

[IMAGE]

You Can't Beat a Strong Immune System

By Editorial Staff

There's a great deal we don't know about the novel coronavirus (COVID-19), but we do know if you're a senior or someone with a significant health condition, you're at greater risk for complications. What's the common denominator in people who seem to have major problems with COVID-19: a weakened immune system – either weakened naturally by age or weakened because of a disease-compromised immune system.

Now here's what we know in general about the human immune system: It responds quite favorably to certain nutrients available either in the diet and/or via supplementation. In other words, the immune system can get stronger. And people with stronger immune systems tend to fight back powerfully against the flu virus; so why not coronavirus? Here are some of the key micronutrients that can help boost your immune system, courtesy of longtime nutrition contributor and doctor of chiropractic, Dr. James Meschino. Always make sure to talk to your doctor before taking any supplements.

Immune cells have a high requirement for antioxidants – especially vitamins C and E, and beta-carotene. Many immune cells (i.e., neutrophils) use these antioxidants to generate reactive oxygen species (ROS) or free radicals to kill viruses and other microbes. Immune cells also require antioxidants to protect themselves against the ROS they produce. With suboptimal antioxidant status, immune cells cannot kill viruses as effectively and they cannot protect themselves from the ROS they generate. The high ROS levels, in turn, damage immune cells and they become less effective or immunosuppressed.

Vitamin C

virus protection - Copyright © Stock Photo / Register Mark As an example, a 2017 study reviewed all the available studies looking at the role of vitamin C on the immune system. The researchers cited the research showing that the ingestion of 250 mg per day of vitamin C in otherwise healthy people helps to enhance many important aspects of immune function. As we get older and immune function declines, some studies suggest that the combination of 1,000 mg of vitamin C per day and 200 IU of vitamin E per day improves immune function in people over 60. Thus, higher doses are required as we age.

Here is a quote from the research paper itself regarding lung infections, pneumonia and vitamin C:

"Beneficial effects of vitamin C on recovery have been noted in pneumonia. In elderly people hospitalized because of pneumonia, who were determined to have very low vitamin C levels, administration of vitamin C reduced the respiratory symptom score in the more severe patients. In other pneumonia patients, low-dose vitamin C (250 – 800 mg/day) reduced the hospital stay by 19% compared with no vitamin C supplementation, whereas the higher-dose group (500 – 1600 mg/day) reduced the duration (hospital stay) by 36%. Vitamin C supplementation also showed a positive effect on the normalization of chest X-ray, temperature, and erythrocyte sedimentation rate (a marker of inflammation and infection). Since prophylactic vitamin C administration also appears to decrease the risk of developing more serious respiratory infections, such as pneumonia, it is likely that the low vitamin C levels observed during respiratory infections are both a cause and a consequence of the disease."

Editor's Note: Interestingly, preliminary reports out of Wuhan, China, the reported site of the first COVID-19 outbreak, suggest high-dose vitamin C is being used effectively to treat patients with coronavirus.

Vitamin D

An excellent review of how vitamin D works to strengthen the immune system against acute respiratory tract infections was published in the *Journal of Infectious Diseases* in 2010. These researchers performed a placebo-controlled, double-blind study involving 164 young men (18-24 years of age) undergoing compulsory periodic military training. Men given 400 IU of vitamin D per day during the six-month training period had significantly fewer respiratory tract infections and related fewer days of absenteeism from training compared to the recruits who ingested the placebo.

In this published paper, the researchers explained a novel way in which vitamin D affects immunity with respect to the prevention of respiratory tract infections. They explain that immune cells that line the respiratory tract have vitamin D receptors, which allows vitamin D to enter these immune cells. Once inside the immune cell vitamin D is converted to a more potent form of vitamin D, which is then transported to the nucleus of the cell.

Within the cell nucleus, vitamin D modulates specific genes involved in immunity. One of the gene effects is that vitamin D increases the secretion of a virus-killing molecule known as cathelicidin. As immune cells interact with various microbes, including viruses, in the respiratory tract, cathelicidin punctures a hole in the

viral and/or bacterial cell membrane, destroying the invader and thus, preventing infection.

As such, lower vitamin D blood levels result in lower secretions of cathelicidin with resulting reduced anti-viral fighting abilities of the immune cells that line the respiratory tract.

Note: Some people need to be extra cautious with vitamin D supplements. These individuals include those with active tuberculosis, individuals with sarcoidosis (an autoimmune condition), lymphoma, and primary hyperparathyroidism. In each of these cases the body is often synthesizing very high amounts of vitamin D as a result of the disease. Taking additional vitamin D can easily cause vitamin D toxicity in these cases.

Editor's Note: Former CDC Director Dr. Tom Frieden recently suggested vitamin D could help boost the immune system as part of the discussion about potentially preventing and/or treating COVID-19.

Other Micronutrients of Importance

Other antioxidants have also been shown to be critical to immune function. For example, supplementation of healthy individuals over age 60 with 200 IU vitamin E per day improved many aspects of immune function and reversed some key age-related features of immune system decline. In short, they had more youthful immune function with vitamin E supplementation.

Supplementation with other nutrients has also shown improved immune function in human subjects, including zinc and beta-carotene. As well, animal studies show the importance of selenium to immune function.

Various researchers have conducted research providing healthy elderly individuals with supplement combinations such as vitamin A, vitamin C and vitamin E, or with a multiple vitamin/trace mineral supplement. In many of these studies, the participants ingesting the supplements showed improved function of many immune parameters compared to their baseline values and compared to those who ingested the placebo.

Moreover, human and animal studies have proven that even marginal deficiencies of certain vitamins and minerals cause a significant decline in immune function or immunocompetence. These nutrients include vitamin A, beta-carotene, folic acid, vitamin B6, vitamin B12, vitamin C, vitamin E, riboflavin, iron, zinc, and selenium. The National Health and Nutrition Examination Surveys (NHANES) show that many people are walking around with marginal deficiencies of some of these nutrients unless they are taking a well

formulated multiple vitamin and mineral supplement.

Page printed from:

http://www.toyourhealth.com/mpacms/tyh/article.php?id=2747&no_paginate=true&no_b=true