

IMMUNE HEALTH

With the cold and flu season upon us, good nutrition is vital to maintaining a strong immune system. Immunity involves a complex network of specialized cells and organs that evolved to defend the body against attacks by foreign invaders such as bacteria, viruses, fungi and other parasites. The two basic kinds or types of immunity are termed innate and acquired. Innate immunity, also known as genetic or species immunity, represents a wide range of immune protective factors that a person is born with. In contrast, acquired immunity becomes part of the host defenses by means other than heredity. Within this category, immune protection can be acquired naturally or artificially. Natural acquired immunity is developed through recovery from a specific infectious disease, while artificial acquired immunity occurs when the host receives a vaccine or antitoxin. This category can be further subdivided by using the terms active (the host actively produces antibodies in response to a solution of antigens such as those in a vaccine) and passive (the host passively accepts preformed antibodies present in products such as an antitoxin). When our immune system malfunctions, the consequences can range from microbial infections to cancer.

Many nutritional supplement ingredients are effective in supporting immune system health. Some of the more popular and scientifically substantiated ingredients include:

1. **Echinacea** has been shown to stimulate the immune system by increasing the activity of certain immune cells and by promoting the release of cytokines (cellular communication and regulatory molecules) from these immune cells.¹
2. **Elderberry** contains flavonoid derivatives called anthocyanidins that appear to have immunomodulatory effects. These compounds in elderberry extract have been found to bind to viruses and block their ability to invade host cells.² In this way, elderberry is thought to reduce the severity of viral flu symptoms.
3. Scientific studies on ingredients such as **zinc, Korean ginseng, Vitamin C, beta-glucans and arabinogalactans** all enhance and improve the effectiveness of the immune system by increasing the protective activity of certain immune cells. Macrophages, neutrophils, NK (natural killer) cells and T-cells (T-lymphocytes) are responsible for attacking and neutralizing foreign, disease-causing microbes. Without the proper functioning of these immune cells, infectious diseases such as colds and the flu usually occur more frequently, are more severe, and have a longer duration.

Another promising avenue for natural immune support is **vitamin D3**. Studies now indicate that vitamin D, once only recognized for supporting bone health, may be a key nutritional component in enhancing immune function. The following overviews of some recent studies tout the immune system benefits of vitamin D:

- A recent study showed that vitamin D signals the immune system to fight infections. Scientists discovered that T cells—white blood cells that are like soldiers who search out and destroy the targeted invaders—require vitamin D to function. The study author explains, “When a T cell is exposed to a foreign pathogen, it extends a signaling device or ‘antenna’ known as a vitamin D receptor, with which it searches for vitamin D. This means the T cell must have vitamin D or activation of the cell will cease. If the T cells cannot find enough vitamin D in the blood, they won’t even begin to mobilize.” From this study, researchers realize how crucial vitamin D is for activating the immune system. The finding could have significant implications in the fight against global epidemics. Nearly half of the world’s population has sub-optimal levels of vitamin D, a problem that’s getting worse as people spend more time indoors.³
- Researchers theorized that the flu season occurs in winter months because of the lack of direct sunlight, and subsequent lower levels of protective vitamin D produced in the body. Their research indicates that influenza epidemics, and possibly even the common cold, are brought on by seasonal deficiencies in antimicrobial peptides, resulting from winter-time deficiencies in vitamin D.⁴
- In a study of Japanese schoolchildren, vitamin D supplements taken during the winter and early spring helped prevent seasonal flu. The study found that children receiving 1,200 IU of vitamin D daily were 58 percent less likely to catch influenza A.⁵
- People with higher blood levels of vitamin D had a 50 percent reduction in the risk of developing acute respiratory tract infections than those with lower blood levels. Additionally, of those with high vitamin D blood levels who did develop infections, there was a marked reduction in the number of days they were ill. Researchers concluded, “Maintenance of a [sufficient] 25-hydroxyvitamin D serum concentration should significantly reduce the incidence of acute viral respiratory tract infections and the burden of illness caused thereby, at least during the fall and winter in temperate zones.”⁶

References

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1. Echinacea. *Pharmacist’s Letter/Prescriber’s Letter Natural Medicines Comprehensive Database*. 8th ed. Stockton, CA: Therapeutic Research Faculty; 2010. p. 605.
 2. Elderberry. *Pharmacist’s Letter/Prescriber’s Letter Natural Medicines Comprehensive Database*. 8th ed. Stockton, CA: Therapeutic Research Faculty; 2010. p. 615.
 3. Von Essen MR, et al. Vitamin D controls T cell antigen receptor signaling and activation of human T cells. *Nature Immunology*. 2010; 11(4):344-349.
 4. Cannell JJ, Vieth R, Umhau JC, et al. Epidemic influenza and vitamin D. *Epidemiology and Infection*. 2006; 134:1129-1140.
 5. Urashima M, et al. Randomized trial of vitamin D supplementation to prevent seasonal influenza A in schoolchildren. *American Journal of Clinical Nutrition*. 2010; 91(5):1255-60.
 6. Sabetta JR, DePetrillo P, Cipriani RJ. Serum 25-Hydroxyvitamin D and the Incidence of Acute Viral Respiratory Tract Infections in Healthy Adults. *PLoS One*. 2010; 5(6):e11088.