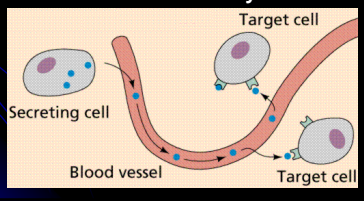
Endocrine System

The body's slower, chemical communication system

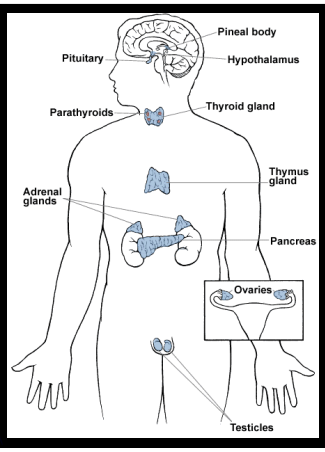


What does the Endocrine System Do?

- Uses chemical signals for cell to cell communication – this is why it is slower than the nervous system

- Coordinates the function of cells – e.g. cells in the uterus need to know when cells in the ovaries are active
- Responds to information from the brain to keep body chemistry balanced- homeostasis

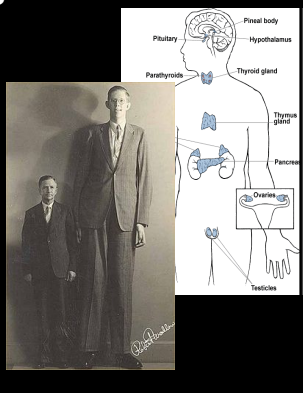
Glands of the Endocrine System and their location



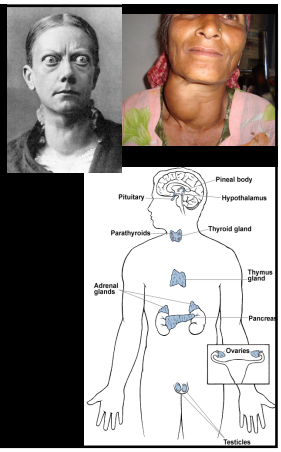
What do these glands influence?

Hypothalamus: The master control gland that is located in the brain

Pituitary Gland: The 2nd master gland – that reacts to the hypothalamus, affects growth and controls other endocrine glands

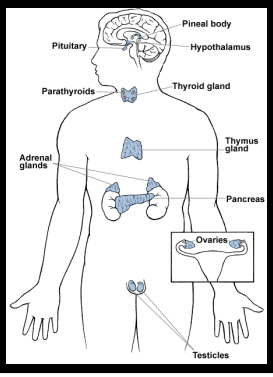


- **Thyroid gland** – can increase protein production and oxygen use by cells. Also regulates calcium levels
- **Pancreas** – regulates the level of sugar in the blood by secreting insulin.
- **Thymus** – helps the body make a type of white blood cell. These cells help protect you from infections.

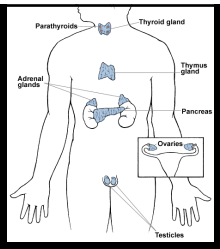


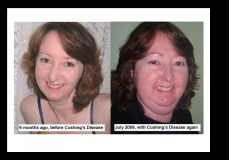
What do these glands influence?

- **Pineal** --secretes melatonin helps to regulate daily biological rhythms and promotes sleep.
- **Ovary** – secretes female sex hormones such as estrogen

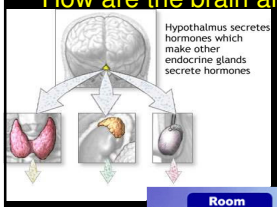


- **Testes** – secrete male sex hormone such as testosterone
  - aka: Androgens
- **Adrenal Gland -** secrete epinephrine and norepinephrine (aka: Adrenaline) which help to arouse the body in times of stress (fight or flight responses)

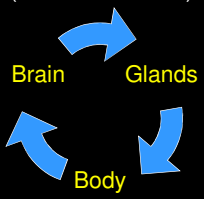


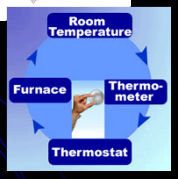


How are the brain and hormones connected?



Negative feedback loop (like a thermostat)





HOMEOSTASIS –balanced internal environment

Controlling Body Temperature

Feedback