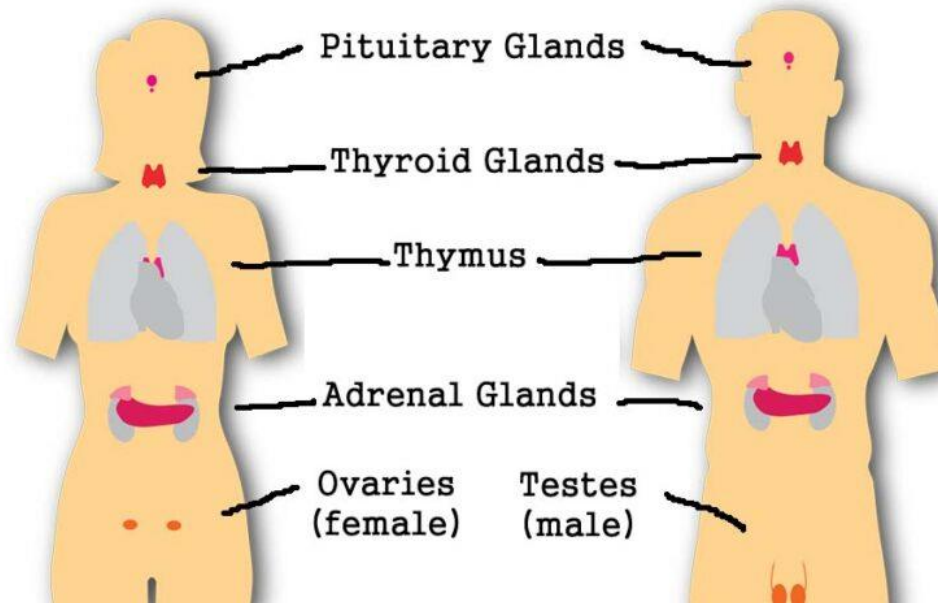


The **Endocrine Organ System** performs chemical coordination within the body. However, the word **endocrine** derives from the **Greek** term. The "**endo**" means within, while "**krine**" means to release or secrete. There are many glands inside the body and each gland releases a variety of hormones. **Hormones** are chemicals that coordinate different functions in your body by carrying messages to your organs, muscles, skin, and tissues through your blood.

The release of hormones from the glands maintains the body's functions. Unlike Exocrine Glands, these are ductless which means their secretions are released directly into the blood, not to any tubes or ducts. Therefore, these are also known as **ductless glands**.

You may also be interested in [What is the Treatment for Monkeypox 2022](#)

## Endocrine Organ System Body Function



These glands help promote growth, reproduction, glucose levels, sleep, etc. The system uses some chemicals (hormones) to control all these factors. It releases hormones into the blood that carries them to the organs, tissues, etc.

Different types of vital glands play an important role in controlling the body's functions. However, some of them are as follows.

- Pituitary Gland
- Thyroid Gland
- Parathyroid Gland
- Adrenal Gland

- Pancreas

## 1. Pituitary Gland

It is a small, oval-shaped located at the base of the brain and attached to the hypothalamus. There are two main types, an anterior lobe, and a posterior lobe. However, their hormonal functions are different.

### Anterior Lobe

The interior lobe consists of two hormones called Somatotrohpin and TSH.

- **Somatotropin**

These hormones control body growth. Therefore, it is usually called growth hormones. It has a vital role in the Endocrine Organ System. There are three main conditions under which it operates that include dwarfism, gigantism, and acromegaly.

- - Dwarfism

Somatotropin hormones do not grow well in this condition. Therefore, it prevents the increase in height which keeps the body short.

- - Gigantism

In this condition, somatotropic hormones exceed. Then, the growth of the body directly increases more than expected.

- - Acromegaly

In this condition, some parts of the body are more likely to become enlarged such as fingers, hands, feet, neck, etc.

- **TSH**

TSH (Thyroid Stimulating Hormone) indicates its role by name. It stimulates thyroid glands to secret their hormones easily. Remember, a hormone that comes from any of the glands stimulates the other glands to release their hormones.

### Posterior Lobe

Endocrine Organ System: The posterior lab also plays an important role in the system. It releases two main hormones such as vasopressin which is also known as ADH (Antidiuretic Hormone) and Oxytocin.

- **Vasopressin**

Vasopressin works as reabsorb water within the body. These hormones turn on and reabsorb water if the body is dehydrated. On the other hand, if the amount of water within the body is high, then the level of these hormones is decreased so that water is released. Furthermore, a condition called diabetes insipidus in which the excess amount of water is excreted into the urine.

- **Oxytocin**

This hormone works mainly in females. It acts as a neurotransmitter and also plays a vital role in reproduction. Oxytocin works in the contraction of the female's uterus walls and releases breast milk. In males, it helps in moving sperms.

## **2. Thyroid Gland - Endocrine Organ System**

The thyroid gland is one of the largest glands within the body. It is located in the neck below the larynx. The thyroid gland helps in digesting food within the body to produce energy. It works as oxidation to produce energy in the form of heat. The gland releases two types of hormones called Thyroxin and Calcitonin. However, iodine is necessary to consume in the food to produce thyroxine. Iodine deficiency lowers thyroxine levels. Then, the thyroid gland gets enlarged. This condition is called goiter.

### **Thyroxin**

Thyroxin has two main situations called Hyperthyroidism and Hypothyroidism.

- **Hyperthyroidism**

As the name indicates, thyroxine hormones get increased, which means that the thyroid gland produces extra heat (energy). In this case, the heart beats faster than usual. In addition, some of the functions may alter.

- **Hypothyroidism**

Endocrine Organ System: In this situation, the amount of energy within the body decreases. Therefore, there are chances that the heartbeat may be affected.

### **Calcitonin**

Calcitonin hormone decreases the number of calcium ions in the blood and deposits them into the bones to strengthen them.

## **3. Parathyroid Gland**

A Parathyroid Gland is a group of four glands that secretes an important hormone called parathormone. Unlike calcitonin, parathormone hormone decreases the number of calcium ions in the bones and deposits them into the blood. It helps in increasing the number of calcium ions in the blood. What happens if the calcium ions in the blood are low? Well, this condition is called tetany in which the muscles remain stiff. However, tetany occurs when this hormone doesn't perform well.

## 4. Adrenal Gland

Endocrine Organ System: The Adrenal Gland is located above the kidneys. It consists of two parts that include adrenal cortex and adrenal medulla. Furthermore, the adrenal cortex has a group of hormones called corticosteroids. Moreover, the adrenal medulla has certain hormones called epinephrine or adrenaline.

### Adrenal Cortex

The adrenal cortex has a group of hormones called corticosteroids.

- **Corticosteroids**

It consists of a group of hormones. It controls the combination of the salts and water. Although, we know that the combination of salts and water should remain fixed. Otherwise, it can be harmful. This group of hormones maintains the concentration of the salts and water.

### Adrenal Medulla

The adrenal medulla has certain hormones called epinephrine or adrenaline.

- **Epinephrine OR Adrenaline**

It activates when the body encounters an emergency. For instance: fear, heart rate, anger, blood pressure, sugar metabolism, etc.

## 5. Pancreas

The pancreas is the most important gland of the Endocrine Organ System. It was discovered by a scientist named Langerhans. Therefore, it is also known as Islets of Langerhans. He discovered some tiny cells called glucagon and insulin. The pancreas has two main parts Exocrine and Endocrine. Exocrine are duct-based secretes certain types of enzymes in the small intestine. The endocrine is ductless that secretes hormones. In addition, the Endocrine secretes two types of hormones called glucagon and insulin.

### Glucagon

Glucagon stimulates the liver to add glucose to the blood as much as possible. It helps the liver to maintain glucose levels.

### Insulin

Insulin tells the liver to absorb the extra glucose in the blood. It also helps the liver to maintain glucose levels.

**Table 1: (Blood Glucose after 8-10 hours fast)**

<b>Serial No.</b>	<b>Glucose Level</b>	<b>Diagnosis</b>
-------------------	----------------------	------------------

1.	70-99 mg / 100ml	Normal
2.	100-125 mg / 100ml	Prediabetic
3.	126 mg / 100ml and Above	Diabetic

**Table 2: (Endocrine Organ System)**

**Blood Glucose two hours after 75 g glucose drink**

Serial No.	Glucose Level	Diagnosis
1.	<140 mg / 100ml	Normal
2.	140-200 mg / 100ml	Prediabetic
3.	>200 mg / 100ml	Diabetic

How does the sugar increase? Although, it increases due to the excess amount of sugar consumption. But, people enjoy soft drinks a lot.

Note, One glass contains as much sugar as we need throughout the day. When a person starts soft drinks regularly along with other normal food. As a result, there is the risk of developing diabetes mellitus. Remember, 80-120 mg / 100 ml sugar is normal.

## **6. Gonads in Endocrine Organ System**

It is also one of the important glands. Mainly works as sexual glands. Nevertheless, it consists of two glands called the Testes and Ovaries. The testicles are found in males and the ovaries in females. However, the testes secrete testosterone hormones. It increases the secondary characteristics of males such as facial hair, body growth, the production of RBC (red blood cells), sperms, etc.

On the other hand, the ovaries secrete estrogen/progesterone hormones in females. It increases the secondary characteristics of females such as abnormal menstrual period and menopausal symptoms. Also, it becomes active during pregnancy.

**Read more: [What does the endocrine system do and how does it work?](#)**