# High-fat, high-sugar diets linked to poor memory and brain function in young adults



A recent study conducted by researchers at the University of Sydney has highlighted the impact of diets high in fat and sugar on memory and brain function, shedding light on the relationship between food and cognitive decline. This comes at a time when over 944,000 people in the UK are living with dementia, a condition marked by progressive brain degeneration.

The research involved 55 university students aged between 18 and 38, who were asked to complete a questionnaire detailing their dietary habits. Participants then took part in a virtual reality treasure hunt game requiring precise navigation of a maze to locate the same treasure chest six times. The design of the game ensured the start and end points remained constant, meaning success relied heavily on the use of landmarks and spatial memory.

Researchers measured the participants’ body mass index (BMI) and analysed the data, discovering a notable trend: individuals with lower intakes of fat and sugar were better able to locate the treasure with greater accuracy than those who regularly consumed high-fat, high-sugar foods. These findings led the scientists to suggest that such diets might adversely affect the hippocampus, a critical region of the brain responsible for memory formation and spatial navigation. The hippocampus is often the first area to show damage in Alzheimer's disease.

Dr Dominic Tran, the study's lead author, explained the significance of the findings to Get Surrey, stating, "We’ve long known eating too much refined sugar and saturated fat brings the risk of obesity, metabolic and cardiovascular disease, and certain cancers. We also know these unhealthy eating habits hasten the onset of age-related cognitive decline in middle age and older adults. This research gives us evidence that diet is important for brain health in early adulthood, a period when cognitive function is usually intact."

These insights align with broader research efforts examining diet and cognitive health. Notably, a 2024 study from the University of Oxford analysed brain scans of 40,000 individuals across the UK to identify factors contributing to dementia. Among 161 risk factors, type two diabetes was found to be one of the most damaging, a condition often linked to poor diet. Professor Gwenaëlle Douaud, who led the Oxford study, commented on the interconnectedness of various risks, including diabetes, traffic-related air pollution, and alcohol consumption. She noted, "We have found that several variations in the genome influence this brain network, and they are implicated in cardiovascular deaths, schizophrenia, Alzheimer’s and Parkinson’s diseases, as well as with the two antigens of a little-known blood group, the elusive XG antigen system, which was an entirely new and unexpected finding."

Despite the concerns about diet and cognitive health, Dr Tran emphasised a hopeful message regarding the reversibility of these effects: "The good news is we think this is an easily reversible situation. Dietary changes can improve the health of the hippocampus, and therefore our ability to navigate our environment, such as when we’re exploring a new city or learning a new route home."

The research underscores the importance of diet in maintaining brain health starting in early adulthood, long before signs of cognitive decline typically become apparent.

Dementia itself encompasses a range of brain conditions characterised by progressive decline. Common early symptoms include difficulty concentrating, memory loss, confusion over routine tasks such as handling money, struggling to follow conversations, disorientation in time and place, and mood changes. The NHS advises individuals experiencing such symptoms to seek medical advice to explore potential diagnoses and support.

Source: [Noah Wire Services](https://www.noahwire.com)

## Bibliography

1. <https://www.sydney.edu.au/news-opinion/news/2025/04/21/high-fat-high-sugar-diets-impact-cognitive-function.html> - This article corroborates the core finding of the University of Sydney study showing that high-fat, high-sugar diets impair cognitive function, particularly spatial navigation linked to hippocampal health, based on research involving 55 university students aged 18 to 38 and led by Dr Dominic Tran.
2. <https://www.sciencedaily.com/releases/2025/04/250421163341.htm> - This source supports details about the study design, including the use of questionnaires on diet, BMI measurements, and spatial navigation testing using a virtual reality maze, confirming that diets high in refined sugar and saturated fat negatively affect hippocampal-related cognitive functions.
3. <https://english.news.cn/asiapacific/20250422/2b761c3f63e74d4ca0393ed8b76ee53d/c.html> - This news piece confirms the association of high-fat and high-sugar diets with impaired spatial memory and hippocampal dysfunction in young adults, and includes direct statements from Dr Dominic Tran about the reversibility of these effects through dietary changes.
4. <https://pubmed.ncbi.nlm.nih.gov/40247089/> - This publication provides additional scientific backing that diets high in fat and sugar impair brain functions, especially in the hippocampus, linking diet to memory and spatial navigation decline consistent with the study's claims.
5. <https://www1.racgp.org.au/newsgp/clinical/excess-fat-and-sugar-can-harm-brain-function-study> - This article aligns with the study's context by highlighting prior experimental findings on rodents showing that high-fat and high-sugar diets can damage brain function, supporting the biological plausibility of the human study's results.
6. <https://www.alzheimers.org.uk/about-dementia/types-dementia> - This page from the Alzheimer's Society UK supports the article's statements on dementia prevalence in the UK and describes dementia as a progressive brain condition with symptoms such as memory loss, confusion, and disorientation, underscoring the importance of early diet-related prevention.
7. <https://www.getsurrey.co.uk/news/health/memory-brain-function-worsened-diets-31494965> - Please view link - unable to able to access data