case study

Association between sensor-based prepartum behaviour monitoring and early postpartum health in dairy cows

BACKGROUND

Increased risk of periparturient disease during transition period

Physiological changes in the transition period in dairy cows increase susceptibility to periparturient disease. This study investigated whether prepartum behavioural sensor data from cows was associated with postpartum health problems.

19 Holstein Friesians

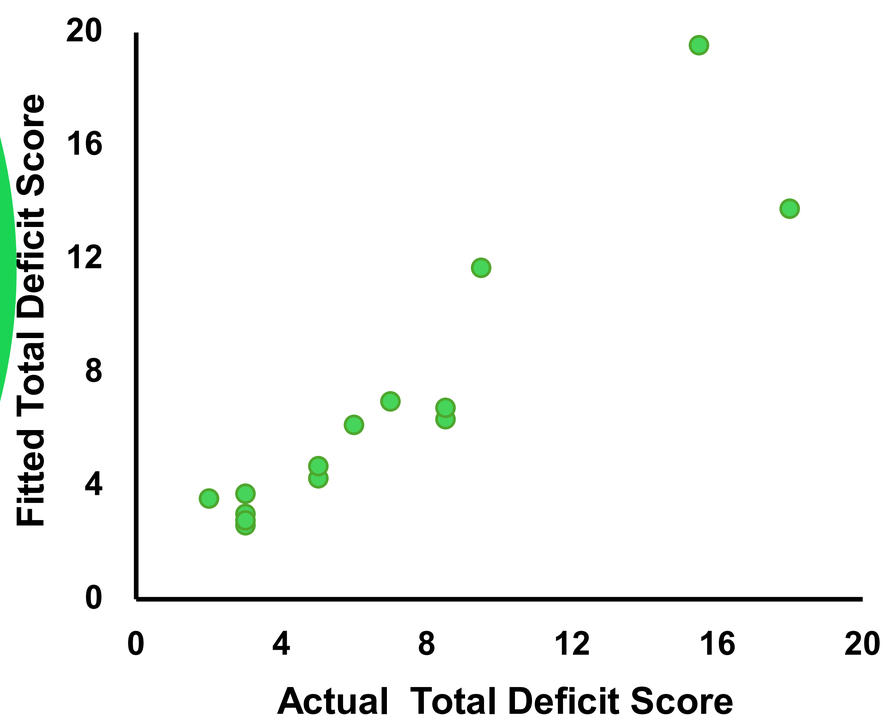
2 weeks prepartum till 2 weeks postpartum

Prepartum sensor-based lying, ruminating, eating, inactivity, steps, and neck movement (Nedap Smarttag)

Postpartum physical examination resulting in Total Deficit Score (TDS)

Sensor-based monitoring of prepartum behaviour is associated with postpartum health in dairy cows; this suggests that health predictions using AI might be possible

RESULTS



Pearson and Spearman correlations identified relevant TDS-associated behavioural variables ($p < 0.25$) which were included in a general linear model (GLM), adjusting for parity (primi- or multiparous). A higher TDS was associated with increased neck movement variability and lying time and decreased mean neck movement and inactivity variability ($F(5,8) = 10.84$, $p = 0.002$, $R^2 = 0.87$).

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