



Kinesis Gait™ Physical Therapy – Case Study



Why use gait assessment solutions?

Advances in wearable sensor technology and the field of gait analysis have resulted in clinical grade gait analysis systems that are portable, user friendly and affordable for physical therapy clinics. Trained, experienced physical therapists have deep expertise in assessing gait by observation. While this type of assessment provides a quick impression of the client's gait, data are largely subjective with little measured beyond time or steps taken.

Therapists often spend considerable amounts of time entering data on a client's assessment into their care record. Follow-up assessments also can be challenging in a busy clinic with a high volume of clients, making it difficult to compare performance across visits. Reimbursement for therapy is moving beyond time and activity with an increased need to objectively measure function and change in status.

Gait assessment solutions provide:

- Objective and accurate assessment
- Precise analysis of performance to better inform treatment and therapy
- Time savings with immediate and automated data capture and reporting
- Better continuity of care between initial and follow up assessments
- Ability to complete analysis of the clinic/practice client population and adjust services accordingly
- Improved client satisfaction with intuitive client report and better understanding of their status

Kinesis Gait™

Kinesis Gait™ is a flexible gait analysis tool which automatically compares patient data from an assessment to a reference population as well as across multiple visits. Kinesis Gait™ provides an objective means for assessing gait across a wide range of clinical conditions and is used to accurately measure gait at baseline and subsequent follow up assessments.

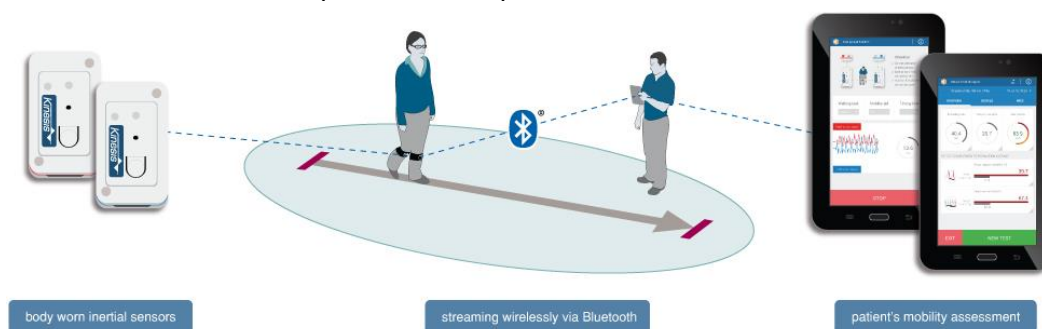


Figure 1: Kinesis Gait: wearable sensor based analysis of gait.

Kinesis Gait™ features:

- 89 quantitative gait parameters (temporal, spatial, symmetry, angular velocity)
- Bilateral gait data analysis and individual stride analysis and export
- Raw sensor data available
- Assessment data are easily exportable (Excel, PDF and raw formats)
- Secure data backup
- Walking task selection (including 6 minute walk mode)

Kinesis Gait™ is portable, easy to setup and use, allowing a comprehensive gait assessment and consultation in a short visit.

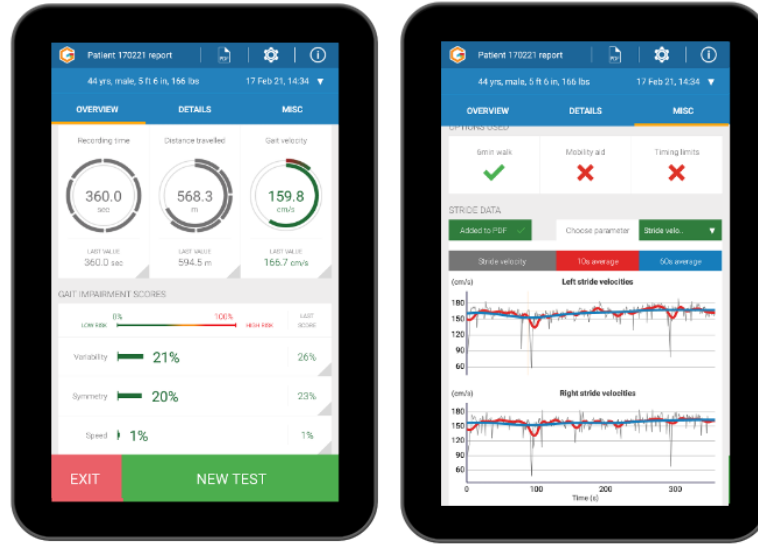


Figure 2: Kinesis Gait™: Detail analysis of gait data within and across walking trials

A customizable, intuitive report (see below) for the therapist and client is available immediately on completing a test. Results from the client’s previous assessment are included in subsequent follow up assessment for quick comparison.

The report helps communicate to clients the key mechanics of their gait and supports messaging on therapy and can improve compliance with rehab programs.

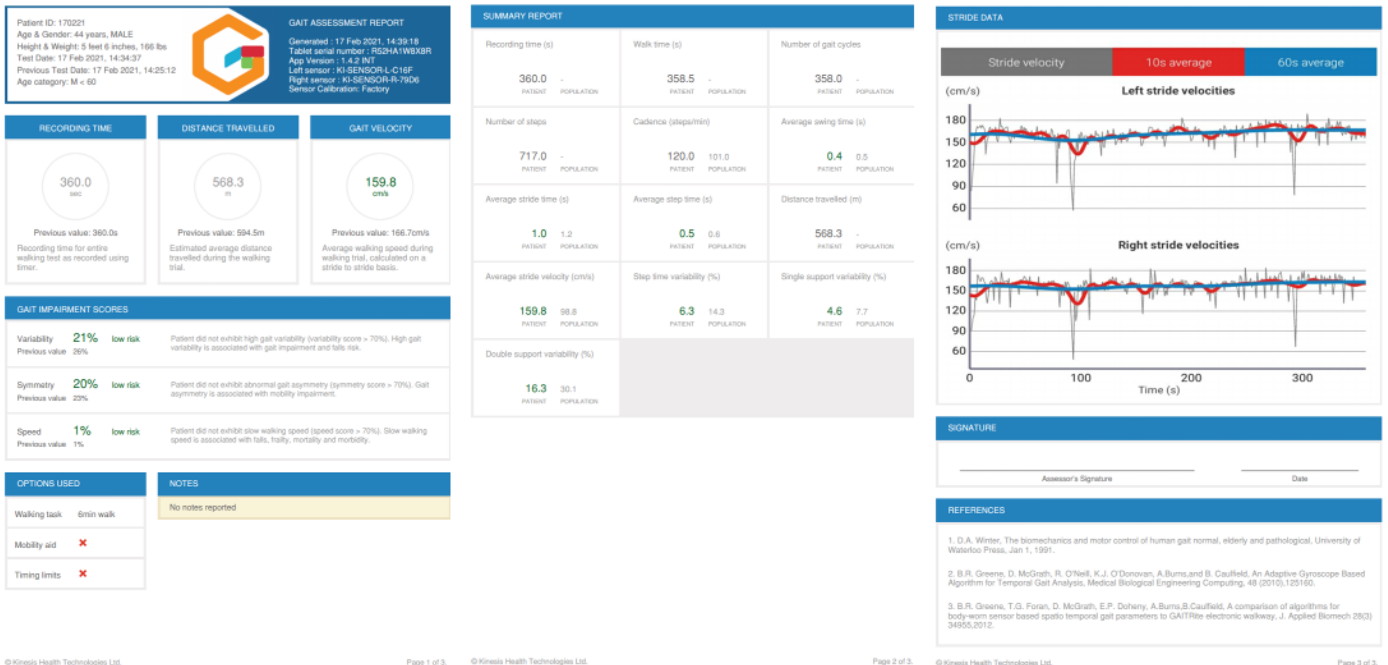


Figure 3: Exportable, printable PDF reports for each gait assessment.

How to better understand your practice client base

Physical therapy clinics often have a large and often varied client base. Understanding the client base that a clinic serves can assist in ensuring rehab programs offered and therapy expertise available match the client base. Gait assessment solutions provide a rich dataset per client visit that when collected over time improves your understanding of your practice population.

To illustrate the insights that can be gained from this kind of analysis, we examined data collected from a Kinesis Gait™ unit deployed in a single physical therapy practice in the USA. Gait assessments were completed on a sample of 1,133 clients (371 male, 762 female, aged 18 to 90 years old with an average age of 63.8±16.5 years).

Gait Velocity

Gait velocity is perhaps the most important measure of a person’s gait. The chart below plots the average gait velocity for clients assessed in this single practice, and illustrates a reduction in average gait velocity with age.

Kinesis Gait™ compares each patient’s performance against a large reference dataset for all gait parameters. By collecting gait data generated in their practices, therapists can complete further analysis on their client population to better assess the performance of their patients with more specific data per gender and age category from data that they collect on their clients base.

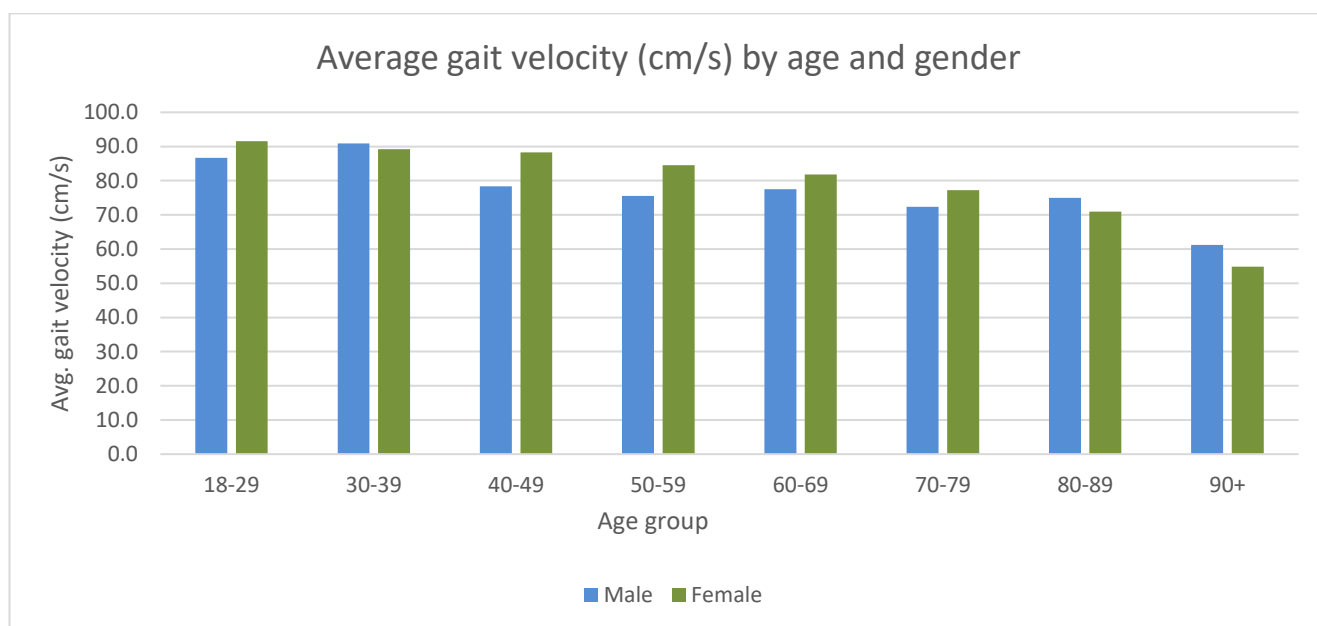


Figure 4: Average gait velocity per age group for a sample of 1,133 gait assessments carried out in a physical therapy clinic.

Gait impairment

A comprehensive gait assessment includes evaluation of the different elements of gait. Kinesis Gait™ provides a breakdown analysis of three such components of gait: speed, variability and symmetry by automatically comparing patients against their own past performance as well as to the general population, using a large and unique built-in data set.

Small variations in gait may be difficult to spot by observation. The gait impairment scores provided by Kinesis Gait™ provide therapists with a fast and in-depth understanding of their client’s gait and a means

to identify any gait impairment. This insight can facilitate a more comprehensive consultation with the client.

Gait impairments are highlighted in individuals with an impairment score greater than 70% (high risk). The chart below outlines the proportion of clients per age group with high risk score in speed, variability and symmetry from the data collected in the single practice with Kinesis Gait™.

The chart highlights that while gait speed is an increasing issue with age, gait variability has been identified in more than 1 in 3 younger adults from this private practice and also increases in prevalence with age.

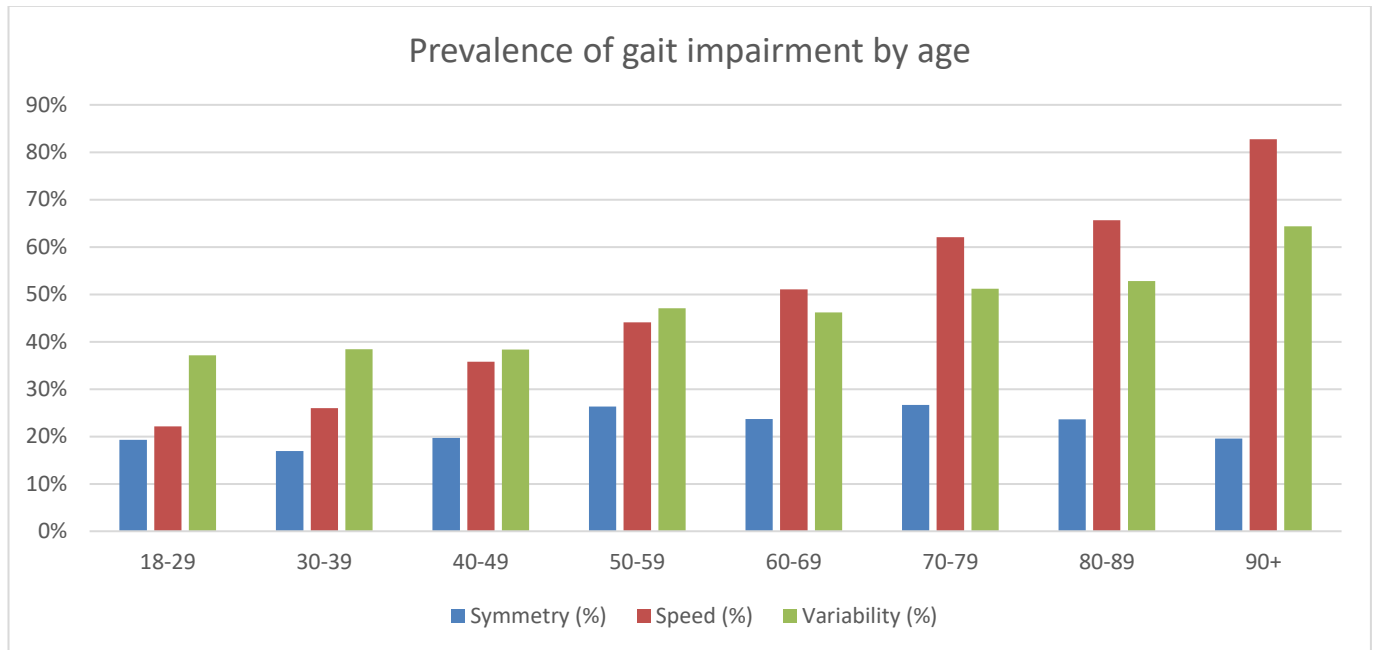


Figure 5: Prevalence of gait impairment with age. Gait impairment is defined as gait impairment score greater than 70%.

Measuring the impact and value to your services

Being able to demonstrate the impact your therapy services have is important to your clients, but is it also becoming even more important to payors and can be required for reimbursement. Kinesis Gait™ provides the ability to objectively measure the impact of your services.

The following charts summarize data for four clients. With these data, you can demonstrate to your clients and payors, objective, measurable changes in their status. Changes can be seen from baseline to follow up assessments, in both gait velocity and gait impairment scores.



Figure 6: Comparing baseline and follow up assessments for a sample of 4 patients from a physical therapy practice.

- Client #1 – Gait speed risk score reduced from high risk to medium risk.
- Client #2 – Gait velocity increased significantly from baseline (83 cm/s) to follow up 2 (105 cm/s).
- Client #3 – Gait impairments scores have reduced and gait velocity increased from baseline.
- Client #4 – Gait variability and symmetry risk scores moved from high to medium risk along with gait velocity increase to 108 cm/s.

Want to know more?

Please visit our website to learn more about Kinesis Gait™:

- <https://www.kinesis.ie/kinesis-gait/>
- https://www.kinesis.ie/docs/Gait_UserGuide_v1.4.pdf

Kinesis Gait™ is a registered medical device with the FDA and available in the US. For more information or pricing please contact sales@kinesis.ie