

Scientists observe tremors associated with Parkinson's disease in fruit flies

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Researchers were able to observe for the first time the detail of movement deficits in fruit flies. Credit: Diana Ivanoiu, Amy Cording and Chris Elliott

Scientists say they have a better understanding of the tremors commonly associated with Parkinson's disease after observing the movements in fruit flies.

A mutation in the LRRK2 gene is the single most common inherited cause of Parkinson's disease. However, the precise mechanism that leads to Parkinson's is still unclear.

The researchers were able to observe for the first time the detail of movement deficits in [fruit flies](#) carrying the faulty LRRK2 gene.

Test compounds

Dr Chris Elliott, from the University of York's Department of Biology said it was a "small but significant step" in the search for an effective treatment for Parkinson's.

He said: "Our research has shown that the movement disorder can be narrowed down and determined accurately and that opens up the possibility of testing [novel drugs](#)."

The research, which is published in the journal *Nature Parkinson's Disease*, was funded by Parkinson's UK and the Wellcome Trust.

"What is particularly new about this is the idea that the flies can show tremor, nobody has modelled it in that level of detail before, " said Dr Elliott.

The team were able to observe how the fruit fly used its proboscis to reach out and drink a sugary substance – mimicking the movement humans make when reaching out a hand for a drink, and one of the standard tests for Parkinson's .

Dr Elliott added: "What we observed was the proboscis reaches out slowly and it shakes. We have been able to show that this movement is controlled just by this one gene, expressed in just one nerve cell.

"It is this idea of a very precise measurement of movement that opens up the way to start looking at drugs that could reverse the symptoms."

Dr Elliott said the next stage is to test compounds that work in the test-tube in the living organism, an essential part of the drug development programme.

Greater understanding

Commenting on the paper, David Dexter, Deputy Research Director at Parkinson's UK, said: "Modelling the symptoms of Parkinson's can help researchers better understand the condition, but can be difficult to do in animal models such as flies.

"New and improved technologies and methods not only allow a greater understanding of the causes of Parkinson's, but they also importantly serve as a tool for the more rapid development of new drugs that can protect nerve cells against damage or directly improve [movement](#).

"We hope this new technique will allow researchers to delve deeper into the biology of Parkinson's, opening new doors and expediting the delivery of new and better treatments."

Parkinson's is a progressive neurological condition and there are an estimated 127,000 people in the UK with the condition.

More information: Amy C. Cording et al. Targeted kinase inhibition relieves slowness and tremor in a *Drosophila* model of LRRK2 Parkinson's disease, *npj Parkinson's Disease* (2017). [DOI: 10.1038/s41531-017-0036-y](https://doi.org/10.1038/s41531-017-0036-y)

Provided by University of York

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