

Orally Manipulable Objects may help Reduce Tail-biting during Pig Development

This essay reviews recent demonstrations of reduced tail-biting in slatted-floor housing systems when low-cost orally manipulable materials are provided.

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Word count: 936

Introduction

Tail-biting is a serious and complex problem with significant welfare implications. It causes injuries with potential for infection, as well as pain and physiological stress with implications for weight gain and general health (D'Eath *et al.*, 2014). Furthermore, expression of this behaviour is deemed abnormal and is, in itself, a welfare concern (D'Eath *et al.*, 2014). Tail-docking is widely employed as a means of combating tail-biting. Although this procedure reduces the prevalence of tail-biting, it is an acutely painful mutilation, prohibited in some countries, and fails to address underlying causal factors (D'Eath *et al.*, 2014). Provision of manipulable materials enables pigs to express natural investigatory behaviours and has been shown to reduce tail-biting (D'Eath *et al.*, 2014). Straw is arguably the most effective of these materials, but poses significant hygiene and logistical problems for housing systems with slatted floors (Van de Perre *et al.*, 2011). Consequently, alternative low-cost materials compatible with such systems have been the subject of recent research.

Discussion

Telkanranta *et al.* (2014b) investigated the effect of the early rearing environment on later tail-biting in undocked pigs. They compared the effect of adding chewable materials to other non-chewable enrichment items during the period from birth to weaning. The farrowing pens of piglets in the control group (n=29 litters) were given wood shavings twice daily and a plastic ball suspended on the wall. The treatment group (n=30 litters) were provided newspaper with their wood shavings twice daily and 10 pieces of sisal rope suspended from the wall together with the plastic ball. After weaning in week 4, all piglets were transferred to identical growing pens and tail damage was assessed at week 9. Mean prevalence of severe tail damage was less in the treatment group (9.8%) than in the control group (32.1%). However, there was no significant difference in the prevalence of undamaged tails or mild tail damage. These findings indicate that providing chewable materials in early life has promising potential for reducing the severity of later tail-biting.

In a later study, Telkanranta *et al.* (2014a) investigated the effect of providing various low-cost objects on tail-biting in undocked growing-finishing pigs (n=780). The control pens (n=17) were provided with a straw rack, a metal chain and a daily allocation of wood shavings. The treatment pens were additionally provided with horizontally suspended pieces of fresh birch wood (n=14), a cross of polythene pipes hanging from the ceiling (n=13) or two crosses of metal chains, suspended vertically (n=15). A combination treatment group had all three additions (n=14). Tail damage was visually assessed after 2.5 months and scored according to severity of damage.

The mean prevalence of undamaged tails was higher in the wood and combination groups (56%) compared with the control group (34%). Additionally, the mean prevalence of mild damage was lower in the wood (18%) and combination group (22%) compared with the control group (39%). These results are persuasive: horizontally suspended pieces of fresh wood can reduce the overall frequency of tail-biting and the frequency of mildly damaging tail-biting. However, there were no significant between-group differences in the prevalence of severe tail damage. Pigs with severe tail damage, and observed serious tail-biters, were removed from pens prior to the conclusion of the study but as there were no between-group differences in the probability of pig removal, this further suggests that the prevalence of severe tail-biting may not be reduced by post-weaning enrichment.

Ursinus *et al.* (2014) studied the effect of using jute sacks hung vertically from the wall together with a chain and plastic toy (n=17 pens) compared with a control group provided with only the chain and plastic toy (n=19 pens). In contrast to the aforementioned studies, half-tail-length docked gilts were used and enrichment was provided from birth through the weaning and rearing phases. Tail damage was assessed at weaning (4 weeks) and at 9, 11 and 13 weeks of age. The study demonstrated that jute sacks significantly reduced the prevalence of tail damage observed at all post-weaning stages but not at the weaning stage. Unfortunately, tail damage was reported as a mean score rather than indicating differences in the prevalence of severe and mild damage. Thus it cannot be inferred whether the provision of jute sacks from birth through to rearing reduced all severities of tail-biting or only some. Given that this study utilised enrichment during both the pre-

and post-weaning phases, this information would be useful in light of Telkanranta *et al.*'s (2014a) finding that post-weaning enrichment reduced mild tail damage but not severe, whereas the converse was found to be true for pre-weaning enrichment as investigated by Telkanranta *et al.* (2014b).

All three studies used behavioural analysis to record frequency of oral-nasal behaviours. Ursinus *et al.*'s (2014) study went further by classifying pigs according to the frequency of their tail-biting behaviour. This type of analysis is important for understanding the different motivations for tail-biting (e.g., redirected foraging, aggression, obsession (Taylor *et al.*, 2010)) and targeting enrichment objects accordingly. Severe tail-biting was reduced only when enrichment was added from birth. If severe tail-biting is motivated by aggression, as proposed by Taylor *et al.* (2010) and if aggressive tendencies are moulded in the pre-weaning environment, as suggested by Chaloupkova *et al.*, (2007), then there is a clear imperative to provide orally manipulable objects from birth. This is pertinent in the context of tail-docking since docking fails to eliminate tail-biting entirely but is arguably justified in that it greatly reduces its severity (D'Eath *et al.*, 2014).

Conclusion

These studies are promising demonstrations of how the provision of inexpensive and easy-to-affix orally manipulable materials from birth can significantly reduce tail-biting in pigs in slatted-floor housing systems.

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