

Effectiveness of a Four-Week Powered Wheelchair Training Intervention in Children and Young People with Severe Cerebral Palsy

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Introduction

This study aimed to investigate the effectiveness of a 4-week structured powered wheelchair training program on mobility skills and mobility-related participation in children and young people with cerebral palsy (CP). A structured training program based on the Wheelchair Skills Training Program is hypothesised to improve powered wheelchair skills and subsequently positively affect daily life participation.

Patients and Methods

A one-group repeated-measures study design with a baseline, intervention and retention phase of four weeks each was used. Inclusion criteria: age 6-21-years, diagnosis of CP, and GMFCS III-V. Exclusion criteria: profound intellectual disabilities. Participants received 12 powered wheelchair training sessions of 45 minutes, 3x per week. Wheelchair skills were assessed four times using the Wheelchair Skills Test at pre-baseline, pre-intervention, post-intervention, and follow-up. Mobility-related participation was assessed with the Canadian Occupational Performance Measure (COPM). Descriptive statistics were reported using medians and interquartile ranges (IQR). To compare pre-post intervention differences, the Wilcoxon signed-rank test ($p < 0.05$) and effect sizes (ES) were used.

Results

Nine participants (mean age 16y7m, range 10-20y; all GMFCS IV) participated in the study. Statistical analysis showed improved Wheelchair Skill Test scores post-intervention (81%, [IQR 60%–88%]) compared to pre-intervention (65%, [IQR 61%–78%]; $p = 0.008$; ES = 0.57). Moreover, improvements in the COPM-performance scale (ES = 0.53; $p = 0.012$) and the COPM-satisfaction scale (ES = 0.52; $p = 0.014$) were found following the intervention.

Conclusions

Powered wheelchair mobility skills and mobility-related participation improved after a 4-week wheelchair training intervention. Thereby, the Wheelchair Skills Training Program is a promising programme to improve powered wheelchair training in children and young people with CP.

(Original research)

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