


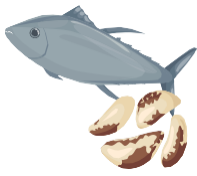




# Food First—Supporting Immune Health with Nutrition

A healthy immune system is an essential aspect of optimal health and wellness. By providing essential vitamins, minerals, and phytonutrients, plant-based foods play an important role in maintaining and positively influencing immune function.<sup>1</sup> Phytonutrients, also known as phytochemicals, are components of plants that help protect them from insects and environmental stress and contribute to health benefits.<sup>2</sup> This can include things like carotenoids (red- and orange-colored foods), flavonoids (plant-based foods that act as an antioxidant), and phytosterols (natural plant compounds that help remove cholesterol from body). Through antimicrobial, antioxidant, and anti-inflammatory actions, these essential nutrients and phytonutrients provide multiple benefits to the immune system, highlighting the role of nutrition as a powerful tool in promoting good health.<sup>1</sup> Focusing on a rich variety of colorful plant foods, along with adopting healthy lifestyle behaviors, can help you and your family stay healthy.

Nutrients	Foods Sources <sup>3,14</sup>		Benefits
<b>Vitamin A</b> <sup>4-6</sup> (converted from beta-carotene and other carotenoids)	Orange- and yellow-colored fruits and vegetables including peppers, carrots, pumpkins, tomatoes, & potatoes		Important for lung health; supports immune response against infections (skin, mouth, gastrointestinal, and respiratory systems)
<b>Vitamins C</b> <sup>7,8</sup>	Colorful berries, cantaloupe, peppers, citrus fruits, broccoli, Brussels sprouts, cauliflower, sweet potatoes, tomatoes, nuts, and sunflower seeds		Increases action of lymphocytes (white blood cells) within the immune system that help fight off viruses; plays a role in prevention and treatment of infections
<b>Vitamin D</b> <sup>9-12</sup>	Egg yolks, fatty fish (salmon, mackerel, and sardines), cod liver oil, vitamin D-fortified foods (milk, cheese, orange juice, and cereals)  <b>Vegetarian options:</b> beans, nuts, tofu, and wheat germ		Protects against upper respiratory infections and flu and can reduce related complications
<b>Selenium</b> <sup>13</sup>	Highest in Brazil nut, sea fish (tuna, mackerel); soil quality determines level of selenium in plant-based foods		Strengthens immune response against viral and bacterial infections; plays a role as an antioxidant to lower inflammation
<b>Zinc</b> <sup>15,16</sup>	Legumes (peas, beans, lentils, soy beans), oysters, red meat, poultry, nuts, whole grains, & dairy products		Improves resistance to infections; promotes wound healing; supports barriers (skin and gut lining)
<b>Other supportive food-based nutrients</b> <sup>17-19</sup>	Green tea (EGCG), onions and garlic (quercetin), turmeric (curcumin), fish (omega-3 fatty acids)		Support immune system through antifungal, antioxidant, and antibacterial actions

**Prebiotics:** Specialized plant fibers that are a food source for probiotics and support immune system by increasing population of beneficial bacteria.

**Prebiotic foods:** leeks, garlic, onions, asparagus, bananas, dandelion greens, Jerusalem artichoke, burdock root



**Probiotics:** Live bacteria and yeasts that are good for you, especially your digestive system; often called beneficial bacteria because they help keep your gut healthy. They can support immune response-related diseases, such as allergy, eczema, and viral infection.

**Probiotic foods:** kefir, miso soup, kombucha, yogurt, apple cider vinegar, pickles, raw cheese, kimchi, sauerkraut



**Tips for supporting immune response with nutrition:**

- **Aim for color and diversity.** Consume 2 or more vegetables per meal and aim for 3 or more colors per day to ensure you consume a wide variety of immune-supportive nutrients.
- **To retain nutrients:** Eat fresh fruits and vegetables when possible. Do not overcook. Steaming for less than 2 minutes is ideal to preserve nutrients.
- **Several nutrients (including vitamins A, D, and E)** are fat-soluble and are more bioavailable (better absorbed) if eaten with a source of quality fats. For example, consuming a salad with higher fat vs. lower fat dressing can help promote absorption of carotenoids (vitamin A).<sup>22</sup>

**Food First Recipes**

**Berry Nutty Yogurt** Servings: 1

**Ingredients:**

- 4 oz. plain Greek yogurt
- 1 cup mixed berries (strawberries, blueberries, and raspberries)
- 2 Tbsp. sliced almonds (or nut of choice)

**Directions:**

Mix berries, nuts with yogurt. Enjoy!

**Peach Salsa** Servings: 8 (½ cup)

**Ingredients:**

- 4 peaches OR nectarines diced
- 1/3 cup minced red onion
- 2 Tbsp. chopped fresh mint
- 2 Tbsp. chopped cilantro OR parsley
- 1 Tbsp. seeded and minced jalapeno chili (optional)

**Directions:**

Combine all ingredients except salt and pepper in a large bowl. Cover and chill for 30-60 minutes. Allow to warm to room temperature before serving and stir in salt/pepper to taste. Enjoy!

**Tip:** Great topping for seafood

- 1 Tbsp. grated orange zest
- 2 Tbsp. fresh orange juice
- 2 Tbsp. fresh lime juice
- Sea salt and freshly ground pepper to taste

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