BVA British Veterinary Association | Policy statement

Sheep Veterinary Society
Division of the British Veterinary Association

Sheep castration, tail docking, and pain management

It is essential for sheep health and welfare, that any procedures having the potential to create pain and suffering should be balanced against the need for that procedure. Castration and tail-docking are sometimes routine husbandry procedures and, because they are painful, efforts must be made to reduce their use, and apply alternative management techniques where possible.

The need for castration or tail docking should be considered carefully and reviewed annually. Where either procedure is considered necessary, it should be in consultation with the farm's veterinary practice as part of the flock health and welfare plan. Associated pain should ideally be minimised through the use of local anaesthesia and appropriate analgesia. There is a lack of licensed products for use in sheep, however products used in cattle can be used on the cascade where required.

We consider our associated recommendations as aspirational and something to work towards within the context of the UK sheep flock.

1. Legislation

UK animal welfare legislation, via the Animal Welfare Acts[1,2,3], legally restricts mutilations unless they are carried out for the purposes of medical treatment.

There are some mutilations which are exempt from the ban on the basis that they can be necessary for long-term welfare or animal management reasons, control of reproduction, or for identification purposes. These procedures are listed in the regulations for the relevant UK jurisdiction.

The Mutilations (Permitted Procedures) (England) Regulations 2007[4] and the Mutilations (Permitted Procedures) (Wales) Regulations 2007[5] allow for:

- Castration using a rubber ring or other device to constrict the flow of blood to the scrotum on animals aged not more than seven days. When any other method is used, an anaesthetic must be administered where the animal is aged three months or over.

- Tail docking using a rubber ring or other device to constrict the flow of blood to the tail on animals aged not more than seven days. When any other method is used an anaesthetic must be administered. In all cases, enough of the tail must be retained to cover the vulva of a female animal or the anus of a male animal

The Prohibited Procedures on Protected Animals (Exemptions) (Scotland) Regulations 2010[6] allows for castration and tail docking but does not specify the method or apply age restrictions. However docking

[1] http://www.legislation.gov.uk/ukpga/2006/45/contents
[2] http://www.legislation.gov.uk/asp/2006/11/contents
[3] http://www.legislation.gov.uk/nia/2011/16/contents
[4] https://www.legislation.gov.uk/uksi/2007/1100/schedule/5/made
[5] http://www.legislation.gov.uk/wsi/2007/1029/schedule/5/made
[6] The Prohibited Procedures on Protected Animals (Exemptions) (Scotland) Regulations 2010

may only be performed where sufficient tail is retained to cover the vulva in the case of female sheep and the anus in the case of male sheep and surgical castration or docking may only be performed by a veterinary surgeon. Relevant parts of the Protection of Animals (Anaesthetics) Act 1954 still apply in Scotland and require an anaesthetic to be used for castration or tail docking if a rubber ring or other device to constrict the flow of blood to the scrotum or tail is used on animals aged more than 7 days old.

The Welfare of Animals (Permitted Procedures by Lay Persons) Regulations (Northern Ireland) 2012[7] allows for:

- Castration using a rubber ring or other device to constrict the flow of blood to the scrotum on animals aged not more than seven days. When any other method is used it shall only be used up to the age of three months
- Tail docking using a rubber ring or other device to constrict the flow of blood to the tail on animals aged not more than seven days. When any other method is used it shall only be used up to the age of three months.

BVA and SVS will continue to work for alignment of legislation in England, Wales, and Northern Ireland with the Scottish legislation so that these methods can be used beyond 7 days of age.

2. Historical Background

Castration has been traced back to around 4000 years BCE at around the time that the domestication of sheep for the purposes of managed wool and milk production intensified[8]. The perceived benefits include a reduction in undesirable aggressive behaviour and ease of management alongside the more obvious goal of the prevention of unwanted pregnancies.

Docking appears to be a later practice, not appearing in records until the 16th or 17th centuries, its main purpose seems to have been the reduction of faecal or urine contamination in the longer-woolled breeds that began to be prevalent at that time.

3. Reasons for Current Practice

The essential reasons for both castration and tail-docking have altered little with time. However there is progression in the industry, with the need for these management procedures being discussed on farms, alongside how change can improve animal welfare. Reference can be drawn to recent work on these procedures, where 'Reduce. Refine and Replace' is encouraged in flock health planning discussions between farmers and their vets[28].

a) Reasons for castration

Castration to avoid unwanted pregnancies

- Castration may be needed to prevent unwanted pregnancies in a mixed-sex flock. This can arise where the overall management of the farm means that a mixed-sex group is the best way to rear lambs prior to sale or slaughter. Hill breeds in particular, being slow growing, may reach sexual maturity before the desired slaughter weight. While animals can be segregated into same-sex flocks, this may not be convenient depending upon grazing availability and potential markets for lamb meat[9].

Castration to avoid ram taint

Castration may also be performed to eliminate 'ram taint'. Taint of meat is due to the presence of skatoles in the fat that may contribute to an unpleasant taste. Although there is some evidence that the skatole

[7] http://www.legislation.gov.uk/nisr/2012/153/schedule/3/made
[8] "That Which Was Missing": The Archaeology of Castration by Kathryn Reusch https://ora.ox.ac.uk/objects/uuid:b8118fe7-67cb-4610-9823-b0242dfe900a/download_file?file_format=pdf&safe_filename=THESIS01&type_of_work=Thesis
[9] FAWC report on the implications of castration and tail-docking for the welfare of lambs

concentration is greater in the fat of entire rams compared to castrate ram lambs, the concentration is also considered to be below the detection threshold[10] .

As sheep are seasonal breeders, the onset of breeding activity, rather than the absolute age of the ram is the more significant factor when assessing the likelihood of taint. Castration is unnecessary where lambs will be finished and sent to slaughter before they reach sexual maturity. Castration to avoid ram taint will therefore only be needed if the lambs are to be slaughtered at a greater age. Evidence shows that uncastrated ram lambs reach slaughter weight more quickly than castrates and produce the leaner meat favoured by consumers, as the male hormone testosterone promotes growth and favours muscle development over fat deposition[11].

The Animal Welfare Committee (AWC) report on sheep castration emphasises the key role that retailers have on this issue as some retailers continue to require castration and indeed pay a premium for what they consider to be a higher quality product. A widespread belief continues that meat from uncastrated ram lambs is of lower quality than that from castrates, meaning that such meat often attracts a lower price. However, there is little objective evidence that this meat possesses an inferior flavour. The public perception that sheep farming is 'natural' means there is little push from consumers or retailers to improve welfare standards.[12]

There is a demand for uncastrated males for certain markets and festivals[13] and this may create a market for animals that have traditionally been castrated in the past.

Recommendation 1: Where possible, management practices aimed at achieving slaughter weight prior to sexual maturity should be adopted, providing this does not compromise welfare.

Recommendation 2: Where sexual maturity is reached before slaughter, where possible, the onset of breeding activity should be prevented by physical and visual separation of ram lambs from ewe lambs.

Recommendation 3: Castration should only be carried out when alternatives are not compatible with the overall management of the farm. Where possible, pain should ideally be minimised through the use of appropriate anaesthesia and analgesia used under the Cascade.

b) Reasons for tail-docking

Tail-docking to avoid fly-strike

Tail-docking is still performed to prevent faecal contamination of the tail and prevent subsequent myiasis (fly-strike).

Fly strike involves the opportunistic invasion of tissues by the larvae of *Lucilia sericata* (greenbottles), *Phormia terrae-novae* (blackbottles) and *Calliphora erythrocephala* (bluebottles). The eggs are deposited by the female flies on soiled fleece and hatch into larvae within 12 hours. As a direct consequence of the health and welfare harms of blowfly strike, there can be severe economic losses resulting from hide and wool damage, mortality, production losses[14], and reduced fertility in the ewe. In severe outbreaks, mortality rate can be as high as 10% of the flock[15]. Although it may be possible under some conditions to put management techniques in place in order to avoid the need for routine tail-docking, the health and

[10] New Zealand Society of Animal Production: BRIEF COMMUNICATION: Comparison of castrate and entire ram-lambs for meat quality and skatole in the fat
[11] Dr Tim Keady: Lambs – why castrate?
[12] AWC 2022 Opinion on the Implications of Castration and Tail Docking for the Welfare of Lambs
[13] https://www.farmersguardian.com/news/4118202/increased-demand-ram-lambs-ahead-muslim-festival
[14] Richard Wall, Fiona Lovatt: Blowfly strike: biology,epidemiology and control *In Practice* April 2015 Volume 37 181-188 https://www.flockhealth.co.uk/Portals/0/Documents/In%20Practice2015Wall%20Lovatt-181-8.pdf
[15] E.Mainau, D.Temple, P.Llonch, X.Manteca: Welfare implications of tail docking and castration in sheep https://www.fawec.org/en/fact-sheets/51-sheep/247-castration-taildocking-sheep

welfare consequences of fly-strike should not be underestimated and when it occurs it can occur with surprising speed.

Preventive strategies could include:

- Selection of breeds with physical characteristics that reduce susceptibility: breeds with an open fleece are generally expected to have lower humidity at the skin surface and will dry more rapidly. The degree of skin folding around the breech may also be a factor. Breeds with shorter tail length and wool shedding breeds.
- Dagging (the removal of soiled wool) and crutching (the regular shearing of wool from around the breech)
- Shearing
- Lameness and foot rot control
- Frequent flock inspection, especially at high-risk times
- Appropriate insecticide use, or insect growth regulators which affect the ability of insects to grow and mature normally.

Recommendation 4: The health and welfare consequences of fly-strike should not be underestimated and farmers and vets should work in partnership to ensure that prevention forms an integral part of the farm health and welfare plan.

Recommendation 5: Where possible tailored management techniques appropriate to the climate, environment, and flock, should be put in place in order to reduce the need to tail-dock.

Recommendation 6: Tail-docking should be carried out when alternative management strategies are considered to be insufficient to eliminate the risk of fly-strike. Tails must be docked to the approved length, so they cover the vulva in ewe lambs and the anus in ram lambs. Where possible, pain should ideally be minimised through the use of appropriate anaesthesia and analgesia used under the Cascade.

Tail-docking and worm control

While a change of pasture can result in faecal-staining, the main reason for diarrhoea in growing lambs is as a consequence of parasitic gastro-enteritis (PGE). Heavy worm burdens will result in stunted lambs or even deaths, but even at modest levels, lambs will grow more slowly.

Good worm control can help reduce the need for docking as well as achieving faster growth rates, which in turn results in slaughter weights being achieved earlier so reducing the need for castration. To achieve good worm control, and therefore minimise the effect on lamb performance and profitability, a strategy which incorporates a range of appropriate management tactics along with the careful use of anthelmintics must be employed. Above all, the strategy must be sustainable, and responsible with regard to anthelmintic use. The SCOPS principles https://www.scops.org.uk should be applied.

Recommendation 7: Good worm control should form an integral part of the farm health and welfare plan.

Recommendation 8: Anthelmintic use should be judicious with particular emphasis on the SCOPS principles of sustainable parasite control.

4. Methods used

a) Methods of castration

- **Rubber ring or elastration** – a thick rubber ring is placed around the neck of the scrotum using an elastrator. The obstruction to the blood supply results in a shortage of the oxygen necessary for cellular metabolism, causing the tissues to become necrotic and eventually shed, along with the rubber ring, around 4 weeks after application. Assessment of behavioural and cortisol responses in lambs castrated using the rubber ring method suggest that this procedure is associated with acute pain. The lesions caused by the rubber ring are accompanied by behavioural changes indicative of chronic pain.[16]
- **Surgical castration** - the testes are completely removed via an incision in the scrotum, with or without cutting, clamping or cauterising the spermatic cords. The FAWC report 1994 concluded that surgical castration caused significantly more distress than other methods. This position was reiterated in 2008[17]. In addition to the acute and chronic pain associated with the surgical procedure, there is a significantly increased risk of infection in comparison to the rubber ring method. There is also risk of severe haemorrhage, and risk of prolapse of intestinal loops.
- **Clamp (Burdizzo) castration** – the spermatic cords are crushed by application of a clamp to the neck of the scrotum. When properly applied for the appropriate length of time blood supply is obstructed and innervation of tissue beyond the crush is destroyed. This method may be used up to three months of age, and as skin remains intact the risk of infection is lower than with surgical castration. Behavioural observations suggest that beyond the initial acute pain associated with the process, the method represents a welfare improvement on the rubber ring method.[18]
- **Short scrotum castration** – the testes are pressed against the abdominal wall by a distally located scrotal ring. The proximity of the testes to the body wall compromises effective spermatogenesis[19]. Although legal in the UK, this method is rarely used as it offers no appreciable advantages over normal ring castration and may be less effective.
- **Immuno-castration** – testicular activity is depressed by the administration of a vaccine which prevents the release of the gonadotrophin releasing hormone (GnRH). This method has obvious advantages compared to the pain associated with physical castration, however there is no licensed vaccine against GnRH currently available for sheep in the UK.
- **Numnuts®** - Numnuts® is a hand-held device combining a ring applicator and injector. It attaches a rubber ring to the scrotum of the ram lamb and delivers local anaesthesia proximal to the ring immediately after its application as part of the same process. The device uses NumOcaine®, its own brand lidocaine, which has been licensed for use in Australia since 2019 and New Zealand since 2021. It is not currently licensed in the UK. Meat from ram lambs that have been castrated using a Numnuts® device with NumOcaine® (lidocaine) is currently permitted to be imported into the UK for consumption. However, Numnuts® can only be used in the UK in conjunction with an anaesthetic licensed for use in the UK on lambs. Only Procamidor® Duo and Pronestesic® (containing procaine) are currently licensed for this purpose. In England and Wales, the device can only be used on ram lambs under 7 days old, because the current legislation prohibits ring castration on lambs older than 7 days of age. However, in Scotland the law allows ring castration (with anaesthesia) up to 3 months of age.[20]
- **ClipFitter®-** This is a device developed in the UK that attaches a disposable clip to the lamb's scrotum. It is designed to achieve castration by crushing the spermatic cords or tissue, including the nerve supply, causing loss of blood supply and immediate desensitisation of the tissues distal

[16] J.E.Kent et al Chronic inflammatory responses of lambs to rubber ring castration: are there any effects of age or size of lamb at treatment? https://www.cambridge.org/core/journals/bsap-occasional-publication/article/chronic-inflammatory-responses-of-lambs-to-rubber-ring-castration-are-there-any-effects-of-age-or-size-of-lamb-at-treatment/7AB864C7E192F0F674FE492F58D475C2

[17] FAWC report on the implications of castration and tail docking for the welfare of lambs

[18] J E Kent et al: Randomised, controlled field trial of two new techniques for the castration and tail docking of lambs less than two days of age https://www.ncbi.nlm.nih.gov/pubmed/14994857

[19] Kandeel and Swerdloff: Role of temperature in regulation of spermatogenesis and the use of heating as a method for contraception. https://www.ncbi.nlm.nih.gov/pubmed/3275550

[20] AWC 2022 Opinion on the Implications of Castration and Tail Docking for the Welfare of Lambs

to the clamp. The clip remains in place until the dead tissue is shed, so replicates the role of a rubber ring but with the aim of providing the reduction in active pain behaviour seen with use of the Burdizzo clamp[21]. In common with other systems the correct placement and usage of the system is essential[22]. In England and Wales, the current position is that, because the device causes restriction of blood flow to the scrotum or tail, it should be considered in the same way as a rubber ring and not be permitted for use on lambs over 7 days old. In Scotland, because of its mode of action, it is considered to be a method of castration or docking that can legally be used on lambs up to 3 months old without anaesthesia. Evidence suggests that this method reduced the pain of both castration to very low levels.[23]

A technical note produced by SRUC on castration and tail docking of lambs provides a useful comparison of the methods referenced above. [24]

Recommendation 9: Castration should only be carried out in consultation with a veterinary surgeon, as part of the farm animal health and welfare plan.

Recommendation 10: Castration must only be carried out by a trained and competent person and in accordance with legislation. Where possible, pain should be minimised through the use of appropriate anaesthesia and analgesia used under the Cascade.

Recommendation 11: Castration should not be performed on lambs until the ewe/lamb bond has become established and a good colostrum intake has been assured. Particular attention will be needed for male lambs who may also be tail-docked at the same time.

Recommendation 12: Surgical castration at any age should only be carried out by a veterinary surgeon, where possible using local anaesthesia and appropriate analgesia under the Cascade.

b) Methods of tail docking

- **Rubber ring or elastration** - a thick rubber ring is placed around the tail using an elastrator. As with castration by this method, the obstruction to the blood supply causes the tissues to necrose and drop off, along with the rubber ring, around 4 weeks after application. This method has been shown to cause acute pain in lambs of any age[25] Although evidence suggests that the pain associated with tail docking by this method is less than that caused by rubber ring castration, it is still considerable. The debilitating nature of acute pain can mean that very young lambs may ingest insufficient quantities of colostrum, predisposing the lamb to a range of diseases.
- **Surgical docking** – part of the tail is removed with a sharp knife. Studies of behavioural and cortisol responses show that surgical docking causes significantly more pain compared with other docking methods, and as such the FAWC report 2008 recommended that surgical docking by anyone other than a veterinary surgeon should be prohibited.
- **Hot docking iron** – the tail is severed using a purpose-designed heated docking iron. Evidence indicates that the pain response is similar to that associated with the rubber ring method. As the tail is removed at the time of the operation, FAWC takes the view that this method is preferable to the rubber ring method for older lambs with larger tails. As with all lambs over 7 days old, an anaesthetic should be administered at the time of docking.

[21] https://www.sciencedirect.com/science/article/pii/S2772283X23002029
[22] https://pure.sruc.ac.uk/en/publications/correct-application-crucial-for-safety-of-clipfitter-device
[23] https://www.gov.scot/binaries/content/documents/govscot/publications/research-and-analysis/2023/09/animal-welfare-committee---opinion-on-the-implications-of-castration-and-tail-docking-for-the-welfare-of-lambs/documents/evid4-clipfitter/evid4-clipfitter/govscot%3Adocument/evid4_Clipfitter.pdf
[24] https://www.fas.scot/downloads/tn679-castration-and-tail-docking-in-lambs/
[25] Kent et al: Changes in plasma cortisol concentration in lambs of three ages after three methods of castration and tail docking https://www.ncbi.nlm.nih.gov/pubmed/8235094

- **Numnuts®** – Numnuts® is a hand-held device combining a ring applicator and injector. It attaches a rubber ring to the lamb's tail and delivers local anaesthesia proximal to the ring immediately after its application as part of the same process. Evidence does suggest that Numnuts® with lidocaine may greatly reduce the pain associated with tail docking but leave some residual discomfort.[26]
- **ClipFitter** – This is a device developed in the UK that aims with a single mechanical action that attaches a disposable clip to the lamb's tail. The clip remains in place until the dead tissue is shed. Emerging evidence suggests that it is a practical and feasible alternative to the use of rubber rings that results in greatly reduced pain responses to castration and tail docking carried out separately.[27]

Recommendation 13: Tail docking should only be carried out in consultation with a veterinary surgeon, as part of the flock health and welfare plan.

Recommendation 14: Tail docking must only be carried out by a trained and competent person in line with legislation. Where possible, pain should be minimised through the use of appropriate anaesthesia and analgesia used under the Cascade.

Recommendation 15: Tail docking should not be performed on lambs until the ewe/lamb bond has become established.

Recommendation 16: Surgical docking at any age should only be carried out by a veterinary surgeon, using appropriate anaesthesia and appropriate analgesia under the Cascade.

Recommendation 17: If both tail docking and castration are needed these should be carried out at the same time to reduce distress and the risk of mis-mothering.

5. Use of Anaesthesia and analgesia

There are currently no analgesics and a very limited number of anaesthetics licensed for use in sheep within the UK which could greatly reduce the potential for use. However, they can be prescribed by vets under the cascade[28] provided appropriate withdrawal periods are observed.

Meloxicam has been shown to provide significant analgesic benefits to sheep[29] and products containing this active ingredient have been licensed for use in sheep in Canada and Australia. Care needs to be taken to avoid an overdose when calculating dose volume for small lambs.

There is emerging evidence that a useful product for sheep castration and tail docking is Lidocaine. It's use in sheep in the UK is currently banned due the fact the maximum residue limits (MRLs) have not been established for lidocaine in sheep entering the food chain in the UK. This is due to a lack of evidence but the recent review by AWC puts Lidocaine forward as a viable option for anaesthesia in sheep and notes the evidence of its safe use in countries such as Australia, New Zealand and Norway.[30]

BVA and SVS believe that appropriate analgesics and anaesthetics with currently have established use in sheep should be licensed as such in the UK.

Recommendation 18: Where possible appropriate anaesthesia and analgesia used under the

[26] AWC 2022 Opinion on the Implications of Castration and Tail Docking for the Welfare of Lambs
[27] AWC 2022 Opinion on the Implications of Castration and Tail Docking for the Welfare of Lambs
[28] The Cascade: prescribing unauthorised medicines https://www.gov.uk/guidance/the-cascade-prescribing-unauthorised-medicines
[29] Colditz, Paull, Lloyd, Johnston, Small: Efficacy of meloxicam in a pain model in sheep https://www.ncbi.nlm.nih.gov/pubmed/30693494
[30] AWC 2022 Opinion on the Implications of Castration and Tail Docking for the Welfare of Lambs

Cascade should be used for all surgical castration and tail-docking procedures, and anaesthetic must be used for any surgical castration in sheep aged three months or over

Recommendation 19: Local analgesics and anaesthetics with currently established international use in sheep should be considered for licensing in the UK.

Recommendation 20: There is an infection risk if the needles used for injecting local anaesthetic or NSAIDs are used for multiple lambs. Sterilising the injection site with surgical spirit or using a sterimatic device can provide a solution.