

Age-related changes in the brain can have significant impact on individuals, society

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Gradual and variable change in mental functions that occurs naturally as people age, not as part of a neurological disease such as Alzheimer's disease, is one of the most challenging health issues encountered by older adults, says a new report from the Institute of Medicine. The aging process affects the brain just like any other part of the body. Known as "cognitive aging," the type and rate of change can vary widely among individuals. Some will experience very few, if any, effects, while others may experience changes in their memory, speed of processing information, problem solving, learning, and decision-making abilities. The committee that carried out the study and wrote the report proposed three top actions individuals can take to help maintain optimal cognitive function with age.

"Changes in mental functions and capabilities are a part of aging and occur with everyone," said committee chair Dan G. Blazer, the J.P. Gibbons Professor of Psychiatry Emeritus at Duke University Medical Center in Durham, N.C. "The extent and nature of these changes vary widely and are gradual, and aging can have both positive and negative effects on cognition. Wisdom and knowledge can increase with age, while memory and attention can decline."

Aging can affect [cognitive abilities](#) needed to perform daily tasks, such as driving, following recipes, adhering to medication schedules, and paying bills, the committee said. As they get older, individuals of all ages should take the following three steps to help promote [cognitive](#) health:

- Be physically active.
- Reduce and manage cardiovascular disease risk factors, including high blood pressure, diabetes, and smoking.
- Regularly discuss and review health conditions and medications that might influence cognitive health with a health care professional. A number of medications can have a negative effect—temporary or long term —on cognitive function when used alone or in combination with other medication.

Other actions that may promote cognitive health:

- Be socially and intellectually active, and continually seek opportunities to learn.
- Get adequate sleep and seek professional treatment for sleep disorders, if needed.
- Take steps to avoid a sudden acute decline in cognitive function, known as delirium, associated with medications or hospitalizations.
- Carefully evaluate products advertised to consumers to improve cognitive health, such as medications, nutritional supplements, and [cognitive training](#).

Communities, nonprofit organizations, and businesses can play a significant role in developing partnerships and programs to help aging individuals take charge of their cognitive health. The report noted that health care professionals need to be prepared to provide guidance to [older adults](#) and their families as the patient population ages.

There has been considerable interest over the past several years in whether cognitive stimulation—either through formal training or everyday activities, such as completing crossword puzzles, participating in a book club, playing card games, or learning to play a musical instrument—can assist in the maintenance or even enhancement of

cognitive function. The scientific literature on cognitive stimulation and cognitive training has shown that older adults can improve on trained abilities, albeit often at a slower pace than younger adults, and that improvements on the tasks can be maintained over time. However, studies examining whether cognitive stimulation and training could transfer to real-world activities and tasks have had mixed results. For example, can a computer-based memory training program help people better remember their shopping list, medical and other appointments, and the names and faces of new acquaintances? Claims regarding the effectiveness of cognitive aging related products require careful evaluation by consumers and in regulatory review, the committee said.

Despite widespread publicity about the benefits of vitamins and supplements for brain health and the large expenditures made on these products for a wide variety of reasons, the evidence for supplements enhancing cognition or preventing decline is limited, and the medical literature does not convincingly support any vitamin supplement intervention to prevent [cognitive decline](#), the report says.

The report emphasizes that cognitive aging has significant impacts and widespread consequences on society, including financial losses. Older adults lose an estimated \$2.9 billion a year, directly and indirectly, to financial fraud. To provide necessary assistance and support to older adults, the committee called for the development of cognitive aging information resources and tools that can help individuals and families. Programs and services used by older adults, including those in financial institutions and departments of motor vehicles, should be improved to help them avoid exploitation, optimize independence, and make sound decisions. For example, the financial services industries and relevant state and federal agencies should implement systems approaches, training, and laws and regulations to help verify that financial transactions are not fraudulent or the result of diminished decision-making capacity or undue influence.

"We are only really beginning to understand how the brain changes with age," said Victor Dzau, president of the Institute of Medicine. "As the population of older Americans grows, so will the effects of [cognitive aging](#) on society. By calling attention to this issue, we can learn more about the risk and protective factors and needed research so older adults can better maintain their [cognitive health](#) to the fullest extent possible."

Provided by National Academy of Sciences

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