

A Winn Feline Foundation Report On ...

EARLY SPAY/NEUTER IN THE CAT

Are fears of negative side effects of early neutering warranted? Background and medical issues including a summary of an ongoing Winn Foundation funded project to evaluate the long term effects of early altering.

Developmental and Behavioral Effects of Prepubertal Gonadectomy. Mark S. Bloomberg, DVM, MS; W.P. Stubbs, DVM; D.F. Senior, BVSc; Thomas J. Lane, BS, DVM; University of Florida at Gainesville. Funded by the Winn Feline Foundation, February 1991. Continuation funded February 1992.

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Summary prepared by Diana Cruden, Ph.D.

The concept of early spaying and neutering (e.g. before the animal is sexually mature) is not a new one. In the early 1900's, early neutering was the norm and it was not until much later that questions were raised about the negative side effects of such a procedure. Today most of the experts acknowledge that there has not been enough scientific information available about the most appropriate age to neuter a pet. Until recently, there was no research data that either supported or disproved the idea that neutering dogs and cats at ages younger than five to eight months was deleterious. There is, in fact, little scientific basis for selecting this age group as the most appropriate time for neutering. Indeed, one investigator points out that many veterinarians have been practicing early neutering for years, since there is an incredible range of ages when puppies and kittens reach sexual maturity. Large animal practitioners have long practiced early neutering on their livestock and consider it not only acceptable, but desirable in many cases. Even before concerns for the burgeoning population of unwanted pets raised our collective consciousness, there were many scientifically documented reasons to spay and castrate. Spayed females are protected against mammary cancer and uterine infections. In males, castration reduces the risk of testicular cancer and enlargement of the prostate and related infections. From the pet owners point of view, the spayed or castrated pet is a much better companion. They are less aggressive and more affectionate than their unaltered counterparts. Since they are not driven by the urge to reproduce, they are less likely to roam and fight.

Controlled studies into the short- and long-term effects of early neutering have been sadly lacking until recently. While there had been numerous anecdotal reports of early spaying and neutering, these cases were generally uncontrolled from the scientific viewpoint. Most reported cases were random bred, unrelated animals from a variety of backgrounds and no attempt was made to control for these variations. There have been few university based studies in this area. M.A. Herron of Texas A&M reported in 1972 that neutering before sexual maturity had relatively little effect on the diameter of the urethra in male cats. Studies have more recently been conducted at Angell Memorial Hospital in Boston, the College of Veterinary Medicine at the University of Minnesota, and the Department of Small Animal Clinical Sciences at the University of Florida. The Florida project, begun in 1991 and completed in 1992, was funded by the Winn Feline Foundation in conjunction with the American Veterinary Medical

Association (AVMA). A serious attempt was made in this study to limit background influences and genetic variation. The kittens were bred especially for the project and litter mates were divided among the three groups. The queens were bred and housed in quarantined facilities since both pre- and post-natal nutrition and other factors can contribute to the ultimate size, weight, and overall health of the kittens. Dr. Mark Bloomberg indicates that although long-term follow-up results are incomplete, the initial results are extremely positive. Prior to undertaking the Winn Foundation study, Dr. Bloomberg had completed a similar study in dogs. Animals involved in that study have now been followed for over five years, with no negative side effects reported. In the Winn Foundation study, there were a total of 31 domestic shorthair kittens from 7 litters born on the Gainesville campus.

The kittens were divided into three groups:

- Group 1 (11 kittens) were neutered or spayed at 7 weeks of age.
- Group 2 (11 kittens) were neutered or spayed at 7 months.
- Group 3 (the control group of 9 kittens) were not neutered until maturity and after the completion of the first phase of the study at 12 months.

The investigators reported that the surgical procedures in the Group 1 kittens were straightforward and uncomplicated, and that the kittens recovered even more rapidly than the Group 2 kittens and Group 3 cats. Dr. Bloomberg notes that although there is very little material on pediatric anesthesia in animals, the pediatric patient in human medicine is generally considered to be a very good surgical candidate and there is no reason why this should not also be true for dogs and cats. The major concerns in pediatric surgery are: preventing hypothermia (maintaining body heat); utilizing proper doses of anesthetic agents (since the respiratory centers are not as well developed in the pediatric patient); and maintaining proper blood glucose. The investigators did not fast the pediatric patients as long as adult patients and administered small amounts of Karo syrup prior to induction of anesthesia as a precaution. It should be noted that due to the rapid recovery of the pediatric patient, the common practice of reducing anesthesia during final stages of the surgery was modified.

Critics have claimed several possible detrimental side effects from early neutering. It is commonly believed that neutered animals are less active and more prone to obesity than unaltered animals. It was also suggested that neutering at an early age would stunt normal growth. In male cats in particular, it was feared that early castration would affect the development of the urinary tract and lead to an increased incidence of cystitis or urinary obstruction. Concerns have also been raised as to the effect of early neutering on behavior, food consumption and dietary requirements, etc. The investigators attempted to answer most of these questions by evaluating several parameters in the three groups of kittens. In particular, they looked at weight and body composition (i.e., percent of body fat); bone length and the age of physal closure (the age when long bone growth stops); behavior; food consumption; development of the urinary tract; and the development of secondary sexual characteristics and degree of sexual maturity.

The results of the comparisons of weight showed some differences between the three groups. Males weighed consistently more than females, but this was uniform in all groups. The studies of body composition and body fat indicated that Group 1 (neutered at 7 weeks) and Group 2 (neutered at 7 months) were identical and were generally fatter than Group 3 (neutered at 12 months, after they were sexually mature). Investigators point out that by 12 months, the male cats in Group 3 were already exhibiting the normal adult male characteristics of decreased weight and the development of jowls, which accounts for some of the differences. It has also been noted that in the course of follow-up, the differences between the weight in cats from Group 1 and 2 and Group 3 are becoming less apparent. All

these cats have been placed in selected and supervised pet homes and are more active than they were in the University facilities. A three-year follow-up exam was to be conducted in May of 1994.

OBSERVATIONS

There was generally no difference in food consumption between the three groups other than the differences between males and females, which were consistent in all groups. There was no difference observed in the growth rates in all three groups, although the males grew faster in all groups. Increased long bone length was observed in both males and females in Groups 1 and 2. This appeared to be due to the fact that physal closing (closure of the bone growth plate) was delayed in Groups 1 & 2. This explains why cats neutered and spayed as kittens are frequently larger (longer and taller) than unaltered cats or cats altered later in life. This seems to be particularly true for males.

In terms of behavior, after 7 months, the cats in Group 3 were noticeably less affectionate and more aggressive prior to altering than the cats in Groups 1 and 2. Contrary to popular opinion, neutered animals were as active as their unaltered age mates.

Observations of urinary tract development showed no differences between the three groups other than the differences related to sex and these were consistent across all groups. The investigators measured the diameter of the urethra in the male kittens only and found no differences between the groups. Concerns have been raised that early neutering would result in smaller diameters in the urinary tract, resulting in an increased incidence of cystitis and related problems. This does not appear to be the case. The main differences observed between the groups occurred in the comparison of secondary sex characteristics. Males were examined for differences in the development of the penis and prepuce (skin covering the penis), as well as for the development of penile spines. The penile spines were absent in Group 1, smaller than normal in Group 2, and normally developed in Group 3. In the examination of the female kittens, investigators found that the vulvas were more infantile in Groups 1 and 2 and normal in Group 3. None of these differences had any impact on the ability to catheterize the kittens. Concerns that development of the urinary tract might be arrested or impaired by early spaying and neutering proved unsupported.

The results of this study so far indicate that the differences between cats neutered at 7 weeks and 7 months are insignificant. The differences observed between animals in Groups 1 and 2 and the animals in Group 3, while in some cases statistically significant, are not differences which appear to affect the health of the animal in a negative way. While the final results will depend on the analysis of long-term follow-up, the indications are that early neutering is not detrimental to the overall health of the animal. From the perspective of shelters and particularly in respect to the problem of surplus puppies and kittens these results are encouraging. If all the animals adopted from shelters, including puppies and kittens, are neutered prior to adoption, there should be a corresponding decrease in the numbers of animals euthanized each year in this country. Preliminary results from Alachua County, near the University of Florida at Gainesville, would seem to support this theory.

Alachua County Animal Control has been working with the investigators at the University and has had an early neuter policy in place since 1990. No animal leaves the shelter without being neutered. In 1987 the county euthanized 1,250 cats and dogs per month. Since implementing the early neuter policies they have seen the numbers drop to 940 per month in 1992 and there has been no increase in morbidity or mortality associated with the program.

In the last year, recognition of the safety and efficacy of early spay/neuter has grown rapidly. The American Humane Association has endorsed early neutering prior to adoption as a "feasible solution to decreasing pet overpopulation and the tragedy of resulting deaths." In July 1993, delegates to the American Veterinary Medical Association Annual Meeting voted to give AVMA's support to the concept of early neutering. Work done by veterinarians at Angell Memorial Hospital for the Massachusetts Society for the Prevention of Cruelty to Animals supports Dr. Bloomberg's observations. Other organizations involved in early neuter programs include the Denver Dumb Friends League in Colorado, the Miami Humane Society and Alachua County Animal Control in Florida, The Humane Society of Austin and Travis County in Texas, the Chicago Animal Control in Illinois, the King County Animal Control in Washington state, the Vancouver SPCA in British Columbia and the Southern Oregon Humane Society in Oregon. The Dekalb Humane Society in Decatur, Collie Rescue of Metro Atlanta, the Georgia Alliance of Purebred Canine Rescuers, The Haven (dog rescue) and Dog River Sanctuary in Douglasville are among the Georgia organizations working with early neuter in dogs and cats, as well as exotic species.

The Cat Fanciers' Association (CFA) has changed its show rules to permit altered kittens to compete. Many breeders of pedigreed cats are working with their veterinarians to neuter pet quality kittens prior to placement in new homes. Those breeders who have adopted this policy report that they are very happy with the practice. New pet owners indicate that acquiring an already neutered animal relieves them of the worry and expense of scheduling the surgery at a later date, enabling them to relax and enjoy their new companion. As is the case for shelter managers, breeders can relax in the knowledge that the kitten they place today is not going to contribute to the surplus pet population tomorrow.

NOTE:

The Winn Feline Foundation, organized primarily to fund health studies benefiting cats, unfortunately is not staffed to provide medical information or assistance on an individual basis.

FYI, the Cornell University Feline Health Center operates a medical information "hotline" available to both practicing veterinarians and pet owners at 1-800-548-8937. Note that there may be a charge for consulting with them.

Your own veterinarian is, of course, your best source for information.