

Kinesis Balance™

Self assessment of falls risk and physical function



Overview

Kinesis Health Technologies Ltd have developed

Kinesis Balance[™], a tool to facilitate self assessment of physical function, falls risk and wellbeing (www.kinesishealthtech.com/balance).

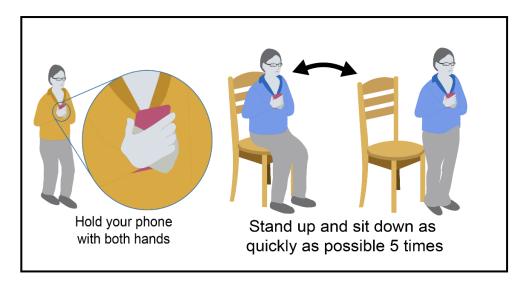
Kinesis Balance™ uses inertial sensors embedded in a smartphone or an external inertial sensor to measure an older adults balance and functional strength when completing a range of balance and functional assessments. The tool also includes an evidence-based analysis of fall risk and wellbeing.

Our validated, patent-protected algorithms are based on a large dataset of community dwelling older adults. Our products are supported by top tier peer-reviewed scientific publications¹⁻⁵ (www.kinesishealthtech.com/research).

Kinesis Balance™ allows an older person to assess and track their physical function and falls risk in the home or community environment and provides guidance and support to maintain independence and a balance in life.

Benefits

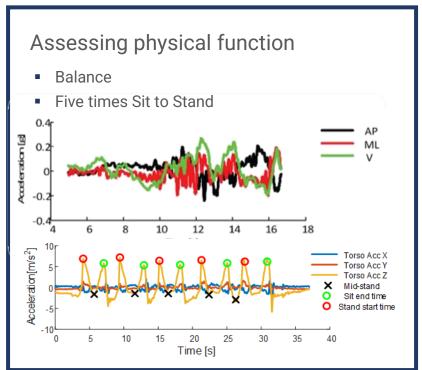
- Improving older adults' awareness of falls
- Remotely monitoring patients at home
- Supporting self assessment
 & supervised assessment
- Facilitating intervention to prevent falls
- Deliver falls prevention programs at scale





Kinesis Balance™ Features

- Reliable profiling and trending of fall risk, balance and function against age and gender norms
- Advice on staying healthy, maintaining function and avoiding falls
- Secure backup of patient data to the cloud
- Accessible and exportable data



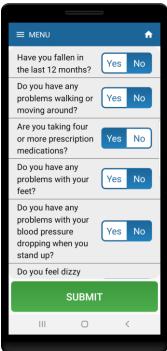




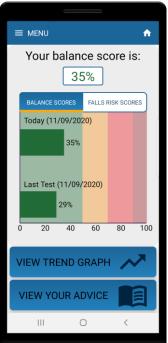
Usability

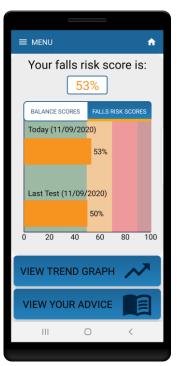
 Kinesis Balance™ has been designed for ease of use by older adults for self-assessment of balance and falls risk. It can also by used with a family member or a carer in a supervised manner using an external inertial sensor













Use Cases

Kinesis Balance™ is suitable for use in:

- Population health and prevention
- Post-acute monitoring
- Therapy and rehabilitation
- Clinical trials

References

- 1. Barry R. Greene, Emer P. Doheny, Killian McManus and Brian Caulfield, "Estimating balance, cognitive function and falls risk using wearable sensors and the Sit to Stand test", Wearable Technologies, Volume 3, 2022, e9.
- 2. K. McManus, B. R. Greene, L. G. Motti Ader and B. Caulfield, "Development of Data-driven Metrics for Balance Impairment and Fall Risk Assessment in Older Adults," *IEEE Trans. Biomed. Eng.*, 2022, 69(7), pg: 2324-2332.
- 3. Barry R. Greene, Killian McManus, Lilian Genaro Motti Ader and Brian Caulfield, "Unsupervised assessment of balance and falls risk using a smartphone and machine learning", Special Issue on Wearable Sensors for Assessment of Gait in Older Adults, Sensors 2021 21(14).
- 4. B. R. Greene, S. J. Redmond, and B. Caulfield, 'Fall Risk Assessment through Automatic Combination of Clinical Fall Risk Factors and Body-Worn Sensor Data', *IEEE Journal of Biomedical and Health Informatics*, 21 (2016), 1-1.2
- 5. B.R. Greene, E.P. Doheny, R.A. Kenny, and B. Caulfield, 'Classification of Frailty and Falls History Using a Combination of Sensor-Based Mobility Assessments', *Physiol. Meas.*, 35 (2014), 2053-66.
- 6. B. R. Greene, D. McGrath, L. Walsh, E. P. Doheny, D. McKeown, C. Garattini, C. Cunningham, L. Crosby, B. Caulfield, and R. A. Kenny, 'Quantitative Falls Risk Estimation through Multi-Sensor Assessment of Standing Balance', *Phys Meas*, 33 (2012), 2049-63.
- 7. B. R. Greene, K. McManus, and B. Caulfield, 'Automatic Fusion of Inertial Sensors and Clinical Risk Factors for Accurate Fall Risk Assessment During Balance Assessment', in *IEEE Biomed. Health Inform. Conf* (Las Vegas, NV: 2018).
- 8. B. R. Greene, K. McManus, S, J. Redmond, B. Caulfield and C. C. Quinn, 'Digital Assessment of Falls Risk, Frailty, and Mobility Impairment Using Wearable Sensors', *npj Digital Medicine*, 2 (2019), 125.

Contact

For more information on how Kinesis Health Technologies can help improve care, reduce costs and prevent falls, contact us at: sales@kinesis.ie

