

Poster Presentations

A preliminary investigation to determine the thermoregulatory impact of fleece and vented boots on the lateral skin surface of the equine distal limb.

Sear, T., Lock, F. and Williams, J.M. Hartpury College, University of the West of England

Introduction: A high incidence of tendon injury has been recorded in sports horses, particularly in disciplines involving high intensity or long duration exercise (Williams *et al.*, 2001; Singer *et al.*, 2008). Extended exercise periods have been linked to hyperthermia in the equine tendon and are reported to induce pathological changes in the tendon microstructure, and therefore could be a contributing factor to injury. Tendon temperature assessment is invasive but it is proposed that skin surface temperature could be employed as an indication of internal tendon thermoregulation. The aims of this study were to identify the thermal effect of boots (fleece-lined and air-vented) on the lateral skin surface of the equine distal limb during a replication of the cross country phase of eventing.

Materials and Methods: Seven horses, free from overt signs of lameness and who had previously evented to BE100, performed an exercise programme that simulated the cross country phase of a BE100 standard one day event over three separate days with three different leg conditions: a vented boot, a fleece-lined boot and a bare limb as the control. Lateral skin surface temperature of the mid-metacarpal/ tarsal was recorded at 30 second intervals using temperature probes connected to a data logger. Data were analysed using a series of Mann Whitney U tests to establish if temperature differences between conditions were significant.

Results: A highly significant difference ($P<0.001$) was found between the booted and non-booted conditions. Higher temperatures were consistently recorded for the traditional fleece-lined cross-country boots in comparison to the under vented boots at all gaits, and the vented boot displayed more effective cooling traits when exercise terminated but no statistically significant differences ($P>0.05$) between the boots were found. It should be noted that the low ambient environmental temperatures were not representative of eventing conditions, as events occur during summer months with higher ambient temperatures and results, therefore results should be interpreted appropriately.

Discussions and Conclusions: The study has unsurprisingly highlighted that boots have a thermal heating effect on the lateral skin surface of the equine distal limb. The descriptive trends displayed for a reduction in surface temperature when using the vented boot and the heat retention characteristics exhibited by the fleece-lined boots warrant further research within an increased population and during higher environmental temperatures to evaluate potential impact on tendon heating. This study has highlighted the need for a greater understanding of the potential damage that can be caused by boots.

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References

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Notes
