

Innovative Technologies for People with Cerebral Palsy: An Exploratory Study of Dynamic Wheelchair Seating and User Perceptions

COMIRB No: Number 25-2812

ABSTRACT

Many people with cerebral palsy (CP) require a manual or power wheelchair for mobility. Some of those people also demonstrate increased muscle tone that contributes to large and forceful extraneous body movements, whole body extensor spasms, and/or repetitive rocking while seated. As these individuals extend and/or move their bodies against static seating surfaces (i.e., seat and back), they can sustain injuries to their bodies, pain, loss of postural alignment, and damage to their equipment. Dynamic seating (DS) is an under-utilized and under-funded technology designed to assist individuals who have excessive force and movement while in a wheelchair seating system. This technology integrates with the seating frame of the wheelchair, and as the user extends and moves, the seating system moves with their body to accommodate and absorb the force they generate.

Early evidence suggests that DS can have a meaningful impact on health and quality of life. However, research in this area is limited. This study includes the development and dissemination of a cross-sectional survey to individuals who use DS and their caregivers, followed by semi-structured interviews with a subset of participants. By using both quantitative and qualitative methodologies, and by applying a critical lens to understanding how DS impacts the lives of those who use it, the data from this study will guide clinicians, researchers, and policy makers as they make decisions about the potential medical, functional, and social benefits of this technology. As the impacts of these technologies are discovered, this information may ultimately improve the participation and community living of some of society's most vulnerable individuals.