

Discovery offers new treatment for epilepsy

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New drugs derived from components of a specific diet used by children with severe, drug-resistant epilepsy could offer a new treatment, according to research published today in the journal *Neuropharmacology*.

Scientists from Royal Holloway, in collaboration with University College London, have identified specific fatty acids that have potent antiepileptic effects, which could help control seizures in children and adults.

The discovery could lead to the replacement of the ketogenic [diet](#), which is often prescribed for children with severe drug-resistant epilepsy. The high fat, [low carbohydrate diet](#) is thought to mimic aspects of starvation by forcing the body to burn fats rather than carbohydrates. Although often effective, the diet has attracted criticism, as side effects can be significant and potentially lead to constipation, hypoglycaemia, retarded growth and [bone fractures](#).

By pinpointing fatty acids in the ketogenic diet that are effective in controlling epilepsy, researchers hope that they can develop a pill for children and adults that could provide similar epilepsy control, but lacks the side effects of the diet.

Professor Robin Williams from the Centre of [Biomedical Sciences](#) at Royal Holloway said: "This is an important breakthrough. The family of medium chain fatty acids that we have identified provide an exciting new field of research with the potential of identifying, stronger, and safer epilepsy treatments."

The study tested a range of fatty acids found in the [ketogenic diet](#) against an established epilepsy treatment. Researchers found that not only did some of the fatty acids outperform the drug in controlling seizures, they also had fewer side effects.

Professor Matthew Walker from the Institute of Neurology, University College London said:

"Epilepsy affects over 50 million people worldwide and approximately a third of these people have epilepsy that is not adequately controlled by our present treatments. This discovery offers a whole new approach to the treatment of drug-resistant epilepsies in children and adults."

The research also builds on work funded by the NC3Rs in which most of the animal testing normally used in drug development for epilepsy has been replaced by using a simple amoeba to initially screen and identify improved treatments.

Professor Williams added: "Animals are often used in the search for new [epilepsy](#) treatments. Our work provides a new approach, helping us to reduce reliance on animals and provide potential major improvements in human health."

The specific [fatty acids](#) identified in this work are the subject of a patent application, and Royal Holloway is seeking commercial collaborators to pursue the potential for new drug development.

Provided by Royal Holloway, University of London

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