

Article Title

Task-specific training for bicycle-riding goals in ambulant children with cerebral palsy: a randomized controlled trial

Article Citation

Toovey, R. A., Harvey, A. R., McGinley, J. L., Lee, K. J., Shih, S. T., & Spittle, A. J. (2022). Task-specific training for bicycle-riding goals in ambulant children with cerebral palsy: a randomized controlled trial. *Developmental Medicine & Child Neurology*, 64(2), 243-252. DOI: 10.1111/dmcn.15029

Adaptive Sport/Recreation Categories

- Bicycle skills training
- Task specific training
- Physical Activity
- Participation
- Children with cerebral palsy

Study Type: RCT

Summary

This research was conducted to determine the most effective approach for attaining bicycle-riding goals for 62 ambulant children with cerebral palsy (CP) aged 6 to 15 years (33 males, 29 females, mean age 9y 6mo) using a randomized controlled trial (RCT). Two different approaches were implemented, with both programmes involving a 1-week training period and a 3 month follow up:

1. A task specific physiotherapist-led, group-based, intensive training programme (2 h/day x 3 day/wk plus 30 mins/day x 4 days/wk).
2. A non-specific parent-led home programme (30-45 mins/day).

The primary outcome was goal attainment measured using the Goal Attainment Scale. Secondary outcomes included bicycle skills, participation in bicycle riding, functional skills, self-perception, physical activity, and health-related quality of life measured at 1 week and 3 months after training. The study found children in the task-specific physiotherapist-led training approach achieved higher goal attainment in bicycle-riding goals than a non-specific parent-led home programme post training and at 3 months follow up; whilst other secondary measures showed limited evidence of differences between groups.

Article Strengths

- First RCT trial to focus on training bicycle riding in children with CP
- Groups clearly described, adequate sample sizes, RCT protocols followed
- An example of bicycle goal progression provided
- Outcome measures matching to ICF and Family of Participation Related Constructs were clearly outlined as were statistics and factors accounting for missing data

- Results were clearly reported including supplement material and results that did not meet significance
- Levels of attendance were provided
- Safe study design with no adverse events reported

Article Weaknesses

- Reasons for non-attendance at training sessions were not discussed
- Follow up limited to 3 months
- Unable to determine the key components of the training group and the effect of components e.g., what worked best.
- Missing data especially for physical activity accelerometer

Take Home Messages

- The task-specific physiotherapist-led training programme enabled greater goal attainment of bicycle-riding goals than a nonspecific parent-led programmes for ambulant children with CP at one week and 3 months
- Some children did improve their bicycle-riding goals with a parent-led approach and it remains unclear who is best suited to which approach and why
- Secondary outcomes were not changed for either group following a week directed to the activity goal of improving bicycle skills which may not be surprising
- Dosage of 8 hours of training over one week was low compared to other intensive programmes
- Such an evidence-based approach including dosage and task-specific progression should be progressed to school and community environments for children with CP who have bicycle-riding goals.

Impacts on Clinical Practice:

- A task-specific physiotherapist-led programme based on specific goals can be effectively conducted in the community e.g., park location
- The task-specific cycling programme required one physiotherapist, an assistant and parent for each child for a group of 3-5 children.
- 8 hours training occurred before the programme of therapists and assistants and a manual was developed and used.
- The recommended 30-45 minutes of home cycling practice for each group did not occur (median practice of cycling at home was 17-19 minutes) indicating home practice can be challenging
- The programme was safe and feasible to run with high levels of attendance and follow up