



WELFARE IMPLICATIONS OF TAIL DOCKING AND CASTRATION IN SHEEP

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Tail docking and male castration are routine practices in sheep and are carried out in several countries without anaesthesia and/or analgesia. As these procedures cause both acute and chronic pain, the rationale for doing them and the effectiveness of pain mitigation strategies should be considered.

RATIONALE AND JUSTIFICATION OF THE PRACTICES

Prevention of blowfly strike is the primary reason given for tail docking in sheep, but the scientific evidence to support this rationale is sparse.

During a blowfly strike, eggs are deposited into the tissue of the animal (cutaneous myiasis). Flies are mainly attracted to the breech of the sheep, probably because this area is continually warm and moist. Fly strike may be a major welfare problem when it occurs. Additionally, it leads to reduced wool quality and quantity and reduced ewe fertility. In severe outbreaks of fly strike, mortality rate can be as high as 10% of the flock. The percentage of the sheep population affected by fly strike varies by region, ranging from 0.3 to 18%.

Tail docking is thought to reduce the risk of fly strike by preventing build-up of faecal material (called “dags”) on the tail, breech and hindquarters. While some studies show that daggy sheep are more likely to be struck, the relationship between tail docking and dags is unclear. Indeed, conflicting results have been obtained when comparing the incidence of fly strike in docked and undocked sheep.

Overall, the justification for tail docking in sheep varies on a flock by flock basis depending on the geographical region, the breed of the animal and other management practices. Routine tail docking is unlikely to benefit sheep that do not have wool (hair breeds and some dairy sheep) or that are kept in regions with low incidence of blowfly strike. In some cases, tail docking is done because of tradition and this is not acceptable on animal welfare grounds. When the tail is docked, it is recommended to leave a minimum of three palpable coccygeal vertebrae in the tail stump (covering at least the anal region and vulva of the animals).

Castration prevents the aversive flavour which is characteristic of the meat of some intact male lambs once they reach puberty. Other benefits of castration include preventing undesired pregnancies and reducing aggressive behaviour.

DESCRIPTION OF THE PROCEDURES

The method of castration and tail docking varies between regions and farming systems. However, the application of rubber rings within the first week of life seems to be the most frequently performed procedure.

Tail docking by surgery involves severing the tail using a knife or scalpel. The docking iron is a similar approach to the surgical approach, except that the wound is cauterized. The rubber ring reduces blood flow to the distal portion of the tail, which eventually becomes necrotic and sloughs off. In some cases, a clamp is applied for 10 s next to the rubber ring as a method to crush and thereby destroy the underlying nerves.

Surgical castration is either performed by incision of the scrotum and cutting or tearing the spermatic cords, either by full scrotal ablation. Castration may be also done by using a rubber ring, a latex band and/or a clamp (Burdizzo). All techniques lead to testicular necrosis. Alternatively, short scrotum castration consists of pushing the testes up into the abdominal cavity by applying a rubber ring around the distal scrotum. The higher temperature in the abdomen affects testicular function and induces infertility.

PAIN CAUSED BY CASTRATION AND TAIL DOCKING

There is both behavioural and physiological evidence that tail docking and castration are stressful and painful procedures for sheep (see FAWEC Fact Sheet n°17). Acute pain induced by these procedures lasts several hours and is followed by chronic pain which can last more than 48h.

WHICH METHOD IS LESS PAINFUL?

All tail docking methods result in acute pain. Lambs surgically tail docked show elevated cortisol levels and abnormal standing and walking after the procedure. Cauterization is known to relieve pain in lambs that are surgically tail docked. Lambs tail docked with rubber rings show elevated cortisol levels and spent more time in abnormal postures and active behaviours associated with ischaemic pain compared with control lambs. Application of a clamp associated with ring tail docking reduces pain.

Numerous studies show that surgical castration is more painful than the other methods. Lambs surgically castrated show more pain-related behaviours and higher cortisol levels than lambs castrated by other methods. Levels of acute phase proteins are also higher in surgically castrated animals. Lambs castrated by rubber ring show more pain-related behaviours and have higher cortisol levels than lambs castrated using a clamp.

IS THERE AN AGE EFFECT?

When castration and tail docking are carried out at 5, 21 and 42 days of age, behavioural responses have been similar regardless of ages, suggesting that young animals have presumably the same pain perception than older animals. Pain in young lambs interfere with colostrum intake and bonding with the ewe. In addition, recent studies show that lambs castrated at a very young age are more sensitive to subsequent pain than lambs castrated at an older age. There is some evidence that older lambs show a greater chronic inflammatory response to castration than very young lambs (less than 2 days old). However, this might have been related to the amount of scrotal tissue removed rather than being a direct effect of lamb age on pain response.

MINIMISING PAIN

Both behavioural and physiological responses indicative of pain associated to tail docking and castration are reduced when pain relief is provided.

Local anaesthetics reduce acute pain during castration and tail docking. For tail docking, the injection of a local anaesthetic subcutaneously into the tail immediately after the application of the ring or several minutes before the surgical or clamp procedure, reduces pain. For castration, injection of lidocaine into the scrotal neck blocks the afferent fibres of the spermatic nerve, and reduces pain during surgical, rubber ring, clamp and combined ring and clamp castration. Topical anaesthetics containing lidocaine and bupivacaine have been shown to significantly decrease pain associated to surgical castration.

Non-Steroidal Anti-inflammatory Drugs (NSAIDs) provide effective post-operative analgesia. Following castration and tail docking, lambs receiving NSAIDs show less pain-related behaviours

compared with lambs receiving no pain relief, and the magnitude of the effect can be very substantial. For example, meloxicam has been shown to cause a 7-fold reduction in behaviours indicative of pain after castration and tail docking, and the effect was still significant at 24 hours, when the study was terminated. Important considerations for the use of analgesic drugs in sheep include the ease of application and the duration of their effect.

SUMMARY

The need to carry out painful husbandry practices such as castration and tail docking should be assessed on a case-by-case basis. Age has very little effect (if any) on the pain caused by castration and tail docking. Based on measurements of cortisol, surgical tail docking seems to cause more distress than other methods. Both local anaesthetics and NSAIDs are useful to reduce pain caused by castration and tail docking.

REFERENCES

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- Sutherland MA, Tucker CB, 2011. The long and short of it: A review of tail docking in farm animals. *Applied Animal Behaviour Science* 135: 179-191.

“Tail docking and castration cause pain regardless of the method used and the age of the animals.”



Figure 1. Tail docking with rubber ring.



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