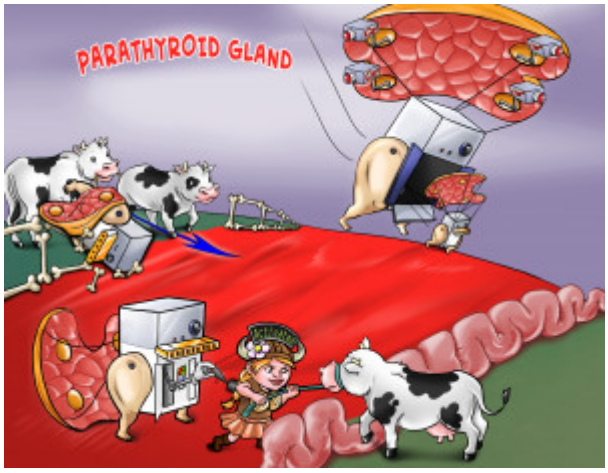
Parathyroid Gland

The parathyroid gland is a series of four small glands located in the neck on the rear surface of the thyroid gland. It serves primarily in calcium homeostasis, and has a blood calcium sensor that detects when blood calcium levels are abnormally low. It responds by releasing parathyroid hormone (PTH) which stimulates osteoclasts into action. Osteoclasts resorb bone and release a large amount of calcium. This calcium enters the blood and results in increased blood calcium levels. PTH can also activate vitamin D by promoting the activity of an enzyme that converts inactive vitamin D to active vitamin D.



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Characteristics

Blood Calcium Sensor
Calcium Sensor-camera
Calcium-sensing receptors respond to abnormally low levels of blood calcium and release hormones as part of a homeostatic process.

Parathyroid Hormone
Parachute-thigh-droid with Harmonica
Parathyroid hormone (PTH) is secreted by the chief cells of the parathyroid gland and is a peptide hormone. The release of parathyroid hormone (PTH) affects blood calcium levels.

Bone Resorption
Droid breaking Bone-fence
PTH binds to osteoblasts. This binding stimulates osteoblasts to increase their expression of RANKL, leading to stimulation of osteoclast precursors to fuse. This forms new osteoclasts, which ultimately enhances bone resorption.

Blood Calcium Increases
Cows entering Blood-road
The calcium released by bones being broken down raises blood calcium levels from the previously low amount.

Vitamin D Activation
Viking (D) Daisy Switched On
Parathyroid hormone also activates vitamin D by promoting the activity of an enzyme that converts inactive vitamin D to active vitamin D.

Calcium Absorption From The Small Intestine
Calcium-cow Absorbed through Small Intestine-wall
Vitamin D increases the absorption of calcium from the small intestine by modulating the expression of transport proteins.