

Horses working in therapeutic riding programs: Cortisol and behavioral stress indicators

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Background & Significance:

- Currently over 850 accredited therapeutic riding facilities world-wide
- Many positive benefits of therapeutic horseback riding for individuals with severe physical and mental disabilities like veterans with Post-Traumatic Stress Disorder
- Stress to horse may be induced by lack of riding experience, balance, tense posture, and high anxiety or anger levels
- Limited research available for horse stress in therapeutic horseback riding programs

Significance:

- Important for growth of therapeutic riding programs
 - Address current equine population issues
- Assist therapeutic riding centers to develop procedures for reducing horse stress if necessary

Research Questions:

1. To what extent do horses working in therapeutic riding centers experience increases in circulating plasma concentrations of adrenocorticotrophic hormone (ACTH), and serum cortisol or stress behaviors before, during and after riding lessons when comparing military veteran groups to experienced riders?

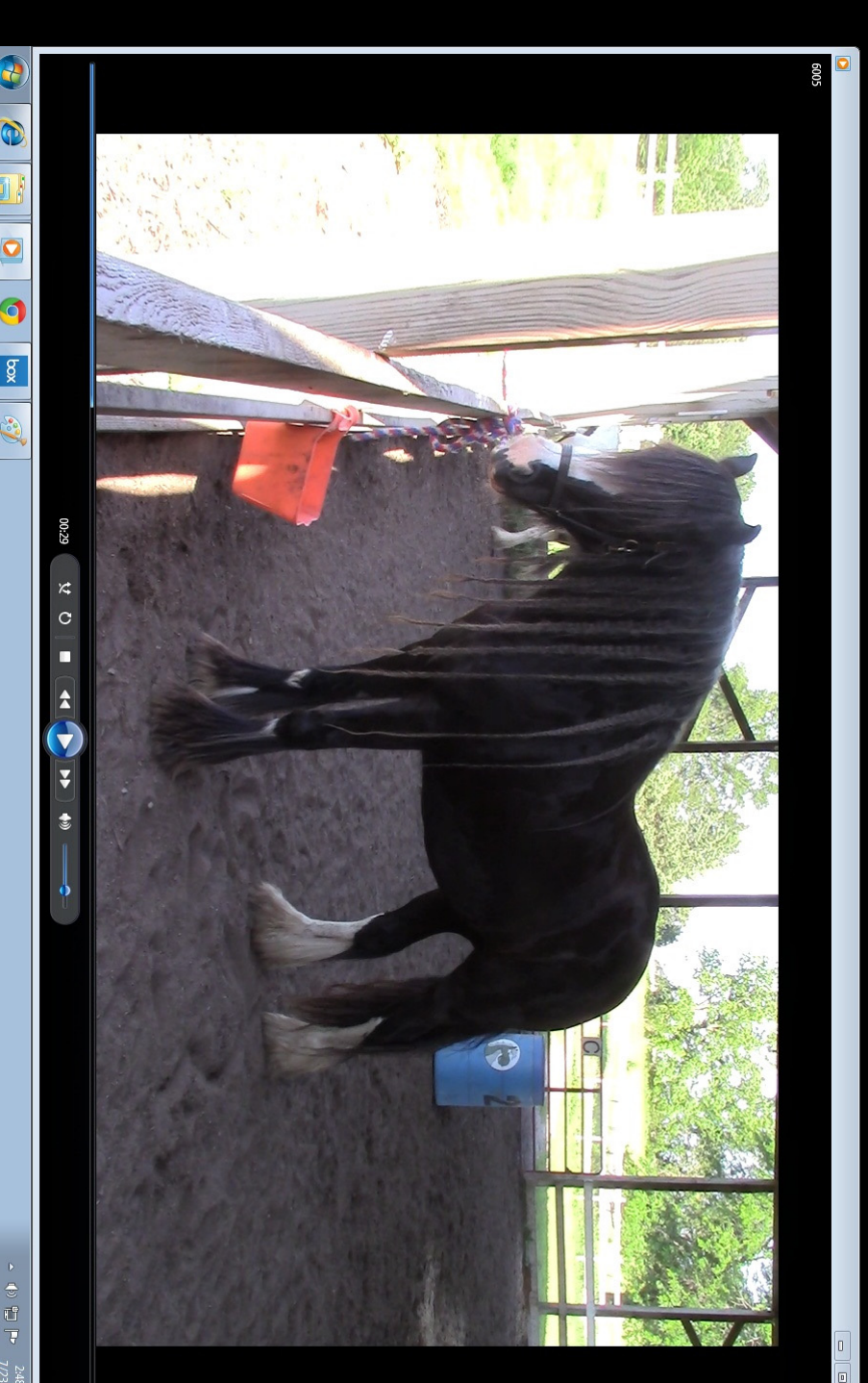


2. To what extent do horses working in therapeutic riding centers exhibit behavioral signs of stress (based on behavior scores) before, during, and after riding lessons when comparing military veteran groups to experienced riders?



Design & Methods:

- Same 5 horses used in separate 6-week therapeutic riding sessions for military veteran group with Post-Traumatic Stress Disorder and healthy, experienced rider group as negative control
- Same riding protocol used in both conditions
- Serum cortisol, ACTH and glucose measurements collected by identical process for both groups on resting day, before lesson, after tacking, and after lesson on weeks 1, 3, and 6 as primary stress measurement
- Blood samples collected from jugular vein, labelled, centrifuged, stored in sub-zero temperature freezer
- Blood samples shipped for processing at conclusion of study
- 2-minute videos taken of each horse in same method for both groups on resting day, before lesson, after tacking, and after lesson on weeks 1, 3, and 6 as secondary stress measurement
- 2-minute videos analyzed by research assistants to identify stress behaviors scored using nationally standardized equine stress behavior instrument
- Videos scored in 15-second intervals, averaging each interval score to obtain overall video score
- Interrater reliability used between research assistants and an expert horseperson on video scoring



Example of horse behavior video

Anticipated Results:

- Project in progress; military veteran group data complete, experienced rider group data in progress
- Therapeutic horseback riding activities will be no more stressful to horses than when resting and not engaged in work
- Therapeutic horseback riding activities with inexperienced riders having physical limitations and mental health diagnoses will be no more stressful to horse than with same activities and experienced riders without these challenges

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