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|  | **Fat Soluble Vitamins** |
| **Vitamin** | Function | Deficiency | Amount neededAge/Gender Amount | Food sources |
| **Vitamin A** | Helps eyes adjust to the dark, contributes to healthy bones, immune system and reproductive system | Night blindness, dry skin and eyes, weakened immune and reproductive systems | 4-8 400mcg9-13 600mcgM 14+ 900mcgF 14+ 700mcg | Foods from animals: liver, organ meats, fish (salmon, cod, mackerel), eggs, milk |
| **Vitamin D** | Linked to bone health and preventing osteoporosis.Helps body absorb calcium and phosphorus, regulates the amount of calcium in the blood | Poor bone growth or Rickets, a disease marked by the inability to absorb minerals, causing weak muscles and soft bones. | 4-8 15mcg9-13 15mcg14-70 15mcg70+ 20mcg  | Fish (tuna, salmon, mackerel), mushrooms, milk and other dairy |
| **Vitamin E** | Works as an antioxidant, neutralizing free radicals. Protects essential fatty acids and Vitamin A from oxidation.Protects immune system. | Inability to absorb fat, anemia, damage to muscles, nerves and immune system. | 4-8 7mg9-13 11mg14+ 15mg | Vegetable oils (sunflower, safflower oils), almonds, hazelnuts, sunflower seeds, peanut butter |
| **Vitamin K** | Helps regulate body’s use of calcium. Works as a co-enzyme, helping the body make proteins, for blood, bones and kidneys. | Blood does not clot, poor bone health. | 4-8 55mcg9-13 60mcg14-18 75mcgM 19+ 120mcgF 19+ 90mcg | Spinach, turnip greens, kale, broccoli, brussel sprouts, fortified cereal |
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|  | **Water Soluble Vitamins** |
| **Vitamin** | Function | Deficiency | Amount neededAge/Gender Amount | Food sources |
| **Vitamin C** | Works as an antioxidant, neutralizing free radicals. Boosts immune system. Helps body make collagen, the connective tissue that holds muscles and bones together. Helps body absorb iron and folate. | Scurvy, a diseasethat causes swollen joints, excessive bleeding and gum disease. Could also cause bone pain, depression or anemia. | 4-8 25mg9-13 45mgM 14-18 75mg 19+ 90mgF 14-18 65mg 19+ 75mg  | Citrus fruits, orange juice, tomatoes, bell peppers, broccoli, strawberries |
| **Thiamin****(Vitamin B1)** | Needed for producing energy from carbs and amino acids. Helps with mental function. | Beriberi, a disease that causes fatigue, muscle weakness, loss of memory and confusion. | 4-8 .6mg9-13 .9mgM 14+ 1.2mgF 14-18 1.0mgF 19+ 1.1mg | Pork, trout, whole grains, and enriched grains such as rice, pasta and bread |
| **Riboflavin****(Vitamin B2)** | Needed for producing energy from carbs and fat. Helps support cell growth and producing energy in cells. Works as an antioxidant. | Dry skin, eyes, nose and mouth, skin rashes, anemia, or fatigue. | 4-8 .6mg9-13 .9mgM 14+ 1.3mgF 14-18 1.0mgF 19+ 1.1mg | Dairy products such as milk and yogurt, liver, shrimp, enriched grains such as bread or pasta, eggs, meat, and nuts |
| **Niacin (Vitamin B3)** | Needed for producing energy from carbs and fat. Helps body use sugar and fatty acids. Helps body grow and repair cells. | Pellagra, a disease that causes stomach upset and mental confusion. | 4-8 8mg9-13 12mgM 14+ 16mgF 14+ 14mg | Foods high in protein such as meat, fish, poultry, beans and peanut butter; Enriched or fortified grains such as bread and cereal |
| **Pantothenic acid****(Vitamin B5)** | Helps your body use energy from fat, protein and carbs. Helps regulate hormones. | Deficiency is rare | 4-8 3mg9-13 4mg14+ 5mg | Egg yolks, mushrooms, nuts, meat, fish, poultry, beans, peas |
| **Pyridoxine****(Vitamin B6)** | Helps body make amino acids and turn tryptophan (an amino acid) into niacin and serotonin (which balances mood). | Mental confusion, depression, anemia, greasy or flaky skin, and fatigue. | 4-8 .6mg9-13 1.0mgM 19-50 1.3mg 51+ 1.7mgF 14-18 1.2mg 19-50 1.3mg 51+ 1.7mg | Beans, peas, meat, fish, poultry, fortified cereal |
| **Biotin****(Vitamin B7)** | Helps your body use energy from fat, protein and carbs. Helps regulate hormones. | Deficiency is rare. Could cause fatigue, heart problems, loss of appetite or dry skin. | 4-8 12mcg9-13 20mcg14-18 25mg19+ 30mg | Eggs, liver, nuts, peanut butter |
| **Folate****(Vitamin B9)** | Helps body make new cells and prevent changes to DNA that may increase risk of cancer. Helps protect against heart disease. Works with B12 to help form red blood cells and prevent anemia. | Anemia, fatigue, impaired cell growth. For pregnant women, can cause birth defects (such as spina bifida) and increase risk of low birth weight or having a premature baby. | 4-8 200mcg9-13 300mcg14+ 400mcg | Spinach, collard greens, romaine lettuce, lentils, liver, fortified grains such as bread or cereal |
| **Cobalamin****(Vitamin B12)** | Works with folate to help form red blood cells and prevent anemia. Promotes a healthy nervous system. Helps with mental function. Helps the body use some amino acids and fatty acids. | Anemia, fatigue, tingling in hands and feet, nerve damage, mental confusion, damage to stomach causing increased risk of stomach cancer. | 4-8 1.2mcg9-13 1.8mcg14+ 2.4mcg | Meat, fish, shellfish, poultry, eggs, dairy products such as milk, cheese and yogurt  |

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|  |  **Major Minerals** |
| **Mineral** | Function | Deficiency | Amount neededAge/Gender Amount | Food sources |
| **Sodium** | Helps regulate fluid in and out of cells, helps muscles relax, regulate blood pressure and transmit nerve impulses. | Deficiency is rare. Dizziness, nausea and muscle cramps, mental confusion. | 4-8 1200mg9-50 1500mg51-70 1300mg70+ 1200mg | Table salt, processed and commercial foods, pickles, canned foods such as soup or vegetables |
| **Chloride** | Helps regulate fluid in and out of cells, helps muscles relax, regulate blood pressure and transmit nerve impulses. Is a component of stomach acid. | Deficiency is rare. Dizziness, nausea and muscle cramps, mental confusion. | 4-8 25mg9-13 45mg14-50 2300mg51-70 2000mg70+ 1800mg | Table salt, foods prepared with salt |
| **Potassium** | Helps regulate fluid in and out of cells, helps muscles relax, regulate blood pressure and transmit nerve impulses. Reduces risk of muscle and bone loss, and kidney stones. | Muscle cramps, confusion, irregular heartbeat, loss of appetite, and fatigue. | 4-8 3800mg9-13 4500mg14+ 4700mg | Fruits and vegetables such as bananas, potatoes, orange juice, melons, beans, peas, meats, and dairy products |
| **Calcium** | Helps build and maintain strong bones and teeth, helps blood clot, muscles contract and helps transmit messages in the nervous system. | For children, weakened bones and teeth, interrupted growth. For adults, causes risk of osteoporosis (brittle bones), heart failure. | 4-8 1000mg9-18 1300mg19-51 1200mg | Dairy products such as milk, yogurt, cheese. Collard greens, spinach, tofu, sardines, and salmon |
| **Phosphorus** | Helps regulate fluid in and out of cells. Is a part of ATP, which generates energy in the body. Along with calcium, makes up most of our bones, and teeth. | Lowers your body’s storage of calcium, increasing risk of osteoporosis. Bone pain, weakness, loss of appetite. | 4-8 500mg9-18 1250mg19+ 700mg | Dairy products such as milk, yogurt, cheese. Tofu, soymilk, beans, nuts, peanut butter |
| **Magnesium** | Is a part of bones, helps body signal to muscles, keeps heart rhythm normal.Helps regulate body functions such as producing energy, making proteins and regulating blood sugar.  | Lowers your body’s storage of calcium. Weakness, loss of appetite, nausea, increased risk of diseases (cardiovascular disease, osteoporosis, diabetes). | 4-8 130mg9-13 240mgM 14-18 410mg 19-30 400mg 31+ 420mgF 14-18 360mg 19-30 310mg 31+ 320mg | Dark leafy greens such as spinach, kale and collard greens |
| **Sulfur** | Helps with liver detoxification, is a component of some B vitamins and amino acids. | None known | No specific Dietary Reference Index | Any food with protein such as meat, fish, and beans |
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|  | **Trace Minerals** |
| **Mineral** | Function | Deficiency | Amount neededAge/Gender Amount | Food sources |
| **Iron** | A major component of hemoglobin, carrying oxygen in your blood to cells, assists in making beta-carotene (a carotenoid) into Vitamin A, supports immune system and brain development. | Anemia, fatigue, or mental impairment, inability to fight infections. | 4-8 10mg9-13 8mgM 14-18 11mg 19+ 8mgF 9-18 15mg 19-50 18mg 51+ 8mg | Red meat, dark meat poultry, enriched or fortified grains such as bread or cereal, legumes, spinach |
| **Zinc** | Helps body produce and repair cells and tissue, helps wounds heal, promotes sense of taste and smell, helps body use fat, protein and carbs, assists in more than 200 enzymes, helps with growth and sexual maturation, and testosterone production. | Stunted growth, delayed puberty, hair loss, skin conditions, decreased sense of taste, weak immune system. | 4-8 5mg9-13 8mgM 14+ 11mgF 14-18 9mg19+ 8mg | Meat such as liver, poultry, fish, eggs and milk |
| **Iodine** | Helps the body make thyroid hormones, which are important for tissue growth, reproductive health and infant brain development. | Hypothyroidism, a disease marked by swollen thyroid (goiter) and weight gain. If an expectant mother is deficient, the baby could have lowered IQ or cretinism, (stunted physical and mental development).  | 4-8 90mcg9-13 120mcg14+ 150mcg | Iodized salt, seaweed, or saltwater fish such as cod, salmon, tuna, and sardines |
| **Selenium** | Needed for producing energy from carbs and fat. Partners with Vitamin E to work as an antioxidant, boosts immune system, and helps with thyroid function. | Can cause a type of heart disease and arthritis, poor immune system, muscle pain, depression or hostility. | 4-8 30mcg9-13 40mcg14+ 150mcg | Nuts (especially brazil nuts), meat such as liver and other organ meats, and fish |
| **Copper** | Helps the body make hemoglobin, a component of blood, helps transport iron, is an antioxidant and component of many enzymes, promotes strong bones and healthy nerve and connective tissue. | Anemia reduced white blood cells. | 4-8 440mcg9-13 700mcg14-18 890mcg19+ 900mcg | Liver, fish, nuts, seeds, lentils, prunes, lentils, dried beans such as cacao (chocolate) |
| **Manganese** | Helps the body produce energy from carbs, fat and protein, partners with enzymes, helps form bones and cartilage.  | Less bone density, growth and impaired reproductive system | 4-8 1.5mgM 9-13 1.9mgF 9-13 1.6mgM 14-18 2.2mg 19+ 2.3mgF 14-18 1.6mg 19+ 1.8mg | Whole grains, tea |
| **Fluoride** |  |  |  |  |
| **Chromium** | Helps the body metabolize protein, carbs and fat. Works with insulin to regulate blood sugar. | Elevated blood sugar and blood cholesterol.  | 4-8 15mcgM 9-13 25mcgF 9-13 21mcgM 14-50 35mcg 50+ 30mcgF 14-18 24mcg 19-50 25mcg 51+ 20mcg | Broccoli, grape juice, garlic, potatoes, brewers yeast, meat, whole grains |
| **Molybdenum** | Helps metabolize proteins, works with riboflavin (B2) to put iron for making red blood cells. | Affects the nervous system | 4-8 22mcg9-13 34mcg14-18 43mcg19+ 45mcg | Grains, such as bread, beans, peas, milk and cheese |