

SESSION 1 – INDIVIDUAL DIFFERENCES

Birth weight and holeboard performance of first- and lastborn piglets

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Decades of selective breeding have resulted in increased litter sizes in domesticated pig breeds, since the commercial industry strives to enhance productivity. However, this expansion will reach an inevitable limit, in which production levels will decline due to accompanying issues and welfare related problems. Large litter sizes, in addition to the presence of stillbirths, prolong parturition durations. Accordingly, the last-born (LB) piglets may be at greater risk of birth complications compared to firstborn (FB) piglets, resulting in cognitive deficits and a distorted stress-response. Furthermore, more LB- than FB piglets may have low birth weight, which has been correlated to impaired memory functioning. Therefore, in this study, FB- and LB piglets from twelve different litters were selected, weighed at birth and subsequently tested in a cognitive holeboard task, in which animals learn the locations of hidden food rewards. During the first reversal trial, in which piglets are confronted with a reversed reward configuration, saliva cortisol samples were taken. We hypothesized that LB piglets would have lower birth weight, lower reference- and/or working memory scores and longer trial durations than FB piglets. Furthermore, we expected LB piglets to have elevated cortisol levels after experiencing acute stress. The average amount of piglets born alive was 14 (13.75 ± 3.62), with a minimum of 10 per litter. The mean farrowing duration was 191.45 ± 88.94 minutes and in five litters, 1-2 stillbirths occurred. Surprisingly, none of the LB-, while one of the FB piglets had low birth weight (< 0.96 kg) and the average weight of the FB- and LB piglets was 1.50 ± 0.46 kg and 1.49 ± 0.25 kg respectively, which did not differ significantly ($p=0.75$, Mann-Whitney U test). Therefore, if any difference in holeboard performance exists, this cannot be due to difference in birth weight. The main results of the holeboard experiment are currently being analysed and will be presented at the conference.