

Astronaut scales weigh the risk of older people falling

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Katharine Forth's scale costs \$490

A British scientist who helped to stop astronauts falling over is now on a mission to do the same for the over-65s.

Katharine Forth, from Colchester, Essex, went to Houston to study for her PhD and worked at Nasa's neuroscience lab, where she helped to develop a balance tool for boots to be used on the moon and Mars. Astronauts have to adapt their balance to the weightlessness of microgravity in space and then re-adjust when they come back down to Earth. Many have fallen over on moonwalks.

When Forth's grandmother fell at home she was determined to use her boot invention to prevent others from doing the same. She found out during a lunchtime chat with a colleague that their grandmother had also fallen and they have teamed up to develop a smart scale, Zibrio Stability, that can predict whether someone is likely to fall in the next year.

Users stand on it for 60 seconds and are given a score from one to ten and if they are at risk of falling an app tells them how to prevent it. A study of hundreds of

retired people in Texas reported a 74 per cent reduction in falls among those using the scale.

Forth said: “I had a grandmother who fell in her mid to late eighties. She broke her hip, she broke her wrist and it ultimately led to her demise and it was just so painful to watch. And then my co-founder’s grandmother, it was a similar story. So when we invented it we were sitting there at lunch at Nasa thinking, ‘This could really help a lot of people, we should really do that.’ And so the company was born.”

Nasa has supported Zibrio, the start-up she founded with Erez Aiden, and encourages its staff to commercialise its [technology](#). In a promotional video it says: “At Nasa we know about gravity and falling is a gravity problem.”

According to the Trauma Audit and Research Network the most common major trauma in the UK is an older person having a fall. A third of people over 65 fall each year.

The scale uses sensors to measure pressure and sway and then applies artificial intelligence to identify when the body is in control and when it is having moments of “micro-failure”.

Balance responds quickly to targeted interventions and in a study it took an average of 34 days to shift from a high risk to moderate risk of falling.

Sharon Roberts, 79, an art teacher who lives near Salisbury, is one of the few people in the UK to have a Zibrio scale. It is sold only in America but was brought to her by a friend in the US, where it costs \$490 (£400). She describes it as “an amazing bit of kit”.

After nine months of regularly standing on it she has gone from a low score of three or four to regular sevens, eights and a couple of nines. Roberts was motivated by the scale to take up t’ai chi again, which has improved her balance.

She said that when she achieved a high balance score it gave her more confidence.

The company hopes to offer the scale to the NHS and care homes in the UK.

Dr Emily Henderson, of the British Geriatrics Society, said: “There’s been quite a lot of advancements in technology about fall detection, maybe more so than fall prevention, which is fine but of course by the time someone’s on the floor, someone’s on the floor . . . But the ability to actually take a step backwards and prevent them from falling in the first place is very attractive.”

Balance tips

Sleep — One bad night’s sleep can dramatically affect your balance so prioritise getting at least seven hours.

Get your feet going — For example, try doing toe-splaying exercises.

Quad strength — Very important for balance. Do sit-to-stand exercises twice a day.

Medications — These can affect your balance, so review them with your GP with regard to fall risk.

Take care when travelling — Jetlag, fatigue and altitude all negatively affect your balance so give yourself extra time and rest when you travel.