



Minerals and Nutrition

Minerals : are the chemical elements present in all body tissues and fluids , their presence being necessary for the maintenance of certain physicochemical processes which are essential for life.

Minerals Nutrients: are inorganic substances that must be ingested and absorbed in adequate amounts to satisfy a wide variety of essential metabolic and/or structural functions in the body.

Minerals and electrolyte are important because your body cannot function without them. All electrolyte are minerals but not all minerals are electrolyte .Electrolyte are the minerals that carry an electrical charge.

Your body requires some raw materials. These include at least 30 vitamins, minerals, and dietary components that your body needs but cannot manufacture on its own in sufficient amounts.

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.

They are classified as major minerals(macrominerals) (body requires more than 100 mg/day) and trace minerals (microminerals)(body requires less than 100 mg/day), and The two tables below list minerals, what they do in the body (their functions), and their sources in food.

Major minerals		
Mineral	Function	Sources
Sodium	Needed for proper fluid balance, nerve transmission, and muscle contraction	Table salt, soy sauce; small amounts in milk, breads, vegetables.
Chloride	Needed for proper fluid balance, stomach acid, maintain the osmosis pressure in body cell.	Table salt, soy sauce; 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 بقوليات
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); greens (broccoli), 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
Magnesium	Found in bones; needed for making protein, muscle contraction, nerve transmission, immune system health	Nuts and seeds; legumes; leafy, green vegetables; seafood; chocolate.

(calcium ,magnesium and phosphor are bulk mineral, then (sodium ,potassium and chloride) are electrolytes.

Trace minerals (microminerals)

The body needs trace minerals in very small amounts.

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 ,egg yolks; legumes; dried fruits.
Zinc	Part of many enzymes; needed for making protein and genetic material; has a function in taste perception, wound healing, normal fetal development, 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.



Selenium	Antioxidant	Meats, seafood, grains
Copper	Part of many enzymes; needed for iron metabolism	Legumes, nuts and seeds, organ meats, drinking water

Fluoride	Involved in formation of bones and teeth; helps prevent tooth decay	Drinking water (either fluoridated or naturally containing fluoride), fish
Chromium	Works closely with insulin to regulate blood sugar (glucose) levels	Unrefined foods, especially liver, whole grains, nuts, cheeses