

## Study suggests key to avoiding ankle re-injury may be in the hips and knees

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Nearly all active people suffer ankle sprains at some point in their lives, and a new University of Georgia study suggests that the different ways people move their hip and knee joints may influence the risk of re-injury.

In the past, [sports medicine](#) therapists prescribed strengthening and stretching exercises that targeted only ankle joints after a sprain. The study by UGA kinesiology researchers, published in the early online edition of the journal *Clinical Biomechanics*, suggests that movements at the knee and [hip joints](#) may play a role in ankle sprains as well.

"If you have ankle sprains, you may have a problem with the way you move, and we think we can change movement through rehabilitation," said Cathleen Brown, lead author of the study and assistant professor in the department of kinesiology in the College of Education.

Past studies on [ankle sprains](#) have shown that some people are able to return to sports or physical activities without a problem. Brown and her team, which includes associate professor Kathy J. Simpson, also in the kinesiology department, want to know why some recover completely.

"One theory for explaining those divergent paths is that a person comes up with good strategies to move, land, balance and not get re-injured," Brown said.

For the study, 88 participants were divided into three groups: an

uninjured control group, active people who still experienced problems after an ankle sprain and "copers," or people who had been injured but no longer felt pain or weakness in their ankle. Participants dressed in an Avatar-like body suit that sent data to cameras and computers detailing the exact position of ankle, knee and hip joints. Each person stood 27.5 inches away from an in-ground metal platform and jumped to reach a target, then landed on one foot without assistance.

Of the three groups, the uninjured group bent their knees and swayed their hips side-to-side more often than either of the other groups. However, the "copers" also showed differences in those joint movements. The injured group with lingering ankle pain appeared unable to use their knee and hip joints as well when landing on the metal surface.

"Maybe the injured people don't use the same landing strategies, or their strategies aren't as effective," Brown said, adding that the study was a snapshot in time, not a long-term follow-up. By the time subjects were included in the research study, they have usually already injured themselves. "We don't know if they are this way because of the injury, or if they got this injury because they land this way."

The current study looked at the knees, hips and ankles in isolation, and the next step for the team will be to examine the joints in combination. If future studies allow the researchers to identify particular movement patterns as helpful, the research could be directly translated into new techniques for rehabilitation therapists and the public in general.

Brown said the current study builds on a similar study published in June 2011 that examined ankle injuries based on the amount of clearance between the foot and the ground. In that study, she found that participants with previous ankle injuries kept their feet closer to the ground, with their toes pointing downward, while running.

"I always try to encourage people who are having a lot of problems with their ankle to see a health care professional who would be able to help them," she said. "There are negative long-term consequences to ankle instability, such as [ankle](#) osteoarthritis, that may be preventable with treatment."

Provided by University of Georgia

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