How the 3-S Model Optimizes Lifelong Brain Health

6 MIN READ

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Forget the fringe science. A PhD neuroscientist says the real recipe for better brain aging has just three ingredients.

For far too long, we've treated **cognitive health** as something you inevitably lose, not as something you can actively build. Fortunately, that's changing. Though your mind does indeed age right alongside the rest of your body, we now know the brain is far more adaptable than once believed. It keeps developing throughout life in response to how we move, eat, sleep, and learn.

The statistics are staggering: according to the **Alzheimer's Association**, the number of Americans living with Alzheimer's disease is projected to nearly double from 7 million to 13 million by 2050. But **half of dementia cases** may be prevented or delayed by addressing modifiable risk factors, meaning it's well within your power to avoid becoming a statistic.

Tommy Wood, PhD, a neuroscientist, performance consultant, and the author of ***The Stimulated Mind: Future-Proof Your Brain from Dementia and Stay Sharp at Any Age***, says we should approach brain health the same way we approach physical fitness: with a consistent training and recovery plan. His framework is surprisingly simple. He calls it the 3-S model, and argues that stimulation, supply, and support are all you need to develop better brain health over time.

1. Stimulation (The Challenge)

Brain aging starts long before any symptoms appear, even in healthy, active individuals who have their longevity routines locked in. That's why it's important to start challenging your brain early in life, before you're working against a deficit.

Presenting the brain with new stimuli and rousing the brain into an active state more often is the first intervention. "It's the skills we learn, the problems we solve, the people we interact with, and the way we engage with the world," Wood explains. He says that cognitive stimulation is arguably the most important node of the three in terms of supporting long-term brain health. "Much like an athlete has to train and can't just rely on protein shakes and naps to get bigger and stronger, the brain is really shaped by the stimulus it receives," he says.'

Every challenge builds cognitive reserve, which the brain draws on to keep functioning in the face of aging or disease. That's possible because of neuroplasticity, or your brain's lifelong ability to reorganize itself in response to learning and environment. The strategy is simple: keep giving your brain problems it doesn't already know how to solve, forcing it to flex new cognitive muscle.

To get started, consider:

Learning a new, complex skill.

Pick up a hobby you've always wanted to explore and enjoy the thrill of being a beginner. Some ideas? Learn some Spanish before your trip to Mexico. Take guitar lessons with your teenager. Sign up for that pottery class you've been eyeing for years. Wood recommends engaging in this hobby at least two to three times a week for 30- to 60-minute sessions.

"Try hard and make mistakes," he advises. "This is the brain's equivalent of the athlete doing hard reps in the gym." The goal isn't just to stay busy. It's to repeatedly

ask your brain to overcome new challenges.

Picking up an open-skill sport.

Walking is fantastic. But if you're looking to challenge your brain, sports that demand more coordination and quick decisions may offer an extra edge.

Per a **2023 review** in the journal *Brain Sciences*, open-skill exercise (which requires movement in a dynamic, unpredictable environment) have stronger protective effects on cognitive function compared to closed-skill exercise (in which the environment is stable and you're able to dictate the timing and pace of movement). Consider replacing one traditional cardio session weekly with an activity like tennis, martial arts, or dancing. Anything that requires you to stay on your toes, whether literally, figuratively, or both.

Volunteering.

"**Several studies** show that solving problems as part of a group, supporting others, and pro-social behavior can improve cognitive function and support multiple aspects of overall health," Wood says. Volunteering combines several ingredients that help the brain thrive: problem solving, social interaction, and emotional engagement. Better yet, it gives you purpose, one of the **most crucial pillars of mental health** and aging well.

Best of all, many of these habits overlap. Join a recreational tennis league and you check several boxes at once: movement, coordination, learning, and social connection.

2. Supply (The Fuel)

Challenge builds the brain. But supply gives it the raw materials to adapt.

You can think of supply as your brain's pantry. "It combines all the factors that make sure our brains get the resources they need to respond to stimuli — either to do the complex thinking involved or to adapt to the challenge being applied," Wood shares. After all, we can't just pick up pickleball or the piano alone to keep our brains firing on all cylinders. They need to be nourished, as well.

To ensure that your brain gets the fuel it needs, be sure to:

Eat a diverse, nutrient-dense diet.

There are a handful of nutrients worth prioritizing to keep your brain sharp. "Higher levels of B vitamins, omega-3 fats, antioxidants, and vitamin D have consistently been linked to healthier and younger-looking brains," Wood shares. These nutrients support everything from energy production to protecting brain cells from oxidative stress. It's ideal to get the bulk of them through diet (but he gives the green light to supplements as needed). Toss sardines into a salad. Add berries to Greek yogurt. Snack on walnuts instead of chips.

Take exercise snacks throughout the day.

If you're stuck at a desk from 9 to 5, you're leading a sedentary lifestyle. (Yes, even if you spend an hour-plus at the gym on most nights.) According to Wood, long periods of inactivity decrease blood flow to the brain, which negatively affects mood and focus.

The antidote? Exercise snacks, or small bursts of activity that can be five minutes or less. Wood suggests trying it out at least once an hour. Take a stroll around the office. Do a few jumping jacks in between client calls. Complete a round of squats before a meeting. While it might not seem like much, the results compound. Per a **small 2025**

study, healthy but sedentary middle-aged office workers who took just three one-minute exercise snacks four days a week over one month experienced both immediate and sustained improvements in executive functions like working memory and processing speed.

Get regular checkups.

Annual physicals aren't only good for your body. The right tests and interventions could also prove to be beneficial for your brain. "Heart health and metabolic health are key components of making sure your brain gets the blood and fuel supply that it needs," Wood says. "This means taking care of your blood pressure, blood sugar, and other heart disease risk factors."

He also suggests asking for nutrient tests, including iron levels, vitamin D levels, and homocysteine for B vitamin status, to see if you need to make any dietary tweaks.

3. Support (The Recovery)

According to Wood, support encompasses the processes of neuroplasticity, maintenance, and repair that occur during rest and sleep, as well as the factors that help recovery and adaptation. "Just like the body with physical training, rest is when the brain gets stronger," he says.

Of course, sleep is foundational; it's the time when yesterday's learning becomes tomorrow's skill. "Sleep is when new connections in the brain are reactivated to help cement them," Wood explains. "It's also when we clear out waste and process experiences and emotions, essentially resetting the brain to allow it to learn more and perform again the next day," he tells Super Age.

But support doesn't hinge upon getting seven to nine hours a night of shuteye alone. It

also pays to minimize or eliminate factors that impair adaptation by increasing inflammation or oxidative stress. Smoking and drinking alcohol fall under this umbrella. So, too, does chronic stress.

Beyond sleeping well, limiting vices, and minimizing stress, additional ways to support a more resilient brain include:

Giving it a break.

High performers often treat breaks like wasted time. Wood argues for the opposite. As important as stimulus is, it's just as crucial to ease up and let your brain rest every so often. After all, recovery isn't just reserved for the night shift. And a five-minute breather won't impede your performance — it'll enhance it by boosting focus and lowering stress. Rest could look like taking a short walk outside, doing some breathwork, or even watching a funny video on YouTube. "The goal is to step away from cognitive work and get a true break before you head back into the fray," he says.

Flossing your teeth.

This tip might sound surprising coming from a neuroscientist. But **research** increasingly shows that gum disease and poor oral health can increase the risk of dementia (not to mention heart disease). What's the connection? "The bacteria in our mouths may be able to directly get into our blood vessels and even into the brains," says Wood, "but gum disease can also cause inflammation that affects the rest of the body, including the brain." **Emerging research** suggests that maintaining good oral health, including daily flossing, may lower dementia risk by reducing inflammation and helping prevent gum disease.

Breathing fresher air.

Wood mentions that air pollution, whether from cars, construction, or wildfire smoke, can increase the risk of dementia. But indoor air has the potential to be several times worse than the air outside. While you're not exactly able to improve your outdoor air quality (especially if you live in a big city), you do have the power to freshen up the air in your immediate environment. Invest in a HEPA purifier or two. Place one beside your bed and another near your desk.

Putting the 3-S Model Into Action

We already know that **healthy aging** requires us to challenge our muscles, nourish our bodies, and prioritize recovery. It turns out our brains need much the same. The 3-S model simply gives those principles a name and a framework for how to train, condition, and support our brains daily. "When you change one thing, you're not just changing one thing," Wood shares. "Small changes can make the whole network start to shift in your favor."

So, join a friend who's newly obsessed with padel. Order the salmon. Download Duolingo before your next vacation. Take a walking meeting. Accept new challenges, and allow your brain to switch off every so often, too.

None of these habits are remarkable on their own. But together, they can help create a brain that's more resilient to aging and better equipped for a long and vibrant life.

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