

Wii video games may help stroke patients improve motor function

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Virtual reality game technology using Wii may help recovering stroke patients improve their motor function, according to research presented as a late breaking poster at the American Stroke Association's International Stroke Conference 2010.

The study found the virtual reality gaming system was safe and feasible strategy to improve motor function after [stroke](#).

"This is the first randomized clinical study showing that virtual reality using [Wii](#) gaming technology is feasible and safe and is potentially effective in enhancing motor function following a stroke, but our study results need to be confirmed in a major clinical trial," said Gustavo Saposnik, M.D., M.Sc., director of the Stroke Outcomes Research Unit at the Li Ka Shing Institute, St. Michael's Hospital and lead investigator of the study carried out at the Toronto [Rehabilitation](#) Institute at the University of Toronto, Canada.

The pilot study focused on movements with survivors' impaired arms to help both fine (small muscle) and gross (large muscle) motor function.

Twenty survivors (average age 61) of mild to moderate ischemic or hemorrhagic strokes were randomized to playing recreational games (cards or Jenga, a block stacking and balancing game) or Wii tennis and Wii Cooking Mama, which uses movements that simulate cutting a potato, peeling an onion, slicing meat and shredding cheese.

Both groups received an intensive program of eight sessions, about 60 minutes each over two weeks, initiated about two months following a stroke.

The study found no adverse effects in the Wii group, reflecting safety. There was only one reported side effect in the recreational therapy group: nausea or dizziness. The Wii group used the technology for about 364 minutes in total session time, reflecting its feasibility. The recreational therapy group's total time was 388 minutes.

"The beauty of virtual reality is that it applies the concept of repetitive tasks, high-intensity tasks and task-specific activities, that activates special neurons (called 'mirror neuron system') involved in mechanisms of cortical reorganization (brain plasticity)," Saposnik said. "Effective rehabilitation calls for applying these principles."

Researchers found significant motor improvement in speed and extent of recovery with the Wii technology.

"Basically, we found that patients in the Wii group achieved a better [motor function](#), both fine and gross, manifested by improvement in speed and grip strength," Saposnik said. "But it is too early to recommend this approach generally. A larger, randomized study is needed and is underway."

Wii is a [virtual reality](#) video gaming system using wireless controllers that interact with the user. A motion detection system allows patients their actions on a television screen with nearly real time sensory feedback.

Provided by American Heart Association

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