Hanger Institute
FOR CLINICAL RESEARCH & EDUCATION

Real-World Outcomes with the Bionic Power Agilik™ Smart Orthosis



For children with flexed-knee (crouch) gait due to neuromuscular or orthopedic conditions, externally powered microprocessor-controlled knee-ankle-foot orthoses (MPKAFOs) have demonstrated biomechanical and kinematic improvements in controlled settings. However, limited evidence has been available regarding their use in real-world home and community environments, particularly with respect to gait quality and quality of life.

This prospective clinical study examined the use of an externally powered pediatric MPKAFO, the Agilik, over a three-month period following structured in-clinic training. Sixteen children aged 6-16 years with flexed-knee gait due to neuromuscular or orthopedic conditions were enrolled, with 13 completing the full study.

Observed outcomes included:

- **Significant improvements in gait quality, reflected by higher Observational Gait Scale scores**
- **Improved health-related quality of life, with statistically significant gains in EQ-5D-Y-3L scores**
- **Positive changes in parent-reported gait characteristics, including fewer reports of trips or falls and reduced foot drag**
- **No significant improvements in performance-based walking measures, suggesting a period of gait adaptation during early real-world use**

These findings contribute to the growing body of clinical evidence describing how powered MPKAFO technology, such as the Agilik, has the potential to benefit pediatric individuals with flexed-knee gait outside of gait laboratory settings.

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