

“Positive” Human-Cattle Interactions: To what extent can Positive Tactile Handling Improve the Welfare of Dairy Cows?

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Introduction

The welfare of animals in commercial settings depends on human-animal interactions. While aversive handling of animals (i.e., prodding, hitting) is widely recognised to compromise welfare through increased fear of humans (Hemsworth, 2007), it is becoming less acceptable to regard welfare as merely the absence of negative experiences (Boissy *et al.*, 2007). Fraser (1995, in Boivin *et al.*, 2003) asserts that positive interactions with animals (i.e., petting, brushing and feed rewards) enhance welfare through the absence of pain and fear, and because of the intrinsic reward such an interaction can provide. This paper will discuss recent developments in our knowledge of human-to-cattle positive tactile interactions and the overall implications of these findings for the welfare of dairy cows.

Discussion

Positive handling of cattle by humans may reduce fear in novel and aversive situations. Hemsworth (2003, 2007) suggests that positive interactions can assist in reducing the unpleasantness of husbandry procedures by decreasing an animal’s association between the procedure (perceived as aversive) and the human (perceived as rewarding). A study by Bertenshaw *et al.* (2008, in press) tested the effect of previous positive handling on the behaviour and productivity of heifers entering a commercial dairy for the first time. Heifers were divided into four groups; they were brushed on the head, neck and shoulders for five minutes per day prior to calving for a total of at least 30 minutes. Compared with controls, the positively handled heifers had faster milk let-down and reduced kicking and stamping intensity in the presence of humans in the milking parlour, while in the absence of humans, these parameters were identical across all heifers. Stamping and kicking behaviours indicate fear in cattle (Hemsworth, 1989, in Bertenshaw *et al.*, 2008) and impact on welfare by causing injuries and, if sufficiently intense, may be perceived as cause for culling (Boivin *et al.*, 2007). Delayed milk let-down has been linked to the inhibition of oxytocin due to stress hormones (Bruckmanier *et al.*, 1993, in Rushen *et al.*, 2001). That said, measurement of catecholamines (which was not performed in this study) could have helped confirm this. Since these factors increased in the presence of humans in this study, it is probable that the heifers that had undergone grooming had less fear of the milkers in the dairy and thus acclimatised to milking more rapidly. However, the extent to which this “positive” interaction was intrinsically rewarding was not addressed.

Concurrent studies by Schmied *et al.* (2008a, 2008b) expanded upon the Bertenshaw *et al.* (2008, in press) study by investigating the effects on cattle of stroking in differential body regions: the withers, ventral neck and lateral chest. Indeed, Boivin (2003) suggests that an obstacle to providing cattle with intrinsically rewarding tactile interactions is that we do not know how they like to be petted. The cattle in both studies were divided into three treatment groups and a control. Treatment involved stroking cattle on the withers or ventral neck (areas often licked in social grooming) or lateral chest (rarely licked) at a speed and pressure that paralleled social licking. In Schmied *et al.* (2008a), the cows in each treatment group were stroked for five minutes per day for a total of 75 minutes. Behavioural observations and heart rates were recorded in test sessions before and after treatment, which involved stroking all three regions over a single 10-minute period. In the test sessions, behaviours known to be displayed during social licking – neck-stretching and ear-hanging – lasted longest during stroking of the withers and ventral neck. Heart-rate decreased in the second test-session during stroking of the ventral neck, a physiological sign consistent with positive social interactions observed in cattle. Comparisons of behaviour between the two test-sessions showed that neck-stretching and ear-hanging increased in the group that had been stroked on the withers and ventral neck, while threatening behaviours (head-shaking,

head-throwing) decreased in all treated groups. This suggests acclimatisation to human touch, as in the Bertenshaw *et al.* (2008, in press) study, but with the added dimension that the interactions in certain regions (withers, ventral neck) were perceived in the same way as intra-specific social interactions.

This conclusion is supported by the findings of the Schmied *et al.* (2008b) study in which the same cattle (those that had undergone the stroking treatment and the test-sessions outlined above) were tested for avoidance and approach behaviours. In the avoidance tests, cattle were scored on the extent to which an experimenter was allowed to move towards the cow before the cow withdrew or accepted stroking. The approach tests involved placing the cow in a novel environment (a fenced arena) to determine the latency and extent of the cows' approach to a stationary experimenter at the centre of the arena. Avoidance scores were lowest in the cattle that had been stroked at the ventral neck, followed by the withers group. In a novel environment, all treatment groups approached the human more rapidly, with the group that had been stroked at the ventral neck approaching fastest. Thus petting certain body regions in cattle differentially influences the motivation to approach and avoid humans. The findings of these studies should be considered in light of the housing conditions of the test subjects, which were tethered and used to frequent human contact as well as the small sample sizes of each group (n20). This may affect the translation of the conclusions to commercial farm conditions (Boivin *et al.*, 2003).

Conclusion

Recent studies in positive handling of cattle highlight the welfare benefits of favourable human-cattle interactions, such as regular stroking or brushing. At the very least these interactions allow cattle to acclimatise to human contact and proximity, reducing fear and its harmful repercussions (i.e., injury, culling, stress). Positive interactions may – as suggested by Fraser (1995, in Boivin *et al.*, 2003) – support the positive well-being of cattle when performed in a species-specific manner. With further investigation in cattle under differing social and husbandry contexts, there may be scope to employ handling to decrease the aversiveness of novel situations and foster positive well-being in cattle.

References

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