Research News

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Parkinson's risk 'cut by dieting'

Eating a low calorie diet may help to reduce the risk of Parkinson's disease, research suggests.

A team from the US National Institute on Ageing found that a long-term reduction in calorie intake protects rhesus monkeys from developing the disease.

They believe restricting calorie intake switches on mechanisms which protect the brain cells lost in people diagnosed with Parkinson's.

Details are published in Proceedings of the National Academy of Sciences.

A number of studies have suggested the normal ageing process causes a loss of brain cells that produce a key chemical called dopamine in an area of the brain called the substantia nigra.

It is thought that Parkinson's disease speeds up the loss of these cells, leading to the problems with movement associated with the condition.

Limiting the number of calories in the diet has been shown to have a powerful effect in slowing down the ageing process.

The US team decided to examine whether it could also prevent the development of Parkinson's symptoms in monkeys.

For six months monkeys received a diet with 30% fewer calories than the control diet.

At that point, the monkeys were injected with a toxin that causes a Parkinson-like disease.

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>
> **Dr Roger Barker**

Protective chemical

The calorie-restricted monkeys showed better control over their movement, and higher levels of dopamine in their brains.

They also had higher levels of a growth factor, GDNF, which the researchers believe may protect brain cells from destruction.

The researchers say their work suggests that long-term calorie restriction may reduce the risk of developing Parkinson's by turning on production of this protective growth factor.

Researcher Professor Mark Mattson said: "The present findings demonstrate that calorie restriction can protect brain cells against a toxin that can cause Parkinson's disease."

"Calorie restriction may stimulate the production of neurotrophic factors by imposing a mild stress response in brain cells."

"The cells respond to this mild stress by producing proteins, such as neurotrophic factors, that help them cope with more severe stress and resist disease."

"This is analogous to physical exercise which is a stress on muscle cells. The muscle cells become stronger for having been forced to deal with the stress of exercise."

Early stage

The Parkinson's Disease Society said the research was encouraging, but still at a very early stage.

"The findings are based on an animal study and it is not yet known if these results would be replicated with human subjects on a longer term basis."

"There is some existing evidence that individuals with low calorie, low fat diets may be at reduced risk of Parkinson's disease and this study offers support to this view."

"However, it is clear that further research with human subjects would be required to increase our understanding of the mechanisms involved."

Dr Roger Barker, of the Cambridge Centre for Brain Repair, stressed that translating the findings into clinical practice could prove difficult.

He said: "The model is a useful one, but is different from the clinical disorder and so any extrapolation is not straightforward."

"Also patients with Parkinson's disease often lose weight, in part because of their movement disorder and thus restricting their calorific content may be detrimental in that respect."

"However, it does once more illustrate that manipulations of environmental issues, such as diet and exercise, may help in neurodegenerative disorders."

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