

VITAMINS AND MINERALS

A well-balanced diet not only supplies your body with the energy it needs to keep running, it also supplies the vitamins and minerals the body needs for good health.

Why are Vitamins and Minerals Important?

Unlike carbohydrate, protein, and fat, vitamins and minerals don't contribute calories to your diet. Nevertheless, they're vital for life. Just as spark plugs ignite the gasoline in your car's engine, giving it the energy to run, vitamins and minerals ignite chemical reactions in your body, helping it to run. They're catalysts that trigger the building of body cells and the conversion of food energy to body energy, and they promote the maintenance of skin, nerves, eyes and more!

While earlier research on vitamins and minerals looked at their role in preventing deficiencies, current research is more focused on how these nutrients can promote health and protect against diseases, such as heart disease, hypertension, cancer, and osteoporosis. The table on the back page lists some of the vitamins and minerals required by the body and how they help the body to function at its best.

Two Classes of Vitamins

Vitamins are divided into two categories that are distinguished by how the body handles them.

Water-soluble vitamins

Includes B-complex vitamins and vitamin C, dissolve in water. They circulate freely throughout the body, and excesses are excreted in the urine. Since your body doesn't store water-soluble vitamins, overdosing is generally not much of a problem. However, moderation is still best since, in some instances, taking large doses from supplements may be harmful.

Fat-soluble vitamins

A, D, E, and K, are absorbed with dietary fat. Your body stores excesses of these vitamins in body fat instead of excreting them. Accumulating too much fat-soluble vitamins, especially vitamins A and D, could be dangerous.

Minerals

Minerals help regulate the body's chemical reactions, such as muscle contraction, nerve impulses, and fluid balance. They also help give structure to bones and teeth, blood cells, muscles, and other body tissues. Some minerals are harmful if taken in excess. Minerals are divided into two categories depending on how much your body needs.

Major minerals

Needed in greater amounts—more than 250 milligrams (mg) daily—include calcium, phosphorus, magnesium, and the electrolytes sodium, chloride and potassium.

Trace minerals

Needed in smaller amounts—less than 20 milligrams daily—include iron, zinc, iodine, selenium and others.

Do I Need Supplements?

There are over 40 nutrients found in foods. The best way to get the nutrients your body needs is to eat a variety of nutritious foods. In some instances, however, vitamin and/or mineral supplements are recommended. For example, people on reduced calorie diets may not be eating enough food to meet their nutrient needs, and so they may need a multivitamin/mineral supplement. People taking certain medications or who have certain illnesses may also benefit from taking specific supplements.

But dietary supplements are just that—supplements, not replacements, for eating healthfully. With supplements, it is possible to get too much of specific vitamins and minerals, and this could be dangerous. On the other hand, the likelihood of overdosing on vitamins or minerals in food is small. Plus, in foods, you'll find a good mix of health-promoting substances that you may not find in pills. If you're going to take supplements, remember to focus on eating healthy food first. Supplements are not a replacement of eating a healthy diet.

How Can I Be Sure I'm Getting Enough?

Plan a variety of meals rich in vitamins and minerals by focusing on whole-grain breads, cereals, and other starches, fresh fruits and vegetables, nonfat or low fat dairy products and lean meats, poultry, and fish, and beans and legumes. If you're concerned whether your diet is meeting your nutritional needs, speak with your doctor or a registered dietitian. If necessary, they can help you select an appropriate dietary supplement(s). Some vitamins and minerals, with their recommended amounts, functions and food sources are listed below.

Nutrient/ Amount*	What It Does	Where It's Found
Vitamin A 5,000 IU**	Important for normal growth in children. Necessary for good vision, especially in the dark. Essential for health of the skin and mucous membranes. Carotenoids (e.g. beta-carotene), which are converted to vitamin A, act as antioxidants, offering protection from some diseases of aging.	Liver, eggs, fortified milk. Carotenoids found in sweet potatoes, carrots, kale, spinach, apricots and cantaloupe.
Vitamin D 400 IU	Necessary for strong bones and teeth. Helps the body absorb calcium and phosphorus.	Fortified milk and cereal, liver, eggs and sunshine.
Vitamin E 30 IU	Protects essential fatty acids. Acts as an antioxidant, protecting cells from damage that may lead to disease, like heart disease and some cancers.	Vegetables oils, salad dressing, margarine, wheat germ, nuts and seeds.
Thiamine (Vitamin B1) 1.5 mg+	Helps produce energy from carbohydrates in all body cells. Needed by brain, heart, and nervous system.	Pork, liver, wheat germ, whole grains, enriched breads and cereals.
Riboflavin (Vitamin B2) 1.7 mg	Helps produce energy in all body cells. Helps build and maintain body tissues and protects the skin.	Milk, yogurt, cheese, liver, eggs, spinach, enriched breads and cereals.
Niacin 20 mg	Helps produce energy in all body cells. Helps body use fatty acids and sugars. Needed for healthy nervous system and digestive tract.	Lean meats, poultry, fish, peanuts, legumes, enriched breads and cereals.
Vitamin B6 (Pyridoxine) 2.0 mg	Helps make protein for body cells. Involved in producing red blood cells, insulin, and antibodies. Important for the nervous system.	Chicken, pork, liver, oatmeal, banana, potatoes, legumes and nuts.
Vitamin B12 6.0 mcg++	Helps make red blood cells. Important for metabolism in all cells, including nervous system.	Meat, fish, eggs, poultry and milk.
Folate (Folic Acid or Folacin) 400 mcg	Essential for making new blood cells. Helps prevent certain type of anemia. In pregnant women, can help reduce the risk of certain serious and common birth defects called neural tube defects.	Spinach, broccoli, legumes, wheat germ, orange juice and fortified grain products.
Vitamin C (Ascorbic Acid) 60 mg	Essential for healthy teeth, gums and bones. Helps heal wounds and protect from infection. Builds strong body cells and blood vessels. Helps absorb iron from plant sources. Acts as an antioxidant.	Oranges, grapefruit, fruit juice, melon, berries, potatoes, broccoli, tomatoes and strawberries.
Calcium 1,000 mg	Builds bones and teeth. Needed for blood clotting, muscle contraction, and proper nerve function.	Milk, yogurt, kale, broccoli, canned fish with edible bones and tofu preserved with calcium sulfate.
Phosphorus 1,000 mg	Builds bones and teeth. Helps produce energy in body cells and regulates energy metabolism. Needed for cell growth.	Milk, meat, poultry, fish, eggs and legumes.
Magnesium 400 mg	Part of many enzymes that regulate body functions. Important for nerve and muscle function.	Spinach, legumes and whole grains.
Iron 18 mg	Helps make hemoglobin, the red substance in blood carrying oxygen from the lungs to all body cells.	Liver, meat, legumes, spinach, fortified cereals and enriched grains.
Zinc 15 mg	Helps body use carbohydrate, protein and fat. Part of many enzymes. Important for cell reproduction and tissue repair. Essential for growth.	Meat, seafood, liver, milk, eggs and wheat germ.

* Amounts are based on the Daily Values (DVs), a term that replaces U.S. RDA, and is used for nutritional labeling.

**IU—International Units

+mg—milligrams

++mcg—micrograms