

Contradictory Findings for Diet and Dementia Risk

Wendy Wolfson

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Contradicting results from several recently-published studies, new research suggests that a healthy diet during midlife does not prevent dementia.

In a long-term prospective study of more than 8000 British civil servants followed for almost 25 years, investigators found no significant association between following a healthier diet in midlife and a lower risk for incident dementia or cognitive decline.

Interestingly, the investigators' own previous research showed a strong association between long-term adherence to a healthy diet and better cardiovascular health, as well as a lower risk for depressive disorders and larger hippocampal volumes.

In keeping with these findings, the investigators hypothesized that a healthy diet would have a long-term protective effect on cognitive outcomes.

"The lack of statistical association between midlife diet quality and subsequent risk of dementia assessed over two decades was quite unexpected," lead author Tasnime Akbaraly, PhD, French Institute of Health and Medical Research (INSERM), Montpellier, France, told *Medscape Medical News*.

The findings were [published online](#) March 12 in *JAMA*.

Healthy Diet vs "Western" Diet

The data came from the Whitehall II study, which included 8225 participants (69% men; mean age at baseline, 50 years). Diets were assessed using the 2010 Alternate Healthy Eating Index (AHEI), an 11-component diet quality score (score range, 0 to 110). Higher scores indicated a long-term healthier diet.

Participants were divided into three groups (high, medium, and low) depending on whether their AHEI score reflected more of a healthy diet or a Western-type diet.

A healthy diet, according to the AHEI-2010 score, has a higher proportion of vegetables, fruits, whole grains, nuts and legumes, long-chain omega-3 fatty acids, and polyunsaturated fatty acids. Alcohol intake is only in moderation.

An unhealthy or Western diet is high in sugar-sweetened drinks and fruit juice, fried foods, processed and red meat, cakes, sweets, high-fat dairy, refined grains, trans fats, and sodium.

Diet components were self-reported in a food-frequency questionnaire (FFQ) covering 127 items. The FFQ was administered at three intervals: 1991-1993, 1997-1999, and 2002-2004 over almost 25 years until March 31, 2017.

Incident dementia was determined through linkage to electronic health records.

Diet Quality and Depression

Results showed 344 total cases of incident dementia during a median follow-up of 24.8 years (interquartile range, 24.2 – 25.1 years).

The researchers did not detect a significant difference in dementia incidence rate associated with a healthier diet in any of the three groups during the three time points:

- 1991-1993: adjusted hazard ratio [HR], 0.97; 95% confidence interval [CI], 0.87 to 1.08
- 1997-1999: adjusted HR, 0.97; 95% CI, 0.83 to 1.12
- 2002-2004: adjusted HR, 0.87; 95% CI, 0.75 to 1.00

The analyses were adjusted for age, race, sex, education, ethnicity, marital status, total energy intake, smoking status, exercise, alcohol consumption, [hypertension](#), dyslipidemia, [type 2 diabetes](#), body mass index, [coronary heart disease](#) or [stroke](#), use of medications for cardiovascular disease, depressive symptoms, and apolipoprotein E ε4 genotype.

The researchers did find an association between diet and mortality. In a subgroup of participants, there was a significant association between diet quality and [depression](#).

There was also a statistical association with decreased diet quality in the years before the onset of dementia.

"The slight decrease in diet quality in the years preceding dementia diagnosis we reported in the present study is compatible with the hypothesis that change in diet quality is a feature, among others, of preclinical dementia," Akbaraly said.

Diet Still Matters

In a study by Akbaraly published last year, a healthier midlife diet was associated with greater hippocampus volume, [as reported](#) by *Medscape Medical News*.

Other studies have shown an association between better brain health and eating more [fruits and vegetables](#) and/or eating a hybrid [MIND diet](#) in midlife.

In addition, a study by investigators led by Felice Jacka, PhD, director of the Food and Mood Centre at Deakin University, Geelong, Australia, suggested that an unhealthy diet could [shrink the brain](#).

However, Akbaraly noted that most previous studies on diet and dementia were inconsistent, typically had fewer than 10 years of follow-up, were based on populations 65 years or older, and may not have taken into account that diet and nutrient intake can change during the long preclinical period of dementia.

She pointed out that the current study's strengths include its long-term nature and size, and that the research team adjusted for confounders. Study limitations included that determining dementia via electronic health records likely missed milder cases — and self-reporting one's diet could lead to measurement errors.

The AHEI is based on limited food groups and the study, since it is observational, could be subject to residual confounding, the investigators write.

"Not evidencing an association between midlife diet and dementia does not mean that diet does not matter and several aspects remain to be further explored," Akbaraly said.

"Whether diet is important for the pathological changes occurring during the preclinical phase of dementia," such as with change in mood or depression, still needs to be explored, she added.

Also important will be determining "whether diet quality is associated with reduced clinical manifestation of dementia rather than dementia prevention, whether diet plays a role in dementia prevention in combination with other lifestyle factors, and...whether diet plays a role in dementia prevention in subgroups at increased risk of dementia," she said.

Significant Bias

Commenting on the findings for *Medscape Medical News*, Martha Morris, ScD, professor of epidemiology and director of the Section of Nutrition and Nutritional Epidemiology at Rush University, Chicago, Illinois, said that a limitation of the study is that medical records are a biased source of dementia reporting.

For example, using medical records to identify dementia cases can be affected by marital status, education status, socialization, and employment status, she noted.

"There is a bias due to imprecise measurement of the diet exposure," said Morris, who was not involved with the research.

"The diet is measured so far away from when they are assessing their outcomes, and there is so much error in measuring the diet and ranking people according to their diet, that you are not going to be able to detect association," she added.

Morris added that other study limitations are that diet decreases risk of MI and stroke.

"When you control for some of the ways in which the diet protects the brain, of course the association is going to be modified and potentially go away because those are important mediators by which it protects the brain," she said.

The study authors and Morris have disclosed no relevant financial relationships.

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