

## Effects of horseback riding therapy on quality of life in patients post stroke

**Source:** Bionotti, Fernanda, Christofolletti, Gustavo, Correia, Nilzete, & Borges, Guilherme. (2013). Effects of horseback riding therapy on quality of life in patients post stroke. *Top Stroke Rehabilitation, 20(3)*, 226-232.

**Purpose:** “To analyze the impact of horseback riding therapy (HBRT) on the QOL of individuals with hemiparesis after stroke.”

**Design/Methods:** The study included 24 individuals with an ischemic or hemorrhagic stroke from 2 hospitals in Brazil. There were 5 inclusion criteria: clinical diagnosis of a unilateral stroke at least a year prior, 50-85 years of age, no serious cognitive deficits, no disease present (neurologic/muscular, or orthopedic), and no participation in previous experimental therapy studies. All participants were reviewed by 2 different examiners in order to determine if they were eligible for the study.

The study design was a single-blind randomized controlled trial. There were two groups: typical physiotherapy and typical physiotherapy combined with horseback riding therapy (HBRT). Upon registration, participants were assigned to a numbered sealed envelope which contained group assignments. The envelope was only opened after participants were registered. It was not possible to blind subjects to group allocation however the assessors were left blind to data collection and patient enrollment.

Outcome measures included a medical history review and the Medical Outcomes Study 36-item short form (SF-36). Physical and mental health summary measures as well as a health preference index were also gathered from the SF-36. The 8 scales associated with the SF-36 include physical function, social function, physical role, emotional role, mental health, energy, pain, and general health perceptions. The SF-36 was given to participants before beginning therapy and after 16 weeks of therapy.

Physiotherapy treatment sessions for both groups occurred 3 times a week for 50 minutes over a period of 16 weeks. The experimental group then received an additional 30 minutes of HBRT once a week. Both treatments were conducted on an individual basis. During HBRT, participants were involved in activities such as reaching for an object or touching different areas of the horse to encourage reaching across midline while maintaining balance and stability.

**Results:** Only 20 participants completed the 16-week treatment and completed both pre- and post-assessments. The results use only data collected from the 20 individuals who completed everything. Each group still maintained the same amount of participants (n=10). There were no significant differences among gender, age, diagnosis, time of injury, or motor impairment between the two groups. The average scores of the SF-36 did show significant changes. Note: a significant level of  $p < 0.05$  was set for this study. For the control group, average SF-36 scores decreased from 79.6 to 73.5 points. The experimental group increased from 77.0 points to 93.6. This was a significant increase in general health for those receiving the physiotherapy-HBRT combination with a p level at  $p = 0.004$ . The subdomains of functional capacity, physical aspects, and mental health all showed significant improvement for the experimental group while there was no significant changes in the subdomains of pain, general health state, vitality, and emotional aspects.

**Researcher’s Conclusion:** Individuals with stroke often have feelings of isolation and powerlessness, affecting their overall quality of life (QoL). This study indicates positive effects QoL when the individual undergoes a combination of HBRT and physiotherapy. Previous research has supported the fact that QoL is an important indicator post-stroke, vital in evaluations in order to know how much impact the illness has on the person’s life. Rehabilitation should concentrate on motor deficits and general health issues, not just one dimension

HRBT plays an important role in physical improvement for individuals post-stroke. Riding the horse helps to facilitate righting responses and equilibrium responses for the rider. The movement of the horse also helps in the areas of co-contraction, joint stability, weight shift, and postural and equilibrium responses which further improves motor function. HRBT also plays an important role in the social recovery and isolation in individuals post-stroke. HRBT gives individuals the opportunity to interact and socialize with partners, volunteers, and employees at the riding center. It also offers a recreational and leisure opportunity that they may not otherwise have access too.

**Strengths:** The control group and experimental group were very similar therefore lessening the possibility of significant results being due to poor allocation of group members. The SF-36 as a measure has been used with both general groups and specific populations and has been able to produce results useful in comparing disease burden and health benefits received by different treatments. Also, the researchers were blinded to which groups participants had been placed in. Due to the fact that both groups received the same physiotherapy, the positive results are believed to be a result of HBRT, the major difference between the two groups.

**Limitations:** There was a small sample size for this study which makes it more difficult to generalize the results. There was also a fairly high dropout rate, even though that is not uncommon and the groups still remained fairly the same. Each of the participants faced varying degrees of difficulty with rehabilitation but this can be attributed to injury characteristics, locomotion pattern, type and physical form of injury, and disease impact on various aspects of their life. Finally, both the control and experimental group received the same physiotherapy.

**Practical Application:** According to this study, HBRT improves the QoL of patients with stroke. Despite the limitations, the researchers are still able to infer that the positive results this study produced with a physiotherapy/HBRT combination can be applied in different contexts for individuals with stroke and have positive results. In order to be more generalizable it is recommended that further studies focused on HBRT as the sole therapy.