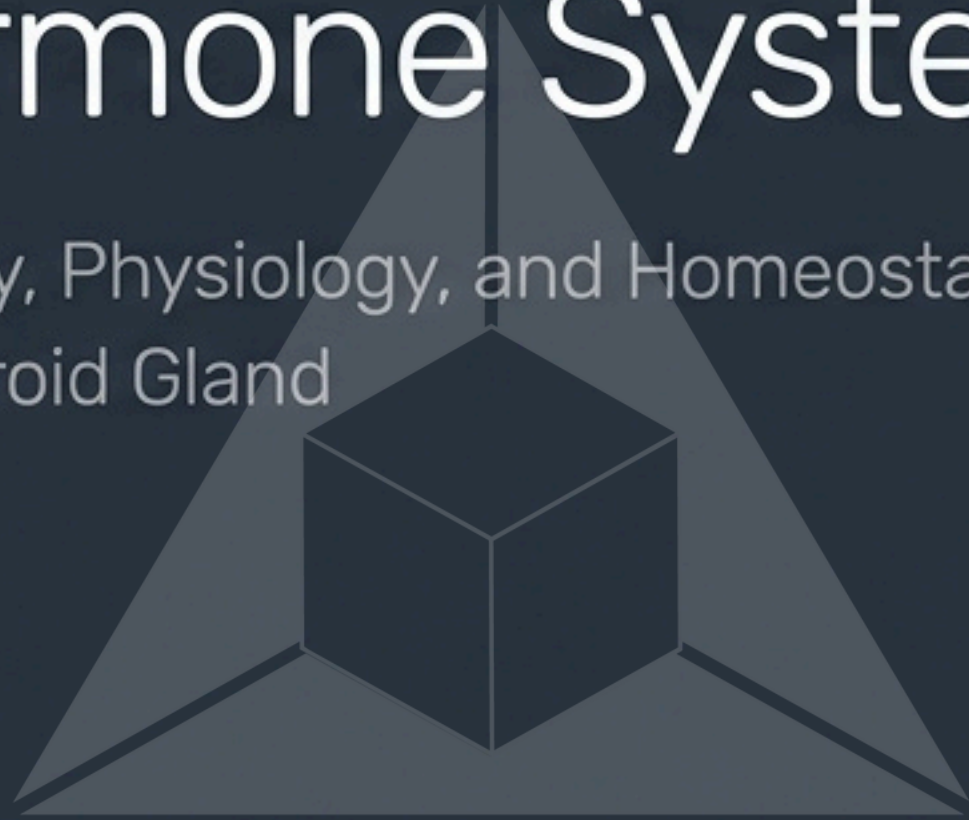


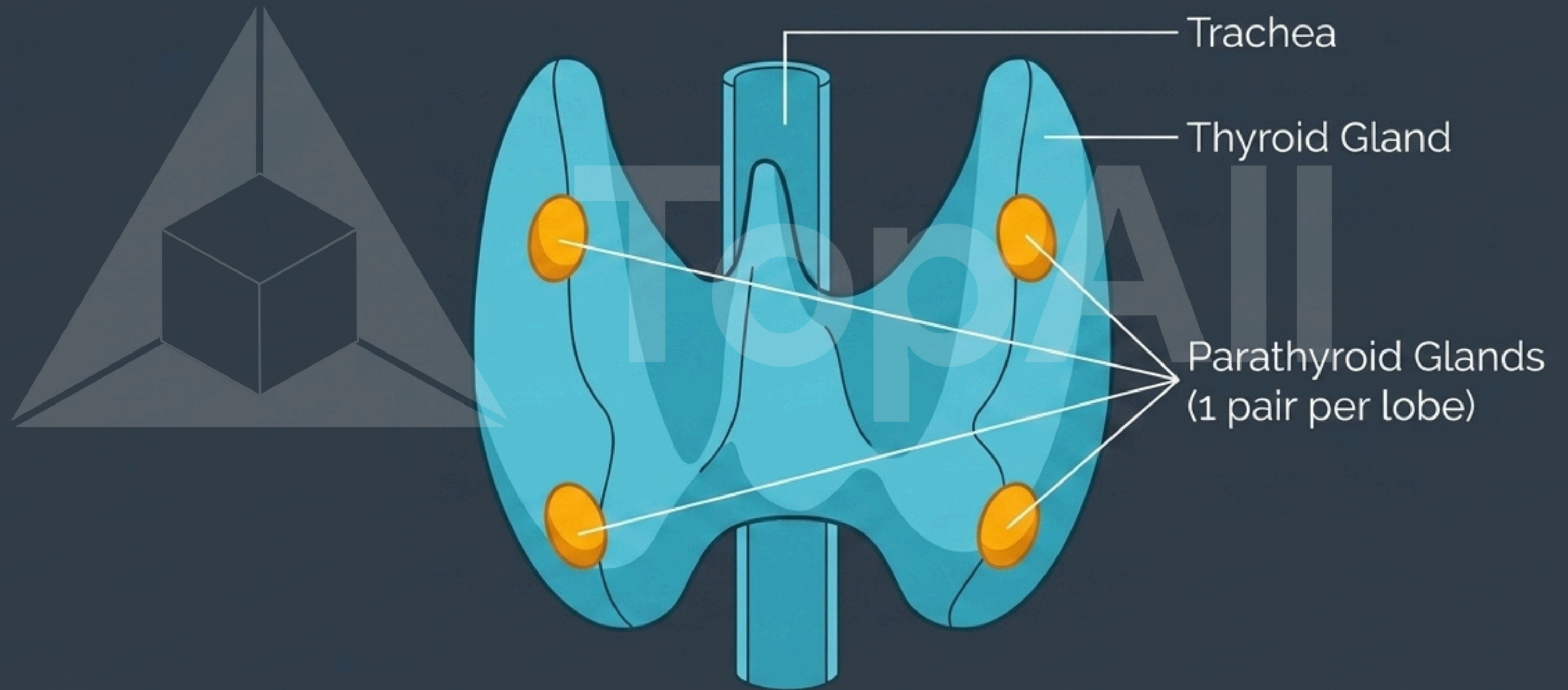
The Calcium-Raising Hormone System

Anatomy, Physiology, and Homeostasis of the Parathyroid Gland



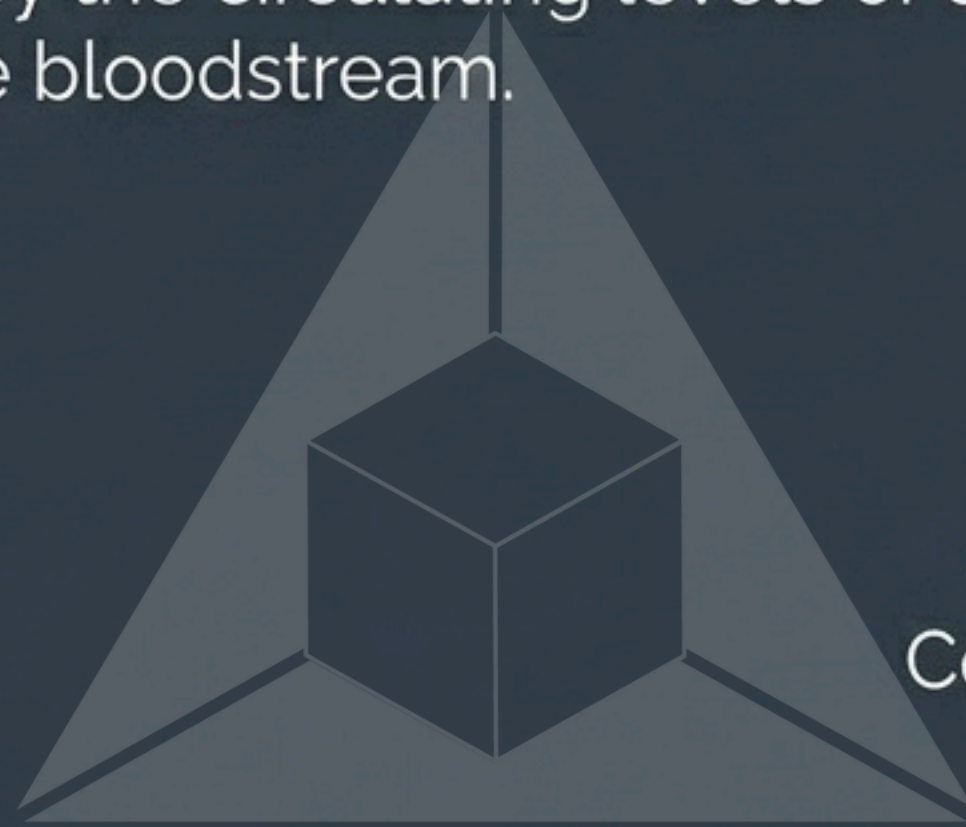
Form & Location: The Four Nodes

The human body contains four parathyroid glands located on the dorsal (back) side of the thyroid gland.

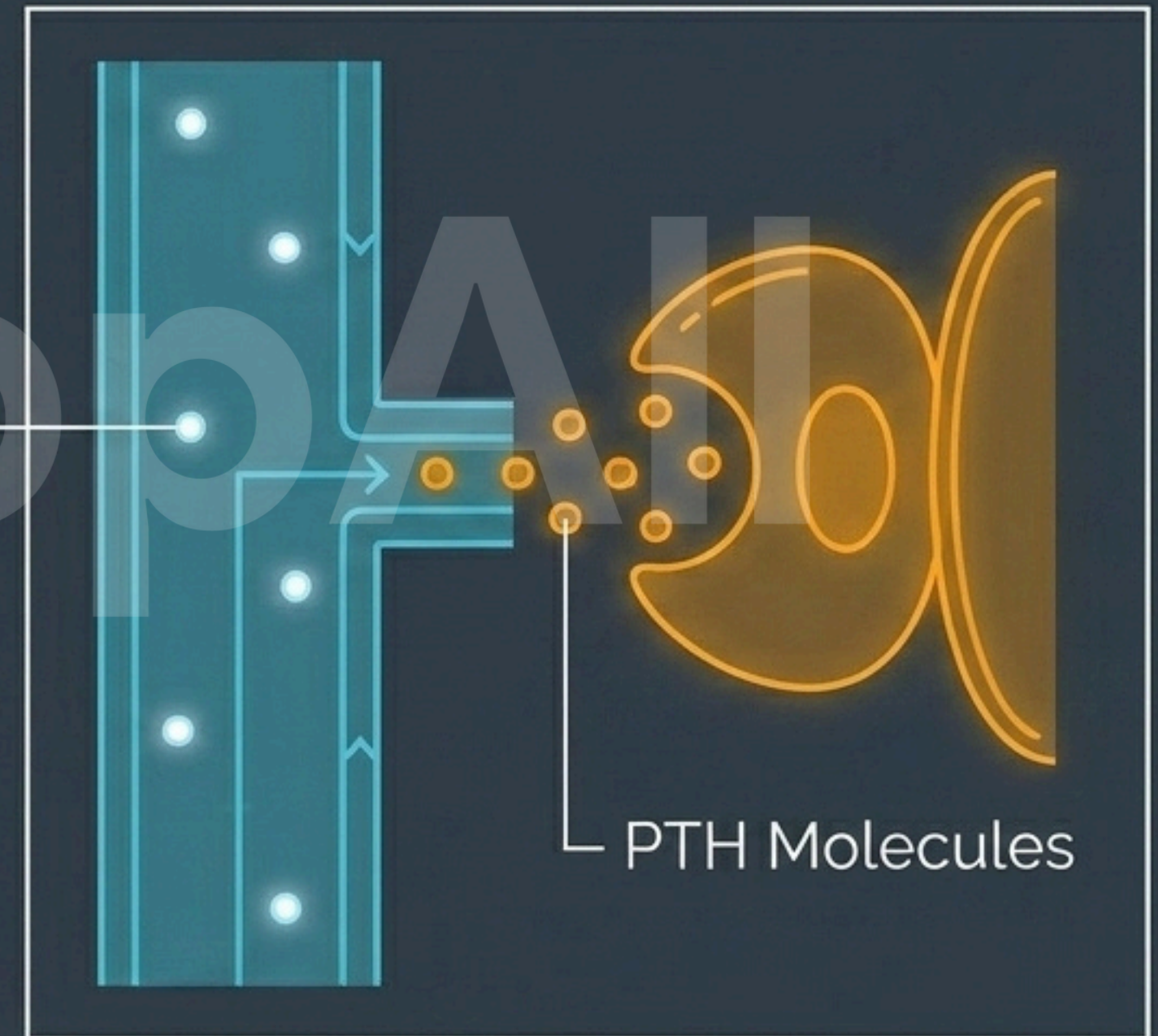


The Sensor: Parathyroid Hormone (PTH)

The parathyroid glands secrete a peptide hormone called Parathyroid Hormone (PTH). This secretion is strictly regulated by the circulating levels of calcium ions (Ca^{2+}) in the bloodstream.



Low Ca^{2+}
Concentration





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$$E=mc^2$$



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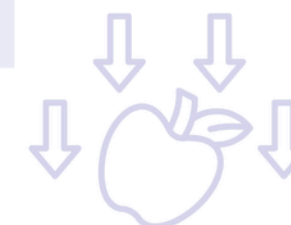
Practice Now



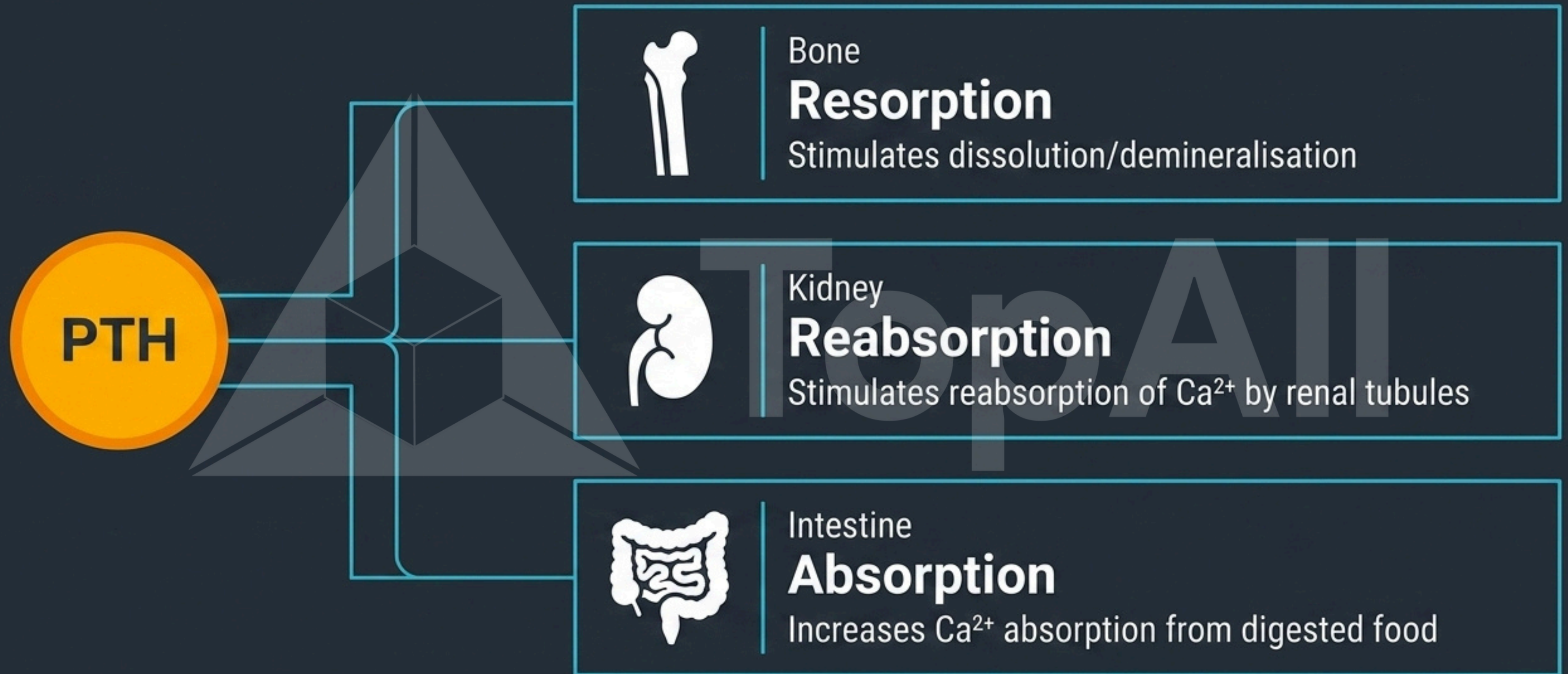
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The Target Triad



The Hypercalcemic Effect



All three systemic pathways converge on a single physiological outcome: increasing blood Ca^{2+} levels. Because of this, PTH is classified as a hypercalcemic hormone.

**Increased
Blood Ca^{2+}**

Restored
 Ca^{2+} Levels



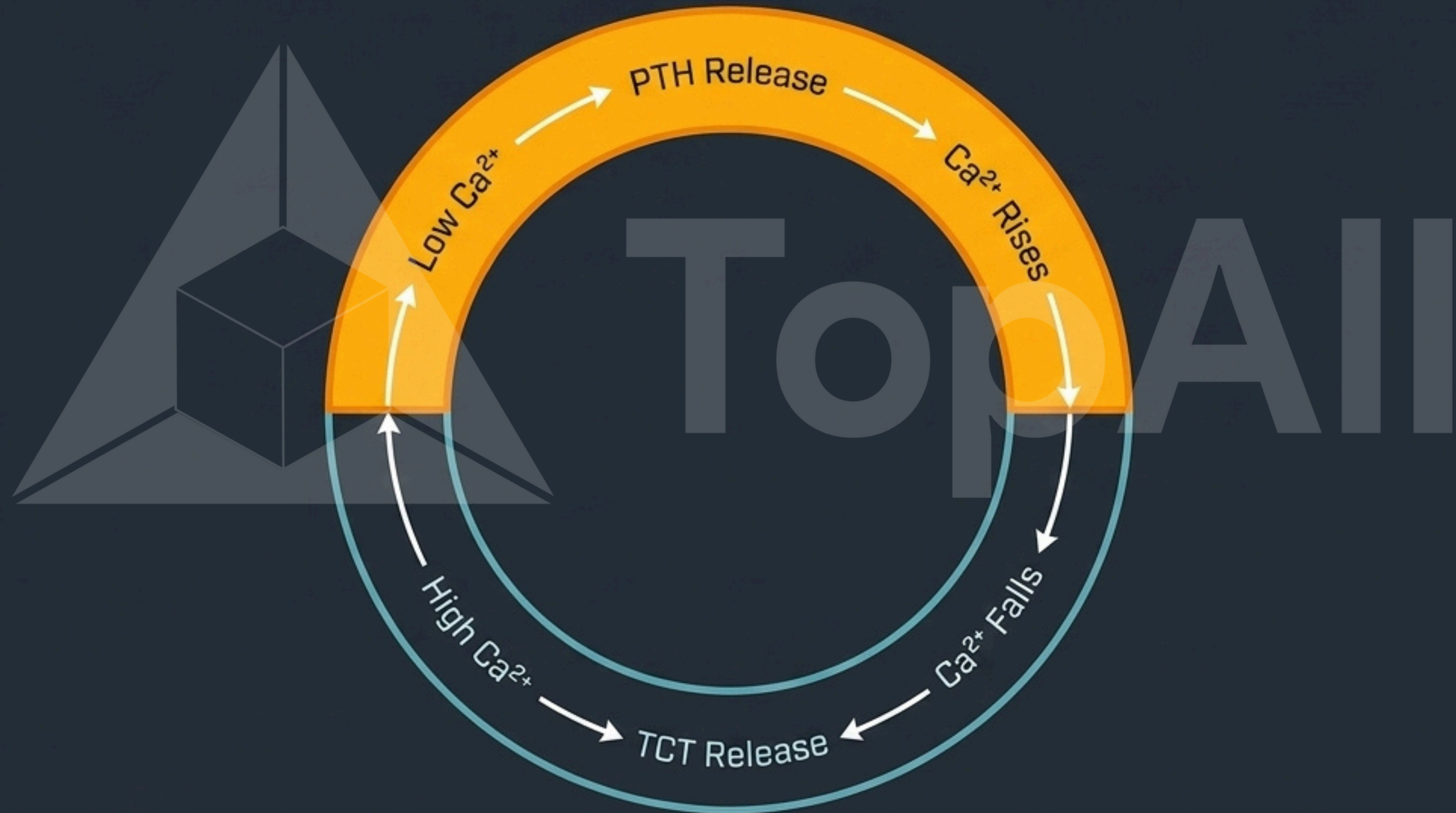
The Push and Pull of Calcium Balance

PTH does not work alone. It operates in direct opposition to Thyrocalcitonin (TCT) to maintain precise calcium balance in the body.

	Parathyroid Hormone (PTH)	Thyrocalcitonin (TCT)
Source Gland	Parathyroid Glands 	Thyroid Gland 
Effect on Blood Ca^{2+}	Increases Levels 	Decreases Levels 
Classification	Hypercalcemic	Hypocalcemic

Key Takeaway

Synthesis: The parathyroid gland and PTH form the body's primary defense against low calcium, orchestrating a synchronized, multi-organ response (bone, kidney, intestine) to restore and maintain critical homeostatic balance.





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