

Motion-tracking technology reduces injuries for older adults (w/ Video)

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Exercise is an important part of recovering from an injury, illness or surgery, but many older adults lack the knowledge and guidance needed to properly perform exercises. University of Missouri researchers from the Sinclair School of Nursing and the College of Engineering have developed technology to track motions while people exercise. The technology provides feedback to patients as they recover from injuries or illnesses in order to reduce the chances of future injuries and re-hospitalization.

The studies focused on older adults, a population that is often susceptible to falls and injuries due to loss of balance. Elders who exercise see benefits such as reduced likelihood of falls, better emotional and cognitive health, and improved cardiovascular function.

"If you go to a gym now, there is either no feedback or it is static," said Gregory Alexander, assistant professor of nursing. "This technology is interactive because it tracks motion that patients can actually see."

The images provided by the motion [tracking technology](#) provide detailed data that will help patients, physicians and therapists better visualize movements as patients exercise. This visualization will allow physicians and therapists to monitor recovery and adapt treatment plans, as well as give the patient a better picture of movements that may be potentially dangerous.

"Previous studies have conducted similar research in laboratory settings,"

said Tim Havens, who recently received a doctorate from the MU Department of Electrical and [Computer Engineering](#). "Our system is unique because it extracts data out of images collected from participants in a real environment without changing the scene."

In the future, this technology will help healthcare providers stay connected with patients after they are discharged from the hospital. The technology can easily be set up in patients' homes to provide feedback and encouragement to improve their [workouts](#) or rehabilitation routines. It also can send messages about patients' progress to physicians in order to make better treatment decisions for patients who are far away and have less frequent office visits.

"Integrating engineering data with health data gives you a much more powerful ability to make a clinical decision," Alexander said.

Havens will continue his research at Michigan State University as a National Science Foundation Computing Innovation Postdoctoral Fellow.

Provided by University of Missouri-Columbia

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