

2. Sow body condition losses during first lactation impaired conceptus size on Day-8 post-ovulation

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In young modern hybrid sows, excessive body tissue mobilization during lactation is often associated with impaired reproductive performance in the subsequent cycle, such as decreased farrowing rate, number of piglets born and piglet viability, which may be related to early embryo development. To investigate the relationships between primiparous sow body condition losses during lactation and conceptus size on Day 8 post-ovulation in the subsequent pregnancy, the losses of body weight (23.9 ± 7.1 kg), loin muscle and backfat thickness (10.8 ± 3.2 kg and 2.6 ± 1.1 kg, respectively) of 31 primiparous sows (209.5 ± 14.7 kg on Day 1 post-farrowing) in the 21-day lactation were measured in this study. The body protein and fat losses were estimated based on the changes in body weight and backfat. After weaning, conceptus and ovaries were collected from sows on Day-8 post ovulation. The mean diameter of the conceptus on Day 8 post-ovulation decreased with higher body weight loss ($\beta = -10 \mu\text{m} \cdot \text{kg}^{-1}$, $P < 0.01$), with higher estimated body protein loss ($\beta = -6 \mu\text{m} \cdot \text{kg}^{-1}$, $P = 0.02$), with higher estimated body fat loss ($\beta = -2 \mu\text{m} \cdot \text{kg}^{-1}$, $P = 0.04$), but were not affected by sow loin muscle and backfat losses. In conclusion, a high total weight loss, including body fat and protein mobilizations during the first lactation negatively affected conceptus development to Day 8 post-ovulation, which may consequently affect litter size.