The immune system is often referred to as the human's sixth sense! It protects us from our external environment by *sensing* the difference between friend and foe from any substance that enters our body. Once it detects anything that seems threatening *(such as bacteria, yeast, virus, fungi, or foreign proteins)* it sends signals to our nervous system to combat them! In other words, the immune system is the human body's defense force against any foreign substances that could cause it harm.

To enhance or maintain a strong functioning immune system we must constantly nourish it with the nutrients that support its job. Deficiencies in immune boosting nutrients results in a weakened immune system that makes us more susceptible to illness and infection.

I'll be discussing 5 important nutrients that are essential for building and maintaining a strong functioning immune system

Vitamin C

What does it do? Why is it important?

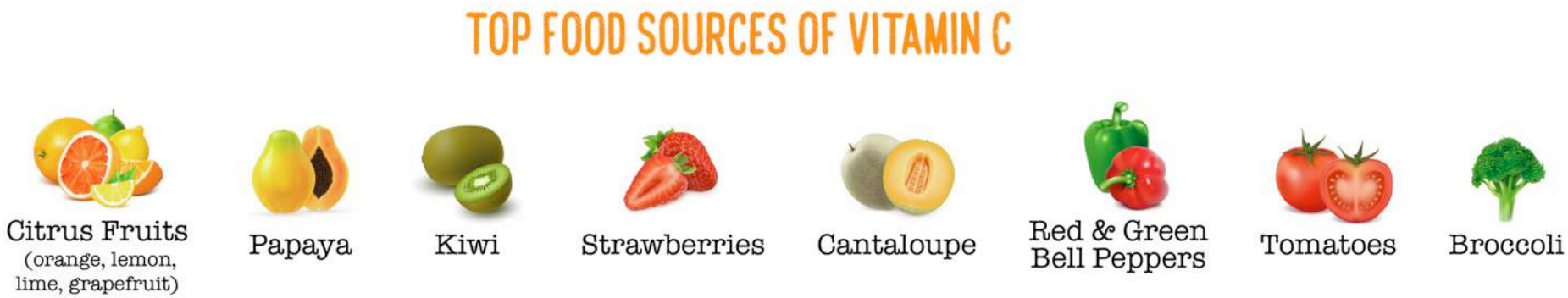
Vitamin C is famous for its immune boosting properties! It comes at the top of the list of nutrition food supplements that helps fight symptoms of the common cold. How does it work? Vitamin C works by activating white blood cells called "neutrophils" which defend our body from foreign pathogens such as bacteria, viruses, and fungi. It also has powerful antioxidant properties that protect our cells from damage caused by pollution, toxic substances, and infections.

Vitamin C has two other major roles in the body, it is needed to produce *Collagen;* the protein that gives our skin and connective tissues strength and structure. And it is also needed to help Iron from plants get into our body!

Where to get it from?

"C" stands for Citrus, as this vitamin was first discovered in citrus fruits such as oranges, lemons, limes, and grapefruit. The story of its discovery starts with sailors who traveled for long periods of time and did not have access to fresh fruits and vegetables. Those sailors started experiencing a disease called "Scurvy", recognized by symptoms such as fatigue, weakness, bleeding gums, bone ache, and poor wound healing. They then realized that consuming citrus fruits would cure Scurvy and relief diseased individuals from its symptoms. That is what lead to the discovery of a certain acid "ascorbic acid" *aka* "vitamin C" that was responsible for the healing properties in those citrus fruits!

Here's a list of top sources for Vitamin C:



Important Facts to Remember

Vitamin C is a water-based vitamin, that means it only stays in our body for a limited time. When taken in large doses most of what is not used will get excreted through urine. Also, when you eat a food high in vitamin C, it will circulate in your bloodstream for only a few hours before it gets depleted.

Consuming vitamin C rich foods in small portions throughout the day is more effective than consuming one vitamin C rich meal to maintain high levels of vitamin C in the bloodstream.

When you notice symptoms of cold and flu in your child, or when trying to boost their immunity to prevent infections, giving them small portions of vitamin C rich foods every 3-4 hours can help keep vitamin C circulating in their bloodstream. That aids in keeping their body defense system ready to combat foreign invaders!

Also, this vitamin is very sensitive to heat, light, and air. Cooking fruits and vegetables can destroy most of the vitamin C naturally found in them. That's also why it is recommended to drink your orange juice right after it's squeezed; reducing its exposure to light and air that could diminish its vitamin C content.

Fresh, raw, and unprocessed fruits and vegetables provide higher concentrations of vitamin C than cooked and/or processed fruits and vegetables.

Vitamin A

What does it do? Why is it important

Vitamin A helps protect the structural integrity of our skin! Both the outer layer; the part that is exposed to the environment, and the inner skin layers which include the lining of the lungs, nose, throat, stomach, and intestine. A stronger skin surface makes it more resistant to environmental pollutants as well as bacteria and viruses that contact it. Vitamin A has other roles that strengthen immunity, including enhancement of white blood cell function, as well as moisturizing the mucous lining and stimulating mucus production. During an infection, Vitamin A acts as an antioxidant that protects tissues from damage and promote their rapid recovery.

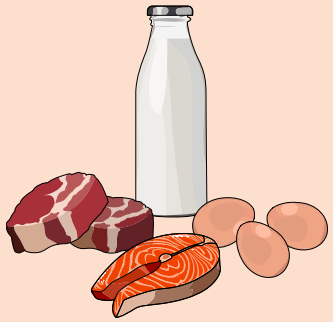
Where to get it from?

Vitamin A comes in two forms, *Retinol* is the active form of vitamin A and is found in animal sources such as animal liver and fish oils.

The other form of vitamin A is called *Provitamin A* which is found in plant-based foods, with yellow and orange colored fruits and vegetables having the highest concentrations. Provitamin A is in its inactive form and can be converted in the body to its active form *"Preformed Vitamin A"*

Here's a list of top sources of Vitamin A!

Top Animal-Based Sources of Vitamin A	Top Plant-Based Sources of Vitamin A
• **Organ meats** (beef liver, lamb liver, chicken liver) • **Cod liver oil** • **Fish** • **Cheese** • **Egg Yolk**	Yellow and orange fruits and vegetables: • **Sweet Potato** • **Carrots** • **Butternut Squash** • **Pumpkin** • **Oranges** • **Cantaloupe Melons** • **Apricots**



A good way to ensure your child is getting enough Vitamin A is to provide at least 2 servings of orange, yellow, or red colored fruits or vegetables a day

Vitamin E

What is it? Why is it important?

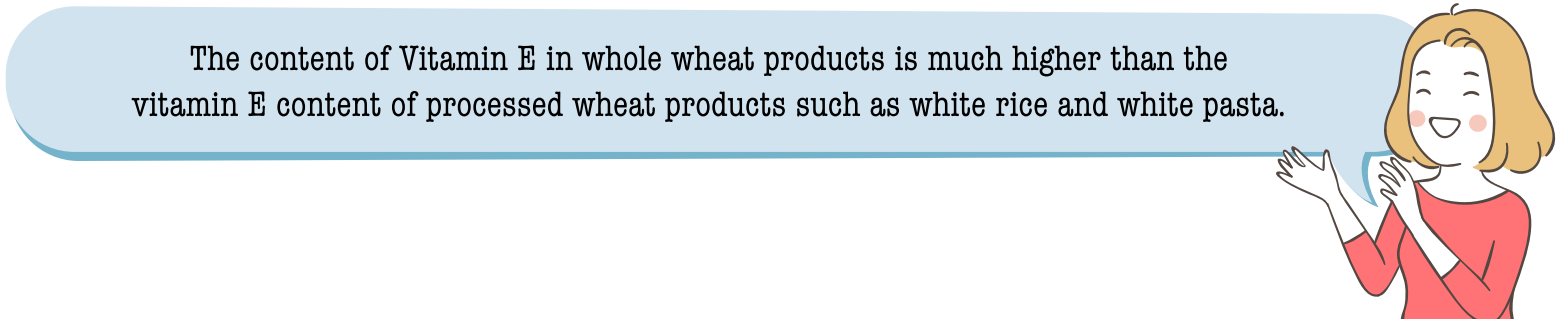
Vitamin E has a distinctive and very important antioxidant activity in the body. Its main job is to prevent lipid peroxidation, which is the damage and breakdown of unsaturated fats (good fats) in the body. Vitamin E protects the cell membranes (the outer layer of the cells) which are also composed of fat, from injury and deterioration. As an antioxidant, vitamin E works as a free-radical scavenger fighting off foreign pathogens that try to enter the body, and it also helps speed up cell recovery after an infection!

Where to get it from?

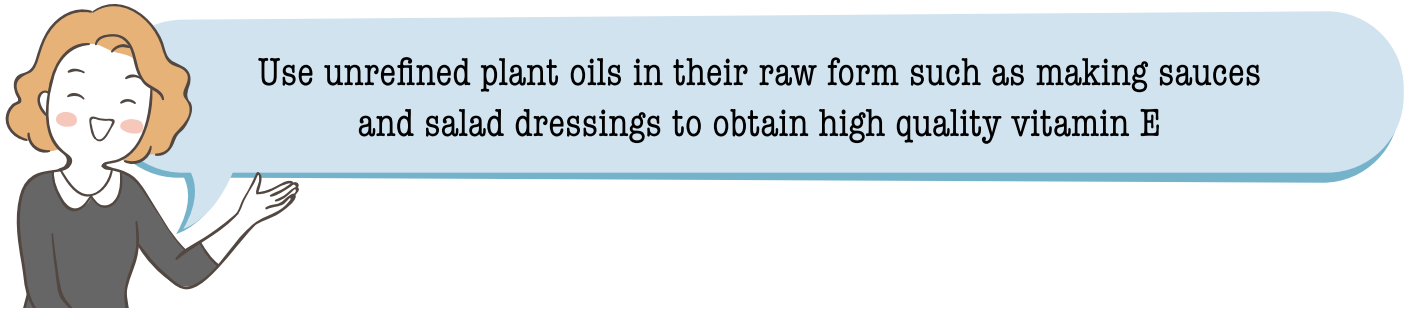
Vitamin E can be found in the oil components of all grains, seeds, and nuts as well as some fruits and vegetables. Animal foods do not contain much vitamin E.

Important Facts to Remember

Wheat germ is one of the highest food sources of vitamin E! It is the part of the wheat kernel that holds most of its nutrients and it is also the part that is removed during processing and milling of grains.



Also, plant oils are very good sources of vitamin E! However, when these oils are refined or purified, they lose most of their vitamin E content. Exposing those oils to high heat such as deep frying can also destroy most of the vitamin E that is naturally found in them. Using raw cold-pressed oils is the best way to get high quality vitamin E from plant oils!



Selenium

What is it?

Selenium is a mineral that has gained popularity for its antioxidant and immune-stimulating properties! It is vital for the protection of the body from harmful substances, increases our resistance to infections, and makes our body more powerful at combating disease. But we need to get enough selenium from the food we eat in order to maintain its powerful antioxidant effect! Low levels of selenium in the body can contribute to autoimmune problems as well as progression of viral infections.

Where do we get it from?

Selenium can be obtained from both plant and animal food sources. However, the level of selenium in plant-based foods depends heavily on the level of selenium in the soil these plants where grown on. That indicates that the level of selenium in certain plants can vary from region to region.

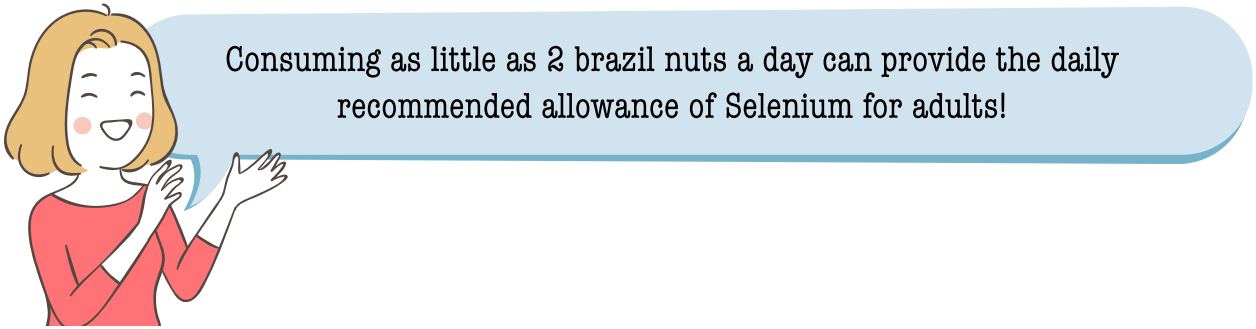
The best way to ensure a good amount of selenium when you're on a plant-based diet is to eat a variety of plant-based whole foods throughout the day.

The top food sources of Selenium are:

Top Animal-Based Sources of Selenium	Top Plant-Based Sources of Selenium
• **Fish / Seafood** • **Organ meats** (beef liver, lamb liver, chicken liver) • **Poultry / Beef** • **Eggs** • **Dairy Products** (milk, cheese, butter)	• **Brazil Nuts** • **Whole Grains** (brown rice, whole wheat flour, buckwheat, barley) • **Sunflower Seeds** • **Mushrooms** • **Beans & Legumes** (lentils, chickpeas, fava beans, mung beans)

Useful / interesting facts

Brazil nuts are one of the richest food sources of selenium. Just one of these nuts can provide more than the daily recommended intake of selenium for adults! Even though the concentration of Selenium in brazil nuts may vary from region to region, they remain to provide high amounts of Selenium despite the soil and region where these nuts where grown on!

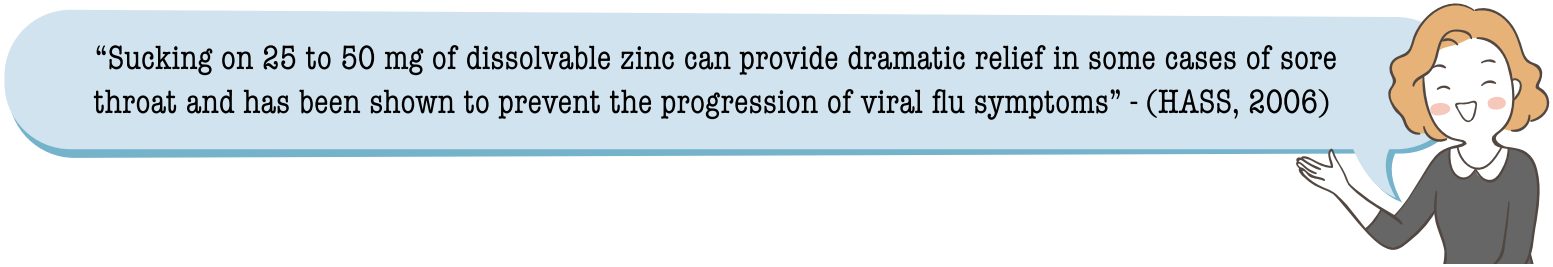


Zinc

What is it? Why is it important?

Zinc is one of the most important multi-tasking minerals that is involved in most body functions and is needed for the proper functioning of more than 100 enzymes in the body!

This essential mineral is needed for the proper growth and development of the human body. It plays a significant role in supporting immune function, promotes antibody response to vaccines, and provides powerful anti-inflammatory activities. Supplementing with Zinc has shown to be helpful in reducing the incidence and severity of colds and infections.



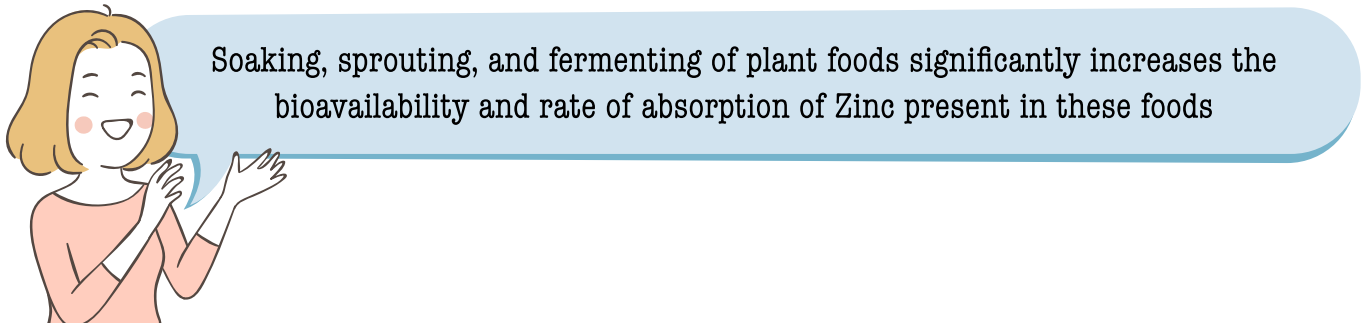
This mineral is particularly important for children because their immune system is still under-developed, and Zinc is crucial for the maturation and proper functioning of immune cells! Children with zinc deficiencies can show poor appetite, slow development, and reduced immune response to bacterial and viral infections.

Where do we get it from?

Top Animal-Based Sources of Zinc	Top Plant-Based Sources of Zinc
• **Red Meat** • **Shellfish** • **Lobster** • **Crab** • **Eggs** • **Dairy** (milk, cheese, yogurt) 	• **Beans & Legumes** (chickpeas, lentil, kidney beans) • **Seeds** **(**pumpkin seeds, hemp seeds) • **Nuts** (cashews, peanuts, almonds) • **Whole Grains** (oatmeal, whole wheat flour, brown rice, quinoa) 

Useful / interesting facts

Phytates are natural compounds found in the seeds of plant foods and they are especially high in beans, legumes, nuts, seeds, and whole grains. Phytates are also referred to as "anti-nutrients" because they bind to certain minerals and block them from getting into the bloodstream. Zinc is one of the minerals that's absorption and bioavailability is significantly compromised by phytates. There for, your body absorbs zinc from animal-based foods much more effectively than it would the zinc from plant-based foods. However, soaking, sprouting, and fermenting are all methods you can use to reduce the amount of phytates present in plant foods! By doing so, you increase the bioavailability of zinc in that food, meaning more of the zinc in that food will enter your bloodstream.



I hope you found this article useful and informative! I will provide take home points below that you can use as a guideline to help you apply all this information into your daily lives and empowers you to use nutrition to optimize your health and the health of your loved ones!

TAKE HOME POINTS

Tips to strengthen the immune system through nutrition

1. Consume vitamin C rich fruits and vegetables every 3-4 hours throughout the day.
2. Include a minimum of 2 servings of orange, yellow, or red colored fruit or vegetable to your daily diet.
3. Include 1 teaspoon of raw cold-pressed vegetable oil to your daily diet. Great options include almond oil, olive oil, and sunflower oil.
4. Choose whole grain products such as (whole wheat bread, brown rice, whole grain flours) over processed grain products such as (white bread, white rice, and processed flours).
5. Soak, sprout, or ferment your beans, grains, nuts, and seeds to increase the bioavailability of immune boosting micronutrients.

"Let food be thy medicine and medicine be thy food" – Hippocrates

Sprouting Journey