

GUIDELINES FOR PRIVATE PRACTICE VETERINARIANS ON ANAESTHESIA AND PAIN MANAGEMENT IN CATS UNDERGOING DESEXING

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Unwanted cats are a concern in Australia and in many countries around the world ^{1, 2} as the welfare implications for individual cats and the associated social and environmental impacts of cats that cannot be responsibly homed are significant ³. Desexing cats before they can reproduce is an important part of any strategy to control cat populations ⁴. Although owned cats are usually desexed as part of responsible cat ownership, many accidental litters are born, and many unplanned pregnancies occur; therefore, desexing before they can reproduce is an important strategy for reducing the number of unwanted kittens ^{2, 5}.

The benefits of desexing before puberty include a decrease in unwanted litters, less inclination to roam and a lower incidence of disease and injury ². Conversely, the risks of 'early' desexing are limited and mostly associated with the perceived risk of anaesthesia and surgery in small and immature animals. Prepubertal desexing is commonly performed by veterinarians in shelters and welfare organisations but in private practices there is often reluctance to undertake these procedures ⁶. Hence, the RSPCA, the Australian Veterinary Association, and many other veterinary and cat welfare organisations around the world recommend that cats are desexed at or before puberty as normal practice ^{7, 8}. The barriers to this approach have been identified and include veterinarians' concern about safe anaesthesia and analgesia for young cats ⁷. Targeted desexing programs have been identified as important in cat management, particularly for unowned and semi-owned cats. Many of these cats are unsocialised, and the management of anaesthesia and analgesia for this cohort of cats is anecdotally a source of concern for veterinarians working outside the shelter or welfare organisation environment ^{4, 9, 10}.

Given the benefits of desexing cats for individual cat health and population control these guidelines have been developed in collaboration with the Veterinary Anaesthesia and Analgesia Chapter and the RSPCA to help ensure that anaesthesia can be performed safely and with a high standard of patient care. Cats present several considerations for anaesthesia and surgery, but two cohorts of cats warrant special regard: those that present for desexing prior to puberty (≤ 16 weeks of age); and those that are unsocialised. The former group of cats are very small and more likely to experience complications such as hypothermia and prolonged recovery while the latter are difficult to evaluate prior to the administration of drugs. In these cases, an educated guess on the clinical status of the unsocialised cat must be made to ensure the safety of both the cat and personnel. Balanced anaesthesia, including multimodal analgesia, can be achieved with careful planning and preparation of equipment, drugs and personnel. The best approach is to develop an individual plan for

each cat based on their clinical presentation, history and signalment. The small size of cats, especially pre-pubertal cats, requires careful attention to safe airway protection using uncuffed endotracheal tubes, dilution of concentrated drugs like medetomidine, prevention of intra-operative heat loss, minimisation of the duration of surgery and effective monitoring and management of intra-operative physiological complications. During anaesthesia, someone with the appropriate training and skills must be dedicated to continuous monitoring and intermittent recording of various parameters (especially heart rate, blood pressure and temperature) that reflect the physiological status of the animal during the procedure. With a considered approach, careful planning, access to the appropriate drugs and equipment and low stress handling techniques, it is possible to provide effective anaesthesia and analgesia for pre-pubertal and unsocialised cats for desexing safely.

Table 1. Key points for safe anaesthesia of cats.

1	Prepare equipment ahead of time and check anaesthetic machine and breathing system at the start of each day.
2	Develop an individual plan for each cat for balanced anaesthesia and multimodal analgesia.
3	Use an uncuffed endotracheal tube.
4	Dilute drugs like medetomidine from 1000 µg/mL to 100 µg/mL for accurate dosing.
5	Minimise surgery time.
6	Have a trained person dedicated to monitoring anaesthesia with a focus on heart rate, blood pressure and body temperature.
7	Assess pain prior to discharge to ensure analgesia is adequate.
8	Use meloxicam post-operatively at 0.1-0.2 mg/kg by subcutaneous injection.

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