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A field study on associations of suckling, eating, and postural behaviors for 24 h with reproductive performance of lactating sows in Japan

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Introduction and Objectives

We hypothesized that suckling and other behaviors in lactating sows were related to postweaning reproductive performances, because shorter suckling intervals (Auldist et al., 2000) and higher feed intake during lactation (Koketsu et al., 1996) were associated with heavier piglet weights and shorter weaning-to-first-mating intervals (WMI). Our objectives were to observe suckling, eating, and postural behaviors (standing, lying, and sitting) in lactating sows; to investigate the factors (parity, observed days of lactation, number of nursing piglets, and nighttime) associated with behaviors; and to examine relationships between behaviors and the reproductive performances.

Material and Methods

A commercial farrowing-to-finish farm with approximately 300 breeding female pigs was visited eight times for 3 years to record behaviors by using time-lapse video-recorders for 24 hours. Reproductive performance in each sow was recorded in a computerized recording system (PigCHAMP). Suckling initiation was defined as when more than half of the litter piglets sucked nipples on the udder. Suckling termination was defined as when more than two piglets of the litter massaged or left the udder. Suckling interval was defined as the period from the suckling initiation to the consecutive suckling initiation. Eating was defined as when a sow put her head in the feeder while she was standing, but it was not possible to determine if actual eating occurred or not. Two groups of the number of dead piglets before weaning were formed on the basis of upper 25 percentile of observed sows: < 2 and ≥ 2 dead piglets. Correlation coefficients between behavior measurements were obtained. Statistical models were used to investigate factors associated with each behavior. Regression analyses were used to determine associations of behavior measurements with adjusted 21-d litter weights (A21d-Wt) and WMI.

Results and Discussion

Of 145 recorded sows, the means of suckling frequencies and intervals were 30.9 ± 0.37 and 47.5 ± 0.59 minutes, respectively. The means of eating frequencies, total eating durations, and eating proportions in standing duration in 95 sows were 44.8 ± 3.11, 71.3 ± 1.92 minutes, and 45.8 ± 1.54%, respectively. Suckling intervals during daytime were longer than those during nighttime ($P < 0.05$). During nighttime between 1800 and 0600, 63.2% of sows showed eating behavior at least once. Shorter suckling intervals were associated with heavier A21d-Wt ($P < 0.05$), but not with WMI. Eating behavior was not associated with A21d-Wt and WMI. Higher eating frequency does not mean higher feed intake. Sows with ≥ 2 dead piglets before weaning had higher frequency of postural behavior changes than those with < 2 dead piglets ($P < 0.05$).

As parity increased from 1 to ≥ 4, suckling interval increased and total lying duration decreased ($P < 0.05$), but no differences in eating behaviors were found between parity groups. Shorter suckling intervals were correlated with longer total lying durations ($P < 0.05$). Managements that increase lying behaviors in sows may decrease suckling intervals, reduce piglet crushing occurrences, and increase litter weights at weaning. Feeding sows during nighttime may increase feed intake, and improve reproductive performances.

References

Auldist et al. 2000. J. Anim. Sci. 78:2026-2031.
Koketsu et al. 1996. J. Anim. Sci. 74:1036-1046.