**FUNCTIONS AND SOURCES OF MINERALS**

A **mineral**, from a dietary sense, is an inorganic compound that's needed in small amounts for the regulation of your body's processes and health. Minerals are inorganic, unlike vitamins (which are organic nutrients). This means minerals do not contain carbon.

The body needs many minerals; these are called essential minerals. Essential minerals are sometimes divided up into major minerals (macro minerals) and trace minerals (micro minerals). These two groups of minerals are equally important, but trace minerals are needed in smaller amounts than major minerals. The amounts needed in the body are not an indication of their importance.

A balanced diet usually provides all of the essential minerals.

The two tables below list the minerals, what they do in the body (their functions), and their sources in food.

**MACRO MINERALS**

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| **Major minerals** |
| **Mineral** | **Function** | **Sources** |
| Sodium | Needed for proper fluid balance, nerve transmission, and muscle contraction | Table salt, soy sauce; large amounts in processed foods; small amounts in milk, breads, vegetables, and unprocessed meats |
| Chloride | Needed for proper fluid balance, stomach acid | Table salt, soy sauce; large amounts in processed foods; small amounts in milk, meats, breads, and vegetables |
| Potassium | Needed for proper fluid balance, nerve transmission, and muscle contraction | Meats, milk, fresh fruits and vegetables, whole grains, legumes |
| Calcium | Important for healthy bones and teeth; helps muscles relax and contract; important in nerve functioning, blood clotting, blood pressure regulation, immune system health | Milk and milk products; canned fish with bones (salmon, sardines); fortified tofu and fortified soy milk; greens (broccoli, mustard greens); legumes |
| Phosphorus | Important for healthy bones and teeth; found in every cell; part of the system that maintains acid-base balance | Meat, fish, poultry, eggs, milk, processed foods (including soda pop) |
| Magnesium | Found in bones; needed for making protein, muscle contraction, nerve transmission, immune system health | Nuts and seeds; legumes; leafy, green vegetables; seafood; chocolate; artichokes; "hard" drinking water |
| Sulfur | Found in protein molecules | Occurs in foods as part of protein: meats, poultry, fish, eggs, milk, legumes, nuts |

**Trace minerals (micro minerals)**

The body needs trace minerals in very small amounts. Note that **iron** is considered to be a trace mineral, although the amount needed is somewhat more than for other micro minerals.

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| **Trace minerals** |
| **Mineral** | **Function** | **Sources** |
| Iron | Part of a molecule (hemoglobin) found in red blood cells that carries oxygen in the body; needed for energy metabolism | Organ meats; red meats; fish; poultry; shellfish (especially clams); egg yolks; legumes; dried fruits; dark, leafy greens; iron-enriched breads and cereals; and fortified cereals |
| Zinc | Part of many [enzymes](https://www.uofmhealth.org/health-library/ste122090#ste122090-sec); needed for making [protein](https://www.uofmhealth.org/health-library/stp1987#stp1987-sec) and genetic material; has a function in taste perception, wound healing, normal fetal development, production of sperm, normal growth and sexual maturation, immune system health | Meats, fish, poultry, leavened whole grains, vegetables |
| Iodine | Found in thyroid hormone, which helps regulate growth, development, and metabolism | Seafood, foods grown in iodine-rich soil, iodized salt, bread, dairy products |
| Selenium | [Antioxidant](https://www.uofmhealth.org/health-library/sta123283#sta123283-sec) | Meats, seafood, grains |
| Copper | Part of many enzymes; needed for iron metabolism | Legumes, nuts and seeds, whole grains, organ meats, drinking water |
| Manganese | Part of many enzymes | Widespread in foods, especially plant foods |
| Fluoride | Involved in formation of bones and teeth; helps prevent tooth decay | Drinking water (either fluoridated or naturally containing fluoride), fish, and most teas |
| Chromium | Works closely with [insulin](https://www.uofmhealth.org/health-library/sti150726#sti150726-sec) to regulate blood sugar (glucose) levels | Unrefined foods, especially liver, brewer's yeast, whole grains, nuts, cheeses |
| Molybdenum | Part of some enzymes | Legumes; breads and grains; leafy greens; leafy, green vegetables; milk; liver |

Other trace nutrients known to be essential in tiny amounts include nickel, silicon, vanadium, and cobalt.