



Main Street Veterinary Services
2360 Main Street, PO Box 211 London, ON N6P 1P9
www.mainstreetvetservices.ca
(519)-203-2000

When to Spay or Neuter your Pet?

If you have decided that spay/neuter is the right decision for your pet and your family, the next question you will face is when is the best time to do so. The information below will help you with this decision.

Dogs:

There are enough studies out there that support the delay of spay and neuter procedures for our dogs. These studies show there is an increased risk of certain types of cancer (lymphoma, leukemia, hemangiosarcoma, osteosarcoma, prostate neoplasia) in dogs that are spayed or neutered before reaching sexual maturity. There is also an increased risk of musculoskeletal disease (cruciate ligament injury, hip dysplasia), behavioural disorders (aggression - most likely fear related, separation anxiety), and metabolic diseases (diabetes, cushings, hypothyroidism) in early spayed and neutered dogs as well. There are breed related variances in the degree of increased risk although not all breeds have been studied. The greatest risks were found in Golden Retrievers and Labrador Retrievers, followed by German Shepherds and Vizlas. It has been determined that in dogs, as with humans and mice, the potential for longer lifespan increases the longer the animal retains its reproductive organs. The greatest impact on longevity in females has been shown to be when they held onto their ovaries for a minimum of eight years.

The potential cause of these associated risks is rooted in the Hypothalamic-Pituitary-Gonadal Axis. In intact animals, the hypothalamus secretes gonadotropin hormone-releasing hormone (GnRh) which stimulates the release of luteinizing hormone (LH) which in turn causes the production/release of the sex hormones (estrogen, progesterone and testosterone). These sex hormones have a negative feedback effect controlling LH and GnRH levels. It has been shown that in altered animals, there is no negative feedback mechanism and the level of LH is 20-30x higher than in an intact female just prior to ovulation. Health implications of increased LH include: obesity, puppy coat syndrome, diabetes mellitus, hypothyroidism, cushings, urinary stones, urinary incontinence, cranial cruciate ligament injury, hip dysplasia, behaviour problems (human directed aggression, fear-based behaviours) as well as cognitive dysfunction syndrome. Neoplastic conditions associated with increased LH levels include: prostate adenocarcinoma, transitional cell carcinoma, osteosarcoma, hemangiosarcoma, lymphosarcoma, mastocytoma.

Intact females have been shown to have increased risk of less common cancers like leiomyomas (uterine fibroids) and of course mammary carcinoma. They are also at risk for pyometra and reproductive complications such as false pregnancies and mastitis. Twice yearly heat cycles are also a large inconvenience to some pet parents.

Intact males are at increased risk for prostate disease such as benign hyperplasia and prostatic cysts, infections and abscesses, perianal adenomas, perineal hernias and testicular cancer. Treatment for these diseases often involves neutering and long-term antibiotics. Intact males may be more prone to roaming if not trained/managed appropriately.

At Main Street Veterinary Services, we discourage early spays and neuters for the health risks mentioned above. It is not known when the “best” time to spay or neuter would be, but we know that dogs should go through puberty, reach full skeletal maturity and be over one year of age before altering. In males, we recommend neutering between 1.5 - 2 years of age (if neutering is chosen at all). In females, we recommend letting them have at least 1-2 heat cycles and be over one year of age before spay. Spay should occur at least 2 months after the last heat cycle and preferably at least one month before the next one is due to start.

Dogs have an average of two heat cycles per year, roughly six months apart. Some females will have irregular cycles in the beginning. Smaller breeds may cycle three times per year, while giant breeds may only cycle once every 12 months or less. The average length of a full heat cycle is approximately 3 weeks. The symptoms you see when your dog is coming into heat can vary from very subtle to very obvious depending on the individual.

Behavioural signs include:

- **Receptive to male dogs:** Once your dog is in the midst of her estrus cycle, she will welcome the advances of male dogs. She will allow other dogs to mount her, may hump other dogs—including other female dogs—and may even try to mount your leg or other pets in the home.
- **Agitated, nervous, irritable or clingy behavior:** In the first phase of estrus, your dog may seem more skittish or nervous. She may become aggressive towards other household pets, or even towards you. As estrus progresses, she may become aggressive towards other female dogs but welcoming to male dogs.
- **Excessive licking of the genital area:** Commonly, a female dog in heat will lick her genital region far more than usual.
- **Urinating more frequently:** Dogs in heat tend to urinate frequently as a method of alerting male dogs in the area that they are receptive to mating.
- **Change in tail position:** At the beginning of the heat cycle, your female dog might keep her tail tucked close against her body, but as estrus progresses, you'll observe her holding her tail to the side, which alerts male dogs that she is ready for mating.

Physical signs include:

- **Swollen vulva:** The opening to the dog's vagina is called the vulva and is located right below the anus. When in heat, your dog's vulva will swell and redden. This can be very subtle to very pronounced and alarming to dog owners seeing it for the first time, but it's a normal part of estrus.
- **Bloody or straw-colored discharge from the vulva:** Your dog will have a discharge from her vulva while in heat. At the beginning of estrus, the discharge is typically bloody, and it may leave blood spots or stains on the dog's bedding, furniture, or the floor. As estrus continues, the discharge generally becomes more of a yellowish or brownish color and diminishes in quantity.

**It is important to note that female dogs will be most receptive to male dogs after the bleeding stops.

Female dogs can have heat cycle abnormalities that can include prolonged heats, split heats, silent heats and just as with women, female dogs can have irregular heats their first few times.

A silent heat is when a dog experiences a heat cycle where the symptoms are so slight, they can go unnoticed. In a silent heat, all external physical signs (like vaginal bleeding, discharge, or swollen vulva) are so minimal that you don't see them. Not only that, but your dog's behavior may not change and she may show absolutely no interest in male dogs. It is also possible that your dog will show only one sign of a heat cycle making it very hard to interpret, and/or the sign(s) may be very subtle and easily missed. It can be very hard to figure out if there is vaginal bleeding, especially with a small amount, as your dog may lick herself clean and may also lick the floor for any drop of blood. It is also true that many owners do not look at their dog's vulva on a regular basis so it is quite easy to miss a slight swelling.

A split heat is when a female dog starts her heat cycle, stops for a few days before the process resumes and finishes. During the first stage, she will be attractive to males and you will commonly see the vaginal bleeding and vulvar swelling associated with a normal heat cycle. The problem occurs when she does not move through to the next stage but goes out of heat without being receptive to the male. The heat cycle resumes and finishes roughly 2 weeks to 3 months later. This type of heat can cause confusion as it appears as if the dog is having two heat cycles closer together than they should be as you will see signs of heat that disappear and then reappear in a shorter than normal time frame.

Cats:

Unfortunately, there are no similar studies done in cats and we do know there are greater disadvantages that may put them at risk to be rehomed by delaying spays and neuters. Male cats are prone to spraying in the house after they go through puberty. Females are induced ovulators meaning they will have ongoing heat cycles throughout the breeding season until they mate if they are allowed to have a heat cycle prior to spay. For these reasons, we do recommend earlier spays and neuters in cats than in dogs. For males, we recommend neuter between eight and nine months of age and for females we will spay any time after 6 months of age.

Weigh Concerns Post Alteration for both Dogs and Cats:

Weight gain post spay and neuter is common in both species and obesity is a significant health risk. Metabolic demands in both dogs and cats drop by about 30% and they can develop an increase in indiscriminate eating up to 20% due to decreased satiety after they are altered. It is important to your pet's health that you make changes to their feeding regimen post spay/neuter to maintain a lean and healthy body weight.

1. Howe L.M. Current Perspectives on the Optimal Age to Spay/Castrate Dogs and Cats. *Vet. Med. Res. Rep.* 2015;6:171–180. doi: 10.2147/VMRR.S53264. - DOI - PMC - PubMed
2. Waters DJ, et al. Exploring mechanisms of sex differences in longevity: lifetime ovary exposure and exceptional longevity in dogs. *Aging Cell.* 2009;8:752–755. doi: 10.1111/j.1474-9726.2009.00513.x. [\[PMC free article\]](#) [\[PubMed\]](#) [\[CrossRef\]](#) [\[Google Scholar\]](#)
3. Kutzler MA. Possible Relationship between Long-Term Adverse Health Effects of Gonad-Removing Surgical Sterilization and Luteinizing Hormone in Dogs. *Animals (Basel).* 2020 Apr 1;10(4):599. doi: 10.3390/ani10040599.PMID: 32244716 [\[PMC free article\]](#) [\[PubMed\]](#)