



# CASTRATION OF SHEEP AND GOATS

All methods of castration cause acute and chronic pain (Molony et al., 1993; Lester et al., 1996), which can be mitigated by the use of local anesthesia, sedation and/or non-steroidal anti-inflammatory drugs under the guidance of a veterinarian within the bounds of a veterinarian-client-patient relationship (VCPR) (Thornton and Waterman-Pearson, 1999). See <http://aasrp.org/about/guidelines/VCPR2020.pdf> and <http://aasrp.org/about/guidelines/AASRPdruguse4F.pdf>.

In the U.S., there are no anesthetic or analgesic drugs approved for small ruminants, so their use requires extra-label drug use (ELDU) under the supervision of a veterinarian with whom a VCPR has been established. Veterinarians should ensure that their clients are trained in appropriate castration methods, identification of acute and chronic pain, and appropriate use of any drugs, including correct regimen (dose, route, frequency and duration) to maximize efficacy, minimize adverse effects, and prevent drug residues. Sheep and goat management systems in the U.S. vary widely, so veterinarians should work with their producers to develop safe, practical and effective castration protocols applicable to each individual farm.

## CASTRATION TIMING

Castration of males at an early age has been shown in several species to delay the closure of long-bone physes. Therefore, geldings may develop a tall, straight legged stature (particularly of the hind limbs). In llamas, lateral patellar luxation and early onset of degenerative osteoarthritis of the stifle joints have been seen as complications of this posture. Historical data usually reveals that affected males were castrated at an early age (e.g. 4 months).

## CASTRATION TECHNIQUES

Castration is a routine animal husbandry procedure to avoid unwanted pregnancies and behavioral issues of intact male sheep and goats. Castration can improve meat quality, tenderness and avoidance of undesirable flavors, but intact animals are more efficient at converting feed into lean meat. In addition, wethers grow a finer wool quality than rams. The welfare implications of castration can be avoided in some management systems in which males are separated prior to puberty, and animals are slaughtered at lighter weights. Castration may be delayed in animals that will remain wethers for the duration

of their natural life, specifically pets and fiber animals, as delayed castration may help in prevention of urolithiasis. However, in general, castration should be performed as young as possible once the maternal bond has been established (Molony et al., 1993; Kent et al., 1993). While castration results in pain in all ages, there is less tissue trauma, less distress from restraint and handling, and less reduction in growth rates when castration is performed in younger animals.

## CASTRATION METHODS

There are three recognized methods of castration in sheep and goats: banding or rubber ring, Burdizzo (clamping) and surgical castration. Surgical castration is the only method that is 100% effective. However, risks of surgical castration include hemorrhage, intestinal herniation, and post-operative infection. Both the banding and Burdizzo methods result in changes in post-procedural behavior indicative of pain (Thornton and Waterman-Pearson, 2002). Castration should be performed by competent, trained personnel using proper, clean and well-maintained tools and accepted techniques.





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CONTINUED

## RECOMMENDATIONS

- Banding without the use of local anesthetics should only be performed under seven days of age, but after the maternal bond has been established and colostrum intake achieved (e.g., at 24 hours old).
- Banding can be performed older than seven days of age and up to 12 weeks of age, but local anesthetics and/or non-steroidal anti-inflammatory drugs (NSAIDs) should be used.
- Surgical castration can be performed at any age, but anesthesia and analgesia should be used if performed after seven days of age.
- Castration in animals older than 12 weeks of age should be performed by a veterinarian using appropriate anesthesia and analgesia.
- Burdizzo (clamping) can be performed between one to 12 weeks of age. However, anesthesia and analgesia should be used if clamping is performed after four weeks of age.
- “Short sacking”, a modification of banding to press the testes against the body wall to compromise effective spermatogenesis

should not be performed. This technique has no benefit over banding and is not always effective for castration.

- Immunocastration with a vaccine against gonadotrophin releasing hormone is not recommended at this time as there is no product approved for use in small ruminants in the U.S.
- Infection following surgical castration can be minimized by not performing the procedure in muddy or dusty environments, wet or humid weather, or during periods of high fly activity. Burdizzo (clamping) is a suitable alternative for these environments, but this method of castration may be less effective. Prior to surgical castration, animals should receive tetanus vaccination to minimize the risk of infection.
- Injection of local anesthetic into the spermatic cords and/or testes is recommended prior to surgical castration. Non-steroidal anti-inflammatory drugs acceptable for extra-label use (e.g., flunixin meglumine, meloxicam) are recommended following surgical castration.

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Approved by the AASRP Board of Directors March 2022



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