**BBC**

**Cardiff University new Parkinson's therapy hope**

A new technique could improve the quality of life for patients with Parkinson's Disease, according to research led by Cardiff University.

Patients with the early stages of the disease were trained to control areas of the brain associated with movement by using the power of thought alone.

A clinical evaluation later found their movement had improved by up to a third.

The charity Parkinson's UK described the research as "exciting" but stressed "these are very early days".

The study, published in The Journal of Neuroscience, involved ten patients with the disease that affects the brain and results in slow movements and a tremor.

Five patients received the brain regulation feedback technique and five acted as a control.

**Activity mapping**

Patients undergoing the training were placed in a Magnetic Resonance Imaging (MRI) scanner in Bangor, Gwynedd.

At first, they were asked to squeeze a hand as the team mapped the regions of the brain responsible for controlling movement.

Then, in real time, the subjects were shown the level of activity in these regions displayed on a gauge above them.

They were asked to imagine making complex movements in order to activate the brain centres, and saw a corresponding increase on the gauge.

With practice, they were able to increase and decrease the level of activity at will, through thought alone.

Prof David Linden from Cardiff University, who led the research, described the process as "real-time neural feedback".

**Motor function**

"Self-regulation of brain activity in humans based on real-time feedback is emerging as a powerful technique," said Prof Linden.

"In this study we assessed whether patients with Parkinson's disease are able to alter their brain activity to improve their motor function.

We wanted them to activate the brain regions associated with movement through the force of their mind," he explained.

The professor stressed that the technique did not offer a cure but he said that improved function could lead to a better quality of life.

"We found that the five patients who received neuro feedback were able to increase activity in brain networks important for movements and that this intervention resulted in an overall improvement in motor speed - in this case, finger tapping," said Prof Linden.

"The training resulted in clinically relevant improvement of motor functions - so assuming patients can learn to transfer the strategies used during neuro feedback into real-life settings, it might also become possible to sustain the clinical benefits," he added.

The research team said the study was a small scale proof of principle and they now hope to stage a larger, randomised, clinical trial.

**'Amazing' brain**

Claire Bale, senior research communications officer at Parkinson's UK, said: "This study showed that people with Parkinson's were able to alter their own brain activity to improve their movement symptoms using neurofeedback from brain scans. This highlights the amazing ability of the brain to change and adapt".

"While these results are exciting, these are very early days.

We need much larger, in-depth studies to help us understand the potential these techniques may have to tackle some of the symptoms of Parkinson's," said Ms Bale.

The research into Parkinson's disease was the result of a collaboration between Cardiff University and scientists and doctors from north Wales, London and the Netherlands.

Prof Linden has also carried out a pilot trial using the neuro feedback technique on patients suffering with depression.

The findings of that study are yet to be published.

**DAILY MAIL**

**Parkinson's disease symptoms 'can be improved by teaching patients to regulate their brains'**

* **Patients able to increase finger speed by monitoring MRI scans**
* **Learned to alter parts of brain affected by degenerative disease**
* **But technique will not stop progression of condition**

By [Daily Mail Reporter](http://www.dailymail.co.uk/home/search.html?s=&authornamef=Daily+Mail+Reporter)  
**UPDATED:** 08:06, 9 November 2011

Patients with early-stage Parkinson's disease may be able to improve their symptoms by learning to regulate their brains, a study suggests.

A group of five patients were able to increase their motor speed by monitoring magnetic resonance imaging (MRI) scans of their own brain activity as they carried out a finger-tapping task.

After a time, they had learned to alter activity in specific parts of the brain affected by Parkinson's.

Similar biofeedback techniques have previously been used to treat attention deficit hyperactivity disorder (ADHD) and combat chronic pain.

 Study leader Professor David Linden, from the University of Cardiff, said: 'This is the first time that this neurofeedback technique has been used with patients with Parkinson's disease.

'Self-regulation of brain activity in humans based on real-time feedback is emerging as a powerful technique.

In this study, we assessed whether patients with Parkinson's disease are able to alter their brain activity to improve their motor function.

'We found that the five patients who received neurofeedback were able to increase activity in brain networks important for movements and that this intervention resulted in an overall improvement in motor speed - in this case, finger tapping.'

The findings were reported today in The Journal of Neuroscience.

In total, 10 patients took part in the study, all with early-stage Parkinson's.

Half were assigned to brain feedback and half were not.

When their performance was compared, the feedback group did best.

The scientists now hope to test the technique further in larger clinical trials.

Prof Linden added: 'While this was a very small study, the key aim was to establish whether this technique may be feasible for sufferers.

'The training resulted in clinically relevant improvement of motor functions - so assuming patients can learn to transfer the strategies used during neurofeedback into real-life settings, it might also become possible to sustain the clinical benefits.

'We have to be clear: this research won't stop the progression of the disease nor should it offer sufferers false hope.

But it does have the potential to alter the course of motor symptoms and possibly reduce drug requirements in early disease.

'This may have the effect of delaying more severe motor complications and improve the quality of life of patients affected by Parkinson's disease.'

Read more: <http://www.dailymail.co.uk/health/article-2059151/Parkinsons-disease-symptoms-improved-teaching-patients-regulate-brains.html#ixzz2E69c8WDo>   
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