Minerals

Magnesium
Functions

• Supports bone mineralization and maintenance
• Acts as a cofactor for more than 300 enzymes involved in various reactions
• Plays a role in blood clotting
• Plays a role in neuromuscular transmission and activity
• Calcium plays as a stimulator and magnesium as a relaxer in muscle contraction
Magnesium food sources

• Leafy greens are a good source of magnesium, as are certain nuts and seeds – like from pumpkins and squash.

• Beans and lentils provide magnesium as well as fruits like bananas, figs and dates.

• Even dark chocolate can give you a good amount of this mineral
Problems due to excess intake of magnesium

• Toxicity occurs in industrial workers inhaling magnesium dust

• Results in central nervous system depression and even paralysis

• May inhibit bone calcification
Problems due to deficiency of magnesium

- Magnesium deficiency can cause a wide variety of features including hypocalcaemia, hypokalaemia and cardiac and neurological manifestations.

- Chronic low magnesium state has been associated with a number of chronic diseases including diabetes, hypertension, coronary heart disease, and osteoporosis.
Sodium
Functions

• Key factor for retaining body fluids
• Regulates acid base balance
• Participates in absorption of other nutrients
• Participates in nerve impulse conduction and muscle contraction
Food sources of sodium:

- Sodium is found in table salt, baking soda, monosodium glutamate (MSG), various seasonings, additives, condiments, meat, fish, poultry, dairy foods, eggs, smoked meats, olives, and pickled foods.
Sodium food sources
Problems due to deficiency of sodium

Hyponatremia

- Symptoms of low blood serum sodium concentrations (hyponatremia) include headache, nausea, vomiting, muscle cramps, fatigue, disorientation, and fainting.

- Complications of severe and rapidly developing hyponatremia may include swelling of the brain ('cerebral edema'), seizures, coma, and brain damage.
Problems due to excess intake of sodium

- High Blood Pressure
- Fluid Retention or edema
- Hypernatremia
- Cardiovascular Disease
- Increases calcium loss which may increase kidney stones
Potassium (K)
Functions

• Maintains osmotic pressure, water balance and acid base balance

• Helps enzymes to function

• Nerve impulse transmission

• Muscle contraction and regular heartbeat

• Helps to maintain blood pressure
Food Sources:

• Dried fruits like apricots and raisins.

• A baked potato – including the skin – gives you about 25% of your daily requirement.

• Potassium is also found in many beans – like kidneys, Lima beans and pinto beans – as well as squash and avocado
POTASSIUM RICH FOODS
Problems due to excess intake of potassium

• When kidneys do not function K increases in blood
  - Hyperkalemia

• Inhibits heart function

• Causes slow heart beat and even death due to cardiac arrest

• So, in kidney disease, K is controlled in the diet
Problems due to deficiency of Potassium

Hypokalemia

- Increases blood pressure
- Low K is a life threatening problem
- Symptoms include
  - loss of appetite,
  - Muscle weakness,
  - Mental confusion
  - Glucose intolerance
  - Irregular heart beat
  - Decreased capacity of heart to pump blood