

## Accepted Manuscript

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PII: S1090-0233(17)30240-X  
DOI: <https://doi.org/10.1016/j.tvjl.2017.11.013>  
Reference: YTVJL 5071

To appear in:

Accepted date: 25-11-2017

Please cite this article as: Giorgio Marchesini, Davide Mottaran, Barbara Contiero, Eliana Schiavon, Severino Segato, Elisabetta Garbin, Sandro Tenti, Iginò Andrighetto, Use of rumination and activity data as health status and performance indicators in beef cattle during the early fattening period (2010), <https://doi.org/10.1016/j.tvjl.2017.11.013>

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## Original Article

### Use of rumination and activity data as health status and performance indicators in beef cattle during the early fattening period

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## Highlights

- Patterns of activity and rumination in beef cattle allow the detection of BRD and lameness
- Patterns of activity and rumination in beef cattle help in predicting average daily weight gain
- The use of individual sensors help in early diagnosis of cattle diseases, facilitating early and targeted therapies

## Abstract

The aim of this study was to measure the level of activity and rumination in young bulls and to assess whether these data can be used as indicators of health status and average daily weight gain (ADG). Two groups of animals (period 1:  $n = 108$  animals; period 2:  $n = 106$  animals) were fitted with sensors to measure daily activity and rumination, were weighed on arrival and at the end of the trial (70 days) and were checked twice daily to verify their health condition. Any clinical signs and therapies were recorded. The dishomogeneity index of rumination (DR), and the daily dishomogeneity indices of activity (DDA) and rumination (DDR), were calculated. Bulls had an ADG of  $1.42 \pm 0.38$  kg/day and showed an average duration of daily rumination of  $404 \pm 63$  min and an average activity of  $474 \pm 46$  bits, respectively. Animals characterised by low ADG had lower values

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