

MINERALS

Compliments of Debra Raybern ND, MH, CNC, ICA 936-438-8829

Name	Food Sources	Metabolism	Use in Body	Effect of Deficiency
Calcium	Almond, Filbert, Brazil nut, Basil, Citrus, Sunflower Seed, Savory, Oregano, Valerian, Nettle, Thyme, Green vegetables, Dill weed, Dulse, Kelp, Celery seed, Sesame Seed, Sage, Parsley, Molasses, Whole Grains, broccoli, prunes, figs.	Absorption aided by vitamin D, ascorbic acid, lactose; interfered by oxalic acid. Use regulated by parathyroid hormone and vitamin D. Stored in bone, Acid-binding.	Builds bones & teeth. Used for muscle contraction, normal heart action, nerve irritability. Activates some enzymes. Used for blood coagulation, normalize metabolism. Most abundant mineral in the body.	Retarded bone and tooth development. Fragile bones. Stunted growth, rickets, osteomalacia, osteoporosis, Nervosity, muscle sensibility, muscle spasms.
Choline	Found in foods rich in lecithin. Eggs, cabbage, rice bran, oat bran, turnips.	Co-enzyme in action. Functions with inositol. Keeps fats in solution, essential for myelin sheath of nerves.	Memory enhancer, improves mood.	Alzheimer's, fatty deposits in liver, kidney and heart problems, nerve related disease.
Chlorine	Tomato, celery, kelp, kale, turnip, lettuce, avocado, date, coconut.	Excretion in urine Acid-forming	Aids digestion and elimination, normalizes osmotic pressure in blood and tissues, sustains normal heart activity, acid-base balance, blood, epithelium nerves.	Disturbed digestion Weak water retention Weight decrease
Chromium	Spirulina, oat straw, nettle, red clover, stevia, brewers yeast, whole grains, eggs, rice polishings, black pepper, broccoli, corn, chicken.	Absorption rate is poor as it competes with other minerals like zinc. Primarily stored in spleen and kidneys. Used in metabolism of carbohydrates.	Herbs and spices are best source. Nettle, red clover, horseradish and stevia.	Essential for the production of glucose tolerance factor which is necessary for production of insulin. Also involved in digestion and metabolism of fats and proteins.
Copper	Nuts, legumes, whole grains, sage, molasses, cocoa, dried coconut, brazil nuts, green olives, black pepper, barley, beets, raisins.	Stored in liver and central nervous system. Excreted by bile into small intestine. Acid-forming	Liver, gall bladder, blood, lungs, heart. Absorption and metabolism of iron. Oxidation of fatty acids, of tyrosine to melanin pigments. Metabolism of ascorbic acid.	Retarded hemoglobin production Defective respiration General debility Limited growth
Fluorine	Almond, carrot, beet greens, turnip greens, dandelion, spinach, black tea.	Acid-forming	Bones, teeth, blood, skin, nails, hair.	Decay of teeth Spinal curvature Weakened eyesight
Inositol	Whole grains, citrus fruits, brewer's yeast, molasses, liver.	Aids in proper nervous system function, helps body produce lecithin.	Aids in cell growth. Depleted by caffeine.	Eczema, constipation, poor sight, hair loss, high blood cholesterol.

Minerals (continued)

Name	Food Sources	Metabolism	Use in Body	Effect of Deficiency
Iodine	Kelp, dulse, swiss chard, turnip greens, watermelon, spinach, asparagus, kale, blueberry, garlic, lima beans, black walnut.	Stored in thyroid gland Excreted in urine Acid-forming	Constituent of thyroxine which regulates rate of energy exchange. Aids oxidation of fats and proteins. Stimulates circulation.	Goiter - enlarged thyroid gland Cretinism -subnormal basic metabolism Sensitivity to infection General weakness Low body and mental activity Nervous disturbances
Iron	Dulse, kelp, squash seed, sesame seed, green vegetables, Devil's claw, Chickweed, Mullein leaf, Black Strap Molasses, Pistachios, Almonds, yellow dock, beef.	Aided by gastric acidity, ascorbic acid, copper essential, stored in liver, bone marrow, spleen, kidneys. Absorption hindered by excess phosphorous. (soft drinks, red meat)	Hemoglobin Myoglobin Oxidative enzyme Bones, brain, muscle	Anemia Chlorosis Paleness Limited growth Inferior vitality
Manganese	Parsley, carrot, celery, beet, cucumber, chives, red raspberry leaf, Rice Bran, Lima Beans, Navy Beans, Black Strap Molasses, Cloves, Ginger, Blueberries, Raw Potatoes, Walnuts, Sunflower seeds, Whole Grains.	Absorption is limited. Liver is most active organ of metabolism. Main elimination is by intestine. Acid-binding.	Thyroxine formation, formation of urea, Lipotropic activity of choline Utilization of thiamine, metabolism of carbohydrates. Strengthen tissue and bones kidneys, liver, pancreas, spleen, brain heart, lymph.	Weak tissue respiration Restricted growth Glandular disorders Defective reproduction functions
Magnesium	Kelp, almonds, legumes, dried fruit, date, banana, potato, dark green vegetables, Irish moss, oat straw, Tumeric seed, Cocoa Powder, Whole Grains.	Acid binding, over 300 enzymes require magnesium as a co-factor. Aids in intracellular mineral transport, hormone synthesis, digestive enzyme synthesis	Strengthen nerves and muscles Conditions liver and glands, Stimulate elimination, Activates enzymes in carbohydrate, metabolism, blood albumen, bones, teeth	Soft bones and teeth, digestive disorder, exhaustion, irritability, Nervosity and spasticity, Heartbeat acceleration, convulsions, poor complexion.
Phosphorus	Seeds, nuts, legumes, Grains, seaweed, dried fruit, Green vegetable leaves, Cabbage, Bilberry, Pumpkin seed, Cranberry, Yellow Dock, Asparagus, Broccoli, egg yolks, rice bran, squash seeds, cocoa.	Absorption aided by Vitamin D, Excreted in urine, Acid-forming. Major energy transfer catalyst.	Builds bones, teeth, blood, hair. Activates some enzymes Nervous tissue Metabolism of fat and carbohydrate Transport of fatty acids.	Poor mineralization of bones, Poor growth, Rickets, decrease in weight, general weakness.
Potassium	Seaweed-dulse, kelp, Legumes, (butter beans), Dried fruits - apricot, peaches, dates, coriander leaf, Nuts, Avocado, swiss chard, molasses, winter squash, Green vegetables, Banana, raisins, carrot, beet, radish, Celery, Cabbage, Parsley, Broccoli, Cauliflower, Horseradish, Lemon grass, Peppermint, Scullcap.	Second most abundant mineral in plants. Excreted in urine. Acid-binding. Potassium is the principle catalyst in intracellular fluids, aids in carbohydrate metabolism, protein synthesis, muscle contraction and nerve impulse conduction.	Intercellular fluid balance Regular heart rhythm Regulates nervous and muscular irritability Aids elimination Aids formation of glycogen from glucose, fats from glycogen, proteins from peptones and proteases	Affected growth, incomplete digestion, nervous disorders, insomnia, constipation, irregular heat beat, muscle damage.

Minerals (continued)

Name	Food Sources	Metabolism	Use in Body	Effect of Deficiency
Selenium	Brazil Nuts, butter, cider vinegar, garlic, cinnamon, nutmeg, swiss chard, turnips, radishes, whole grains. Milk thistle, lemon grass, yarrow.	Nature's most important cancer blocking agents, strengthens immunity. Essential for reproduction. Found in non-fat tissue.	Immune system booster	Premature aging, mental retardation, diminished vision, nerve disorders.
Silicon	Lettuce, dandelion, strawberry, cucumber, sunflower seed, horsetail, dulse, thyme, well water, whole grains, bell peppers	Acid-forming	Blood, muscles, skin, nerves, nails, hair, connective tissue, pancreas, tooth enamel, antiseptic action	Reduced resistance to infectious disease
Sodium	Kelp, dulse, beet greens, celery, kale, carrot, raisin, radish, dried fruit, Irish moss, grapefruit, real salt.	Readily absorbed Excretion through kidneys Controlled by adrenal cortical hormone Acid-binding	Aids formation of digestive juices, aids elimination of carbon dioxide, regulates osmotic pressure Maintains water balance Nerve irritability	Nausea, diarrhea, muscular cramps, digestive disorders, General debility Decreased weight
Sulfur	Kale, turnip, raspberry, kelp, lettuce, garlic.	Excess excreted in urine Acid-forming	Hair, nails, insulin, cartilage, blood Aids digestion and elimination Oxidizing agent in hemoglobin	Restricted growth Eczema Dermatitis Poor growth of nails and hair
Zinc	Wheat germ and bran, sesame seed flour, pumpkin seed, bilberry, buchu, hot peppers, sage, skullcap, maple syrup, onions, chevil, thyme, caraway, cardamon, mustard seeds, alfalfa seeds, celery seed, dried basil.	Excreted mainly from intestine, immune system strengthener.	Effects transfer of carbon dioxide from tissue to lungs, Constituent of digestive enzyme for hydrolysis of protein, aids healing of wounds Brian, genital organs, thyroid, liver, kidneys.	Defective intestinal absorption Restrictive growth

VITAMINS

Compliments of Debra Raybern, ND, MH, CNC, ICA 936-291-9228

Vitamin	Food Sources	Stability in Foods	Metabolism	Use in Body	Effect of Deficiency
B-1 Thiamine	Rice bran, Wheat germ, Sunflower seed, Pinon nut, Peanut, kidney beans, peas, whole grains, molasses, chickpeas. Spirulina, asparagus, coriander.	Highly soluble in water Stable in dry form and acid solution Destroyed by heat in neutral or alkaline solution, sulfites	Limited storage in body Part of enzyme system. Depleted by sugar and smoking.	Builds energy and appetite Aids digestion Proper function of heart, liver	Lack of appetite Nervous instability Depression Fatigue, constipation, Beriberi, polyneuritis, cardiac failure, edema
B-2 Riboflavin	Red hot pepper, alfalfa, almond, wheat germ, wild rice, mushroom, Safflower seed, peppermint, barley, asparagus	Slightly soluble in water Resistant to heat in acid solution Sensitive to alkali Decomposed by light	Limited storage in body Part of enzyme system-transfers hydrogen from one metabolite to another	Raises resistance to disease, delays degeneration, improves skin and eye conditions Liver, kidneys, heart	Cracks at lip corners Inflammation of lips and tongue Burning, itching eyes, Photophobia, blurred vision
B-3 Niacin	Rice bran, rice polish, Wheat germ, peanut, beets. Hops, feverfew, red raspberry leaf.	Slightly soluble in water; stable to heat, oxidation, light, acid, and alkali.	Active part of enzyme system-transfers hydrogen	Builds mental health Aids nervous system Helps maintain appetite Adrenal glands	Pellagra, canker sores, Gastrointestinal, skin problems, neurological changes.
B-5 Pantothenic acid, Pantethine	Brewer's yeast, corn, lentils, egg yolks, whole grains, sunflower seeds, rice bran, peanut butter, salmon, royal jelly, peanuts, mushrooms, pecans, tahini, buttermilk.	Destroyed when heated with acids, alkali or dry heat. 33% lost during cooking meat and 50% lost in the milling of flour.	Occurs in all living cells, found in blood, excreted in urine, vital role in cellular metabolism. Folic Acid aids in its assimilation. Most effective when combined with Royal Jelly.	Highest concentration in the brain. Boosts energy, speeds wound healing, prevents hair loss and graying of hair. Thought to slow the aging.	Vomiting, burning feet, cramps, upper respiratory infections, skin disorders, adrenal exhaustion, rheumatoid arthritis, sleep disturbances.
B-6 Pyridoxine	Avocados, brown rice, whole grains, bananas, carrots, lentils, tuna, brazil nuts, almonds, chicken, salmon, oats, walnuts, sunflower seeds.	Destroyed by heat and light.	Essential for RNA and DNA synthesis. Maintains potassium/sodium balance.	Excreted in urine, found only in muscles. Only take as a complex B unless directed by a doctor.	Nausea, low blood sugar, hair loss, anemia, dermatitis, headaches, cracks on mouth, sore tongue.
B-12 Cobalt	Red meat, eggs, cheese, plant sources not readily absorbed, Goldenseal, red peppers, dulse, devil's claw, nettle.	Destroyed by heating with strong acids or alkali	Stored in liver, aids in formation of healthy blood cells. Vegan's should supplement.	Stimulates metabolism, restores appetite, prevents mental deterioration.	Anemia, impaired blood cell reproduction. Soreness and weakness in limbs, limbs jerky diminished reflexes.
Biotin	Egg yolks, rice, whole grains, brewer's yeast, cauliflower, royal jelly.	Inactivated by rancid fats and choline.	Produced in intestines by bacteria, excreted in urine, stored in liver, kidney, brain, and adrenals.	Builds healthy hair and skin.	Loss or thinning hair, gray skin color, rash around lips.

Vitamin	Food Sources	Stability in Foods	Metabolism	Use in Body	Effect of Deficiency
Folic Acid (Folate, Folacin)	Broccoli, spinach, romaine lettuce, oranges, beans, rice, brewer's yeast. Asparagus.	Destroyed by high heat, light, and being left at room temperature for long times.	Part of B-complex functioning as an enzyme - utilization of proteins. Active in cell division.	Prevents some birth defects, protective against skin cancer.	Anemia, poor growth, gray hair, mental illness.
Vitamin A	Broccoli, cantaloupe, escarole, parsley juice, pimento, paprika, cod, asparagus, butternut squash, sweet potatoes, pumpkin, carrot, parsley, collards, chlorella, apricots, Red hot peppers, dandelion, dock, spirulina.	Insoluble in water Soluble in fats Stable to low heat Destroyed by during, oxidation, very high temperatures	Bile necessary for absorption	Promote growth and reproduction Stored in liver, eyes, skin, lungs, gall bladder, kidneys	Slow growth, poor bone and tooth development Night blindness Reduce ability to resist infection, keratosis, xerophthalmia
Vitamin C	Acerola juice, Acerola cherry, Red hot peppers, Guava, Sweet pepper, Black currant, Kale, Parsley, red cabbage, collards, kiwi, strawberry, water cress, rose hips, sago palm, citrus, coriander leaf.	Highly soluble in water; easily destroyed by heat, air, alkali, enzymes; acid inhibits destruction; copper accelerates destruction	Little storage in body; greatest concentrations in most active tissues; aids in metabolism of some amino acids Aids absorption of iron	Forms and maintains intercellular substance; aids teeth and gums.	Cutaneous hemorrhages Poor bone development Weakened cartilages Muscle degeneration Anemia Stunted growth Susceptibility to infection Scurvy
Vitamin D	Only found in fish, eggs, diary, beef and lamb. Also synthesized by sun exposure.	Fat soluble; stable heat and oxidation	Synthesized in skin by activity of ultra-violet light, Stored in liver	Promotes normal bone and tooth development Regulates absorption and fixation of calcium and phosphorous	Rickets; soft, fragile bones enlarged joints, bowed legs; titanic convulsions Osteomalacia
Vitamin E	Brown rice, barley, rye, wheat germ, rice germ, green leaves, sunflower seeds, hazelnuts, almonds, legumes, tuna, salmon, egg yolks, cabbage, spinach, nuts.	Soluble in fat, oil Stable to heat and alkalies in absence of oxygen, also acid at low temperature. Oxidized in rancid fats, presence of iron, lead, silver, salts, ultraviolet light	Not stored in body Reduces oxidation of Vitamin A, carotene	Prevents liberation of hemoglobin from red blood cells; aids heart, reproduction, utilization of fatty acids	Sterility Muscle degeneration
Vitamin K	Green leafy vegetables, egg yolk, kelp, alfalfa, cauliflower, molasses, safflower oil, green tea, watercress, oats, lettuce, cheese, asparagus.	Fat-soluble. Destroyed by radiation, air pollution, aspirin and rancid fats.	Absorbed in upper intestines. Body can manufacture with yogurt or kefir, Bile required for absorption.	Normal blood clotting.	Celiac disease, colitis, hemorrhaging, bruising

AMINO ACIDS

<u>Name</u>	<u>Use in Body</u>	<u>Vegetable</u>	<u>Food Sources</u>	
			<u>Fruits</u>	<u>Nuts</u>
Arginine	Muscle contracting Cartilage constituent Reproductive organs Control body cell degeneration	Alfalfa, green vegetables, carrot, beet, cucumber, celery, lettuce, leek, radish, potato, parsnip		
Histidine	Liver formation of glycogen	Horseradish, carrot, radish, beet, celery, cucumber, endive, leek, garlic, onion, dandelion greens, turnip greens, alfalfa, spinach	Apples, pineapple, pomegranates, papaya	
Isoleucine	Regulation of thymus, spleen and pituitary Hemoglobin Regulation of Metabolism		Papaya Avocado Olive	Coconut All nuts except peanut, cashew, chestnut and sunflower seed
Lysine	Liver and gall bladder Fat metabolism Regulation of pineal and mammary glands, corpus luteum, oophoron and ovaries, Prevent cell degeneration	Carrot, beet, cucumber Celery, parsley, spinach, dandelion greens, turnip greens, alfalfa, soybean sprouts	Papaya, apple, apricot, pear, grapes	
Methionine	Constituent of hemoglobin, tissue and serum. Function of spleen pancreas and lymph	Brussels sprouts, cabbage Cauliflower, dock, kale, horseradish, chive, garlic	Pineapple, apple	Brazil nut, filbert
Phenylalanine	Involved in eliminating waste Kidney and bladder function	Carrot, beet, spinach, parsley, tomato	Pineapple, apple	
Threonine	Exchange of amino acids to establish balance	Carrot, alfalfa, green leafy vegetables	Papaya	
Tryptophane	Generation of cells and tissues, gastric and pancreatic juices Optic system	Carrot, beet, celery, endive, dandelion greens, fennel, snap bean, chive, spinach, alfalfa		
Valine	Function of corpus luteum, mammary glands and ovaries	Carrot, turnip, dandelion greens, lettuce, parsnip, squash, celery, beet, parsley, okra, tomato		