TACSM Abstract

The Effects of Equine-Assisted Therapy on Gait in Adults with Parkinson's Disease: A Preliminary Analysis

HUNTER ALVIS, KANJI MORI, NICHOLAS LEVINE, ANDREA MARTINEZ, SUZANNE SESSUMS, KEVIN BECKER, HEATHER ROBERTS, B. RHETT RIGBY

Biomechanics and Motor Behavior Laboratory; School of Health Promotion and Kinesiology; Texas Woman's University; Denton, TX

Category: Doctoral

Advisor / Mentor: Rigby, B. Rhett (brigby@twu.edu)

ABSTRACT

Parkinson's disease (PD) is a chronic, progressive, neurological disorder caused by the destruction of dopamine-producing neurons in the substantia nigra of the brain. To treat motor symptoms of PD, individuals may choose alternative modes of exercise, such as equine-assisted therapy (EAT), to improve physiological health. **PURPOSE**: To determine changes in gait following 8 weeks of Equine Assisted Therapy (EAT) in older men with PD. **METHODS**: Six older adults (age = 68.0 ± 8.6 yrs; height = 178.6 ± 8.3 cm; weight = 93.4 ± 16.3 kg; Hoehn and Yahr classification = 2.8 ± 0.4; time since diagnosis = 7.3 ± 5.0 yrs) performed two, 60-minute riding sessions weekly for 8 weeks. Before, midway, immediately after, and at two points following the EAT program (at 8 weeks and 16 weeks), spatiotemporal parameters of gait were measured using motion capture with infrared markers strategically placed on lower-body anatomical landmarks. Participants walked at a self-selected speed without the use of an assistive device in the capture space for 15 consecutive strides, turned around, and walked back across the space. Gait velocity, step length, time spent in stance phase, time spent in swing phase, toe clearance were collected. Data were analyzed using a repeated-measures analysis-of-variance and a Bonferroni correction with a significance level of 0.05. **RESULTS**: Gait velocity (101.8 ± 29.1 vs. 109.2 ± 34.9 vs. 116.3 ± 32.8 vs. 105.7 ± 26.2 vs. 108.0 ± 25.4 cm/s for pre-EAT, midway through EAT, immediately post-EAT, 8 weeks after EAT concluded, and 16 weeks after EAT concluded, respectively) was significant across all time points ($p = 0.03$). All other variables were statistically similar ($p > 0.05$) across all time points. **CONCLUSION**: There is an observable trend towards significance in each gait variable immediately after 8 weeks of EAT. The study is ongoing and will further explore these differences.