Kinesis Health Technologies

Kinesis Balance™

Home balance and fall risk assessment tool

Overview

Kinesis Health Technologies Ltd have developed a home balance and falls risk assessment tool, *Kinesis Balance™* (www.kinesishealthtech.com/balance).

Kinesis Balance™ uses the inertial sensors embedded in the smartphone to provide a statistical profiling of balance as well as an evidence-based analysis of fall risk factors. Our validated, patent-protected algorithms are based on a large dataset of community dwelling older adults and patients with neurological diseases. Our products are supported by top tier peer-reviewed scientific publications[1-5] (www.kinesishealthtech.com/research).

Kinesis Balance™ allows an older person to assess and track their balance and falls risk in the home or community environment through a simple static balance test and a short clinical questionnaire.

Platform

Kinesis Balance™ uses sensors commonly embedded in smartphones and runs as an application on most modern Android devices.

Key Features

- Reliable profiling of fall risk and balance against age and gender norms
- Trending of balance and fall risk
- Advice on staying healthy, maintaining balance and avoiding falls
- User prompting to perform test on a periodic basis
- Secure backup of patient data to the cloud
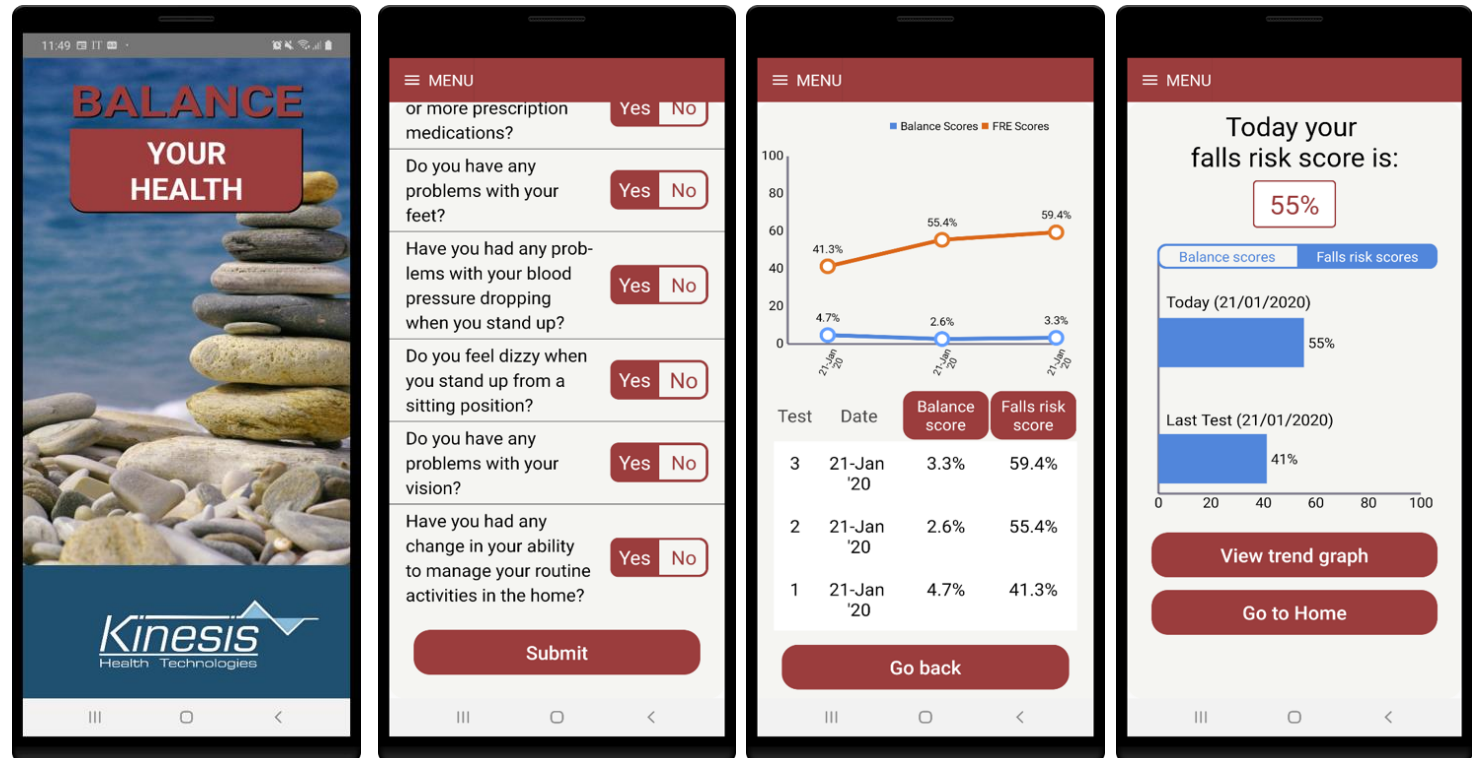- Accessible and exportable data

Usability

The application can be used by the older adult unsupervised or supervised by their carer, and has been designed for ease of use by this cohort.
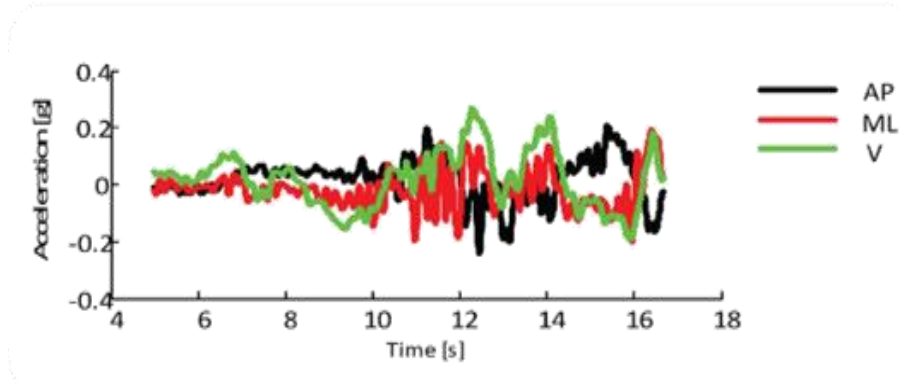
Data security

Kinesis Balance™ is GDPR and HIPAA compliant with no Personally Identifiable Information (PII) stored. Data are securely backed up to our cloud environment with raw and calculated data available for export and offline analysis.

Clinical trials

Kinesis Balance™ is suitable for use in clinical trials, providing digital endpoints for home monitoring of disease state (e.g. 30 second, eyes closed standing balance task) in neurological or movement disorders.

References

1. 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
2. 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.
3. 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.
4. 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).
5. 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:

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