EPSOM & EWELL TIMES
For the community, by the community. A not-for-profit service

Current

ISSN 2753-2771

EPSOM & EWELL TIMES

Get paid for falling over in Surrey study

With 219,000 fall-related emergency hospital admissions among people aged 65 and over in England in 2023/24, a new trial at the University of Surrey is exploring how smart flooring could help prevent serious injuries by cushioning falls – potentially easing pressure on the NHS and reshaping the design of hospitals, care homes and even private homes.

In the ongoing study, participants wear reflective body markers that are tracked by infrared cameras, allowing researchers to measure how different floor materials – ranging from soft to hard – affect a person's balance, movement and stability. The findings will form the foundation for designing new protective flooring that looks and feels like a regular surface but can absorb the impact of a fall.

The team is currently seeking healthy adult volunteers of all ages, particularly those aged 65 and over, to participate in the trial.

Silas Purja, Postgraduate Researcher at the University of Surrey's School of Engineering and lead researcher in the trial, said:

"Every year in the UK, hundreds of thousands of older adults experience a fall – many of which lead to lengthy hospital stays and, tragically, some fatalities. Government figures show that unaddressed fall hazards in the home alone cost the NHS in England around £435 million annually, while fragility fractures – often caused by falls – cost the UK an estimated £4.4 billion each year, including £1.1 billion in social care. To help ease pressure on the health service and protect lives, we're investigating how different flooring types affect balance – with the goal of supporting the design of safer, smarter surfaces in various settings."

The current phase of the study involves testing different age groups on their ability to stand and walk on various floor conditions in a controlled indoor environment at the University. Researchers can then analyse how different levels of stiffness affect participants' natural balance.

The long-term vision is a flooring system that remains firm during normal use but softens when someone falls – reducing the risk of broken bones or head injuries. From the outside, it would resemble standard synthetic tiles or rubber flooring, but with smart materials and systems hidden beneath. As the technology matures, the flooring could eventually be rolled out in hospitals, care homes and private homes where older people are most at risk.

Dr Iman Mohagheghian, Associate Professor (Reader) in Mechanics of Materials at the University of Surrey and Principal Investigator on the project, said:

"Trials like this are crucial for determining age-related differences in balance and movement, and how those differences interact with the surfaces we walk on every day. Volunteers who take part will play an important role in helping us design safer, more supportive environments, and their contributions could ultimately help prevent life-altering injuries. If you would like to be part of our research, we'd love to hear from you."

The study is part of the wider Engineering and Physical Sciences Research Council (EPSRC)-funded project Multifunctional Flooring: Design for Independent Living, led by Dr Iman Mohagheghian. The project brings together an interdisciplinary team of researchers, including Dr Matthew Oldfield and Dr Radu Sporea from the University of Surrey, and Dr Amy Drahota from the University of Portsmouth.

The team is working closely with commercial partners and manufacturers of flooring for healthcare settings and advanced sensor and touch technologies. Together they aim to develop an integrated flooring solution that provides passive fall prevention, real-time fall detection and impact protection in one.

Participants will receive a £10 expenses payment for their time along with free parking at the University. To register your interest or find out more, contact Silas directly at s.purja@surrey.ac.uk.

Surrey University