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Artificial sweeteners consumed in midlife linked to cognitive decline

By Don Jacobson

A study released Wednesday shows people who consumed the highest amounts of seven common artificial sweeteners during their midlife years experienced significantly faster cognitive declines as they aged. File Photo by Myriams-Fotos/Pixabay

Sept. 2 (UPI) -- People who consume the highest levels of artificial sweeteners during middle age show the fastest declines in cognitive functions, such as memory, as they move into their senior years, according to a study released Wednesday.

The study of nearly 13,000 middle-aged Brazilian adults who were followed for an average of eight years revealed that those who consumed the most aspartame, saccharin and five other kinds of sweeteners experienced cognitive declines at a 62%

faster clip than those who consumed the lowest amounts, the researchers said.

That difference equates to about 1.6 years of aging, according to the study published in the journal Neurology.

The link between sweeteners and the rapidity of decline was even stronger in people with diabetes, particularly for memory loss.

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However, there appeared to be no effect in participants aged 60 and older. This suggests exposure to artificial sweeteners during midlife -- when many people turn to them to lose weight -- may carry lifelong consequences for brain health, according to the researchers from the University of Sao Paulo and elsewhere in Brazil.

The seven artificial sweeteners studied were aspartame, saccharin, acesulfame k, erythritol, sorbitol, xylitol and tagatose. Daily consumption of any or all them in midlife was associated with accelerated decline in memory, verbal fluency and global cognition in later years, the researchers reported.

The study, supported by the Brazilian Ministry of Health, had some limitations, including that the diet information used was reported by the participants themselves, and they may not have remembered accurately everything they ate.

It builds on earlier work by the Brazilian researchers connecting ultra-processed foods with faster cognitive decline. Many such foods marketed as sugar-free contain artificial sweeteners, noted co-author Claudia Kimie Suemoto, an associate professor of geriatrics at the University of Sao Paulo.

"By following more than 12,000 adults for eight years, our study adds robust evidence that these compounds may not be harmless, particularly when consumed frequently and starting in midlife," she told UPI in emailed comments.

"In the broader scientific context, our findings highlight the need to look more critically at what we are using to replace sugar in our diets, and they underscore that dietary choices in midlife can have consequences for brain health decades later."

Suemoto said her study is the largest and longest prospective study to date investigating the association between artificial sweetener consumption and cognitive decline, adding that the few studies published on the topic previously had smaller samples and followed participants for shorter periods of time.

"Moreover, while previous research had linked sweeteners to conditions such as diabetes, cardiovascular disease and depression, their long-term impact on cognition had not been systematically explored," she added.

One of the most surprising findings, she said, was that the association between low- and no-calorie sweetener consumption and cognitive decline was only significant among participants younger than 60.

"I had expected the association to be more evident in older adults, since they are at higher risk of dementia and cognitive impairment," Suemoto said. "Instead, our results suggest that midlife exposure to sweeteners may be particularly harmful, which is important because midlife is a critical period for setting the trajectory of brain health.

"Cognitive decline and dementia are thought to begin developing decades before symptoms become noticeable, so exposures during midlife may accelerate these processes and have long-term consequences."

The key takeaway is a new understanding of the importance of getting a handle on dietary habits earlier in adulthood, "when preventive strategies could have the greatest impact," she said.

The Brazilian findings intertwine with what already was suspected about the negative effects of low-calorie sweeteners on brain health, said Pradeep Bhide, the Jim and Betty Ann Rodgers Eminent Scholar Chair of Developmental Neuroscience at Florida State University and director of FSU's Institute for Pediatric Rare Diseases.

He told UPI the results "echo" his findings from a 2022 study on aspartame, in which he found that daily consumption in mice can lead to behavioral and cognitive impairments, such as anxiety-like behavior, learning deficits and memory impairment, likely due to the sweetener's effects on the brain's neurotransmitter systems.

"Importantly, our own experimental studies also demonstrated that these effects were not limited to the exposed individuals, but were transmitted from aspartame-exposed fathers to their offspring across two generations," he said.

Despite the Brazilian study's limitations, its combination of large-scale human data and controlled laboratory findings "strengthens the concern that chronic exposure to artificial sweeteners may have significant neurobehavioral consequences," Bhide said.

"These results underscore the need for caution in the widespread use of such sweeteners and highlight the importance of further mechanistic studies."

Theresa Gentile, a registered dietitian nutritionist and spokeswoman for the Academy of Nutrition and Dietetics, said the study highlights a possible "worsening" of risk for those with diabetes and cerebrovascular disease.

"Many people choose sugar-free or 'diet' products thinking they're the healthier option, but this research suggests that they might not be the best choice for brain health," she told UPI. "Overall, the study highlights that being careful with sweetener choices could help protect both blood vessel health and memory."

The study reinforces earlier evidence linking sweeteners to health risks like and "adds weight by showing that many of the same sweeteners may also harm brain health over the long term," she said.

It also "supports the gut-brain connection, since changes in gut bacteria and inflammation are possible ways these sweeteners could affect memory and thinking."

Meanwhile, the study demonstrated that not every sweetener is the same regarding cognition. Tagatose, sold as a lower-calorie alternative to sucrose, "stood out as not being linked to cognitive decline, which suggests some natural sweeteners may be better options for cognition than others," Gentile added.

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