

The effect of hippotherapy on spasticity and on mental well-being of persons with spinal cord injury

Source: Lechner HE, Kakebeeke TH, Hegemann D, Baumberger M. The effect of hippotherapy on spasticity and on mental well-being of persons with spinal cord injury. *Arch Phys Med Rehabil.* 2007;88(10):1241-1248.

Purpose: Is hippotherapy a better intervention strategy to decrease spasticity and improve mental well-being in persons with a SCI as compared to sitting astride a Bobath roll or sitting on a stool with a rocking seat?

Design/Methods: The study design was a crossover trial. Twelve participants volunteered with motor-complete traumatic SCIs. Participants were randomly assigned into 1 of 3 groups (hippotherapy, sitting astride a Bobath roll, or sitting on a rocker board). Each participant had weekly testing for a period of 4 weeks to determine baseline measurements. Outcome measurements included the Ashworth scale for 10 different muscle groups, 10 mm visual analog scale for self-reported spasticity, and Befindlichkeits-Skala of von Zerssen for self-reported well-being. At the end of 4 weeks, the participants received the intervention to which they were randomly assigned. The intervention period lasted 4 weeks with sessions twice per week for 25 minutes each (8 sessions total). At the end of 4 weeks, participants were given a 2-week period during which no interventions were performed. Outcome measurements were taken at the beginning of each week during the intervention period and during the first week that no intervention was done to assess the long-term effect. After the 2 week rest period, participants were given another intervention. The same time frames for testing and intervention were followed and at the end of the second 2 week break period, participants were given the third intervention.

Results: The hippotherapy group had a significant decrease in Ashworth scores ($P < 0.05$) as compared to the control condition determined with a post hoc multiple comparisons. There was a significant difference between Ashworth scores before and after each of the interventions (hippotherapy: $P = 0.004$, Bobath roll: $P = 0.003$, rocker board: $P = 0.005$). Self-reported spasticity had a significant difference between hippotherapy and the other two interventions ($P < 0.05$) using post hoc multiple comparisons. Mental well-being was significantly improved ($P = 0.048$) after hippotherapy, but no significant changes were noted after the other two interventions. The reductions in spasticity and the improved mental well-being did not last over the 4-day washout period.

Conclusion: Hippotherapy decreased spasticity and improved mental well-being temporarily with the effects being greater than sitting astride a Bobath roll or sitting on a rocking board, but these changes were not detected 4 days after the intervention ended.

Strengths: : The strengths of this study included measurements and interventions performed on consistent days of the week and at the same time of day, therapist taking measurements was not involved in the intervention, randomization of participants into intervention groups, 100% compliance for the 11 participants remaining in the study, and a unique cross-over design. Also, the same therapist who is trained in Hippotherapy-K provided all three interventions.

Limitations: The limitations of the study included a small sample size, inability to use a double-blind setup, no knowledge if the intervention groups were similar at the start of the trial, and not all possible ordering of conditions was included.

Practical Application: Hippotherapy may be an effective intervention to decrease spasticity and improve mental well-being in patients with a SCI, but more research is needed to determine the functional applicability and long-term effects of this intervention.