

The Endocrine System

What is the Endocrine system? Well, the Endocrine system is in charge of body processes that happen slowly, such as cell growth. Some facts you should know about the Endocrine system include...

1. Influences almost every cell, organ and function in our bodies
2. Is instrumental in regulating mood, metabolism, tissue functions, sexual functions, reproductive processes, growth, and development.
3. Works in tandem with all other organ systems, but most closely with the nervous and circulatory systems
4. The foundations of the system are the various glands and the different hormones that they secrete into the blood stream to be transferred throughout the body.

Major Organs

- Hypothalamus
- Pituitary Gland
- Thyroid Gland
- Parathyroid Gland
- Adrenal Glands
- Pineal Glands
- Reproductive Glands (Testes and Ovaries)

Function

The Main function of the Endocrine system is to regulate the other organ systems in the body. It does this by secreting hormones into the blood stream. Hormones are chemical substances that affect the activity of other organs and tissues. In essence, hormones serve as messengers that control and coordinate activity in the body. Hormones also affect the way the body uses its energy, and controls fluid, salt, and sugar levels. Some hormones can trigger large responses from the body, though this is only a small percentage. The Endocrine system also affects processes such as growth, development, reproduction, and sexual characteristics.

How does it work?

Well, once the hormone is secreted into the blood stream and has reached the target, it locks into a receptor. Once the hormone has locked itself in, it transmits a message that causes the target to take a specific action, such as reducing blood pressure in the heart, or creating more red blood cells in bone marrow. These hormone receptors can be in the nucleus of the cell, or on the surface. Through this, hormones control the functions of entire organs.

Major Hormones

Hypothalamus – A cluster of nerve cells that serves as the main link between the nerves and hormones. It also produces regulatory hormones that travel to the Pituitary Gland.

Pituitary Gland – also known as the master gland. It controls all the other glands and organs in the Endocrine system.

Adrenal Glands – They produce steroid hormones which impact our growth and development, and our ability to deal with stress. The outer layer regulates metabolism of glucose, sodium and potassium, and maintains fluid balance, while the inner layer produces epinephrine.

Thyroid Glands – Controls your metabolism rate, including maintenance of body weight, rate of energy use, and heart rate. Unlike other glands, the Thyroid can actually store its hormones.

Pancreas – a small organ that produces insulin and glucagon which raises and lowers blood glucose levels. The pancreas works as part of the body's energy control mechanisms.

Stomach/Gut – Makes hormones that stimulate production or release of enzymes which aid digestion.

Testes - The male sex organ. The testes produce androgens, including testosterone, and stimulate general growth in males.

Ovaries – The female sex organ. The ovaries produce ova, or eggs, and female hormones such as estrogen and progesterone.