

Early Powered Mobility for Toddlers with Cerebral Palsy: A Comparative Case Series of the Permobil® Explorer Mini and a Modified Ride-On Car

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Abstract

In the US today, nearly 800,000 people are living with Cerebral Palsy (CP). Children diagnosed with CP, or children being monitored for signs and symptoms related to CP make up the largest group of children affected by disability. Across the lifespan, many people with CP use powered mobility devices such as scooters and wheelchairs to support their mobility and participation in home and community settings. However, the trend in early intervention has been to delay use of devices until efforts to promote independent walking are exhausted, despite strong evidence that supports early use of powered mobility across multiple domains of function, activity, and participation. Additionally, use of powered mobility complements (rather than detracts from) other interventions focused on more traditional self-initiated mobility skills such as crawling and walking.

Study investigators have been involved in an international mobility and socialization program called Go Baby Go, which provides safety and accessibility modifications to commercially available toy ride-on cars. In compliment to this work, our colleagues at Permobil® have designed and recently received FDA clearance for the Explorer Mini, a powered mobility device specifically designed for children 12-36 months with disabilities such as CP, to enhance their mobility and environmental exploration as part of a multimodal mobility approach to care. Both of these early powered mobility devices have been designed to offer functional, aesthetic, and affordable alternatives for children and families to fill a gap left by traditional powered wheelchairs. There are currently no studies comparing the introduction, device use patterns, caregiver perceptions, or developmental outcomes associated with devices such as modified ride-on cars and the Explorer Mini.

We propose to undertake a pilot, mixed-methods study to investigate the device use patterns, caregiver perceptions, and developmental outcomes of children with CP and their families. This represents the first opportunity to compare the novel device with a modified ride-on car, which has also been customized to support early self-initiated mobility in a socially inviting way. Taken together, research comparing these devices in natural environments can add critical data to the evidence base supporting early powered mobility for children with CP as a part of a multimodal

mobility approach to care across the lifespan. This proposed study will also create a pilot data set from which to secure future large-scale funding to assess a wider variety of mobility devices with multiple trial sites across the country. Establishing and improving this evidence base for children with CP and their families is essential to ensure equitable access to mobility and participation experiences across the lifespan using a range of technologies to support access and facilitate achievement of key developmental skills. Our aims are to: 1) Evaluate a powered mobility intervention to promote developmental, activity and participation outcomes of young children with CP; and 2) Compare the use patterns (frequency, duration, environment) of two powered mobility options: The Explorer Mini and a modified ride-on car.