

## Can non-invasive brain stimulation help walking and turning in people with Parkinson's?



### Project information

Lead researcher	Dr Geert Verheyden
Location	University of Southampton
Cost	£33,608 over 9 months
Start date	October 2010
Type of project	Innovation
Project code	K-0909

### Project background

Most people with Parkinson's have some trouble with moving, turning and walking. For many, the best treatment is the drug levodopa. It helps kick-start the brain into making more dopamine - the chemical that's missing from people with Parkinson's in the part of the brain that controls actions. But so far, no one has found a treatment that gets rid of problems with movement altogether. Levodopa tends to work well at first but after a while the benefits may wear off and moving will become harder again. Increasing the dose isn't always a good option because the drug can have unwanted side effects such as uncontrollable movement. However...

- **Transcranial direct current stimulation, or tDCS, is a new technique for stimulating nerve cells.** Brain cells use electrical signals to communicate with each other, so it's possible to change how they work by passing a small electric current through them.

- **tDCS is painless and non-invasive.** It's done using two electrodes placed on the scalp, so it doesn't need surgery or involve taking medication.

Very little research has been done on the effect of tDCS on Parkinson's. Some results from the US suggest that electrical stimulation can help people with Parkinson's to move better. What we don't yet know is whether it could help people with their walking or turning or who might get the most benefit.

### What the researchers are doing

The Southampton team will measure how well people stand up, turn and walk both before and after real or 'sham' brain stimulation (when they have the electrodes attached, but the electricity isn't turned on). Participants will either be in the later or earlier stages of Parkinson's, and either 'on' or 'off' their medication. This will let the research team compare how well people do at their best and worst times.

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

Reducing movement problems is important for the safety and independence of people with Parkinson's. And even though symptoms tend to get worse with time, it might be possible to limit them with this new form of treatment.

By the end of the project the team hope to know more about whether tDCS has an effect on a person's mobility, whether the effects are different depending on the stage of their Parkinson's and if being on or off medication affects how well it works. This is only a small study but it could give us enough information to know whether it's a treatment worth pursuing.

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

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