Zinc, Zn

- It is a micromineral essential for immunity, wound healing, normal growth and development, reproduction and various metabolic processes.
- It has been shown to be effective against cold and other infections.
- Every cell in our body requires zinc in small quantities.

Zinc, Zn

- It is found in liver, kidney, pancreas, bone, skin, eye and prostate glands in large amounts.
- Drinking water and various foods contain zinc.
- Although a small amount of zinc is required for our body, its deficiency is very common.

Function of Zinc

- It takes an important role in bone development and mineralization.
- It is necessary for the development of reproductive organs.
- It is required for healthy skin and bones; in case of deficiency, skin disorders such as eczema, acne and like psoriasis-like skin rashes occur.

Function of Zinc

- It takes part in various enzyme systems. It is important for the metabolism and synthesis of protein and genetic material.
- It is necessary for the transfer of carbon dioxide with red blood cells.
- Wound healing and immune functions: It strengthens the immune system in case of cold and other infections; induces the healing of wounds and burns.

Function of Zinc

- Taste and smell; it helps to distinguish the flavor of different foods.
- It is recommended at a dose of 30 mg/day.
- In order to shorten the severity and duration of the disease in case of cold, it is recommended to take 10-15 mg every 2-4 hours, but the maximum daily dose is 150 mg.

Cautions

- It should not be taken at high doses for more than a week. Prolonged use of high doses may damage the immune system instead.
- High doses may adversely affect copper absorption.
- It should be taken when the stomach is empty or 1 hour before/two hours after meals.
- It may interfere with some antibiotics and is recommended to be taken 2 or 3 hours after medication.

Iodine, I

- It has a critical role in the production process of thyroid hormones.
- An average adult body comprises around 25 mg iodine and 10 mg of it is found in the thyroid glands.
- If iodine is insufficient, thyroid glands grow and disease known as goiter occurs.

Deficiency

- The source of iodine is soil.
- Deficiency is common among people living in near by sea or ocean or in mountainous regions.
- In case of iodine deficiency, the thyroid gland can not secrete its hormones properly. These hormones are essential for normal development and growth, nerve and muscle health, reproduction and metabolism of nutrients.

Deficiency

- Deficiency in the newborn may cause growth failure and abnormalities.
- Foods such as cabbage, Brussels sprouts, cauliflower and turnips, which are consumed in large quantities and raw, cause iodine deficiency by blocking the iodine intake in the thyroid gland.
- Iodized salt is the best source.

Copper, Cu

- Copper plays a critical role in the prevention of anemia.
- Absorption of iron from the intestinal tract and storage in liver is not possible without the presence of copper in the body at small amounts.
- Copper is also required for hemoglobin production.

Copper, Cu

- Our body contains around 75-100 mg of copper.
- It is the third most common microelement in the body.
- Deficiency does not cause severe symptoms.
- Studies have shown that copper has a role in the prevention and treatment of osteoporosis, high blood pressure, heart disease and cancer.

Function of Copper

- Takes part in energy metabolism and enzyme systems.
- Essential for skin health: It is very important in collagen production and involved in melanin production.
- Important for nerve health
- Involved in wound healing process
- Necessary for the construction of bones, tendons, connective tissue in skeletal system and cerebrospinal cells and blood vessels.

Manganese, Mn

- It is used with enzymes in metabolism (destruction of carbohydrates, synthesis of cholesterol, synthesis of genetic material)
- It is necessary for the effect of insulin; our body can not use insulin in case of manganese deficiency.

Manganese, Mn

- Required for bone tissue and connective tissue (cartilage).
- Protects tissues against oxidative damage by showing antioxidant effect.
- It works together with vitamin K in blood clotting and wound healing.

Manganese, Mn

- Bone, liver, pancreas and brain have a high amount of manganese.
- Excess calcium and phosphorus can inhibit the absorption of manganese.
- There are data showing that it may be useful in case of epilepsy, osteoporosis, disorders of bone and connective tissue, but the dosage has not been established.

Molybdenum, Mo

- It takes part in enzyme systems.
- It takes part in metabolic functions (carbohydrate, fat, protein, amino acids, sulfur, iron and genetic material)
- It is necessary for strong teeth; it hardens the tooth surface and prevents tooth decay.
- It regulates the level of uric acid.
- It is stored in the body less than the dose of 10 mg.

Molybdenum, Mo

- Mostly found in liver, adrenal glands, kidney and bones
- Although the symptoms of deficiency are not well known, it is known to cause some metabolic problems and developmental abnormalities.
- Excess copper intake reduces molybdenum metabolism.
- Excessive molybdenum intake increases copper excretion.

Fluoride, F

- Fluoride or fluorine is essential for healthy bone and tooth construction.
- It was found that it prevents tooth loss in children by 50%.
- A dose of 0.5-1.0 ppm is sufficient.
- It is thought that high doses increase the risk of hyperactivity, behavioral problems, poisoning and cancer.

Fluoride, F

- It is necessary in the mineralization process of bones and teeth, for the formation of crystal which is called hydroxypatite and formed from calcium and phosphorus .
- It has been found that the fracture rate decreases and the weight of bone tissue increases in people who receive calcium and vitamin D with sufficient fluoride, but studies on this subject have not finished yet.

Fluoride, F

- Supplement is required in infants who have less than 0.3 ppm of fluoride in their drinking water.
- It is recommended to use fluoride at a dose of 0.25 mg at the age of 6 months-3 years and at the dose of 1 mg at the age of 3-6 years.

Fluoride, F

- Fluoride supplementation is not recommended if there is sufficient fluoride in the water (around o.6 ppm). Most bottled water does not contain fluoride.
- Fluoride supplement may be required in elderly individuals.
- Since it is easy to absorb in the empty stomach, it is recommended to take it just before bedtime.

Selenium, Se

- Selenium is a component of the antioxidant enzyme system known as glutathione peroxidase.
- It works together with vitamin E in our body.
- It has play an important role in the treatment of heart diseases, cataracts, fertility problems and some types of cancer .

Selenium, Se

- Foods and drinks contain selenium at very small amounts.
- It is present in soil in large quantities.
- Deficiency may be encountered in the regions with less soil.

Use of Selenium

- It is necessary for the protection of the genetic material of cells (provides protection against damage of free radicals)
- It binds to arsenic, mercury, cadmium and other toxic metals and reduces their toxicity.
- Selenium is added to shampoos to prevent dandruff and fungal infections.

Use of Selenium

- Protective effect against cancer: It has been found that some cancers such as breast and prostate cancer are frequently seen in selenium-deprived people.
- It is thought that the protective effect against cancer is due to its antioxidant effect and protective effect against other toxic substances, thus preventing cell mutations or inducing the body's immune system.

Use of Selenium

- Selenium deficiency is found to increase the incidence of heart disease. Severe deaths is occured even in moderate stress.
- In the studies conducted with these patients, it was found that Coenzyme Q 10 levels were also very low. Selenium and vitamin E are thought to be necessary for the coenzyme Q10 to be present in sufficient amounts.

Use of Selenium

- To support immune system functions; It has been found that selenium enhances the fighting ability of phagocytes.
- It prevents cataract; selenium deficiency can cause cataract.
- Fertility problems: In the case of selenium deficiency, a decrease in sperm levels and an increased risk of miscarriage in early pregnancy period may occur.

Use of Selenium

- It protects the newborns against sudden infant death.
- Compared to breast milk, cow's milk contains half as much selenium and much less vitamin E.
- There is an increase in the incidence of prostate, breast and colon cancer in patients with selenium deficiency.

Use of Selenium

- 200 micrograms per day is enough to complete the deficiency.
- A dose of 400 micrograms can be recommenden to prevent cancer.

Toxicity

- 900 micrograms of selenium may show toxic effects.
- Prolonged use at doses greater than 200 micrograms causes toxicity risk.
- The short-term use of 600 micrograms provides support against infections, but should not be continued for more than a few days.

Chromium, Cr

- Chromium works in conjunction with insulin and is essential for glucose metabolism.
- It is also essential for fat and protein metabolism.
- Chromium is commonly found in all body fluids.
- It is found in liver in kidney, pancreas and bone at high concentration.

Chromium, Cr

- A small amount of chromium taken in diet is absorbed.
- Absorption decreases with age.
- Strong diets, consumption of processed foods and sugar deplete chrome storage.
- A high-fat diet reduces chromium absorption.

Chromium, Cr

- Chromium is a component of the glucose tolerance factor which is a hormone-like substance.
- This factor is released when high levels of blood sugar and insulin are in the bloodstream. It has function in the metabolism of protein, fatty acids and carbohydrates along with insulin.

Function of Chromium

- Activates certain enzymes such as trypsin.
- It p rotects genetic material against mutation.
- It stimulates the synthesis of fatty acids and cholesterol in the liver.

Recommended Dose

- The daily dose in a healthy person is 200 µg
- 200 µg/day to lose weight
- Selenium at the dose of 200 µg, 3 times a day is recommended to improve insulin metabolism in diabetes .

Cautions

- It should be taken with water and food. It may cause gastric irritation.
- Intake with vitamin C increases selenium absorption.
- Patients with diabetes, and using insulin should consult a doctor.

Cautions

- Intake with calcium or antacids leads to reduced absorption.
- Acidic foods such as tomatoes and using stainless steel containers are thought to cause the loss of selenium content.