

Abstract Title:

Physiological synchronization between horse and human in EFP for veterans with PTSD

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Abstract Content

Evidence has shown that traditional treatment programs have limited efficacy for veterans with severe post-traumatic stress disorder (PTSD). To support veterans' mental health challenges, equine facilitated psychotherapy (EFP) has been studied as one of innovative therapeutic models in recent years. Human-horse bonding formed during EFP has often been hypothesized as a contributing factor to improvements. The objective of this study is to investigate human-horse bonding using physiological measures and examine if the physiological effects of human-horse interactions on horses and humans are synchronized. We hypothesized that certain degrees of physiological synchronization in human-horse dyads could be captured using heart rate variability (HRV) data and hormone response. Four cohorts of veterans participated in the 8-week EFP program. Each cohort consisted of 4 human-horse dyads, with cohort 1 to 3 having 4 dyads, and cohort 4 having 2 dyads (n=14). The saliva was collected from horse and human passive drool before and after each psychotherapy session, which was later analyzed for the cortisol levels in the lab. The HRV data was collected using the polar heart rate monitors during each session, which was then processed by the Kubios HRV software. The Bland Altman approach was used to evaluate the level of agreement within the human-horse dyad. Preliminary findings showed strong agreement in mean heart rates between humans and horses of cohort 1 ($t=0.13$; $df=1$; n.s.). Further measures will include time-domain, frequency-domain and non-linear measures of HRV, as well as pre- to post-measures of cortisol of cohort 1 and cohort 4. These results are encouraging as they show interspecies physiological synchronization.

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