Effects of Treadmill Interventions on Infants with Developmental Delays Presenting with Mild and Severe Impairments: A Case Series

Eric Nguyen SPT  
*University of Puget Sound*

Nicolle Gerchak SPT  
*University of Puget Sound*

Follow this and additional works at: https://soundideas.pugetsound.edu/ptsymposium

Part of the Physical Therapy Commons

**Recommended Citation**  
https://soundideas.pugetsound.edu/ptsymposium/70

This Poster is brought to you for free and open access by the Physical Therapy, School of at Sound Ideas. It has been accepted for inclusion in Physical Therapy Research Symposium by an authorized administrator of Sound Ideas. For more information, please contact soundideas@pugetsound.edu.
Effects of Treadmill Interventions on Infants with Developmental Delays Presenting with Mild and Severe Impairments: A Case Series

Nicolle Gerchak, SPT; Eric Nguyen, SPT; Julia Looper, PT, PhD

INTRODUCTION

Children with physical developmental delays face challenges that compound the problem of poor motor function. In particular, the ability to walk opens the door for exploratory learning, the independence to initiate social interactions, advances in cognition, and a reduction of caregiver burden as the child becomes more independent. These aspects allow the child to develop cognitive, social-emotional, and physical skills. Treadmill training in infants with developmental delays, including Down syndrome, cerebral palsy, and spina bifida has been proven to be effective in moving infants toward earlier independent walking as well as improving gross motor function. The purpose of this study is to explore the potential benefits of an established program offered for 20 minutes twice per week, which many outpatient clinics can employ, for infants with varying degrees of motor impairments.

METHOD

Children from early intervention agencies throughout the Seattle-Tacoma area were recruited through flyers, emails to medical providers, and word of mouth. Specifically, infants with developmental motor delays who could pull-to-stand or cruise were recruited. Children were excluded if their parent reported they were not healthy enough to participate in treadmill training or were non-English speaking. The two eligible participants engaged in a 12-week treadmill program, walking twice a week for 20 minutes with trunk support provided by a caregiver. The Gross Motor Function Measure (GMFM), a criterion test for gross motor skills, as well as alternating steps per minute were used to assess participants. Outcome measures were collected during weeks 1, 6, and 12.

RESULTS

The results show that both individuals, regardless of the severity of impairments, increased GMFM scores in the dimensions of standing and walking. Both infants’ total steps, steps per minute, and steps per bout improved by midterm, but stepping metrics decreased for the infant with minor impairments when compared mid to post-test while those for the infant with more severe impairments continued to improve.

ACKNOWLEDGMENTS

This project was funded in part by the University of Puget Sound Enrichment Committee. Thank you to the families who participated.

CONCLUSION

Treadmill training twice per week for twenty minutes at 0.2 m/s is potentially an effective and plausible intervention outpatient clinics can use to improve standing gross motor function, as well as ambulation ability for infants with developmental delays presenting with mild and severe impairments. Infants with minor impairments may stop finding treadmill activity engaging enough for participation once they gain mastery over the skill, and other interventions for gross motor skill development could be more appropriate. Further research is required to determine the full benefits of treadmill training for varying degrees of impairments from developmental delays.