

Calcium (Ca)



Calcium belongs to the group of alkaline earth metals, like magnesium. It is a silvery-white, soft metal that tarnishes very rapidly in air and produces heat and slaked lime on contact with water. Like magnesium, it burns with bright white flame when ignited. It is the fifth most abundant element in the Earth's crust and the most abundant element in human body.

Ca
Calcium

[Ar]4s²

Atomic number
protons/electrons

20

Neutrons

(most common isotope)

20

Atomic weight

(amu)

40.08

Atomic radius

(pm)

176

Functions/Health effect:

About 99% of the body's calcium is stored in bones, and the rest is found in muscles, blood and other tissues. It is the most abundant metal in the human body. While most often associated with healthy bones and teeth, calcium is involved in a wide range of functions, including the regulation of normal heartbeat, cell signalling, muscle contraction control and a role in blood clotting.

Sources:

Even though calcium is abundant in the nature, it is never found in its pure elemental form. Rather, it is part of many minerals such as limestone, gypsum and fluorite. For humans, the most significant sources are dairy, vegetables and grains.

While a lack of calcium might lead to osteoporosis and many other health problems, excessive intake poses serious health risks such as kidney stones and artery calcification. Hence, calcium supplementation is recommended only to people who really require it. The two forms most commonly found in supplements are calcium citrate and calcium carbonate. Calcium supplements often contain vitamin D because of its crucial role in calcium absorption.

For an average adult it is recommended to ingest about 1000 mg of calcium a day, which can be easily met by consuming 120 g of cheese or about three servings of broccoli throughout the day.

Did you know that?

The name of this element comes from the Latin word "calcis" or "calx" meaning "lime". Calcium has been used for thousands of years for production of cement and subsequently concrete, of which perhaps most famous is opus caementicium - Roman concrete.

Even though it's been known for thousands of years, calcium metal as an element wasn't purified until 1808 by Sir Humphry Davy.

In dire times, when there is a lack of dietary calcium for key bodily functions, our body can actually access and use calcium from our bones, which also serve as a reservoir of this important mineral. If you could extract all the calcium from an average human body, you would get about kilogram of the metal.

Food
division

