Stumbles and near-falls Validating tests to identify risk



Nicky Baker¹, Prof Anthony Maeder^{1,2}, A/Prof Niranjan Bidargaddi², Prof Sue Gordon¹

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1. College of Nursing and Health Sciences 2. College of Science and Engineering 3. College of Medicine and Public Health

Stumbles or near-falls are momentary losses of balance and are usually disregarded as no injury occurs. However, they are more common than falls and usually pre-empt falls.

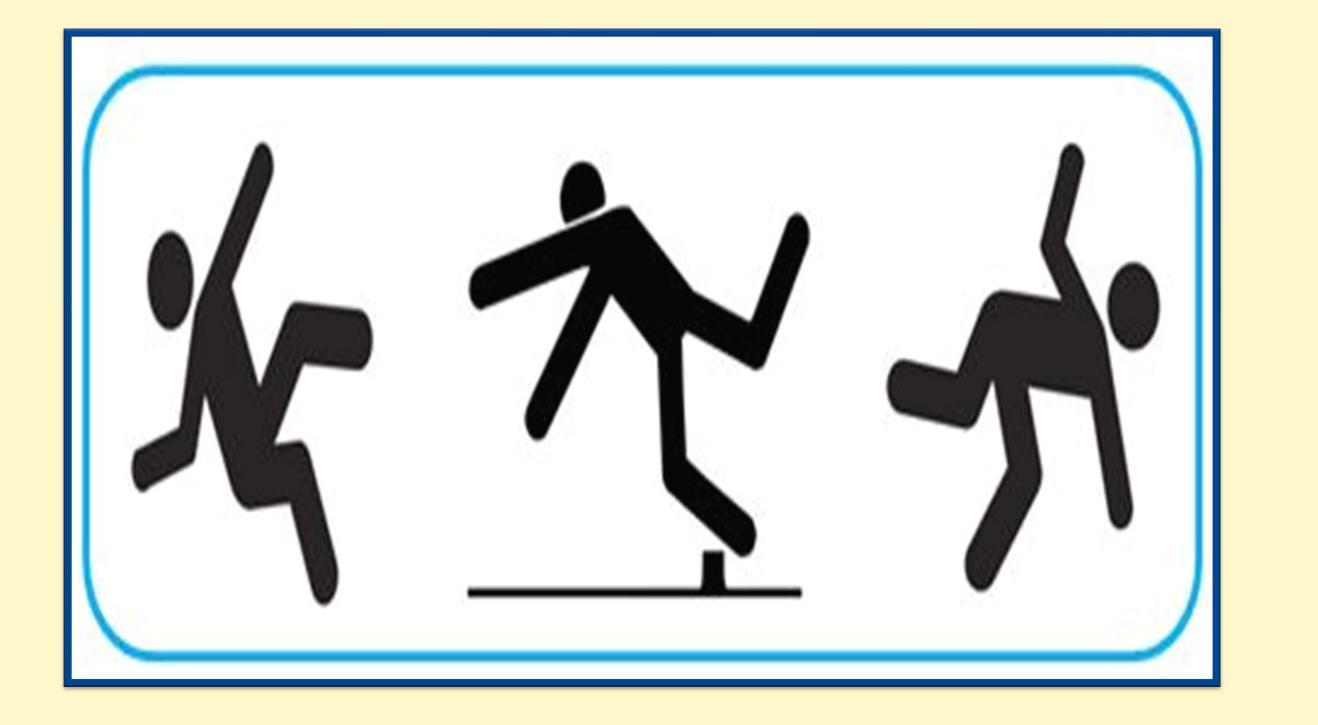
Fall risk and balance screening is established for older adults, after a calamitous event such as stroke or hip fracture, in neurological conditions such as MS or Parkinson's Disease, but not for seemingly healthy middleand young older-aged adults.

Aims

- Establish balance differences between three groups: fallers, stumblers and non-fallers
- Identify between-group differences with an 2. inertial sensor that measures balance speed and direction
- Investigate opinions and perceptions regarding self-management approach to balance and nearfall prevention

We have no data on stumbles or near-falls. There is an opportunity to identify people at risk, intervene early and prevent near-falls and falls.

Validate in community population aged 40-70 years



Balance tests distinguish between fallers, stumblers and non-fallers:

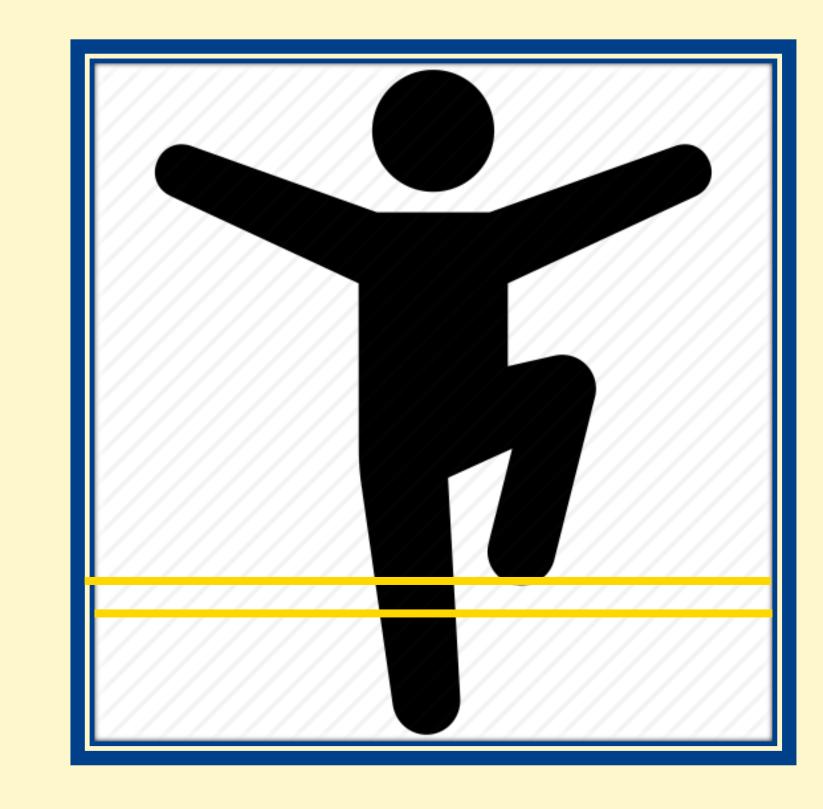
> **Standing on one leg Turning to face opposite direction** Tandem walk heel-to-toe five steps **Stepping over a hurdle Forward lunge**

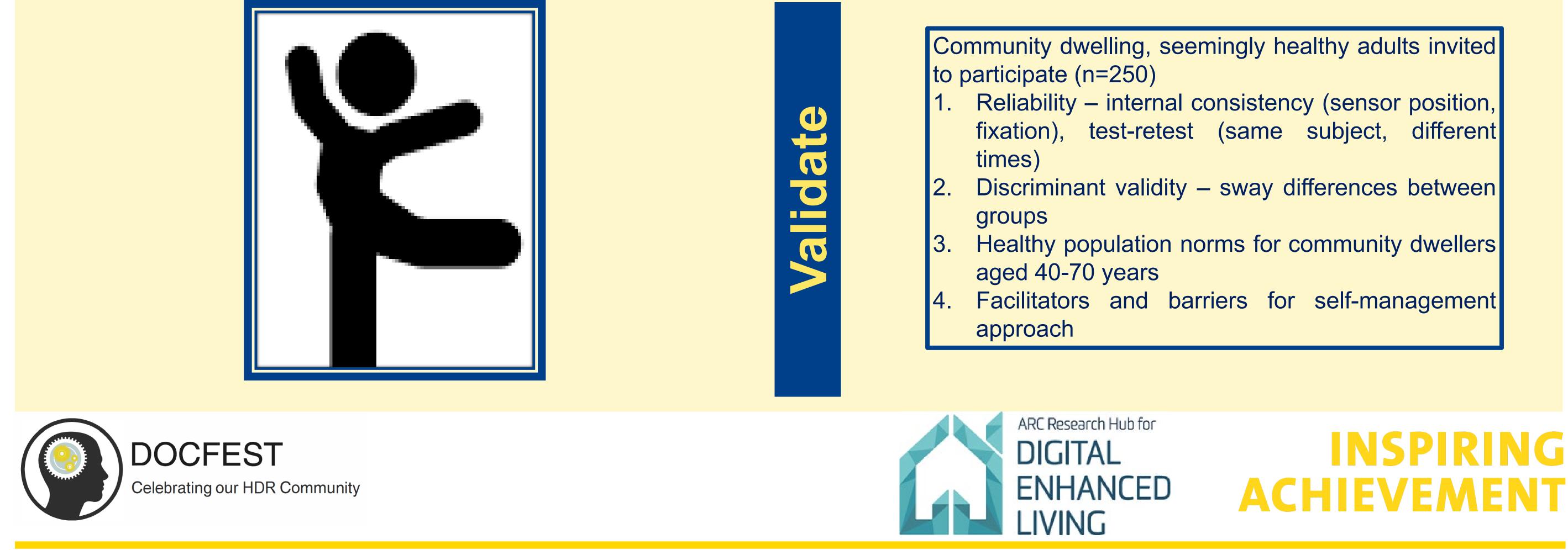
Stumblers are more than twice as likely to fail these tests than non-fallers (OR 2.1-2.9; sensitivity 73%) even though neither group has yet fallen.¹

An inertial sensor will be attached to the low back. The sensor is light, non-intrusive and provides accurate measures of balance sway.

Participants will undertake the balance tests wearing the inertial sensor. Results will inform sway differences between fallers, stumblers and non-fallers. Classification of sway results will inform stumble and fall prevention.

Participants will be invited to discuss their views on selfmanagement approaches for balance and prevention of stumbles or falls.







ABN 65 542 596 200, CRICOS No. 00114A

¹Baker, N., Grimmer, K., & Gordon, S.J. Balance provocation tests identify near-falls in middle- and young older-aged adults: an observational study. *Australian Journal of Physiotherapy* (under review).