

Role of Calcium in Biological System.

Calcium is present in largest amount because of its being the main mineral constituent of bone and teeth ^{in a massive amount} in blood and body fluids. The metabolism of Ca mineral is regulated by Vitamin D and Parathormone.

Source: - Milk, Cheese, Egg yolk, Nuts, beans ... etc.

Physiological functions: -

- (1) Calcium along with Phosphorus been found to be essential for the formation and development of bones and teeth.
- (2) Ionised Calcium is needed in blood coagulation process.
- (3) It regulates the excitability of nerve fibres and nerve centres.
- (4) It is essential for nerve impulses and muscular contraction.
- (5) It tends to regulate the permeability of membrane.
- (6) It is essential for maintaining the integrity of intracellular material.
- (7) Calcium is the normal ratio with Potassium is known to maintain the normal activity of muscles.
- (8) It is needed for the activation of several enzymes like Succinate dehydrogenase, ATPase and certain proteolytic enzymes.

The main two mechanism are used for the absorption of Calcium by the intestinal mucosal cells.

(A) An active transport process which is involving metabolic energy and Ca^{2+} ion pump.

(B) Simple diffusion.

Both the processes need $1,25 - \text{dihydroxycholecalciferol}$.

It regulates the synthesis of the proteins involved.

In Ca^{2+} ion dependent ATPase.

Glucocorticoids inhibit Ca^{2+} absorption by some, as yet unknown mechanism.

Factors influencing Blood Calcium level: -

- (A) Parathyroid hormone. (B) Vitamin D (C) Plasma Proteins (D) Plasma Phosphate (E) Calcitonin.