

## EARLY AGE NEUTERING OF DOGS AND CATS

### **Policy**

The NZVA supports pre-pubertal desexing of dogs and cats from 8 weeks of age, provided each animal is individually assessed for suitability prior to surgery. Six months is the traditional age for this surgery, but desexing at an earlier age is also acceptable, especially for breeders, shelters and other humane organisations. The benefits of early desexing include improved population control, quicker surgical procedure, less trauma and stress for the animal and reduced recovery times.

### **Explanation**

The control of overpopulation in dogs and cats is a problem well recognised in New Zealand and overseas. There are still critical numbers of animals admitted to shelters worldwide, and many are euthanased. Despite various voucher schemes, contracts, deposits and forms of follow-up, compliance with desexing requirements for animals after adoption from a shelter is poor. Desexing prior to adoption is the best way to ensure these animals don't reproduce. Prepubertal desexing also allows breeders to spay and neuter animals prior to rehoming. This ensures pet quality animals can be re-homed at 8 weeks, thus facilitating socialisation and training, while preventing animals with potential heritable defects or animals that aren't "breed standard" from reproducing.

Puberty is defined as, "the condition of being or the period of becoming first capable of reproducing sexually." The age at which puberty is reached varies. In female dogs it is as early as 5 months, male dogs as early as 4-5 months; in female and male cats as early as 4 months. At 6 months of age, the traditional age for desexing, dogs and cats may or may not be prepubertal.

### **Prepubertal desexing – considerations**

There is no association between age at desexing and frequency of occurrence of most behavioural and medical conditions. There may be some physical differences. Surgery is easier and quicker in younger animals as they have less fat and blood vessels are smaller. When dogs and cats are desexed prior to 14 weeks there are some anaesthetic and physiological considerations.

### **Obesity**

There is no difference in food intake or weight gain between dogs and cats desexed before puberty and those desexed after puberty. Metabolism has been demonstrated to be decreased in desexed cats regardless of age at desexing. In one study, earlier desexing of dogs was correlated with decreased obesity. Obesity is a multifactorial disease of which desexing may only play a part.

### **Behaviour**

Timing of desexing has little adverse influence on feline or canine behaviour, and desexing prior to the traditional age may confer many positive behavioural benefits, such as a reduction in separation anxiety, escaping behaviours and inappropriate elimination in dogs and aggression toward veterinarians, sexual behaviours and urine spraying in cats..

## **Disease predisposition**

Some studies show that there is an increased risk of oestrogen-responsive urinary incontinence with decreasing age of desexing in female dogs. The risks and benefits of the early procedure should be considered and where population control is not the primary issue, it may be advisable to delay desexing of female dogs until they are at least 3–4 months of age. In one study, the incidence of cystitis has been shown to be increased in female dogs prior to 5.5 months of age, but no episodes of the condition occurred more than twice. In the same study, hip dysplasia in dogs desexed prior to 5.5 months of age was increased, although the dogs desexed after 5.5 months of age were three times more likely to be euthanased for the condition.

## **Skeletal maturation**

Dogs and cats desexed at and prior to the traditional age of desexing show delayed closure of the growth plates of long bones, although this has not been associated with an increase in long bone fractures or abnormalities. Keeping animals at a healthy weight, and not allowing too much high impact exercise prior to skeletal maturity will help both growing and adult animals.

## **Secondary sex characteristics**

External genitalia may be smaller in male and female dogs and cats desexed before puberty. Female dogs may have the appearance of a juvenile “tucked-up” vulva. The timing of desexing has not been shown to affect urethral diameter in cats. In bitches, waiting until after first oestrus to spay has not been shown to decrease the incidence of perivulvar dermatitis.

## **‘Early’ desexing – anaesthetic considerations**

- Paediatric patients rely on a normal heart rate to keep up cardiac output and breathing is stimulated to a lesser extent by carbon dioxide, so heart rate and respiratory rate need to be carefully watched;
- The paediatric patient has limited ability to regulate cardiac output and therefore reduced ability to compensate for blood loss and generalised stress;
- Paediatric patients have lower glycogen storage due to their smaller livers and skeletal muscles. This can predispose to hypoglycaemia so the period of fasting should be adjusted according to age, and patients should be fed when able to stand post-operatively;
- Young animals have decreased ability to maintain body temperature and shiver so warmth is important both during and after surgery;
- The least amount of premedication, induction and maintenance anaesthetic drugs possible should be used;
- Pain relief is important;
- Differences between paediatric and adult animals that influence pharmacodynamics are:
  - 1) total body water is greater in the neonate;
  - 2) regional blood flows differ with age (i.e. high vessel rich group in the young);
  - 3) relative and absolute proportions of body compartments differ (e.g. subcutaneous fat is scarce in young);
  - 4) increased permeability of the blood brain barrier in the young;
  - 5) decreased plasma albumin concentration in the young;
    - 6) decreased protein binding of drugs in the young
    - 7) reduced ability of the immature liver to metabolise drugs;

- 8) reduced ability of the immature kidney to excrete drugs.

## **Note**

The Companion Animal Society of the NZVA has developed material to inform veterinarians of current anaesthetic/surgical techniques available for early desexing of dogs and cats. This information is available in the members' zone of the NZVA website and from the NZVA office on request.

## **References**

**Walsh V & Worth A.** Early age neutering. *Proc NZVA Companion Animal Society Conference*, 2008

**Spain C, Scarlett JM & Houpt KA.** Long term risks and benefits of early age gonadectomy in cats, *Journal of the American Veterinary Medical Association* 224:372-379, 2004

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