

**To investigate the Feasibility of Video Game Based Application to Assess Fall Risk and Balance
in Older People**

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Abstract:

Introduction: The aim of this research study is to assess the feasibility of using investigational video game application (as shown in the figure) to assess fall risk and help improve balance in older people.

Methods: Health in Motion©, is a valid and reliable fall risk assessment and fall prevention software platform for adults over age 60. It is comprised of the standard Fall Risk Questionnaire² (FRQ), a two question depression screen (2QDS), the One Legged Stance Test³ (OLST), and the 30- Second Sit to Stand Test⁴ (30STST); a Record a Fall button and exercises that mirror the Otago Fall Prevention program^{5, 6} including 17 balance, strength and endurance exercises and 8 Tai Chi movements. Numerous educational tips are included on each loading screen, offering seniors reminders of ways to reduce fall risk. A routine creation UI enables customization of the exercise protocols and personalized action plan. Clinicians customize exercise programs by selecting exercises, adjusting dose and intensity as appropriate. Otago routines with 4 levels of difficulty are included as default.

Results: Preliminary data was collected on eight subjects by California State University, Fresno's PT faculty during community balance screening. The subjects' balance was assessed using video game based fall risk assessment tool, Health in Motion developed by Blue Marble Health Co. This video game based assessment was played on a windows digital device to complete the Fall Risk Questionnaire, Single Leg Stance Test and Chair Rise Test. This is an ongoing study.

Conclusion: The future data collection would be done by Fresno state DPT students and nursing students under the supervision of the Fresno state university faculty and staff.

The goals and objectives of this project are to:

The interdepartmental project within CHHS will introduce and train graduate and undergraduate Physical Therapy and Nursing students with new cutting edge technology tool for balance assessment

To assess the feasibility of using video game application to help save clinician's time and help them focus and track patients remotely.

To investigate the feasibility of this video game based treatment as a telemedicine approach for older adults in need for balance assessment and intervention.