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Measures of Acute and Chronic Pain in Sheep Following Routine Husbandry Procedures

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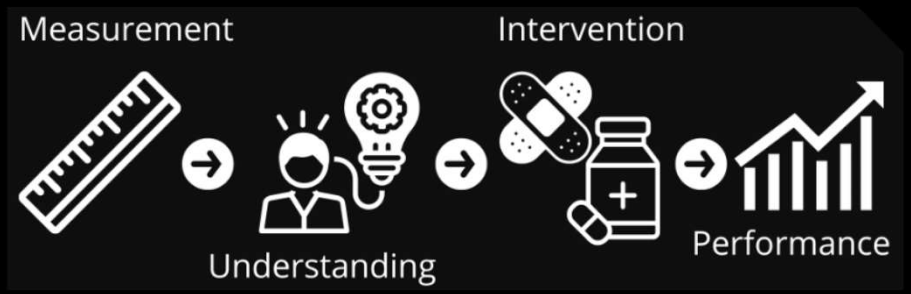
We acknowledge and pay our respects to the Kaurna people, the traditional custodians whose ancestral lands we gather on.

We acknowledge the deep feelings of attachment and relationship of the Kaurna people to country and we respect and value their past, present and ongoing connection to the land and cultural beliefs.



Measuring Pain in Sheep

- Accurate measurements to improve biological understanding
- Growing pressure from consumers and industry to improve welfare of production animals
- Poor welfare reduces productivity
  - Reduced activity
  - Reduced resilience

METHODS

Ethical approval: The University of Adelaide Animal Ethics Committee (#S-2021-043)

Merino lambs (4-6 weeks):

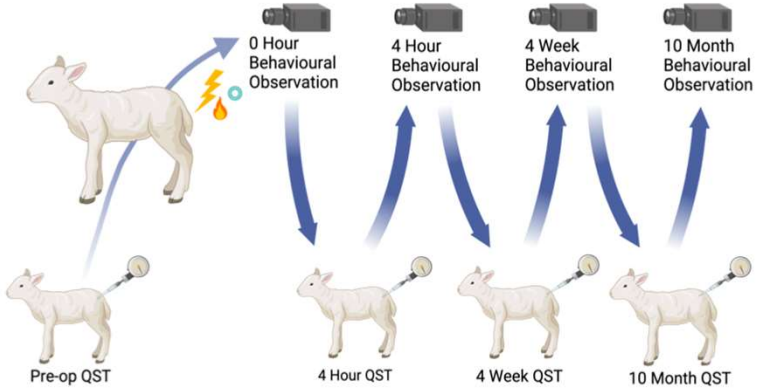
- sham handling (n=36)
- male hot knife tail dock (n=16)
- male rubber ring tail dock (n=16)
- female hot knife tail dock (n=17)
- female rubber ring tail dock (n=16)
- male hot knife tail dock and rubber ring castrate (n=18)
- male rubber ring tail docked and rubber ring castrate (n=18)

Quantitative sensory testing:

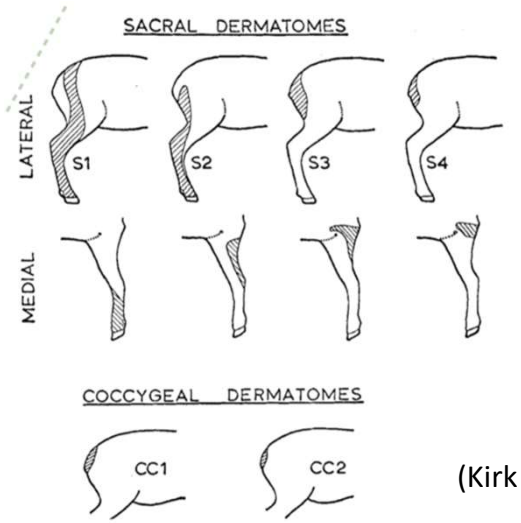
- algometer to determine mechanical nociceptive threshold at multiple timepoints

Spontaneous pain behaviours and postures:

- observed over multiple 30 minute periods using CCTV
- The behaviours were recorded using Behavioural Observation Research Interactive Software (BORIS) (Friard, 2016)



QST



(Kirk 1968)

Behaviours

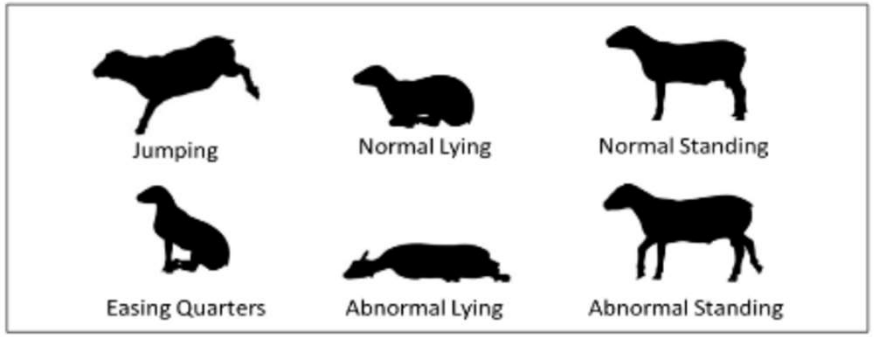
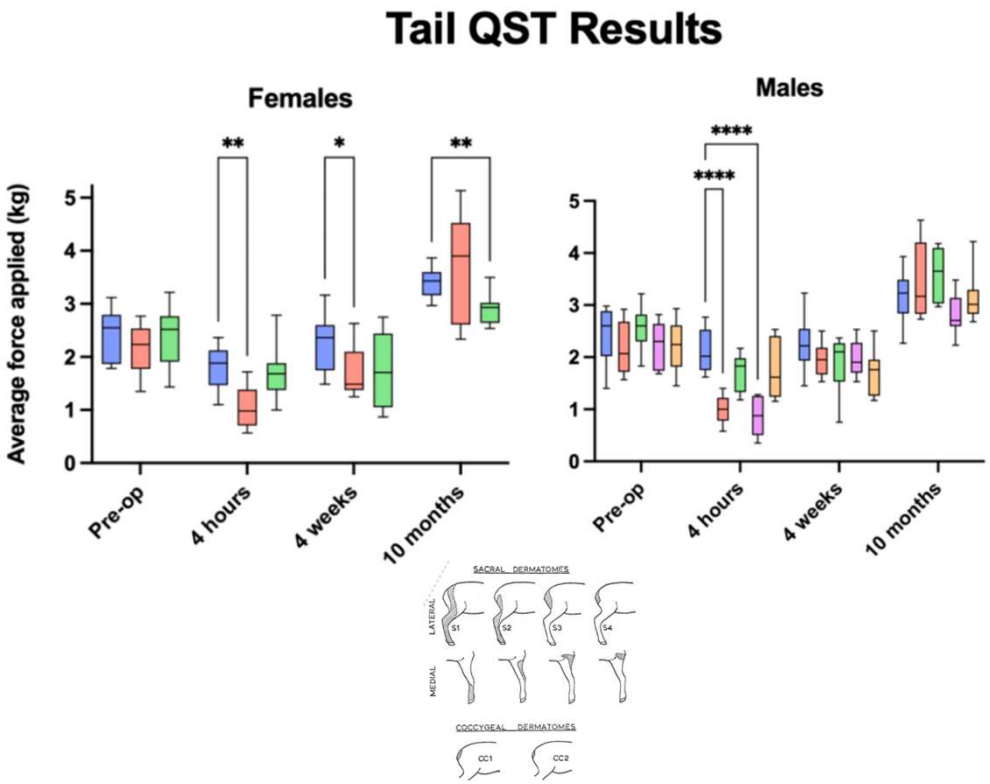


Figure 1. Example ethogram behaviours, adapted from Georghiou 2022.

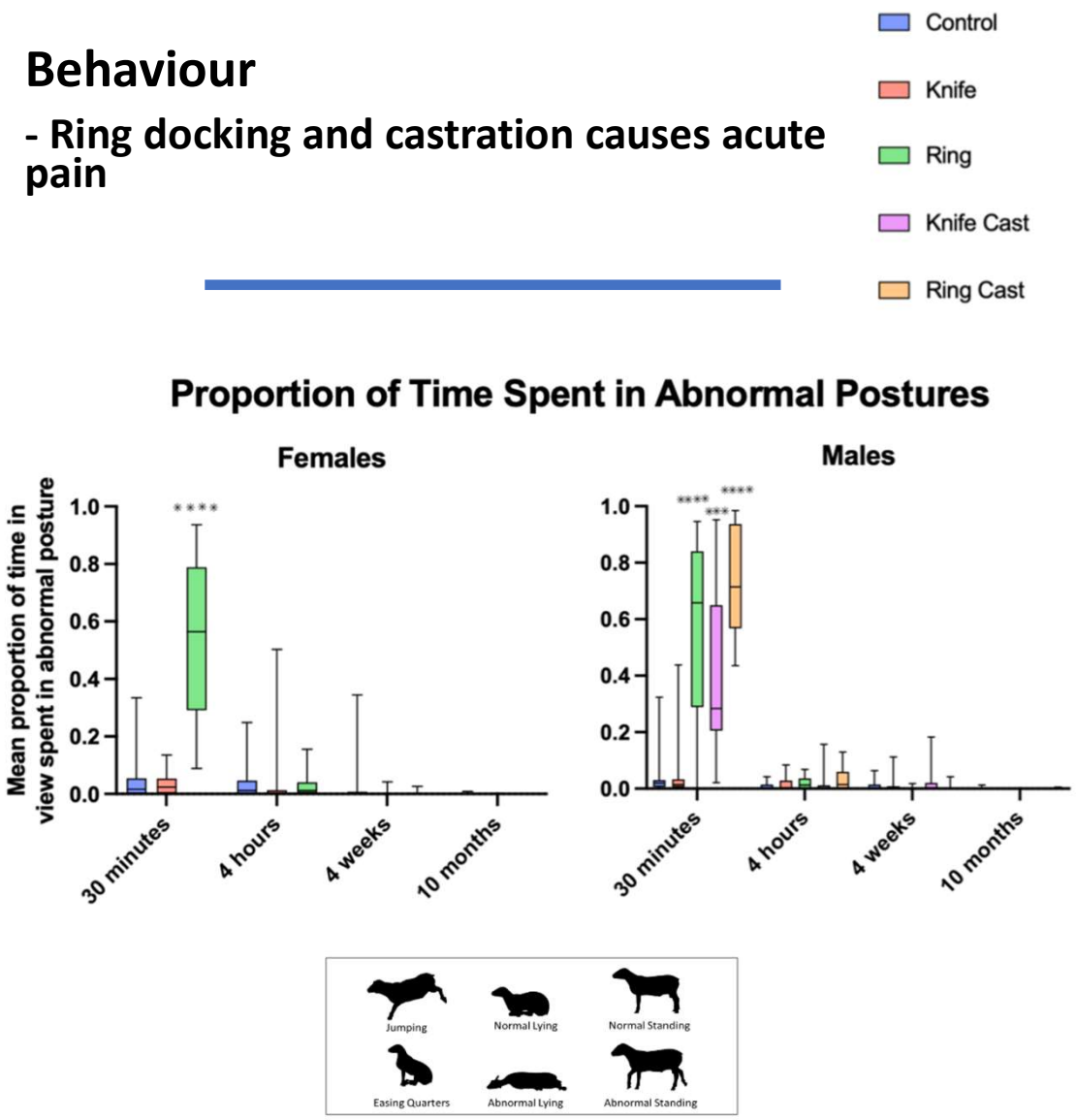
Quantitative Sensory Testing

- Knife docking reduces nociceptive threshold
- Persistent sensitisation in females



Behaviour

- Ring docking and castration causes acute pain



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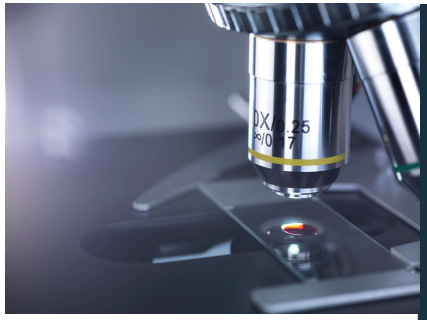
Conclusions



Refining methods of pain assessment is important for understanding both acute and chronic pain and unveiling its influence on productivity and welfare

Future Directions

- **Development of pain biomarkers for testing and creating analgesics and management interventions to improve livestock welfare and wellbeing**

Acknowledgements

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