

Ways to Boost Immune System

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Introduction

When it comes to maintaining good health, the immune system is our most precious asset. A silent wonder.

Yet we rarely appreciate our essential defences until something goes wrong. Most of the time our immune system works quietly away and we don't even notice it. Deeply entwined with every aspect of our physical and mental health, it acts as a fortress and lays the foundations of our health and longevity.

It is all that stands between us and 38,000,000,000,000 (that's 38 trillion!) microbes in our body that threaten us constantly – although 99 per cent won't hurt us. As our sixth sense, this system connects our health to our environment, feelings and emotions.

What Is the Immune System?

The immune system is a complex network of cells, tissues, and organs that protects our body from pathogens. It is a personal shield. Its job is to protect us from harmful organisms and toxins that can have a negative effect on our health.

Our immune system is made up of two parts.

1. **Innate immune system**, which protects us against infections and helps wounds heal, like cuts and bruises. It is the natural protection that we are born with and our first line of defence to combat infection. Upon detecting an infection, our innate response acts quickly to try and flush out the invader by producing extra mucus or cranking up the thermostat to blast it with a fever.
2. **Adaptive immune system**, which adapts to protect us from viruses like the flu. It is protection that we gain throughout life as we are exposed to diseases or protected against them from vaccinations. The adaptive system

spots an enemy and produces the specific weapons — or antibodies — that are required to destroy and eliminate the invader from the body.

The adaptive system can take between 5 and 10 days to identify the antibodies that are needed and produce them in the numbers required to attack an invader successfully. In that time, the innate system keeps the pathogen at bay and prevents it from multiplying.

The two components of immune system work together in harmony to protect us from illness. But, like any system, it can be compromised. Some people are born with weak immune systems. Some are also born with unregulated or overactive immune systems. Even if one start out with a perfectly healthy immune system, factors such as disease, allergies, and poor nutrition can weaken or damage it. This can cause the immune system to actually attack the body it is supposed to protect — leading to undesired health conditions.

How the Immune System Works

White blood cells or leukocytes are the foot soldiers of the immune system. They're the ones that fight viruses, bacteria, and other harmful organisms. These white blood cells, along with red blood cells, are formed in our bone marrow. Once formed, they enter the lymphatic system, one of the major components of the immune system and part of our circulatory system, to help it deter disease.

Along the way, these cells receive help from lymphatic organs like the tonsils and thymus. These organs supply antibodies, the special forces of the immune system that target viruses. Our immune system works constantly to prevent a host of invaders from doing damage. It does this by capturing these organisms and isolating them before they are able to infect other parts of our body. The spleen, located in the upper left region of the abdomen, helps filter unwelcome organisms from the blood for removal from our body, as well as dead or damaged red and white blood cells.

Immune System Disorders

Sometimes the body's immune system develops issues that prevent it from working properly. There are three types of major immune system disorders:

1. Autoimmunity

In autoimmune conditions, the immune system attacks the healthy tissue it's supposed to protect. Currently, there are more than 80 known types of autoimmune diseases.^[1] The most well-known examples are type I diabetes, rheumatoid arthritis, inflammatory bowel disease, multiple sclerosis. For anyone with these diseases, the best approach today is to work with the natural physician and nutritionist to formulate a plan of action. The connection between nutrition and immune health is still being researched, but we do know that vitamins like A, B2, B6, C, and D play an integral role in how your immune system works. Minerals like selenium and zinc are also important.

2. Immunodeficiencies

- **Primary immunodeficiency disorders** are usually present from birth and are caused by the immune system missing particular parts. Immunodeficiencies occur when the immune system's ability to fight harmful organisms or diseases is weakened. The body may not produce enough white blood cells and white blood cell levels may be low or not functioning normally. This condition is developed if one is not careful and don't protect oneself. Exposure to cigarette smoke, pesticides, and toxic metals like arsenic, PCBs, and other common pollutants like toluene from nail polish can slow or weaken your immune system.^[2]
- **Secondary immunodeficiency disorders** occur as a result of the immune system being compromised by environmental factors, including HIV, severe burns, malnutrition, or chemotherapy. Environmental toxins are especially dangerous because they easily attach themselves to hormones and other important molecules in our cells and require a lot of energy to remove. On top of that, they prevent vitamins, minerals, and other nutrients from doing their job. When this happens, our cells don't get the nutrition they need and they may slow down or die.
- **Allergies and asthma** develop when the immune system responds to substances that are not harmful.

A weak immune system is a real concern for people as they get older. Poor diet, lack of exercise, and the natural changes associated with aging can disrupt how well the immune system works.^[3] All these factors increase the risk of developing a weakened immune system and infections.

3. Hypersensitive or Over-Reactive Immune System

Researchers continue to study the triggers for an overly aggressive immune system. In this condition, when immune cells encounter a harmless allergen or a substance that needs to be removed, they attach an immune cell called a mast cell to the invader, causing an unnecessary immune response. A response like this damages tissue and organs and can lead to serious diseases. In some cases, it could be residual pesticide on an apple, or exposure to chemicals in latex or plastic. Sensitivity to gluten is another example.

Can the immune system be boosted?

As such, innate immunity can't be "boosted". If the innate response were stimulated, one would feel constantly unwell with a runny nose, fever, lethargy, and depression.

The efficiency of the adaptive response can be sped up with vaccinations. A vaccine contains a harmless version of the germ from which one needs protection. The adaptive system remembers the invader so that the next time it comes into contact with the germ; it can act quickly to launch an attack.

The immune system, in particular, contains several different types of cells that respond to various microbes in many ways. The body continuously makes immune cells that are called white blood cells, or leukocytes, and it generates far more cells of the adaptive system — known as lymphocytes — that mature into B cells and T cells than are needed.

The excess cells destroy themselves through a process of natural cell death, called apoptosis. It is unknown what is the best mix of cells or optimum number for the immune system to work at its best.

Ways to Naturally Support the Immune System

The immune system fights an abundance of harmful organisms and toxic chemicals found in food, water, and air. It needs proper support in order to function its best. The four ways to support and boost the immune system are as follows:

1. Healthy Diet

Some foods steal energy and destroy the immune system. Foods to avoid include processed foods and those with unnatural chemicals like added flavourings, refined sugars, and neurotoxins like MSG. Soda should be avoided as it is one of the top five foods that destroy our immune system.

Organic fruits and vegetables that are rich in antioxidants, B vitamins and vitamins A, C, and D should be preferred. Some excellent choices are blueberries, garlic, broccoli, spinach, lemons, eggplant, pomegranate, and avocado. If organic fruits and vegetables are not feasible or available, they should be given a good scrub to eliminate removable residue. Raw, vegan foods are ideal, but if vegan lifestyle is chosen, extra B12 should be included in the diet.

Following a diet rich in antioxidants is essential to supporting your immune system. Abundant in many fruits and vegetables, antioxidants combat free radicals—chemical by products known to damage DNA and suppress the immune system.

Choosing healthy fats (such as the omega-3 fatty acids available in oily fish and flaxseed) over saturated fats (found in meat and dairy products) is generally recommended by health authorities. As well, it may help increase one's body's production of compounds involved in regulating immunity.

Drinking plenty of water helps cells operate efficiently and allows one's body to process food and eliminate waste.

For an additional immune boost, garlic (shown to possess virus-fighting and bacteria-killing properties) and ginger (a natural anti-inflammatory) should be added to one's meals on a regular basis.

2. Exercise

Exercise is one of the best methods to boost immune system vitality. It improves overall health, increases oxygen intake and lung capacity, and gets the metabolism going. On top of that, it promotes a healthy heart and good circulation. One should find the best exercise routine for one's lifestyle; keeping in mind that consistency is a must.

The good news is that regular moderate-intensity exercise confers several benefits to the immune system. A 2019 study shows that moderate exercise mobilizes immune system cells, helping the body defend itself against

pathogens and cancer cell growth. Those who regularly engage in this type of exercise have fewer illnesses and less systemic inflammation. Exercise may also protect the immune system from the effects of aging.

Regularly engaging in intense, vigorous activity like running, on the other hand, may temporarily weaken one's immune function and leave one more susceptible to viral infections. Proper nutrition and hydration are important with prolonged and intense exercise, and research is ongoing as to what athletes must do to stay healthy.

3. Stress Management

Stress does more than making one anxious or angry. It also aggravates one's immune system and increases inflammation, redness, and swelling in one's body. Ways to reduce stress at home and at work should be worked on. One way to avoid stress is by not holding onto concerns. One should get it out, talk to someone who will listen. Meditation, yoga, or deep breathing in daily routine are another great ways to manage stress and can help one reach mind and body harmony and mental discipline.

4. Sleep

Our bodies need sleep to rest and recharge. Without a sufficient amount of sleep, we increase our risk for developing serious health problems—like heart disease, Alzheimer's disease, and obesity. Inadequate sleep has also been linked to suppressed immune function. One study found that those who sleep fewer than five hours per night are more likely to have recently suffered a recent cold compared with those who sleep more.

5. Nutritional Support

Today, even natural foods do not provide all the vitamins, minerals, and nutrients we need. Over farming, herbicides, and pesticides have drained much of the nutrient content from the land. As organic farming picks it up, nutrients will return, but it will take time. Even before the soil was depleted of nutrients, alternative health practitioners recognized that specific herbs and tonics can supplement the diet and support the immune system, especially as one grows older. Here are a few of the best.

Echinacea

Traditional medicines have used Echinacea for centuries and research indicates it supports a healthy immune response and helps fight off colds and flu. ^[4]

Oregano Oil

Oregano oil has super-powers for resisting harmful organisms of multiple kinds. ^[5] Not only that, oregano oil reduces systemic redness and swelling in the body and acts as a strong antioxidant, among other health benefits.

Ginseng

Several types of ginseng support the immune system and provide energy. Korean ginseng (*Panax ginseng*) can powerfully deter proliferating cells and protect against harmful diseases. ^[6] Siberian ginseng (*Eleutherococcus senticosus*) and Indian ginseng or Ashwagandha (*Withania somnifera*) are adaptogens that protect the body against stress.

Lemon

High in vitamin C, lemon is one of the most potent fruits to counteract illness. The juice of one-half lemon in a cup of warm water every morning encourages good health.

Garlic

People who eat garlic regularly have fewer colds than those who don't. ^[7]

Probiotics

Friendly bacteria or probiotics help keep harmful organisms from taking hold. Two of the best strains are *Lactobacillus helveticus* and *Bifidobacterium bifidum*. ^[8]

Aloe vera

In recent years, researchers have taken special interest in aloe vera. Some aloe species contain two powerful substances that help the immune system — acemannan and aloctin A. The active components in aloe vera fight harmful organisms and have antioxidant effects that protect cells from damage.

Immunity-boosting spices like cinnamon, turmeric, pepper, ginger etc. may help bolster a healthy immune system and prep your body for a higher immune response while fighting off infections.

Embrace Healthy Living

A complete approach to health is essential. This includes making good dietary choices, regular exercise, regular cleansing, and nutritional supplementation where needed to help one's body function normally.

When it comes to diet, raw, organic fruits and vegetables should be chosen, and saturated fats should be avoided. Regular exercise and enough sleep, at least seven hours a night is essential.

Smoking and excess drinking should be avoided. Here is what one absolutely must do...spend time with friends, laugh, take time to relax and do activities one enjoys, and make one's home a clean, calming place to live.

The best way to 'eat for immunity' is to balance calories and ensure you get plenty of good fats, fibre, quality carbs, diverse protein sources and phytonutrients (biologically active chemical compounds found in plants). So ensure your plate is filled with these.

As coronavirus (COVID-19) has impacted communities around the world, many people have wondered whether there are steps they can take to stay healthy. Everyday preventive measures—such as hand washing, avoiding contact with sick individuals, and good hygiene—can go a long way in reducing your risk for viruses, bacteria, and other pathogens.

In addition, however, there is evidence that nutrition and other lifestyle measures influence immune strength and susceptibility to infectious diseases. Whether these measures do or do not influence susceptibility to COVID-19 or its clinical course is not yet known. However, there is every reason to put what we do know about foods and immune defences to use.

References

1. MedlinePlus. Autoimmune Diseases.
2. Winans B, Humble MC, Lawrence BP. Environmental toxicants and the developing immune system: a missing link in the global battle against infectious disease? Reproductive toxicology (Elmsford, NY). 2011; 31(3):327-336.
3. MedlinePlus. Aging changes in immunity.
4. Bany J1, Siwicki AK, Zdanowska D, Sokolnicka I, Skopińska-Różewska E, Kowalczyk M. Echinacea purpurea stimulates cellular immunity and anti-bacterial defence independently of the strain of mice. Pol J Vet Sci. 2003;6(3 Suppl):3-5.
5. Nayely Leyva-López, et al. Essential oils of oregano: biological activity beyond their antimicrobial properties. Molecules. 2017 Jun;22(6):989.
6. Wee JJ, et al. Biological activities of ginseng and its application to human health. Ch. 8 In Benzie IFF, Wachtel-Galor S, editors. *Herbal Medicine:*

Biomolecular and Clinical Aspects. 2nd edition. Boca Raton, FL: CRC Press/Taylor & Francis; 2011.

7. Elizabeth Lissiman, Alice L Bhasale, Marc Cohen. Garlic for the common cold.
8. Valentina Taverniti, Simone Guglielmetti. Health-Promoting Properties of Lactobacillus helveticus.

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