

9-14-2010

## Maintaining Balance

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### Recommended Citation

"Maintaining Balance" (2010). *News Releases*. 1117.  
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# University of Dayton, Ohio (url: <http://www.udayton.edu/index.php>)



## Maintaining Balance

09.14.2010 | Science, Students, Research

Elderly people heading to the grocery store should leave one thing off their lists: a backpack. It's the worst way to transport groceries, according to University of Dayton research presented last month at the American Society of Biomechanics meeting in Providence, R.I.

Led by Erin Sutton, student director of the University of Dayton Engineering Wellness and Safety Lab, and Kim Bigelow, an assistant professor of mechanical engineering and faculty lab director; the eight-person research team studied 20 adults between the ages of 65 and 83 for *Minimizing*

*Postural Instability When Carrying Load: The Effects of Carrying Grocery Bags on the Elderly.*

They used a balance plate similar to Wii Fit video game system technology to measure how much and how fast people swayed while holding grocery bags. Determining which of seven methods for carrying groceries resulted in the smallest sway is important, because excessive sway has been linked to falls, according to Bigelow. The Centers for Disease Control and Prevention estimates more than a third of adults 65 and older fall each year in the United States.

Rather, the best of the seven ways examined to keep one's balance is to carry one bag in each hand, provided the bags weigh the same. The next-best way to keep steady is to slip a bag onto the forearm and hold it across the body.

Holding one bag in one hand created the most imbalance after the backpack.

"The stats weren't overwhelming enough to recommend a standard," Bigelow said. "But, because of these trends, we will test another 150 people this fall."

The University of Dayton Engineering Wellness and Safety Lab combines engineering, medicine and physical therapy to understand balance, gait and mobility.

Sutton is a senior mechanical engineering major from Perrysburg, Ohio. One of the few undergraduates in the nation to present research at the American Society of Biomechanics meeting, she said researching this area has helped her see how engineering helps people. The project also was her first opportunity to lead a group.

"I got the most out of seeing how engineering helped the participants, even before the results of the study. We got the participants thinking about balance," said Sutton, whose work at the University led to an internship at Prosthetic Design Inc. in the Dayton suburb of Clayton. "I loved working with people. It's definitely something I want to do."

Prosthetics Design Inc. even started a research program with Sutton as leader of the first project because of her work in the Wellness and Safety Lab, she said.

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