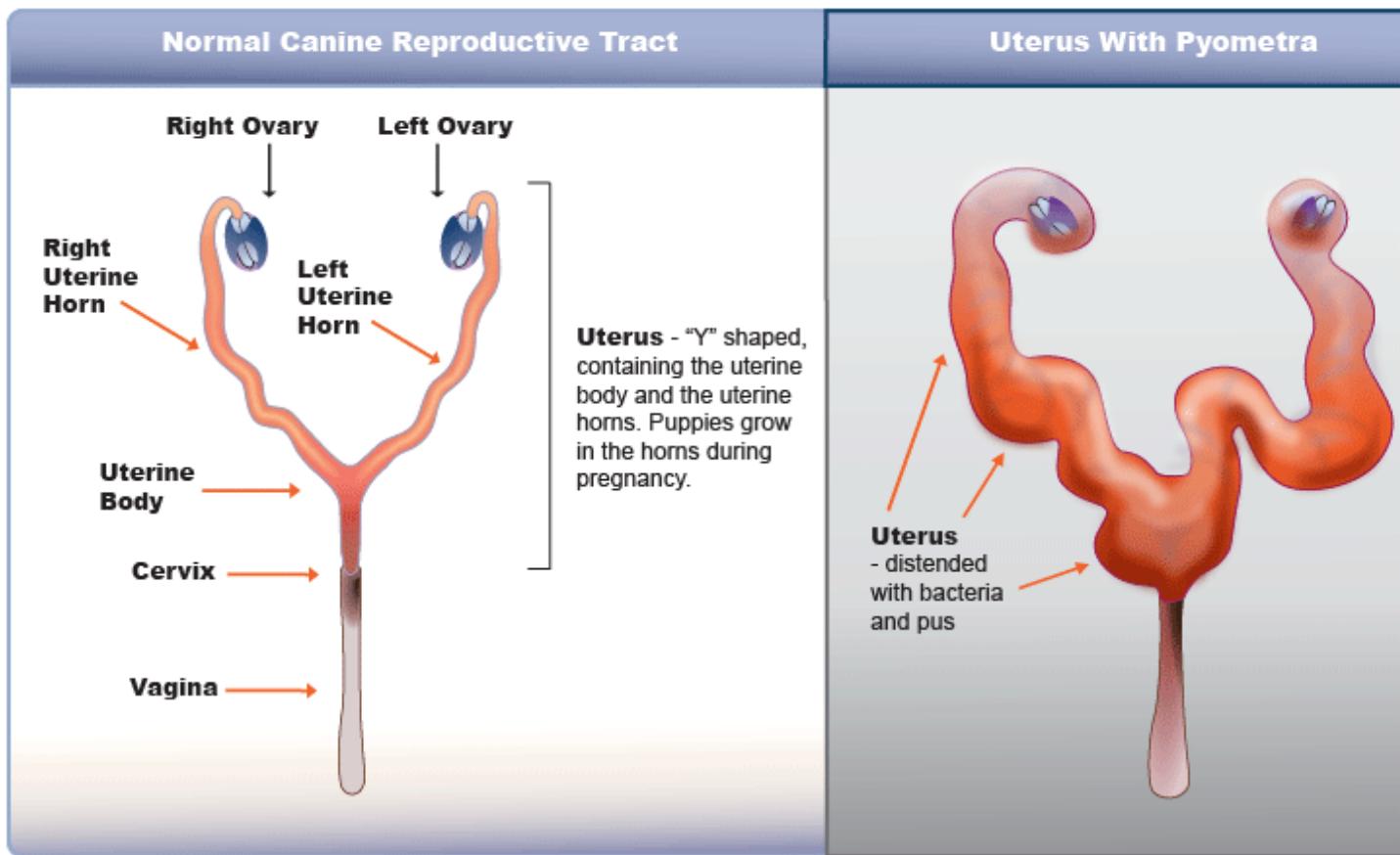


Illustration by Tamara Rees of VIN

- 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 is expensive.
- Treatment involves surgery in a potentially unstable patient. Mortality rates with surgery have been reported as high as 17%.
- 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 8 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

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 in at least 8 hours. 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 preanesthetic 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



The patient may have an intravenous catheter placed. Photo by MarVistaVet

inhalant anesthetic (gas). Once the dog is asleep, a tube is placed in her throat to ensure that a clear airway is maintained through out 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 in 100% oxygen. A technician is assigned to monitoring this pet so that the concentration of inhalant gas can be changed as needed and patient 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 surgery will take place.

An incision is made on the midline of the abdomen, and the three points where the ovaries and uterus attaches 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, you will need to return in 10 to 14 days to have them removed.

The anesthesia technician continues monitoring until the dog wakes up and coughs out the throat tube.

The patient is kept in an observation room until she is able to walk.

Some veterinarians feel strongly that a night in the hospital is important to an uneventful recovery. This night in the hospital is similar to strict bed rest, just what you would expect to be needed after a major abdominal surgery. This night also allows for proper administration of pain medication for a longer time period as well as a post-operative check up with the doctor the morning after surgery. As with all things medical, other veterinarians may have a different opinion and your veterinarian may send your dog home at the end of the day as long as they are deemed stable.

### What to Expect at Home

Most spay patients go home the next day as if nothing had happened, although some will need pain medication for a few days.

Some nausea may occur in the first couple of days after surgery and it would not be unusual for the dog to refuse food for a day or two after surgery.

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

Dogs who show a propensity to lick their stitches will need an Elizabethan or "E" collar to restrict access to the stitches. This is not comfortable for the dog but it must be used strictly until the stitches are out and the incision is healed.



The plastic cone is the traditional E-collar, but there are other types that may be more comfortable for your dog and your shins. Photo courtesy of Depositphotos.

Activity should be restricted during the week 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 reason for a recheck.

### 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 stand point, 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 age 6-8 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. That said, research has shown that there is an increased incidence of some other problems in some breeds when they are spayed young.

For some breeds, there is an increased incidence of urinary incontinence associated with spaying before age 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. Field those questions to your regular veterinarian to find the best pathway for your own pet.

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