

Encyclopedia of Vits/Mins

Vitamin or Mineral – What it Does – Best Places to get it - Deficiencies

Water-soluble Vits

B1 – Thiamin

Assists in carbohydrate and amino acid metabolism

Pork

Deficiency: Symptoms include burning feet, weakness in extremities, rapid heart rate, swelling, anorexia, nausea, fatigue, and gastrointestinal problems.

B2 – Riboflavin

Assists in carbohydrate and fat metabolism

Mushrooms and organ meats such as liver

Deficiency: Symptoms include cracks, fissures and sores at corner of mouth and lips, dermatitis, conjunctivitis, photophobia, glossitis of tongue, anxiety, loss of appetite, and fatigue.

Niacin

Assists in carbohydrate and fat metabolism, Helps with cell differentiation, Participates in DNA replication and repair

Meat, poultry, fish

Deficiency: Symptoms include dermatitis, diarrhea, dementia, and stomatitis.

B5

Break down proteins, fats and carbohydrates from the food we eat, so that our bodies can use them for energy and rebuilding tissue, muscles and organs

Cauliflower, kale, avocado, egg yolks, broccoli, tomatoes, beef (especially organ meat), turkey, duck, chicken, sweet potatoes, sunflower seeds, and salmon

Deficiency: Very unlikely. Only in severe malnutrition may one notice tingling of feet.

B6

Assists in protein and carbohydrate metabolism, Supports blood cell synthesis and neurotransmitter synthesis.

Sunflower seeds, beef and poultry

Deficiency: Symptoms include cheilosis, glossitis, stomatitis, dermatitis (all similar to vitamin B2 deficiency), nervous system disorders, sleeplessness, confusion, nervousness, depression, irritability, interference with nerves that supply muscles and difficulties in movement of these muscles, and anemia. Prenatal deprivation results in mental retardation and blood disorders for the newborn.

B7 - Biotin

Plays a crucial role in metabolizing fats, proteins, and carbohydrates, and several other enzymes involved in the body's metabolic process. It also synthesizes fatty acids, amino acids, keeps blood glucose levels in check, supplements calcium deposits in your nails and keeps them strong, brittle-free.

Fruits, veggies, nuts, seeds, meat, poultry, eggs

Deficiency: Very rare in humans. Keep in mind that consuming raw egg whites over a long period of time can cause biotin deficiency. Egg whites contain the protein avidin, which binds to biotin and prevents its absorption.

B-9 Folate

Folate is a B-vitamin that is naturally present in many foods. A form of folate, called folic acid, is used in dietary supplements and fortified foods. Our bodies need folate to make DNA and other genetic material. Folate is also needed for the body's cells to divide.

Green leafy vegetables

Deficiency: One may notice anemia (macrocytic/megaloblastic), sprue, Leukopenia, thrombocytopenia, weakness, weight loss, cracking and redness of tongue and mouth, and diarrhea. In pregnancy there is a risk of low birth weight and preterm delivery.

B12 - Cobalamin

Helps keep the body's nerve and blood cells healthy and helps make DNA, the genetic material in all cells. Vitamin B12 also helps prevent a type of anemia called megaloblastic anemia that makes people tired and weak.

Fish, beef, poultry

Deficiency: Symptoms include pernicious anemia, neurological problems and sprue.

Vit C - Ascorbic acid

A water-soluble vitamin and powerful antioxidant, it helps the body form and maintain connective tissue, including bones, blood vessels, and skin.

Fruits and vegetables. Rich sources include bell peppers, citrus fruits, strawberries, pineapple, kiwi, potatoes, tomatoes, broccoli and leafy greens

Deficiency: Symptoms include bruising, gum infections, lethargy, dental cavities, tissue swelling, dry hair and skin, bleeding gums, dry eyes, hair loss, joint pain, pitting edema, anemia, delayed wound healing, and bone fragility. Long-term deficiency results in scurvy.

Fat Soluble Vits

Vit A

Required for night vision and color vision, Needed for cell differentiation, Supports immune function, Aids both male and female reproductive processes, Required for bone health

Egg yolks

Deficiency: One may notice difficulty seeing in dim light and rough/dry skin.

Vit D

Regulated blood calcium levels, Supports bone health

Sunlight is best, fatty fish such as salmon and tuna, egg yolks, beef liver and some mushrooms

Deficiency: In children a vitamin D deficiency can result in rickets, deformed bones, retarded growth, and soft teeth. In adults a vitamin D deficiency can result in osteomalacia, softened bones, spontaneous fractures, and tooth decay. Those at risk for deficiency include infants, elderly, dark skinned individuals, those with minimal sun exposure, fat malabsorption syndromes, inflammatory bowel diseases, kidney failure, and seizure disorders.

Vit E

Protects cell membranes from oxidation

Seeds, nuts

Deficiency: Only noticed in those with severe malnutrition. However, suboptimal intake of vitamin E is relatively common.

Vit K

Assists in blood clotting, Aids bone formation

Brussels sprouts, broccoli, spinach and other leafy green vegetables

Deficiency: Tendency to bleed or hemorrhage and anemia.

Major Minerals "Macrominerals"

Calcium

Major component of bones and teeth, Required for muscle contraction, Required for nerve transmission, Plays a role in cellular metabolism, Aids blood clotting

Chinese cabbage, kale and turnip greens

Deficiency: Long-term inadequate intake can result in low bone mineral density, rickets, osteomalacia and osteoporosis.

Magnesium

Assists enzymes in more than 300 chemical reactions in the body, Supports cellular activity, Participates in muscle contraction, Aids blood clotting, A component of bone

Leafy greens, potatoes, nuts, seeds

Deficiency: Very rare due to abundance of magnesium in foods. Those with gastrointestinal disorders, kidney disorders, and alcoholism are at risk.

Sulfur

Helps maintain acid-base balance, Assists in some of the liver's drug-detoxifying pathways, A component of some vitamins and amino acids

Protein-rich foods

Sodium

Important mineral and electrolyte necessary for many functions in the body. It has an important role in maintaining water balance within cells, and is involved in proper functioning of both nerve impulses and muscles within the body. Along with potassium, sodium also plays a crucial role in blood pressure regulation. Sodium is only needed in small quantities, and the kidneys are responsible for excreting extra sodium from the body.

Salt

Deficiency: Does not result from low dietary intake. Low blood sodium typically results from increased fluid retention. One may notice nausea, vomiting, headache, cramps, fatigue, and disorientation.

Potassium

Plays a role in every heartbeat. A hundred thousand times a day, it helps trigger your heart to squeeze blood through your body. It also helps your muscles to move, your nerves to work, and your kidneys to filter blood.

Potatoes, tomatoes, avocados, strawberries, spinach

Deficiency: Not a result of insufficient dietary intake. Caused by protein wasting conditions. Diuretics can also cause excessive loss of potassium in the urine. Low blood potassium can result in cardiac arrest.

Chloride

Needed to keep the proper balance of body fluids. It is an essential part of digestive (stomach) juices.

Table salt or sea salt. It is also found in many vegetables. Foods with higher amounts of chloride include seaweed, tomatoes, lettuce, celery, and olives.

Phosphorus

Phosphorus is a mineral found in your bones. Along with calcium, phosphorus is needed for building healthy strong bones, as well as keeping other parts of your body healthy.

Seeds, fish, shellfish, nuts, pork, beef, veal

Deficiency: Very rare. Those at risk include premature infants, those who use antacids, alcoholics, uncontrolled diabetes mellitus and refeeding syndrome.

Trace Minerals

Molybdenum

Assists several enzymes including one required for the metabolism of sulfur-containing amino acids.

Legumes, such as beans, lentils, and peas, are the richest sources of molybdenum. Nuts are an ok source but not as rich.

Deficiency: Never been observed in healthy people.

Manganese

Important in many enzyme-mediated chemical reactions including enzymes involved in the synthesis of cartilage in skin and bone.

Tea and coffee, nuts, and some fruits and vegetables.

Deficiency: Not typically observed in humans.

Iron

Carries oxygen throughout the body, Assists in energy metabolism and other enzyme-mediated chemical reactions, Supports immune function, Involved in the production of neurotransmitters, chemicals that carry messages between nerve cells, Participates in the development of the brain and nervous system

Iron has two types: heme and non-heme.

Heme iron is only present in animal flesh. Beef, liver, clams and oysters are excellent sources of iron. Additional sources are poultry, fish and pork. Non-heme iron can be found naturally in spinach & raisins.

Deficiency: Anemia with small and pale red blood cells. In children it is associated with behavioral abnormalities.

Chromium

Chromium enhances the effects of insulin

Nuts

Deficiency: Symptoms include impaired glucose tolerance and elevated circulating insulin

Copper

Copper assists with the transport of iron.

Liver, shellfish, nuts and seeds

Deficiency: Relatively uncommon. Clinical sign is hypochromic anemia unresponsive to iron therapy. Neutropenia and leucopenia may also result. Hypopigmentation of skin and hair is also noticed. Those at risk for deficiency include premature infants, infants fed only cow's milk formula, those with malabsorption syndromes, excessive zinc consumption and antacid use.

Fluoride

Helps prevent dental caries. Nearly 99% of the body's fluoride resides in the bones and teeth.

Municipal water supplies that add fluoride to the water

Deficiency: Increased risk of dental caries.

Iodine

Iodine is a component of the thyroid hormones, which regulate metabolic rate and body temperature.

Saltwater fish, liver, potatoes, iodized salt

Deficiency: Impairs growth and neurological development. Deficiency can also result in the decreased production of thyroid hormones and hypertrophy of the thyroid.

Selenium

Selenium is required for immune function and for the synthesis of thyroid hormones. Additionally, this mineral assists enzymes in protecting cell membranes from damage.

Depending upon the soil in which they are grown, Brazil nuts are one of the richest sources of selenium. Organ meats, seafood, other meats are additional sources.

Deficiency: Can cause limited glutathione activity. More severe symptoms are juvenile cardiomyopathy and chondrodystrophy.

Zinc

Critical for normal growth and sexual maturation. It plays a role in the immune system and is important to the proper function of at least 70 enzymes including one that helps protect cells from damage.

Oysters, beef and clams

Deficiency: Symptoms include growth retardation, lowered immune status, skeletal abnormalities, delay in sexual maturation, poor wound healing, taste changes, night blindness and hair loss. Those at risk for deficiency include the elderly, alcoholics, those with malabsorption, vegans, and those with severe diarrhea.