

New link found between diabetes and Alzheimer's disease

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Diagram of the brain of a person with Alzheimer's Disease. Credit: Wikipedia/public domain.

Drugs used to treat diabetes could also be used to treat Alzheimer's disease, and vice versa, according to new research from the University of Aberdeen.

This is also the first study of its kind to show that Alzheimer's [disease](#) can lead to diabetes, as opposed to diabetes occurring first as was previously thought.

The study reports that Alzheimer's Disease and type 2 diabetes are so closely related that drugs currently used to control [glucose levels](#) in

diabetes may also alleviate the symptoms and progression of Alzheimer's disease.

The paper, published in the journal *Diabetologia* (the journal of the European Association for the Study of Diabetes), found for the first time that dementia-related complications within the brain can also lead to changes in glucose handling and ultimately diabetes. This is contrary to what was previously thought - that diabetes begins with a malfunction in the pancreas or a high fat, high sugar diet.

The research was led by Professor Bettina Platt who formed a unique collaboration between her Alzheimer's research team and the diabetes research team led by Professor Mirela Delibegovic. The teams were keen to investigate why the two diseases are so commonly found together in [elderly patients](#).

The researchers developed a model of Alzheimer's disease and were surprised to find that increased levels of a gene involved in the production of toxic proteins in the brain not only led to Alzheimer's -like symptoms, but also to the development of [diabetic complications](#).

Professor Platt said of her research: "Many people are unaware of the relationship between diabetes and Alzheimer's disease, but the fact is that around 80% of people with Alzheimer's disease also have some form of diabetes or disturbed glucose metabolism. This is hugely relevant as Alzheimer's is in the vast majority of cases not inherited, and lifestyle factors and comorbidities must therefore be to blame.

"Our research teams are particularly interested in the impact of lifestyle related factors in dementia and by collaborating with experts in diabetes and metabolism, we have been able to investigate the nature of the link in great detail.

"Until now, we always assumed that obese people get type 2 diabetes and then are more likely to get dementia - we now show that actually it also works the other way around.

"Additionally, it was previously believed that diabetes starts in the periphery, i.e. the pancreas and liver, often due to consumption of an unhealthy diet, but here we show that dysregulation in the brain can equally lead to development of very severe diabetes - so again showing that diabetes doesn't necessarily have to start with your body getting fat - it can start with changes in the brain.

"This study provides a new therapeutic angle into Alzheimer's disease and we now think that some of the compounds that are used for obesity and diabetic deregulation might potentially be beneficial for Alzheimer's patients as well. The good news is that there are a number of new drugs available right now which we are testing to see if they would reverse both Alzheimer's and [diabetes](#) symptoms. We will also be able to study whether new treatments developed for Alzheimer's can improve both, the diabetic and cognitive symptoms."

More information: Kaja Plucińska et al. Neuronal human BACE1 knockin induces systemic diabetes in mice, *Diabetologia* (2016). [DOI: 10.1007/s00125-016-3960-1](#)

Provided by Diabetologia

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