

Improving objectivity in pediatric trials



About Protokinetics

Protokinetics is the developer of the **Zeno Electronic Walkway**, a state-of-the-art gait analysis system that captures detailed spatiotemporal data to assess movement patterns. Designed for clinical and research settings, the Zeno Walkway provides a reliable, objective method for evaluating gait across diverse populations, including pediatric patients.



The opportunity

- Clinical trials in pediatric research can utilize evaluation of motor skills, but often have to rely on more subjective observation, leading to variability in assessment.
- For children, such as those with autism spectrum disorder (ASD), objective and reliable measures of motor development are critical because motor impairments are common and often impact other areas of development.
- Differences in gait quality may be an early indicator of atypical development, making accurate assessments crucial for early interventions.



The challenge

- In pediatric trials, measuring subtle differences in motor performance can be challenging.
- Children with ASD may display abnormal gait patterns that are difficult to detect using traditional clinical assessments.
- Clinical judgment alone introduces variability, which can obscure important developmental insights and hinder timely therapeutic interventions.



The approach

Protokinetics' **Zeno Electronic Walkway** was applied in a [research study](#) to address the challenge of measurement inconsistency in pediatric research and evaluate detailed aspects of gait in toddlers with and without ASD concerns (Wilson et al., Autism Research, 2024). The system provides highly accurate, repeatable data on gait

parameters such as velocity, cadence, step length, and stride width.

- In this research, the Zeno Walkway was used to compare gait patterns in toddlers with ASD concerns to those of typically developing children, offering objective insights into motor delays.
- The data quantified gait abnormalities in children with ASD and examined how these delays can negatively impact other areas of development.



The success

The Zeno Electronic Walkway demonstrates how DHTs can enhance the accuracy and objectivity of pediatric motor function assessments within clinical trials. By offering reliable, data-driven insights, this technology provides:

- ✓ **Increased accuracy:** The Zeno Walkway provided precise, objective metrics that improved the reliability of pediatric motor function data.
- ✓ **Early detection:** Subtle differences in gait patterns were identified earlier, enabling proactive, data-driven identification and the opportunity to refer for interventions.
- ✓ **Reproducible data:** The technology ensured consistent measurements, reducing variability and improving the reliability of motor function assessments.

“Validated and reliable direct measurements and protocols, facilitated by tools like the Zeno Walkway, are indispensable for detecting subtle changes in gait and balance before significant motor or cognitive symptoms emerge. Mobility quantification is a foundational element of patient-centered, value-based care, with gait speed often regarded as the 'sixth vital sign'.”

— **Mike Rowling**

Co-Founder/COO, ProtoKinetics