



Accelerometers as a non-invasive method for detecting lameness in weaned piglets

L. van de Reep¹ | E. Meijer¹ | L.E.J.M. Vriends² | F.J. van der Staay^{3, 4}

1 Department of Farm Animal Health, Faculty of Veterinary Medicine, Utrecht University, the Netherlands

2 HAS University of Applied Sciences, Den Bosch, The Netherlands
3 Brain Center Rudolf Magnus, Utrecht University, The Netherlands

4 Program Emotion & Cognition, Department of Farm Animal Health, Faculty of Veterinary Medicine, Utrecht University, The Netherlands

Background

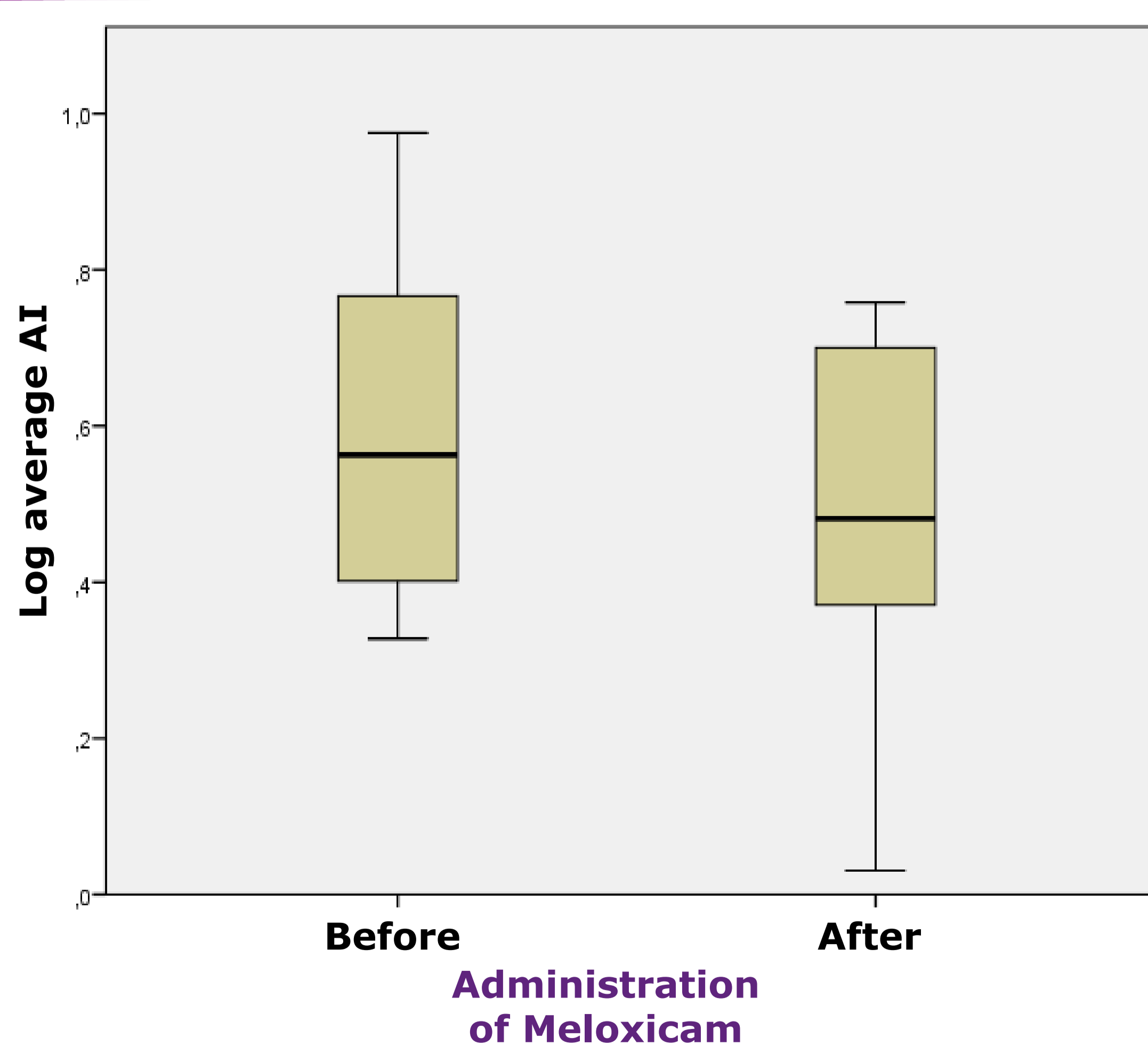
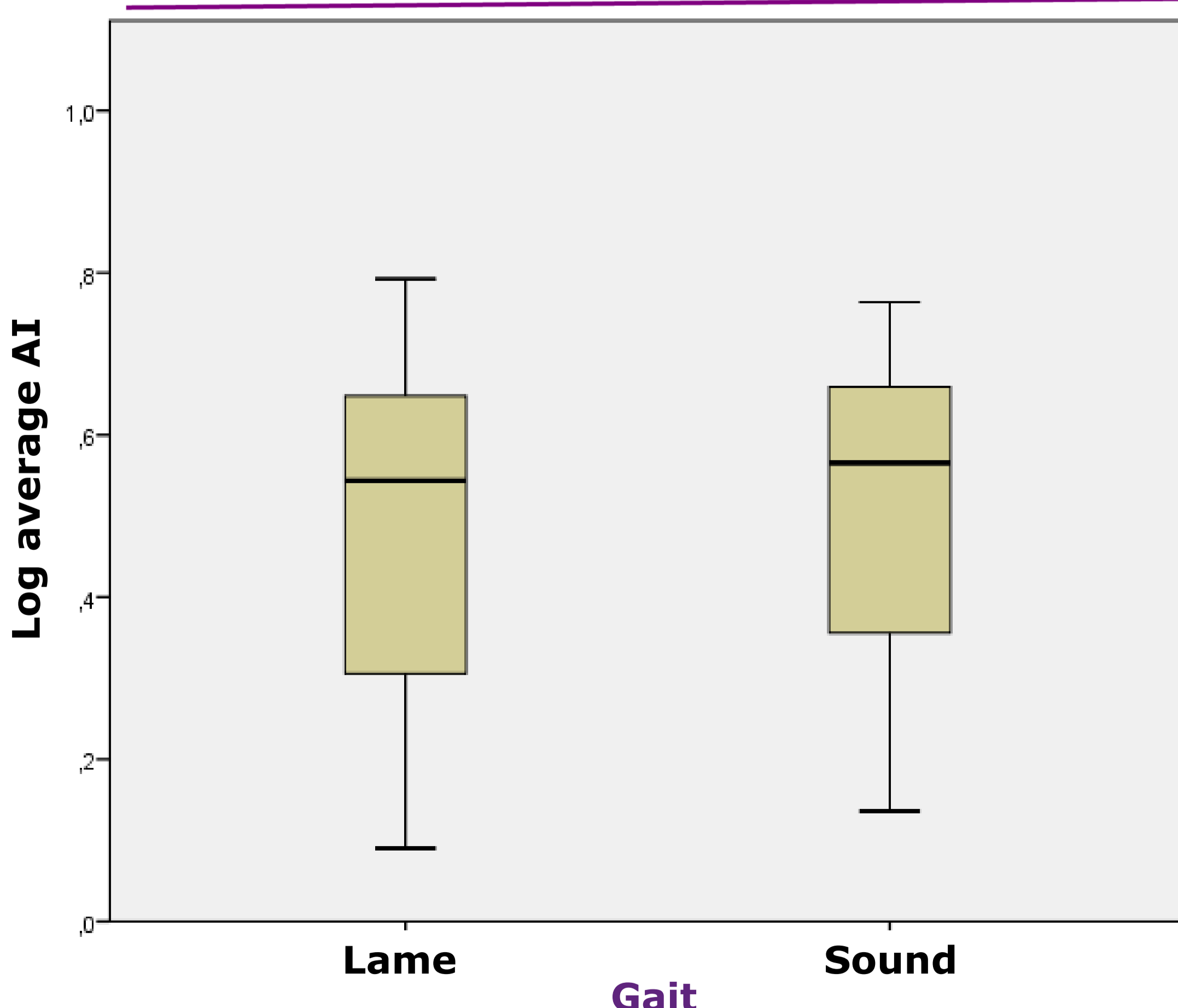
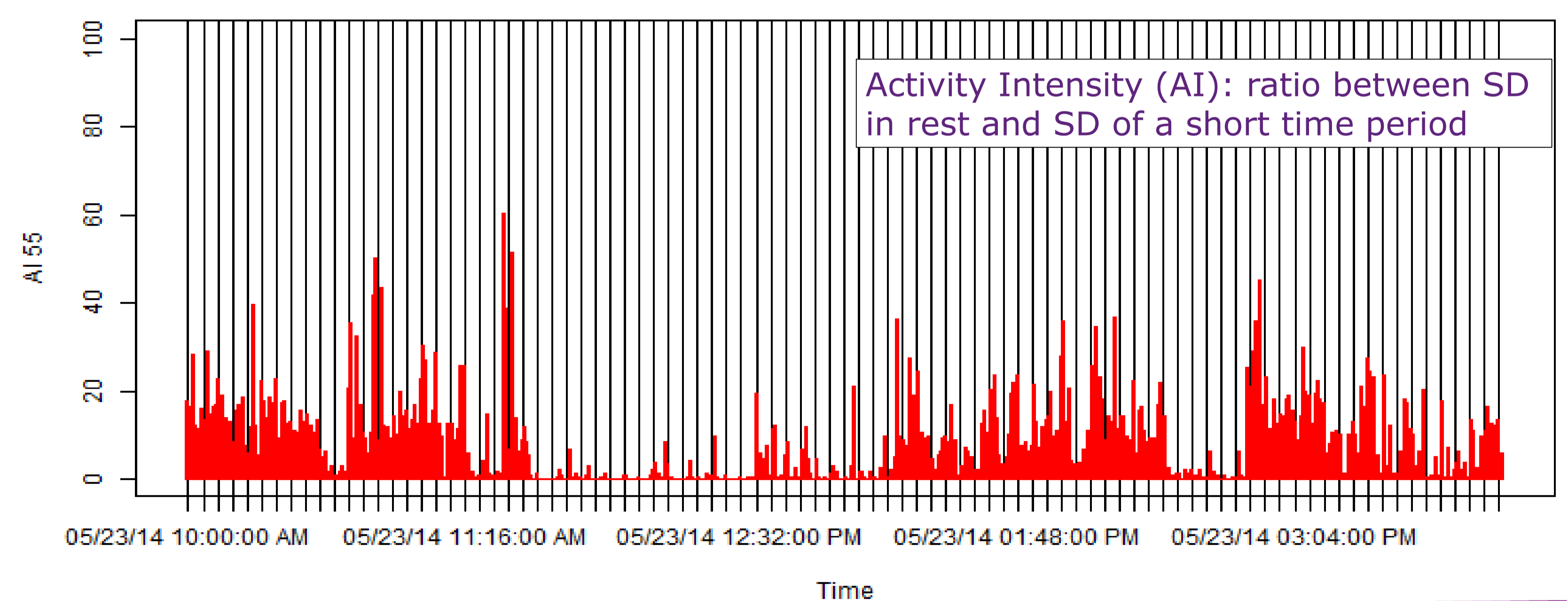
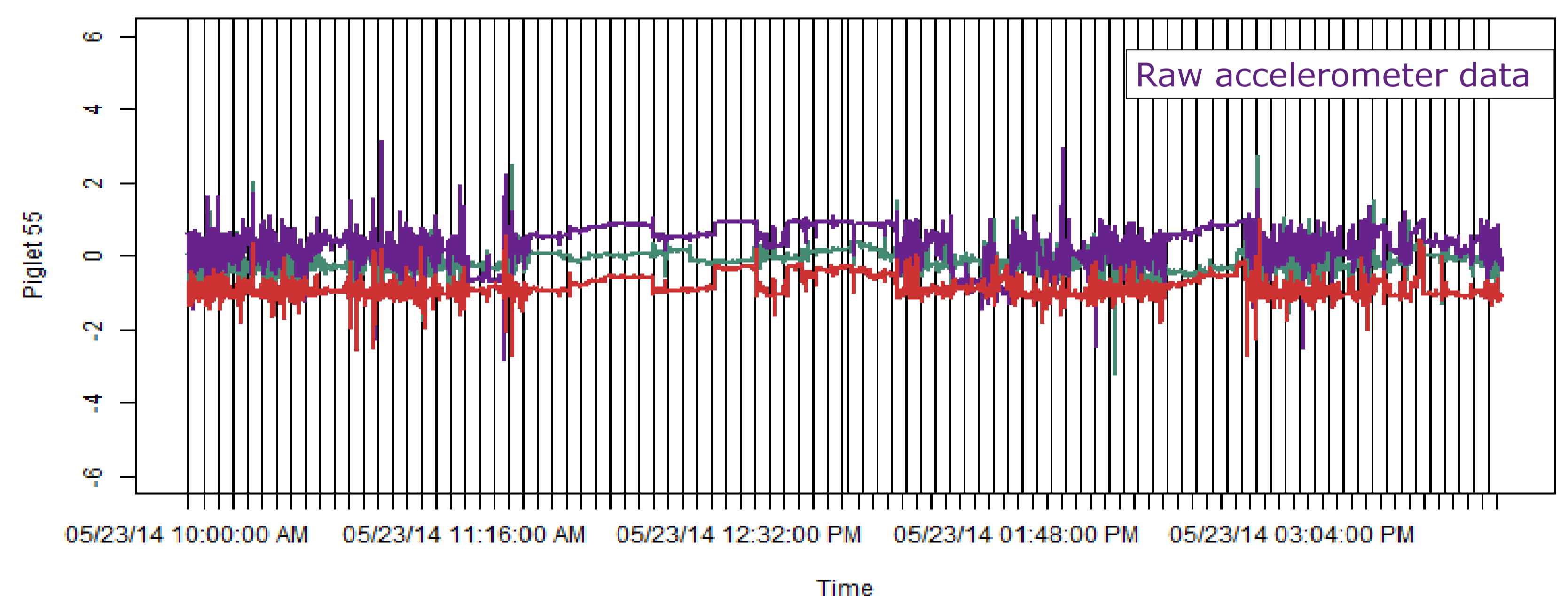
Lameness in pigs is a highly prevailing health and welfare problem that causes economic losses in pig farming. Despite its high prevalence, lameness in pigs is difficult to detect. Behavioural observations are subjective

and time consuming. An additional problem is that pigs are usually housed in large groups, making observation of individual pigs difficult. Objective methods that enable easy and reliable detection of lameness are urgently needed. These methods can help developing better evidence-based treatment of lameness in

pigs. The aim of this study was to assess the usefulness of accelerometers as a non-invasive method for detecting lameness in group-housed weaned piglets. We hypothesised that lameness decreases the pig's activity and that this drop in activity enables distinguishing sound from lame pigs.

Materials and Methods

- 14 clinically healthy piglets and 16 lame piglets
- 13 lame piglets before and after treatment
- 0.4 mg/kg Meloxicam
- 3.5-8.5 week old at testing
- visual scoring of lameness
- 6 hour data collection
- triaxial accelerometer between shoulder blades
- Accelerometer data converted to activity intensity



Results

The activity intensities of lame (Mean±SEM, 4.77±0.03) and sound piglets (4.73±0.02; t28=-0.278, P=0.688) were similar. The average activity intensity was unaffected by treatment with the analgesic Meloxicam (untreated, 4.17±0.63; treated, 4.35±0.65; t12=0.645, P=0.950).

Discussion

Activity intensity measured with accelerometers showed no significant difference between lame

and non-lame piglets. Also, treatment of lame piglets with Meloxicam had no influence on activity intensity. This study suggests

measuring activity with accelerometers is not a reliable diagnostic to detect lameness.