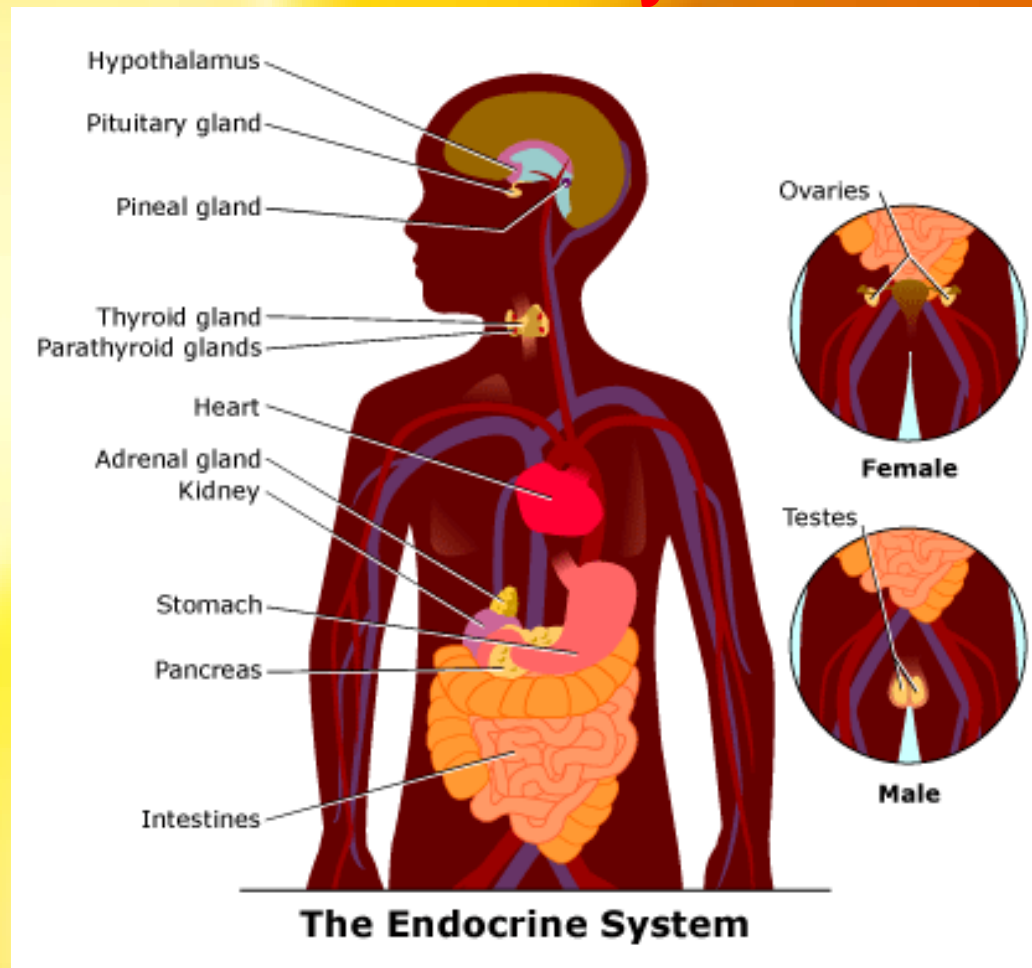


The Endocrine System

EQ: What is the role of the endocrine system?

These are the main parts of the endocrine system...



Hormones & Glands

- **The endocrine system is founded on hormones and glands.**
- Hormones transfer info and orders from a set of cells to another. Each type of hormone is designed to affect **only** certain cells.

- **A gland is a bunch of cells that produce and gives off chemicals.** A gland 'selects and removes materials from the blood, processes them, and secretes the finished chemical product for use somewhere in the body.'
- For example, **exocrine glands** like the sweat glands release secretions in the skin or inside the mouth.

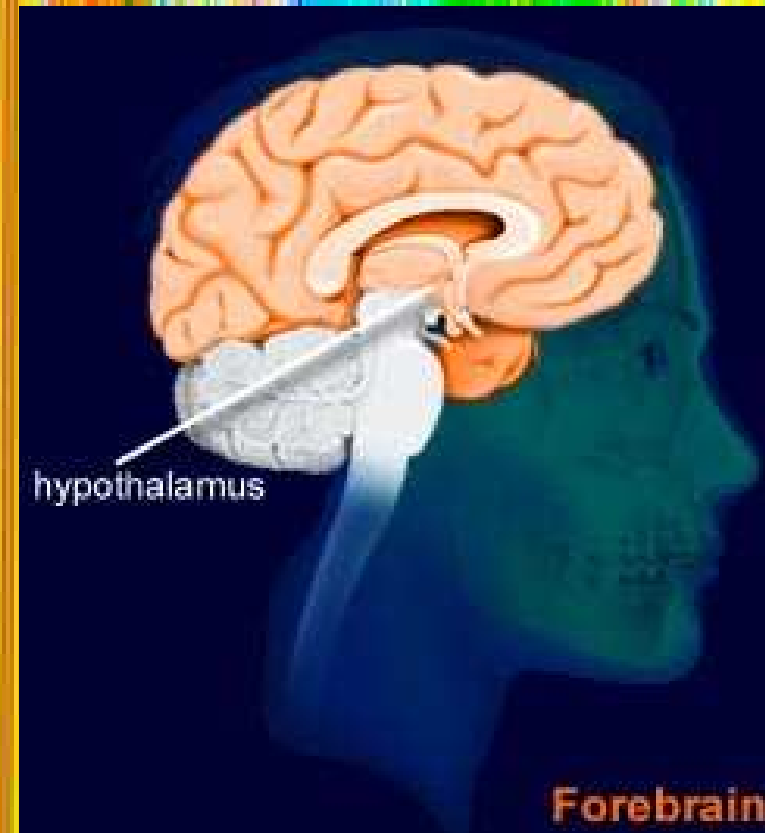
Endocrine System Parts

- Hypothalamus
- Pituitary Gland
- Thyroid
- Parathyroids
- Adrenal Glands
- Pineal Body
- Reproductive Glands



Hypothalamus

- In the lower central part of the brain
- The main link between the endocrine and the nervous systems.
- Nerve cells in the hypothalamus control the pituitary gland by producing chemicals that either stimulate or suppress hormone secretions from the pituitary.



Pituitary Gland

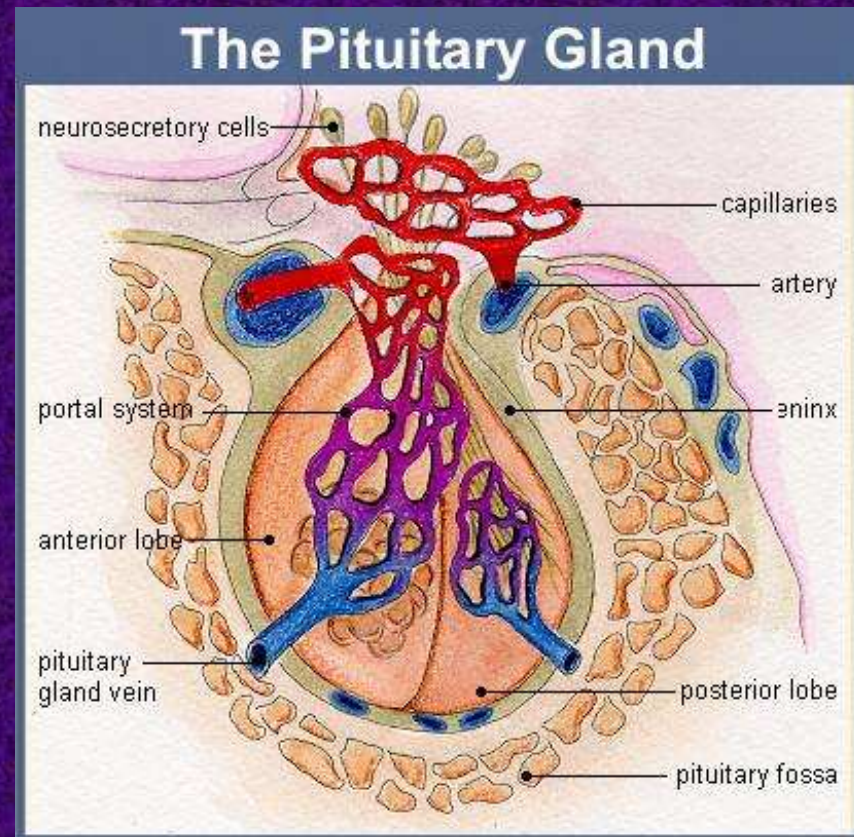
- The gland is no bigger than a pea.
- Located at the base of the brain, and the most important part of the entire endocrine system.
- **AKA: The master gland because it makes hormones that control other endocrine glands.**
- The production of hormones and secretions can be affected by emotions and seasons change.
- Divided into two parts.



The MASTER Gland

The Division

- The anterior regulates the thyroid, adrenals, and the reproductive activities. It makes hormones like growth hormones, prolactin (breastfeeding), thyrotropin, and corticotropin.
- The posterior releases antidiuretic hormones, which balances the body's water level. It also makes oxytocin, which activates the contractions of the uterus in a woman in labor.
- The pituitary also secretes endorphins, chemicals that act on the nervous system and reduce painful feelings. It also gets rid of hormones that signal the reproductive organs to make sex hormones. It also controls ovulation and the menstrual cycle.



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- **The thyroid is in the front part of the lower neck, and is shaped like a butterfly.**

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- It produces the hormones known as thyroxine and triiodothyronine.

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- These control the rate at which cells burn fuels from food to produce energy.

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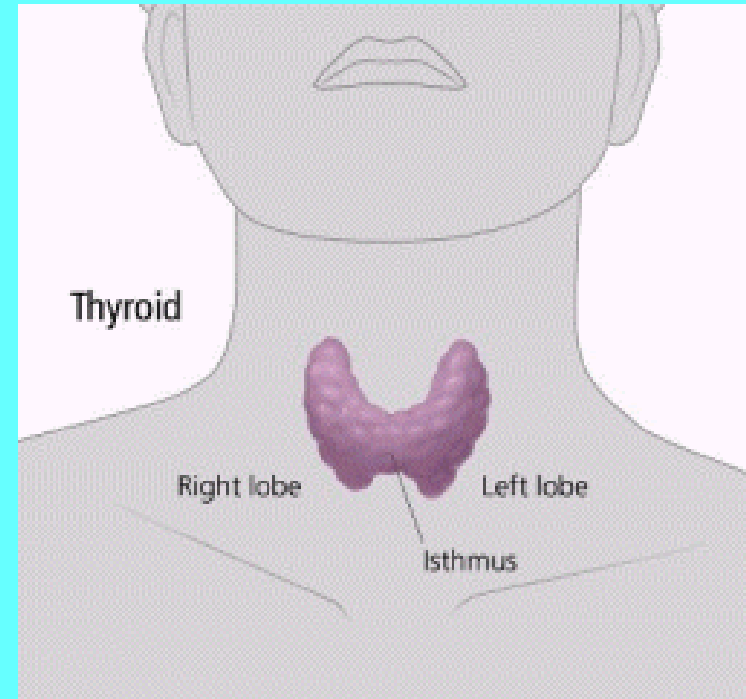
- **Thyroid hormones are important because they participate in the growth and development of kids' and teens' bones and the nervous system.**

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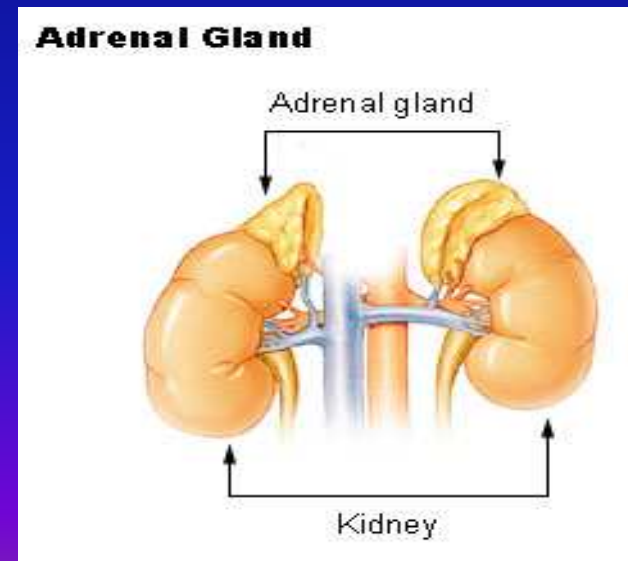
- Attached to the thyroid are four small glands called the parathyroids, which, with the help of calcitonin, control the calcium level.

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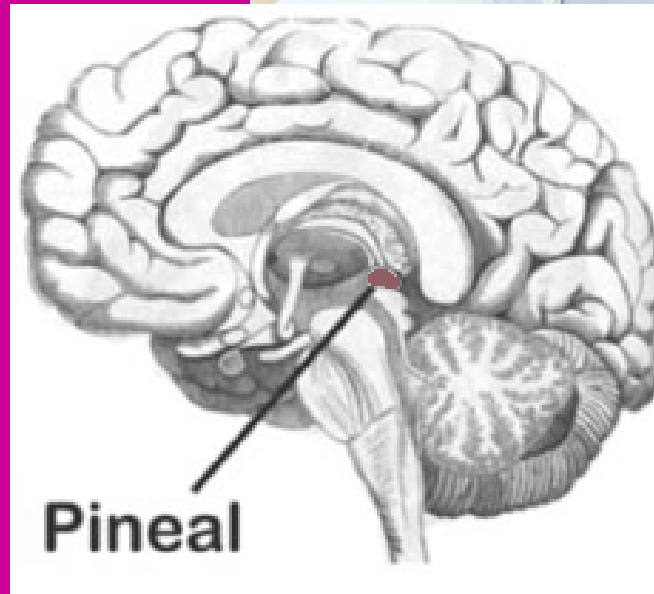
- There are two adrenal glands, one on top of each kidney.
- There are two parts, each of which makes hormones and has a different function.
- The outer part, or the **Adrenal Cortex**, makes hormones (corticosteroids) that control the salt and water balance in the body, responses to stress, metabolism, the immune system, and sexual development/function.
- The inner part, or the **Adrenal Medulla**, makes hormones (catecholamines) that increases blood pressure and heart rate when there is stress. (ex. Epinephrine, or adrenaline)

Adrenal Glands



Pineal Gland

- The pineal gland, or the pineal body is in the middle of the brain. It secretes melatonin, a hormone that regulates when you sleep at night and wake up in the morning.



LEFT SIDE ACTIVITY

- Draw a body and label all of the parts of the endocrine system.