
Endocrine System

What Is the Endocrine System?

The endocrine system is made up of glands that make hormones. Hormones are the body's chemical messengers. They carry information and instructions from one set of cells to another.

The endocrine (EN-duh-krin) system influences almost every cell, organ, and function of our bodies.

What Does the Endocrine System Do?

- Endocrine glands release hormones into the bloodstream. This lets the hormones travel to cells in other parts of the body.
- The endocrine hormones help control mood, growth and development, the way our organs work, metabolism, and reproduction.
- The endocrine system regulates how much of each hormone is released. This can depend on levels of hormones already in the blood, or on levels of other substances in the blood, like calcium. Many things affect hormone levels, such as stress, infection, and changes in the balance of fluid and minerals in blood.

Too much or too little of any hormone can harm the body. Medicines can treat many of these problems.

What Are the Parts of the Endocrine System?

While many parts of the body make hormones, the major glands that make up the endocrine system are the:

- hypothalamus
- pituitary
- thyroid
- parathyroids
- adrenals
- pineal body
- the ovaries
- the testes

The pancreas is part of the endocrine system **and** the digestive system. That's because it secretes hormones into the bloodstream, and makes and secretes enzymes into the digestive tract.

Hypothalamus: The hypothalamus (hi-po-THAL-uh-mus) is in the lower central part of the brain. It links the endocrine system and nervous system. Nerve cells in the hypothalamus make chemicals that control the release of hormones secreted from the pituitary gland. The hypothalamus gathers information sensed by the

brain (such as the surrounding temperature, light exposure, and feelings) and sends it to the pituitary. This information influences the hormones that the pituitary makes and releases.

Pituitary: The pituitary (puh-TOO-uh-ter-ee) gland is at the base of the brain, and is no bigger than a pea. Despite its small size, the pituitary is often called the "master gland." The hormones it makes control many other endocrine glands.

The pituitary gland makes many hormones, such as:

- growth hormone, which stimulates the growth of bone and other body tissues and plays a role in the body's handling of nutrients and minerals
- prolactin (pro-LAK-tin), which activates milk production in women who are breastfeeding
- thyrotropin (thy-ruh-TRO-pin), which stimulates the thyroid gland to make thyroid hormones
- corticotropin (kor-tih-ko-TRO-pin), which stimulates the adrenal gland to make certain hormones
- antidiuretic (an-ty-dy-uh-REH-tik) hormone, which helps control body water balance through its effect on the kidneys
- oxytocin (ahk-see-TOE-sin), which triggers the contractions of the uterus that happen during labor

The pituitary also secretes endorphins (en-DOR-fins), chemicals that act on the nervous system and reduce feelings of pain. The pituitary also secretes hormones that signal the reproductive organs to make sex hormones. The pituitary gland also controls ovulation and the menstrual cycle in women.

Thyroid: The thyroid (THY-royd) is in the front part of the lower neck. It's shaped like a bow tie or butterfly. It makes the thyroid hormones thyroxine (thy-RAHK-sin) and triiodothyronine (try-eye-oh-doe-THY-ruh-need). These hormones control the rate at which cells burn fuels from food to make energy. The more thyroid hormone there is in the bloodstream, the faster chemical reactions happen in the body.

Thyroid hormones are important because they help kids' and teens' bones grow and develop, and they also play a role in the development of the brain and nervous system.

Parathyroids: Attached to the thyroid are four tiny glands that work together called the parathyroids (par-uh-THY-roydz). They release parathyroid hormone, which controls the level of calcium in the blood with the help of calcitonin (kal-suh-TOE-nin), which the thyroid makes.

Adrenal Glands: These two triangular adrenal (uh-DREE-nul) glands sit on top of each kidney. The adrenal glands have two parts, each of which makes a set of hormones and has a different function:

1. The outer part is the **adrenal cortex**. It makes hormones called corticosteroids (kor-tih-ko-STER-oydz) that help control salt and water balance in the body, the body's response to stress, metabolism, the immune system, and sexual development and function.
2. The inner part is the **adrenal medulla** (muh-DUH-luh). It makes catecholamines (kah-tuh-KO-luh-meenz), such as epinephrine (eh-puh-NEH-frun). Also called adrenaline, epinephrine increases blood pressure and heart rate when the body is under stress.

Pineal: The pineal (pih-NEE-ul) body, also called the pineal gland, is in the middle of the brain. It secretes melatonin (meh-luh-TOE-nin), a hormone that may help regulate when we sleep at night and wake in the morning.

Reproductive Glands: The gonads are the main source of sex hormones. In boys the male gonads, or testes (TES-teez), are in the scrotum. They secrete hormones called androgens (AN-druh-junz), the most important of which is testosterone (tess-TOSS-tuh-rone). These hormones tell a boy's body when it's time to make the changes associated with puberty, like penis and height growth, deepening voice, and growth in facial and pubic hair. Working with hormones from the pituitary gland, testosterone also tells a boy's body when it's time to make sperm in the testes.

A girl's gonads, the ovaries (OH-vuh-reez), are in her pelvis. They make eggs and secrete the female hormones estrogen (ESS-truh-jen) and progesterone (pro-JESS-tuh-rone). Estrogen is involved when a girl starts puberty. During puberty, a girl will have breast growth, start to accumulate body fat around the hips and thighs, and have a growth spurt. Estrogen and progesterone are also involved in the regulation of a girl's menstrual cycle. These hormones also play a role in pregnancy.

Pancreas: The pancreas (PAN-kree-us) makes insulin (IN-suh-lin) and glucagon (GLOO-kuh-gawn), which are hormones that control the level of glucose, or sugar, in the blood. Insulin helps keep the body supplied with stores of energy. The body uses this stored energy for exercise and activity, and it also helps organs work as they should.

What Can Help Keep the Endocrine System Healthy?

To help keep your child's endocrine system healthy:

- Get plenty of exercise.
- Eat a nutritious diet.
- Go for regular medical checkups.
- Talk to the doctor before taking any supplements or herbal treatments.
- Let the doctor know about any family history of endocrine problems, such as diabetes or thyroid problems.

When Should I Call the Doctor?

Let the doctor know if your child:

- drinks a lot of water but is still thirsty
- has to pee often
- has frequent belly pain or nausea
- is very tired or weak
- is gaining or losing a lot of weight
- has tremors or sweats a lot
- is constipated
- isn't growing or developing as expected

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1. _____ are the body's chemical messengers. They carry information and instructions from one set of cells to another.
2. The pancreas is part of the endocrine system and the _____ system.
3. Nerve cells in the _____ make chemicals that control the release of hormones secreted from the pituitary gland.
4. Despite its small size, the _____ is often called the "master gland".
5. Thyroid hormones are important because they help kids' and teens' bones grow and develop, and they also play a role in the development of the brain and dietary system.
True or False?
6. Attached to the thyroid are four tiny glands, they release parathyroid hormone, which controls the level of _____ in the blood with the help of calcitonin, which the thyroid makes
7. Also called adrenaline, _____ increases blood pressure and heart rate when the body is under stress.
8. The pineal gland is in the middle of the brain. It secretes melatonin, a hormone that may help regulate when we sleep and wake.
True or False?
9. _____ and _____ are also involved in the regulation of a girl's menstrual cycle.
10. The pancreas makes _____ and glucagon which are hormones that control the level of glucose, or sugar, in the blood.

January 2024 Quiz Answers. 1.Overweight 2.Serving 3.False 4.1/2 5.Plates/Bowls
6.Start 7.True 8.Math 9.Portion 10.Mindfully



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