



shutterstock.com • 1021738482

Parathyroid Hormone

Presentation by:
Abdulrahman Alshwehdi
Wafa Ahmed

TABLE OF CONTENTS

01

Introduction

03

complications

functions

02

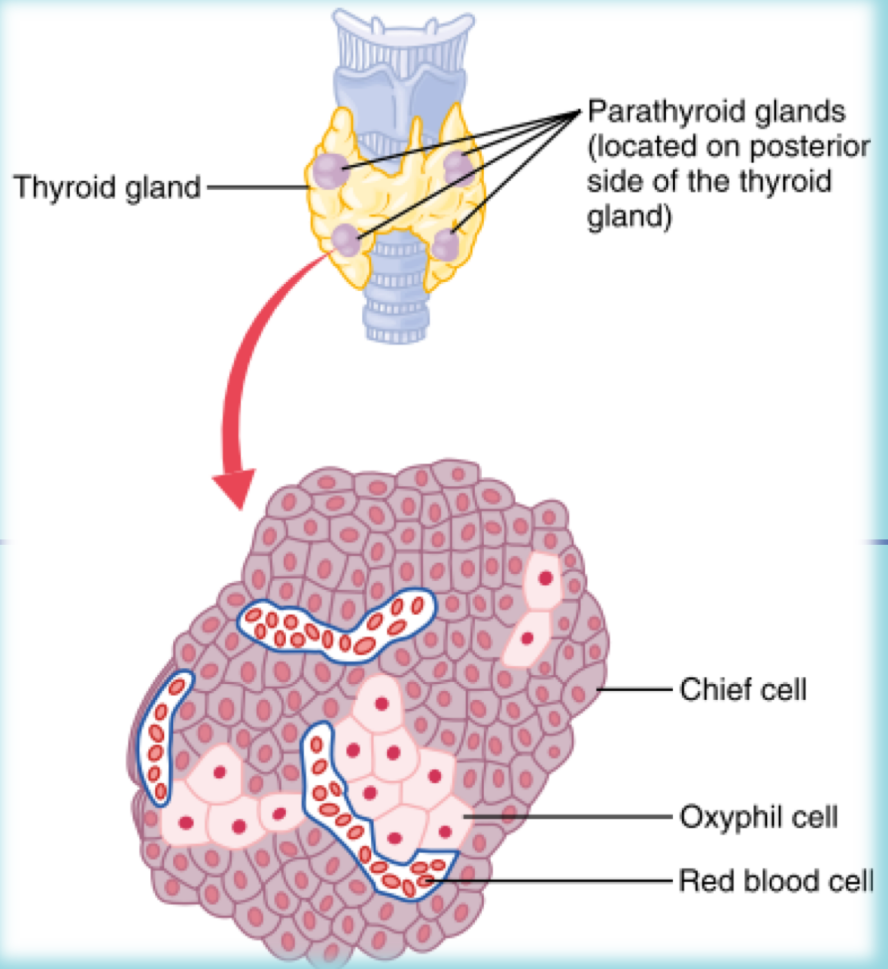
conclusion

04

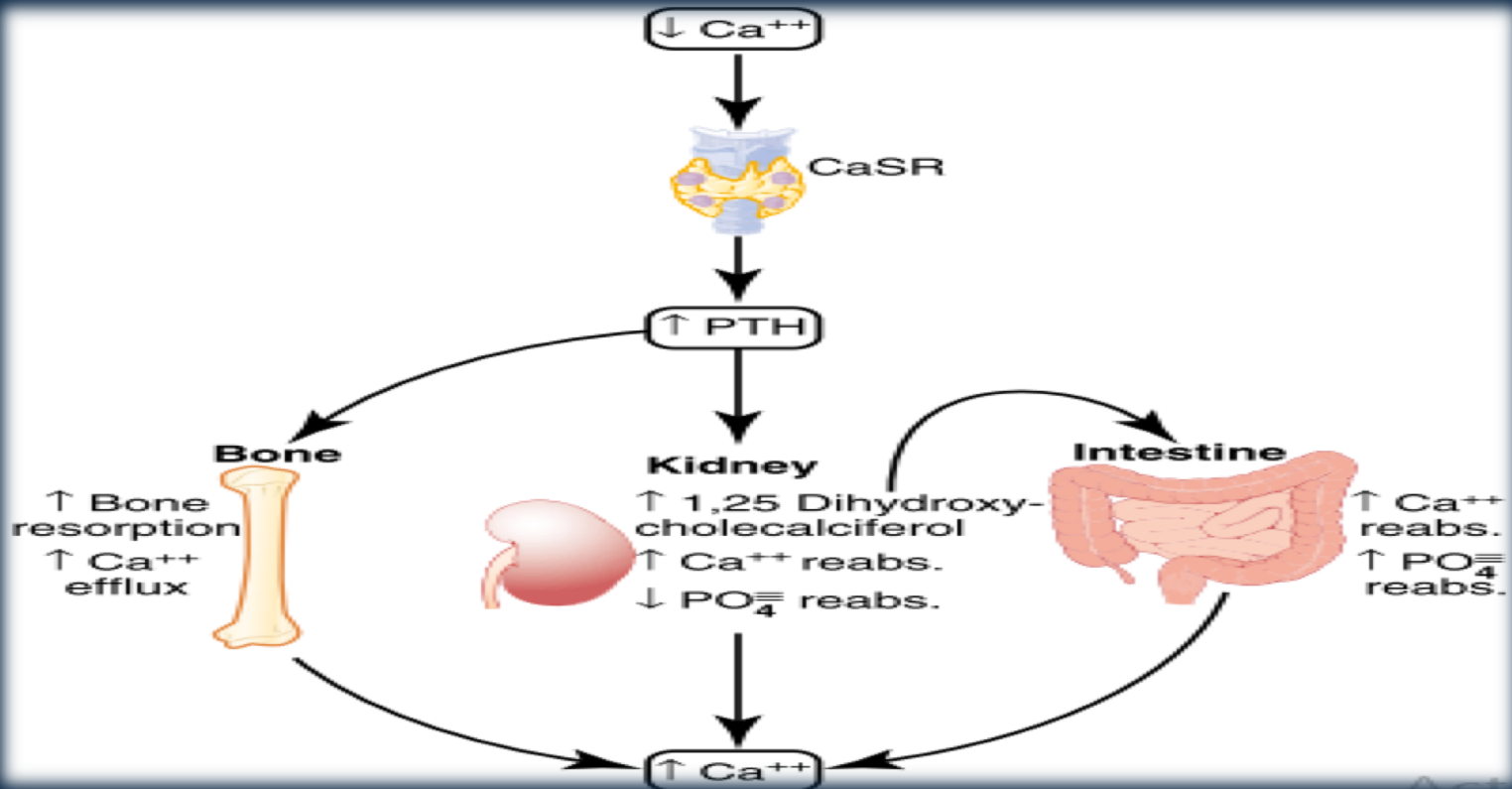
INTRODUCTION

The four parathyroid glands normally are located behind the four poles of the thyroid gland. The glands secrete parathyroid hormone (PTH), which is the primary regulator of calcium homeostasis.

The chief cells of these glands can synthesize, process, and store PTH in a regulated manner and can replicate when chronically stimulated.



Functions of PTH:

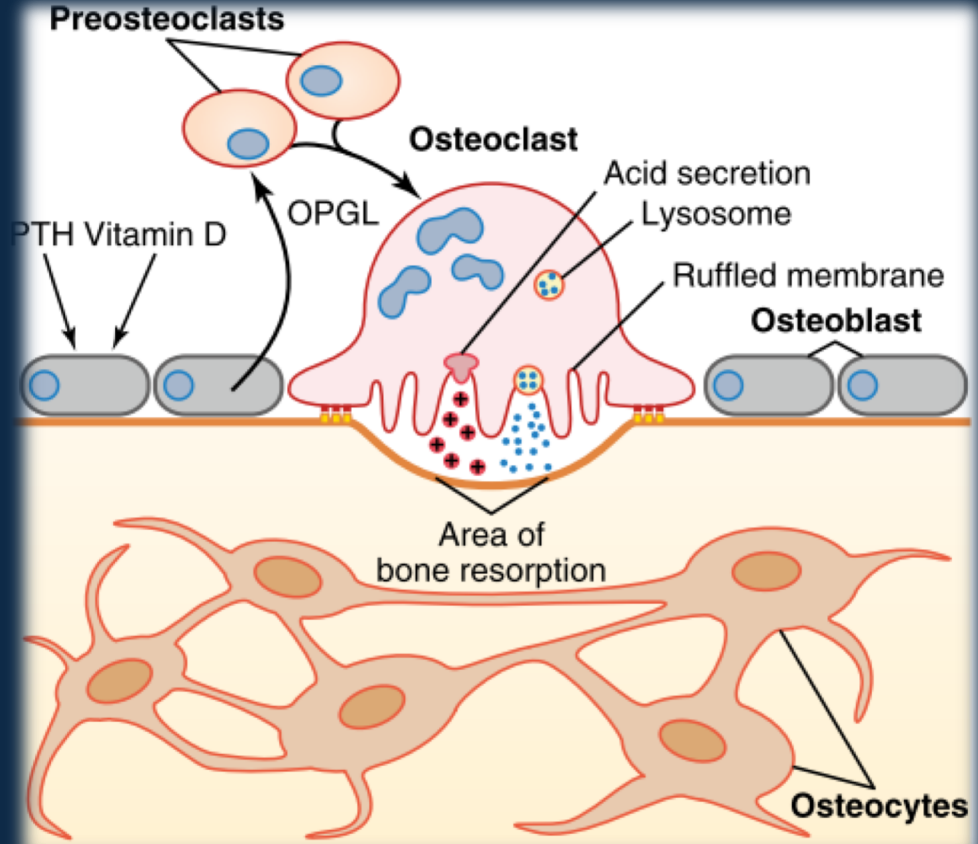


Resorption of bone:

parathyroid hormone stimulates the release of calcium from large calcium stores in the bones into the bloodstream.

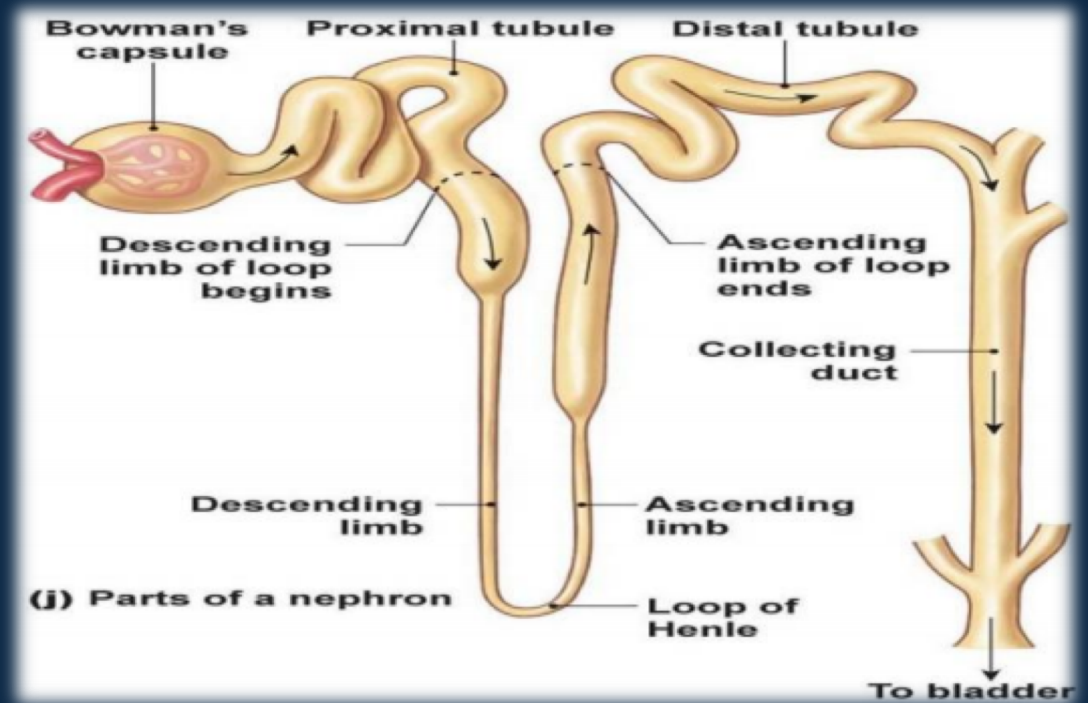
Bone resorption by osteoclasts.

Parathyroid hormone (PTH) binds to receptors on osteoblasts



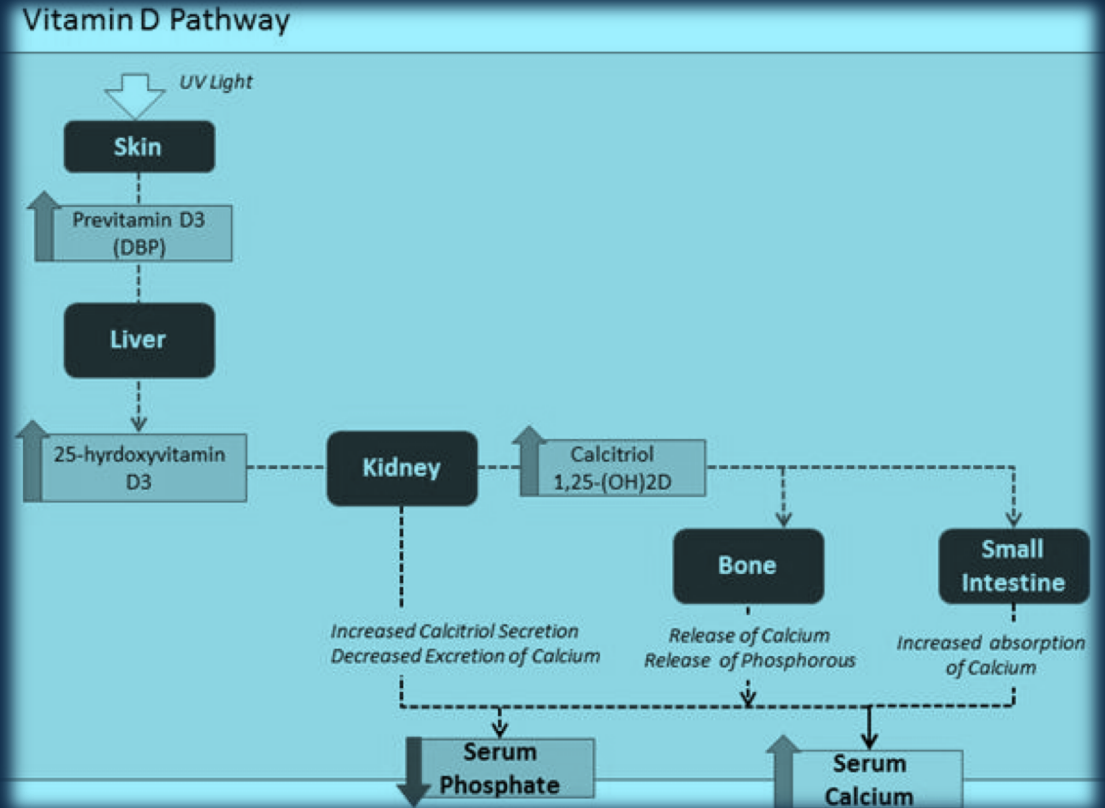
Affects on the kidney:

In the kidney, parathyroid hormone (PTH) blocks reabsorption of phosphate in the proximal tubule while promoting calcium reabsorption in the ascending loop of Henle, distal tubule, and collecting tubule.



Indirect way by activating vitamin D3

- Vitamin D and PTH play an important role in calcium homeostasis skin, liver, parathyroid gland, kidney, bone, and small intestine all play a role.
- Increased PTH and Vitamin D leads to increase serum calcium levels.



Hyperparathyroidism

Hyperparathyroidism is a condition in which one or more of the parathyroid glands become overactive and secrete too much parathyroid hormone (PTH)



How does hyperparathyroidism occur?

1

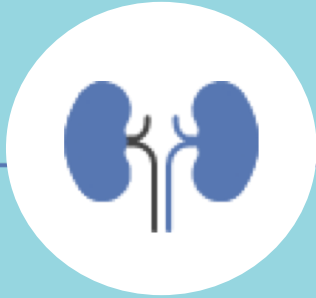
primary hyperparathyroidism.

2

secondary hyperparathyroidism.

Complications of Hypoparathyroidism

Kidney stones



A kidney stone usually causes major pain as it passes through the urinary tract.

Abdominal pain



Osteoporosis



The loss of calcium often results in weak, brittle bones that fracture easily (osteoporosis).

Hypoparathyroidism .

Hypoparathyroidism is decreased function of the parathyroid glands with underproduction of parathyroid hormone.



Complications of Hypoparathyroidism



Hypoparathyroidism occurs when your parathyroid glands don't secrete enough parathyroid hormone.



Genetics



surgery



Low magnesium
levels



Cancer radiation
treatments

CONCLUSIONS

Parathyroid hormone regulates calcium levels in the blood, largely by increasing the levels when they are too low. It does this through its actions on the kidneys, bones and intestine.

Hyperparathyroidism is the most frequent cause of hypercalcemia in ambulatory patients.

Hypoparathyroidism low circulating concentrations of parathyroid hormone (PTH) resulting in low calcium levels and increased phosphate levels in the blood.



REFERENCES

- <https://www.orthobullets.com/basic-science/9091/pth-and-vit-d-physiology>AUTHOR (YEAR). *Title of the publication*.
Publisher
- <https://my.clevelandclinic.org/health/diseases/14454-hyperparathyroidism>
- <https://www.mayoclinic.org/diseases-conditions/hypoparathyroidism/symptoms-causes/syc-20355375#:~:text=%20Factors%20that%20can%20cause%20hypoparathyroidism%20include%3A%20,this%20form%2C%20either%20you%27re%20born%20without...%20More%20>
- Guyton and Hall Textbook of Medical Physiology 12th Edition



THANKS

