



NUTRITION / DETOXIFICATION

Optimizing the Immune Response: A Patient Primer

NUTRITIONAL, HERBAL & LIFESTYLE CONSIDERATIONS

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Editor's Note: While we've published several highly technical articles on boosting the immune system since the coronavirus pandemic hit, this layperson version should be read and then shared with your patients as a tool to support your clinical recommendations.

The immune system is the body's defense mechanism against external invaders: bacteria, viruses, parasites and more. To address a wide array of intricate microorganisms, the immune system's response has to be equally as complex. But an extensive amount of research has been done over the years on the various inner workings of the immune system. These findings often point to nutrition as a way to support the immune system and reach optimal functioning.

Why Nutrition Is Important for the Immune Response

Nutrition is important for a healthy immune response because, like other systems of the body, immune organs, tissues and cells need energy to complete their assigned functions. Nutrients provide that energy. Nutrients also provide support for the immune system in the form of:

- Reduced risk of infection
- Antioxidants to reduce oxidative stress
- Inflammation resolution

Vitamin D



Vitamin D is an essential vitamin; essential meaning the body cannot produce it in ample amounts on its own. Exposure to sunlight is typically the way an average person accesses this micronutrient, as ultraviolet rays stimulate vitamin D synthesis from within the body.

Dietary vitamin D sources include fatty fish such as salmon, tuna and mackerel, as well as fish liver oils, mushrooms and some fortified foods. Vitamin D is also a common ingredient in nutritional supplements.

Vitamin D is associated with calcium absorption and bone health, and it is also important for immune support. This is especially true for boosting the innate immune system (also known as the nonspecific immune response or the "first line of defense"), which aids in the prevention of common colds and influenza during peak infection months (i.e., "flu season").¹

Poor vitamin D status has long been understood to correlate with increased risk of contracting the infectious illness, but supplementation has yielded mixed results on reducing risk overall. A recent meta-analysis has shown that vitamin D supplementation is effective and safe to support acute respiratory concerns.²

Zinc

Zinc is an essential mineral associated with immune barrier support in the innate immune system.¹ Suboptimal zinc levels are associated with dysfunction in immune cells, potentially increasing the risk of infectious disease and other conditions. Physical barriers in the immune response are often characterized by mucus production and mucosal membrane integrity. Zinc is also associated with other immune support mechanisms, such as:

- Inhibition of rhinovirus replication, a microbe commonly responsible for the common cold
- Promotion of antigen presentation for the adaptive (specific) immune response

- Support of lymphocyte maturation and differentiation

Zinc is found in oysters and other types of seafood, red meat and poultry, beans, nuts, whole grains, and other foods. Phytates in whole-grain bread, cereal, legumes and other foods bind zinc and prevent it from being absorbed, limiting its bioavailability from these foods.³

Echinacea

Echinacea root (*Echinacea angustifolia* and *E. purpurea*) produce bioactive compounds called alkylamides that, along with other constituents found in echinacea, have been shown to support the innate immune response. Echinacea's support of immunity comes from a variety of actions:

- Maturation of dendritic cells
- Increase in phagocytic activity and macrophage activity
- Increase in natural killer cell activity
- Balance of inflammatory response by inhibiting the "cytokine storm"

Studies also associate echinacea with reduced duration and severity of colds and upper respiratory infections, as well as the alleviation of symptoms associated with these conditions.⁴⁻⁵

Medicinal Mushrooms

A variety of medicinal mushrooms have long been associated with both innate and adaptive immune support, specifically in the form of promoting cytokine and cytokine receptor function; as well as the activation of important immune cells thanks to beta-glucans produced by many mushroom species. Medicinal mushrooms of particular immune importance include: maitake, turkey tail, shiitake, reishi and cordyceps.

Why Lifestyle Is Important for the Immune Response

Lifestyle factors in addition to diet, such as sleep habits, stress management and physical activity, also have an impact on the health of the immune system. A lifestyle balanced with healthy choices from all aspects of activity can maximize the efficacy of the immune system and minimize the risk of infection.

Sleep: People normally feel "good" after a night of restful sleep because sleep is the body's chance to recuperate after a day of physical and mental stress. A good night's sleep prepares the body for another day, and that includes the immune system, which has to stay on alert for external threats. Healthy sleep is important for optimal immune function, specifically the homeostatic balance of pro- and anti-inflammatory compounds that keeps inflammation initiation and resolution in equilibrium.

Stress: Management of stress is important for immune health because excessive or chronic stress can wear down the body over time. Like inflammation, acute physiological stress that has a definitive beginning and end is a normal part of the body's response to life. But when stress (or inflammation) becomes chronic, the body may experience a perpetual state of strain.

Specifically for chronic stress, there is an issue with excessive cortisol production. Cortisol is an important hormone for acute states of stress, such as avoiding a fender-bender in bumper-to-bumper traffic or answering an important question when called on at school or work. But when cortisol production continues indefinitely as a result of chronic stress, it can have negative repercussions that suppress the immune system and prevent it from responding to infections effectively.

Healthy stress management is beneficial for whole-body health, which includes the immune system.

Take-Home Points

A wholistic approach is vital to maximize the protective capabilities of the immune system. Vitamins, minerals, herbs and other dietary components - as well as lifestyle factors like healthy sleep, stress management and exercise habits - are all important steps toward supporting the immune system's natural mechanisms to keep the body healthy.

References

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