

Responses to multiple chain enrichment in post weaned pigs

H C Benton, E C L Bleach

Writtle College, Chelmsford, Essex, United Kingdom

Email: emma.bleach@writtle.ac.uk

Introduction The social stressors associated with the abrupt weaning process on commercial farms can result in significant welfare issues for pigs; including behavioural problems and aggression, decreased immunological responses, reduced live weight gain and efficiency of feed conversion (van de Weerd and Day, 2008). Slats and slurry systems in commercial housing systems for grower pigs provide a barren environment which may exacerbate these problems. Enriched environments have been shown to reduce aggression in pigs, particularly where devices that have manipulative and destructive properties are used (Scott *et al.*, 2007). However, studies often include a single device that does not permit all animals to interact with the enrichment at any one time. The aim of the present study was to investigate the effects of multiple metal chain enrichment on levels of aggression in growing pigs.

Materials and methods Pigs (n=240) from 24 litters were selected at 28 days of age (weaning; day 0), and split into 12 groups of 20 pigs (two litters per pen); six control groups (CG) and six enhanced enrichment groups (EEG). Pigs were housed in pens (0.4m² per pig) with slatted floors within an environmentally controlled building (ambient temperature approximately 25°C). CG pigs were provided with a single chain (0.6m length, 5mm link thickness) per pen suspended to a height 0.25m above the pen floor (one chain per 20 pigs). In the EEG pens six similar chains were suspended across the pen at 0.5m intervals to avoid sleeping and feeding areas (one chain per 3.3 pigs). All pigs were offered pelleted concentrate feed *ad libitum* throughout the study. Injuries were scored using the seven point scale (0 – no wounds, 6 – severe, infected wounds) developed by Gallois *et al.*, (2005) on days one, three, five, seven, 14, 21 and 28 as a measure of aggressive behaviour within the groups of pigs. Live weights were recorded on days zero, seven, 14, 21 and 28. These weights were used to calculate daily live weight gain (DLWG) over the four week period. The interaction of the pigs with the enrichment device was recorded using intermittent scan-sampling, at five minute intervals for 60 minutes on days one, three, five, seven, 14, 21 and 28. Injury scores, live weights and daily live weight gains (means for pens) were statistically analysed using repeated-measures analysis of variance. The incidence of interaction with the enrichments were statistically analysed using the Chi Square Test.

Results Mean injury scores (Figure 1) were significantly lower ($P<0.001$) in the EEG pigs throughout the study period (0.73 ± 0.15 versus 1.65 ± 0.21 respectively; mean \pm SEM). During the first seven days post weaning, injury scores in the EEG were lower than among the CG pigs, falling to a mean score of less than 0.5 by day 14. Interactions with the chains were greater ($P<0.001$) in the EEG throughout the 28 day study; although there was a decrease in interactions with time in both treatment groups. During the first week post weaning interactions with the chains were higher in EEG pigs. There was no significant difference in either live weight (final live weight 17.0 ± 0.69 vs 16.7 ± 0.75 kg; CG vs. EEG) or DLWG (overall DLWG 0.31 ± 0.02 vs 0.33 ± 0.02 kg/d; CG vs. EEG) among the two treatment groups throughout the study.

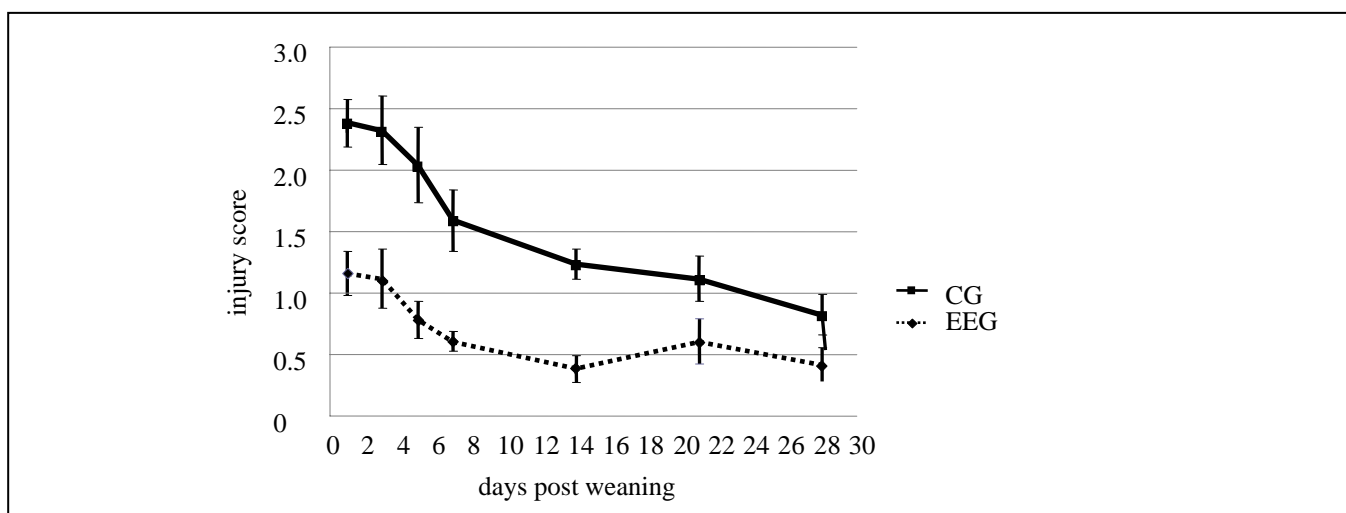


Figure 1 Mean (\pm SEM) post weaning injury scores for control and enriched pigs

Conclusion Providing chains as a multiple enrichment device to growing pigs increases interaction with the enrichment and reduces injury and aggression particularly during the immediate post weaning period. However, the fall in the frequency of interaction with the chains over the study period indicates that habituation occurs with time post weaning.

References

- Gallois, M. Le Cozer, Y. and Prunier, A. 2005. Preventive veterinary Medicine 69, 13-23.
 Scott, K. Taylor, L. Gill, B. and Edwards, S. 2007. Applied Animal Behaviour Science 105, 51-58.
 Van de Weerd, H.A. and Day J.E.L. 2008. Applied Animal Behaviour Science, in press.