

Researchers Use Wii Fit to Help Restore Soldier's Balance After Traumatic Brain Injury

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(PhysOrg.com) -- Kansas State University researchers have found that Nintendo's Wii Fit helped improve balance for a soldier with a traumatic brain injury, a problem many soldiers are facing after serving in Afghanistan and Iraq.

Shawna Jordan, research assistant professor in human nutrition, and Laurie Hildebrand, May graduate in athletic training and pre-physical therapy and 2006 graduate of St. John High School, are studying the effectiveness of [Nintendo Wii](#) in rehabilitation. Their results showed positive improvements in balance and user satisfaction for an individual undergoing neurological therapy.

"Wii has been out for a few years and has been used in settings like hospitals, nursing homes and clinics for all types of rehab, but there's not a lot of published research that shows that it's effective," Hildebrand said.

The researchers started the case study in March with a soldier who had been diagnosed with a traumatic brain injury. He had gone through some traditional physical therapy before the study and followed up with the virtual reality balance work.

"Traumatic brain injuries are a big concern for soldiers in the Iraq and Afghanistan conflicts right now," Hildebrand said. "These injuries often

go undiagnosed, and we're not really sure how many soldiers have them."

She said traumatic brain injuries have many symptoms, including [memory loss](#) and changes in behavior and cognitive function. The researchers specifically focused on the physical aspect of restoring balance. They used Nintendo's Wii Fit balance board and games, including the balance, yoga and strength training activities.

Baseline measurements of balance were initially taken of the individual. The study followed with five training sessions of 30 minutes each where the participant played different Wii Fit games. The study showed that the soldier had positive improvements in his balance and had few errors related to balance in the [Wii Fit](#) activities. The participant also reported liking the rehabilitation process itself because it was interactive and showed his progress through the training.

"Any time you can change rehabilitation processes and make them more interesting for the patient is great, especially with brain injuries, since neurological rehabilitation is a longer process," Hildebrand said.

The Wii is different from other virtual reality technologies used in rehabilitations, Hildebrand said. Its advantages include that it's cheaper, easily accessible and easy to use. Possible follow-up research includes the effects of [Wii](#) on rehabilitation for other conditions, including injuries like ankle sprains and knee injuries.

Hildebrand is studying athletic training and said the study is similar to rehabilitating football players who have suffered concussions, which are a mild [traumatic brain injury](#). She presented the project in a poster at K-State's University Honors Program Convocation April 27.

Hildebrand, who will study physical therapy at the University of Kansas School of Allied Health, said the project was her first research

experience.

"Before this project, I never thought about research," she said. "I found out I really enjoyed it. I know as part of the requirements to finish [physical therapy](#) school there has to be a research project. This gave me experience that I might be able to use later on in that research."

Provided by Kansas State University

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