

Working Memory Declines After Your 20s. Here's How to Train It

5 MIN READ

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Working memory plays a huge role in your longevity. Here's how to understand how it works and how you can maintain it.

You measure and track your blood pressure, your weight, and other physiological markers, but you may not notice how they affect your day-to-day life.

Working memory, on the other hand, is a skill that can be developed, contributes to your long-term wellbeing, and makes a big difference in how you move through the world every day.

If you've ever tried to remember a bank account number when switching between tabs, felt overwhelmed by downtown traffic, or immediately forgotten someone's name when meeting them, you know what it feels like to run up against the limit of your working memory.

What is working memory, and why is it so important?

You can think of working memory as the “short-term storage” of your mind. You keep things there while you need them, and then they get discarded—unless you move the item to your long-term memory.

A phone number that you read from your laptop and then type into your phone stays in your working memory, for example. Your Social Security Number is more permanently in your long-term memory.

While people have different working memory capacities, most people can remember about seven items. That could be numbers, words, or groups of numbers. But working memory can also track things in the physical world—like cars and pedestrians on the road, for example.

Unfortunately, working memory tends to **decline over time**, and that makes it harder to remember the things you need to keep in mind all day. It can also make it harder to do some activities of daily living, like driving.

Working memory performance predicts driving performance

A **2017 article** published in PLoS One provides a great example of working memory in a real-life situation. 115 adults were placed in a driving simulator that put them in high-, medium-, and low-stimulation environments (urban, rural, and highway driving).

The researchers found that participants' ability to drive well and avoid crashes was correlated with their ability to track the motion of many different objects, a test sometimes used to **assess visual types of working memory** as well as other perceptual-cognitive strategies.

“These findings are consistent with the hypothesis that the low mean speed observed in older people is linked to a self-restriction due to the alterations of their perceptual-cognitive abilities,” the authors write.

This is a perfect example of how cognitive decline affects working memory and has knock-on effects to everyday life. Older drivers tend to drive slower because their ability to track multiple objects atrophies over time.

Can working memory be improved?

The next question is obvious: if working memory gets worse over time and has effects on our daily lives, can we do anything to maintain our working memory?

The answer is yes, sort of.

One **2024 meta-analysis** found that working memory training through cognitive programs, mindfulness, video games, and physical activity all had a small but measurable positive effect on working memory.

“Based on the findings, it can be concluded that the working memory capacity of healthy adults can be improved through training,” note the authors. “However, the effect size is small, so the utility of this type of training in real-life improvements in cognition may be minimal.”

In short, you can improve your working memory through training—but whether it will improve your performance on real-life tasks is less clear.

How to Improve Your Working Memory

If you’re intrigued by the idea of improving your working memory, this is an important idea to understand:

Working memory training is domain-specific, which means that if you want to improve your working memory for a specific purpose (say, driving in high-stimulus environments), you need to practice that activity.

“When individuals undergo working memory training, they reliably get better at the specific tasks they practice,” says Dr. Tracy Alloway, a psychologist and working memory researcher.

“However, current research shows that this improvement doesn’t always translate to real-world, high-mental-load scenarios like navigating heavy traffic or making split-second decisions in sports.”

This is good news; if you’ve noticed that remembering directions is getting harder, you can practice remembering directions to make it easier.

But it’s important to understand that this won’t necessarily improve your performance

on other real-world tasks.

“This task-specificity is a well-established pattern across cognitive science,” Dr. Alloway explains.

“For example, research on chess masters and accomplished musicians demonstrates that exceptional memory performance is closely related to their domain of expertise. While chess grandmasters can memorize complex, real-game board positions with remarkable accuracy through specialized pattern recognition (‘chunking’), their memory performance drops to average levels when presented with randomly arranged pieces.”

One approach built for exactly that kind of load is 3D multiple-object tracking, the same task used in the driving study. In a **2013 study** of 20 healthy adults ages 64 to 73, one 30-minute session a week for five weeks raised tracking speed to the level of untrained adults in their 20s, and the older group improved at the same rate as a younger group training alongside them. Whether that carries over to the road hasn’t been tested directly; the lab did find it transferred to reading how people move in a crowd.

6 Tips for keeping your working memory working

Working memory training is one way that you can benchmark and possibly improve your working memory (as long as it’s very relevant to the task in which you want to improve).

Research also shows that lifestyle factors make a big difference in working memory, too. A **2023 study** on over 29,000 people found that the following six lifestyle factors were correlated with better memory later in life:

1. **1** A healthy diet (recommended daily amounts of at least 7 of 12 food groups: fruits, vegetables, fish, meat, dairy, eggs, cereals, legumes, nuts, tea, with salt and oil kept in

range)

2. 2 Regular exercise (at least 150 minutes moderate or 75 minutes vigorous per week)
3. 3 Active social contact (at least twice a week)
4. 4 Active cognitive activity (reading, writing, cards, games, at least twice a week)
5. 5 Never or former smoking
6. 6 Never drinking alcohol (occasional drinking counted as never)

As is so often the case, living a generally healthy lifestyle will improve almost any outcome you can think of—including maintaining your memory into your later years.

So keep exercising, eat a varied diet, and stay mentally and socially active. Your memory will thank you for it!

Super Age Partner Spotlight: NeuroTracker

The 6-Minute Test That Predicted Crash Risk Better Than Age

The driving study above used one specific tool: NeuroTracker, a 3D multiple-object-tracking task developed in Jocelyn Faubert's lab at the Université de Montréal (Faubert is now chief science officer of the company that makes it). You follow several moving targets through a field of identical decoys. Hold onto all of them and the speed climbs; lose one and it drops. In that study of 115 drivers, the NeuroTracker score was the only significant predictor of simulator crashes, ahead of age and driving speed.¹

The same task doubles as training. In a peer-reviewed study of 20 adults ages 64 to 73, one 30-minute session a week for five weeks raised tracking speed to the level of untrained adults in their 20s, and the older group improved at the same rate as the 20-

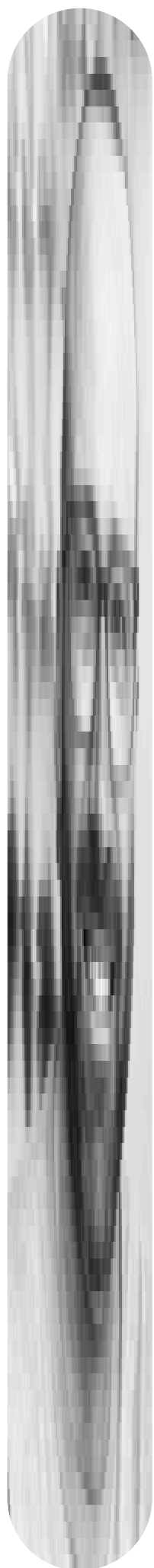
some things training beside them.Â²

Six minutes gives you a baseline score. Weekly sessions build on it. Get your baseline score at neurotrackerx.com

Try the 6-Minute Test â??

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