

Vitamin E Enhances Cell-Mediated Immunity in the Elderly

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January 29, 2025

STORY AT-A-GLANCE

- › Vitamin E is a powerful antioxidant that boosts immune function in older adults, helping to fight off infections and improve overall health
- › Good sources of vitamin E include green leafy vegetables, certain fruits like kiwi and mango, and grass fed meats
- › Beyond immunity, vitamin E protects against cell damage, promotes heart and brain health, and supports healthy vision
- › While food is the best source of vitamin E, many people benefit from a vitamin E supplement due to high linoleic acid intake in the Western diet, which increases your body's need for vitamin E
- › Look for natural vitamin E supplements (d-alpha-tocopherol) with a full spectrum of tocopherols and tocotrienols, free from soy and GE ingredients

As you age, your body changes, and so do your defenses against illness. This defense system is known as your immunity, and it's essential for fighting off infections and staying healthy. Unfortunately, immunity tends to weaken with age, making older adults more susceptible to various health problems. But here's the good news: vitamin E, a powerful nutrient found in many foods, helps boost immunity in seniors.

Understanding Immunity

Your immune system is a complex network of cells and organs that work together to protect your body from harmful invaders like bacteria and viruses. It has two main parts: innate immunity and adaptive immunity. Innate immunity is your body's first line of defense, providing a general response to any invader.

Adaptive immunity is a more specific response, targeting particular invaders that your body has encountered before. One aspect of adaptive immunity is cell-mediated immunity, where specific cells directly attack and destroy infected cells.

As you get older, your immune system doesn't function as effectively as it used to. This decline is due to several factors, including changes in the number and function of immune cells. Consequently, older adults become more vulnerable to infections, chronic diseases and slower healing.

A strong immune system is important for preventing illness, promoting longevity and maintaining a good quality of life. When your immune system is weakened, you're more likely to get sick, and it takes longer to recover. This significantly impacts your daily activities, energy levels and overall well-being.¹

The food you eat plays a key role in supporting your immune system. A balanced diet provides the necessary building blocks for immune cells and processes. Micronutrients, such as vitamins and minerals, are particularly important for optimal immune function.² Vitamin E is one such micronutrient that has garnered attention for its immune-boosting properties, especially in the elderly.

The Power of Vitamin E

Vitamin E is a fat-soluble vitamin that exists in eight different forms. The most common and biologically active form is alpha-tocopherol. You can find vitamin E in various foods like nuts, seeds and vegetable oils, but I don't recommend these foods because of their high **linoleic acid** (LA) content. Beans, another food rich in vitamin E, are also problematic to some people due to their high lectin content.

Good natural vitamin E sources that do not have negative effects on your health include fresh fruits and vegetables, such as pumpkin, asparagus, red bell peppers, tomatoes, kiwi and mango. Grass fed ruminants, such as beef or bison, are also excellent sources. Vitamin E is also available in supplement form, though it's always best to try and get nutrients from whole foods first.

One of vitamin E's primary functions is to act as an antioxidant. Think of oxidative stress as a process that causes "rusting" in your body, damaging cells and contributing to aging and disease. Vitamin E acts like a "rust-proofing" agent, neutralizing harmful molecules called free radicals and protecting your cells from damage.³ This antioxidant activity helps maintain a healthy immune system, especially as you age.

Studies have shown that vitamin E enhances immune response, particularly cell-mediated immunity. It does this by improving the function of various immune cells, including T cells, which are essential for fighting infections.⁴ For example, research has demonstrated that vitamin E increases the proliferation of T cells. This means that vitamin E helps your body produce more of these infection-fighting cells, making your immune system stronger and more responsive.⁵

In older adults, vitamin E supplementation has been found to increase immune response and protect against infections. Specifically, one study found that vitamin E supplementation significantly enhanced the response of T cells to stimulation.⁶

This means that the immune systems of the elderly individuals in the study were better equipped to recognize and fight off infections after taking vitamin E supplements. This is particularly important for older adults who often experience a decline in T cell function, making them more susceptible to illnesses.⁷

Vitamin E and Healthy Aging

While vitamin E is clearly **beneficial for immune function**, its benefits extend far beyond boosting your defenses against infection. Think of vitamin E as a guardian of your cells, protecting them from damage and helping them function at their best. This is

particularly important as you age, because your cells become more vulnerable to wear and tear.⁸

One of the major culprits behind this cellular damage is oxidative stress. Imagine your cells as apples. When you cut an apple and leave it exposed to air, it starts to turn brown. This browning is caused by oxidation, a process similar to what happens in your body when free radicals damage your cells. Vitamin E acts like a protective layer, preventing the "browning" of your cells and keeping them healthy.⁹

This protective effect has far-reaching benefits, contributing to the health of various organs and systems in your body.¹⁰ For example, **vitamin E's antioxidant action** helps maintain healthy blood vessels. Think of your blood vessels as a network of pipes that carry blood throughout your body. Just like rust damages pipes and restricts water flow, oxidative stress damages blood vessels and impedes blood circulation.

Vitamin E helps keep these "pipes" clear and functioning smoothly, reducing your risk of heart disease.¹¹ In addition to **heart health**, vitamin E also protects against cognitive decline. Imagine your brain as a complex computer. As you age, the "wiring" in your brain becomes damaged, leading to memory problems and cognitive decline. Vitamin E helps protect this "wiring," keeping your brain sharp and functioning optimally.¹²

Furthermore, vitamin E supports eye health. Think of your eyes as cameras that capture images of the world around you. Just like a camera lens becomes cloudy and distorted, the lens in your eye is also damaged by oxidative stress, leading to vision problems. Vitamin E acts like a lens cleaner, protecting your eyes and preserving your vision.¹³

By protecting cells and promoting their optimal function, vitamin E helps seniors maintain their independence and quality of life as they age. It's like giving your body the tools it needs to stay young at heart and enjoy a vibrant and active life.

Why Many People Don't Get Enough Vitamin E from Diet Alone

The best way to get your daily dose of vitamin E is through a healthy diet. However, many people don't get enough vitamin E from their diet alone. This is because the typical

Western diet is high in LA, an omega-6 fatty acid that increases your body's need for vitamin E. Therefore, taking vitamin E supplements is beneficial for counteracting the effects of oxidative stress.

If you keep your LA intake below 5 grams per day for approximately three years, you might find that you no longer need to take vitamin E supplements regularly, or you may only need them occasionally. And, if you do have a meal high in LA, taking a vitamin E capsule afterward helps protect your body from the effects of that specific meal.

Once your LA levels are lower, you'll only need around 2 milligrams (mg) of vitamin E for every gram of LA you consume. With a recommended daily LA intake of 5 grams or less, this translates to about 10 mg of vitamin E daily, which is a relatively small amount. Since vitamin E is fat-soluble, it's stored in your fat tissue for a period of time, providing ongoing benefits. For best absorption, it's ideal to take vitamin E with a healthy fat source, like coconut oil.

While vitamin E offers numerous health benefits, excessive intake poses some risks. High doses of vitamin E increase your risk of bleeding and interfere with certain medications. Therefore, follow the recommended dosage and talk to your doctor about any interactions with your current medications.¹⁴

How to Choose a High-Quality Vitamin E Supplement

When choosing a vitamin E supplement, it's important to select a natural form, as synthetic versions are less effective and may even pose health risks. Synthetic vitamin E is often labeled as "alpha-tocopherol acetate," with the word "acetate" indicating its synthetic nature. Additionally, many synthetic vitamin E supplements are "racemic," meaning they contain both beneficial and ineffective isomers.

Only the "D" isomer provides health benefits, while the "L" isomer does not. Synthetic vitamin E supplements are also typically less potent than natural options. This is because they often contain a mixture of both isomers, with the ineffective "L" isomer

diluting the potency of the beneficial "D" isomer. Additionally, the ester form of vitamin E used in some synthetic supplements is less potent than natural vitamin E.

To ensure you're getting a natural and effective vitamin E supplement, look for "d-alpha-tocopherol" on the label, which indicates the pure and beneficial "D" isomer. Avoid supplements labeled "dl-alpha-tocopherol," as this indicates a synthetic form.

For optimal benefits, choose a supplement that includes the full spectrum of vitamin E isomers, including tocotrienols (beta, gamma and delta types), in their effective "D" forms. These different forms of vitamin E work synergistically to provide a wider range of health benefits.

I recommend looking for a food-based supplement with all eight forms of vitamin E that is free from soy, soybean oil and genetically engineered (GE) ingredients. Common GE ingredients in supplements often come from corn, soy or cottonseed. Choosing a clean, natural source ensures you're getting the highest quality vitamin E supplement possible.

Overall, vitamin E is a potent antioxidant that significantly enhances cell-mediated immunity, especially in older adults. By incorporating healthy vitamin E-rich foods into your diet, you support your immune system, reduce your risk of infections and improve your health. Remember, a strong immune system is one of your best defenses against illness and a key to a long and healthy life.

Sources and References

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