



Acti-v8

Your Brain

A BRAIN
HEALTH
INITIATIVE





Introduction

The Eight Pillars of Brain Health

Aging causes changes in all parts of the body, including the brain. Research suggests that there are things you can do as you get older to keep your brain as healthy as possible so you can stay independent for as long as possible.

Brain health is supported by eight “pillars”: physical activity, a healthy diet, adequate sleep, relaxation and stress reduction, mental stimulation, social stimulation, risk factor reduction, and involvement in research.

Attention to these pillars of brain health may reduce your risk of cognitive decline as you get older. Indeed, many studies have shown that the best results are seen when multiple approaches are used in combination.

MULTIPLE PILLARS PROVIDE THE BEST RESULTS:

The Finnish Geriatric Intervention Study to Prevent Cognitive Impairment and Disability (FINGER) showed that a program combining diet, exercise, cognitive training, and vascular risk monitoring was effective in improving or maintaining cognitive functioning and reducing the risk of cognitive decline among older at-risk individuals (Kivipelto, Solomon et al. 2013).



1. Stay active

Research supports a strong link between physical activity and brain health across the lifespan. Being physically active can help you feel better, have more energy, sleep better, and improve your strength and balance, thus reducing your risk of falls. It also can help prevent or delay heart disease, obesity, and diabetes, and reduce depression, all conditions that increase your risk of cognitive problems.

Exercise seems to protect the brain by increasing blood flow to the brain, slowing age-related brain shrinkage, strengthening the connections between different parts of the brain, and increasing the production of factors that promote learning and memory, encourage the development of new brain cells, and encourage brain cells to adapt to change. Exercise also appears to improve brain health by reducing inflammation and insulin resistance.

The best type of exercise combines aerobic training and resistance training to strengthen muscles. Any activity that gets your heart pumping counts as aerobic exercise—brisk walking, swimming, and dancing are just a few examples. Choosing activities you enjoy is the key to maintaining a regular exercise program.

Evidence shows for substantial health benefits:

- Complete 150 minutes of moderate -to vigorous-intensity physical activity with activity periods lasting 10 minutes or more spread throughout the week
- Complete muscle- strengthening activities, such as resistance training, on 2 or more days each week (*Haskell, Lee et al. 2007*)





2. Eat well

Foods that are good for your heart and your overall health—fruits, vegetables, whole grains, nuts, and lean meats and fish—are also good for your brain. Replacing butter with unsaturated fats such as olive oil, eating less sugar and salt, and limiting your intake of alcohol are also parts of a healthy diet.

Some studies have suggested that specific vitamins and nutrients may also improve brain health. These include the B vitamins (B-6, B-12, and folate); vitamins A, C, E, and K; omega-3 polyunsaturated fatty acids, which are particularly high in fish; and compounds called flavonoids that are found in fruit, vegetables, and cocoa. A healthy diet is rich in these nutrients, but the jury is still out regarding the benefits of supplements.

A new diet, called MIND (Mediterranean-DASH Intervention for Neurodegenerative Delay), blends aspects of the Mediterranean Diet and DASH (Dietary Approaches to Stop Hypertension) diets. These two diets were designed to reduce heart disease and have also been studied for their ability to protect the brain. The MIND diet emphasizes eating green leafy vegetables and berries, and eating fish at least once per week. A study done by the Memory and Aging Project at Rush University showed that the MIND diet was associated with slower cognitive decline in older people. *(Morris, Tangney et al. 2015)*





3. Sleep well



Getting a good night's sleep not only makes you feel more alert and energetic, but can have long-term effects on your health. Not getting enough sleep impairs your ability to multi-task and think in creative ways, and affects memory and attention. Sleep problems are also associated with depression, anxiety, obesity, poor glucose control, and inflammation.

How poor sleep may contribute to cognitive decline is unclear. It is not known whether brain disease can also cause trouble with sleeping, or if interrupted sleep contributes to the development of brain disease. Research has found that during sleep, the brain clears amyloid, a key protein associated with Alzheimer's disease. Furthermore, in people with obstructive sleep apnea, a condition that causes interrupted sleep, the more severe the condition, the more amyloid builds-up in the brain. More research is needed, but per the Global Council on Brain Health, sleep is vital to brain health, including cognitive function.



Steps you can take to sleep better include establishing a regular, relaxing bedtime routine, limiting daytime napping, and avoiding caffeine, nicotine, and alcohol close to bedtime. Exercising regularly can also help, especially if you exercise early in the day. If you still have trouble sleeping, your doctor may be able to suggest treatments, such as cognitive-behavioral therapy for insomnia or treatments for sleep-disordered breathing.

Per the Global Council on Brain Health:

Sleeping 7 to 8 hours each day, on average, is related to better brain and physical health in older adults. (*Global Council on Brain Health, 2015*).



4. Exercise your brain

Just as your body needs to be exercised, so does your brain. You can stimulate your mind with activities such as reading, playing a musical instrument, doing puzzles, learning new things, taking up a hobby, or volunteering. Complex and stimulating work, such as teaching or constantly solving problems, has also been shown to improve cognition. It is important to note that commercially available “brain games” that are not mentally challenging may help you get better at the game, but there is little evidence that such activity will improve your cognition for daily functioning.

Cognitive training takes this idea one step further, using activities to train specific aspects of cognition, such as memory, attention, task-switching, reasoning, and strategic thinking. Cognitive training not only improves performance on everyday tasks, it also appears to change the structure and function of the brain. Computer-based and online cognitive training games have become widely available and show some promise in improving cognitive performance and, in some cases, causing physiologic changes in the brain.

Be ACTIVE and SMART

Two recent studies have demonstrated the benefits of cognitive training. The Advanced Cognitive Training for Independent and Vital Elderly (ACTIVE) study tested cognitive interventions designed to improve memory, reasoning, and processing speed, three elements of cognition that tend to decline in older adults and that are important for daily functioning. Training took place over a 5-6 week period, and five years later the participants still showed improved performance on cognitive tests and reported less difficulty performing daily activities compared to a control group (Rebok, Ball et al. 2014).

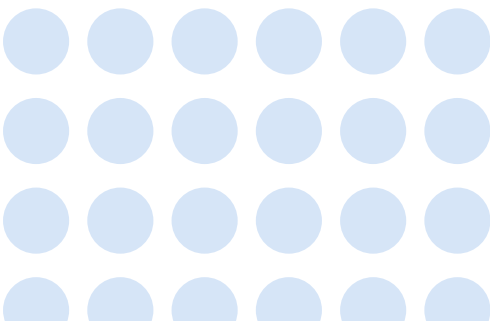
The Strategic Memory and Advanced Reasoning Training (SMART) program showed that in older adults, strategy-based cognitive training that requires participants to synthesize and abstract meaning from complex information improved cognitive performance and led to structural and functional changes in the parts of the brain involved in memory and abstract thinking (Chapman and Mudar 2014).



5. Connect with friends and family

Many studies have shown that, across the lifespan, increased social activity is linked to a lower rate of cognitive decline. People who have more social contacts score higher on tests of memory and executive function (the cognitive processes that help you plan, organize, and complete tasks). However, if those social interactions are stressful and negative, cognitive scores decline.

Increasing your social interactions can take many different forms. Luckily, many of the activities you might choose as part of a physical or mental exercise program will also provide social benefits. For example, going out dancing, joining a dance class, or playing a sport can provide physical and mental exercise, socialization, and fun. Playing bridge or taking part in cultural activities with friends provides both mental and social stimulation. Volunteering also has been shown to lower the risk of cognitive impairment, while at the same time helping others in the community.



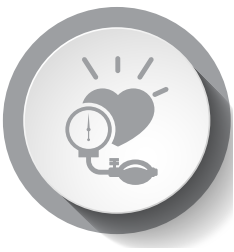


6. Relax and reduce stress

Chronic stress is known to damage the brain and cause problems with learning and memory. While we may not be able to get rid of the things that cause us stress, we may be able to protect our brains with stress-reducing techniques such as meditation, yoga, and Tai Chi. These mind-body approaches have been shown to relieve symptoms such as anxiety, depression, and insomnia. And they also change brain structure and function and reduce inflammation in brain areas involved in attention and memory.

There are many different forms of meditative practice. Mindfulness-based meditation focuses your attention inward while sitting still, while active-based practices may involve movement, chanting, or other physical exercise. Both approaches stimulate areas of the brain that are involved in attention, memory, emotional regulation, and other cognitive functions.





7. Control risk factors

The risk of experiencing age-related cognitive decline is influenced by age and genetics, but also by factors that you can control by adopting a healthy lifestyle and getting treatment for conditions that increase the risk of cognitive impairment. Some of the examples of such conditions include diabetes, hypertension, obesity, and depression.

Exercising regularly, eating a healthy diet, reducing stress, engaging in activities that are socially and mentally stimulating, getting enough sleep, and not smoking may all help delay or prevent these conditions, but many people will also need medical treatment to lower blood pressure and cholesterol, control diabetes and obesity, and treat depression.



Per Researchers at the University of California, San Francisco:

A 10% reduction in 7 risk factors—diabetes, mid-life hypertension, midlife obesity, depression, physical inactivity, smoking, cognitive inactivity—could result in more than a million fewer AD cases worldwide based on their data analyses of many studies (Barnes and Yaffe 2011).





8. Get involved in research

Many research studies help you learn more about the health of your brain. For example, some studies require brain scans that allow researchers to see the size of your brain and any protein build-up that is associated with an increased risk of Alzheimer's disease. These scans can be costly, but when you volunteer for research all brain scans and blood tests are mostly free. In addition, studies on the effects of nutrition and exercise often provide free structured programs to help you stay fit and learn the impact of your work on your brain.

Today there are many types of research studies seeking volunteers, including those that may ask you to engage in routine medical tests and cognitive assessments, to participate in regular exercise or taking a natural supplement, or to take a research medication that is being tested in Alzheimer's. The key is you can choose a research study that is right for you and may lead to scientific breakthroughs that will help us in understanding how to keep our brains healthy.



One of the easiest steps you can take is to reach out to your local research center or complete online surveys that will match you (or your loved one) with potential opportunities



Get Started!

The road to a healthy brain can begin with small steps – a 10-minute walk a few times a week, adding more vegetables to your diet, joining a bridge club, or learning something new. Add more elements to your program and you will continue to feel better, have more energy, and think more clearly.

Visit activ8yourbrain.org

**to learn more about brain health strategies and research
available in your community and across the nation.**

OTHER RESOURCES:

MemoryStrings.org An online community dedicated solely to brain research across the United States and Canada. Find local research centers that are part of the Global Alzheimer's Platform (GAP) Foundation Network, a network dedicated to quick access to research opportunities and a smooth process for all study participants.

Healthybrains.org A project of the Cleveland Clinic Lou Ruvo Center for Brain Health to build a community of people willing to participate in research and provide them with tools and resources for brain health.

Endalznow.org A project of the Banner Alzheimer's Institute that connects people with people who are interested in taking part in Alzheimer's studies.

Brainhealthregistry.org A project of the University of California, San Francisco that enrolls participants in a study using online brain tests of memory and attention to track cognitive decline and identify potential volunteers for research studies.

Stayingsharp.aarp.org A project of AARP that provides information and resources on brain health.



The Global Alzheimer's Platform (GAP) Foundation is a patient-centric 501c3 dedicated to speeding the delivery of innovative medicines to those in need by reducing the time and cost of Alzheimer's Disease clinical trials. For more information, visit globalalzplatform.org.

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