

## Immunity Boosters

**\*Dr. Sushmita Nair**

### Abstract

Immunity is the main mechanism of host defence against infectious agents in the body. Immune boosting is a trending topic in the current scenario, appearing alongside numerous speculative cures, treatments, and preventative strategies. The idea of boosting one's immunity, however, is misleading and not scientifically appropriate. There is no current evidence that any product or pill can lead to immunity boosting. but today almost all the commercials on the social media platforms propagate the idea of boosting immunity through their products.

India is a country with limited resources in medical sector. To deal with the populations health, preventive measures forms the first priority and strategy of the management. The cost of any intervention for treatment is far higher than preventive measures. So, the need in our country is to make the best use of limited resources by adopting preventive measures of diet, fitness and physical activity and reduce the incidence of various diseases. Preventive measures of diet and healthy lifestyle are the best investment with long term and sustainable improvement in populations. The general population has been highly advised to adhere to healthy diet, healthy lifestyle and strict fitness regime. . The following general good health guidelines is a single step that can keep our immune system strong and healthy:

- Eat a diet high in fruits and vegetables.
- Food plate should be like rainbow that is different colours of food should be included in a meal.
- Maintain healthy weight.
- Exercise regularly
- Get adequate sleep.
- Don't smoke.
- Drink alcohol in moderation.
- Minimise stress.
- Reduce screen time of T.V and mobile

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Evidences have proved that diet is a critical determinant of immunity of the body. To preserve the integrity of the body, the immune system involves itself in the protection against microorganisms and chemicals. Adequate nutritional status has to be maintained to preserve the defence mechanism of the body. If a body suffers from low nutritional status, it leads eventually impairment of many functions such as cell mediated immunity, phagocyte function, cytokinin production and immunoglobulin. Deficiency of micronutrients and protein leads to decline of both specific and non-specific immunity in the body. Low immunity leads to more susceptibility of infection. For the proper functioning of immune system of the body, adequate number of macronutrients such as (carbohydrates, fats, proteins) and micronutrients (vitamins, minerals, water) has to be consumed in a balanced way. Role of some vitamins have been well established to boost immunity in our body.

Vitamin A comprises of a group of fat-soluble compounds including retinol, beta carotene and retinoic acid that play an essential role in the immune function and are known to lower susceptibility to infections. Foods rich in vitamin A are liver, egg and beta carotene are green leafy vegetables, yellow coloured fruits and vegetables.

Vitamin C acts like an antioxidant and has been proved to play a protective role. It is necessary for the repair of body tissues and supports the immune functions. Citrus fruits like orange, lemon, sweet lime and others like kiwi, broccoli, amla, guava, tomato are good sources of vitamin C. Studies have shown that supplementation of vitamin C reduces the duration and severity of upper respiratory tract infections (Carr and. Maggini 2017)

B complex vitamins including B6 and B12 are also important for healthy immune response. B complex vitamins including B6 and B12 are also important for healthy immune response. Vitamin B1, one of the water-soluble vitamins, is a cofactor for various enzymes involved in the tricarboxylic acid cycle used by cells in immunometabolism for energy production. In a similar way, B6 and B12 vitamins have various immune functions such as general support for the immune system cells and tissues, production of antibodies and memory cells, antimicrobial protein production, phagocytic activities of neutrophils and macrophages (Shetty 2010)

Vitamin D has attained particular attention in influencing the immune response in a highly specific way. Vitamin D bio active metabolite 1, 25, dihydroxy vitamin D3 have hormone like properties and it exerts its effect on target cell by binding to nuclear hormone receptors thus boosting the immunity system. Rich sources of vitamin D are egg, butter, liver, chicken, fish, etc.

Zinc is a mineral that boosts our immune system and repairs body tissues. It is needed for immune cell development and communication. Deficiency of these nutrients results in increased infection and diseases. Rich sources of zinc are whole grains chickpeas, lentils, beans, nuts and seeds, cheese, milk and eggs. (Prasad 2008)

To have a strong and healthy immune system, a healthy diet is needed. Immune system also needs water to work properly and effectively. Water, that creates 60-70% of the human weight, is essential to regulate a lot of functions like digestion, absorption, transfer, excretion, circulation of

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the biomolecules taken through food and regulation of body temperature. Recommended daily water consumption varies greatly from person to person as the need for water is affected by the age, gender, physical activity level, diet, body composition, pregnancy, environmental conditions and presence of the disease. While the adults with midlevel physical activities can meet their daily water recommendation by drinking 12 glasses of water and drinks, kids can meet this by drinking 4-5 glasses and old adults can meet this by drinking 9-13 glasses of water and other drinks. (Popkin et al 2010)

Pollution from environment, emotional fatigue, and radiations released from smart phones and laptops act as the major stress factors of modern lifestyle. All these outcomes lead to the generation of higher number of free radicals in our body. Therefore, the antioxidants from the diet play a vital role in neutralising and eliminating free radicals from the body. If the free radicals are not quenched by antioxidants, it will cause damage to cells, proteins, DNA, RNA and lead to many degenerative diseases, low immunity, and accelerated aging (Lobo et al., 2010).

Fruits, vegetables, nuts, and spices are highly rich in antioxidants. Out of all fruits, the easily available Indian fruit: amla and guava has maximum antioxidant activity. Traditionally, spices form an integral part of our diet to provide typical flavour and aroma to food. However, in the recent past, an increasing research evidence has shown the positive role of spices in prevention of many diseases. The spices like cinnamon, black pepper; dry ginger, coriander, cumin, caraway, clove etc form an integral part of Indian cuisine. The use of these traditional spices as decoction is an easy and simple preventive solution to enhance immunity and resistance from diseases. Indian spices are rich in antioxidants; Turmeric is rich in many non-nutrients like curcumin, flavonoids polyphenols etc. with potent antioxidant activity. Curcumin has antibacterial, antiviral, and antifungal activity. The medicinal efficacy of this spice is well documented as anti-inflammatory, ant rheumatic, antibacterial. Likewise, the anticancer, anti-inflammatory, ant oxidative, cardio protective effect of ginger has also been documented due to its functional ingredients like gingerols, shogaol, paradols and gingerone. The health promotive and preventive perspective is given to its rich phytochemistry. Dry ginger processes multiple biological activities including anti-oxidant, neuroprotective, cardiovascular protective and respiratory protective. Though the potential preventive effect of these bioactive compounds has been confirmed in many degenerative diseases. Spices may be a strong tool to support the human immune system against this disease. The ability of functional foods to boost human immune system highlights their prospects use as nutraceuticals in future. (Naik 2010)

Selenium is one of the essential trace elements present in coriander and mustard seeds that helps to protect the body from free radical damage due to its potent antioxidant activity; most commonly used in Indian dishes. One of the studies states that eating foods containing antioxidants can reduce the duration of illness and severity of symptoms, and increase immunity from viral infections. (Peterhans, 1997)

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Conventional Indian foods containing functional components like antioxidants, dietary fibres, and body healing chemicals are the primary sources for the immune system and can produce lysozyme. The processing techniques, such as soaking, sprouting, and fermentation further enhance functional properties of the Indian foods (Sarkara et al., 2015). Vitamins, minerals, and herbs are equally important for enhancing the immunity. Considering the importance of the diet to maintain good immunity, the present need is to focus only on the traditional foods to raise awareness to develop immunity and resist any kind of diseases.

At the present times India is dealing with the burden of high population and enormous strains on healthcare system with scarce resources. Thus, it is imperative to emphasize the prevention strategies of balanced diet, optimum physical activity and strengthening of immune system for every individual.

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