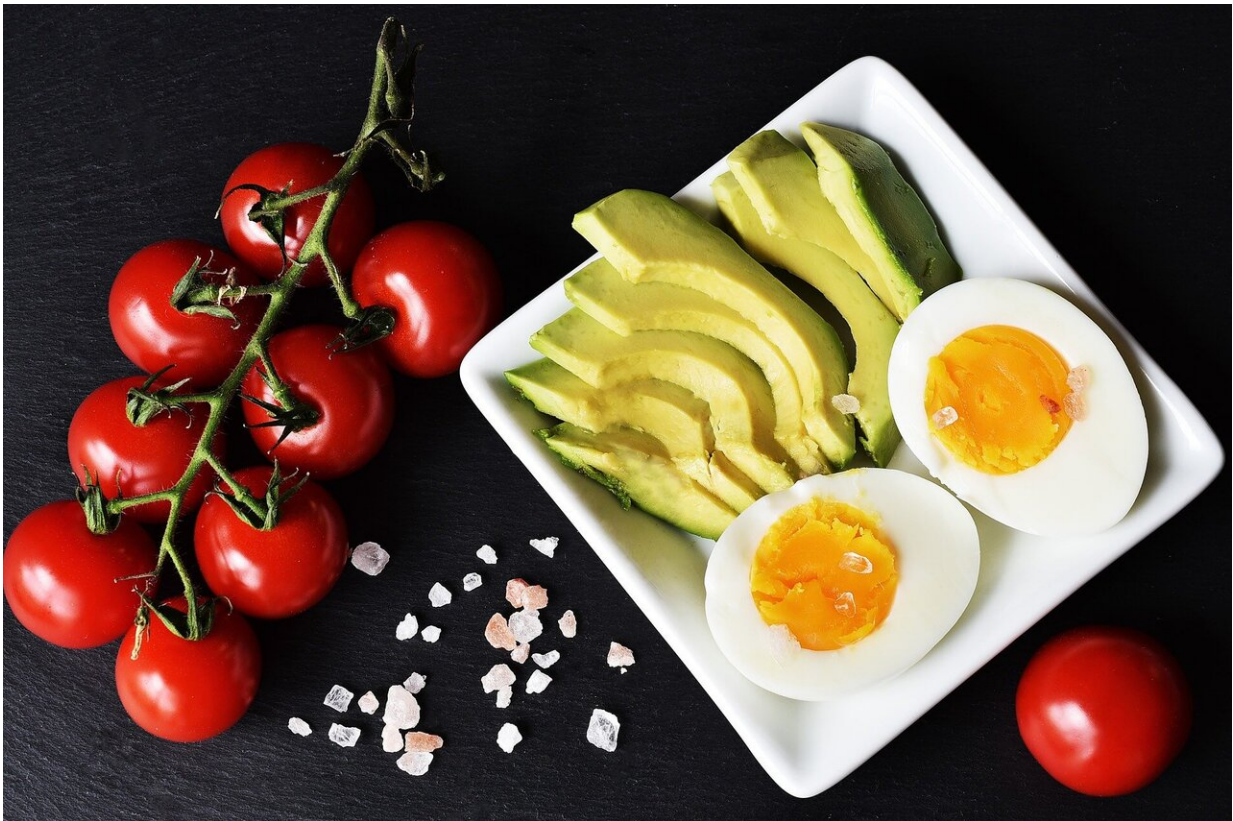


Research finds new dietary approach could manage a range of diseases

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New research has identified that a particular fatty acid called decanoic acid may be responsible for the therapeutic effects of the ketogenic diet and be a key component in protecting cells against cancer, epilepsy and

neurodegenerative disorders.

The research, led by Professor Robin SB Williams and Ph.D. student, Eleanor C Warren, from the Center for Biomedical Sciences at Royal Holloway, found that decanoic acid may reverse cellular changes found in cancer, epilepsy, and neurodegenerative disorders which could provide improvements for sufferers.

Ketogenic diets, associated with high fat and low carbohydrate intake, are broadly considered to function through the production of chemicals called ketones (hence ketogenic), and lead to reduced glucose and insulin signaling that may protect against cellular changes in several diseases.

The research was carried out using an innovative approach, where the mechanism of action of decanoic acid was discovered for the first time using a single-celled organism, known as Dictyostelium, which shared a common ancestor with humans around a billion years ago.

The team were then able to confirm that decanoic acid functions in the same way in the mammalian brain, and in human-derived brain cells and in patients with a [neurodevelopmental disorder](#) called tuberous sclerosis complex—a genetic condition which leads to cancer and epilepsy.

Professor Robin SB Williams, from Royal Holloway, said: "These findings suggest an exciting new role for decanoic acid from the [ketogenic diet](#) in the treatment of patients with wide-ranging diseases. Our research also suggests that the [diet](#) may function through direct activity of decanoic [acid](#), rather than the generation of ketones or reduced insulin/glucose signaling, providing the potential for using less restrictive dietary approaches for disease treatment."

Eleanor Warren, added: "Improving our understanding of how the ketogenic diet functions in disease treatment is critically important to

support its medicinal use. We anticipate that our discoveries will expand the development of new dietary approaches to treat a range of diseases."

Provided by Royal Holloway, University of London

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