

## 2005 MLA Sheep Prize Winner

### Behavioural responses to castration and tail docking in lambs

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#### Introduction

Routine husbandry procedures, such as castration and tail docking, are known to induce pain and distress in lambs (Grant, 2004; Kent et al., 2001). This raises important welfare concerns and has attracted debate on the acceptability of such practices. The most common method of castration and tail docking involves the application of a rubber ring to the scrotum or tail, usually without anesthesia or analgesia. An accurate assessment of the welfare impact of this procedure will allow for informed debate on the ethics of its routine practice. In addition, such assessment provides the basis for the trial and implementation of alternative husbandry procedures and pain minimisation strategies. This paper will examine several recent studies that have investigated the behavioural responses of lambs to castration and tail docking.

#### Discussion

Obtaining an accurate assessment of a lamb's pain experience is difficult, because, unlike humans, animals cannot provide verbal self reports of their pain (Rutherford, 2002). Studies attempting to quantify a lamb's pain experience must therefore rely on behavioural and physiological indicators of pain. The use of behavioural indicators for pain assessment in lambs was examined in a study by Grant (2004). The aim of this study was to determine which behavioural indicators of pain are useful in quantifying the pain produced in lambs following a number of routine husbandry procedures, including rubber ring castration and tail docking. Following treatment, the occurrence of active pain avoidance behaviours and postural indicators of pain were recorded for 90 minutes. Discriminant analysis of the results was used to determine what proportion of lambs could be assigned to their correct treatment group based upon the values of the indices.

This results of this study revealed that some behavioural and postural indicators are more accurate than others in describing the painfulness of the husbandry treatments. Indicators that could be easily and objectively categorised were found to be the most accurate. Conversely, tail-wagging and vocalisation, indicators used in previous pain assessment studies, proved inaccurate in describing the pain response. The results of this study will form the basis of future welfare and pain assessments in lambs, including investigation into the merits of alternative husbandry procedures.

Pain assessment using behavioural indicators of pain requires a system of classification describing which behaviours are normal and abnormal in each species. Such a classification system already exists for lambs (Archer et al, 2004). However, if different breeds of lamb responded differently to the same degree of pain, individual categories of normal and abnormal behaviour would need to be assigned to each breed to improve the accuracy of any future welfare assessment. Archer et al. (2004) conducted a study examining this issue. The aim of the study was to determine whether there was any variation between two breeds of lamb in their behavioural response to castration and tail docking by rubber ring method. Following treatment, the behaviour of Charolais and Suffolk lambs was monitored for 1 hour. This study used behavioural pain indicators very similar to those examined in Grant (2004). A score value (1-5) was assigned to each standing or recumbent posture, depending on the degree to which it differed from normal. Those postures differing most from normal were given the greatest value and were interpreted as representing the greatest degree of pain.

The results of this study revealed that Charolais lambs exhibited more behavioural indicators of pain than the Suffolk lambs. Based on current pain assessment analysis, the Charolais lambs would be interpreted to be experiencing more pain than the Suffolk lambs, although the different pain response may simply reflect a difference in temperament and character

between the breeds. The paper concluded by emphasising the need for further studies to examine this breed variability in pain response.

The accurate assessment of pain in lambs following castration and tail docking is important in the investigation and implementation of alternative husbandry procedures. A field trial conducted by Kent et al. (2004) used a combination of objective and subjective pain measurements to investigate the ability of sheep farmers to use two new techniques to reduce the pain induced in lambs by castration and tail-docking. The new techniques used a rubber ring with either a 'bloodless' castrator or a local anesthetic administered by needleless jet injector. Objective pain measurements in the study were remarkably similar to those explored in Grant (2004) and Archer et al. (2004). However, unlike the other two studies, the research by Kent et al. (2004) also incorporated subjective behavioural assessment techniques, using a visual analogue scale. An observer marked a vertical line on a 10 cm horizontal line at the point on the scale which, in his opinion, represented the degree of pain experienced by the lamb.

The results of this study revealed that lambs treated with the two new techniques displayed significantly fewer signs of pain than those treated with the rubber ring method alone. This finding has the potential to markedly reduce the adverse consequences of these routine husbandry procedures, and thus is a significant step forward in improving the welfare of lambs.

In all three studies, behavioural responses were used as the sole criteria for pain assessment. Additional physiological parameters have been described and used elsewhere, and it has been argued that only a combination of behavioural and physiological measures can adequately characterise an animal's pain experience (Peers et al., 2002; Rutherford, 2002). In addition, all three studies examined only the pain response immediately following treatment (<90 minutes), despite evidence that castration can result in a prolonged pain response (Thornton and Waterman-Pearson, 2002).

## Conclusion

The castration and tail-docking of lambs is a routine yet painful husbandry procedure that raises important animal welfare issues. Research into this procedure has resulted in the identification of the most accurate behavioural indicators of pain. It has also revealed apparent breed differences in the behavioural response to pain. Finally, a recent study has demonstrated that new husbandry techniques may reduce pain and, therefore, enhance lamb welfare. Further research is required to examine and clarify areas of uncertainty surrounding this issue, particularly breed variability in response to pain.

## References

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