

Seniors with type 2 diabetes may experience memory declines immediately after eating unhealthy meal

June 26 2008

Adults with type 2 diabetes who eat unhealthy, high-fat meals may experience memory declines immediately afterward, but this can be offset by taking antioxidant vitamins with the meal, according to new research from Baycrest.

There is already growing evidence linking diabetes to cognitive complications in humans. Adults with type 2 diabetes are especially vulnerable to acute meal-induced memory deficits after eating unhealthy foods.

This latest study, led by Baycrest and published in the July issue of *Nutrition Research*, suggests that taking high doses of antioxidant vitamins C and E with the meal may help minimize those memory slumps.

"Our bottom line is that consuming unhealthy meals for those with diabetes can temporarily further worsen already underlying memory problems associated with the disease," said lead author Michael Herman Chui, who conducted the research as a University of Toronto pathobiology undergraduate in the Kunin-Lunenfeld Applied Research Unit (KLARU) at Baycrest. "We've shown that antioxidant vitamins can minimize oxidative stress from the meal and reduce those immediate memory deficits."

Type 2 diabetes is associated with chronic oxidative stress, a major contributor to cognitive decline and Alzheimer disease. Consuming unhealthy foods can induce this type of stress which is triggered by acute elevations of free radicals – unstable molecules that can damage tissue, including brain tissue. These destructive molecule reactions typically occur over a one-to-three hour period after food ingestion.

Dr. Carol Greenwood, senior author of the study and a nationally recognized expert in how diet impacts brain function, cautioned that relying on antioxidant vitamins at meal time is not a quick fix. "While our study looked at the pill form of antioxidants, we would ultimately want individuals to consume healthier foods high in antioxidants, like fruits and vegetables," said Dr. Greenwood, a KLARU senior scientist at Baycrest.

Maintaining a healthy lifestyle that includes regular exercise, a low fat diet rich in antioxidants, and staying mentally active and socially engaged in a variety of activities, is the best medicine for optimizing cognitive health during the lifespan, she said.

The study

Fifteen minutes after starting meal ingestion, participants completed a series of neuropsychological tests lasting 90 minutes that measured their recall abilities for words they had heard and paragraph information they had read. These cognitive skills are associated with the brain's memory centre – the hippocampus.

Researchers found that vitamin supplementation consistently improved recall scores relative to the meal alone. Participants who ate the high fat meal without vitamin supplements showed significantly more forgetfulness of words and paragraph information in immediate and time delay recall tests, relative to those who had the water meal or the meal

with antioxidant vitamins. Those on water meal and meal with vitamins showed similar levels in cognitive performance.

Dr. Greenwood and medical student M.H. Chui emphasize that their findings require further replication in larger studies with more participants. Future studies will need to look at whether antioxidant vitamins are directly targeting oxidative stress reactions or triggering an independent memory-enhancing ability which is simply masking the detrimental effects.

Source: Baycrest Centre for Geriatric Care

Citation: Seniors with type 2 diabetes may experience memory declines immediately after eating unhealthy meal (2008, June 26) retrieved 6 May 2024 from <https://medicalxpress.com/news/2008-06-seniors-diabetes-memory-declines-immediately.html>

<p>This document is subject to copyright. Apart from any fair dealing for the purpose of private study or research, no part may be reproduced without the written permission. The content is provided for information purposes only.</p>
--