

Behavioural and physiological indicators of stress in horses participating in equine-assisted psychotherapy

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Equine-facilitated psychotherapy (EFP) is a branch of animal assisted therapy that focuses on treating mental illnesses by using horses as a therapy tool. EFP has been shown to be beneficial to humans; however, research on the participating animals' welfare is limited. The purpose of this study was to determine if participation in EFP causes stress in horses. Eight adult horses of varying breeds were used for the study. Each horse was paired with a veteran diagnosed with post-traumatic stress disorder for eight weekly sessions, 1.5 hours in duration. Therapy sessions consisted of grooming and leading the horses. Horses were instrumented with heart rate monitors (Polar®), which recorded heart rate variability (HRV) throughout the session. Saliva was also collected before and after each session to obtain cortisol measures. Heart rate variability data was analyzed using the Kubios HRV software. Cortisol concentrations were obtained using an ELISA technique. Behaviour scores were obtained through video analysis of the sessions, where frequency of stress behaviours was recorded based on a previously established stress ethogram. Descriptive statistics, comparison of measures before and after EFP sessions, and Bland-Altman plots were used to analyze the data. Results showed a significant decline in salivary cortisol levels in horses after the session (t-value 5.34, $p < 0.001$), and there were no significant changes in HRV measures indicative of stress. In addition, HRV and cortisol measures of stress were in agreement. Overall, the findings indicated that horses are not stressed during participation in EFP.

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