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# NUTRITION FOR IMMUNITY



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Being sick is never enjoyable. Not only does it not feel great, it also often takes time away from loved ones, hobbies, work, and social activities. While many factors affecting immunity aren't in your control (like genetics), there are some healthy habits you can adopt to boost your immunity. For example, quality nutrition is essential for a strong immune system. More specifically, anti-inflammatory foods, certain nutrients, and foods that feed and populate bacteria in the gut microbiome can all enhance immunity. Read on to learn more about these three components of immune-boosting nutrition.

## ANTI-INFLAMMATORY FOODS

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The immune system uses inflammation as a defense mechanism, and when it becomes long-term, or chronic, it can contribute to disease. Anti-inflammatory foods can be a powerful defense against chronic inflammation based on the nutrients and phytonutrients they contain. For example, some nutrients, such as vitamin C, are considered antioxidants. This means they protect cells from damage caused by unstable molecules known as free radicals. Phytonutrients, such as the coumarin in turmeric, aren't considered essential to the diet, however they provide an added layer of health benefits, including antioxidant activity, immune support, and prevention and management of many health conditions. Essential fatty acids, or omega-3s, play a role in biological mechanisms that lower inflammatory response.

Reducing consumption of inflammatory foods (like processed foods with added sugars) and eating more anti-inflammatory foods can help mitigate the effects of chronic inflammation and strengthen the immune system.

Read on for some top anti-inflammatory foods and spices and the beneficial anti-inflammatory compounds found in each.

**Tip:** Aim to buy at least one food in each category the next time you go grocery shopping!

Fruits and Vegetables	Anti-inflammatory Compounds
Avocados	Carotenoids
Beets and beet greens	Betalain
Bell peppers	Vitamin C
Berries (blueberries, strawberries, raspberries)	Ellagic acid
Broccoli	Sulforaphane
Cherries	Polyphenols
Garlic	Diallyl disulfide and allicin
Leafy green vegetables (collard greens, kale, spinach)	Beta-caroten and lutein
Mushrooms (chanterelles, porcini, shiitake)	Ergothioneine
Pomegranate	Ellagic acid
Tomatoes	Lycopene

Healthy Fats	Anti-inflammatory Compounds
Chia seeds	Essential fatty acid (ALA)
Extra-virgin olive oil	Oleocanthal
Fatty fish (herring, mackerel, salmon, tuna)	Essential fatty acids (EPA and DHA)
Flaxseeds (ground)	Essential fatty acid (ALA)
Walnuts	Ellagic acid
Spices	Anti-inflammatory Compounds
Ginger	Gingerol
Turmeric	Curcumin
Other Foods	Anti-inflammatory Compounds
Bone broth	Amino acids (arginine, glutamine, proline)
Cocoa	Flavonols
Green tea	EGCG (Epigallocatechin-3-gallate)
Lentils	Phenols

Check out these meal ideas packed with anti-inflammatory foods.

### Breakfast Ideas

- Eggs scrambled with turmeric, black pepper, garlic, onions, and kale + fresh berries + green tea
- Smoothie made with green tea, ground flaxseeds, ginger, berries, a nut or seed butter, and leafy greens

### Lunch Ideas

- Sweet potato toast topped with smashed avocado and diced bell peppers + steamed or roasted broccoli + ginger tea
- Tuna or salmon salad prepared with extra-virgin olive oil and diced cherries served on whole-grain bread or over a bed of greens

### Dinner Ideas

- Baked citrus salmon served on a bed of lentils prepared with bone broth and roasted beets
- Roasted chicken, tomatoes, and shiitake mushrooms sautéed with garlic
- **Bonus drink:** Golden milk made with milk (or milk alternative), turmeric, ginger, black pepper, and a drizzle of honey

### Snack Ideas

- Yogurt (with live active cultures) topped with grain-free granola made from pumpkin seeds, walnuts, ground flaxseeds, ginger, and pomegranate arils
  - Chocolate chia pudding made with milk (or milk alternative), vanilla, cocoa powder, chia seeds, a drizzle of pure maple syrup, and diced cherries
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## NUTRIENTS FOR IMMUNITY

While anti-inflammatory foods are one way to enhance immunity, research has found that certain nutrients play specific roles in immune system support as well. For instance, vitamin A decreases infection risk and vitamin C is important for immune cell response. Zinc strengthens innate immunity (the body's first line of defense against pathogens), and selenium supports both innate and adaptive immunity (immunity that develops over time). These are just a few of the many examples that demonstrate the value of a balanced, nutrient-dense diet.

Review the following chart for some immune-supporting nutrients and their food sources.

Nutrient	Immune Support	Food Sources
Iron	Helps cells respond to bacterial infection	<ul style="list-style-type: none"> <li>• <b>Heme iron:</b> Beef, organ meat, oysters, poultry</li> <li>• <b>Non-heme iron:</b> Beans, dried fruit, leafy greens, lentils, pumpkin seeds, soybeans</li> </ul>
Selenium	Influences innate and acquired immunity; supports immune cell (neutrophil) response	Beef, Brazil nuts, chicken, lentils, shellfish
Vitamin A	Immune cell support	Broccoli, carrots, cod liver oil, leafy greens, papaya, sweet potatoes

Nutrient	Immune Support	Food Sources
<b>Vitamin C</b>	Plays role in white blood cell production (cells that help fight infection)	Asparagus, bell peppers, broccoli, citrus fruits, guava, strawberries
<b>Vitamin D</b>	Modulates the immune response; deficiency linked to increased risk for disease and infection	Egg yolks, fatty fish, fortified foods, liver, milk and milk alternatives fortified with vitamin D, mushrooms that have been exposed to sunlight
<b>Vitamin E</b>	Regulates immune system function	Almonds, avocado, hazelnuts, sunflower seeds, wheat germ
<b>Zinc</b>	Immune cell function and antiviral support	Cashews, egg yolks, oysters, pumpkin seeds, sesame seeds

## FOODS FOR GUT HEALTH AND IMMUNITY

After including anti-inflammatory foods and immune-supporting nutrients in the diet, experimenting with foods that feed and nourish the gut will provide an extra layer of immune support! The foods we choose to eat have a major impact on the gut microbiome – all the microbes, bacteria, viruses, protozoa, and fungi in the gut. This is especially important for immunity as over 70% of the immune system is located in the GI tract!<sup>1</sup> Gut microbes prefer to eat lots of diverse, high-fiber plant foods, whereas highly processed foods – often full of unhealthy fats, artificial sweeteners, and added sugars – are less likely to keep beneficial microbes around.

Diets rich in whole grains and a variety of fruits and vegetables increase microbial diversity, leading to positive health outcomes, such as improved metabolic and immune function.<sup>2-4</sup> Including probiotics and prebiotics in the diet will support the gut microbiome even further.

Probiotics are beneficial microorganisms that can be found naturally in food (fermented vegetables like kimchi), added to food (cereal fortified with probiotics or yogurt with added live active cultures), or in dietary supplements. Probiotic consumption reduces the number of harmful bugs and has been linked to disease prevention and immune support.<sup>5</sup>

Think of probiotics as seeds. In order to grow, seeds need nutrients. Prebiotics are the “fertilizer” that beneficial microbes (the “seeds”) need to survive. In other words, prebiotics are non-digestible food ingredients that feed the probiotics in the gut. In doing so, they play a large role in influencing the types of microbes available. Prebiotics have been linked to improved immune function, nervous system health, skin health, cardiovascular health, and bone health.<sup>6</sup>

### Here are some common sources of probiotics and prebiotics.

<b>Probiotics</b>	Kefir, kimchi, kombucha, miso, pickles (fermented), sauerkraut (raw, unpasteurized), tempeh, yogurt (with live active cultures)
<b>Prebiotics</b>	Apples, apricots, artichoke, asparagus, bananas, cassava, cashews, cherries, chicory root, citrus fruit, dandelion root, fennel, garlic, inulin, plums, potatoes (cooked and cooled), tiger nuts

**Note:** Tolerance to probiotic- and prebiotic-rich foods varies. When adding these foods to your diet, start slowly and consider asking your healthcare provider if they are right for you.



## PUTTING IT ALL TOGETHER

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Eating for immunity is something you can practice on an ongoing basis. There are many creative ways to include anti-inflammatory, nutrient-rich, and gut-supporting foods in your diet, and focusing on whole foods is a valuable starting point.

As you begin to incorporate immune-boosting foods into your diet, remember to focus on sustainable shifts. Make small changes you can easily weave into your current dietary habits, which will help set you up for success. You'll begin to feel and enjoy the benefits of fewer sick days over time.

## FOOTNOTES

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