

Incredible Explosion of Gold From 1,400-Year-Old Ginkgo Tree

Analysis by [Dr. Joseph Mercola](#)

✓ Fact Checked

November 07, 2022

STORY AT-A-GLANCE

- › Scientists have demonstrated the plant extract ginkgo biloba can protect your brain from the toxicity associated with aluminum chloride, which has been linked to Alzheimer's disease and other cognitive impairments
- › Previous studies suggest the antioxidant properties found in ginkgo biloba help protect your cells from free-radical damage within your circulatory and nervous systems
- › Because dementia and Alzheimer's are not caused by a lack of ginkgo biloba or the absence of any single supplement, I recommend you act now to optimize your health, which is your best strategy for preventing degenerative brain disease

Years ago, a public service announcement in the U.S. concluded with this powerful statement: "A mind is a terrible thing to waste." While that tagline promoted an education fund for minority college students, it could just as easily be used to underscore the importance of taking care of your brain health. I say that because of the prevalence of degenerative brain diseases, such as age-related dementia and Alzheimer's disease.

Like me, you may have coworkers, neighbors, friends and family members who are affected by one of these progressive "mind-robbing" diseases. The numbers of those affected continue to grow at alarming rates, with more than 6 million Americans currently living with Alzheimer's.¹

While it's terrible to watch a loved one slip away and literally "lose their mind," it's also important to remember that dementia and Alzheimer's are not a normal part of aging. Rather than try to counteract the effects of these diseases once they develop, it's better to adopt a healthy lifestyle now that will help you successfully avoid them.

Over the years, many studies have considered the effectiveness of ginkgo biloba for the treatment of Alzheimer's and dementia. The latest research demonstrates ginkgo's protective effects on the brain when exposed to aluminum chloride, a neurotoxin previously linked to Alzheimer's and other cognitive impairments.

What Is Ginkgo Biloba and How Does It Help?

Given that the ginkgo tree is among the oldest trees in the world, ginkgo seeds have been used in traditional Chinese medicine and other types of treatment for thousands of years. The sole survivor of trees from 270 million years ago, it releases all its leaves in a golden explosion in just one day.²

Over the years, ginkgo has been transformed into capsules, cosmetics, extracts, tablets and teas. Today, ginkgo biloba is a top-selling extract and dietary supplement. Beyond what was mentioned above related to its potential cognitive- and memory-boosting properties, some of ginkgo's benefits are thought to be as follows:³

- Decreases leg pain caused by narrowing of your arteries (intermittent claudication)
- Treats eye problems, such as age-related macular degeneration, diabetic eye issues and glaucoma
- Supports the treatment of multiple sclerosis, sexual dysfunction and tinnitus, among other health conditions

Ginkgo is believed to positively affect your body by increasing blood supply, reducing blood viscosity, boosting neurotransmitters and reducing harmful free radicals.⁴

According to Cleveland Clinic,⁵ an adult dose of 120 to 600 milligrams (mg) of ginkgo biloba per day seems to be effective for addressing memory problems. Some have

suggested even better results may be achieved by taking ginkgo in combination with panax ginseng or codonopsis. In the video below, Tom O'Brien, master herbalist, presents 10 health benefits of ginkgo biloba.

Ginkgo Shown to Protect Your Brain Against Aluminum Chloride

In recent years, it has become increasingly clear that aluminum toxicity plays a role in neurodegenerative diseases. Because aluminum targets the same areas of your brain and nervous system, people with aluminum toxicity display many of the symptoms shared by those with attention deficit hyperactivity disorder (ADHD), autism, dementia, Parkinson's and other neurological diseases.

Inhaling aluminum dust or vapors sends aluminum particles directly into your lungs in a highly absorbable form. From there, they pass into your bloodstream and are distributed throughout your body, including your bones and brain.

Exposure to aluminum is an occupational hazard for workers in agriculture, factories, mining and welding. Furthermore, you ingest aluminum vapors every time your nose catches a whiff of cigarette smoke. Studies of the health effects of aluminum vapors are grim, pointing to high levels of neurotoxicity.⁶

In a 2016 study published in *Nutrition*,⁷ ginkgo biloba was shown to protect the brain from toxicity associated with aluminum chloride. Exposure to aluminum chloride has been linked to Alzheimer's and other cognitive impairments. The study, which lasted three months, was composed of four groups of lab rats as follows:

- Group 1 (control group) – daily normal diet and water
- Group 2 – daily oral dose of ginkgo biloba – 200 mg/kilogram (kg) body weight
- Group 3 – daily oral dose of aluminum chloride – 10 mg/kg body weight
- Group 4 – daily dose of both ginkgo biloba and aluminum chloride through a stomach tube – 200 and 10 mg/kg body weight, respectively

The rats given aluminum chloride showed:

A significant increase in thiobarbituric acid reactive substance (TBARS), which signals damage produced by oxidative stress (similar to rust on your car, oxidative stress is a sign of aging in your body)

A decrease in antioxidants catalase, glutathione and superoxide dismutase in brain and testis tissues

A significant decrease in dopamine, noradrenaline and serotonin levels in brain tissue

A significant decrease in serum copper and zinc levels

A significant increase in serum iron

A significant decrease in testosterone

In contrast, rats administered both ginkgo biloba and aluminum chloride had:

- Lower TBARS
- More of the antioxidants catalase, glutathione and superoxide dismutase in brain and testis tissues

Overall, the research demonstrates that ginkgo biloba plays a positive role in protecting the brain neurons of rats from oxidative stress caused by the intake of aluminum chloride. The study authors stated:⁸

“The histologic examination showed some degenerative changes in both brain and testis tissues [of the rats receiving aluminum chloride], while significant improvement in biochemical and histologic changes were observed in the ‘aluminum chloride plus ginkgo biloba’ group. It could be concluded that the protective effect of ginkgo biloba may be attributed to its antioxidant properties.”

These findings are in line with previous studies involving the extracts of ginkgo biloba, which are known to contain antioxidant compounds that protect your cells from free-radical damage within your circulatory and nervous systems.⁹

Ginkgo Also May Help Slow Aging Process in Your Mitochondria

A 2012 study published in *International Psychogeriatrics*¹⁰ suggests ginkgo biloba may slow the aging process within mitochondria of your cells, which can affect the progression of Alzheimer's. The authors of the study said:

"A growing volume of data confirms that ginkgo biloba extract reduces oxidative stress and improves mitochondrial respiration, and thus may be useful in preventing or slowing down the progression of [Alzheimer's disease]."

Other research has suggested the mitochondrial antiaging effect of ginkgo biloba is not limited to just neurons, but also extends to blood platelets, endothelial cells, fibroblasts, heart cells and liver cells.¹¹ Later in this article I will present some diet and lifestyle tips to boost your brain health.

By far, one of the best strategies to support your brain and your mitochondria is to convert your body to burning fat instead of glucose as its primary fuel. You can learn more about metabolic mitochondrial therapy by reading my book, "[Fat for Fuel](#)."

Risks and Cautions Related to Ginkgo Intake

According to the U.S. National Center for Complementary and Integrative Health,¹² intake of ginkgo biloba is thought to be safe for healthy adults when taken by mouth in moderate amounts. Potential side effects of ginkgo may include allergic skin reactions, dizziness, headache and stomach upset.

An increased risk of bleeding is possible with ginkgo if you are older, pregnant or have a known bleeding risk. Ginkgo has been shown to interact with blood thinners (anticoagulants), so do not take it if you are currently on a blood-thinner medication. For

similar reasons, you should not take ginkgo before undergoing surgery or dental procedures. Also, do not eat raw or roasted ginkgo seeds, because they can cause serious side effects and may be poisonous.

A 2013 study¹³ investigating the potential toxicology of ginkgo suggested consumption of it may raise your risk of developing liver cancer and thyroid cancer. However, that research has come under considerable criticism for the large doses of ginkgo extract that were administered to rodents daily during the two-year study.¹⁴

You Need B Vitamins if You Take Ginkgo Biloba

A word of caution related to ginkgo biloba: Its seeds contain ginkgotoxin (4'-O-methylpyridoxine), an “antivitamin” that may lead to neurological problems in certain people, particularly those who are deficient in certain B vitamins.¹⁵

B vitamins are important not only when you consume ginkgo, but they are also useful in helping to reduce brain shrinkage and prevent degenerative brain diseases. In particular, folic acid and vitamins B6 and B12 have been shown to play a powerful role in preventing Alzheimer's.

High levels of the amino acid homocysteine have been linked to brain shrinkage and an increased risk of Alzheimer's. B vitamins are known to suppress homocysteine. In a 2010 study,¹⁶ participants received relatively high doses of the three B vitamins mentioned above. Two years later, those who had received the vitamin-B regimen suffered significantly less brain shrinkage compared to those who had received a placebo.

Participants with the highest levels of homocysteine at the onset of the trial experienced brain shrinkage at half the rate of those taking a placebo. The study authors concluded: “The accelerated rate of brain atrophy in elderly with mild cognitive impairment can be slowed by treatment with homocysteine-lowering B vitamins.”

A 2014 study by some of the same scientists again underscored the importance of folic acid and vitamins B6 and B12 to slow brain shrinkage. Additionally, they noted B

vitamins helped slow shrinkage specifically in brain gray-matter regions known to be most vulnerable to Alzheimer's.¹⁷ One of the targeted areas was the medial temporal lobe. Researchers said:¹⁸

"Our results show that B-vitamin supplementation can slow the atrophy of specific brain regions that are a key component of the [Alzheimer's disease] process and are associated with cognitive decline."

Prevention Is Still Your Best Option

As with any chronic illness or disease, your best strategy for beating Alzheimer's is prevention. The following four dietary recommendations are vital for maintaining brain health and staving off Alzheimer's:

- **Eat real food, ideally organic** — Be sure to choose organic grass fed meats and animal products, as animals raised in concentrated animal feeding operations (CAFOs) are routinely fed genetically engineered (GE) grains contaminated with pesticides. Also, they are given a variety of drugs.

Research has shown vegetables to be particularly beneficial for slowing age-related cognitive decline, mainly due to the antioxidants they contain. Avoid processed foods of all kinds because they contain items that are harmful to your brain, such as refined sugar, artificial sweeteners, glutinous grains, GE ingredients and pesticides.

Ideally, you'll want to keep your total fructose below 25 grams per day if you are in good health, or below 15 grams per day if you are insulin/leptin resistant or are battling a chronic disease.

- **Replace refined carbohydrates with healthy fats** — Contrary to what most people think, your brain does not need carbs and sugars. What it does need is healthy fats, such as saturated animal fats and animal-based omega-3s, which are far more important for optimal brain function. Healthy fats also support your mitochondria, a topic addressed more thoroughly in my book "Fat for Fuel." Healthy fats to add to your diet include:

Animal-based omega-3s, such as those found in krill oil and small fatty fish like anchovies and sardines	Avocados	Butter made from raw, grass fed, organic milk
Coconuts and coconut oil	Ghee (clarified butter)	Grass fed meats or pasture-raised poultry
Olives and olive oil (Avoid cooking with olive oil. Use it cold)	Organic pastured egg yolks	Raw cacao butter
Raw dairy	Raw nuts, such as macadamias and pecans	Seeds like black sesame, cumin, hemp and pumpkin seeds

Avoid all trans fats and hydrogenated fats that have been modified to extend their longevity on the grocery store shelf. This includes margarine and various butter-like spreads. Vegetable oils such as soybean and canola should also be avoided.

- **Avoid gluten and casein** – The main items to forego in this category are wheat and pasteurized dairy, but not dairy fat, such as butter. Research shows that your blood-brain barrier is negatively affected by gluten.

Gluten also makes your gut more permeable, which allows proteins to get into your bloodstream where they sensitize your immune system. Once there, they promote autoimmunity and inflammation, both of which play a role in the development of Alzheimer's.

- **Optimize your gut flora** – By avoiding the processed foods noted above, which discourage healthy bacteria in your gut, you can strengthen your gut microbiome.

Other gut-harming items to avoid include antibacterial products, antibiotics and fluoridated water.

You can easily fortify your gut by regularly eating cultured and fermented foods, or intaking a high-quality probiotic. In my 2015 interview with Dr. David Perlmutter, he explores the compelling connection between your gut microbes and brain health, relating it to a number of neurological diseases, including Alzheimer's.

Additional Alzheimer's Prevention Strategies

In addition to the dietary recommendations mentioned above, the following additional prevention strategies will help you avoid Alzheimer's.

Get sufficient sleep – To be healthy, it's vital you get enough sleep according to the sleep needs of people your age, targeting around seven to nine hours per night for adults, and even more for teenagers and children.

Exercise regularly – Strive to sit less than three hours a day, move as much as you can during your nonexercise hours and exercise regularly. Try some of my personal favorites, such as daily walking, high-intensity exercises, stretching and strength training.

Scientists have suggested exercise can trigger a change in the way the amyloid precursor protein is metabolized, thereby slowing down the onset and progression of Alzheimer's.¹⁹ Exercise also increases your levels of the protein PGC-1alpha. Research has shown people with Alzheimer's have less PGC-1alpha in their brains.

Intermittently fast – Intermittent fasting is a powerful tool to kickstart your body into remembering how to burn fat and repair the insulin/leptin resistance that is a contributing factor for Alzheimer's.

Optimize your vitamin D levels with sensible sun exposure – Sufficient vitamin D helps your immune system combat inflammation associated with Alzheimer's. The

optimal vitamin D level for general health ranges between 40 to 60 nanograms per milliliter. The ideal way to raise your level is by regularly exposing large amounts of your skin to sunshine.

If you cannot get sufficient UV-sun exposure, taking an oral vitamin D3 supplement along with vitamin K2 and magnesium is highly advisable.

Remove dental amalgam fillings – Dental amalgam fillings, which are 50% mercury by weight, are one of the major sources of heavy metal toxicity. If you have amalgams and are in reasonably good health, review my mercury detox protocol and then find a biological dentist who can help you with the removal.

Avoid and eliminate aluminum from your body – Sources of aluminum include antiperspirants, non-stick cookware and vaccine adjuvants. Learn more about how to detox aluminum.

Avoid flu vaccinations – Many flu vaccines contain both mercury and aluminum.

Avoid statins and anticholinergic drugs – Drugs that block acetylcholine, a nervous system neurotransmitter, have been shown to increase your risk of dementia. These drugs include certain nighttime pain relievers, antihistamines, sleep aids, certain antidepressants, medications to control incontinence and certain narcotic pain relievers.

Statin drugs are particularly problematic because they suppress the synthesis of cholesterol, deplete your brain of coenzyme Q10, vitamin K2 and neurotransmitter precursors.

Challenge your mind daily – Researchers suspect that mental challenge helps to build your brain, making it less susceptible to the lesions associated with Alzheimer's.

Age-Related Declines Are Not Caused by Lack of Ginkgo Biloba

No matter how good the research related to ginkgo biloba is today, or becomes in the future, I strongly caution you from looking to a single supplement as a “quick fix.” Aged-related cognitive decline and signs of accelerated aging are most certainly not caused by a lack of ginkgo biloba or any other supplement!

Therefore, it is essential you carefully and thoroughly evaluate your diet and lifestyle choices and habits to ensure you are doing all you can now to prevent and/or address dementia and Alzheimer’s. Choose one or two areas for positive change, and start today taking steps toward optimizing your health.

Sources and References

- ¹ [Alz.org Alzheimer’s Association, 2017 Alzheimer's Disease Facts and Figures](#)
- ² [Twitter. Khai, photo by Han Fei](#)
- ^{3, 12} [National Center for Complementary and Integrative Health \(NCCIH\) March 10, 2017](#)
- ⁴ [Cochrane Database of Systematic Reviews January 21, 2009; \(1\): CD003120](#)
- ⁵ [Cleveland Clinic Pharmacotherapy Update. Ginkgo Biloba and Memory](#)
- ⁶ [Global Healing Center July 17, 2013](#)
- ^{7, 8} [Nutrition March 2017; 35: 93-99](#)
- ⁹ [Arch Phys Med Rehabil 2000 May;81\(5\):668-78](#)
- ¹⁰ [International Psychogeriatrics August 2012; 24\(S1\); S18-20](#)
- ¹¹ [Platelets. 2010;21\(5\):373-9](#)
- ¹³ [National Toxicology Program Technical Report Series March 2013; \(578\): 1-183](#)
- ¹⁴ [Cancer Prevention Research January 2015; 8\(1\): 1–8](#)
- ¹⁵ [J Epilepsy Res. 2015 Dec; 5\(2\): 104–106](#)
- ¹⁶ [PLoS ONE September 2010; 5\(9\): e12244](#)
- ^{17, 18} [Proceedings of the National Academy of Sciences of the United States of America June 4, 2013; 110\(23\): 9523-8](#)
- ¹⁹ [The Journal of Neuroscience, April 27, 2005; 25\(17\): 4217-4221](#)