
**Abstract**

An experiment was conducted to investigate the consequences of very early weaning of piglets on neuroendocrine variables and growth. Sixty piglets from eight litters were either weaned on Postnatal Day 6 (early weaning, or EW piglets) or left with their dam until normal weaning at Day 28 (control piglets, or C). At Days 5, 7, 11, 14, and 19, urine was collected between 7:00 and 8:00 a.m. for the measurement of catecholamines, glucocorticoids, and creatinine. Compared with C, EW piglets displayed a transient increase in urinary cortisol on the day following separation from their dam (Day 7) \( (P<.05) \). Urinary norepinephrine (NE) was three times lower in EW compared to C piglets from Day 7 until Day 14 \( (P<.01) \) but there was no difference between the two groups on Day 19. Urinary epinephrine (EPI) did not differ between C and EW piglets on the day after weaning. Thereafter, EW piglets displayed a three times drop in urinary EPI as compared to C piglets until the end of the period \( (P<.01) \). Weaning induced an immediate reduction in food intake and growth rate and at Day 28, the body weight of EW piglets was 1.60 kg lower than that of C piglets \( (P<.0001) \). In conclusion, weaning of 6-day-old piglets results in a marked and prolonged suppression of the release of catecholamines. This result likely reflects physiological responses to insufficient energy intake after weaning, as reflected also by changes in thermoregulatory behavior. The transient increase in cortisol excretion in weanlings may be caused by both emotional distress and acute food deprivation.

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