## Feeding behaviour and intake identify dairy cows at risk for postpartum metritis.

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Metritis is a disease of particular concern after calving due to its negative effects on the reproductive performance of dairy cows. Previous work by our group has shown that cows at risk for post-partum metritis had lower feeding times in the days before calving, however this study was unable to measure individual dry matter intake (DMI). The objectives of this study were to examine the relationship between feeding time and DMI during the transition period and to determine which of these measures were most useful for predicting post-partum metritis. Average daily feeding time and DMI of 62 Holstein dairy cows was collected from 2 wks before until 3 weeks after calving using an electronic monitoring system. Metritis severity was diagnosed based on daily rectal body temperatures as well as condition of vaginal discharge that was assessed every 3 days (d) for 3 weeks after calving. Mildly metritic (MM) cows were identified based on vaginal discharge on average  $9.1 \pm 3.9$  d after calving while those with severe metritis (SM) were identified 5.3  $\pm$  1.9 d after calving (P < 0.001). Compared to healthy cows, those with SM showed lower DMI and feeding times over the 2-week period before calving ( $P \le 0.05$ , Figure 1), with the greatest differences being observed during the week before calving (wk-1). Cows with MM had lower DMI (P = 0.05, Figure 1) and tended to spend less time eating (P = 0.07) only during wk-1 relative to healthy cows. Feeding time was positively related to DMI for healthy, mildly and severely metritic cows during both the pre-partum period (d-13 to d-1;  $R^2 = 0.36$ , 0.41 and 0.64 respectively,  $P < 10^{-1}$ 0.001) and post-partum period (d-1 to d+21;  $R^2 = 0.67$ , 0.69 and 0.81 respectively, P < 0.001). Odds of developing severe metritis nearly tripled for every 1 kg decrease in DMI during wk-1 and increased by 1.72 for every 10 min decrease in feeding time during this same period. These results indicate that both pre-partum DMI and feeding time are useful measures for identify dairy cows at risk for post-partum metritis. Due to high technological costs for monitoring individual feed intake in free-stall barns, the use of DMI as a predictive measure is not realistic for the average producer. Feeding behaviour may be a more practical tool producers can use to improve their herd health programs by identify cows at risk for disease much sooner than traditional clinical diagnosis would allow.



**Figure 1.** Average daily DMI (kg/d; A) and feeding time (FT; min/d; B) of healthy (n=23), mildly metritic (n=27) and severely metritic (n=12) Holstein dairy cows from 13 d before until 21 d after calving.