

# Scientific evidence does not support the brain game claims, scholars say

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Scholars say there's little scientific evidence that computer-based brain games do more than improve performance playing them.

The Stanford Center for Longevity joined today with the Max Planck Institute for Human Development in issuing a statement skeptical about the effectiveness of so-called "brain game" products. Signing the document were 69 scholars, including six from Stanford and cognitive psychologists and neuroscientists from around the world.

Laura Carstensen, a Stanford psychology professor and the director of the Center for Longevity, said as baby boomers enter their golden years, commercial companies are all too often promising quick fixes for cognition problems through products that are unlikely to produce broad improvements in everyday functioning.

"It is customary for advertising to highlight the benefits and overstate potential advantages of their products," she said. "But in the case of brain games, companies also assert that the products are based on solid scientific evidence developed by cognitive scientists and neuroscientists. So we felt compelled to issue a statement directly to the public."

One problem is that while brain games may target very specific [cognitive abilities](#), there is very little evidence that improvements transfer to more complex skills that really matter, like thinking, problem solving and planning, according to the scholars.

While it is true that the human mind is malleable throughout a lifetime, improvement on a single task – like playing computer-based brain games – does not imply a general, all-around and deeper improvement in cognition beyond performing better on just a particular game.

"Often, the cited research is only tangentially related to the scientific claims of the company, and to the games they sell," said Carstensen, the Fairleigh S. Dickinson, Jr. Professor in Public Policy.

Agreeing with this view were the experts who signed the Stanford-Planck consensus statement, which reads in part:

"We object to the claim that brain games offer consumers a scientifically grounded avenue to reduce or reverse [cognitive decline](#) when there is no compelling scientific evidence to date that they do. ... The promise of a magic bullet detracts from the best evidence to date,

which is that cognitive health in old age reflects the long-term effects of healthy, engaged lifestyles."

## **Activity and cognition**

As the researchers point out, the time spent on computer games takes away from other activities like reading, socializing, gardening and exercising that may benefit cognitive functions.

"When researchers follow people across their lives, they find that those who live cognitively active, socially connected lives and maintain healthy lifestyles are less likely to suffer debilitating illness and early cognitive decline," as the statement describes it.

"In psychology," the scientists note, "it is good scientific practice to combine information provided by many tasks to generate an overall index representing a given ability."

The same standards should be applied to the brain game industry, the experts maintain. But this has not been the case, they add.

"To date, there is little evidence that playing brain games improves underlying broad cognitive abilities, or that it enables one to better navigate a complex realm of everyday life," the participants state.

One reason is the so-called "file drawer effect," which refers to the practice of researchers filing away studies with negative outcomes. For example, brain game studies proclaiming even modest positive results are more likely to be published, cited and publicized than ones that do not produce those affirming results.

## **The road ahead**

In the statement, Carstensen and her fellow scientists offer recommendations for how people should view older adult life and issues like brain games:

- Legitimate research on brain games needs to be replicated and confirmed scientifically across multiple studies in different settings.
- Physical exercise is beneficial to both general and cognitive health.
- No studies have shown that [brain games](#) prevent diseases like Alzheimer's or other forms of dementia.
- Brain games are not like "one shot" vaccines – the gains won't last long after the end of the activity.
- People can cultivate their cognitive powers by leading physically active, intellectually challenging and socially engaged lives.

The Stanford Center on Longevity's mission is to redesign long life. The center studies the nature and development of the human life span, looking for innovative ways to use science and technology to solve the problems of people over 50 by improving the wellbeing of people of all ages.

**More information:** The research statement is available online: [longevity3.stanford.edu/blog/2 ... scientific-community/](https://longevity3.stanford.edu/blog/2...scientific-community/)

Provided by Stanford University

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