

Lameness in small ruminants – what is applicable to the large ones?

George Stilwell and Ana Vieira

Animal Behaviour and Welfare Research Lab, CIISA, Veterinary Medicine Faculty, Lisbon University, Alto da Ajuda, 1330-477 Lisboa, Portugal

stilwell@fmv.ulisboa.pt

Lameness is perhaps the most important disease in farm animals because of its impact on performance and welfare. In the UK, foot-rot is responsible for losses over £24 million per annum. However, there is almost no study on the effect of lameness on small ruminants' reproductive performance. This may be due to difficulty in working with these species – seasonality, not very pronounced oestrus signs, male effect, low use of artificial insemination... – but most probably it results from the fact that the industry has not yet fully grasped the full effect of lameness on fertility. In contrast there is extensive evidence connecting lameness with reduced fertility in cattle e.g. we showed that lameness decreased the odds of pregnancy 5.1 times and of calving 3.5 times in dairy cows.

In spite of many (and important) differences, studies with small ruminants can help us understand many features of lameness in cattle. Small ruminants have some characteristics that facilitate experiments – easier to restrain, to force to walk, to flex limbs, to photograph... All being much safer for the operator.

We present some studies through which goat lameness studies may help to elucidate what is happening in cattle.

- Thermographic images of goats' limbs before and after exercise and before and after claw trimming, show an increase in temperature of the distal interphalangeal joint after 5 min. exercise and a significant difference in temperature between animals with overgrown claws and those for which natural weight bearing was regained by trimming.
- There is no gold standard to assess locomotion in ruminants. We developed a websurvey on lameness in goats that showed how numerical rating scales may fail to correctly assess the intensity of lameness and how the different scores might not be evenly spaced along the scale. We will develop now a visual analogue scale for quick lameness assessment.
- Automatic image collection of animals walking out of the milking parlour may allow identifying and quantifying locomotion by body movements and lines.
- The AWIN project is investigating the molecular basis to genetic resistance to footrot that may contribute to the study of cattle interdigital necrobacillosis.

Acknowledgements

This article is based upon work from COST Action FA1308 DairyCare, supported by COST (European Cooperation in Science and Technology, www.cost.eu). COST is a funding agency for research and innovation networks. COST Actions help connect research initiatives across Europe and enable scientists to grow their ideas by sharing them with their peers. This boosts their research, career and innovation.