

# Nintendo Wii: Moving and balancing with Parkinson's



## Project information

Lead researcher	Dr Cathy Craig
Location	Queen's University Belfast
Cost	£34,709 over 12 months
Start date	March 2011
Type of project	Innovation
Project code	K-1002

## Project background

Most people with Parkinson's have some trouble with getting around in everyday situations. Slowed movement, rigidity, and tremor are the most common symptoms and these may become worse over time. Many people have difficulty with their balance and posture, making falling more likely. And Parkinson's can also affect mental abilities such as memory and attention. This project is all about exploring whether the Nintendo Wii can be used to help improve these symptoms in people with Parkinson's.

### About the Wii

- **Nintendo Wii is a home video games console.** It first went on sale in 2006 and it's estimated that half of all UK households now own one – almost as many as the number of households with a car.
- **The Wii makes use of natural human movement.** Unlike other games consoles that are operated mainly by pushing buttons, Nintendo Wii uses a handheld remote control and a balance board that people can stand on. Motion and pressure sensors pick up

people's arm movements or the way their weight shifts on the balance board. The movements are then used to control the games on a video screen.

- **Several Wii games, such as the Wii Fit package, can track people's performance over time.** The console can record and store details such as weight or skill at hand-eye coordination or balance. But the games that are currently on sale weren't designed for people with movement problems, such as people living with Parkinson's, so we don't know whether they are safe to use. We also don't know whether this type of gaming might help improve people's balance or ability to get around.

### What the researchers are doing

The aim of this research is to develop a specially designed system for Nintendo Wii that can be used by people with Parkinson's. One group of participants will be asked to use the existing Wii system and then to take part in a focus group so the research team can find out whether the group found it suitable or easy to use. A second group will try out a specially designed system that includes security rails and tailored movement-based and brain training games. Movement speed, accuracy and games scores will be recorded, along with standard questionnaires to assess how severely people are affected by their Parkinson's symptoms. The researchers will gather this information both before and after a four-week programme of games.

### How the research will help people with Parkinson's

Dr Craig and the team hope to take the positive aspects of the Wii – that it uses natural movement for fun activities that can be done cheaply and at home – to develop a system for people with Parkinson's. It's a small study that should provide the information we need to see whether a larger scale study would be worthwhile. If the project is successful, it could lead to a simple tool to assess Parkinson's symptoms and provide safe, effective mobility training at home.

### For more information, please talk to the Research Team

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