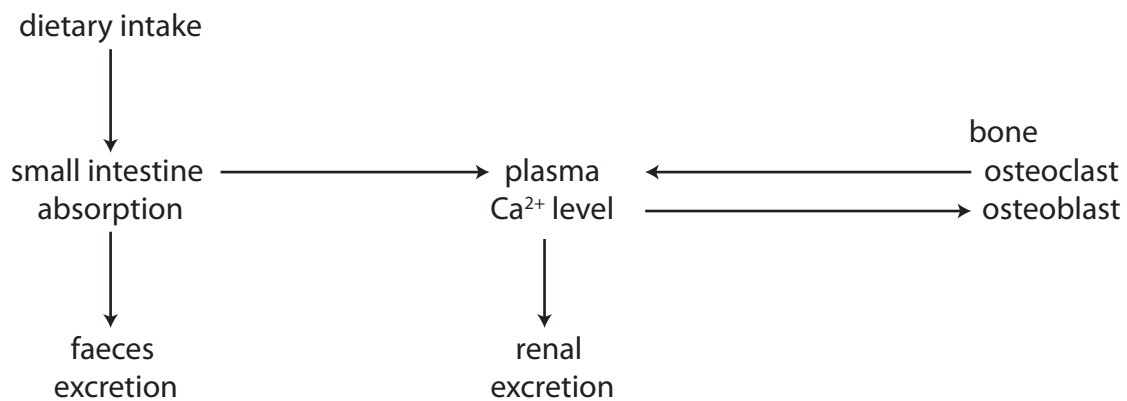


Calcium is predominantly in the bone (99%) and ICF (1%) with a small physiologically important amount in the plasma (2-3mmol/L).

Plasma Ca consists of three components: Ionised 50% (which determines physiological responses)
 Protien bound 40% (mostly to albumin)
 Chelated to anions 10%

Overview



Hormonal Factors

Parathyroid Hormone

released in response to decreased ionised plasma Ca levels
 increases osteoclast activity
 decreases renal excretion
 increased vitamin D activation in the kidney

Calcitriol (activated vitamin D)

from cholesterol precursor in the skin catalysed by sunlight
 activated by PTH
 increases GIT absorption
 decreases renal excretion

Calcitonin

from C cells in thyroid
 released in response to increased ionised Ca levels
 minor role compared to other two (nil issues following thyroidectomy)
 increases renal excretion and decreases bone resorption

Bisphosphonates

concentrate at sites of active bone remodelling
 incorporate into the bone matrix
 prevents resorption by osteoclasts

