Software improves understanding of mobility problems

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Mobility challenges facing older people can now be better understood by clinicians, health care practitioners and design professionals, thanks to a new innovative software tool. Initial research findings from a research collaboration between the Glasgow School of Art and the University of Strathclyde, supported by the UK Research Councils' New Dynamics of Aging program, evaluated software which enables older people to work with professionals and suggest ways to improve their lifestyle and quality of life.

The software tool presents data visually and this allows those without specialist training – both professionals and older people – to better understand and contribute to discussions about the mechanics of movement, known as biomechanics, when carrying out everyday activities.

The software takes motion capture data and muscle strength measurements from older people undertaking everyday activities. The software then generates a 3D animated human stick figure on which the biomechanical demands of the activities are represented visually at the joints. These demands, or stresses, are shown as a percentage of maximum capability through a colour gradient: green is 0 per cent, amber is 50 per cent and red is 100 per cent or maximum stress.

The research shows the new software tool has the potential to improve diagnostic, therapeutic, communication and education procedures by increasing the use and integration of biomechanical expertise in both

design and healthcare practices.

The visualisation software could be used to improve the designer's understanding of the different needs when developing products for older people, including enhancing the ergonomic and as well as the functional attributes of products, and improving the design of landscapes and buildings.

In a healthcare setting the tool could be used as part of a range of assessment techniques. It could improve the understanding by different healthcare profession of older people's mobility challenges and improve communication across these professions to provide a more joined-up approach to clinical assessment, diagnosis and rehabilitation.

Commenting on the research, Professor Alastair Macdonald of the Glasgow School of Art, said: "The visualisation software is a simple yet highly effective tool to help older people and professionals explain, discuss and address mobility problems. Better understanding of older people's mobility can help healthcare professionals improve diagnosis or treatment of problems, and design professionals to adapt the way they design for older people."

Provided by Economic & Social Research Council

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