

Metabolism

“ क से calcium”

Calcium is the most abundant mineral in the body with 99% found in teeth and bone. Only 1% is found in serum.

Calcium metabolism involves other nutrients including protein, vitamin D, and phosphorus.

Early attention to strong bones in childhood and adulthood will provide more stable bone mass during the aging years.

Function of calcium

Calcium is involved in vascular contraction, vasodilation, muscle functions, nerve transmission, intracellular signalling, and hormonal secretion.

Identifying at-risk populations for calcium deficiency

There are three major population groups that are at highest risk for dietary calcium deficiency. These include-

- women (amenorrheic, the female athlete triad, postmenopausal),
- individuals with milk allergy or lactose intolerance, and
- at-risk groups for dietary deficiency intake (adolescents and the elderly)

Calcium food sources

Calcium in the diet include dairy products (milk, yogurt, cheese) and commercially fortified foods (orange juice, cereals, breads)

Interaction of nutrients: calcium, phosphorus, vitamin D, and protein

Calcium metabolism is a collaborative effort between calcium, phosphorus, vitamin D, and proteins.

Practical ideas to overcome barriers to adequate calcium

Calcium supplementation

Diet and food are the preferred methods to achieve dietary goals. However, oral calcium supplementation may be required. Different calcium compounds may have different absorption rates. Most are absorbed in the ileum where the pH level promotes degradation and transport. The use of vitamin D in conjunction with oral calcium supplements is more effective than calcium alone.



The Medical **Bulletin**

Lactase deficiency

Gradually introduce small amounts of lactose-containing foods.

start by introducing dairy foods with a higher fat content to delay gastrointestinal transit and potentially allow for a longer time for the lactase to be available during the digestion process.

Fermented foods such as kimchi and aged cheeses are lower in lactose content. Lowering the lactose content does not lower the calcium content.

specialty products - Lactose-free or lactose- reduced commercial products are available in the market.

Lactase tablets or drops can also be added to foods themselves.

Conclusion

1. Calcium is an essential nutrient
2. Dietary requirements vary slightly by population group, age, gender
3. Adequate calcium is needed throughout life cycle
4. Calcium consumed as food naturally contains many other nutrients and should be primary method of intake
5. Calcium supplements may be required to correct deficiencies particularly in at risk populations
6. Calcium is an essential component of bone health
7. Inadequate intake may change bone mineral density, particularly in the elderly
8. Barriers to adequate intake need to be addressed including lactase deficiency and innovative ways to increase intake with at risk populations

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