

ENDOCRINE SYSTEM - a brief overview

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The Endocrine system is a complex network of glands and organs. It is made up of the Hypothalamus, Pineal, Pituitary, Thyroid, Parathyroid, Thymus, Sex glands, Pancreas and Adrenals. They help control growth and development, the way your organs work, metabolism, energy levels and reproduction not forgetting the body's response to injury stress and mood. It also 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.

Hypothalamus

It is located at the top of the brain. It controls body temperature, heart rate, hunger and thirst, mood, sex drive, sleep. It also releases hormones especially from the pituitary.

Pineal

The pineal gland is located at the base of the brain behind the pituitary. If the pineal is overactive then the thyroid and the hypothalamus is under active. The main job is to control the circadian cycle of sleep and wakefulness by secreting melatonin.

Pituitary

Is located at the base of the brain, behind the bridge of the nose and directly below the hypothalamus. It regulates growth, metabolism, sexual development and reproduction, and helps to conserve bodily fluids. It is either stimulated or inhibited by chemical messages sent from the hypothalamus to the pituitary.

Thyroid

It is located in the front of the neck surrounding the windpipe, shaped like a butterfly, smaller in the middle with two wide wings that extend around the side of your throat. It produces hormones that regulates the body's metabolic rate, growth and development. It plays a major role in controlling heart, muscle and digestive function, weight control, overall energy and bone maintenance. It needs a good supply of iodine from the diet to function properly.

Parathyroid

These glands are small pea shaped glands located in the neck just behind the thyroid. Most people have 4 parathyroid glands with two glands lying on each wing of the thyroid. The main function of the parathyroid is to produce the parathyroid hormone, which plays a key role in the regulation of calcium levels in the blood. Small changes in calcium levels can cause muscle and nerve problems.

Thymus

The Thymus gland is in the chest between the lungs and behind the breastbone or sternum, just in front of and above the heart. Its main function is to make white blood cells (T lymphocytes) which are part of the immune system and help fight infection.

Sex Glands

Testes are 2 small organs that are found inside the scrotum. They are responsible for making sperm and are also involved in producing testosterone, which is an important hormone during male development and maturation of developing muscles, deepening the voice and growing body hair.

The ovaries are small oval shaped glands located on either side of the uterus. They produce and store your eggs (ovum) and make hormones that control your menstrual cycle and pregnancy. During ovulation one of your ovaries releases an egg.

Pancreas

The pancreas is an organ located in the upper part of the abdomen, behind the stomach and in front of the spine. It has 2 main functions – the exocrine function that helps with digestive juices and the endocrine function that regulates blood sugar and insulin. It breaks down sugars, fats and starches and so plays an essential role in converting the food, we eat into fuel for the body's cells. Pancreatic hormones are chemical messengers that travel through the blood, regulating the blood sugar levels and appetite.

Adrenals

The adrenal glands sit over the kidneys, are only the size of a walnut and weigh less than a grape and secrete more than 50 hormones including adrenaline, cortisol, DHEA, progesterone and testosterone. It also normalises blood sugars and regulates blood pressure. They are the stress glands and help your body deal with stress from every possible source ranging from injury and disease to work and relationship problems. They are necessary in digestion for fat storage, energy production, carbohydrate protein and fat conversion to blood glucose. They assist with maintaining pregnancy, initiates and controls sexual development during childhood and puberty. Your resilience, energy endurance and your very life all depend on them.