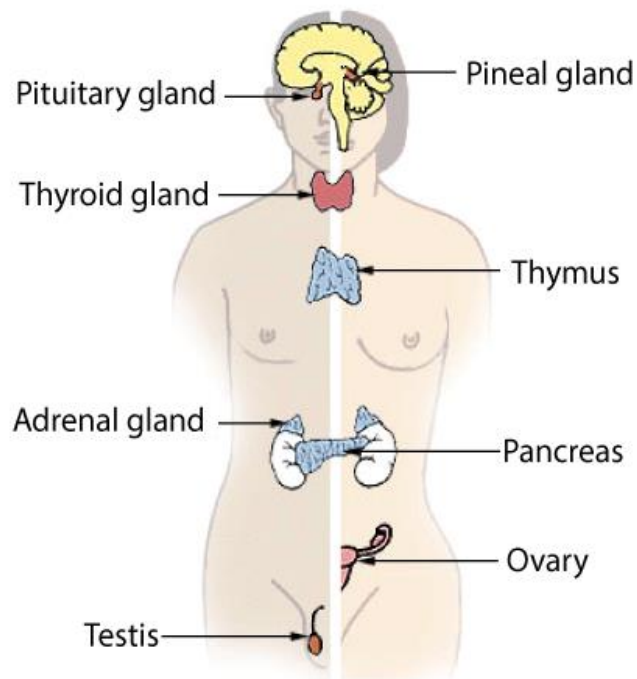


2.1. physiology of the endocrine glands

Animals including humans have a complex living system. In the case of animals, they have the nervous system and endocrine system for control and coordination. The Endocrine System is responsible for chemical coordination. Numerous involuntary physiological activities are under the control of the endocrine system. It consists of glands which release hormones. Endocrine glands are also called ductless glands. Hormones play a vital role in various activities in the body including growth and development. They also support the nervous system.

Endocrine glands in animals are the hypothalamus, the pituitary gland, the pineal gland, the thyroid, the parathyroid, the thymus, the pancreas, the adrenal gland and the gonads.

THE ENDOCRINE SYSTEM



Different endocrine glands along with the hormone they release are given below:

1.Hypothalamus:

This gland is a part of the brain that consists of neurosecretory cells. They connect both the nervous and the endocrine system. The hypothalamus secretes various releasing hormones like gonadotropin-releasing hormones and growth hormone-releasing hormones. These hormones act on the pituitary gland to stimulate other glands.

2.Pituitary Gland:

The pituitary gland is the master gland. It is a pea-sized gland that is located at the bottom of the brain. It controls and regulates other glands in the body. Hormones released by this gland are growth hormone, thyroid-stimulating hormone, LH, FSH etc.

3.Pineal Gland:

This gland is also located in the brain. It releases the hormone called melatonin which regulates the wake-up and sleep clock and helps in immunity etc.

4.Thyroid gland:

This is a butterfly-shaped paired gland located in the neck region. It releases the hormones triiodothyronine (T₃) and thyroxine (T₄). These hormones regulate body metabolism. Iodine is vital for thyroxine synthesis. Its deficiency leads to a disease called goitre.

5.Parathyroid Gland:

This gland is located near the Thyroid gland in the neck region. The hormone released by this gland is called Parathyroid hormone, which regulates calcium and phosphorus level in bones.

6.Pancreas:

The pancreas is an endocrine as well as an exocrine gland. That is why the Pancreas is also known as a mixed gland. The pancreas secretes hormones like glucagon and insulin; these two hormones balance the blood sugar level in the body. Other hormones secreted are somatostatin and pancreatic polypeptide.

7.Adrenal Glands:

Adrenal glands have two regions known as the adrenal cortex and adrenal medulla.

The cortex region of the adrenal gland secretes the hormones cortisol, aldosterone, and androgens while the medulla region secretes the hormones adrenaline and noradrenaline. Adrenaline is the hormone responsible for the fight or flight response of the body in times of emergency.

8.Gonads:

Gonads are reproductive glands present in males and females. The male gonad is the pair of testes which secretes the hormone testosterone. This is responsible for the secondary sexual characteristics in males. The female gonad consists of a pair of ovaries. They secrete two hormones estrogen and progesterone. Both of these regulate secondary sexual characteristics in females.