

## **Feline Fix by Five: Spay-Neuter Cats by Five Months of Age**

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### **Introduction**

Initially proposed as a critical approach to reducing the over population of cats in the United States, more and more evidence confirms the medical benefits of ovariectomy and castration of cats prior to five months of age. The Veterinary Task Force on Feline Sterilization met in Orlando, Florida in early 2016 to deliberate issues associated with the over population of cats and the subsequent euthanasia of cats in animal shelters. The principle product of their deliberations was a document that recommended that cats be sterilized before five months of age.<sup>1</sup> In recognition that cats can be sexually mature by five months of age and become pregnant prior to the traditional age of sterilization it was logical to propose reducing the age at which cats are sterilized by at least one month. Delaying sterilization to six months or later, after cats reach sexual maturity, often results in kittens giving birth to kittens. Many of those unwanted litters of kittens end up in animal shelters and far too many are euthanized due to lack of adopting homes.

The consensus document outlining the recommendations of the task force has been endorsed by numerous veterinary and humane organizations. The American Veterinary Medical Association (AVMA) formally endorsed the consensus document in June of 2017.<sup>2</sup> Additional endorsements have come from the American Animal Hospital Association (AAHA), the American Association of Feline Practitioners (AAFP), the Association of Shelter Veterinarians (ASV), the Winn Feline Foundation, Catalyst Council, Cat Fancier's Association, The International Cat Association and PetSmart Charities and 13 state veterinary associations.<sup>3</sup>

### **Feline Fix by Five**

Marian's Dream, a nonprofit organization established a campaign, entitled Feline Fix by Five ( <http://www.felinefixbyfive.org> ), to share this recommendation on the change of the age of spay-neuter of cats to prior to five months of age. Ideally the number of cats born each year should equal the number of homes available for cats. Marian's Dream believes that goal can be reached by one simple change; increasing the number of cats that are sterilized before they can reproduce.

### **Lack of Universal Acceptance**

In spite of endorsement by the leading veterinary and humane organizations in the country, the recommended change has not been met with universal acceptance. Resistance comes in the form of age-old theories regarding the risks of early age spay-neuter. These theories have, however, been disproven over time. Put simply there are no valid scientific reasons to delay spay-neuter of cats to six months of age or older.

Concerns that have been expressed about earlier spay-neuter include, anesthesia is not safe, surgeries are more difficult, castration of male cats predisposes to urethral obstruction, sterilization prior to growth plates fusing put the animal at risk of slipped capital epiphysis.

Anesthetic concerns date back to the 1960's and 1970's when the primary anesthetic agents were barbiturates and methoxyflurane. Those agents were not safe in pediatric or juvenile patients. Anesthetic agents currently in use are safe in kittens as young as 6 to 8 weeks of age and there are numerous anesthetic protocols that provide safe and effective surgical anesthesia and analgesia in kittens as young as 6 weeks of age.<sup>4</sup>

While there may be a natural assumption that the smaller the patient the more difficult the surgery, surgeons experienced in pediatric spay-neuter reject that assumption. In a survey conducted in 2000, high volume spay-neuter surgeons who routinely performed pediatric spay-neuter of cats (and dogs) confirmed that pediatric surgeries were easier and faster and had quicker recovery times.<sup>5</sup> A study conducted at Texas A&M College of Veterinary Medicine on postoperative complications documented fewer complications with surgeries performed on patients under six months of age as compared with those on patients sterilized at six months of age.<sup>6</sup>

The fear that castration of male cats prior to sexually maturity resulted in a narrowing of the penile urethra and, therefore, increased the risk of urinary obstruction was disproven in the 1990s. A study comparing adult penile urethral diameters of cats castrated at 7 weeks of age, those castrated at 7 months of age, and those not castrated documented no differences in urethral diameter.<sup>7</sup>

There have been recent articles in the veterinary literature discussing orthopedic concerns with early spay-neuter in large breed dogs.<sup>8,9</sup> There are, however, no such articles documenting orthopedic issues with early spay-neuter of cats. In fact, a recent study exploring risk factors for orthopedic disease and owner reported mobility issues documented that early age spay-neuter actually decreased the risk of mobility issues associated with joint disease.<sup>10</sup>

### **Health Benefits**

There are numerous documented health benefits for spay/neuter in cats, in addition to the population management benefits, and there is "no evidence to suggest that sterilization by five months of age is linked to any increased risk of disease.

Ovariohysterectomy prevents pyometra and ovarian cancer and reduces risk of mammary neoplasia (the third most common tumor of cats). Cats spayed prior to six months of age had a 91% reduction in the incidence of mammary neoplasia as compared to the incidence in intact cats.<sup>11</sup> Castration prevents testicular cancer, and castration prior to sexual maturity significantly reduces spraying, roaming and fighting. Short-term and long term studies suggest that there are no serious negative health consequences<sup>12,13</sup> and no differences in incidence of behavioral issues between cats spayed prior to 5 months of age and those spayed at the more traditional age.<sup>14</sup>

Surgery and anesthesia pose no greater risk to cats at 5 months of age than at 6 months of age. In fact, the surgeries are easier with fewer complications. There is a lack of adverse effects on the health of the animal and documented positive effects on health and behavior from spay-neuter of cats prior to five months of age. Sterilization prior to sexual maturity prevents unplanned unwanted litters of kittens. Couple these facts with the endorsements of AVMA, AAHA, AAFP, ASV and major humane organizations and there are no reasons not to make that one simple change to spay-neuter of cats prior to five months of age.

## **Surgical Techniques**

### **Pedicle ties**

The pedicle tie is a method of ligation in which the structure is tied to itself around a hemostat. The pedicle tie is essentially the same as the cord tie and is used in ligating the ovarian pedicles in cat spays. It can be used in any cat spay. There are several variations of the pedicle tie in the cat spay. Place a clamp on the proper ligament, with upward and caudal tension deliver the ovary through the abdominal incision, cut the suspensory ligament and tear a hole in the broad ligament just caudal to the ovarian vessels. Hold the ovary in your non-dominant hand and gently pull the ovary towards you. Using the dominant hand, a curved hemostat is crossed over the ovarian vessels into the hole in the broad ligament and underneath and behind the vessels. The hemostat should be held closed with the tip of the hemostat facing away from you. The tip of the hemostat is then directed above the vessels as the hemostat is rotated counterclockwise to end up facing you (for left-handed surgeons the hemostat is rotated in a clockwise motion). The hemostat is opened and used to clamp the ovarian vessels. The vessels are cut between the hemostat and the ovary and the knot is gently pushed off the tip of the hemostat. The knot should be pulled tight before releasing the hemostat.

### **Tattoo or ear tip**

One of the most difficult spays you will ever do is one in a cat that was spayed years earlier. The search for a uterus and ovaries that are not there can be very time consuming and frustrating. In an ideal world ALL VETERINARIANS would tattoo dogs and cats when they are spayed or castrated. The Association of Shelter Veterinarians recommends the use of green tattoo ink. For cat spays and castrations the tattoo is placed on the ventral abdominal skin near where a spay incision would be made. The only exception being feral (or community cats) that should be ear tipped.

### **Feline Ovariohysterectomy (adult or kitten)**

The cat is positioned in dorsal recumbency with the front legs left untied or secured parallel to the thoracic wall. A ventral abdominal midline skin incision is made with the midpoint of the incision at the midpoint between umbilicus and cranial brim of the pubis. Subcutaneous tissue is either undermined or excised to expose the linea alba. The linea is incised with a scalpel and a spay hook used to exteriorize the right uterine horn. A mosquito hemostat is placed on the right proper ligament and used to exteriorize the right ovary and expose the right suspensory ligament. The suspensory ligament is cut

with either a scissors or scalpel, a pedicle tie is performed, and the ovarian vessels are transected proximal to the ovary. The hemostat on the proper ligament is repositioned to clamp the tissue between the ovary and the uterine horn to prevent hemorrhage. Gentle caudal retraction of the first uterine horn will expose the uterine body and the second uterine horn. The second uterine horn and ovary are exteriorized, and the suspensory ligament is cut, and the ovarian vessels occluded as with the first ovary. A modified Miller's knot is placed on the uterine body and incorporating the uterine vessels and the uterus is transected at least 0.5 cm distal to the ligature. The technique for closure of the abdominal wound is by surgeons' preference.

### Feline castration

A closed castration is performed. The cat is placed in either dorsal or lateral recumbency (surgeon's preference). The first testicle is grasped and pressed against the scrotal skin. An incision is made in the scrotal skin exposing the testicle and the testicle is exteriorized. Caudal tension on the testicle will allow the cord tie to be performed. The spermatic cord is transected distal to the knot excising the testicle and the spermatic cord is placed back in the scrotum. The second testicle is removed in the same manner as the first.

### Conclusions

There is, at this time, no research documented adverse effects of ovariohysterectomy or castration of cats prior to five months of age. Couple this fact with documented health benefits and the potential for reduction of overpopulation of cats there is no reason not to change the age at which you recommend and perform sterilization of cats to prior to five months of age.

### Videos

All videos shown during this presentation can be viewed or downloaded from:  
<https://drive.google.com/drive/folders/1n4qWMptLdLiZbrygEqdCP4NZTiu4jSQ3?usp=sharing>

### References

1. Veterinary Task Force on Feline Sterilization. Veterinary Task Force on Feline Sterilization Recommendations for Age of Spay and Neuter Surgery.
2. AVMA. New recommendations for feline spay/neuter surgery. AVMA website. <https://www.avma.org/blog/new-recommendations-feline-spayneuter-surgery>. Published 2017.
3. FFF. Endorsements — Feline Fix by Five. <https://www.felinefixbyfive.org/endorsements>. Accessed June 7, 2019.
4. Kustritz M V. Early spay-neuter: clinical considerations. *Clin Tech Small Anim Pr*. 2002;17(3):124-128. doi:10.1053/svms.2002.34328
5. Land TW. Favors early spay/neuter. *J Am Vet Med Assoc*. 2000;216(5):659-660.

6. Howe LM. Short-term results and complications of prepubertal gonadectomy in cats and dogs. *J Am Vet Med Assoc.* 1997;211(1):57-62.
7. Root M V., Johnston SD, Johnston GR, Olson PN. The effect of prepuberal and postpuberal gonadectomy on penile extrusion and urethral diameter in the domestic cat. *Vet Radiol Ultrasound.* 1996;37(5):363-366. doi:10.1111/j.1740-8261.1996.tb01244.x
8. Benjamin L Hart; Lynette Hart; Abigail P Thigpen; Neil Willits. Best age for spay and neuter: a new paradigm. *Clin Theriogenology.* 2019.
9. Torres de la Riva G, Hart BL, Farver TB, et al. Neutering dogs: effects on joint disorders and cancers in golden retrievers. *PLoS One.* 2013;8(2).
10. Maniaki E, Murrell J, Langley-hobbs SJ, Blackwell EJ. Associations between early neutering , obesity , outdoor access , trauma and feline degenerative joint disease. *J Feline Med Surg.* 2021. doi:10.1177/1098612X21991456
11. Overlay B, Shofer FS, Goldschmidt MH, Sherer D, Sorenmo KU. Association between ovari hysterectomy and feline mammary carcinoma. *J Vet Intern Med.* 2005. doi:10.1892/0891-6640(2005)19[560:ABOAFM]2.0.CO;2
12. Howe LM. Short-term results and complications of prepubertal gonadectomy in cats and dogs. *J Am Vet Med Assoc.* 1997;211(1):57-62.
13. Spain C. Victor Houpt Katherine A. SJM. Long-term risks and benefits of early-age gonadectomy in cats. *J Am Vet Med Assoc.* 2004;224(3):372-379.
14. Moons CPH, Valcke A, Polis I, de Rooster H, Verschueren K, Porters N. Effect of early-age gonadectomy on behavior in adopted shelter kittens—The sequel. *J Vet Behav.* 2018.

- [Endorsement Statement — Feline Fix by Five Months](#)
  
- [Taskforce launches Feline Fix by Five initiative \(veterinarypracticenews.com\)](#)
  
- [Incorporating-Feline-Fix-by-Five-into-your-Veterinary-Practice.pdf \(squarespace.com\)](#)
  
- [Why the change in recommended age of sterilization of cats? — Feline Fix by Five Months](#)
  
- [New Advice on Sterilizing Kittens: Earlier Is Better \(dvm360.com\)](#)
  
- Link to sign-up for veterinarians – to list their practices:
  - [Veterinarian SignUp — Feline Fix by Five Months](#)