

# Can Vitamin D3 in Combination with Turmeric Spice Reverse Alzheimer's Disease Progression?

Patients with Alzheimer's disease tend to suffer from brain amyloidosis, a condition related to defective clearance of amyloid-beta in their brains by their innate immune system.

In order to improve the innate immune system of Alzheimer's patients, researchers looked at the immune stimulation effects of vitamin D3 in combination with curcumin, an active compound found in the **spice turmeric**.

According to the study:

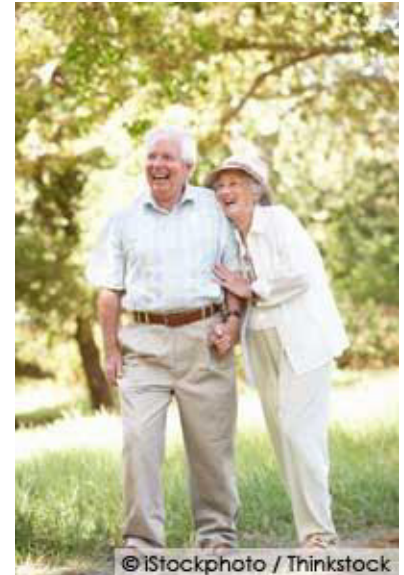
*"[Vitamin D3] is a promising hormone for [Alzheimer's] immunoprophylaxis because in Type I macrophages combined treatment with ... D3 and curcuminoids has additive effects, and in Type II macrophages ... D3 treatment is effective alone."*

Vitamin D is of incredible, often-overlooked importance to health. Lack of vitamin D may have even killed Mozart. During Wolfgang Amadeus Mozart's short life, he suffered from many of his era's common illnesses -- such as smallpox, typhoid fever, tonsillitis and upper respiratory tract infections. But what finally killed him at the age of 35 is still a matter of debate.

Two researchers are offering a new theory as to the cause -- vitamin D deficiency. In high-latitude Austria, Mozart probably got little of the vitamin from sunlight during the winter months. This may have put him at risk for many illnesses.

According to Discovery News:

*"... [M]ost of Mozart's infections occurred between mid-October and mid-May. That's the time of year when people in places as far north as Austria simply can't make enough vitamin D from sun exposure. Plenty of studies in recent years have linked*



*adequate vitamin D levels with lower risks for influenza, pneumonia, cardiovascular disease, cancers, autoimmune diseases and more."*

Aside from vitamin D, there is also evidence that exercise may help fight Alzheimer's. Exercise increases levels of the protein PGC-1alpha, a brain molecule that may protect against Alzheimer's disease. The protein also has metabolic effects that appear to guard against type 2 diabetes.

When researchers studied brain samples from dead Alzheimer's patients, they found they contained less PGC-1alpha than normal. Further investigation revealed that cells containing more PGC-1alpha produced less of the toxic amyloid protein characteristic of Alzheimer's.

According to the *Salisbury Journal*:

*"Since exercise is known to raise levels of PGC-1alpha, the findings may help explain the link between regular physical activity and reduced Alzheimer's risk. They also provide a clue to why people with diabetes are more likely to develop Alzheimer's."*

### **Dr. Mercola's Comments:**



Both vitamin D and curcumin, the pigment that gives spicy turmeric its yellow-orange color, have been shown to help fight Alzheimer's disease independently, and it appears they may provide even more powerful punch when applied together.

[Curcumin](#) prevents the spread of amyloid protein plaques, which are thought to cause dementia. Amyloid plaques, along with tangles of nerve fibers, contribute to the degradation of the wiring in brain cells. This study revealed that vitamin D3 together with curcumin may help stimulate your immune system to clear your brain of amyloid beta, thereby helping to prevent Alzheimer's.

## **How Does Curcumin Stimulate Your Immune System and Fight Alzheimer's?**

The compelling research is really coming together showing just how important both vitamin D and curcumin can be for your brain health. A general immune system booster due to its high antioxidant capacity, turmeric is 5 to 8 times stronger than vitamins C and E, and even strong enough to scavenge the hydroxyl radical, which is considered by some to be the most reactive of all oxidants.

Recent research has shown that curcumin acts by inserting itself into your cells' membranes where it [changes the physical properties of the membrane itself](#), making it more orderly. Past research has also shown that curcumin may help [inhibit the accumulation of destructive beta amyloids](#) -- a component of the neurofibrillary tangles and plaques attributed to Alzheimer's disease -- in the brains of Alzheimer's patients, as well as break up existing plaques.

Researchers determined:

- Curcumin is more effective in inhibiting the formation of the protein fragments than many other potential Alzheimer's treatments
- The low molecular weight and polar structure of curcumin allows it to penetrate the blood-brain barrier effectively and bind to beta amyloid
- Alzheimer's symptoms caused by inflammation and oxidation are eased by curcumin's powerful antioxidant and anti-inflammatory properties

People with Alzheimer's tend to have higher levels of inflammation in their brains, and curcumin is most known for its [potent anti-inflammatory properties](#). The compound has been shown to influence more than 700 genes, and it can inhibit both the activity and the synthesis of cyclooxygenase-2 (COX2) and 5-lipoxygenase (5-LOX), as well as other enzymes that have been implicated in inflammation.

Further, when UCLA researchers tested the effect of curcumin on isolated cells called macrophages (part of your body's immune system that eliminates waste products like the disease-causing amyloid beta) in blood samples taken from Alzheimer's patients, the blood samples improved dramatically, improving the digestion of the amyloid beta cells by the macrophages, present from birth in your body's innate immune system.

## The Vitamin D Connection

There is no shortage of research linking vitamin D to brain health. One such study was actually launched after family members of Alzheimer's patients who were treated with large doses of prescription vitamin D reported that they were acting and performing better than before.

Strong links between [low levels of vitamin D in Alzheimer's patients](#) and poor outcomes on cognitive tests were revealed. Researchers believe that optimal vitamin D levels may enhance the amount of important chemicals in your brain and protect brain cells. Like curcumin, vitamin D may also exert some of its beneficial effects on Alzheimer's through its anti-inflammatory and immune-boosting properties. Sufficient vitamin D is imperative for proper functioning of your immune system to combat inflammation.

It's important to note that most people are not getting enough of this crucial nutrient.

In the United States, the late winter average vitamin D is only about 15-18 ng/ml, which is considered a very serious deficiency state. In fact, it's estimated that over 95 percent of U.S. senior citizens may be deficient, along with 85 percent of the American public. So if you are simply assuming that your levels are fine, you could be putting your health at risk. For more information on vitamin D, including how to optimize your levels, listen to my [free one-hour vitamin D lecture](#).

## Lack of Vitamin D May Have Killed Mozart

Interestingly, a letter by vitamin D researcher William Grant, published in the journal [Medical Problems of Performing Artists](#), suggests that low vitamin D levels may have been responsible for Mozart's death at age 35. Commenting on a [paper by retired orthopedic surgeon William Dawson](#), which reviewed 81 references in the literature regarding Mozart's health, Grant suggests vitamin D deficiency may have been a contributing factor in his death.

Grant writes:

*"Dawson's recent extensive bibliographic review of the cause of death of Wolfgang Amadeus Mozart found that there were a number of hypotheses including poisoning, infection, cardiovascular disease, and renal disease and its complications. Overlooked in any of the papers hypothesizing about his death was a discussion of the likely role of very low serum 25-hydroxyvitamin D [25(OH)D] level in contributing to his untimely death."*

As reported by [Discovery News](#), Grant pointed out that most of Mozart's infections occurred between mid-October and mid-May -- the time of year when many people (like those in Austria where Mozart lived) do not get adequate sun exposure and therefore can't manufacture vitamin D.

It's known for instance, that Mozart suffered from many secondary infections, and research proves vitamin D plays an important role in activating immune defenses against [infectious diseases like the flu](#). Mozart also suffered from upper respiratory tract infections, which [vitamin D is also effective against](#). Perhaps the most telling piece of information is the fact that higher vitamin D levels [significantly reduce mortality rates from ALL causes](#), so it's certainly a plausible theory that it could have been a factor in Mozart's untimely death.

## **Exercise May Also Help Fight Alzheimer's**

Getting back to the topic of Alzheimer's disease, exercise is another important variable. It's been suggested that exercise can trigger a change in the way [the amyloid precursor protein is metabolized](#), thus, slowing down the onset and progression of Alzheimer's. Exercise also increases levels of the protein PGC-1alpha. New 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.

This may help explain one reason *why* exercise appears so beneficial in keeping your brain healthy.

The research on this is very strong; one study found performing moderate exercise during midlife led to a [39 percent decreased risk of developing mild cognitive](#)

[impairment](#), while moderate exercise late in life was associated with a 32 percent lower risk.

A separate study even found that high-intensity aerobic exercise for six months was enough to [improve brain function in those already suffering](#) from mild cognitive impairment -- without the extra cost and dangerous side effects that occur when drugs are used instead. Mild cognitive impairment is often described as a transitory phase between normal brain function and more serious problems like dementia and Alzheimer's disease, so this is an important benefit.

When you exercise, be sure you are incorporating [high-intensity Sprint 8 exercises](#) into your routine, as these will give you optimal benefits in the least amount of time.

## 10 More Tips for Alzheimer's Prevention

Alzheimer's disease is currently at epidemic proportions, with 5.4 million Americans -- including one in eight people aged 65 and over -- living with Alzheimer's disease, according to the Alzheimer's Association's [2011 Alzheimer's Disease Facts and Figures](#). By 2050, this is expected to jump to 16 million, and in the next 20 years it is projected that Alzheimer's will affect one in four Americans.

Unfortunately, treatments are limited and there is no available cure as of yet. So I strongly suggest you take every step you can to prevent it from happening to you in the first place. Some of the best strategies for Alzheimer's prevention include:

1. **Fructose.** You simply MUST keep your level below 25 grams per day. This toxic influence is serving as the master regulator of brain toxicity. Since the average person is exceeding this recommendation by 300% this is a pervasive and serious issue. I view this as the MOST important step you can take.

Keep your fasting insulin levels below 3. This is indirectly related to fructose, as it will clearly lead to insulin resistance. However other sugars, grains and lack of exercise are also factors here.

2. **Vitamin B12:** According to a small [Finnish study recently published in the journal \*Neurology\*](#), people who consume foods rich in B12 may reduce their risk of Alzheimer's in their later years. For each unit increase in the marker of

vitamin B12 (holotranscobalamin) the risk of developing Alzheimer's was reduced by 2 percent. Very high doses of B vitamins have also been found to [treat Alzheimer's disease and reduce memory loss](#).

3. **Eat a nutritious diet, rich in folate**, such as the [one described in my nutrition plan](#). Strict [vegetarian diets have](#) been shown to increase your Alzheimer's risk, whereas diets high in [omega-3's lower your risk](#). However, vegetables, without question, are your best form of folate, and we should all eat plenty of fresh raw veggies every day.
4. **High-quality animal based omega-3 fats**, such as krill oil. (I recommend avoiding most fish because although fish is naturally high in omega-3, most fish stocks are now severely contaminated with mercury.) High intake of the omega-3 fatty acid DHA helps by preventing cell damage caused by Alzheimer's disease, thereby slowing down its progression, and lowering your risk of developing the disorder. Researchers have also said DHA "dramatically reduces the impact of the Alzheimer's gene."
5. **Avoid and remove mercury from your body**. Dental amalgam fillings are one of the major sources of mercury, however you should be healthy prior to having them removed. Once you have adjusted to following the diet described in [my optimized nutrition plan](#), you can follow the [mercury detox protocol](#) and then find a biological dentist to have your amalgams removed.
6. **Avoid aluminum**, such as antiperspirants, non-stick cookware, etc.
7. **Avoid flu vaccinations** as most contain both mercury and aluminum!
8. **Eat blueberries**. Wild blueberries, which have high anthocyanin and antioxidant content, are known to guard against Alzheimer's and other neurological diseases. Just don't overdose on them as they do have fructose and it is possible to overeat them.
9. **Challenge your mind daily**. Mental stimulation, especially learning something new, such as learning to play an instrument or a new language, is associated with a decreased risk of Alzheimer's. Researchers suspect that mental challenge helps to build up your brain, making it less susceptible to the lesions associated with Alzheimer's disease.

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

A study found that those who took drugs classified as 'definite anticholinergics' had a [four times higher incidence of cognitive impairment](#). Regularly taking *two* of these drugs further increased the risk of cognitive impairment.

If you or someone you love has Alzheimer's disease, you may want to look into the [research surrounding alpha-lipoic acid](#), as it has shown some benefit in stabilizing cognitive function and slowing the progression of the disease. [Coconut oil](#) may also offer some benefit with no risk of side effects.