

Vitamins	Functions	RDA	Good vegetarian sources	Remarks	Deficiency symptoms
Fat-soluble vitamins					
<p>Vitamin A Retinol true form readily used by the body</p> <p>Beta-carotene found in vegetables, is the precursor of vitamin A</p>	<ul style="list-style-type: none"> Antioxidant Involved in the night vision, growth, cell differentiation and reproduction Maintains the health of the skin and surface tissues especially those with mucous linings Protects against infections May also reduce breast cancer 	<p>ER per day Babies: 350 Children (1 to 3): 400 Children (4 to 6): 450 Children (7 to 9): 500 Children (10 to 12): 550 Boys (13 to 15): 700 Girls (13 to 15): 600 Men: 800 Women: 600 Pregnant women: 700 Nursing mother: 950</p>	<p>Beta-carotene is found in abundance in bright yellow, orange, red and dark green fruits and vegetables.</p> <p>Carrot, spinach, squash, dandelion, red pepper, apricots, mango, cantaloupe, sea vegetables...</p>	<p>Gradually destroyed by oxygen, heat and drying.</p>	<ul style="list-style-type: none"> Skin (dry or rough skin) and eyes (red and itchy eyes) problems Night blindness Bone growth problems Weak tooth enamel Low infections resistance Digestive problem (kidney stones, diarrhea, loss of appetite...)
<p>Vitamin D</p> <p>Ergocalciferol Found in vegetables</p> <p>Cholecalciferol Found in animal products and which the body manufactures when exposed to the sun.</p>	<ul style="list-style-type: none"> Regulates calcium and phosphorus metabolism. Maintains bones and teeth health Might also protect against colorectal and breast cancer. 	<p>mcg per day Infants: 10 Teenagers: 10 Adults: 10 Pregnant women: 15 Nursing mother: 15 Elderly: 12</p>	<p>Brewer's yeast, mushrooms and wheat bran, eggs...</p>	<p>Sun exposure is by far our primary source of vitamin D. 10 to 15 minutes every day of sun exposure on the face and hands is sufficient. The darker your skin is, the more sun exposure you need.</p>	<ul style="list-style-type: none"> Rickets in children Osteomalacia in adults
<p>Vitamin E</p> <p>Exists in different forms. The most active is the alpha-tocopherol</p>	<ul style="list-style-type: none"> Antioxidant Prevents cancer and slows the aging process Prevents cardiovascular disease Protects lungs from air pollution, eases menopause and boosts our immunity 	<p>mg per day Babies: 4 Children (1 to 3): 6 Children (4 to 6): 7.5 Children (7 to 9): 9 Children (10 to 12): 11 Teenagers and adults: 12 Pregnant and nursing women: 12</p>	<p>Vitamin E is found in vegetable oils especially sunflower oil and wheat germ oil. Olive, peanut, safflower, sesame, corn and soybean oils are also good.</p> <p>Cereals, nuts and seeds are interesting sources.</p>		<p>A deficiency is really rare. However two categories of people are at risk. They are premature babies and people who do not absorb fats normally.</p>

<p>Vitamin K</p>	<ul style="list-style-type: none"> • Clot formation • Cooperates with vitamins A and D in helping to build bones and kidneys protein 	<p>mcg per day Babies: 10 Adults: 45</p>	<p>Leafy green vegetables such as spinach, lettuce, watercress, leeks...</p> <p>Other rich foods are: cabbage, Brussels sprouts, broccoli, cauliflower, green beans, peas, apple, eggplant, cereals, soybean and vegetable oils. Ovo-vegetarians can also found this vitamin in eggs.</p>		<p>Bleeding is prolonged and could lead to hemorrhages</p>
Water-soluble vitamins					
<p>Vitamin B1 Thiamin</p>	<ul style="list-style-type: none"> • Essential for production of energy, carbohydrate and alcohol metabolism, and nerve function • Vital for normal development, growth, reproduction, healthy skin and hair, blood production and immune function 	<p>mg per day Babies: 0.2 Children (1 to 3): 0.4 Children (4 to 6): 0.6 Children (7 to 9): 0.8 Children (10 to 12): 1 Males: 1.3 Women: 1.1 Pregnant and nursing women: 1.8</p>	<p>The richest food sources of Vitamin-B1 are Brewer's and nutritional yeast.</p> <p>Good sources are legumes, whole grains, unrefined cereals, rice bran, seeds, Brazil nuts and peanuts.</p> <p>Other sources are figs, orange, pineapple, watermelon, potatoes and peas.</p>	<p>Quickly lost into cooking water. It is also destroyed by heat.</p> <p>Tea and alcohol inhibit its absorption as well as large intakes of raw fish, shellfish and cruciferous vegetables.</p> <p>Intake is increased if large consumption of carbohydrates.</p>	<ul style="list-style-type: none"> • Anorexia • Fatigue • Depression • Attention deficit • Memory lost • Muscular weakness • Nerve damage • Beriberi • Wernicke-Korsakoff syndrome
<p>Vitamin B2 Riboflavin</p>	<ul style="list-style-type: none"> • Production of energy • Essential for normal growth and development, cell respiration, regulation of certain hormones, antibody production and for the health of the mucous membranes in the digestive tract. • Essential to the proper function of three other B vitamins (B6, B9 and niacin) and iron absorption. • Part of the antioxidant: glutathione reductase 	<p>mg per day Babies: 0.4 Children (1 to 3): 0.8 Children (4 to 6): 1 Children (7 to 9): 1.3 Boys (10 to 12): 1.4 Girls (10 to 12): 1.3 Boys (13 to 15): 1.6 Girls (13 to 15): 1.4 Men: 1.6 Women: 1.5 Pregnant women: 1.6 Nursing mothers: 1.8</p>	<p>The richest in the plant sources are sea vegetables and nutritional yeast.</p> <p>Good sources of vitamin B2 are green leafy vegetables, broccoli, avocado, mushrooms, peas...</p> <p>Other sources are : legumes, whole grains, nuts, seeds, wheat germ and bran...</p>	<p>Lost from foods during storage and cooking</p>	<p>A deficiency in this vitamin is seldom in occidental countries.</p> <p>Deficient people would develop skin and/or eyes problems.</p>

<p>Vitamin B3 Niacin</p>	<ul style="list-style-type: none"> • Production of energy • Promotes a healthy nervous system and normal mental function • Improves blood circulation and lowers cholesterol and triglycerides • Antioxidant and detoxification functions • Synthesis of hormones 	<p>mg per day Babies: 3 Children (1 to 3): 6 Children (4 to 6): 8 Children (7 to 9): 9 Teenagers (10 to 12): 10 Boys (13 to 15): 13 Girls (13 to 15): 11 Men: 14 Women: 11 Pregnant women: 16 Nursing mothers: 15</p>	<p>Brewer's yeast, peanuts, peanut butter, sesame seeds, tahini (sesame butter), sunflower seeds, wheat germ and bran, sprouted wheat, avocado, mushrooms, green peas, whole cereals ...</p> <p>Also synthesized from tryptophan.</p>	<p>1 niacin equivalents (NE) = 1 mg of niacin or 60 mg of tryptophan.</p> <p>Nicotinic acid (another form of this vitamin) taken in large doses can cause "niacin flush"; a burning, itching feeling in the face, neck, arms or chest.</p>	<ul style="list-style-type: none"> • Skin irritations • Muscle weakness • Fatigue • Dizziness • Loss of appetite • Headaches • Red tongue • Nausea and vomiting • Pellagra
<p>Vitamin B5 Panhotenic acid</p>	<ul style="list-style-type: none"> • Production of energy • Synthesis of fatty acids • Required for normal growth and development • Anti-stress properties • Stimulating wound healing 	<p>mg per day Babies: 2 Children (1 to 3): 2.5 Children (4 to 6): 3 Children (7 to 9): 3.5 Teenagers (10 to 12): 4 Teenagers (13 to 15): 4.5 Older teenagers and adults: 5 Pregnant women: 5 Nursing mothers: 7</p>	<p>Brewer's yeast, whole grain products, legumes, nuts, sunflower seeds, wheat germ ...</p>	<p>Most of the vitamin is lost in the cooking water and is also destroyed by heat.</p>	<p>Being widely distributed in foods, a deficiency is rare.</p>
<p>Vitamin B6 Pyridoxine</p>	<ul style="list-style-type: none"> • Protein's metabolism • Required to turn the amino acid tryptophan into niacin • Release of glycogen from the liver whenever muscles need energy • Helps produce body chemicals such as insulin, hemoglobin, antibodies... 	<p>mg per day Babies: 0.3 Children (1 to 3): 0.6 Children (4 to 6): 0.8 Children (7 to 9): 1 Teenagers (10 to 12): 1.3 Boys (13 to 15): 1.6 Girls (13 to 15): 1.5 Men: 1.8 Women: 1.5 Pregnant women: 2 Nursing mothers: 2</p>	<p>Brewer's yeast, raw wheat germ, cabbages, whole grains, nuts, legumes...</p>	<p>Destroyed by cooking and mostly removed from grains by refining. Too much vitamin B6 can cause a magnesium deficiency. Higher intakes are required when the diet is rich in proteins.</p>	<p>A deficiency in this vitamin is seldom and is often the result of a B vitamins deficiency.</p>

<p>Vitamin B8 Biotin</p>	<ul style="list-style-type: none"> • Production of energy • Required for the utilization of proteins, folic acid and vitamin B 12. 	<p>mcg per day Babies: 6 Children (1 to 3): 12 Children (4 to 6): 20 Children (7 to 9): 25 Teenager (10 to 12): 35 Teenager (13 to 15): 45 Adults: 50 Pregnant women: 50 Nursing mothers: 55</p>	<p>Brewer's yeast, sprouted seeds, legumes, cauliflower, nuts, whole brown rice, fruits, egg yolks, wheat germ...</p>	<p>Avidin which is found in white raw eggs, binds with biotin and inhibits its absorption. The cooking destroys avidin.</p>	<p>A deficiency in B8 is really seldom since it is widely available in food.</p>
<p>Vitamin B9 Folic acid</p>	<ul style="list-style-type: none"> • Essential for the normal growth and maintenance of all cells • Vital for the reproduction of the cells within the fetus • Reducing blood levels of homocysteine and lowering risks of heart disease. • Maintains nervous system's integrity and intestinal tract functions 	<p>mcg per day Babies: 70 Children (1 to 3): 100 Children (4 to 6): 150 Children (7 to 9): 200 Children (10 to 12): 250 Children (13 to 15): 300 Men: 330 Women: 300 Pregnant and nursing women: 400</p>	<p>Brewer's yeast, green leafy vegetables, orange, banana, red fruits, nuts, avocado, whole grains...</p>	<p>It is partially destroyed by cooking and light. High dose of folic acid may mask a vitamin B12 deficiency.</p>	<ul style="list-style-type: none"> • Anemia • Gastrointestinal upset • Memory problems • Impaired brain and nerve functions • Birth defects
<p>Vitamin B12 Cobalamin</p>	<ul style="list-style-type: none"> • Along with vitamin B9 and B6, is needed for the conversion of homocysteine in methionine • Production of DNA and RNA. 	<p>mcg per day Children (1 to 3): 0.8 Children (4 to 6): 1.1 Children (7 to 9): 1.4 Children (10 to 12): 1.9 Children (13 to 15): 2.3 Adults: 2.4 Pregnant women: 2.6 Nursing women: 2.8</p>	<p>Plant foods are completely devoid of B12. Nutritional yeast can be a really good source of B12 vitamin only if the yeast has been grown on an enriched mold. Ask the supplier. Otherwise take supplements</p>	<p>A deficiency in this vitamin can appear several years after one has stopped eating animal products. Moreover, folic acid can mask a vitamin B12 deficiency.</p>	<p>Deficiency can result in nervous disorders and brain damage as well as a form of anemia: Pernicious anemia also called Megaloblastic anemia. Nervous damages can be permanent.</p>
<p>Vitamin C Ascorbic acid</p>	<ul style="list-style-type: none"> • Help our immune system to fight off foreign invaders • Builds and maintains collagen • Powerful antioxidant • Raises blood levels of HDL cholesterol • Increases the iron absorption. 	<p>mg per day Babies: 50 Children (1 to 3): 60 Children (4 to 6): 75 Children (7 to 9): 90 Children (10 to 12): 100 Adults and teenagers: 110 Pregnant women: 120 Nursing women: 130</p>	<p>Fresh fruits and vegetables</p>	<p>Heat and air destroy this vitamin. Moreover it can leach into cooking water.</p>	<ul style="list-style-type: none"> • Inflamed gums • Frequent unexplained bruising • Paleness • Intense fatigue • Brittle bone • Scurvy.