

EARLY ENVIRONMENTAL EXPERIENCE AND TRANSFERABLE SKILLS IN THE WEANED PIGLET

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Early environmental experience can have significant effects on an animal's ability to adapt to challenges in later life. Prior experience of specific situations may facilitate the development of behavioural skills which can be applied in similar situations to later life. In addition, exposure to a more complex environment may enhance cognitive development (eg increased synaptic density), which can then speed the acquisition of new behavioural responses when faced with novel challenges (Grandin 1989).

The effects of early environmental experience on behavioural development were investigated in indoor- and outdoor-reared piglets before and after weaning under commercial conditions. Indoor-reared piglets were born in farrowing-crates and had access to the sow, nipple drinkers, straw and a heated creep area. From 10 days of age, indoor-reared piglets also received a pelleted creep feed. Outdoor-reared piglets were born in straw-nested farrowing-arks and had access to pasture from about 10 days of age. All piglets were weaned at 24 ± 3 days of age and mixed in straw-yard housing with access to the pelleted creep feed. A number of behavioural problems are associated with weaning piglets at this age, including belly-nosing, fighting and low intake of solid feed (Worobec *et al* 1999).

Before weaning, outdoor-reared piglets spent less time on teat-directed activity than indoor piglets and more time on locomotion and environmental interaction. Among the outdoor-reared piglets, social interactions rose once they could access pasture and encountered non-littermates, but then fell with age. In contrast, social interactions between indoor-reared piglets rose with age, such that they spent more time in agonistic interactions than outdoor-reared piglets immediately prior to weaning.

Immediately following weaning, outdoor-reared piglets spent more time feeding than indoor-reared piglets, even though they had no prior experience of the creep feed. Outdoor-reared piglets also engaged in fewer agonistic interactions than indoor-reared piglets following weaning. Outdoor-reared piglets continued to feed more than indoor-reared piglets over subsequent days and there was a decrease in agonistic interactions in all piglets. Belly-nosing increased in the weeks following weaning, but only in the indoor-reared piglets.

These results indicate that the outdoor-reared piglets were better equipped than the indoor-reared piglets to deal with the challenges faced following weaning, such as exploitation of new resources and establishment of social order. This may have resulted from the transfer of foraging and social skills acquired prior to weaning. Alternatively, outdoor-reared piglets may have shown more rapid acquisition of new adaptive responses due to enhanced cognitive abilities that arise from exposure to a complex physical and social environment in early life.

References

- Grandin T 1989 *Effect of Rearing Environment and Environmental Enrichment on Behavior and Neural Development in Young Pigs*. PhD thesis, University of Illinois, USA
- Worobec E K, Duncan I J H and Widowski T M 1999 The effects of weaning at 7, 14 and 28 days on piglet behaviour. *Applied Animal Behaviour Science* 62: 173-182