

## Essential Nutrients: Functions, Deficiency Symptoms, Cautions, and Food Sources

Nutrient	Function	Symptoms of Deficiency	Cautions	Food Sources
<b>Vitamin K</b>	Helps with blood clotting and bone health	Easy bruising, excessive bleeding, weak bones	People on blood thinners (e.g., Warfarin) should <b>maintain consistent intake</b> .  Avoid, Grapefruit juice, cranberry juice, and pomegranate juice	Leafy greens (kale, spinach), broccoli, Brussels sprouts, to a lesser degree in soybeans, canola, soybean, and olive oil.
<b>Folate (Vitamin B9)</b>	Supports DNA production, cell growth, and red blood cell formation	Fatigue, anemia, birth defects, weakened immune function	Excess folic acid supplements can <b>mask B12 deficiency</b>	Dark leafy greens, beans, lentils, asparagus, oranges, fortified grains
<b>Fiber</b>	Aids digestion, heart health, and blood sugar regulation	Constipation, bloating, high cholesterol, blood sugar fluctuations	Excess fiber without enough water can cause <b>bloating, gas, or blockages</b>	Whole grains, beans, lentils, fruits, vegetables, nuts, seeds
<b>Calcium</b>	Strengthens bones/teeth, supports muscle and nerve function	Osteoporosis, brittle nails, muscle cramps, numbness/tingling	Too much calcium from supplements can cause <b>kidney stones</b>	Dairy (milk, yogurt, cheese), leafy greens, almonds, tofu, fortified plant milks
<b>Iron</b>	Supports red blood cell production and oxygen transport	Fatigue, weakness, pale skin, dizziness	Excess iron from supplements can cause <b>organ damage, constipation</b>	Red meat, poultry, fish, beans, lentils, spinach, fortified cereals

<b>Antioxidants</b> (e.g., Vitamin C, E, Beta-Carotene, Selenium)	Protects cells, supports immunity, reduces inflammation	Increased risk of chronic diseases, weakened immunity	High doses of some antioxidants (e.g., beta-carotene in smokers) may <b>increase health risks</b>	Berries, nuts, dark leafy greens, carrots, tomatoes, citrus fruits, green tea
<b>Vitamin A</b>	Supports vision, immune function, and skin health	Night blindness, dry eyes, poor immune function	Too much <b>preformed vitamin A</b> can be <b>toxic to the liver</b>	Carrots, sweet potatoes, spinach, liver, eggs, dairy
<b>Vitamin C</b>	Supports immune function, wound healing, and collagen production	Fatigue, bleeding gums, slow wound healing, infections (scurvy)	Excess supplements may cause <b>stomach cramps, kidney stones, and diarrhea</b>	Citrus fruits, strawberries, bell peppers, kiwi, tomatoes, broccoli
<b>Vitamin B6</b>	Helps brain development, mood regulation, metabolism	Irritability, depression, anemia, weakened immunity	High doses from supplements can cause <b>nerve damage (neuropathy)</b>	Poultry, fish, bananas, potatoes, chickpeas, fortified cereals
<b>Vitamin B12</b>	Supports nerve function, red blood cell formation, energy production	Fatigue, anemia, numbness/tingling, memory issues	Deficiency common in <b>vegans, older adults, digestive disorders</b>	Animal products (meat, eggs, dairy, fish), fortified plant milks, nutritional yeast
<b>Vitamin D</b>	Supports calcium absorption, bone health, immunity	Bone pain, muscle weakness, increased fractures	Excess vitamin D can cause <b>calcium buildup (hypercalcemia)</b>	Sunlight, fatty fish (salmon, mackerel), egg yolks, fortified dairy/plant milks

<b>Potassium</b>	Regulates fluid balance, muscle contractions, heart function	Weakness, muscle cramps, irregular heartbeat, high blood pressure	Excessive potassium can cause <b>heart issues, especially in kidney disease</b>	Bananas, potatoes, beans, spinach, yogurt, oranges, tomatoes
<b>Magnesium</b>	Supports muscle/nerve function, bone health, energy	Muscle cramps, fatigue, irregular heartbeat, mood changes	Too much magnesium from supplements can cause <b>diarrhea, nausea, low blood pressure</b>	Nuts (almonds, cashews), whole grains, leafy greens, beans, avocados
<b>Phosphorus</b>	Supports bones, energy metabolism, cell function	Weak bones, fatigue, muscle weakness, joint pain	Excess phosphorus (often from processed foods) can <b>weaken bones</b>	Dairy, meat, fish, nuts, beans, whole grains

**To learn more about vitamins, minerals and supplements check out the excellent, science based information from the National Institute of Health, NIH.**

**Vitamin and Minerals Fact Sheets:**

<https://ods.od.nih.gov/factsheets/list-VitaminsMinerals/>

**Dietary Supplements Fact Sheets:**

<https://ods.od.nih.gov/factsheets/list-all/>

Pam VanKampen, RDN, CD [pam.vankampen@gwaar.org](mailto:pam.vankampen@gwaar.org)