THE WINN FELINE FOUNDATION
For the Health and Well-Being of All Cats
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Early Age Altering

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Early age or prepuberal altering (EAA) refers to gonadectomy (spay or neuter) between six and sixteen weeks of age and is now more commonly practiced as veterinarians gain experience with pediatric anesthesia and surgery. The traditional gonadectomy age is about six months, although in some countries, gonadectomy may be delayed until one year of age.

Prepuberal gonadectomy is altering before the onset of puberty, which may occur in females between 4 and 21 months of age and in males between 8 and 10 months of age. Prepuberal gonadectomy has been commonly recommended by veterinarians for many years to avoid unwanted pregnancy and to reduce the risk of mammary cancer. What is new is the earlier age at which prepuberal altering is now being performed. EAA is one desirable approach for control of pet overpopulation as it enables shelters to perform pre-adoption altering and avoids the risk of owner non-compliance with altering contracts. Increasingly, it is recognized there are also health benefits to EAA.

Major veterinary organizations around the world are supportive of EAA, including:

- American Veterinary Medical Assoc.
- Canadian Veterinary Medical Assoc.
- British Small Animal Veterinary Assoc
- European Society of Feline Medicine
- Feline Advisory Bureau (U.K.)
- Winn Feline Foundation

Health Issues

Objections to EAA have included concerns about:

- Effect on growth
- Long bone fracture risk
- Obesity
- Behavioral changes
- Increased risk of disease
- Safety of surgery and anesthesia in pediatric patients

Testosterone and estrogen assist maturation of the growth plates in long bones. Growth stops when physeal closure occurs. Intact cats have distal radial physeal closure at 1 year of age or older. Cats altered at 7 weeks and 7 months of age had distal radial physeal closure about 8 weeks later than intact cats. The effect of this delay in physeal closure is unknown, but adult size in cats is not significantly affected by age of altering. It has been

suggested that delayed physeal closure may predispose cats to Salter fractures of the femoral capital growth plates. The femoral capital growth plate normally closes between 7.5 and 10 months of age. Other risk factors for this type of fracture include obesity and gender/reproductive status (neutered male). The risk of fracture would be the same for cats altered at any age that results in delayed physeal closure, not just EAA cats. These fractures appear to be rare in the altered cat population. One large study (Spain et al) failed to find any association between EAA and long bone fracture risk in cats.

Obesity is a multifactorial problem involving diet, exercise, age and other factors. Altered cats have a lower metabolic rate than sexually intact cats regardless of the age at gonadectomy. Altered male cats require 28% less calories than intact male cats and altered female cats require 33% fewer calories than intact female cats. Clients should be counseled on the dietary needs of altered cats to avoid obesity.

Compared to altered cats, sexually intact cats show less affection to humans and more aggression to other cats. One study has shown that EAA male cats are less aggressive to vets, and exhibit fewer problems with urine spraying. Spain et al showed there is no difference in the prevalence of significant behaviour problems based on age at altering.

Lower urinary tract disease in cats is caused by a wide variety of factors such as diet, water intake and stressors. The diameter of the male urethra is no smaller in EAA cats than in intact cats. Age at altering does not influence risk of urinary tract disease; in fact, one study showed a lower risk of urinary tract obstruction in EAA male cats. Several long term studies have been performed to assess health risks of EAA. These studies confirm that EAA is not associated with any increased risk of disease, but rather is associated with a lower risk of some diseases (such as asthma and gingivitis).

Anesthesia and Surgery

Pediatric patients have unique perioperative, anesthetic and surgical issues. With the use of safe and effective techniques, it has been shown that EAA does not increase morbidity or mortality associated with anesthesia and surgery. In fact, kittens altered at less than 12 weeks had lower postoperative complication rates than those altered at over 23 weeks of age in one study. There are surgical benefits to EAA that include less bleeding, improved visualization of organs, shorter surgery times and more rapid recoveries.

Pediatric patients distribute and metabolize drugs differently, so the clinician must be careful with drug selection and doses. Bear in mind that renal and hepatic function does not reach adult levels until about 12-14 weeks of age. Certain anesthetic concerns must be addressed, such as the neonate’s rate dependent cardiac output, maintenance of breath rate, and minimizing dead space in anesthetic equipment. Certain anesthetic drugs should be avoided in pediatric patients, but many safe and effective drug protocols have been described.

Hypothermia occurs easily due to the greater surface area:volume ratio of the neonate, less subcutaneous fat and reduced ability to shiver. Hypothermia can cause bradycardia and prolonged recovery from anesthesia. The prep, surgery and recovery areas should be kept warm. Ensure kittens are never placed on cold metal surfaces. Use warmed blankets or circulating water blankets to maintain body temperature. Plastic “bubble pack” wrapping is also useful for maintaining warmth. Warm the surgery prep solutions, and

replace alcohol with sterile saline. Hypoglycemia occurs easily due to their small hepatic glycogen reserves, so neonates should not be fasted for more than 2 to 3 hours before anesthesia. Within an hour of recovery, they should be offered a small meal. Kittens unwilling to eat after an hour or more can be given oral dextrose to prevent hypoglycemia.

Certain surgical concerns must also be addressed. Meticulous hemostasis is necessary as tissues are more friable than in adults, so handle tissues gently. For males, perform closed castration via a single or double scrotal incision, tie off with absorbable suture or use hemostatic clips and leave the scrotal incision open. For females, the OHE technique is the same as for a mature cat. It is best to close the skin with subcuticular sutures or tissue adhesive and avoid skin sutures. Note that serous fluid in the abdomen of neonates is normal.

Five Rules for Successful Early Age Altering

1. Kittens should have a complete physical exam; have their first vaccination and treatment for parasites; postpone surgery if any illness or abnormality is found (including cryptorchidism)
2. Weigh each kitten to nearest 100 grams, calculate drug doses carefully
3. Combat hypoglycemia: withhold food for only 2-4 hours; feed a small meal within 1 hour of recovery; administer 50% dextrose orally to kittens with prolonged recoveries or those that will not eat post-op
4. Decrease stress: keep litters together before surgery in a warm, quiet environment; minimize handling; avoid IV injections; reunite litters as soon as possible after recovery
5. Combat hypothermia: insulate against cold surfaces, minimize hair coat clipping, avoid alcohol in preps, warm prep solutions, monitor rectal temperature, use supplemental heat sources (warm blankets, hot water bottles, heat lamps, etc.)

For more information:

The Cat Group (UK) Policy Statement:
http://www.fabcats.org/neut.html