

## A Miniguide to Vitamins

The following table can help you plan a diet that provides adequate amounts of the essential vitamins indicated. Diet, however, cannot always satisfy the need for all vitamins. Pregnancy, menstruation, illness, crash dieting, food allergies, use of medication, or other circumstances may call for vitamin supplements. Check with your doctor about taking vitamin supplements. Follow his or her advice.

Vitamin	Dietary Reference Intake (DRI)*	Food Sources	Primary Functions	Deficiency Symptoms
A	3,000 International units	Liver, eggs, fortified milk and dairy products. The following contain carotene, which converts to vitamin A after they're eaten: dark green vegetables; deep yellow fruits such as apricots, peaches, cantaloupe, carrots, sweet potatoes, pumpkin, squash.	Essential for healthy skin, hair, and mucous membranes. Required for normal vision. Needed for proper tooth and bone development and for resistance to infection.	Night Blindness; dry, rough, scaly skin; susceptibility to infection; dry eyes; stunted bone growth; poor tooth enamel leading to cavities. (Deficiency disease: hypovitaminosis A.)
Thiamin (B <sub>1</sub> )	1.2 milligrams	Lean meat (especially pork), oysters, organ meats and liver, green peas, legumes, collard greens, oranges, asparagus, whole grains.	Release of energy from the carbohydrates in food, appetite regulation, growth and muscle tone, proper function of heart and nervous system.	Loss of appetite, fatigue, mental confusion, moodiness, irritability, forgetfulness, muscle weakness, leg cramps, enlarged heart. (Deficiency disease: beriberi.)
Riboflavin (B <sub>2</sub> )	1.3 milligrams	Organ meats, milk and dairy products, oysters, lean meat, chicken, dark green vegetables, sardines, eggs, tuna, whole grains, legumes.	Helps cells use oxygen. Important in metabolism of protein, fat, and carbohydrates. Helps keep skin and mucous membranes (in mouth and lining of digestive tract) healthy.	Skin disorders, especially cracks at corners of mouth; dermatitis around nose and lips; hypersensitivity to light; reddening of cornea; digestive disturbances.
Niacin (B <sub>3</sub> )	16 milligrams	Liver, lean meat, fish, poultry, nuts, legumes, dark green vegetables, whole grains. The following are good sources of tryptophan, which can be converted to niacin in your body: milk, eggs, meat.	Participates in metabolism of protein, fat, and carbohydrates. Helps cells use oxygen. Promotes healthy skin, nerves, and digestive tract. Aids digestion and fosters normal appetite.	Skin disorders (especially on parts of body exposed to sun); red, swollen, smooth tongue; digestive tract disturbances, including indigestion and diarrhea; mental disorders, including irritability, depression, anxiety, and mental confusion. (Deficiency disease: pellegra.)
Pyridoxine (B <sub>6</sub> )	1.3 milligrams	Lean meat, liver and other organ meats, fish, nuts, legumes, whole grains, poultry, corn, bananas.	Aids in metabolism of protein, fat, and carbohydrates. Assists in formation of red blood cells and antibodies. Involved in sodium-potassium balance.	Dermatitis, cracks at corners of mouth, smooth tongue, irritability, depression, convulsions, dizziness, anemia.
Cyano-cobalamin (B <sub>12</sub> )	2.4 micrograms	Organ meats, lean meat, egg yolks, dairy products, fish (especially shellfish).	Aids in formation of red blood cells. Maintains healthy nervous system. Aids metabolism of protein, fat, and carbohydrates. Essential for normal growth and development.	Anemia; numbness and tingling in fingers; degeneration of peripheral nerves, brain, and spinal cord; fatigue; poor growth.

Vitamin	Dietary Reference Intake (DRI)*	Food Sources	Primary Functions	Deficiency Symptoms
Folate	400 micrograms+	Liver and other organ meats, dark green leafy vegetables, asparagus, lima beans, whole grains, nuts, legumes.	Aids in the formation of hemoglobin in red blood cells and of enzymes and other body cells. Can help prevent serious birth defects of the brain and spine.	Anemia; red, swollen, smooth tongue; diarrhea; poor growth.
Pantothenic Acid	5 milligrams	In all plant and animal foods, but best sources are organ meats, whole grains, fresh vegetables, egg yolks.	Helps in the metabolism of protein, fat, and carbohydrates. Involved in formation of hormones and nerve-regulating substances.	Fatigue, tingling in hands and feet, severe abdominal cramps, nausea, difficulty sleeping.
Biotin	30 micrograms	Liver and other organ meats, egg yolks, nuts, legumes, cauliflower, mushrooms, green beans, dark green vegetables.	Helps release energy from protein. Also involved in metabolism of fats and carbohydrates and formation of fatty acids. Works with other B vitamins.	Deficiencies do not occur under normal circumstances. Raw egg whites can destroy biotin, and metabolic disturbances can interfere with use, causing anemia, nausea, muscular pain, fatigue, depression, poor appetite.
C (Ascorbic Acid)	90 milligrams	Brussels sprouts, strawberries, oranges, broccoli, green peppers, grapefruit, collard greens, cauliflower, cantaloupe, tangerines, cabbage, tomatoes, asparagus.	Forms collagen to hold body cells together. Helps maintain walls of blood vessels and capillaries. Helps maintain bones and teeth. Helps heal wounds. Helps absorb iron and aids resistance to infection. Prevents destruction of B vitamins through oxidation.	Weakness; fatigue; loss of appetite; weight loss; irritability; slow growth; increased risk of infection; swollen, inflamed, and bleeding gums; swollen and aching joints; easy bruising; nosebleeds; delayed wound healing. (Deficiency disease: scurvy.)
D	600 International units	Fortified milk, egg yolks, organ meats, fortified breakfast cereals. Vitamin D is formed in skin exposed to sunlight.	Increases absorption of calcium and phosphorus. Assists in several phases of calcium and phosphorus metabolism, aiding in bone and tooth development. Seems to protect against colon cancer in some way.	During growth years: poor bone and tooth formation, bowed legs, stunted growth, muscle weakness (causing protruding abdomen). Later in life: softening of bones; loss of calcium from bones; pain in pelvis, back, and legs; easily broken bones; muscle twitching and spasms. (Deficiency diseases: rickets in children and osteomalacia in older adults.)

+ Women should take 400 to 800 micrograms of folic acid for at least one month before getting pregnant and during the pregnancy. Women who have had a baby with a serious problem of the brain or spine should take the amount of folic acid their doctors advise.

(continued)

Vitamin	Dietary Reference Intake (DRI)*	Food Sources	Primary Functions	Deficiency Symptoms
E	22.5 International units	Plant oils (used in margarine and salad dressings), wheat germ, green leafy vegetables, nuts, whole grains, liver, egg yolks, legumes, fruits, other vegetables.	Protects essential fatty acids and vitamin A from oxidation. Protects red blood cells. Helps cells use oxygen to yield energy.	Red blood cell breakage and muscle weakness. Deficiency is highly unlikely in humans, as vitamin E is widely distributed in foods and stored in the body.
K	120 micrograms	Green leafy vegetables, cabbage-family vegetables, liver, egg yolks, milk. (Also, bacteria synthesizes vitamin K in the digestive tract.)	Aids in formation of blood clotting proteins. Aids in regulation of blood calcium.	Tendency to hemorrhage, delayed blood clotting.

\* Reference Daily Intake (RDI) is a value set by the Food and Drug Administration (FDA) for use in nutrition labeling. It is based on the highest Recommended Dietary Allowance (RDA) for each nutrient, to assure that needs be met for all age groups.