Temperature Preference of Newborn Calves Fed High And Low Levels of Milk

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Low temperatures increase mortality of calves but we know little of calves' abilities to thermoregulate. To examine effects of milk feeding level on thermoregulatory behaviour, 27 Holstein calves were housed for 3 days after birth in individual pens fitted with heat lamps at one end to provide a thermal gradient. They were fed milk at a high (30 % BW) or low (8% BW) daily allowance. Average daily temperature was +3.71°C (range: –9.2°C to +12.7°C).

Temperature loggers were fitted to the back of each calf to record ambient temperatures chosen by the calf. Video cameras recorded the calf's distance from the heat lamp and lying posture (on sternum or side, with legs extended or contracted) for 24h/d. Calves spent most time in the portion of the pen with heat lamps but there was no effect of feeding level. Calves tended to be closer to the heat lamp during the coldest periods of the day than during the warmer periods. The difference between the temperature recorded in the barn and the temperature recorded on the calf's back was correlated with distance from the heat lamp, showing that the temperature logger on the calf reflected the ambient temperature chosen. Time spent in different lying postures was not affected by feeding level or barn temperature. Young calves show a preference for warmer environments but this preference does not interact with the amount of milk fed. Temperature recorders attached to the calves can measure calves' thermal preferences. Calves did not thermoregulate through changes in resting posture.

Implications: Newborn calves might benefit from the presence of an external source of heat (i.e. heat lamp) during their first days of life.