Effect of Equine-Assisted Therapy on the Postural Balance of the Elderly

Source: Araujo, T., Silva, N., Costa, J., Pereira, M., and Safons, M. (2011). Effect of equine-assisted therapy on the postural balance of the elderly. *Rev Bras Fisioter, 15*(5), 414-419.

Purpose: To answer the question can equine assisted therapy produce changes in static and dynamic postural balance and in fall risk among the elderly?

Design/Methods: A convenience sample was used to recruit subjects aged 60-84 years old that lived near the equine-assisted therapy center. Inclusion criteria included: ability to independently perform activities of daily living, medical clearance to ride, ability to understand simple instructions, ability to stand on the force platform for testing, and ability to mount the horse with only the aid of the platform. Participants were excluded from the study if they had a disorder known to cause balance problems (neurological or vestibular conditions, osteoporosis, obesity etc.). The sample consisted of 7 participants in the experimental group (2 male, 5 female) and 10 in the control group (all female). Data was collected before and after the treatments. Participants had three 30-second trials on a force platform to measure stabilometric parameters (static stability) that required them to stand with their feet hip-width apart and their arms relaxed at their sides. The force plate measured the participants' sway around the anteriorposterior and mediolateral axes in terms of displacement of the center of pressure (COP). The Timed Up and Go (TUG) test was administered to assess participants' agility and dynamic balance. Between pre and post measurements, participants in the experimental group attended 30 minute, biweekly equine-assisted therapy sessions for eight weeks. Measures from the force plate and the TUG were taken again after the 16 sessions.

Results: The stabilometric data between the control and experimental group showed no significant difference after treatment. However, in the intra-group comparison, there was a significant improvement in the experimental group's center of pressure around the anterior-posterior axes. Participants in the experimental group had significantly better Timed Up and Go results than the control group upon post-intervention testing. The experimental group showed significant improvement in their TUG times from pre to post, while the control group showed no significant changes in the TUG from pre to post.

Conclusion: Insignificant decreases in stabilometric parameters are consistent with other current literature. This can in part be explained by the fact that the participants were all healthy older adults with out medical conditions that affect balance. The TUG test has been validated as a predictor of fall risk and has a sensitivity of 87% and a specificity of 87% for determining fall risk. Significant improvements in the TUG from the experimental group point to equine assisted therapy's efficacy in reducing fall risk. A positive association between TUG times and daily activity has been observed in the past, which is consistent with this study. No consensus can be reached on the optimal number of equine-assisted therapy sessions for the highest efficacy. However, this study does show that equine-assisted therapy is a effective and appropriate intervention for older adults. Further studies with longer intervention times are needed to fully assess the impact of equine-assisted therapy on stabilometric parameters in the elderly.

Strengths: The strengths of this study include its use of experimental and control groups, its use of an assessment with good psychometric properties (TUG), and its exploration of a population often left out of hippotherapy research.

Limitations: The study did not require detailed history on fall history, which could be an important variable in analyzing this population. The study also did not control for overall health aspects such as nutritional status or the use of drugs, both of which could affect balance.

Practical Application:
Although the study did not show significant improvements in static balance, the study did show that equine-assisted therapy can positively affect older adults' dynamic balance and fall risk. The article also importantly showed that it is not only young children who can benefit from this intervention.