

# Diploma in Pharmacy 1<sup>st</sup> Year

## Human Anatomy & Physiology Practical

*To study the given model of endocrine system.*

### Aim:

To study the given model of endocrine system.

### Reference :

Dr. Gupta G.D , Dr. Sharma Shailesh , Dr. Sharma Rahul Kumar ,  
“Practical Manual of Human Anatomy and Physiology” Published by Nirali  
Prakashan , Pg.No 143 - 146

### Theory :

The endocrine system is made up of some organs that are known as glands. Hormones are created and secreted (released) by these glands, which are found all over the body. Hormones are chemicals that transmit information from the blood to the organs, skin, muscles, and other tissues, allowing them to coordinate various tasks in the body. These signals regulate the body functioning.

### Functions of Endocrine System

The level of hormones in the blood is constantly monitored by the endocrine system. Hormones transmit their messages by locking into the targeted cells and relaying the message.

When the hormone levels increase, the pituitary gland detects this and tells other glands to stop manufacturing and releasing hormones. When hormone levels decrease to some extent, the pituitary gland can instruct the other glands to produce and release more hormones. This process is known as homeostasis, it works similarly to the thermostat in the house.

Hormones have an impact on every bodily function, including:

- 1) Metabolism (the way you break down food and get energy from nutrients)
- 2) Growth and development.

- 3) Emotions and mood
- 4) Fertility and sexual function.
- 5) Sleep
- 6) Blood pressure.

Hormones are sometimes produced in excess or insufficiently by glands. This imbalance may lead to some health problems such as weight gain, high blood pressure, and changes in sleep, mood, and behaviour. The way the body produces and releases hormones can be influenced by a variety of factors. A hormone imbalance can be caused by illness, stress, or certain drugs.

## **Parts of Endocrine System**

The endocrine system is made up of organs that produce hormones known as glands. Glands manufacture and release a variety of hormones that target particular parts of the body. The glands are present all over the body including neck, brain, and reproductive organs. Some glands are quite small, measuring approximately the size of a grain of rice or a pea.

The pancreas, which is around 6 inches long, is the largest gland.

The main glands that produce hormones include:

- 1) **Hypothalamus:** This gland is present in the brain that regulates the endocrine system. It determines when to notify other glands, like the pituitary gland, to create hormones using input from the neural system. The hypothalamus is in charge of a variety of bodily functions, including mood, appetite and thirst, sleep patterns, and sexual function.
- 2) **Pituitary:** This little gland is roughly the size of a pea, but it performs an important function. It produces hormones that regulate the thyroid, adrenal glands, ovaries, and testicles, among other glands. The pituitary gland is in charge of a variety of processes, including the growth of the body. It can be found at the base of the skull.
- 3) **Thyroid:** This gland is a butterfly-shaped gland located in front of the neck. It is in charge of the metabolism (how the body uses energy).
- 4) **Parathyroid:** These four small glands are about the size of a grain of rice. They regulate the calcium levels in the body. Calcium is required for the proper functioning of the heart, kidneys, bones, and nervous system.

- 5) **Adrenal:** Each kidney has two adrenal glands, one on top of the other. The metabolism, blood pressure, sexual development, and stress response are all controlled by them.
- 6) **Pineal:** This gland regulates the sleep cycle by secreting melatonin, a sleep-inducing hormone.
- 7) **Pancreas:** This gland is part of the endocrine system and also plays a significant role in digestion process. It produces the hormone known as insulin, which regulates the amount of sugar in the blood.
- 8) **Ovaries:** The ovaries in women produce the sex hormones oestrogen, progesterone, and testosterone. In the lower abdomen, women have two ovaries, one on each side.
- 9) **Testes:** Testes (testicles) in men produce sperm and release the hormone testosterone. Sperm production, physical strength, and sex drive are all affected by this hormone.

**Result:** The given diagram of the endocrine system was studied.