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## Brain 'cannabis' Parkinson's hope

**Boosting levels of the brain's natural cannabis-like chemicals could improve the treatment of Parkinson's disease, a US study suggests.**

Mice with a similar condition could move normally within 15 minutes of having a cocktail including a compound which increases endocannabinoid levels.

But the scientists, writing in *Nature*, warned smoking cannabis would not have the same effect.

UK experts said the study increased understanding of Parkinson's.

Around one in 500 people in the UK have the disease.

It is a progressive, degenerative, neurological condition for which there is currently no cure.

Sufferers find increasing difficulty in moving their arms and legs. They develop tremors and facial tics, and gradually become more and more immobile.

### Treatment combination

The researchers, from Stanford University Medical Center in California, focused on an area of the brain called the striatum which has already been linked to Parkinson's.

The activity of nerve cells in the striatum relies on the chemical dopamine.

If there is too little dopamine in that area, Parkinson's disease can develop.

They used mice genetically modified to have a condition like Parkinson's and marked certain cells with a fluorescent protein that glowed vivid green under a microscope.

Their study indicated that two types of cells formed a "push-pull system" in the brain - one is thought to be involved in activating motion, while the other is likely to stop unwanted movement.

If there is too little dopamine, it is thought that the cells which restrict motion become dominant, making it harder for a person to move.

An existing drug which boosts dopamine levels led to a small

**“ It is a long, long way to go before this will be tested in humans ”**

Dr Robert Malenka, Stanford University

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improvement in the animals' condition.

But it was only when they added an experimental drug designed to slow the breakdown of endocannabinoids, being developed by Californian firm Kadmus Pharmaceuticals, that the mice showed a dramatic improvement.

The mice went from being unable to move, to moving freely in 15 minutes.

### 'Greater insight'

Dr Robert Malenka, who led the study, said: "They were basically normal.

"This points to a potentially new kind of therapy for Parkinson's disease."

But he added: "It is a long, long way to go before this will be tested in humans, but nonetheless, we have identified a new way of potentially manipulating the circuits that are malfunctioning in this disease."

And he stressed that the study found the use of specific chemicals made the difference.

"That is a really important difference, and it is why we think our manipulation of the chemicals is really different from smoking marijuana."

Kieran Breen, director of research and development at the UK's Parkinson's Disease Society, said: "The study provides us with a greater insight into how the nerve cells in the area of the brain affected in Parkinson's are connected and how they communicate with one another.

"A greater understanding of this will provide information about the changes that occur when nerve cells die and may ultimately lead to the identification of new targets in the cell at which drugs can act to treat the symptoms of the condition."

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