



Digital Tech May Reduce Dementia Risk

Summary: Contrary to fears of “digital dementia,” new research finds that using digital technology is linked to a reduced risk of cognitive decline in older adults. A large-scale meta-analysis of over 400,000 participants revealed that digital engagement correlates with a 58% lower risk of cognitive impairment.

Technology challenges the brain, fosters social connection, and enables compensatory tools like reminders and GPS that support independence. These findings suggest that healthy, intentional tech use may enhance mental resilience as we age.

Key Facts:

- **Cognitive Protection:** Digital technology use is associated with a 58% lower risk of cognitive impairment.
- **Mental Stimulation:** Engaging with evolving technologies may act as brain exercise, improving problem-solving and adaptability.
- **Social Support:** Tools like video calls and messaging reduce isolation and support brain health through increased social interaction.

As the first generation that interacted with digital technology reaches an age where dementia risks emerge, scientists have asked the question: Is there a correlation between digital technology use and an increased risk of dementia?

With the phrases “brain rot” and “brain drain” circulating on social media, it would appear that most people would assume the answer is yes.

However, a new study in *Nature Human Behavior* by neuroscientists at Baylor University and the University of Texas at Austin Dell Medical School reveals the opposite – digital technologies are actually associated with *reduced* cognitive decline.

The study – *A meta-analysis of technology use and cognitive aging* – was sparked by the ongoing concern about the passive activity of digital technologies and their relation to accelerating risks of dementia. Study co-authors are Jared F. Benge, Ph.D., clinical

neuropsychologist and associate professor of neurology at Dell Medical School and UT Health Austin's Comprehensive Memory Center within the Mulva Clinic for the Neurosciences, and Michael K. Scullin, Ph.D., associate professor of psychology and neuroscience at Baylor.

"You can flip on the news on just about any day and you'll see people talking about how technologies are harming us," Scullin said. "People often use the terms 'brain drain' and 'brain rot,' and now digital dementia is an emerging phrase. As researchers, we wanted to know if this was true."

The "digital dementia" hypothesis predicts that a lifetime of exposure to digital technology will worsen cognitive abilities. On the contrary, the study's findings challenge this hypothesis, indicating instead that engagement with digital technology fosters cognitive resilience in these adults.

Reviewing more than 136 studies with data that encompassed over 400,000 adults, and longitudinal studies with an average of 6 years of follow-up data, Scullin and Benge found compelling evidence that digital technology use is associated with better cognitive aging outcomes, rather than harm.

The researchers' study supported the "technological reserve" hypothesis, finding that digital technologies can promote behaviors that preserve cognition. In fact, their study revealed that digital technology use correlates with a 58% lower risk of cognitive impairment.

This pattern of cognitive protection persisted when the researchers controlled for socioeconomic status, education, age, gender, baseline cognitive ability, social support, overall health, and engagement with mental activities like reading that might have explained the findings.

Increase in problem-solving skills

Scullin said that for some, these findings are surprising as technology use is often associated with being sedentary both physically and mentally.

However, for the current generation of older adults who were introduced to the first technological advancements – computers, the Internet and smartphones – past their childhood, using technology is cognitively challenging because it is everchanging.

"One of the first things that middle-age and older adults were saying is that 'I'm so frustrated by this computer. This is hard to learn.' That's actually a reflection of the cognitive challenge, which may be beneficial for the brain even if it doesn't feel great in the moment." Scullin said.

Technology requires constant adaption, he said, such as understanding new software updates, troubleshooting Internet loss or filtering out website ads.

“If you’re doing that for years and you’re really engaging with it, even though you might experience frustration, that may be a sign of you exercising your brain,” he said.

Social connection

Technology also enables communication and engagement like never before, which can expand opportunities for connectivity. Video calls, emails and messaging apps help maintain social networks, especially for people who would not otherwise regularly see their family members.

“Now you can connect with families across generations,” Scullin said. “You not only can talk to them, you can see them. You can share pictures. You can exchange emails and it’s all within a second or less. So that means there’s a greater opportunity for decreasing loneliness.”

Better social connectedness is a well-documented correlate of cognitive functioning in older adults, providing a link between decreased isolation from digital technologies and reduced risks of dementia.

Impact of “digital scaffolding”

A dementia diagnosis is indicated in part when cognitive changes lead to a loss of independence with daily tasks. Tools such as digital reminders, GPS navigation and online banking allow older adults to remain independent despite cognitive difficulties through digital scaffolding.

According to the research article, this digital scaffold “facilitates better functional outcomes in older adults while general cognitive functioning declines.”

Technologies can serve as a compensatory support system to maintain general independence and reduce the risk of a dementia diagnosis even with the presence of some cognitive decline.

“As clinical practice continues to move toward an individualized, precision-medicine approach, it will be necessary for the field to identify for whom and for how long, such digital scaffolding is effective,” the researchers said.

Promoting healthy technology use

While Scullin recognizes the negative effects of technology, such as distracted driving or using technology over consistent face-to-face interaction, he also emphasizes how promoting a healthy use of digital tools in older adults is beneficial for their cognitive health.

“If you have a parent or grandparent who’s just staying away from technology, maybe revisit that. Could they learn to use photo, messaging, or calendar apps on a smartphone or tablet? Start simple and be very patient while they learn,” he said.

Social media use is another highly debated topic in terms of cognitive effects. While he says it’s hard to predict the cognitive effects of endlessly scrolling on TikTok, Scullin does argue that generating videos through creative cognition could be beneficial. In addition, he said that interacting with communities online can provide benefits by forming social connections.

“We could spend a long time talking about all the specific ways in which technology use can be bad. However, the net effect since the 1990s has been positive for overall cognition in older adults,” he said.

Source : [neurosciencenews.com](https://www.neurosciencenews.com)