

Organs of the Endocrine System

by Sophia

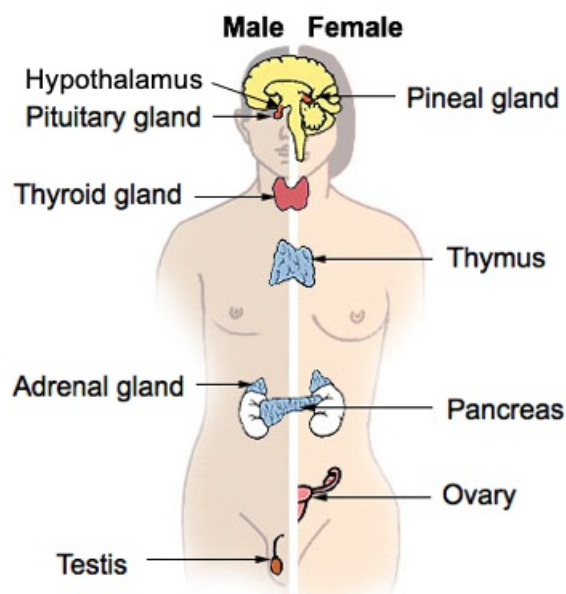


WHAT'S COVERED

In this lesson, you will learn to identify organs of the endocrine system based on their roles. Specifically, this lesson will cover:

1. Overview

Below is a diagram of the various organs of the endocrine system and the hormones that they secrete.



2. Hypothalamus

The **hypothalamus** produces hormones such as ADH and oxytocin. ADH is also known as the antidiuretic hormone and helps to regulate urination. Oxytocin is a hormone that plays a role in childbirth, among other things.



TERM TO KNOW

Hypothalamus

The hypothalamus is at the "basement" of the forebrain, between the cerebrum and the

3. Pituitary Gland

The **pituitary gland** is a gland that works very closely with the hypothalamus. The pituitary gland stores and releases hormones that were produced in the hypothalamus. In addition, the pituitary gland also makes and secretes some of its own hormones, like growth hormone.



TERM TO KNOW

Pituitary Gland

Called the “master gland” because of its effects on other glands; the endocrine hormones increase activity/secretion of many major glands of the endocrine system.

4. Pineal Gland

Another part of the endocrine system that we'll discuss is the **pineal gland**. The pineal gland is a gland that secretes melatonin, which is a hormone that plays a role in our sleep and wake cycles.



TERM TO KNOW

Pineal Gland

A gland located in the cerebrum that secretes melatonin, an important hormone for regulating sleep/wake cycles.

5. Thyroid & Parathyroid Glands

The **thyroid gland** is located in front of the trachea (in men, it is just below the Adam's apple), and has a couple of different roles. The thyroid gland releases two main hormones: thyroid hormone, abbreviated TH, which plays a role in metabolism and calcitonin, which is a hormone that plays a role in bone remodeling and blood calcium levels. **Parathyroid glands** are four tiny glands found on the thyroid gland and also play a role in bone remodeling.



TERMS TO KNOW

Thyroid Gland

The largest endocrine 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 and inhibiting osteoclasts.

Parathyroid Glands

A group of glands on the posterior thyroid that secrete parathyroid hormones to increase blood calcium levels by decreasing the kidneys' excretion of calcium and increasing osteoclast activity.

6. Thymus Gland

The **thymus gland** releases thymosins; it is also where T cells mature, which are a part of our immune system.



TERM TO KNOW

Thymus Gland

A gland located above the heart; it secretes thymosins, which mature the immune system's T cells.

7. Pancreas

The role of the **pancreas** is to make and secrete insulin and glucagon. Insulin is a hormone that lowers blood sugar levels, and glucagon is a hormone that raises blood sugar levels. Somebody who has diabetes doesn't create or secrete the hormone insulin. Because of this, they have to take insulin injections to help lower blood sugar levels in their body.



TERM TO KNOW

Pancreas

The endocrine functions of the pancreas are to secrete insulin and glucagon to regulate blood glucose levels.

8. Adrenal Glands

The two **adrenal glands**, found on top of the kidneys, are the next glands of the endocrine system we're going to talk about. Adrenal glands basically secrete the hormones epinephrine and norepinephrine, which create the fight or flight response that prepares the body for different types of stress.

IN CONTEXT

If you're in a dangerous situation, you get a rush of adrenaline. That feeling is coming from hormones the adrenal gland is releasing. It also sends out cortisol and aldosterone in response to stress.



TERM TO KNOW

Adrenal Glands

Located on top of the kidneys, the adrenal glands have two anatomic divisions: the adrenal cortex and the adrenal medulla. The adrenal cortex secretes hormones that regulate body mineral levels and metabolism and also aids in the production of sex hormones. The adrenal medulla releases hormones called catecholamines (adrenaline) that elevate our metabolism in response to stress.

9. Ovaries & Testes

The female-specific organs of the endocrine system are the **ovaries**. The ovaries release progesterone and estrogen, which are involved in the menstrual cycle and pregnancy, among other things. The male-specific

organs of the endocrine system are the **testes**. The testes make and secrete testosterone, which is involved in the production of sperm, among other things.



TERMS TO KNOW

Ovaries

The primary sex organs of females and the primary source of estrogen and progesterone; the ovaries are also where the eggs are matured and released.

Testes

The primary sex organs of males and are the primary source of testosterone; the testes are also where sperm is produced and matured.



LEARN MORE

Investigate the endocrine system in three dimensions using augmented reality (AR)!

If you're on a laptop or desktop computer: Scan the QR code using the camera on your smartphone or tablet.

If you are on a phone or tablet [click here](#).



SUMMARY

This lesson has been an **overview** of the various glands of the endocrine system, as well as the different hormones that those organs create and secrete. Specifically, you learned about the **hypothalamus, pituitary gland, pineal gland, the thyroid and parathyroid glands, thymus gland, pancreas, adrenal glands, and the ovaries and testes**.

Keep up the learning and have a great day!

Source: THIS WORK IS ADAPTED FROM SOPHIA AUTHOR AMANDA SODERLIND



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TERMS TO KNOW

Adrenal Glands

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called catecholamines (adrenaline) that elevate our metabolism in response to stress.

Hypothalamus

The hypothalamus is at the "basement" of the forebrain, between the cerebrum and the midbrain/brainstem. The hypothalamus controls the activity of the pituitary gland.

Ovaries

The primary sex organs of females; they are females' primary source of the hormones estrogen and progesterone. The ovaries are also where the eggs are matured and released.

Pancreas

The endocrine functions of the pancreas are to secrete insulin and glucagon to regulate blood glucose levels.

Parathyroid Glands

A group of glands on the posterior thyroid that secrete parathyroid hormone to increase blood calcium levels by decreasing renal excretion of calcium and increasing osteoclast activity.

Pineal Gland

A gland located in the cerebrum that secretes melatonin, an important hormone for regulating sleep/wake cycles.

Pituitary Gland

Called the "master gland" because of its effects on other glands; endocrine hormones increase activity/secretion of many major glands of the endocrine system.

Testes

The primary sex organs of males, and are their primary source of testosterone. The testes are also where the sperm is produced and matured.

Thymus Gland

A gland located above the heart. It secretes thymosins, which mature the immune system's T-cells.

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.