

Eliminate Pre-sterilization Litters by Spaying Before the First Estrus: Making the Case to your Veterinarian.

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Position Statements

- AVMA: The AVMA supports the concept of pediatric spay/neuter in dogs and cats in an effort to reduce the number of unwanted animals of these species. Just as for other veterinary medical and surgical procedures, veterinarians should use their best medical judgment in deciding at what age spay/neuter should be performed on individual animals. (American Veterinary Medical Association Website. www.avma.org. Accessed September 8, 2010.)
- AAHA: The American Hospital Association supports the concept of neutering cats and dogs as young as 8 weeks of age in order to help reduce the overpopulation problems in companion animals. (American Hospital Association Website. www.aahanet.org. Accessed September 8, 2010.)
- AAFP: The American Association of Feline Practitioners support neutering early in life as a safe and effective method of decreasing cat overpopulation, and confers long-term medical and behavioral benefits to the individual cat. (American Association of Feline Practitioners Website. www.catvets.com. Accessed September 8, 2010.)

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Historical S/N Age

1. Currently, most veterinarians in the United States recommend that elective gonadectomy be performed in dogs and cats at 6 to 9 months of age. However, there does not appear to be any scientific evidence to document that this is the optimal age. In fact, the age at which pets have traditionally been spayed and neutered has varied through the years and with geographic location. In the early 1900s, OHE was performed at 3 to 6 months of age and castration as early as 4 weeks...Despite great advances in anesthetic and surgical techniques and multiple studies that provide evidence for the safety of anesthesia and surgery in dogs and cats of younger ages, veterinarians in the United States still cling to the recommendation to perform gonadectomy at 6 to 9 months of age, with the added stipulation that bitches and queens should be spayed before their first estrus.”

Root Kustritz MV. Determining the optimal age for gonadectomy of dogs and cats. JAVMA. 2007;231:1665.

Accidental Litters

1. In a survey of dog- and cat-owning households in the United States, 56% of 154 canine litters and 68% of 317 feline litters were unplanned. There is a lack of knowledge about reproduction among animal owners; the most common reason reported for the unplanned canine litters was that the owner did not know that the bitch was in heat...and up to 61% of dogs and cat owners were not certain or truly believed that their pet would be better if it had a litter before OHE was performed.

Root Kustritz MV. Determining the optimal age for gonadectomy of dogs and cats. JAVMA. 2007;231,1666.

2. Between 10 and 20 percent of dog/ cat owners have had a litter - typically unintentional litters.

Ipsos Marketing study by PetsMart Charities and A&U Barriers – May, 2009

< 6 mos.	In Heat Cats	Pregnant Cats	Total Cats	In Heat Dogs	Pregnant Dogs	Total Dogs
2007	12	4	236	0	0	370
2008	186	37	4,492	67	8	3,464
2009	282	57	4,721	80	6	3,519

Data provided by the Humane Alliance Spay/Neuter Clinic

< 6 mos.	In Heat Cats	Pregnant Cats	Total Cats	In Heat Dogs	Pregnant Dogs	Total Dogs
2008	1	0	620	0	0	398
2009	16	1	2,040	0	0	1,073
2010*	19	5	1,470	1	0	892

*Data provided by the Animal Protective League Spay/Neuter Clinic - * As of 9/10/2010*

Pre-Sterilization Litters

1. A study of household pet populations in four Massachusetts towns found that female cats and dogs that had been sterilized were almost as productive before their sterilization (.313 litters per female) as those females that remained intact (.4 litters each), a difference that was not statistically significant. This is consistent with other surveys, which found that 17% of intact female dogs had given birth, as had 16% of intact female cats, a rate comparable to the pre-sterilization reproductivity of spayed dogs (21%) and cats (20%)

Peter Marsh – Replacing Myth with Math: Using Evidence-Based Programs to Eradicate Shelter Overpopulation - p 14.

2. In the four towns included in the Massachusetts survey, female cats and dogs that had been sterilized after having had at least one litter accounted for 87% of all litters of kittens and puppies born.

Peter Marsh – Replacing Myth with Math: Using Evidence-Based Programs to Eradicate Shelter Overpopulation - p 15.

3. Researchers in Massachusetts found that local reproductive rates were not driven by dogs and cats that remained intact their entire lives. Just the reverse. Cats and dogs

that remained intact accounted for less than 15% of all the litters of kittens and puppies born in the communities they studied. More than 4 out of every 5 litters were born to female cats and dogs whose owners had them sterilized, but not until they had at least one litter.

Peter Marsh - Getting to Zero: Using Lessons from Successful Programs to End Shelter Overpopulation in the United States - p 31.

4. More than 10 million kittens and puppies are born in the United States each year to female pets that are eventually sterilized. Reducing the number of these “pre-sterilization litters” by only 35% would stabilize the size of the household dog and cat population by bringing their birthrate into balance with the death rate...On average, cats and dogs that have been spayed now have more than two kittens or puppies each before being sterilized so even if we somehow manage to achieve a 100% sterilization rate – but fail to reduce the rate at which pets give birth before their sterilization – there would still be more cats and dogs born each year than those that died.

Peter Marsh - Getting to Zero: Using Lessons from Successful Programs to End Shelter Overpopulation in the United States - p 32.

Perceived Best Time to S/N

1. 61% of dog and cat owners were not certain or truly believed that their pet would be better if it had a litter before OHE was performed.

Root Kustritz MV. Determining the optimal age for gonadectomy of dogs and cats. JAVMA. 2007;231,1666.

2. 59% of respondents in an Ipsos study said they made their decision when to s/n after speaking with their Vet.

Ipsos Marketing study by PetsMart Charities and A&U Barriers – May, 2009

3. Surveys consistently find that more than half of all dog and cat owners either do not know whether a pet would be better off by having a litter before being spayed or mistakenly believe that she would. The extent of this knowledge deficit was almost identical among owners who had visited a veterinarian within the past year and those who had not.

Peter Marsh – Replacing Myth with Math: Using Evidence-Based Programs to Eradicate Shelter Overpopulation - p 15

Mammary Gland Cancer

1. Mammary Gland Neoplasms – Mammary gland neoplasms are the most common tumors of female dogs, with a reported incidence of 3.4%, and they are the third most common tumors of female cats, with a reported incidence of 2.5%. Mammary gland neoplasms are the most common types of malignant tumors in dogs. Mean percentage of mammary gland tumors in female dogs that are malignant is 50.9%. In female cats, > 90% of mammary gland tumors are malignant.

Root Kustritz MV. Determining the optimal age for gonadectomy of dogs and cats. JAVMA. 2007;231,1667.

2. Caretakers have their pets immunized because they are concerned about major health risks, perhaps not realizing that in the United States the risk a pet will die of mammary cancer far exceeds that of all other health risks for which they are being immunized. They may not realize, too, that feline and canine mammary cancer is almost entirely preventable but that unlike immunizations – which would be equally effective if given later in life – the protective benefit of spaying dissipates quickly and is lost all together if the delay is too great.

Peter Marsh - Getting to Zero: Using Lessons from Successful Programs to End Shelter Overpopulation in the United States - p 33.

3. Recent research has revealed that cats spayed before their first heat cycle have a 91% lower risk of developing mammary cancer.

DVM 360. Schedule sterilizations early to keep patients healthy. Available at: <http://veterinarybusiness.dvm360.com/vetec/Veterinary+business/Schedule-sterilizations-early-to-keep-patients-hea/ArticleStandard/Article/detail/671642>. Accessed August 24, 2010.

4. Compared with the incidence in sexually intact dogs, dogs spayed before their first estrus have a 0.5% risk, dogs spayed after one estrus have an 8.0% risk, and dogs spayed after two estrous cycles have a 26.0% risk of developing mammary gland neoplasms when they get older.

Root Kustritz MV. Determining the optimal age for gonadectomy of dogs and cats. JAVMA. 2007;231,1667.

5. According to Peter Marsh, cats and dogs in the United States have a far greater risk of dying from mammary gland cancer than from contracting rabies (about 1500 times greater). The morbidity and mortality of feline and canine mammary gland cancer are so great that it takes the lives of 300,000 dogs and cats every year. One could argue that the standard of vet care requires practitioners to advise their clients of this at the first puppy or kitten visit.

Actual Best Time to S/N

1. On the basis of our results, we see no reason that animal shelters or practicing veterinarians should delay gonadectomy of male puppies because of concerns about long-term health or behavior. Gonadectomy of male dogs at 4 to 5 months of age rather than waiting until after 6 months of age may be better for the long-term health and well-being of the dogs and would eliminate the possibility of accidental matings. Another study found that gonadectomy at this age was faster and had fewer perioperative complications...For female dogs, the best time to neuter is more difficult to determine. Because urinary incontinence was greater among puppies gonadectomized before 3 months of age and incontinence can be a lifelong condition requiring ongoing treatment, it is reasonable to conclude that female dogs should not be gonadectomized until at least 3 to 4 months of age.

Spain VC, DVM, PhD, Scarlett JM, DVM, PhD, Houpt KA, VMD, DACVB. Long-term risks and benefits of early-age gonadectomy in dogs. JAVMA. 2004;224:386.

2. The high incidence of postoperative complications was associated with an increased surgery time, which was in turn positively correlated with increasing body weight of the animal.

Root Kustritz MV. Determining the optimal age for gonadectomy of dogs and cats. JAVMA. 2007;231,1665.

3. Gonadectomy at 7 weeks of age is associated with more rapid anesthetic recovery and fewer perioperative complications, compared with gonadectomy at 7 months of age.

Spain VC, DVM, PhD, Scarlett JM, DVM, PhD, Houpt KA, VMD, DACVB. Long-term risks and benefits of early-age gonadectomy in dogs. JAVMA. 2004;224:380.

4. For veterinary practitioners, the ideal time for gonadectomy of female dogs is probably after the completion of vaccinations at 4 to 5 months but before the dog's first estrous cycle, after which there is higher risk for mammary cancer and unplanned litters.

Spain VC, DVM, PhD, Scarlett JM, DVM, PhD, Houpt KA, VMD, DACVB. Long-term risks and benefits of early-age gonadectomy in dogs. JAVMA. 2004;224:386.

5. To greatly increase the likelihood that your clients will have female cats and dogs sterilized before their first heat cycle, incorporate sterilization into a juvenile pet wellness protocol. If the last immunization in the series is scheduled to occur at 16 to 20 weeks of age, schedule sterilization shortly thereafter. Not only will this keep

patients healthy, it will help your practice develop a long term relationship with clients.

DVM 360. Schedule sterilizations early to keep patients healthy. Available at: <http://veterinarybusiness.dvm360.com/vetec/Veterinary+business/Schedule-sterilizations-early-to-keep-patients-hea/ArticleStandard/Article/detail/671642>. Accessed August 24, 2010.

Sample Discussion

1. As an example, consider a discussion between a veterinarian and the owner of an 8-week-old female Labrador Retriever that is not intended for breeding. This dog would benefit greatly from OHE before her first estrus as a means of preventing mammary gland tumors, which are extremely common and cause substantial morbidity. Because of her breed, detriments of OHE include an increased predisposition to CCL injury, hemangiosarcoma, and obesity. However, there is a low incidence of hemangiosarcoma, and obesity can be readily controlled with good husbandry, which leaves CCL injury as the most important possible detriment. Because the incidence of CCL rupture is lower than that of mammary gland neoplasia, a veterinarian may choose to recommend OHE and educate the owner about maintenance of optimal body condition and other management techniques that will minimize the potential for CCL injury. An OHE should be performed before the dog's first estrus. To minimize the potential for development of urinary incontinence, the veterinarian may choose to wait to perform the OHE until after the dog has reached 3 months of age.

Root Kustritz MV. Determining the optimal age for gonadectomy of dogs and cats. JAVMA. 2007;231,1671.

2. Sample Scenario: Client's dog or cat develops mammary cancer at an older age and client asks veterinarian why he or she did not recommend OHE prior to first estrus.

Notes on Behavior Benefits of S/N Prior to First Estrus

1. The sexual behavior of intact male cats (urine spraying, roaming, aggression) and male dogs (mounting, roaming, aggression) make them undesirable and potentially unsafe as household pets. Neutering prior to sexual maturity is the most effective way to prevent these behaviors before they ever get started.
2. A study conducted in 2008 in Portland, Oregon, and published in *The Journal of the American Veterinarian Medical Association* found that intact male dogs were 7 times more likely to bite than neutered males (55.1 bites per 1000 dogs compared to 7.7 for

neutered males) and intact female dogs had a 10 times higher bite rate (31.1 bites per 1000 dogs compared to 3.0 for spayed females).

3. Trainability of working dogs is not altered by gonadectomy.

Root Kustritz MV. Determining the optimal age for gonadectomy of dogs and cats. JAVMA. 2007;231,1665.

Recommended Reading

1. Replacing Myth with Math: Using Evidence-Based Programs to Eradicate Shelter Overpopulation – Peter Marsh, Town and Country Reprographics, Inc., Concord, NH
2. Getting to Zero: Using Lessons from Successful Programs to End Shelter Overpopulation in the United States – Peter Marsh, Currently in publication

Glossary

1. **Pre-Sterilization Litters** – Litters born to dogs or cats prior to their spay
2. **Pre-Sterilization Reproductivity** – Reproductive rate prior to spay
3. **Gonadectomy** – Spay or neuter
4. **OHE** – Ovariohysterectomy or spay
5. **Estrus** – Heat cycle
6. **Accidental Litters** – Unplanned litter
7. **Intact** – Not spayed or neutered
8. **Neoplasms, Neoplasia** – Tumors or cancer
9. **Malignant** – Cancer that metastasizes or spreads
10. **Morbidity** – The ratio of sick to well beings
11. **Mortality** – Death rate
12. **Hemangiosarcoma** – Tumor of blood forming organ
13. **CCL** – Cranial cruciate ligament (knee joint)
14. **Urinary Incontinence** – Urine dribbling due to a weakened bladder sphincter muscle