

How to Decrease Your Risk for Dementia by 90%

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✓ Fact Checked

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STORY AT-A-GLANCE

- › Women with the highest cardiovascular fitness had an 88% lower risk of dementia than those with moderate fitness
- › Women with the lowest fitness had a 41% greater risk of dementia than those of average fitness
- › Cardiovascular fitness can be used as a measure of how well blood is circulating to your heart and brain
- › Cardiovascular fitness may slash dementia risk because exercise (which helps improve cardiovascular fitness) increases levels of the protein PGC-1alpha, which is responsible for improving mitochondrial biogenesis

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Staying fit is key to warding off many chronic diseases in later life, including those that may affect your brain. Worldwide, 47 million people are living with dementia. This is expected to increase to 75 million by 2030 and more than triple by 2050, according to the World Health Organization.¹ Yet, you may be able to significantly slash your risk by taking steps to improve and maintain your cardiovascular fitness.

In fact, researchers from the University of Gothenburg in Sweden revealed that women with the highest cardiovascular fitness had an 88% lower risk of dementia than those with moderate fitness.² Further, even maintaining average fitness is worthwhile, as women with the lowest fitness had a 41% greater risk of dementia than those of average

fitness. Fitness, in this case, is not the same as exercise, and the study did not measure how often the women exercised.

Instead, it focused on cardiovascular fitness, as measured by a stepwise-increased maximal ergometer cycling test. Cardiovascular fitness can be a measure of how well blood is circulating to your heart and brain. Study author and physiotherapist Helena Horder told Time, "If the small blood vessels and circulation in the heart are OK, then the brain is also affected in a positive way by good small vessel circulation."³

Why Cardiovascular Fitness May Lower Dementia Risk

During the cycling test, women continued cycling as additional weight or resistance was added. When they became exhausted to the point that they couldn't continue, or the test had to be stopped due to changes seen on an electrocardiograph or in their blood pressure, that was considered to be their peak workload.

Overall, out of the 191 women in the test, 23% developed dementia during the 44-year study period. However, among those whose cycling test was interrupted before reaching peak workload, the percentage with dementia rose to 45%. "Many of those who interrupted the test at submax, very low watt level, probably had indications for a poor cardiovascular health status," Horder told CNN.

"This might indicate that processes in the cardiovascular system might be ongoing many decades before onset of dementia diagnosis."⁴ Further, past research has revealed that exercise prevents age-related shrinkage of your brain, preserving both gray and white matter in your frontal, temporal and parietal cortexes, thereby preventing cognitive deterioration. The authors stated that:⁵

"These results suggest that cardiovascular fitness is associated with the sparing of brain tissue in aging humans. Furthermore, these results suggest a strong biological basis for the role of aerobic fitness in maintaining and enhancing central nervous system health and cognitive functioning in older adults."

Similar findings have been found by other scientists. For example, one observational study that followed more than 600 seniors starting at age 70 found that those who engaged in the most physical exercise showed the least amount of brain shrinkage over a follow-up period of three years.⁶

Exercise Improves Mitochondrial Biogenesis

Another way that cardiovascular fitness may slash dementia risk is that exercise (which helps improve cardiovascular fitness) increases levels of the protein PGC-1alpha, which is responsible for improving mitochondrial biogenesis. Research has shown that people with Alzheimer's have less PGC-1alpha in their brains and cells that contain more of the protein produce less of the toxic amyloid protein associated with Alzheimer's.⁷

Even among those at high risk of dementia, cognitive decline can be reduced with a comprehensive program addressing diet, exercise, brain training and managing metabolic and vascular risk factors.⁸

Exercise initially stimulates the production of a protein called FNDC5, which in turn triggers the production of BDNF, or brain-derived neurotrophic factor. In your brain, BDNF not only preserves existing brain cells,⁹ it also activates brain stem cells to convert into new neurons and effectively makes your brain grow.

Research confirming this includes a study in which seniors aged 60 to 80 who walked 30 to 45 minutes, three days per week, for one year increased the volume of their hippocampus by 2%.¹⁰ The hippocampus is a region of your brain important for memory. Higher fitness levels were also associated with a larger prefrontal cortex.

In another study, patients diagnosed with mild to moderate Alzheimer's, the most common form of dementia, who participated in a four-month-long supervised exercise program had significantly fewer neuropsychiatric symptoms associated with the disease than the control group that did not exercise.¹¹

Another study published in PLOS One revealed that a progressive walking program that led to participants briskly walking for at least 150 minutes each week was associated

with improvements in functional ability in people with early Alzheimer's disease.¹²

Among some of the participants, the walking program also led to improvements in cardiorespiratory fitness, and this was in turn associated with improved memory performance and even increases in the size of their brain's hippocampus.¹³

It's previously been suggested that exercise can also trigger a change in the way amyloid precursor protein is metabolized, thus slowing down the onset and progression of Alzheimer's. It's important to realize, however, that while exercise can be viewed as a "drug" of sorts to lower your risk of dementia and chronic disease, it's possible to overdo it, which can make your health worse instead of better.

More is not always better when it comes to exercise. Particularly in the case of high-intensity interval training, very short workouts done just two or three times a week is all it takes to reap the benefits.

How to Improve Your Cardiovascular Fitness

High-intensity interval training (HIIT) is an important component of reaching high levels of fitness, and it requires only a fraction of the time compared to typical moderate- or low-intensity gym workouts. For example:

- HIIT reduces arterial stiffness and resting heart rate in people with Type 2 diabetes and may reduce the burden of cardiovascular complications in people with this condition¹⁴
- HIIT significantly improves metabolic health in older adults by improving insulin sensitivity and reducing age-related risk factors for cardio-metabolic disease¹⁵
- A meta-analysis of 39 studies found "HIIT is a time-efficient strategy to decrease fat-mass deposits, including those of abdominal and visceral fat mass"¹⁶
- In a study of overweight and obese adults, HIIT and moderate-intensity continuous training led to similar improvements in body composition over 10 weeks, but HIIT required about 40% less training time to receive those benefits¹⁷

- Canadian researchers found high-intensity workouts helped boost memory by improving hippocampal function — a finding they say could prove to be an important prevention strategy against Alzheimer's disease¹⁸

Improving Your Mitochondrial Function Is Key

Restoring mitochondrial function is a cornerstone of successful dementia prevention and treatment, and, in addition to exercise, one of the most powerful ways to optimize mitochondrial function is [cyclical ketosis](#).

A ketogenic diet calls for minimizing carbohydrates and replacing them with healthy fats and adequate amounts of high-quality protein. I recommend a cyclical or targeted ketogenic diet for everyone, where you increase net carbs and protein once you are able to burn fat for fuel on the two to three days a week you are strength training.

I believe this is healthy for most individuals, whether they have a chronic health problem or not, as it will help you optimize your health by converting from burning carbohydrates for energy to burning fat as your primary source of fuel. You can learn more about this approach to improving your mitochondrial function, which is at the heart of Alzheimer's disease, in my book, "[Fat for Fuel](#)." Adopting the ketogenic diet along with intermittent fasting may further boost your results.

Alzheimer's research suggests preclinical signs of Alzheimer's disease may be evident as early as 20 years before the disease actually sets in, allowing for much earlier intervention if these changes are identified.¹⁹ However, normally by the time your memory begins to noticeably deteriorate, about 40 to 50% of your brain cells have already been damaged or destroyed.

Dr. Dale Bredesen, director of neurodegenerative disease research at the University of California, Los Angeles School of Medicine, and author of "[The End of Alzheimer's: The First Program to Prevent and Reverse Cognitive Decline](#)," recommends the following Alzheimer's screening test so you can evaluate your risk and then get on an appropriate program for prevention or, if you're already symptomatic, reversal:

Test	Recommended range
Ferritin	40 to 60 ng/mL
GGT	Less than 16 U/L for men and less than 9 U/L for women
25-hydroxy vitamin D	40 to 60 ng/mL. You can get test here
High-sensitivity CRP	Less than 0.9 mg/L (the lower the better)
Fasting Insulin	Less than 4.5 uIU/ml (the lower the better)
Omega-3 index and omega 6:3 ratio	Omega-3 index should be above 8% and your omega 6-to-3 ratio between 0.5 and 3.0. You can get the omega-3 index test here
TNF alpha	Less than 6.0
TSH	Less than 2.0 microunits/mL
Free T3	3.2 to 4.2 pg/mL
Reverse T3	Less than 20 ng/mL
Free T4	1.3 to 1.8 ng/mL
Serum copper and zinc ratio	0.8 to 1.2
Serum selenium	110 to 150 ng/mL
Glutathione	5.0 to 5.5 μ m
Vitamin E (alpha tocopherol)	12 to 20 mcg/mL

Test	Recommended range
Body mass index (which you can calculate yourself)	18 to 25
ApoE4 (DNA test)	See how many alleles you have: 0, 1 or 2
Vitamin B12	500 to 1,500
Hemoglobin A1c	Less than 5.5 (the lower the better)
Homocysteine	4.4 to 10.8 mcmol/L

While it's often believed that dementia is a condition that can't be controlled, there are many factors you can influence that will greatly affect your risk. Improving your cardiovascular fitness is an excellent place to start – with the potential to cut your risk by up to 90%, as the featured study found – and when combined with other approaches to resolve mitochondrial dysfunction can be highly effective in preventing cognitive decline.

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