



## **FallScreen©: A Comprehensive Kit for Falls Risk Assessment and Prevention**

### **Introduction**

Bio-Link presents FallScreen©, a clinically proven system for the assessment of postural stability and sensorimotor abilities developed by a team led by Prof. Stephen Lord at the Prince of Wales Medical Research Institute (POWMRI) in Australia. The test may be of interest to companies seeking to market a validated falls risk assessment product - or to improve their current product offerings for postural stability and falls risk management by incorporating the unique software and dataset in FallScreen©.

### **Clinical Applications: Screening and Comprehensive Analysis**

FallScreen© incorporates an assessment of vision, peripheral sensation, sensorimotor abilities, lower limb strength, reaction time and body sway to provide a comprehensive assessment of the risk of falling. The test has been designed for both basic screening and comprehensive analysis of the risk of falling in patients with and without known pathology. The test is robust and portable, easy to administer and feasible for older people to undertake.

The short form FallScreen© is administered in 15 minutes and is designed as a screening instrument suitable for General Practice, acute hospitals, and long-term care institutions. The longer form takes 45 minutes to administer and can be used as a comprehensive instrument suitable for rehabilitation, physical and occupational therapy and for dedicated Falls Clinics. The system generates a comprehensive falls risk assessment report and numerical score which accurately discriminates between elderly fallers and non-fallers. A set of recommendations is also generated for patients and their primary physicians which can be used for the treatment and management of balance disorders.

### **Commercial Opportunity**

FallScreen© is currently sold on a modest scale by POWMRI throughout Australia and in some other countries, including Germany. There is an opportunity for a commercial partner to scale up the development of FallScreen© and to more thoroughly exploit the global market.

For companies which already market falls risk and posture stability tests, FallScreen© represents a valuable tool which can be used to improve or develop their current products and services. The test is based on an extensive database and a unique software algorithm established through over 20 years of research at POWMRI involving more than 4000 people who were monitored for falls during a 12 month period following assessment. Many of these patients were aged over 65 years. Some had diabetes mellitus, a history of poliomyelitis while other people did not have a diagnosed pathology.

## Features

FallScreen© provides a reliable and quantitative analysis of vision, peripheral sensation, lower limb strength, reaction time and body sway. Some of the key features include:

- An extensive normative database established through over 20 years of clinical research
- Extensive external validation of each measure used in the test
- Unique software algorithm developed through dedicated clinical studies
- Robust and simple administration suitable for various clinical settings and large community studies
- High accuracy (75%) of prediction of the risk of falling in both community and institutional settings
- Five prospective cohort studies involving more than 4000 older people monitored for falls during a 12 month period following assessment
- A current longitudinal study of 500 participants examining changes in the FallScreen© measures over a four year period

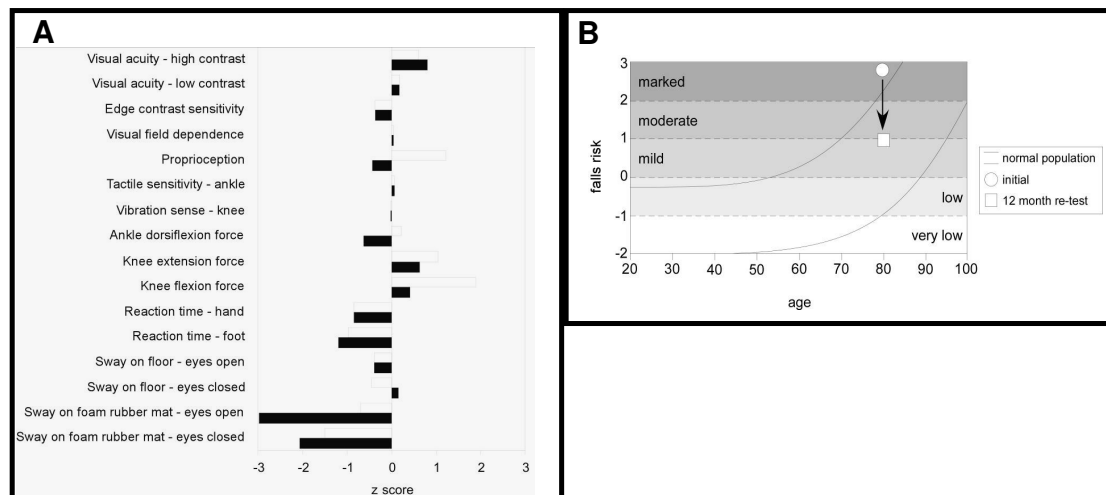
FallScreen© analyses each person's performance in relation to the normative database compiled from large population studies. The program produces a falls risk assessment report for each subject which includes the following four components:

1. a graph indicating the person's overall falls risk score
2. a profile of individual test performance results
3. a table indicating individual test performances in relation to age-matched norms
4. a written report which explains the results and makes recommendations for improving performances and compensating for any deficit areas identified

The report provides a basis for targeting interventions to improve or compensate for impairments in the following physiological domains: strength, balance, speed and co-ordination, vision, peripheral sensation and therefore minimise the risk of falling in older people. A clinical case is presented below to demonstrate the utility of FallScreen©.

Figure 1 shows the FallScreen© z-score profile for a 79-year-old woman before and after 12-month exercise intervention.

**Figure 1.**



*A) Physiological Profile Assessment z-score output for a 79-year-old woman before and after 12-month exercise intervention. Initial scores are shown in black, and retest scores are shown in white. Improvements are evident for proprioception, lower-extremity muscle force, and postural sway following the intervention*

*B) Falls risk graph of a 79-year-old woman before and after 12-month exercise intervention. The initial falls risk score was 2.7, and the retest falls risk score was 0.93. Normal range based on data for a randomly selected sample of 550 community-dwelling women aged 20 to 99 years*

Following the exercise program, improvements were observed in proprioception, muscle force in all 3 lower extremity muscle groups, and postural sway on the foam rubber mat, demonstrating the clinical utility of FallScreen©.

### **Licensing**

Bio-Link is seeking expressions of interest from companies to licence FallScreen© for further product development and marketing. The licence could be to the full product or the underlying software algorithms for measuring postural stability and the risk of falling, supported by a comprehensive data set. Interested companies are encouraged to contact Paul Field at Bio-Link.

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