

# Brain fitness for a long and healthy life

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Credit: David Pohl

The strategies for living a long and healthy life are well known and relatively simple, if not always easily executed: Maintain an appropriate weight. Eat the right foods. Exercise. Limit stress.

Somewhat less has been known, or said, about ways to keep the mind fit for the duration. But that's changing.

"As people are living longer, this is becoming a huge issue," said Dr.

Gary Small, director of the UCLA Longevity Center at the Semel Institute for Neuroscience and Human Behavior and the Parlow-Solomon Professor on Aging at the David Geffen School of Medicine. Age is the greatest risk factor for developing cognitive decline.

More than past generations, the graying baby boomers tend to be proactive in looking for ways to take charge of their health, said Small, whose latest book, "2 Weeks to a Younger Brain," co-authored with Gigi Vorgan, is scheduled for publication in April. And amid growing reports about how the choices we make can reduce our risk of cognitive decline, the boomers are listening. In a 2013 collaboration with the Gallup polling organization, Small and colleagues found that the older a person was, the more likely he or she sought to live a brain-healthy lifestyle. "The message is getting through that we do have some control over our brain health as we age," he said.

Not complete control, of course. A widely cited MacArthur Foundation study concluded that genetics account for approximately one-third of cognitive and physical well-being in aging. But Small pointed out that this leaves ample room for what we can control—strategies for remaining sharp and lowering the odds of dementia in late life.

## **Trim the Fat**

Carrying excess weight during middle age raises the risk of dementia down the road—by as much as double for people who are overweight, and quadruple for those who are obese. Although the reasons aren't entirely clear, Small noted that the fat tissue in the abdomen appears to increase inflammation throughout the body, including the brain, and an overactive inflammatory system may be contributing to age-related cognitive decline. For example, the amyloid plaques that are hallmarks of the Alzheimer's disease-ravaged brain show evidence of inflammation. Being overweight or obese also paves the way toward

conditions such as high cholesterol, hypertension and diabetes, which can attack the brain in other ways. On an optimistic note for those determined to shed those excess pounds, recent studies have found significant improvements in the cognitive performance of obese individuals just a few months after they've undergone bariatric weight-loss surgery.

## **Brain Food**

Many of the same foods known to be good for the body might also help to protect the brain. Studies suggest that a diet rich in omega-3 fats (including fish, flaxseed, walnuts) and low in omega-6 fats (red meat, whole milk, butter) can reduce the risk of cognitive decline. Omega-9 fats (olive oils, avocados, nuts) are also desirable. Colorful fruits and leafy vegetables are thought to be brain-healthy, too, because of their ability to reduce the oxidative stress associated with aging. Finally, Small recommended minimizing or avoiding processed foods and refined sugars.

## **Being of Sound Body and Mind**

When it comes to strategies for keeping the brain healthy, perhaps the strongest scientific evidence is in the area of exercise, particularly cardiovascular conditioning. When you're working up a sweat, the heart pumps oxygen and nutrients to the brain cells. The body then produces something called brain-derived neurotrophic factor, which Small likened to fertilizer for the neurons, causing them to sprout the tentacles that connect [brain cells](#). Exercise can also elevate mood, which is good for the brain. "You don't have to become a triathlete," Small said: One study found that walking briskly 90 minutes a day is enough to lower the risk for Alzheimer's disease.

## Sleep Tight

Among its other benefits, sleep has been found to be anti-inflammatory, Small noted. It can also bolster the brain by improving mood and reducing the effects of depression.

## Address Stress, Treat Depression

Animal studies have shown that chronic stress can cause atrophy of the brain's hippocampal memory centers; in studies of human volunteer subjects, an injection of cortisol—a stress hormone—temporarily impairs memory. People who are prone to depression have higher rates of Alzheimer's disease, Small said, adding, "It's important to get appropriate treatment." The good news: "We are learning that stress-management techniques, in addition to improving mood, can actually rewire the brain and improve mental performance."

## Good Thinking

Evidence is also mounting in support of the concept that lifelong mental stimulation improves [cognitive performance](#) and may lower the risk of dementia. In a study he called "Your Brain on Google," Small used imaging techniques to demonstrate that while an older person is searching online, the brain shows a significant increase in neural activity. Other studies by Small's team have found that through memory training, the brain becomes more efficient—performing better even when there's less neural activity. "We also know that if you speak several languages, you have a lower risk for Alzheimer's disease, and if you complete college you have a lower risk," he said. "It's hard to prove that there's a cause-and-effect relationship, but I think there's enough evidence to conclude that it's good for your brain to stay mentally engaged."

## It's Never Too Early—or Too Late—to Start

Most people don't start worrying about age-related [cognitive decline](#) before [middle age](#), but Small suggested that these strategies can and should begin much earlier. "We think there is probably a cumulative effect—the longer you do it, the greater the benefit," he said. "And the sooner you get on a brain-healthy lifestyle, the easier it will be to continue it throughout your life." On the other hand, if you're kicking yourself for having whiled away the years without tackling a single New York Times crossword puzzle, relax. "It's never too late to start with these mental training activities," Small said. "The [brain](#) is very resilient. We see remarkable results in older people."

Provided by University of California, Los Angeles

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