

Title: Weaned pig transport: animal welfare impact of duration of trip, and provision of feed and water
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Scientific Abstract:

Transportation is a complex stressor made up of many factors including weaning itself and withdrawal from food and water. All these factors have the potential to activate the hypothalamic-pituitary-adrenal axis (HPA) in pigs individually or in combination. Therefore, transportation has the potential to affect the health, especially in pigs already experiencing weaning stress. Piglets were transported for 32 hrs and measures of performance, physiological changes, and behavior were taken to assess piglet welfare. There were 5 treatment groups, including a control (Con), weaned pigs provided feed and water (Wean+), weaned pigs not provided with feed and water (Wean-), weaned and transported pigs provided with feed and water (Trans+), and weaned and transported pigs not provided with feed and water (Trans-). There was a significant loss in percent body weight within treatments ($P < 0.01$). Control pigs had a $6.5 \pm 0.45\%$ increase in body weight by the end of the transport study. Weaning caused a $5.9 \pm 0.45\%$ loss in body weight. Weaning without feed and water caused a $7.8 \pm 0.45\%$ loss in body weight. Transport with feed and water caused a $6.5 \pm 0.45\%$ loss in body weight in addition to weaning loss in body weight. Not providing any feed and water during transport caused a $9.1 \pm 0.46\%$ loss in body weight. There was a significant treatment by time interaction for neutrophil to lymphocyte ratio (N:L) ($P < 0.01$). All treatment groups had a significant increase in N:L ratio by 8 hr compared to the Con group ($P < 0.05$). There was a significant treatment by time interaction for blood glucose levels ($P < 0.01$). By 24 and 32 hours of transport all treatment groups had significantly lower blood glucose levels compared to the Con group ($P < 0.05$). Creatine Kinase (CK) had a significant sex by treatment interaction ($P < 0.01$). Trans+ females had a significantly higher CK levels than males ($P < 0.05$). Total plasma protein (TP) has a significant treatment by time interaction ($P < 0.01$). By 16 hrs of transport Trans- pigs has significantly higher TP levels than all other treatment groups. Significant changes in behavior were observed during and after transportation. Overall, transportation has an additive effect in weight loss, especially if not provided with feed and water. Physiological and behavioral changes are similar for animals weaned and transported without feed.

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