

An Approach to Pragmatic and Scalable Fall Risk Assessment: A Pilot Study

Introduction: More than one-quarter of older adults fall each year in the U.S. For those requiring emergency services, a fall mechanism was an independent risk factor for death within 1 year. Given that the older adult population in the U.S. is projected to increase by 55% between 2015 and 2030, projected fall rates and healthcare spending are also likely to increase.

Balance or postural stability impairments in older adults are known to increase the risk of falls. Maintaining and controlling postural balance is important for older adults to complete required functions and activities of daily living. Clinical fall risk identification typically relies on complex, time intensive, and often subjective tests, which leads most healthcare providers to infrequently screen patients for fall risk.

Computerized posturography or force plate posturography is one method to assess postural control that is commonly used in the contemporary laboratory and clinic settings. Force plate and software platforms provide a rapid, simple to use and accessible option to measure postural balance; however, barriers restrict widespread adoption. Predictive models for fall risk have been challenged by an absence of consistently collected biomarkers, and challenges in collecting documented fall event data.

Purpose: This pilot study explored the use of a short duration force plate balance test to address the need for scalable fall risk assessment in elderly populations. The motivation for this approach was two-fold:

1. to provide more objective and reliable risk measures than a questionnaire alone
2. to provide a path to large scale testing & biomarker data collection to support future model development based on label data from documented fall events.

Eligibility Criteria: Able to stand unsupported, age equal to or greater than 65.

Study Type: Prospective Feasibility Study

Sample Size: 154

Objectives:

- Evaluate the feasibility of utilizing a short duration force plate balance test as a scalable approach for fall risk assessment within independent living facilities.
- Evaluate the predictive capabilities of biomarkers extracted from a short duration force plate balance test on current questionnaire-based fall risk assessment

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