Healthy lifestyle linked to slower memory decline in older adults

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A healthy lifestyle, in particular a healthy diet, is associated with slower memory decline, finds a decade-long study of older adults in China,

published today in *The BMJ*.

Even for carriers of the apolipoprotein E (APOE) gene—the strongest known risk factor for Alzheimer's disease and related dementias—a healthy lifestyle was found to slow memory loss.

Memory continuously declines as people age, but evidence from existing studies is insufficient to assess the effect of a healthy lifestyle on memory in later life. And given the many possible causes of memory decline, a combination of healthy behaviors might be needed for an optimal effect.

To explore this further, researchers analyzed data from 29,000 adults aged at least 60 years (average age 72; 49% women) with normal cognitive function who were part of the China Cognition and Aging Study.

At the start of the study in 2009, memory function was measured using the Auditory Verbal Learning test (AVLT) and participants were tested for the APOE gene (20% were found to be carriers). Follow-up assessments were then conducted over the next 10 years in 2012, 2014, 2016, and 2019.

A healthy lifestyle score combining six factors was then calculated: healthy diet, regular exercise, active social contact (eg. seeing friends and family), cognitive activity (eg. writing, reading, playing mahjong), non-smoking, and never drinking alcohol.

Based on their score, ranging from 0 to 6, participants were put into favorable (4 to 6 healthy factors), average (2 to 3 healthy factors), or unfavorable (0 to 1 healthy factors) lifestyle groups and into APOE carrier and non-carrier groups.

After accounting for a range of other health, economic and social factors , the researchers found that each individual healthy behavior was associated with a slower than average decline in memory over 10 years.

A healthy diet had the strongest effect on slowing memory decline, followed by cognitive activity and then physical exercise.

Compared with the group that had unfavorable lifestyles, memory decline in the favorable lifestyle group was 0.28 points slower over 10 years based on a standardized score (z score) of the AVLT, and memory decline in the average lifestyle group was 0.16 points slower.

Participants with the APOE gene with favorable and average lifestyles also experienced a slower rate of memory decline than those with an unfavorable lifestyle (0.027 and 0.014 points per year slower, respectively).

What's more, those with favorable or average lifestyles were almost 90% and almost 30% less likely to develop dementia or mild cognitive impairment relative to those with an unfavorable lifestyle, and the APOE group had similar results.

This is an observational study so can't establish cause and the researchers acknowledge some limitations, such as the potential for measurement errors due to self-reporting of lifestyle factors, and the possibility of selection bias, as some participants did not return for follow-up evaluations.

But this was a large study with a long follow-up period, allowing for evaluation of individual lifestyle factors on memory function over time. And findings remained significant after further analyses, suggesting that they are robust.

As such, the researchers say their results provide strong evidence that adherence to a healthy lifestyle with a combination of positive behaviors is associated with a slower rate of memory decline, even for people who are genetically susceptible to memory decline.

They suggest further research could focus on the effects of a healthy lifestyle on memory decline across the lifespan, acknowledging that memory problems can also affect younger people, not included in this study. "These results might offer important information for public health initiatives to protect older adults against memory decline," they conclude.

"Prevention is important, given the absence of effective treatments for Alzheimer's disease and related dementias," say researchers in a linked editorial.

However, they point out that these results do not help to determine which among the six health behaviors included in the score (or specific combination) is the best target for dementia prevention, or when in the life course to focus prevention efforts. Further insight is also needed to determine whether the differences in memory decline observed in this study are clinically meaningful, they add.

They suggest a similar approach that led to a substantial reduction in cardiovascular disease should be taken with dementia prevention, "identifying not only the factors that matter most but also the threshold at which they matter, and the age when intervention is likely to be most effective."

More information: Association between healthy lifestyle and memory decline in older adults: 10 year, population based, prospective cohort study, *The BMJ* (2023). DOI: 10.1136/bmj-2022-072691

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