

Preventing Cognitive Decline

Q: Are there any strategies for preventing or slowing cognitive decline?

A: Most studies are cautious about answering this question. One recent report by the Lancet Commission on Dementia Prevention and Care concluded that one-third of dementia cases could *potentially* be prevented through better management of lifestyle factors, such as smoking, hypertension, depression, and hearing loss over the course of a lifetime.

Research is complicated by the fact that older adults can be affected by different forms of cognitive decline. Researchers classify three basic kinds of cognitive decline: normal age-related cognitive decline; mild cognitive impairment; and clinical Alzheimer's type dementia. The number of Americans over age 70 with dementia and mild cognitive impairment is rising. Dementia-related costs exceed those of heart disease and cancer. Some decline in cognition with aging is considered normal or inevitable, particularly for people past the age of 60 years. Investigators report that there is some evidence that three types of interventions have shown "encouraging, although inconclusive, evidence" of slowing or delaying the onset of mild cognitive impairments, age-related cognitive decline, and Alzheimer's. The three interventions are: cognitive training, blood pressure management, and increased physical activity.

In 2015, the National Academies of Sciences, Engineering, and Medicine (NASEM) began a project examining the evidence on interventions for preventing, slowing, or delaying the onset of these cognitive impairments. In their report, *Preventing Cognitive Decline and Dementia: A Way Forward*, researchers highlighted three interventions—all of which showed mixed results:

1. Cognitive training is defined as a "broad set of interventions, including those aimed at enhancing reasoning (like problem solving), memory, and speed of processing (like identifying visual information on a screen)." Such structured training exercises may or may not be computer based. Some evidence suggests that cognitive training can improve long-term cognitive function and maintenance of independence in instrumental activities of daily living—like shopping and cooking—in adults with normal cognition. Researchers say results from cognitive

training are "inconclusive, but encouraging" as a tool for delaying or slowing age-related cognitive decline. There is no evidence, however, that commercial, computer-based "brain training" applications are beneficial for long-term cognitive effects.

2. Blood pressure management: There are many links between cerebrovascular disease, Alzheimer's disease, and dementia. A majority of dementia patients show signs of cerebrovascular disease. Improved control of blood pressure in patients with hypertension has been linked to declines in stroke incidence and mortality, and it is plausible that blood pressure management would also reduce the risk of dementia and cognitive decline. Researchers say there is data to suggest that managing blood pressure for people with hypertension, particularly during midlife (ages 35 to 65 years), offers encouraging evidence for preventing, delaying, and slowing Alzheimer's type dementia, but the results are still "inconclusive."

3. Increased physical activity: has many well-documented health benefits and has consistently been identified as one of the modifiable risk factors that could have the greatest impact on rates of cognitive impairment and dementia. The research suggests increased physical activity may be effective in delaying or slowing age-related cognitive decline. Signals seem promising for resistance training and aerobic exercise, and vitamin B12. NASEM concluded that increased physical activity also provides encouraging but inconclusive evidence of delaying or slowing age-related cognitive decline. But there is not enough evidence to conclude whether increasing physical activity prevents, delays, or slows mild cognitive impairment, or has an impact on Alzheimer's type dementia.

NASEM is optimistic about the future of research in this "exciting area of discovery." Priority areas for further study on slowing cognitive impairments include: new anti-dementia treatments; treatments for diabetes and depression; dietary interventions; lipid-lowering treatments; sleep quality interventions; social engagement, and vitamin B12 plus folic acid supplementation. But research stresses that these interventions are all in need of further study.