

# ANATOMY

## Endocrinology

End = internal.

Crine = secretion.

So, it means those glands are ductless gland (excretory duct) which empty their production into the blood stream or lymph, Their production called hormones which they have either stimulating or inhibitor effects upon the development or function of the body organs.

There is no anatomical continuity between these glands, except on a physiological level.

**Note**: Not all ductless organs are endocrine in character e.g. (bone marrow, tonsils, lymph nodes and spleen).

Endocrine glands can be divided into two groups:

1. Those glands which are only endocrine in function e.g. (thyroid, parathyroid, adrenal and pituitary glands).
2. Those glands which have another function beside production of hormones e.g. (pancreas, ovary, testis and uterus).

**\* The endocrine glands generally include:**

1. Pituitary (hypophysis).
2. Thyroid gland.
3. Parathyroid gland.
4. Pancreas (islet of langerhans).
5. Pineal body.
6. Intestinal mucosa.
7. Gastric mucosa.
8. Testes.
9. Ovary.
10. Adrenal gland.
11. Kidney.
12. Thymus.

## ANATOMY

1. **Pituitary gland (hypophysis):** The master gland of all other glands. It is effected stimulate or regulate the other endocrine glands. It is small oval or rounded gland found in a depression in the body of the basisphenoid bone, attached with brain by a stalk with infundibulum to the ventricles of brain.

The gland consists from two parts or lobes:

1. **Anterior lobe** (adenohypophysis) most of it called (pars distalis).
2. **Posterior lobe** (neurohypophysis).

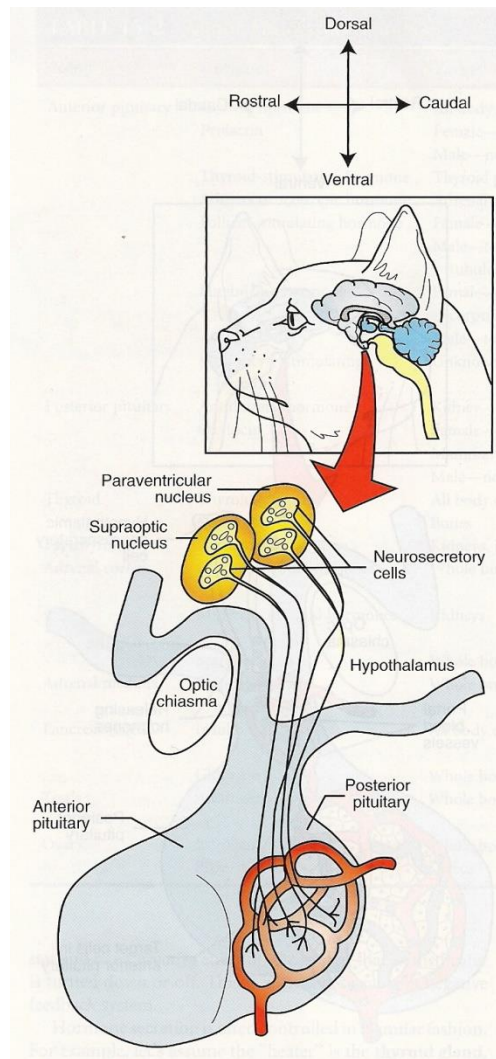
1. **Anterior lobe** (adenohypophysis): it is the major part. It is attached to the hypothalamus by neural stalk and separated from other lobe by intraglandular cleft.

2. **Posterior lobe** (neurohypophysis): it is attached to the hypothalamus by the infundibulum.

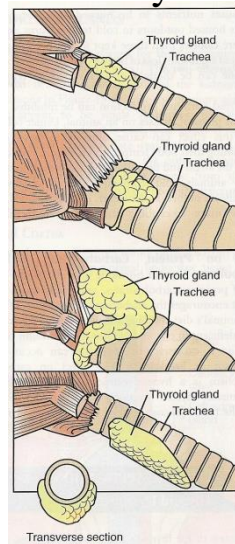
***The secretions of this gland are:***

1. Growth hormone (GH) also called somatotrophic hormone (STH).
2. Follicle stimuli hormone (FSH) in female and in male called spermatogenesis stimuli hormone.
3. Prolactin hormone.
4. Thyrotrophic hormone (TTH).
5. Adrenocorticotrophic hormone (ACTH).
6. Lutiniz hormone (LH) in female and in male called interstitial cells stimuli hormone (ICSH).

# ANATOMY



2. **Thyroid gland:** it consists of two loops which are located along the lateral side of the trachea, closed to its junction with larynx, it has in some species band of glandular tissue connected between the two loops, and this is called Isthmus. Each two is oval reddish brown in color and surrounded by fibrous capsule and covered by the cervical angle of parotid gland and sternocephalicus and omohyoideus muscles. The thyroid gland secreted thyroxin, thyrocalcitonin.



## ANATOMY

**3. Parathyroid gland:** its name come from it's location which is located in the cervical region caudal to the thyroid lobes. It's shape varies from globular trunk to oval or flat or disk like structure.

Physiologically this gland concerned with the metabolism of calcium and phosphate.

**4. Pineal body (epiphysis):** it is small organ situated in a midline depression between the thalami and rostral colliculi of the brain and surrounded by a capsule of pia mater and consist of many lobules in some species but in cow and dog is not clear. It's shape in horse oval or fusiform in outline, usually red-brown in color.

It's secretion melatonin.

**5. Adrenal gland (suprarenal):** it consists from cortex and medulla. The cortex originated from mesoderm and the medulla originated from ectoderm, so it is consider being two glands combined with one capsule, located on the cranial part of the kidney.

The cortex secreted glucocorticoid hormones (corticosterone and hydro corticosterone) and sex steroid. These hormones are controlling under the influence of (ACTH).

The medulla secretes epinephrine and nor epinephrine.

**6. Pancreas:** it is pinkish lobulated gland, located in first part of duodenum. It considers as endocrine and exocrine, the endocrine is islet of langerhans which they are small mass of cells.

There are two types of cells:

a) --- Alfa cells: which is secreted hormone (insulin).

b) --- Beta cells: which is secreted glucogon.

**7. Testes:** they are two which produce male sex hormones or androgens.

## ANATOMY

**8. Ovary:** there are two ovaries produce female sex hormones which they are two types:

a) Estrogen: secreted from the theca interna in gravian follicles.

b) Progesterone: from corpus luteum.

There is another hormone secreted from the ovary at the end of pregnancy time called relaxin.

**9. Uterus:** the uterus of the non pregnant female is not endocrine structure but the pregnancy female there are many changes occur in endometrium:

a) Development of placenta.

b) Development of uterine glands.

So it becomes endocrine structure or gland which secreted hormone called "chorionic gonadtrophic hormone".

**10. Gastric mucosa:** the wall of stomach produce hormone from the parietal cells, this hormone called (gastrine hormone). This hormone stimulates the gastric mucosa to produce their production.

**11. Intestinal mucosa:** producing hormone which is effective the digestival processes.

There are many hormones:

a) Seretin.

b) Endocrinin.

c) Pancreozymin.

**12. Kidney:** produce hormones:

a) Urogastronin.

b) Erethropoitein.