



Daily Requirements

The daily requirements of minerals required by the body can be obtained from a well balanced diet. Like vitamins, excess minerals can produce toxic effects. **The following table should cover the recommended daily requirements (RDR or RDA) of almost.**

Mineral	Men	Women
Calcium	1000mg	1200mg
Sodium	1100mg	3300mg
Potassium	2000mg	2000mg
Iron	10mg	15mg
Zinc	15mg	12mg
Magnesium	350mg	280mg
Phosphorus	800mg	1200mg
Chlorine	700mg	700mg
Fluorine	1.5mg	4mg
Copper	2mg	2mg
Selenium	0.07mg	0.05mg

Excess of minerals : High concentrations of minerals in the body can have ill effects on your health. Symptoms of mineral toxicity vary as toxic levels depend on the type of mineral and how much of it your body takes in.

High levels of iodine in the bloodstream can interfere with hormone functioning. Too much sodium can cause confusion, seizures رؤية مرضية, coma غيبوبة and even death. Selenium is a mineral that is toxic in just small doses. Symptoms include black fingernails and the smell of garlic on your breath and skin. Phosphorus toxicity prevents the absorption of calcium and magnesium in the body. When ingested in amounts more than 1 g daily, phosphorus can cause diarrhea or lead to calcification تصلب of organs and soft tissues.



Copper toxicity is also rare, however, excessive intake can cause vomiting, diarrhea, irritability **نتائج** and dementia **جرون**.

Zinc is generally considered to be non-toxic although extremely high doses of it can lead to symptoms such as nausea **غثبان**, vomiting and diarrhea.

Mineral Measurement : Measurement of minerals is a commonly performed diagnostic procedure, performed via blood testing

1. Flame photometer or (Atomic absorption spectroscopy AAS):

A device used in organic chemical analysis to determine the concentration of minerals ions, such as (Ca, k and Na) .

2. Auto analyzer (biochemistry analyzer): An instrument with ion selective electrodes ,which measured electrolyte most often are sodium and potassium, chloride and bicarbonate or total CO₂.

3. **Dual-energy X-ray absorptiometry (DXA)**: used to measure total body composition. The DXA scan is typically used to diagnose and follow osteoporosis, The bone density test is painless and quick. The X- rays measure how much [calcium](#) and minerals are in a part of your bone.

The amount of phosphate in the blood affects the level of calcium in the blood. Calcium and phosphate in the body react in opposite ways: as blood calcium levels rise, phosphate levels fall. A hormone called parathyroid hormone (PTH) regulates the levels of calcium and phosphorus in your blood. When the phosphorus level is measured, a [vitamin D](#) level, and sometimes a [PTH level](#), is measured at the same time. Vitamin D is needed for your body to take in phosphate.

The relation between calcium and phosphate may be disrupted by some diseases or infections. For this reason, phosphate and calcium levels are



usually measured at the same time.

Al-Mustaqbal University College
Department of Medical Device Technologies Engineering
Stage: 2nd
Clinical Chemistry.
Lec. No.: 8, 9,10

