

Vitamins and Minerals

Contributed by Toma Grubb
 Thursday, 20 December 2007
 Last Updated Sunday, 23 December 2007

Vitamins and minerals are essential to your health. Although they do not give you energy, they do assist in energy-yielding reactions and promote body growth and development. Vitamins and minerals are vital for human function, each one playing a different role. Read on to find out what select vitamins and minerals do and where you can find them! Whole foods are the preferred source of important vitamins and minerals for your health. Always look to foods first, before considering a supplement. If you have questions about vitamins, minerals, or nutrition supplements, talk to your doctor or Registered Dietician.

Daily Values "Daily Value" is one of the new terms used on today's food labels. It indicates the amount of a nutrient that is provided by a single serving of a food item. Daily Values are used to establish standards for comparison.

The Daily Value is actually based on two sets of standards. The first set of standards is called the Reference Daily Intake (formerly known as the U.S. Recommended Daily Allowance). It reflects the recommended level of intake for most vitamins and minerals.

The second set of standards, called the Daily Reference Values, is used for other nutrients that are also known to have a significant impact of health and disease. These other nutrients include fat,, saturated fat, and cholesterol.

The following are the Daily Values based on Daily Reference Values: These may need to be adjusted and redefined for diabetics and other health concerns. Notations in green are those From Toma/Nutricoach.

Total Fat 65 grams (based on 30% of 2000 calories) 2000 calories is a hypothetical diet for demonstration purposes many people will require far less.

Saturated Fat 20 grams (based on 8% to 10% of 2000 calories) Less than the 8% of saturated fat is desirable the recommendation is for a maximum.

Cholesterol 300 milligrams Your body produces all the cholesterol it needs there is no daily minimum requirement. Less than 100 milligrams is very achievable.

Total Carbohydrate 300 grams (about 60% of 2000 calories) This is high for a diabetic and not necessary for anyone. 50% is recommended by NutriCoach. Some recommend far less. Less carbohydrates means the intake of fat or protein is increased.

Fiber 25 grams NutriCoach recommends 25-35 Grams of fiber.

Sodium 2400 milligrams Typical western diets exceed 5000 milligrams per day. The minimum daily requirement is between 250-350 milligrams NutriCoach recommends not to exceed 1500 milligrams

Potassium 3500 milligrams Potassium and sodium ratios should be monitored and kept in balance.

Protein 50 grams (about 10% of 2000 calories) Diabetic diets should have a reduced percentage of calories from carbohydrates. The amount of reduction is in dispute. The NutriCoach recommendation is 50% other plans reduce it to

as little as 20%. Extreme reductions bring on other possible complications. Too much protein has been shown to stress the kidneys too much fat, particularly saturated fat leads to high cholesterol and arterial/coronary complications.

*DRV for protein does not apply to certain populations;

Reference Daily Intake (RDI) for protein has been established for these groups:

children 1 to 4 years: 16 g

infants under 1 year: 14 g

pregnant women: 60 g

nursing mothers: 65 g.

All of this is an other good argument for good nutrition tracking software.

The following are the Daily Values based on Reference Daily Intake: USDA

Vitamin A 5000 IU
Vitamin C 60 milligrams
Vitamin D 400 IU

Vitamin E 30 IU
Thiamin 1.5 milligrams
Riboflavin 1.7 milligrams

Niacin 20 milligrams
Vitamin B6 2 milligrams
Vitamin B12 6 micrograms

Folic Acid 0.4 milligrams
Biotin 0.3 milligrams
Pantothenic Acid 10 milligrams

Calcium 1000 milligrams
Iron 18 milligrams
Phosphorus 1000 milligrams

Iodine 150 micrograms
Magnesium 400 milligrams
Zinc 15 milligrams

Copper 2 milligrams

Vitamin and Mineral Chart

Vitamin/Mineral

Sources
Function
Deficiency
Overdose

Fat Soluble Vitamins can be stored in the body and need not be consumed daily. While it is difficult to "overdose" on them from ordinary sources, consuming mega doses of fat soluble vitamins, especially A and D, can lead to a dangerous buildup in the body.

Abbreviations: IU=International Units; mg=milligrams; mcg=micrograms.

Vitamin A

Retinol

Men: 3 000 IU

Women: 2 700 IU

Beta Carotene

(Pro-Vitamin A)

(See Vitamin A)

Sources:Liver, fortified Milk (Retinol form

Carotene sources.Carrots, Squash, Broccoli, Green Leafy Vegetables)

Function:Essential for eyes, skin and the proper function of the immune system. Helps maintain hair, bones and teeth. Antioxidant. Converted to Vitamin A in the body. (See Vitamin A) The antioxidant properties of this nutrient may be a factor in reducing the risk of certain forms of cancer

Deficiency: Night blindness; reduced hair growth in children; loss of appetite; dry, rough skin; lowered resistance to infection; dry eyes.

Overdose: Headaches; blurred vision; fatigue; diarrhea; irregular periods; joint and bone pain; dry, cracked skin; rashes; loss of hair; vomiting, liver damage.

Vitamin D

Men: 100 IU

Women: 100 IU

Sources:Egg Yolk, Milk, Exposure to sun enables body to make its own Vitamin D.

Function:Helps build and maintain teeth and bones. Enhances calcium absorption.

Deficiency: Rickets in children; bone softening in adults; osteoporosis.

Overdose: Calcium deposits in organs; fragile bones; renal and cardiovascular damage.

Vitamin E

Men: 9-10 mg

Women: 6-7 mg

Sources:Corn or Cottonseed Oil, Butter, Brown Rice, Soybean Oil, Vegetable oils such as Corn, Cottonseed or Soybean, Nuts, Wheat Germ.

Function:Antioxidant. Helps form red blood cells, muscles and other tissues. Preserves fatty acids. The antioxidant properties of this nutrient may be a factor in reducing the risk of certain forms of cancer.

Deficiency: Rare, seen primarily in premature or low birth weight babies or children who do not absorb fat properly. Causes nerve abnormalities.

Overdose: Muscle weakness, headaches, Fatigue.

Vitamin K

None established.

Estimated at 0.03 mcg/kg

Sources: Green Vegetables, Liver, also made by intestinal bacteria.

Function: Needed for normal blood clotting.

Deficiency: Defective blood coagulation.

Overdose: Jaundice in infants.

Water Soluble Vitamins are not stored in the body and should therefore be consumed daily.

Thiamine

Vitamin B1

Men: 0.8 - 1.3 mg

Women: 0.8 mg

Sources: Sunflower Seeds, Pork, whole and enriched Grains, dried Beans.

Function: Necessary for carbohydrate metabolism and muscle coordination. Promotes proper nerve function.

Deficiency: Anxiety; hysteria; depression; muscle cramps; loss of appetite; in extreme cases beriberi (mostly in alcoholics).

Overdose:

Unknown, although excess of one B vitamin may cause deficiency of others.

Riboflavin

Vitamin B2

Men: 1.3 - 1.6 mg

Women: 1.1 mg

Sources: Liver, Milk, Spinach, enriched Noodles, Mushrooms.

Function: Needed for metabolism of all foods and the release of energy to cells. Essential to the functioning of Vitamin B6 and Niacin.

Deficiency: Cracks and sores around the mouth and nose; visual problems.

Overdose: See Vitamin B1.

Niacin

Vitamin B3

Men: 16-23 mg

Women: 14-16 mg

Niacin is converted to niacinamide in the body.

Sources: Mushrooms, Bran, Tuna, Chicken, Beef, Peanuts, enriched Grains.

Function: Needed in many enzymes that convert food to energy. Helps maintain a healthy digestive tract and nervous system. In very large doses, lower cholesterol (large doses should only be taken under the advice of a physician).

Deficiency: In extreme cases, pellagra, a disease characterized by dermatitis, diarrhea and mouth sores.

Overdose: Hot flashes; ulcers; liver disorders; high blood sugar and uric acid; cardiac arrhythmias.

Pantothenic Acid

Vitamin B5

Men: 2.5 mg

Women: 2.5 mg

Sources: Abundant in animal tissues, whole grain cereals and legumes.

Function: Converts food to molecular forms. Needed to manufacture adrenal hormones and chemicals that regulate nerve function.

Deficiency: Unclear in humans.

Overdose: See Vitamin B1.

Vitamin B6

Pyridoxine

Men: 1.8 mg

Women: 1.5 mg

Sources: Animal protein foods, Spinach, Broccoli, Bananas.

Function: Needed for protein metabolism and absorption, carbohydrate metabolism. Helps form red blood cells. Promotes nerve and brain function.

Deficiency: Anemia, irritability, patches of itchy, scaling skin; convulsions.

Overdose: Nerve damage.

Vitamin B12

Cyanocobalamin

Men: 2 mcg

Women: 2 mcg

Sources: Found almost exclusively in animal products.

Function: Builds genetic material. Helps form red blood cells.

Deficiency: Pernicious anemia; nerve damage. (Note: Deficiency rare except in strict vegetarians, the elderly or people with malabsorption disorders.)

Overdose: See Vitamin B1.

Biotin

60 mcg

Sources: Cheese, Egg, Yolk, Cauliflower, Peanut Butter

Function: Needed for metabolism of glucose and formation of certain fatty acids. Essential for proper body chemistry.

Deficiency: Seborrheic dermatitis in infants. Rare in adults, but can be induced by consuming large amounts of egg whites - anorexia, nausea, vomiting, dry scaly skin.

Overdose: See Vitamin B1

Folic Acid (Folacin)

Men: 180-220 mg

Women: 160-190 mg

Sources: Green, leafy vegetables, Orange Juice, organ Meats, Sprouts.

Function: Essential for the manufacture of genetic material as well as protein metabolism and red blood cell formation. Adequate amounts of this nutrient in the first stage of pregnancy may reduce the risks of neural tube birth defects.

Deficiency: Impaired cell division; anemia; diarrhea; gastrointestinal upsets.

Overdose: Convulsions in epileptics. May mask pernicious anemia (see Vitamin B12 deficiency).

Vitamin C

Ascorbic Acid

Men: 40 mg

Women: 30 mg

Sources: Citrus Fruits, Strawberries, Broccoli, Green Peppers

Function: Antioxidant. Helps bind cells together and strengthens blood vessel walls. Helps maintain healthy gums. Aids in the absorption of iron. The antioxidant properties of this nutrient may be a factor in reducing the risk of certain forms of cancer. May reduce the effects of the common cold.

Deficiency: Muscle weakness, bleeding gums; easy bruising. In extreme cases, scurvy.

Overdose: Diarrhea, Kidney stones

Minerals in organic products essential for body functions.

Calcium

Men: 800 - 1000 mg

Women: 700-800 mg

Sources: Milk, Yogurt, Cheese, Sardines, Broccoli, Turnip Greens.

Function: Helps build strong bones and teeth. Promotes muscle and nerve function. Helps blood to clot. Helps activate enzymes needed to convert food to energy.

Deficiency: Rickets in children; osteomalacia (soft bones) and osteoporosis in adults.

Overdose: Constipation, Kidney Stones, calcium deposits in body tissues. Hinders absorption of iron and other minerals.

Chromium

Men: 50- 200 Micro grams

Women: 50- 200 Micro grams

Sources: Egg yolks, Cheese, Meat, Whole grains, nuts,

Function: Works with insulin for proper glucose metabolism. Increases serum levels of HDL (good cholesterol). Aids in prevention or reversal of peripheral neuropathy. Aids in weight loss.

Deficiency:

Overdose: Over 200 micro grams daily may be hazardous, more research is needed. Possible renal failure in high doses. PRECAUTIONS Pregnant women and nursing mothers should avoid doses of chromium above the upper limit of the estimated safe and adequate daily dietary intake (ESADDI). The ESADDI for chromium is 50 to 200 micrograms daily. Those with a history of hypoglycemia should exercise caution in the use of chromium supplements. Those with a history of hyperglycemia or type 2 diabetes mellitus should only use chromium supplements for the possible management of abnormal glucose tolerance under medical supervision.

Copper

2-3 mg

Sources: The richest sources of copper in the diet are Liver and other organ Meats, Seafoods, Nuts and Seeds.

Function: Component of several enzymes, including one needed to make skin, hair and other pigments. Stimulates iron absorption. Needed to make red blood cells, connective tissue and nerve fibres.

Deficiency:

Rare in adults. Infants may develop a type of anemia marked by abnormal development of bones, nerve tissue and lungs.

Overdose:

Liver disease; vomiting; diarrhea.

Iron

(Elemental)

Men: 8-10 mg

Women: 8-13 mg

Sources: Liver, lean Meats, Kidney beans, enriched Bread, Raisins.

Note: Oxalic acid in spinach hinders iron absorption.

Function: Essential for making hemoglobin, the red substance in blood that carries oxygen to body cells.

Deficiency:

Skin pallor; weakness; fatigue; headaches; shortness of breath (all signs of iron-deficiency anemia)

Overdose:

Toxic buildup in liver and in rare instances the heart.

Magnesium

Men: 230 - 250 mg

Women: 200 - 210 mg

Sources: Spinach, Beef Greens, Broccoli, Tofu, Popcorn, Cashews, Wheat Bran

Function: Activates enzymes needed to release energy in body. Needed by cells for genetic material and bone growth.

Deficiency: Nausea, irritability, muscle weakness; twitching; cramps, cardiac arrhythmias.

Overdose: Nausea, vomiting, low blood pressure, nervous system disorders.

Warning: Overdose can be fatal to people with kidney disease.

Manganese

2-5 mg

Tea, whole Grains and Cereal products are the richest dietary sources. Adequate amounts are found in Fruits and Vegetables.

Needed for normal tendon and bone structure. Component of some enzymes important in metabolism.

Deficiency: Unknown in humans.

Overdose: Generally results from inhalation of manganese containing dust or fumes, not dietary ingestion.

Molybdenum

0.15-0.3 mg

Sources: The concentration in food varies depending on the environment in which the food was grown. Milk, Beans, Breads and Cereals contribute the highest amounts.

Function: Component of enzymes needed in metabolism. Helps regulate iron storage.

Deficiency: Unknown in humans.

Overdose: Gout-like joint pain.

Phosphorus

Men: 1000 mg

Women: 850 mg (3-6 g)

Sources: Chicken Breast, Milk, Lentils, Egg Yolks, Nuts, Cheese

Function: With calcium builds bones and teeth. Needed for metabolism, body chemistry, nerve and muscle function.

Deficiency: (Rare) Weakness; bone pain; Anorexia.

Overdose: Hinders body's absorption of calcium.

Potassium

Men: 40-80 mmol

Women: 40-80 mmol (3-6 g)

Sources: Peanuts, Bananas, Orange Juice, Green Beans, Mushrooms, Oranges, Broccoli, Sunflower Seeds.

Function: Helps maintain regular fluid balance. Needed for nerve and muscle function.

Deficiency: Weakness, tiredness, or cramping in arm or leg muscles, sometimes severe enough to cause inability to move arms or legs due to weakness (much like a paralysis), Tingling or numbness, Nausea or vomiting, Abdominal cramping, bloating, Constipation, Palpitations (feeling your heart beat irregularly), Passing large amounts of urine or feeling very thirsty most of the time, Fainting due to low blood pressure Abnormal psychological behavior (depression, psychosis, delirium), confusion, or seeing or hearing things (hallucinations)

Overdose: rapid infusion of potassium causes ventricular fibrillation followed by cardiac arrest. Symptoms of overdose may include irregular heartbeat, blood in stools, and muscle weakness.

Rare.

Selenium

0.05-0.2 mg

Sources: Adequate amounts are found in Seafood, Kidney, Liver and other meats. Grains and other Seed contain varying amounts depending on the soil content.

Function: Antioxidant. Interacts with Vitamin E to prevent breakdown of fats and body chemicals.

Deficiency: Unknown in humans.

Overdose: Finger nail changes, hair loss.

Zinc

Men: 12 mg

Women: 9 mg

Sources: Oysters, Shrimp, Crab, Beef, Turkey, whole Grains, Peanuts, Beans.

Function: Necessary element in more than 100 enzymes that are essential to digestion and metabolism.

Deficiency:

Slow healing of wounds; loss of taste; retarded growth and delayed sexual development in children.

Overdose:

Nausea, vomiting; diarrhea; abdominal pain; gastric bleeding.

Additional information can be found at Nutritional, Vitamin and Herbal Supplements Information Guide - provides educational, evidence-based information and reviews for health conscious consumers. At first glance it looks like a supplement sales site, but it is just an extensive resource on vitamins and herbs.