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Pros and Cons of Neutering

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Spaying (ovariectomy or ovari hysterectomy) has been shown to reduce unwanted pregnancies, prevent pyometra and decrease the risk of mammary gland tumors in female dogs and cats. However, increased tendency to develop obesity may occur in either species. In dogs, an increased incidence of certain cancers, aggressiveness, sedentary behavior, and urinary incontinence may develop after spaying. The ideal spay would result in positive effects from spaying with the least risk of developing negative effects. It would also result in minimal pain and immediate postoperative complications. Controversy thus continues to surround the best time and method of spaying.

A major controversy is whether ovari hysterectomy or ovariectomy is the preferable surgery. The rationale for removing the uterus is that stump pyometra may develop if the uterus is not removed. The rationale for ovariectomy is that the surgery is less invasive and the risk of pyometra is minimal once the animal is no longer cycling. In several long term studies of dogs and cats under going ovariectomy, stump pyometra did not occur in any animal after surgery. Studies have also shown that there is no difference in the incidence of urinary incontinence after ovariectomy or ovari hysterectomy in the dog.

A second controversy surrounds whether or not a midline approach or a flank approach is preferable. The advantages of the midline approach are that it is technically easier to perform an ovari hysterectomy from this approach, the incision can be quickly opened if needed, and both sides of the reproductive tract are easily accessible from one approach. The advantage of the flank approach is that, in experienced hands, it allows ovariectomy or ovari hysterectomy to be performed through a very small lateral incision. The flank approach can be closed with a few buried sutures and has a minimal risk of dehiscence. The flank approach is used in many feral cat neutering programs to avoid the risk of dehiscence. More recently, techniques for laparoscopic ovariectomy and ovari hysterectomy have been described for the dog. Although the surgery is technically challenging, the advantage of performing a spay using minimally invasive surgery is that the dog experiences less postoperative pain and distress.

A third controversy surrounds the best time to perform a spay. This controversy has been widely discussed in the United States literature in regard to the issue of neutering at a very young age compared to the traditional age of 6 - 8 months. Initial studies of 200 - 300 dogs and cats followed for up to 4 years did not indicate physical or behavioral differences between early age spaying or traditional age spaying. A larger study of 983 dogs found that 12.9% of dogs spayed at < 3 months developed urinary incontinence, while only 5% dogs spayed at >3 months became incontinent. Other differences documented in early age neutered dogs compared to traditional age neutered dogs were an increased incidence of cystitis, hip dysplasia, noise phobias and sexual behaviors, and a decreased incidence of obesity, separation anxiety, escaping behaviors, and inappropriate elimination when frightened. In 859 cats, an increased incidence of shyness was found in early age neuters compared with traditional age neuters, whereas a decreased incidence of asthma, gingivitis and hyperactivity were found.

In Europe, the debate has centered on whether or not to spay before or after the first heat. The mammary carcinoma data would suggest that performing a spay before the first heat would result in the lowest chance of mammary cancer. The pyometra data would suggest that as long as a spay was performed in the first 4 years of life, pyometra is not likely. One study of 809 bitches showed no difference in urinary incontinence in animals spayed before or after the first heat at the 5% significance level, but a difference at the 10% level. Other studies have documented urinary incontinence in 9.7% of bitches spayed before the first heat compared to a 20% incidence in bitches spayed after the first heat. Even though the incidence of incontinence was lower in bitches spayed before the first heat, severity of the incontinence in these dogs was much worse than in dogs spayed after the first heat.

The effect of spaying on behavior is controversial. Some studies have shown few effects, while others have demonstrated more reactivity and aggressive barking in spayed compared to intact bitches. In a study of 227 dogs that had bitten humans, neutered female dogs and male dogs were overrepresented. In a study of cats that had bitten humans, owned female Siamese cats were over-represented. The neuter status of the cats was not recorded, but most owned female cats are spayed.

In male dogs, neutering (castration) has been shown to reduce the incidence of prostatic hyperplasia and infection, but not prostatic cancer. Castration reduces the incidence of perineal hernia and the chance that perineal hernia will recur, if fixed. Castration will prevent perianal adenomas from occurring and cause regression of many perianal adenomas, once present. The incidence of urinary incontinence associated with castration in male dogs is much lower than the incidence of urinary incontinence associated with spaying in female dogs, but it does occur. Castration has been shown to reduce urine marking, mounting and roaming, but is effective in reducing aggression in only about one third of dogs. Castration appears to increase the speed with which age-related cognitive impairment progresses in the male dog.

In male cats, neutering (castration) reduces urine spraying, fighting and roaming. In one study, cats that were castrated before 5.5 months of age had fewer abscesses, aggression towards veterinarians, sexual behaviors and urine spraying compared to cats that were castrated at an older age.

Orthopedic conditions associated with neutering (spaying or castration) include hip dysplasia, cruciate injury and slipped capital femoral epiphysis. Dogs that are spayed or castrated before bone growth is complete are taller than intact dogs or dogs that are spayed or castrated at a later age. Orthopedic diseases in neutered animals are thus likely to be conditions associated with late or incomplete closure of growth plates or altered joint anatomy due to changes in skeletal growth.

The risk of obesity associated with neutering appears to be higher in sexually mature animals compared to immature animals. Animals that undergo early spay or castration can often self-limit their feed and maintain a healthy weight with free choice feeding. Animals that undergo spay or castration as adults are very likely to be unable to self-limit their feed and become obese with free choice feeding. Obesity can be controlled by limiting access to feed, but the owner must be warned that controlled feeding will be necessary.

Neuter status obviously affects tumor development and growth, if the tumor tissue is hormonally responsive. Less obviously, it may affect the development and growth of cancer in other tissues. Studies in Rottweilers have shown that the risk of osteosarcoma is increased in spayed and castrated animals compared to intact animals. For each month that an animal remained intact, there was a 1.4% decrease in osteosarcoma risk. The overall incidence of osteosarcoma in the study population of 683 Rottweilers was 12.6% during the study period. Spayed female dogs have been shown to have an increased risk of developing cardiac hemangiosarcoma.

The question must be asked: Is there a group of animals, particularly dogs, in which the risks of spaying may outweigh the benefits? The most likely candidates would be large breed dogs at increased risk for cruciate rupture, osteosarcoma, urinary incontinence and/or aggression. Osteosarcoma may result in early death, while urinary incontinence and/or dominance aggression can result in a pet becoming unacceptable and at risk of euthanasia. Weighing the risks of these conditions may shift the balance of "spay to prevent mammary cancer and pyometra" to "do not spay or delay spay to prevent severe urinary incontinence or biting". Regarding castration, the benefits of reduced aggression in some dogs, decreased prostatic disease and decreased perineal hernia and perianal adenoma development must be weighed against the risks of developing orthopedic disease or bone cancer.

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