Summary of: Impact of increasing age on pig performance and belly nosing prevalence in a commercial multisite production system

Key Points
- Increasing weaning age has an impact on pig production metrics and behavioral indicators
- Examining decisions about weaning age is important in today’s global scenario of antibiotic reduction and increased welfare concerns
- The reduction of removal and mortality during the nursery phase is an important impact of increased weaning age

Weaning age is a topic that is constantly discussed across the global swine industry. The stress suffered by weaned pigs in commercial conditions has been widely described in several studies mainly concerning the separation from the sow, vaccination, mixing, fighting, and switches in the environment, diet, local microbiota, and structure of the nursery. The combination of these stressors accompanied by a period of declining passive immunity from sow milk contributes to a reduction in feed intake and growth performance, and an increase in susceptibility to infections. The present global pig production scenario of antibiotic reduction and increased concerns about welfare accords with the need for a better understanding of the relationship between current commercial weaning ages and post-weaning resilience to stress.

Many theories regard belly nosing as a sign of post weaning stress. Studies have reported that the pig age at weaning is closely related to the prevalence of nosing behavior in the nursery, which is in turn strongly associated with a lower growth rate in the initial 42 days post-weaning. It has been established that growth rate, feed intake, and morbidity in the nursery phase are highly dependent on the weaning age. Moreover, recent studies have shown that the weaning weight and growth rate in the first week in the nursery play an important role in the subsequent performance. However, the question remains regarding how much weaning age influences performance in the first weeks after weaning. As pressure to reduce antibiotic use increases, a renewed look at weaning age appears to be necessary for production systems. Thus, the main objectives of this study were to evaluate the effects of increasing weaning age in a range of days practiced in current production systems on pig performance in the nursery and finishing phases. Moreover, to determine the incidence of belly nosing behavior and the percentage of pigs losing weight in the first week post-weaning as indicators of post-weaning stress.

A total of 1,176 pigs were used in a 136-d growth trial with 14 and 10 replications/weaning age on the nursery and finishing phases, respectively. Treatments included weaning litters at 19, 22, 25 or 28 d of age. In the nursery as weaning age increased, initial (5.04, 5.70, 6.52, and 7.26 kg), final body weight (BW) (18.2, 19.8, 23.0, and 25.1 kg), average daily gain (ADG; 295, 320, 374, 406 g/d), and average daily feed intake (493, 534, 619, 661 g/d) increased (linear, P<0.001), respectively. Feed efficiency (G:F) (596, 559, 604, and 615) tended to increase (linear, P=0.08) with weaning age. Increasing weaning age significantly reduced the prevalence of pigs exhibiting belly nosing behavior (27.6%, 15%, 6.5%, and 1.4%) during the first 3 wks, the percentage of pigs losing weight during the first week after weaning (35.1%, 28.7%, 12.4%, and 9.2%), and removal rate (8.01%, 3.79%, 2.29%, and 1.65%) (linear, P<0.001). There was no difference (P=0.46) in mortality rate (0.71%, 0.36%, 0.96%, 1.04%). In the finishing period, BW at 136 d post-weaning (114.9, 117.8, 124.7, and 126.5 kg) and ADG (1.02, 1.04, 1.08, and 1.07 kg/d) increased (linear, P<0.001) as weaning age increased. There was no difference (P>0.24) in removal (1.5%, 2.4%, 1.0%, and 0.0%) or mortality rates (0.9%, 1.0%, 1.0%, and 1.4%) with changes in weaning age. When performance was analyzed at a common day of life (164 d of age), no effects of weaning age (P>0.25) were found for BW (125.2, 124.4, 128.0, and 126.5 kg) and lifetime ADG (754, 751, 774, and 762 g/d). The BW sold per pig weaned increased (linear, P<0.001) with weaning age. Even though the slope indicated a linear response, the magnitude of improvement was high until 25 d, before exhibiting diminishing returns from 25 to 28 days.

The linear reduction in the prevalence of belly nosing behavior and in the number of pigs that lost weight in the first week in the nursery suggest that the welfare of pigs weaned at an older age is less significantly compromised. Similar to belly nosing, the growth rate in the first day in the nursery is determined by the weaning age, and both express an essential point that influences early and late performance in the nursery, which may serve as an animal welfare indicator.

Removal rate and mortality within weaning age are important factors to consider when determining the optimal weaning age for individual pork operations. In this study, the removal rate in the nursery phase was highly and linearly influenced by weaning age. It is important to note that all nursery diets contained feed-grade antibiotics, and the authors speculate that in antibiotic-free protocols, the magnitude of the impact caused by increasing weaning age could be greater. After overcoming the nursery stressors, there is no effect of weaning age on the survivability of pigs that are able to be transferred to finishing barns. However, when pigs’ health status is more compromised or in multisource allotments, increasing the weaning age may still affect the finishing phase. Weaning stressors alter intestinal development and functions, leading to long-lasting deleterious consequences for absorption and disease susceptibility. This raises the possibility that the effects of weaning age are linked to the duration of sucking, to different age-related physiological characteristics, or to a combination of them. Further studies with physiological measurements are required to elucidate this relationship.

Increasing the weaning age from 19 to 28 d positively affected pig performance. In the nursery, older pigs at weaning exhibited improved performance, a higher level of adaptation to the post-weaning period, and an evident improvement in the removal rate. Based on the increased BW sold per pig weaned, this study suggests that the percentage of losses represents one of the main factors that can be used to determine by how many days a system should increase the weaning age. Finally, the consistent manner in which an increase in weaning age from 19 to 25 d improves the overall performance suggests that this strategy is a reliable means of increasing productivity in commercial production systems.

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