Early Age Altering of Kittens
2006

- Terminology:
  - Spay (ovariohysterectomy): surgical removal of the uterus and ovaries in a female; in some countries, only ovariectomy (removal of ovaries) is performed and the uterus is left intact
  - Neuter (castration, orchiectomy, orchidectomy): surgical removal of the testicles in a male; may also be used synonymously with "spay"
  - Altering, gonadectomy, sterilization: refer to either spay or neuter
- Early age altering (EAA) refers to gonadectomy between 6 and 16 weeks of age
  - Traditional gonadectomy age is about six months
  - In some countries, gonadectomy may be delayed until one year of age
- Prepuberal gonadectomy: altering before puberty (age of sexual maturity)
  - Onset of puberty varies with season, environment, growth, nutrition
    - Females: between 4 and 21 months of age
    - Males: between 8 and 10 months of age
  - Prepuberal gonadectomy is commonly recommended to avoid unwanted pregnancy and to reduce the risk of mammary cancer
  - What is new is the earlier age at which prepuberal altering is performed
- EAA is a desirable approach to control of pet overpopulation for shelters; enables pre-adoption altering and avoids risk of owner non-compliance with altering contracts; there are also health benefits to EAA
- Cat breeders may desire EAA for pet kittens before they are sold
  - Responsible breeders strive to improve the quality of their breed by ensuring only the best specimens contribute to future generations
  - Certain animals should not be bred because they do not meet the breed standard or may carry an undesirable trait or genetic disease
  - Breeders should be responsible for the kittens they produce; if a kitten is not destined for a breeding program, it should be altered
  - Sales contracts requiring pet owners to spay/neuter may not be easy to control or enforce; even when owners do alter pets, 20% have a litter before surgery
- There are health benefits from altering cats not needed for breeding:
  - Altered cats make better pets: undesirable behaviours associated with reproduction are eliminated or reduced, such as yowling, fighting, roaming, aggression, urine spraying/marking
  - Altered cats are healthier and live longer lives: the risk of cancers and infections of the reproductive tract and mammary glands is eliminated
  - Altered male cats are less likely to fight: reduces the risk of infectious diseases such as feline immunodeficiency virus
EAA schedules: all kittens should be in good health before altering, be treated for external and internal parasites; ideally kittens should not be rehomed until they are over 12-14 weeks old
- Eight weeks: 1\textsuperscript{st} vaccination
- Ten weeks: alter
- Twelve weeks: 2\textsuperscript{nd} vaccination
- Fourteen weeks +: rehome
OR
- Eight weeks: 1\textsuperscript{st} vaccination
- Twelve weeks: 2\textsuperscript{nd} vaccination
- Fourteen weeks: alter
- Fifteen weeks +: rehome

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.)

Major cat registries around the world are supportive of EAA, including:
- Cat Fanciers' Assoc. (CFA)
- The International Cat Assoc. (TICA)
- Governing Council of the Cat Fancy (GCCF)

Objections to EAA include concerns about:
- Effect on growth
- Fracture risk
- Obesity
- Behavioural changes
- Increased risk of disease
- Safety of surgery and anesthesia in young kittens

Growth: Testosterone and estrogen assist maturation of the growth plate in long bones, growth stops when these growth plates are mature (physeal closure)
- 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
- Adult size is not affected by age at spay/neuter
Fracture Risk: Delayed physeal closure may predispose cats to femoral capital growth plate fractures (Salter fractures)
- Femoral capital growth plate normally closes between 7.5 and 10 months
- Risk factors: obese, neutered male, delayed physeal closure
- Certain breeds may have higher risk such as Maine Coon
- Fracture risk would be the same for cats altered at any age that results in delayed physeal closure, not just EAA cats
- Prevalence of these fractures is unknown but they are uncommon

Obesity: A multifactorial problem involving diet, exercise, age and other factors
- Altered cats have a lower metabolic rate than sexually intact cats irregardless of the age at gonadectomy
- Altered male cats require 28% less calories than intact male cats
- Altered female cats require 33% fewer calories than intact female cats

Behaviour:
- Compared to altered cats, sexually intact cats show less affection to humans and more aggression to other cats
- EAA male cats are less aggressive to vets, show less urine spraying
- No difference in the prevalence of significant behaviour problems based on age at altering

Disease Risk:
- Lower urinary tract disease:
  - 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; one study showed a lower risk of urinary tract obstruction in EAA male cats
- Other health issues: Several long-term studies have been performed
  - EAA is not associated with any increased risk of disease
  - EAA is associated with lower risk of asthma and gingivitis for males and females
  - EAA is associated with lower risk of abscesses in male cats

Anesthesia and Surgery Risks:
- EAA does not increase morbidity or mortality
- Kittens altered at under 12 weeks have lower postoperative complication rates than those altered at over 23 weeks of age
- Surgical benefits from EAA:
  - Less bleeding
  - Improved visualization of organs
  - Shorter surgery times
  - More rapid recovery
References

Websites
The Cat Group policy statement, Timing of Neutering:  
http://www.users.waitrose.com/~thecatgroup/neut.html

Winn Feline Foundation:  
http://www.winnfelinehealth.org/health/early-spay-neuter.html