

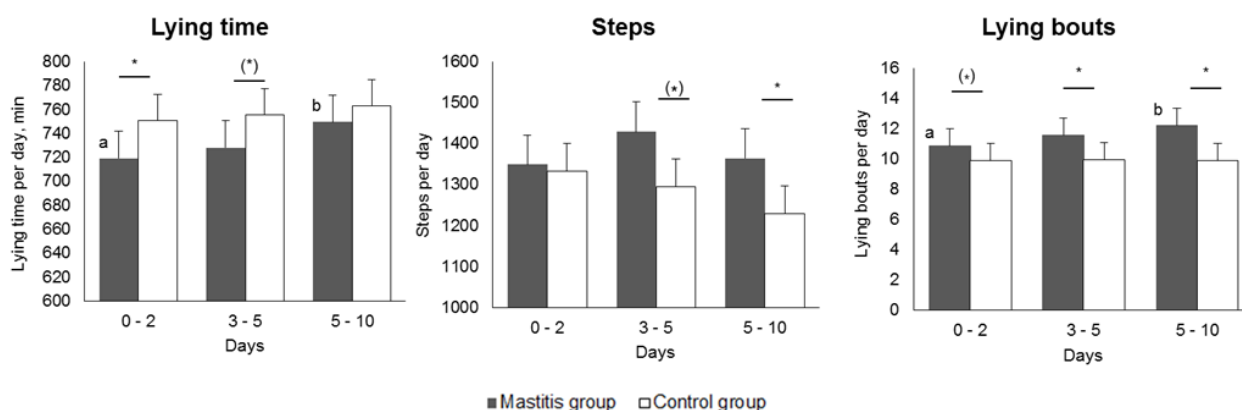
## Activity level and lying behavior of dairy cows during a 10d period after naturally occurring clinical mastitis

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Dairy cows exhibit classic signs of sickness behavior during mastitis. However, knowledge about the consequences of mastitis on the behavior of free stall housed dairy cows is lacking. The aim of this study was to examine the activity level of dairy cows during a 10d period after antibiotic treatment of clinical mastitis. Data were obtained from a free stall herd with 140 Danish Holsteins during a period of 6 months. The cows were milked in an automatic milking system (DeLaval, Tumba, Sweden). In case of alarm from the milking system a milk sample was analyzed. The first 30 cows with naturally occurring mastitis - detected by presence of bacteria in the milk - and another 30, otherwise clinically healthy cows were included in the dataset. On the day after milk sampling, the infected cows were treated with antibiotics (d0). Each infected cow was paired with a control cow matched by yield, lactation number and stage. On d0, hind leg activity sensors (IceRobotics Ltd, Edinburgh, UK) were placed each cow. Daily clinical udder examination scoring severity from 0-5, showed that the infected cows had a significant higher udder score than control cows during the whole 10d period ( $P < 0.001$ ). Mastitic cows had a shorter lying time ( $P = 0.017$ ), took more steps ( $P = 0.029$ ) and had a higher number of daily lying bouts ( $P < 0.001$ ) compared to controls during the observation period. In case of clinical udder symptoms; lying behavior might be aversive and consequently be reduced in spite of the expected illness-induced enhanced lying motivation. Thwarting of highly motivated behaviors – such as bovine lying – can cause frustration which might exacerbate suffering. If lying is painful for the cow and thus reduced, the cow might become increasingly frustrated and restless with time. The present level of steps taken and frequency of lying bouts may indicate such motivational conflict and hence coping difficulties during the diseased period.

These results call for further investigation into management and recovery of mastitic dairy cows in order to ensure animal welfare during and after clinical mastitis as well as to optimize recovery.



Daily lying time, steps and lying bouts of free stall housed dairy cows. Mastitis cows are treated with antibiotics on day 0. Data are presented as estimated means and standard errors. \* indicate significantly difference between control and mastitis group within group of days. Bars with different letters differ significantly.

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