

Impact on Lack of Vitamins and Minerals in Daily Life

Eric J. Sorenson

Professor, Department of Immunology, New York University, USA

Editorial

Vitamins and minerals are essential nutrients because they perform hundreds of roles in the body. There is a fine line between getting enough of these nutrients (which is healthy) and getting too much (which can end up harming you). Eating a healthy diet remains the best way to get sufficient amounts of the vitamins and minerals you need. Every day, your body produces skin, muscle, and bone. It churns out rich red blood that carries nutrients and oxygen to remote outposts, and it sends nerve signals skipping along thousands of miles of brain and body pathways. It also formulates chemical messengers that shuttle from one organ to another, issuing the instructions that help sustain your life. Vitamins and minerals are considered essential nutrients—because acting in concert, they perform hundreds of roles in the body. They help shore up bones, heal wounds, and bolster your immune system. They also convert food into energy, and repair cellular damage.

Vitamins and minerals are often called micronutrients because your body needs only tiny amounts of them. Yet failing to get even those small quantities virtually guarantees disease. Here are a few examples of diseases that can result from vitamin deficiencies:

- **Scurvy:** Old-time sailors learned that living for months without fresh fruits or vegetables—the main sources of vitamin C—cause the bleeding gums and listlessness of scurvy.
- **Blindness:** In some developing countries, people still become blind from vitamin A deficiency.
- **Rickets:** A deficiency in vitamin D can cause rickets, a condition marked by soft, weak bones that can lead to skeletal deformities such as bowed legs. Partly to combat rickets, the U.S. has fortified milk with vitamin D since the 1930s.

Just as a lack of key micronutrients can cause substantial harm to your body, getting sufficient quantities can provide a substantial benefit. Some examples of these benefits:

- **Strong bones:** A combination of calcium, vitamin D, vitamin K, magnesium, and phosphorus protects your bones against fractures.
 - **Prevents birth defects:** Taking folic acid supplements early in pregnancy helps prevent brain and spinal birth defects in offspring.
 - **Healthy teeth:** The mineral fluoride not only helps bone formation but also keeps dental cavities from starting or worsening.
 - **Many micronutrients interact:** Vitamin D enables your body to pluck calcium from food sources passing through your digestive tract rather than harvesting it from your bones. Vitamin C helps you absorb iron.
 - The interplay of micronutrients isn't always cooperative, however. For example, vitamin C blocks your body's ability to assimilate the essential mineral copper. And even a minor overload of the mineral manganese can worsen iron deficiency.
- Water-soluble vitamins are packed into the watery portions of the foods you eat. They are absorbed directly into the bloodstream as food is broken down during digestion or as a supplement dissolves.
- Although water-soluble vitamins have many tasks in the body, one of the most important is helping to free the energy found in the food you eat. Others help keep tissues healthy. Here are some examples of how different vitamins help you maintain health:
- **Release energy:** Several B vitamins are key components of certain coenzymes (molecules that aid enzymes) that help release energy from food.
 - **Produce energy:** Thiamin, riboflavin, niacin, pantothenic acid, and biotin engage in energy production.
 - **Build proteins and cells:** Vitamins B6, B12, and folic acid metabolize amino acids (the building blocks of proteins) and help cells multiply.
 - **Make collagen:** One of many roles played by vitamin C is to help make collagen, which knits together wounds, supports blood vessel walls, and forms a base for teeth and bones

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***Address for Correspondence:** Eric J. Sorenson, Professor, Department of Immunology, New York University, USA, Tel: (347) 415-9757; E-mail: sorenson.eric@mayo.edu

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