

Responses to induced lactational catabolism in primiparous sows: 1. Feed intake and weight loss before and after weaning

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The response of primiparous sows to increased catabolism during late lactation has traditionally included effects on early embryonic survival and a marginal increase in the weaning-to-estrus interval (WEI). However, in recent studies even these detrimental effects have not been observed. As an extension of these investigations we studied the effect of feed restriction during late lactation on feed intake between weaning and breeding. All the primiparous sows in the present experiment were fed to appetite from farrowing until day(d) 13 of lactation. At d14, sows were pair-matched based on average feed intake between d11 and 13 (Av FI d11-13) and assigned to one of two treatments. Based on AV FI d11-13 Control (CON) sows were fed their predicted feed voluntary intake from d14 to 20 of lactation, whereas Restrict (RES) sows were fed 50% of their predicted feed over the same period. Sows were weaned at $d21.2 \pm 0.7$ of lactation and fed ad lib until breeding. Average feed intake d1-13 was similar between CON and RES sows (4.5 ± 0.1 vs. 4.6 ± 0.1 kg/day, respectively). Sow weight and backfat depth, and litter gain from birth to d14 were also similar between treatments. As a consequence of the lower feed intake between d14 and 20 in RES compared with CON sows (3.3 ± 0.1 vs. 6.2 ± 0.1 kg/day, respectively; $P < 0.0001$), RES sows lost more weight (15.3 ± 0.8 vs. 1.9 ± 0.8 kg), backfat depth (1.7 ± 0.3 vs. 0.5 ± 0.3 mm), and their total litter weight gain was less (16.8 ± 0.4 vs. 18.9 ± 0.4 kg) than CON sows (all $P < 0.005$ during this period of lactation). However, between weaning and breeding RES sows consumed more feed (4.5 ± 1.0 vs. 3.5 ± 1.0 kg/day), and gained more weight (3.6 ± 1.2 vs. -7.0 ± 1.1 kg) and backfat depth (0.2 ± 0.3 vs. -0.5 ± 0.2 mm) than CON sows ($P < 0.03$), resulting in no significant differences in weight or backfat depth at breeding.

Implications: These results show that maximizing feed intake of more catabolic sows after weaning allows for impressive “catch-up” growth even by the time of breeding at the first post-weaning estrus.