Effects of milk allowance and age on meal patterning of dairy calves

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INTRODUCTION

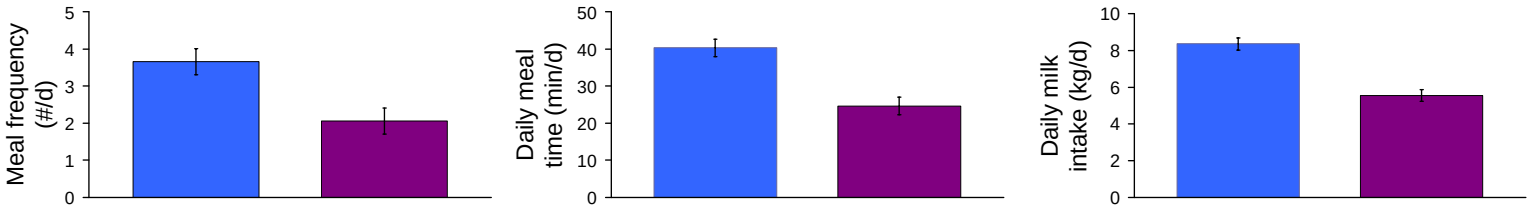
Animals typically divide their feeding time into a series of meals. Little is known about how milk allowance affects the milk and concentrate meal patterning of dairy calves. The objectives of this study were to quantify the effects of milk allowance and age on meal patterns of dairy calves.

METHODS

Eighteen Holstein calves were randomly assigned to either ad libitum or restricted (10% body weight) access to milk and were weaned 8 wks of age. Calves were reared in a single group pen (9 calves at once) with milk and concentrate (ad libitum for all calves) provided by a computer-controlled feeder. Meal criteria for milk and concentrate feeding were identified for each calf as the intersection point between the distributions of the bimodal frequency distribution of log10-intervals between nutritive visits to the feeder. These criteria were used to calculate meal number and duration.

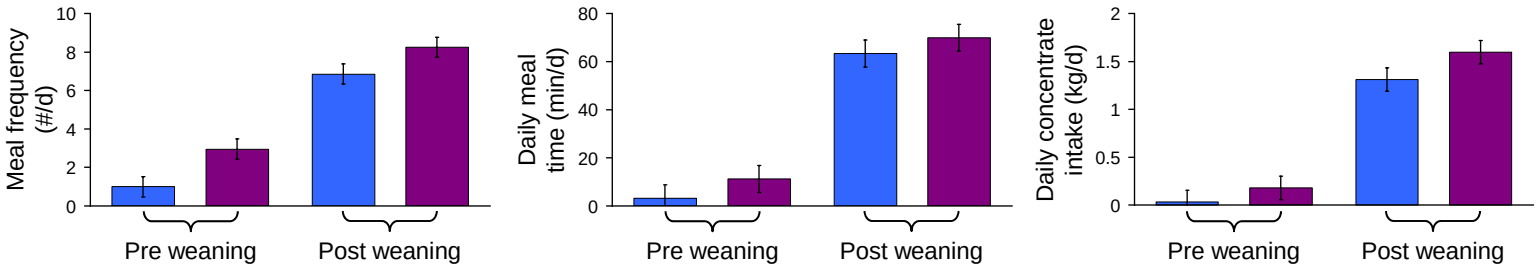
RESULTS

Milk feeding behaviour



Ad libitum-fed calves had more milk meals (P = 0.006), longer daily meal times (P < 0.001), and higher milk intakes (P < 0.001) than restricted-fed calves. Meal duration and size were not affected by milk allowance, averaging 12.6 ± 0.9 min/meal and 2.8 ± 0.2 kg/meal.

Concentrate feeding behaviour



Ad libitum-fed calves had more concentrate meals (P = 0.003) and tended to have higher concentrate intakes (P = 0.09) than restricted-fed calves before and after weaning. Further, regardless of milk feeding level, all calves had more (P < 0.001) concentrate meals, longer daily meal times, and higher concentrate intakes after weaning. Calves also had longer (P < 0.001) meal durations and greater meal sizes after weaning.

CONCLUSIONS

Milk feeding levels influence the milk and concentrate feeding patterns of dairy calves fed using an automated feeder. Regardless of milk intake before weaning, when calves are weaned from milk they rapidly increase intake of concentrate, increasing the time spent feeding and eating more meals.

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