[IMAGE]

The ABCs of Good Health: 10 Key Vitamins and Minerals

By Dr. Richard Drucker

With all the uncertainties in the world, this much is certain: Vitamins and minerals are necessary for vital health. Despite their importance, most people don't know very much about vitamins and minerals beyond the most "famous" ones: vitamins A, C, E, along with the minerals calcium, magnesium, iron and zinc. There are actually quite a few essential vitamins and minerals that, while lesser known, are of equal importance in terms of our health. Let's change that "lesser known" label right now by focusing on 10 key vitamins and minerals your body needs on a daily basis.

1. Vitamin D3

We begin with a vitamin that has been generating a lot of attention recently: vitamin D3. Most of us are generally familiar with vitamin D, but do you know that vitamin D is actually made up of two distinct forms: vitamin D2 (ergocalciferol) and vitamin D3 (cholecalciferol)? Vitamin D2 is naturally present in very few foods and must be added to "fortified" products such as milk, juices and cereals. The lack of this form of vitamin D is attributed to bone disorders such as rickets. Vitamin D3 (cholecalciferol) is synthesized by the skin when it is exposed to the sun or ultraviolet light.

Functions: Recent evidence suggests that D3 may be more effective than D2 in promoting calcium absorption and thus bone growth and remodeling. It prevents softening of the bones in both children (rickets) and adults (osteomalacia). It also helps modulate neuromuscular and immune function while reducing inflammation.

Sources: Individuals with limited sun exposure need to include good sources of vitamin D3 in their diet from food or supplements. Primary sources of this vitamin are fish and fish oils, beef liver, cheese and egg yolks. An appreciable number of flowering plants in the *Solanaceae* family contain vitamin D3 and its hydroxylated derivatives.

Recommended Daily Intake: Recommended D3 daily intake for infants to 50 years of age is approximately 200 IU (international units), between 51-70 years - 400 IU, and over 71 years - 600 IU.

2. Niacin

Niacin - Copyright â Stock Photo / Register Mark Another lesser known but equally important vitamin is B3, also known as niacin or nicotinic acid. This vitamin, along with all B vitamins, helps the body convert carbohydrates into glucose to be used as energy. It is beneficial for proper nervous system function, hormone production, circulation, and cholesterol reduction. It may also reduce the incidence of atherosclerosis, diabetes, osteoarthritis, Alzheimer's disease and various skin conditions. Interestingly, alcoholism is the primary cause of vitamin B3 deficiency in the U.S. Deficiency symptoms range from indigestion, fatigue, and depression to pellagra (characterized by cracked, scaly skin, dementia, and diarrhea).

Sources: Niacin can be obtained by eating beets, brewer's yeast, beef liver, beef kidney, fish, salmon, swordfish, tuna, sunflower seeds, peanuts, strawberries, carrots, and sweet potatoes.

Recommended Daily Intake: Suggested intake ranges from 2 mg/day for infants to 17 mg/day for adults.

3. Biotin

Functions: Biotin or vitamin H/B7 is involved in carbon dioxide transfer and is therefore essential to the metabolism of carbohydrates and fats. It is also involved in making glucose for energy production and assists in protein synthesis. Biotin deficiency results in fatigue, depression, nausea, muscle pains, hair loss, anemia, neurologic symptoms, and impaired immune system function.

biotin - Copyright â Stock Photo / Register Mark Sources: Biotin is typically found in liver, egg yolk, cereals, legumes, nuts, beans, cauliflower, chocolate, dairy products, wheat germ, whole grains, and grasses. Intestinal bacteria produce a small amount of biotin, which may be absorbed and contribute to daily needs.

Recommended Daily Intake: Vitamin H works best when combined with other B vitamins. The recommended daily intake is around 300 micrograms.

4. Pantothenic Acid

Functions: Pantothenic acid (B5) can be found in all living cells and most foods. Its name comes from the Greek word *pantos*, meaning "everywhere." Deficiency is difficult to diagnose because it appears to affect all organs and their ability to handle stressors, both emotional and physical. Like other B vitamins,

pantothenic acid helps the body extract energy from carbohydrates, fats, and proteins. It also helps to metabolize fats, produce red blood cells, and synthesize stress hormones from the adrenal gland; it is therefore commonly found in "anti-stress" formulas. Pantothenic acid is necessary to maintain good health and may be useful in treating rheumatoid arthritis. It can also be used to lower blood cholesterol and triglyceride levels. B5 deficiency is extremely rare in people who eat a variety of foods. Symptoms of deficiency have occurred only in experimental situations.

Sources: Rich sources of pantothenic acid include liver and kidney, yeast, egg yolk, and broccoli.

Recommended Daily Intake: 5 mg per day is considered adequate intake for adults.

5. Vitamin K

vitamin k - Copyright â Stock Photo / Register Mark Functions: Vitamin K appears in two naturally occurring form; the first is K1 from plants, and the second, K2, is derived from bacteria synthesis. Vitamin K is a fat-soluble vitamin essential for the functioning of several proteins involved in blood clotting. It also prevents the calcification of soft tissue and cartilage, while facilitating normal bone growth and development in addition to helping with cell growth.

Because the body stores very little vitamin K, its supplies are rapidly depleted without regular dietary intake. Overt vitamin K deficiency results in impaired blood clotting, which might be evidenced by easy bruising and bleeding, nosebleeds, bleeding gums, blood in the urine and stool, or extremely heavy menstrual bleeding. In infants, vitamin K deficiency may result in life-threatening bleeding within the skull (intracranial hemorrhage).

Sources: Green leafy vegetables and some vegetable oils (soybean, cottonseed, canola, and olive) contribute significant dietary vitamin K.

Recommended Daily Intake: Adequate Intake (AI) for vitamin K ranges from 2.0 micrograms/day for infants to 120 mcg/day for adults. People who are at risk of forming blood clots should avoid excessive supplementation with vitamin K. Some oral anticoagulants, such as warfarin (Coumadin), inhibit coagulation through antagonism of the action of vitamin K.

6. Phosphorus

phosphorus - Copyright â Stock Photo / Register Mark Functions: The first mineral on our list, phosphorus, makes up 1 percent of a person's total body weight. It is present in every cell of the body, but is primarily found in the bones and teeth because phosphorus aids in their formation. It also plays an important role in the body's utilization of carbohydrates and fats, as well as the synthesis of protein for the growth, maintenance, and repair of cells and tissues. In addition, phosphorus is crucial for the production of ATP, a molecule the body uses to store energy. Phosphorus also assists in muscle contraction, kidney function, heartbeat regulation and nerve conduction. Phosphorus deficiencies can result in poor mineralization of bones, weight loss, retarded growth, and weakness, as well as deficient nerve and brain function.

Sources: The protein food groups (meat and dairy) provide dietary phosphorous. Fruits and vegetables contain phosphorus in small amounts.

Recommended Daily Intake: Infants can be given 100 mg a day, and most adults can take 700 mg daily. Pregnant or lactating women can take up to 1,250 mg/day.

iodine - Copyright â Stock Photo / Register Mark **7. Iodine**

Functions: Next we have iodine, an essential mineral that enables the thyroid gland to produce hormones. A severe iodine deficiency can cause hypothyroidism, developmental disorders, and severe goiter. Although iodine deficiency is rare in the U.S., it does occur in Third World countries where soils are deficient in iodine. In general, Americans use lot of salt in the daily diet - usually iodized salt -- which has almost eliminated deficiency in the U.S. entirely.

Sources: Seaweed and seafood are good sources of iodine.

Recommended Daily Intake: It is suggested that 150 mcg be taken on a daily basis.

8. Selenium

selenium - Copyright â Stock Photo / Register Mark Functions: Selenium is a mineral that was formerly considered a toxic substance, but is now known to be essential in trace quantities. Selenium is known for its anti-aging properties; It helps rid the body of free radicals, as well as toxic minerals such as mercury, lead and cadmium. It also helps to fight infection by increasing antibody response, enhances energy, and aids in alleviating menopausal symptoms in women. Selenium can be used to combat arthritis and multiple sclerosis, and if provided in adequate amounts, it is thought to help prevent cancer as well. Tissue elasticity

and pancreatic function depend upon this mineral, which may improve blood flow for the prevention of heart attacks and strokes.

Sources: Selenium can be found in Brazil nuts, whole grains, shellfish, grains, and grasses.

Recommended Daily Intake: A dose of 70 micrograms per day is recommended.

9. Manganese

Functions: Manganese, a trace mineral, participates as an enzyme activator and catalyst in the synthesis of fatty acids and cholesterol. It facilitates protein and carbohydrate metabolism and hormone production. It Manganese acts as an antioxidant and promotes bone strength, stable blood sugar levels, thyroid function and nerve conduction. A deficiency can negatively impact many physiological processes including growth, skeletal structure, and carbohydrate and fat metabolism.

Sources: Manganese is naturally present in abundance, so it is easy to supplement the trace amounts found in human tissue. Dietary sources include red berries, pineapple, leafy greens, garlic, grapes, summer squash, oats, spelt, green beans, brown rice, garbanzo beans, and some spices.

Recommended Daily Intake: Adequate intake for manganese is 3 mcg for infants and 2-3 mg for adults.

10. Molybdenum

Functions: Molybdenum, which is normally present in very small quantities in the body, plays a role in many important biological processes, including development of the nervous system, waste processing in the kidneys, and energy production in cells. Molybdenum is used to treat rare inherited metabolic diseases (such as Wilson's disease, in which the body cannot process copper). It may be helpful in cancer protection and in reducing the heart and lung damage caused by some chemotherapy drugs. Deficiencies are most often related to malfunction of the liver and can result in jaundice, nausea, fatigue, headaches, tachypnea, tachycardia, vomiting, nausea, and coma.

Sources: Common sources of molybdenum include legumes (:beans, peas, and lentils), grains, leafy vegetables, liver, and nuts. The amount of molybdenum in plants varies according to the amount in the soil.

The ABCs of Good Health - Copyright â Stock Photo / Register Mark *Recommended Daily Intake:* The RDA of molybdenum for most adults is around 45 mcg, with an RDA of 50 mcg for women who are

pregnant or breast-feeding.

It is important to understand that while deficiencies of each of these vitamins and minerals can have poor health consequences, problems can occur as a result of overdoses as well. Common overdose symptoms for vitamins and minerals include but are not limited to fatigue, muscle weakness, dizziness, headache, blood sugar imbalances and increased risk of liver damage. Certain vitamins/minerals also interact with medication, which is why it's always important to discuss supplementation with your doctor prior to doing so.

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