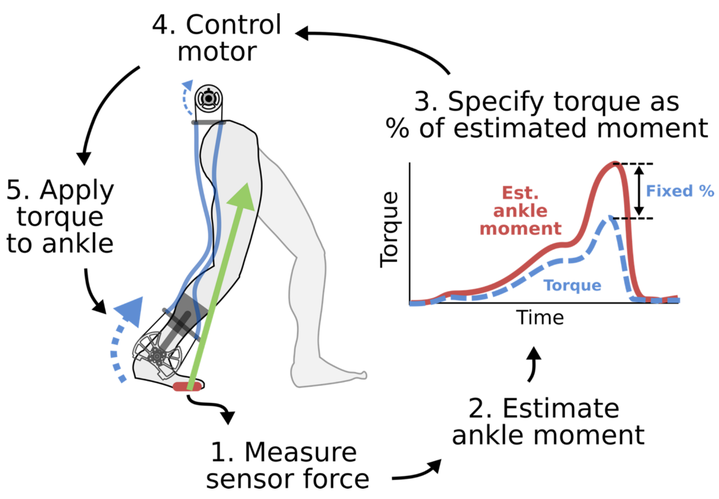
Gait Training with Ankle Exoskeleton Assistance Temporarily Improves Walking Endurance in Individuals with Cerebral Palsy

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Introduction

The objective of this study was to assess the clinical safety and efficacy of gait training with ankle exoskeleton assistance in individuals with cerebral palsy (CP).



Adaptive ankle exoskeleton assistance.

Methods

Design - This was an observational study designed to evaluate the effects of the gait training intervention.

Setting - The training protocol took place at Gillette Children's Specialty Healthcare (Minneapolis, MN).

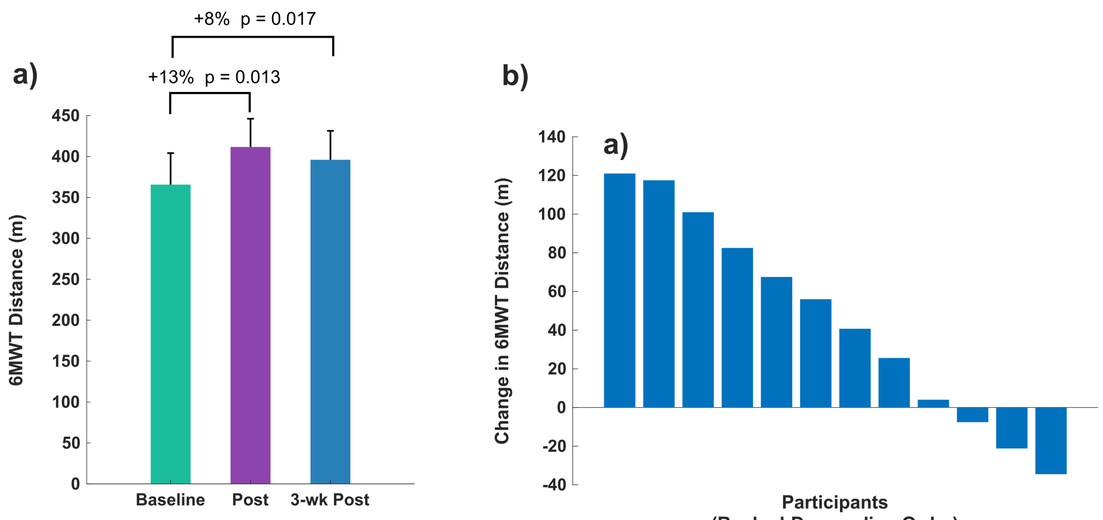
Participants - Twelve ambulatory individuals with CP (GMFCS levels I-III; ages 8-17 years) completed the study.

Intervention - Participants completed a pre-training assessment and then 12 sessions (3x/week) of over-ground walking training with the Biomotum Spark ankle exoskeleton providing adaptive plantarflexor assistance.

Outcomes were assessed during walking without ankle assistance before training (baseline) and at follow-up visits one-week and three-weeks after the final training session.



Results



Discussion/Conclusion

- 6MWT distance increased by 13% (p = 0.013) and 8% (p = 0.017) for the one-week and three-week follow-up assessments compared to baseline.
- These increases were greater than the minimum clinically significant difference, on average.
- Self-selected walking speed increased by 9% (p = 0.034) for the one-week follow-up assessment versus baseline.
- Month-long multi-session gait training with the Biomotum Spark ankle exoskeleton providing adaptive assistance improved walking endurance for a least three weeks post training.
- Self-selected walking speed was improved for one-week post training.
- These results shed light on the clinical safety and efficacy of repeated gait training with ankle exoskeleton assistance in individuals with CP.