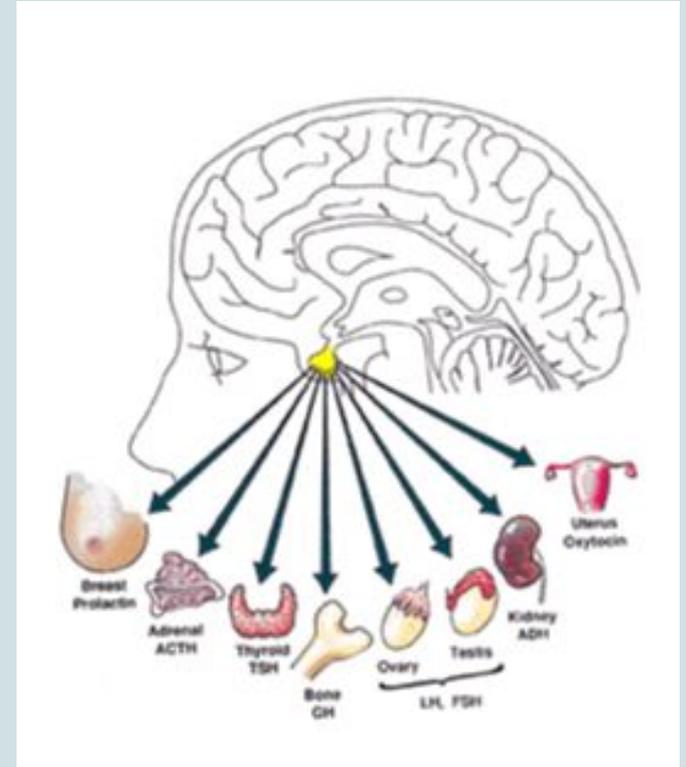


The Pituitary Gland

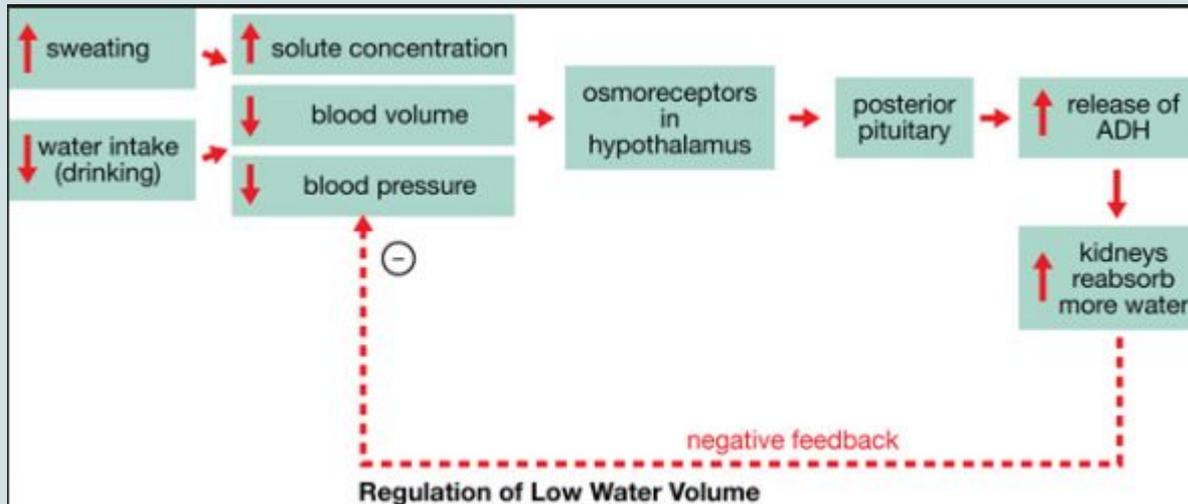
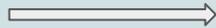
- Referred to the master gland because it has control over most other endocrine glands
- It is connected directly to the hypothalamus (like a pendant on a necklace)
- Together they are called the **pituitary-hypothalamus complex**
- The pituitary is divided into 2 different lobes called



A.) POSTERIOR PITUITARY LOBE (PPG): (1/3 of gland)

- Stores & releases hormones produced in the HYPOTHALAMUS
 - ADH (antidiuretic hormone) and Oxytocin
 - ADH increases water reabsorption in the nephron.
 - Oxytocin stimulates uterine contractions and milk release (at the mammary glands)
- The hypothalamus stores the hormones in the PPG until needed

Feedback loop
for ADH.



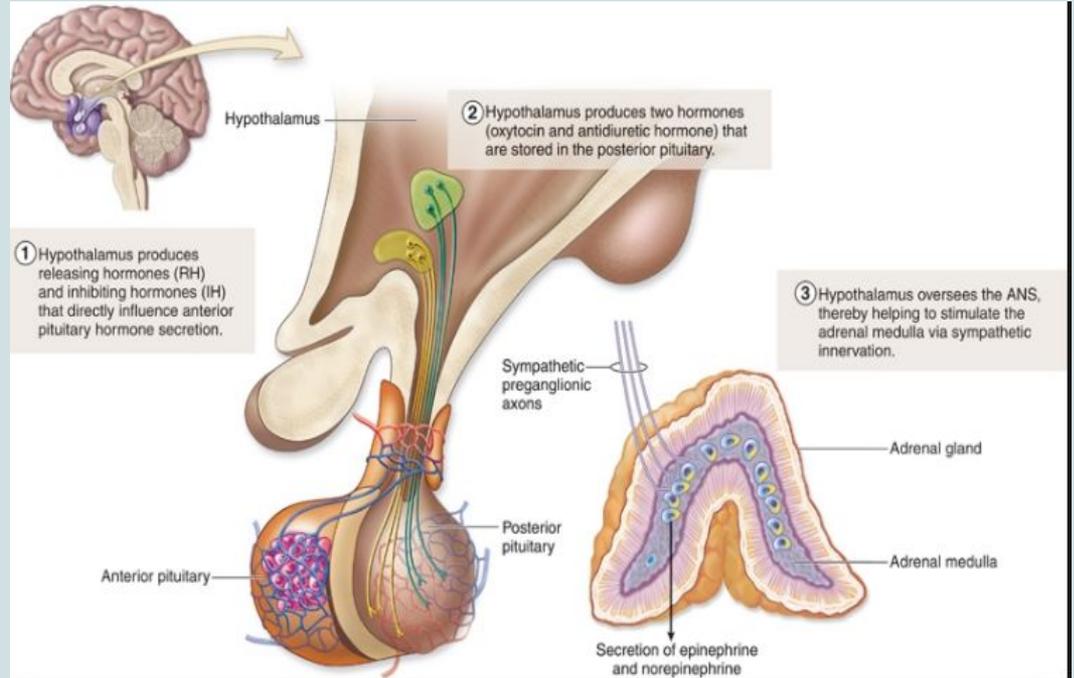
Explained on next slide.

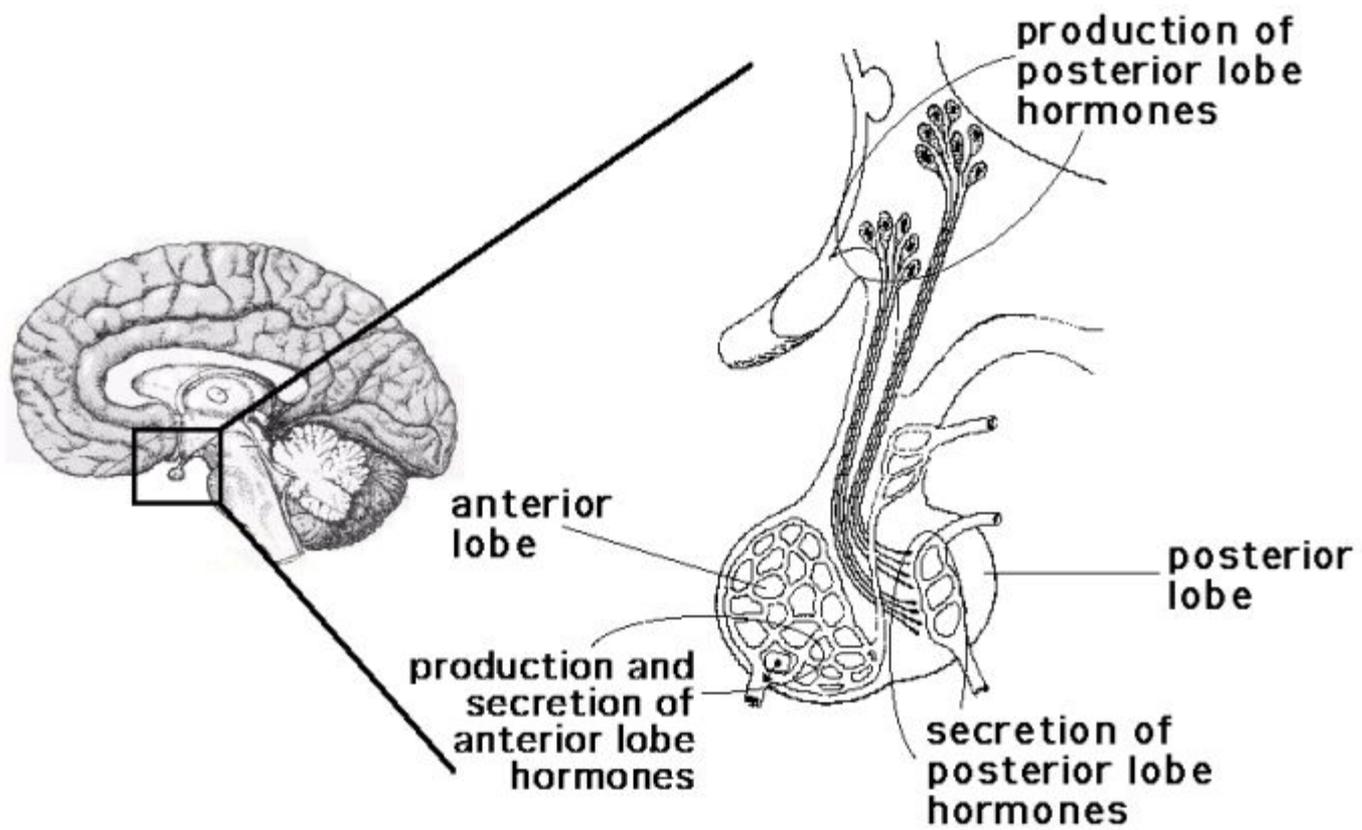
Feedback loop for ADH.

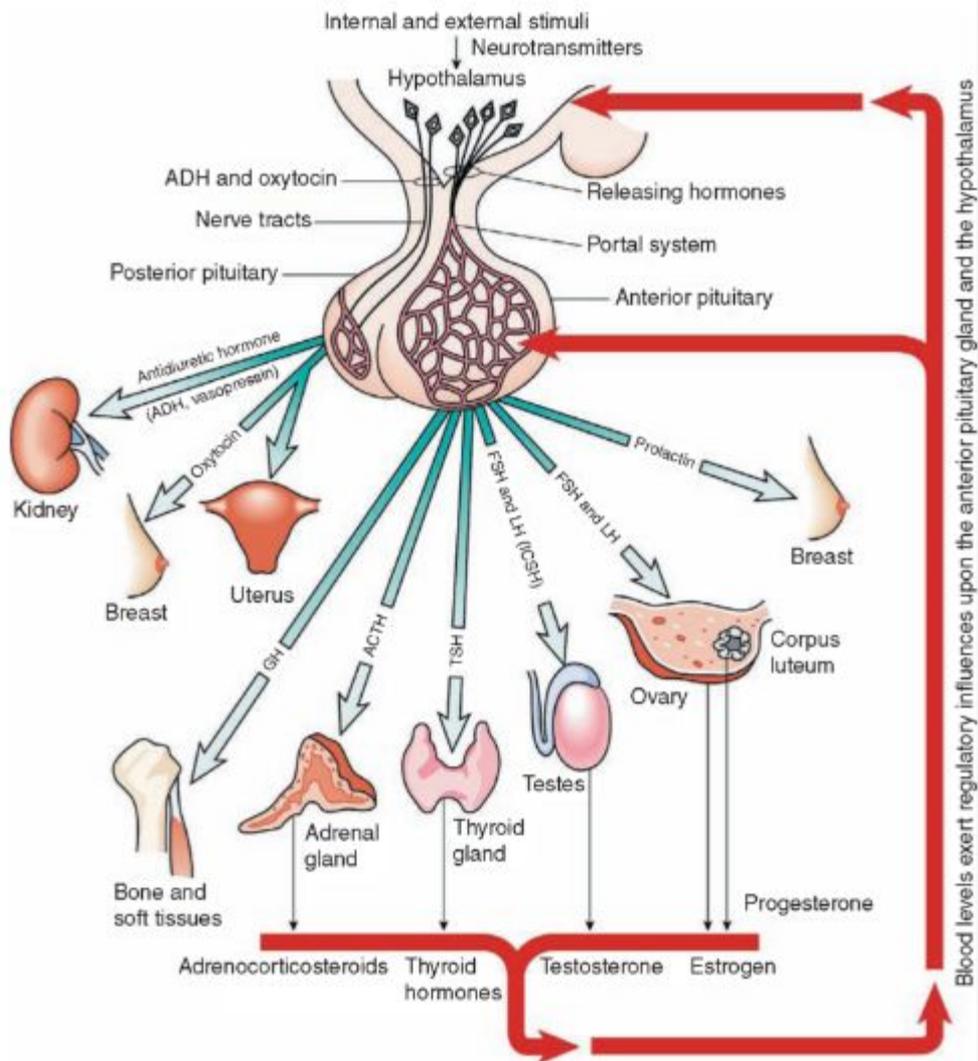
- Your body feels dehydrated due to sweating or lack of water intake. Your blood concentration goes up, blood volume goes down and your hypothalamus shrinks.
- The osmoreceptors (detect high osmotic concentration = high blood concentration) on your hypothalamus pick it up and your hypothalamus triggers your PPG to release ADH into your bloodstream.
- The ADH travels to the nephrons in your kidney which cause water to be reabsorbed into your blood.
- Blood volume increases, blood concentration goes down (osmotic pressure decreases) and this turns the release of ADH off.

B.) ANTERIOR PITUITARY LOBE (APG): (2/3 of gland)

- It produces its own hormones (unlike the PPG)
- Nerves from the hypothalamus extend into the APG to trigger hormone release
- Hypothalamus contains the **CHEMORECEPTORS** necessary to identify a need to release APG hormones







This shows the pituitary gland and its relations with the brain and target tissues. Hypothalamic releasing hormones influence the anterior pituitary through a portal system. **Tropic hormones** from the anterior pituitary affect the working of various other glands.

YOU NEED TO KNOW THESE HORMONES AS WELL AS THEIR TARGETS AND FUNCTION.

GH

- human growth hormone
- stimulates the growth of muscles, connective tissue, and the growth plates at the end of long bones which causes elongation

Disorders

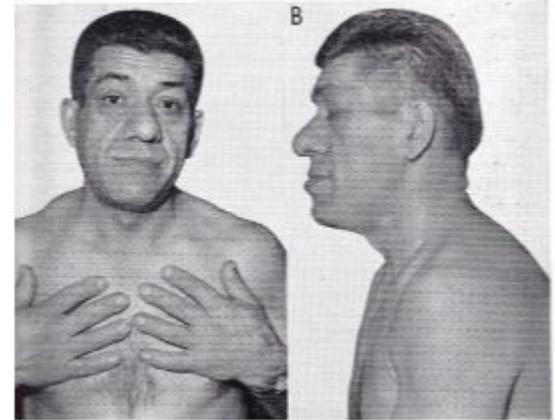
Gigantism (Hypersecretion of GH)

- results in extremely large, long bones due to a high secretion of growth hormone, or somatotropin
- GH affects all cells but is most pronounced on cartilage and bone cells
- if GH is released after cartilaginous growth plates have fused (adult), other bones respond. Length is no longer affected, but the bones of the jaw, forehead, fingers and toes widen (called **acromegaly**)



Gigantism

Acromegaly



The remaining hormones from the pituitary gland are tropic hormones and will be discussed in the slides of their target glands.