

Immediate Effects of a Hippotherapy Session on Gait Parameters in Children with Spastic Cerebral Palsy

Source: McGee, M. C., & Reese, N. B. (2009). Immediate effects of a hippotherapy session on gait parameters in children with spastic cerebral palsy. *Pediatric Physical Therapy: The Official Publication of the Section on Pediatrics of the American Physical Therapy Association*, 21(2), 212–8.

Purpose:

What are the immediate effects of a hippotherapy session on temporal and spatial gait parameters in children with spastic CP measured using the GAITRite walkway?

Design/Materials:

The study was a pre-post test to examine the temporal and spatial gait parameters of children with spastic CP before and after a single hippotherapy session. There were 9 children, 3 boys and 6 girls, with ages ranging from 7- 18 years old. Subjects were chosen from established hippotherapy treatment programs recommended by 2 pediatric physical therapy practices. All subjects were independently ambulatory with or without an assistive device. Inclusion criteria were the ability to walk a minimum of 10ft. per trial on the GAITRite walkway, the ability to walk independently within the width of the GAITRite walkway, ability to follow directions and no lower extremity casting or surgical procedures during the 3 months prior to the study. Gait data were collected immediately before and after each hippotherapy session. Preride gait data were collected with the subject walking on the GAITRite walkway independently (with assistive device if typically used). Two practice walking trials were done initially so the subjects could familiarize themselves with the walkway. Subjects then performed walking trials until 3 “good” trials were attained. An average of 5 trials was required to obtain the data for the preride and an average of 4.7 trials was required for postride data. Subjects were given verbal directions for walking: “I would like for you to walk like you normally walk, all the way off the end of walkway.” After preride data were collected, subjects participated in their 30-45 minute hippotherapy session. Following the hippotherapy session, postride data were collected using the same guidelines for the preride data collection.

Results:

P values for temporal gait parameters ranged from 0.09 to 0.95 while the p values for the spatial gait parameters were from 0.77 to 0.95. There were no statistically significant differences in the postride temporal and spatial gait parameter values when compared with the preride values.

Research’s Conclusion:

This study was conducted as an initial examination of the immediate effects of a hippotherapy session on temporal and spatial gait parameters in children with CP. The hypothesis that there would be statistically significant changes postride compared to preride of temporal and spatial gait parameters was rejected. Although, there were no statistically significant differences in the postride compared to the preride values, this study provides baseline data for future research on the effects of hippotherapy in children with CP.

Strengths:

Strengths of this study include the use of an objective measuring tool, GAITRite Gold Walkway System, to assess the temporal and spatial gait parameters of the subjects. This made it possible to exclude investigator interpretation. This study was the first to measure immediate effects of hippotherapy on gait parameters.

Limitations:

Limitations of this initial study include small sample size, use of a convenience sample, length of practice, and individual variability of the subjects.

Future Research:

Future studies should consist of larger samples of children with CP who have the same GMFCS levels and longer practice. This needs to be examined to either support or negate the findings of this initial study.

Practical Applications:

This initial study provides useful clinical information for therapists using hippotherapy as an intervention for patients with CP in regard to effects of dosage.

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