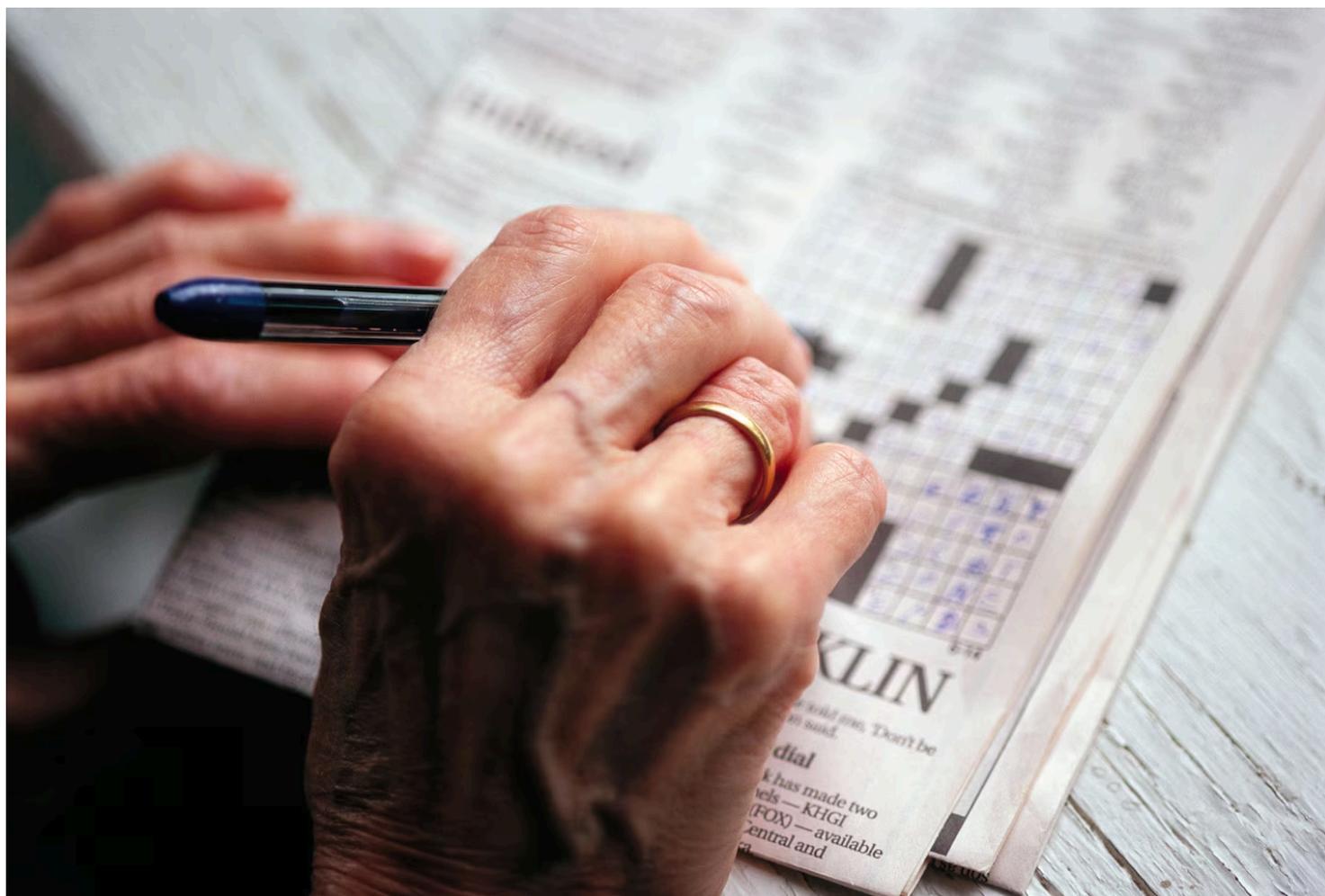


# Do crossword puzzles really keep your brain sharp?

They've long been seen as a way to prevent cognitive decline—but experts say the real key to brain health goes far beyond word games.



An elderly person works on a crossword puzzle. These games can help keep the brain engaged—but studies show other habits, like exercise and education, play a far greater role in preventing cognitive decline.

PHOTOGRAPH BY JOEL SARTORE, NAT GEO IMAGE COLLECTION

By Meredith Bethune

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Ask almost anyone how to stay mentally sharp in old age; chances are someone will bring up crossword puzzles. Alongside Sudoku and word searches, these games have long been seen as “workouts” for the brain. In fact, a [2020 study](#) published in *Frontiers in Human Neuroscience* found these kinds of puzzles are among the most frequently engaged-in activities for brain training and cognitive benefits.

But how did this belief become so widespread? And does it actually hold up? One theory is that people have simply noticed a pattern: older adults who seem mentally sharp often keep up with these kinds of games. But experts say the connection might not be as direct as we think.

[Kellyann Niotis](#), a preventive neurologist specializing in strategies to lower dementia risk, suggests people who enjoy doing puzzles may have high verbal intelligence, or verbal IQ, which correlates with a lower risk for dementia. “People who are highly educated also have a higher verbal IQ, and we understand that these people are also at a lower risk,” she adds.

[Gary Small](#), the chair of psychiatry at Hackensack University Medical Center, grew up in a puzzle-loving household and shares the affection. But professionally, he wasn’t entirely convinced that puzzles had real cognitive benefits. “My theory is that to activate your neural circuits and exercise your brain, you have to find that sweet spot.” In other words, the puzzle has to be just the right amount of challenging.

The concept aligns with the “use it or lose it” principle often mentioned in discussions about physical fitness: Just as you need to exercise your muscles to keep them strong, regularly working on crossword puzzles could be a way to train and bolster the brain. But, like nearly all things neuroscience-related,

# What the latest research says about puzzles and brain health

While puzzles may seem like a simple way to keep your brain in shape, studies suggest the reality is more nuanced. A [2022 study](#) published in *NEJM Evidence* found that individuals with mild cognitive impairment (MCI) who did crossword puzzles over 12 weeks showed cognitive improvement. Still, it's important to note that while the results were impressive because they occurred in a very specific group of people already experiencing cognitive decline, the improvement was also modest.

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A [2024 study](#) also showed a link between puzzles and better cognitive abilities. It studied the lifestyle choices of more than 9,000 people and concluded that board games and puzzles were the strongest predictors of reasoning skills and a top predictor of memory and verbal ability (video games ranked just as high).

While studies like these are encouraging for puzzle enthusiasts, there's a catch: the link between puzzles and brain health may be correlation instead of causation. And while puzzles may have some benefits, the research is much stronger in support of other lifestyle interventions for boosting brain health.

## Exercise and other proven ways to protect your

So, what does move the needle when it comes to brain health? In his book *Outlive: The Science and Art of Longevity*, physician Peter Attia says exercise is “the single most powerful item in our preventive tool kit,” especially for reducing the risk of Alzheimer’s disease and cognitive decline.

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Regular exercise improves glucose control, which benefits the brain and helps increase blood flow. It's even been shown to increase the volume of the hippocampus, a critical brain region for learning and memory.

According to Niotis, it also boosts neuroplasticity (i.e., helps the brain form new connections) and produces brain-derived neurotrophic factor (BDNF), a protein essential for healthy cognitive function.

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“Exercise is tricky because we don't really understand the optimal dose or type or frequency of exercise,” she explains. “But it's very clear that cardio exercise helps boost cognitive function.” Studies also show that older adults who exercise have better cognitive performance than those who aren't active.

Beyond exercise, the 2024 report of The Lancet Commission on Dementia prevention, intervention, and care identified 13 additional modifiable risk factors at different stages during the life course. These include hearing loss, traumatic brain injury (TBI), hypertension, heavy drinking, obesity, smoking, depression, social isolation, physical inactivity, type 2 diabetes, air pollution, high cholesterol, untreated vision problems, and lower levels of education in early life. Notably absent from that list? Crossword puzzles.

## Why puzzles seem to stay sharper with age

If the research suggests that several other lifestyle interventions play a stronger role in brain health, then why does it appear to the general public that those who do puzzles stay sharper in old age? One possibility: puzzle enthusiasts may already be doing many of the right things. They're often more educated—a factor the Lancet identifies as a key modifiable risk for dementia—and they may be more likely to follow other brain-healthy habits

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Small suggests this is likely because studies show keeping the brain engaged builds cognitive reserve, which is your brain's ability to adapt and stay strong, even as it ages or faces challenges like disease or injury. The more you do to strengthen your brain, the better prepared it is to handle aging and any impending cognitive decline.

He recalls a study from over 25 years ago, published in *The New England Journal of Medicine*, where he and other researchers scanned the brains of people with mild memory complaints as they performed a memory task. “We found that people with the genetic risk [for dementia], their brains had to work harder to solve that same task,” Small explains. When researchers followed up two years later, those whose brains worked harder showed greater cognitive decline. Building a strong cognitive reserve will boost this ability for the brain to fight hard to compensate—until, eventually, it can no longer keep up.

So, while crossword puzzles may help keep your mind engaged, they shouldn't be your only strategy—especially if you've already mastered them. As Niotis explains, “When you start doing the same thing over and over again, that isn't really boosting cognitive reserve or helping support neuroplasticity because the novelty aspect of it is lost.”

(*What are the signs of dementia—and why is it so hard to diagnose?*)

In the end, there's nothing wrong with doing crossword puzzles. And the scientific evidence shows they're far from cognitively bankrupt and even provide some beneficial mental stimulation. However, truly reducing your risk for dementia requires a multipronged approach that should always include plenty of consistent exercise. A strategy like this will likely offer far greater protection against cognitive decline than a single puzzle ever could.

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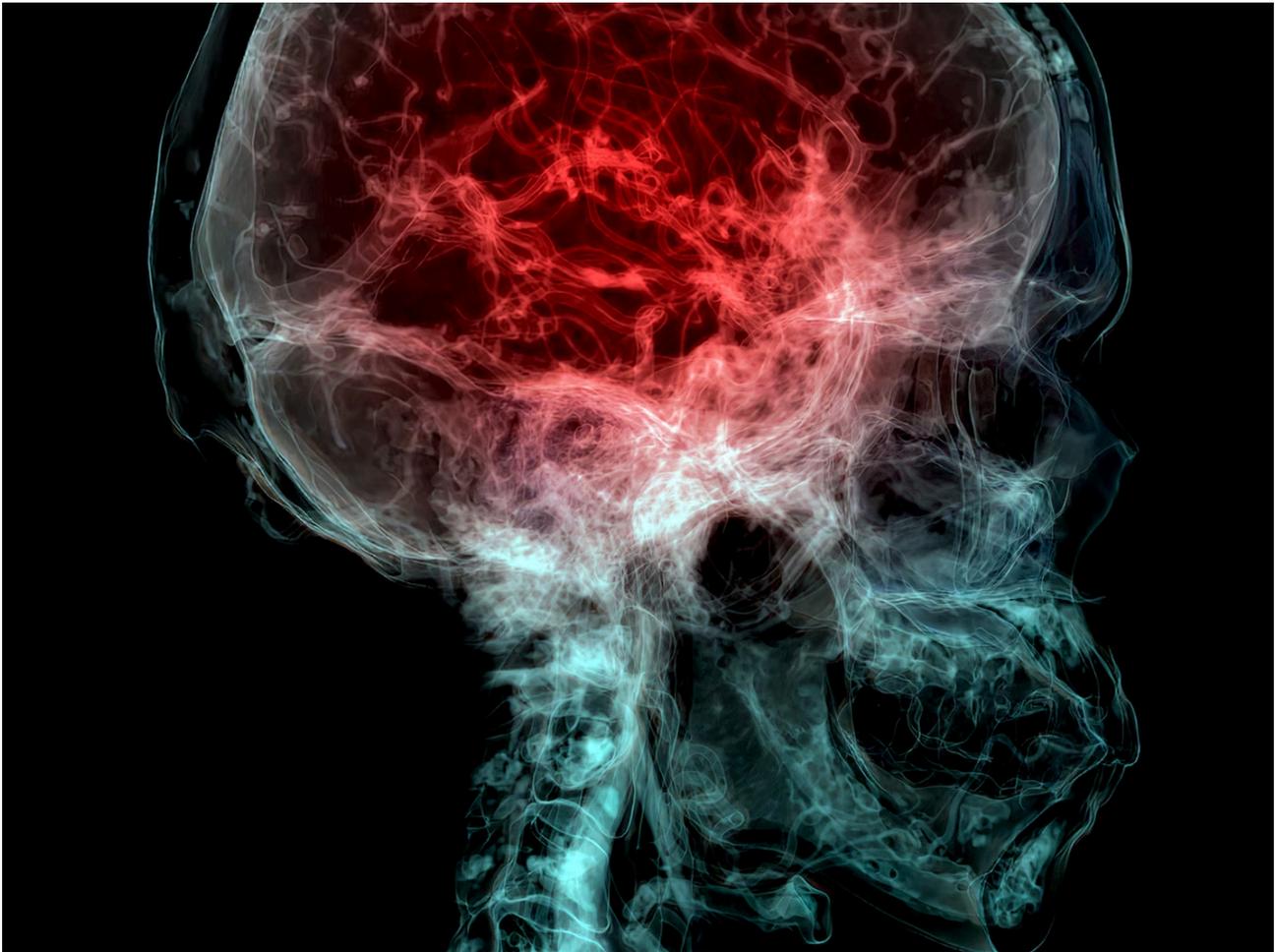
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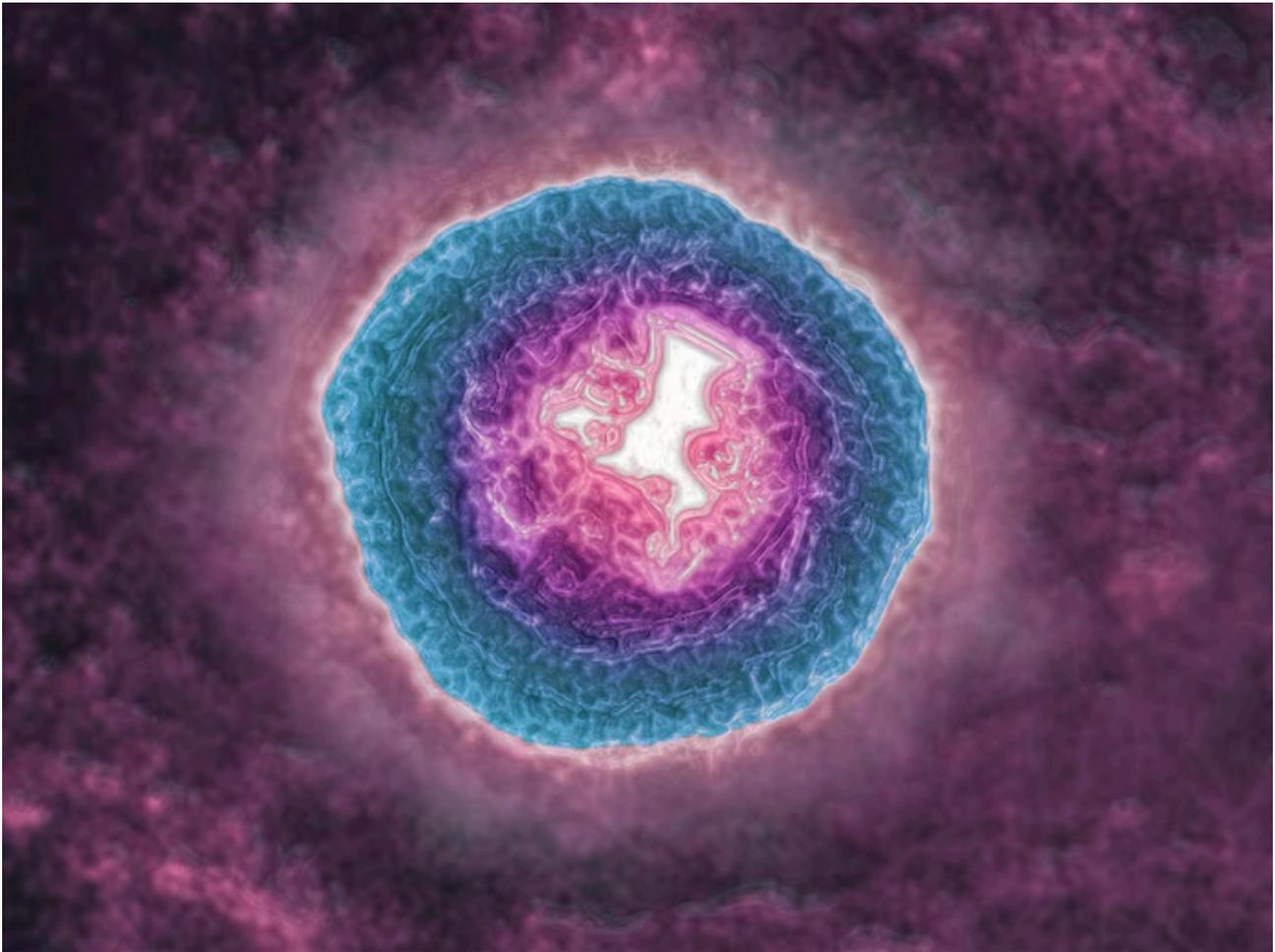
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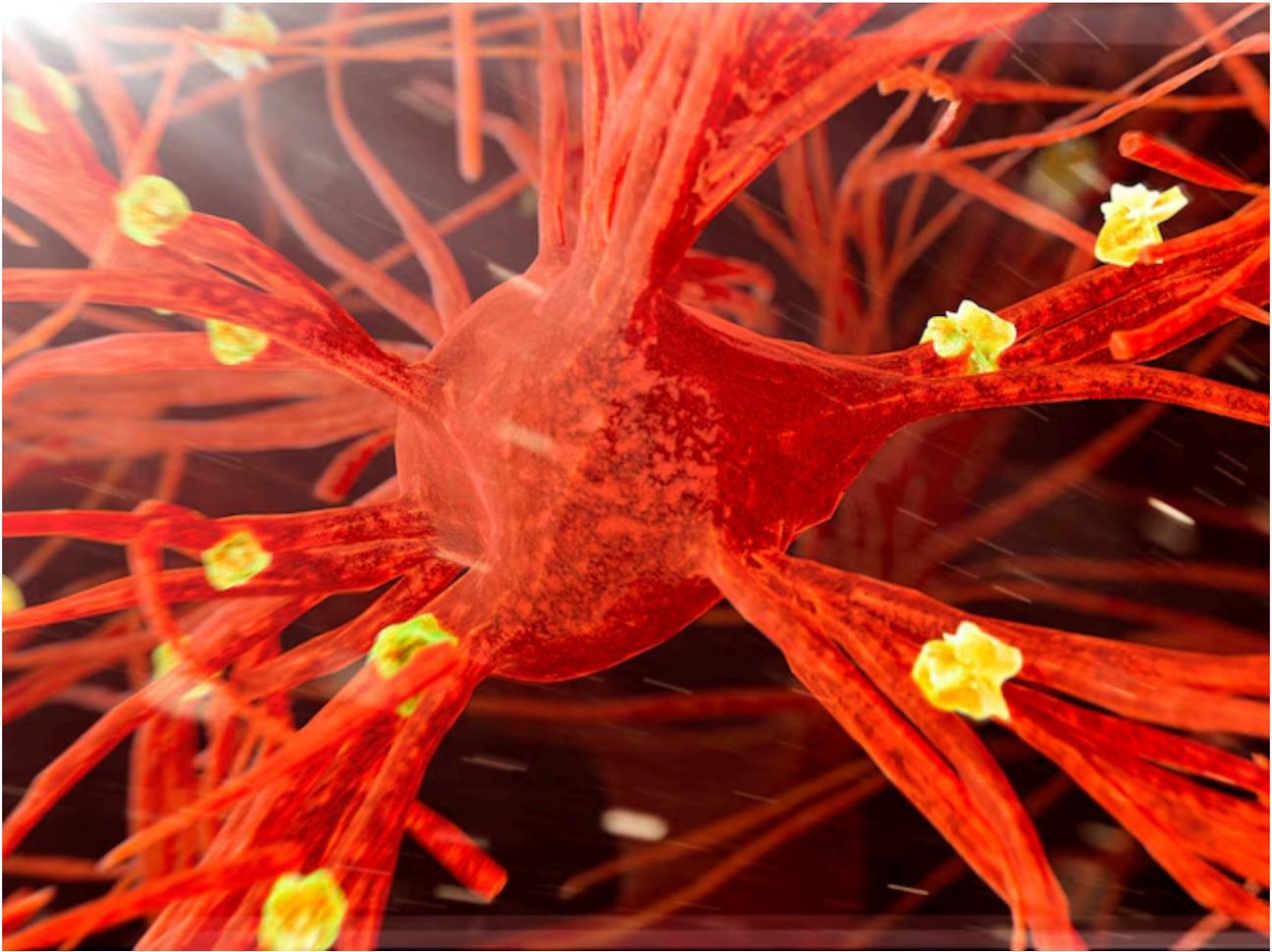
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