Thyroid and Parathyroid

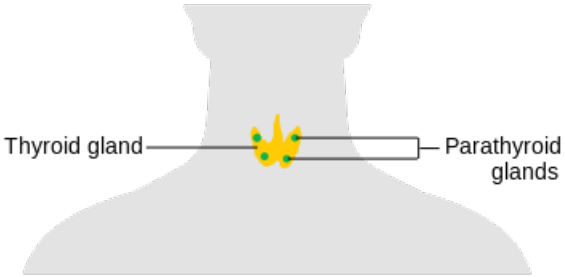
by Sophia

WHAT'S COVERED

In this lesson, you will learn to understand the thyroid and parathyroid and the role they play in the body. Specifically, this lesson will cover:

1. The Thyroid

The **thyroid gland** and parathyroid glands are located in the neck (in front of the trachea. In men, these glands are just below the Adam's apple) and work closely together to manage blood calcium levels.



The thyroid gland secretes thyroid hormones (TH). In general, thyroid hormones play a role in metabolism, growth, and optimal functioning of the central nervous system.

The thyroid gland also secretes a hormone called calcitonin. Calcitonin is a hormone that helps to regulate blood calcium levels by lowering them if they become too high. Calcitonin signals osteoblasts in the bone to move excess blood calcium into the bone tissue.

TERM TO KNOW

Thyroid Gland

Located on the anterior trachea, the thyroid gland secretes hormones that regulate metabolism; the thyroid gland also secretes a hormone called calcitonin that lowers blood calcium levels by increasing the kidneys' excretion of calcium into the urine and inhibiting osteoclasts.

2. Parathyroid Glands

Parathyroid glands secrete parathyroid hormone, also abbreviated as PTH. The parathyroid hormone plays a role in regulating blood calcium levels. Parathyroid hormone raises blood calcium levels if they become too low by signaling osteoclasts to break down bone tissue and release calcium into the blood. Remember, this is the opposite of the hormone calcitonin, which is secreted from the thyroid gland.

These two hormones play a role in bone remodeling, and this process helps maintain homeostasis of blood calcium levels.

TERM TO KNOW

Parathyroid Glands

A group of glands on the posterior thyroid that secrete parathyroid hormone; the secretion of parathyroid hormone increases blood calcium levels by decreasing the kidneys' excretion of calcium into the urine and by increasing osteoclast activity.

3. Thyroid Disorders

The following are disorders that can occur with the thyroid:

- *Goiter*: A **simple goiter** is one type of disorder that can affect the thyroid gland. In order for thyroid hormone to be produced, iodine is necessary. If a person does not get enough iodine in their diet, the lobes of the thyroid will swell up. Generally, in the US, this is not much of a problem since you can buy iodized salts; this is where we get a majority of our iodine.
- *Hyperthyroidism*: Hyperthyroidism is a condition characterized by excess thyroid hormone in the blood, which can lead to a high heart rate, elevated blood pressure, and sweating. **Graves' disease** is an autoimmune disease that causes hyperthyroidism; it stimulates overproduction of thyroid hormone.
- *Hypothyroidism*: Hypothyroidism is characterized by low blood thyroid hormone levels. If thyroid hormone levels are low, it can lead to weight gain and feeling sluggish. A person suffering from hypothyroidism might also be very sensitive to cold temperatures.

TERMS TO KNOW

Simple Goiter

A non-cancerous enlargement of the thyroid gland that can sometimes occur on its own or when a person lacks iodine and the thyroid hormones.

Graves' Disease

Graves' disease is the most common form of hyperthyroidism (where the thyroid gland becomes overactive); it is an autoimmune disease in which the thyroid over-secretes T_3 and T_4 hormones.

SUMMARY

This lesson has been an overview on the structure and function of **the thyroid**, **parathyroid**, and **thyroid disorders**.

Keep up the learning and have a great day!

Source: THIS WORK IS ADAPTED FROM SOPHIA AUTHOR AMANDA SODERLIND

ATTRIBUTIONS

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TERMS TO KNOW

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