

Project Number & Title:

Project 1B-104: *The gradual weaning of piglets: how an intermittent suckling regime can contribute to pigs overcoming nutritional and environmental stressors at weaning*

Project Leader: Professor John Pluske

Project Participants: Dr P. Langendijk, Dr D. Turpin (PhD student).

Aims and Objectives:

1. To determine whether piglets that are separated from the dam for a specified period of time each day with creep feed during lactation will have:
 - Better post-weaning performance.
 - Enhanced indices of gastrointestinal tract (GIT) structure and function.
 - Show less behaviours indicative of compromised welfare, compared to piglets in a conventional weaning regime with or without creep feed.
2. To determine if piglets subject to repeated maternal separation would develop behaviours or GIT changes indicative of compromised welfare compared to piglets in a conventional weaning regime.

Key Findings:

1. Piglets that received sow separation (8 h/day for 6 days or 16 h/day for 3 days before weaning) were more likely to consume creep feed during the lactation period, but this did not translate into an increase in solid feed consumption after weaning.
2. In this study, intermittent suckling did not prevent weaning-associated changes, but rather advanced them in an attenuated way with piglets experiencing a growth check at the start of IS rather than at weaning. Furthermore, there was also no evidence to suggest that IS resulted in quicker maturation of the gastrointestinal tract.
3. Intermittent suckling during the last week of lactation did not compromise piglet welfare as determined by selected measures of neuroendocrine, inflammatory, immune and behavioural indices, however some physiological changes such as reduced growth and differences in plasma glycerol were evident before weaning

Application to Industry:

1. Intermittent periods of separation from the sow, long or short (16 hours verses 8 hours), during the last week of lactation did not induce any neuroendocrine, inflammatory or immune changes suggestive of a chronic stress response in piglets. However, there is also little evidence to suggest that intermittent suckling (IS) provides beneficial effects for the piglets with regard to post-weaning performance.
2. Labour associated with moving the piglets away from the sows was significant and for IS to be considering commercially, more research needs to be conducted into farrowing pen design to allow easy separation of sows from their litter.
3. Results from the current project demonstrate the potential of using *in vivo* sugar absorption tests to measure permeability and absorptive function markers in the serum. While markers of GIT function are not necessarily relevant to Industry, other research projects could consider the use of sugar absorption tests as welfare biomarkers, reducing the necessity for terminal experiments.