Immune boosters – do we need them?

Roslynn van Schoor

Introduction

The immune system is a collection of cells, tissues and molecules that work together to fight off infection. Our bodies are constantly exposed to potentially harmful viruses, bacteria, and other disease-causing organisms (pathogens). When the immune system is 'down' or not functioning well, we are more likely to develop illnesses from these pathogens. The best way to maintain a strong immune system is by following a nutrient-rich diet, exercising regularly, and reducing stress levels. Consuming certain vitamins, minerals and herbal substances may help to 'boost' a weakened immune system and supplements containing these ingredients have become increasingly popular, particularly during the COVID-19 pandemic.

A healthy lifestyle and immunity

Following good dietary habits, maintaining a healthy weight, and exercising regularly can promote better immunity. Underweight individuals tend to have poor immune function and are more susceptible to infection. Similarly, people who are obese demonstrate signs of chronic inflammation and are more likely to develop lifestyle diseases. Smoking, alcohol intake and poor sleep are also associated with decreased immunity. Consuming an energy-balanced, nutrient-rich diet is one of the best ways to optimise the immune system and avoid illness. A diet consisting of whole grains, fruits, vegetables, legumes, lean meat/meat alternatives, low-fat dairy, and healthy fats is recommended.

Micronutrients

Vitamins and minerals are needed by the body in relatively small amounts and are required for normal body function. Vitamins A, C, E, D, the B vitamins, iron, zinc, and selenium are some of the micronutrients required for immune health. Some of these micronutrients also act as antioxidants which help to remove cell-damaging free radicals from the body. In cases of deficiency, micronutrient supplements may help to boost the immune system. It is important to note that consuming mega-doses of vitamins and minerals may be dangerous and could damage the immune system rather than support it.

Vitamin A

Vitamin A supports and maintains the protective layers of the skin, lungs and intestines, which helps keep pathogens from entering the body. The rapid division of immune cells also depends on vitamin A. Furthermore, carotenoids (precursors of vitamin A) are powerful antioxidants that help prevent cell damage and inflammation. An inadequate intake of vitamin A is associated with an increased risk of infection.

Vitamin C

Vitamin C is perhaps the most famous vitamin and is commonly found in immune-boosting supplements. Vitamin C is a powerful antioxidant and can reduce the number of 'sick days' experienced during illness. Furthermore, vitamin C is needed to make collagen, a fibrous tissue required for wound healing and skin health.

Vitamin E

Vitamin E is an antioxidant and anti-inflammatory agent. It is also required for immune cell production and the coordination of the immune system.

Vitamin D

Vitamin D is known to reduce inflammation. This nutrient is required for the synthesis of certain anti-microbial peptides, which provide a natural defence against infections. Vitamin D has also been shown to have a direct anti-viral effect against COVID-19.

The B vitamins

The B vitamins (sometimes referred to as B-complex vitamins) are involved in regulating the body's metabolism and immune system.

Most B vitamins have antioxidant and anti-inflammatory properties. Vitamin B6 is involved in immune responses while vitamin B12 and B9 (folate) are essential for immune cell production.

Iron

Iron forms a major part of red blood cells and is important for multiple body functions. Iron deficiency is common amongst children and pre-menopausal women and is linked to poor immune function.

Zinc

Zinc is a popular addition to immune-boosting supplements. It acts on both the immune responses and helps to maintain the immune cells in the intestine. Zinc deficiency is linked to increased risk of viral, bacterial, and fungal infections.

Selenium

Selenium deficiency is linked to an increased risk of respiratory infection. It is involved in immune responses and is a powerful anti-inflammatory and antioxidant.

The role of nutraceuticals

A nutraceutical is defined as a product obtained from food (e.g., herbs or plants) that is sold in a medical form (e.g., pills, powders). Since the emergence of the COVID-19 pandemic, significant research has gone into the use of such products for strengthening the immune system.

Echinacea

Echinacea purpurea is derived from a purple flower and has been shown to improve immunity by strengthening the immune response. Echinacea may help to reduce the symptoms and duration of viral infections in those with impaired immune systems.

Ginger

Ginger is a powerful antioxidant and anti-inflammatory. It may help to treat illness and boost immunity in immune-compromised individuals.

L-lysine

L-lysine is an essential amino acid (building block for protein synthesis). It is essential because it cannot be synthesised by the body and needs to be taken in through dietary sources (e.g., meat and dairy). L-lysine is needed for immune cell synthesis and assists with the rapid response of the immune system when a pathogen invades the body. It may also help to support zinc in strengthening the immune response.

L-glutamine

L-glutamine is a conditionally essential amino acid, which means that it only becomes essential when the body is under stress (e.g., illness). L-glutamine supplementation may help to boost the immune system and strengthen the immune cells of the gut.

Rooibos

Rooibos is a herb used for centuries and is a favourite tea amongst South Africans. Rooibos has displayed anti-inflammatory and antioxidant properties and may help to relieve symptoms of infection.

Flavonoids

Flavonoids are compounds mostly found in plants which we naturally obtain by eating fruits and vegetables. There are around 6 000 varieties of flavonoids, and they are found in foods such as onions, apples, berries, kale, red wine, legumes, citrus, cocoa, and tea. Flavonoids are well-known for their antioxidant properties that may protect against illness.

Bromelain

Bromelain is a complex enzyme naturally found in pineapple. It has been used for centuries in medicines and has well-recognised anti-inflammatory properties. It also helps prevent blood clots and assists with wound healing.

Products on the shelf

Ingredient	Products containing ingredient
Vitamin A	Most multivitamins – Boost, Linctagon, LungShield, Nativa Immune Complex, Viral Guard
Vitamin C	Most multivitamins – Boost, Efferflu C, Linctagon, LungShield, Nativa Immune Complex, Viral Guard, Zinplex
Vitamin E	Most multivitamins – Boost, Nativa Immune Complex, Viral Guard
Vitamin D	Most multivitamins – Boost, Efferflu C, LungShield, Viral Guard, Zinplex
B-complex vitamins	Most multivitamins – Boost, LungShield, Viral Guard
Iron	Most multivitamins – Boost, Efferflu C, Viral Guard
Zinc	Most multivitamins – Efferflu C, Linctagon, LungShield, Nativa Immune Complex, Zinplex
Selenium	Most multivitamins – Nativa Immune Complex, Viral Guard, Zinplex
Echinacea	Echinaforce, Efferflu C, LungShield, Viral Guard
Ginger	LungShield
L-lysine	Nativa Immune Complex
L-glutamine	Vitapro Immune Complete
Rooibos	Nativa Immune Complex
Flavonoids	LungShield
Bromelain	Linctagon

Conclusion

A strong immune system is needed to fight off infection and illness. Following a nutritious diet, exercising regularly, and avoiding unhealthy habits are key to maintaining optimal immune function. Immune-boosting substances can help protect and regulate the immune system and may reduce the inflammation and cell-damage that occurs during illness.

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