

Top 5 antiviral strategies for arming your immune system against Coronavirus - COVID-19



Amongst the stress and uncertain times in this new rapidly changing world, taking care of your health can sometimes get placed on the backburner. Yet with lots of uncertainty in the health and wellness world, one thing we do know is the body is *powerful*.

By focusing on educating ourselves and supporting our bodies with the right tools, we can leverage science and nutrition to help empower us against any potential biological fragility brought on by the novel Coronavirus- and this is more possible now during this time in history than ever before.

Although there are not a significant amount of studies on COVID-19 yet, we can break down the literature of immunology and nutrition to help us understand the various ways to combat the virus using supportive evidence and studying what we *do* know.

Oftentimes, indirect or preventative medicine can help prevent a myriad of diseases and ailments. Functional or integrative medicine will employ modalities such as herbs, vitamins and nutrient-dense food as a powerful means to accelerate healing.

Let's take a look at our top 5 modalities when it comes to viral protection!

1. Zinc



Zinc is one of the most important minerals you should be consuming for your health- one of the most common facts about it is that it is well known to help speed up the time it takes to recover from illness. But how? Well, many different ways, specifically:

Zinc:

- Cofactor for thousands of enzymes that build proteins, DNA and RNA
- Signaling molecule regulating the function of carbohydrate and lipid metabolism
- Improves mucociliary clearance and barrier function of the respiratory epithelium
- Has a broad role in regulating proliferation of our immune cells, such as leukocytes and lymphocytes

Zinc has also been shown to hold high efficacy in inhibiting viral replication and spread, by halting RNA polymerase, the template by which RNA viruses transfer information and take over. **In other words, zinc disrupts the virus' ability to make copies of itself!**

The anti-malarial drug hydroxychloroquine has been shown to assist in the uptake of zinc by acting as an ionophore, but interestingly, flavonoid polyphenols quercetin and epigallocatechin gallate have revealed that they also exhibit zinc ionophoric activity.

These polyphenols are present in **green tea, apples, onions, and elderberry syrup** making them a more attainable and perhaps better alternative to chloroquine. Furthermore, zinc also has an anti-inflammatory and immunomodulating effect on NF-kappaB that mitigates cytokine storms caused by COVID-19.

For zinc supplementation I recommend
Mercolas zinc and selenium blend

So what are the best sources of zinc?

- Oysters
- Beef
- Crab
- Lobster
- Pork

Vegan sources of zinc

- Beans
- Pumpkin seeds
- Sesame seeds
- Cashews
- Quinoa
- Lentils

2. Garlic

New vaccine advances provide promise for a fighting chance against COVID 19, but unfortunately due to the adaptogenic nature of viruses, there is concern for their viability after a certain length of time, similar to the flu vaccine.

Therefore, nutraceuticals, like garlic, can help by equipping our bodies with powerful plant compounds that can fill in gaps and help us stay well in the ongoing battles we face with viruses, cancer and other diseases.

Garlic has been used for thousands of years as a potent plant medicine. It consists of many anti-oncogenic and anti-carcinogenic sulfide compounds as well as the mineral manganese, vitamin C and vitamin b6. The oils are known to be antibacterial and have been used to fight ear infections.

A fascinating study out of the Avicenna Institute of Phytomedicine cited that chicken embryos, when administered a type of coronavirus, became ill with IBV(infectious bronchitis virus) and as a result their growth rate and health was significantly impaired. Yet one embryo group with IBV was given garlic extract, and in addition to facilitating normal embryonic growth, the **garlic extract appeared to have a significant effect on viral replication just 8 hours after administration!**

Although any means of consumption is beneficial, garlic's ability to heal is elevated when fermented.

A few ideas for consuming garlic are:

- fermented garlic in honey
- farmer's market black garlic
- roasted garlic
- eating it raw in salsas, dips, etc.
- dried minced garlic
- garlic capsules

3. Elderberry

The beauty of this food is that it tastes absolutely delicious in addition to being well known in the health community as a key component in healing from colds, the flu and other illnesses.

Elderberry has been utilized for thousands of years by herbalists, doctors and medicine men. Hippocrates referred to the elder plant as his “medicine chest”, and it is once again becoming more recognized as a viable healing aid as complementary alternative medicine continues to take its rightful place on the shelves next to other vitamins and supplements.

Elderberry syrup has been found in many studies to have inhibitory practices when it comes down to viruses, bacteria and pathogenic microbes.

Specifically in the case of viruses, black **elderberry prevents the virus' ability to proliferate even at low concentrations** due to their high anthocyanin and flavonol phytochemical content, and therefore is another ideal option for your anti-coronavirus arsenal!

4. Vitamin D

While Vitamin D is famous for being fundamental in mood boosting and the most well known **natural antidepressant**, it has so many other amazing benefits that encompass things like enhanced immunity, gene function, building stronger bones and co factoring for other vitamins like DHA and EPA.

Vitamin D is instrumental in modulating pathways in our innate and acquired immunity, and can help reduce the chance of cytokine storms via modulation of macrophages and proinflammatory cytokines.

Additionally, the International Journal of Molecular Sciences states that,

“In summary, most important is the $1\alpha,25(\text{OH})_2\text{D}$ -stimulated production of AMPs, such as defensin and cathelicidin. As mentioned, these endogenous antibiotics act directly, destroying not only microbial pathogens, but also viruses, including the influenza virus.”

Sources of Vitamin D:

Milk

Butter

Red meat

Beef liver

Cheese

Egg yolk

Vegan sources of Vitamin D:

Supplementation Vitamin D3

Mushrooms

5. Vitamin C(& E)

Vitamin C is an essential water soluble vitamin, antioxidant and cofactor that humans can no longer manufacture and therefore must intake daily.

Vitamin C exhibits many pertinent functions, primarily being an essential cofactor for various enzymes that play a role in energy metabolism, white blood cell formation and tumor growth.

L-ascorbic acid (vitamin C) essentially shuts off gene transcription factors, which results in prevention of many cancer forming tumors, infections and inflammation.

Vitamin C also plays a crucial role for the success of Vitamin E via neutralizing lipid hydroperoxy which allows Vitamin E to aid in protecting red blood cell membranes (what bring oxygen to your lungs and tissues) and nervous tissue.



Moreover, an interesting study revealed that while there isn't sufficient evidence to conclude that vitamin C cuts duration of colds or prevents them, ***this is only true for inactive people.***

Participants in these studies that also **exercised and stayed active while increasing Vitamin C intake cut their chance of getting sick by half!**

Vitamin C sources :

- Broccoli
- Papaya
- Pineapple
- Strawberries
- Bell peppers
- Brussel Sprouts

With all the information out there, it can be confusing to know what to think or what the best action is to take. The truth is, we don't know exactly what is going on or what is going to happen.

What we do know is we have evidence that nutrition is not only powerful, but imperative to a strong, capable immune system.

What we do know is prioritizing and taking care of our bodies and minds is key, and works.

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