

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

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

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

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

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