Does litter size affect emotional reactivity, spatial learning and memory in piglets?

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Background

- Litter size is increasing in the pig industry due to selection for high sow fecundity.\textsuperscript{1}
- The average birth weight declines with approximately 40 g per additional piglet.\textsuperscript{2}
- Large litter sizes are associated with several welfare impairments for sow and piglets.\textsuperscript{1}
- Welfare implications include intra-uterine growth restriction, increased sow stress levels, reduced piglet viability and growth and an increase of piglets being stillborn.\textsuperscript{1}

Study aim & methods

This study aimed to investigate the effects of litter size in piglets on:

- Behaviour and salivary cortisol increase during an open field test (age 5 weeks)
- Cognitive performance in a spatial cognitive holeboard task (age 9-14 weeks) (Figure 1)

Weights and growth

- Piglets from large litters were lighter at weaning and remained lighter during the course of the experiment.
- Piglets from a more robust genetic line showed more uniformity in weight.

Holeboard results

- No effects of litter size were found on holeboard performance
- Piglets from a more robust genetic line showed higher memory scores

Study hypothesis

We expected piglets from large litters to show higher emotionality and impaired memory performance compared to piglets from small litters.

We tentatively conclude that pigs from a more robust genetic line show less stress sensitivity. Effects of litter size were not found.