

# Drugs and Alcohol

Define the following terms:

- Drug                      drug abuse
- Tolerance                addiction
- Withdrawal             stimulant
- Depressant             hallucinogen
- anabolic steroid      Alcoholism

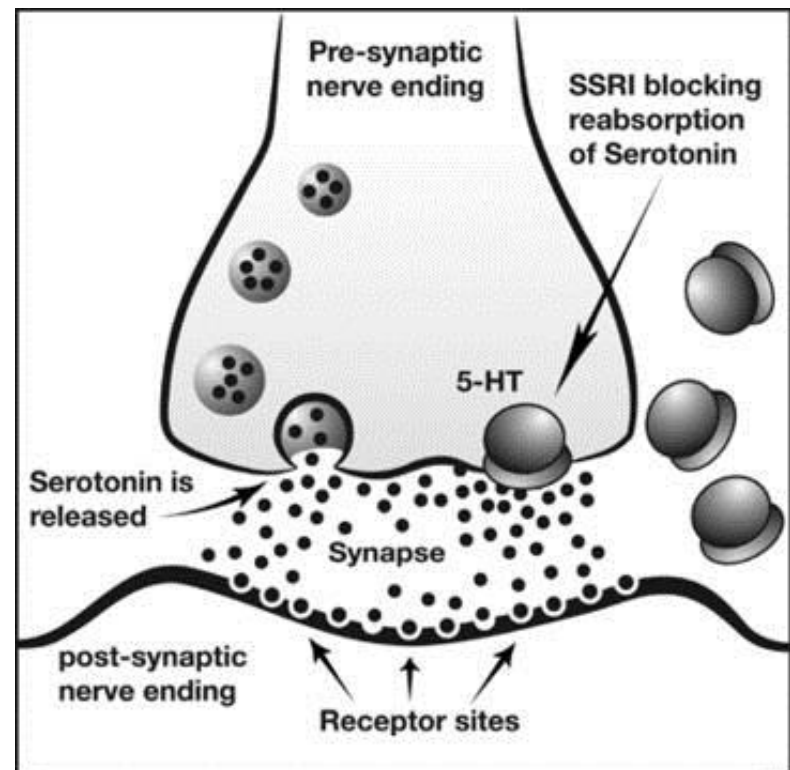
1. Name the immediate and long term effects of drug abuse
2. Identify some commonly abused drugs and how each affects the body
3. Describe how alcohol abuse affects the body
4. Differentiate between prescription and over-the-counter drugs.

# Neurotransmitters

- Neurons communicate impulses by releasing chemicals, neurotransmitters, into the synaptic cleft.

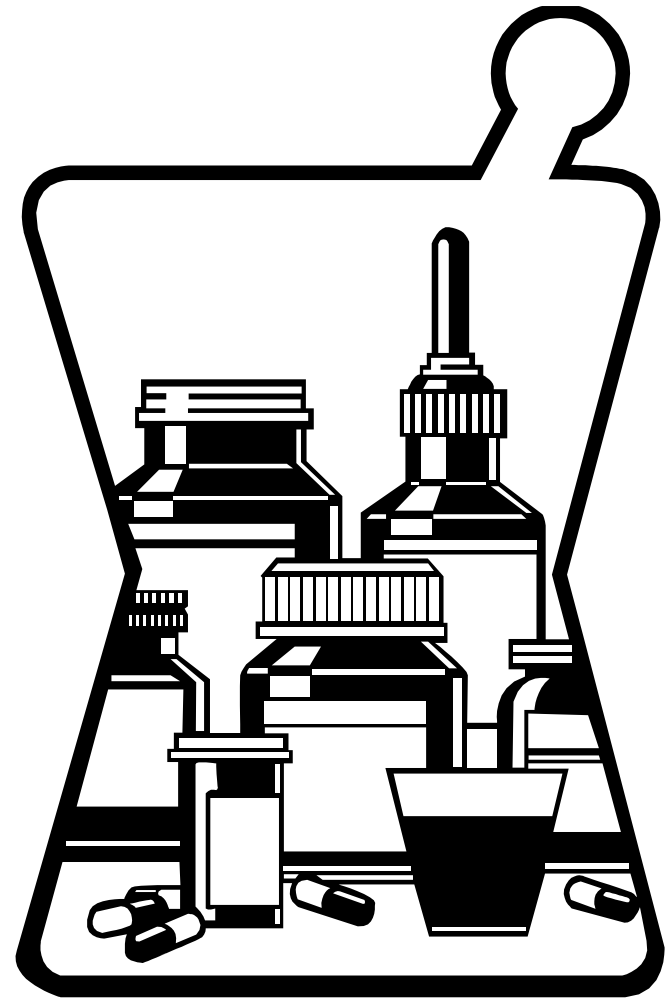
- Drugs interrupt the signals  
replacing neurotransmitters

Such as cocaine “hi-jacking” the sites for Dopamine



# Drugs

- anything other than food that affects the body, primarily the nervous system



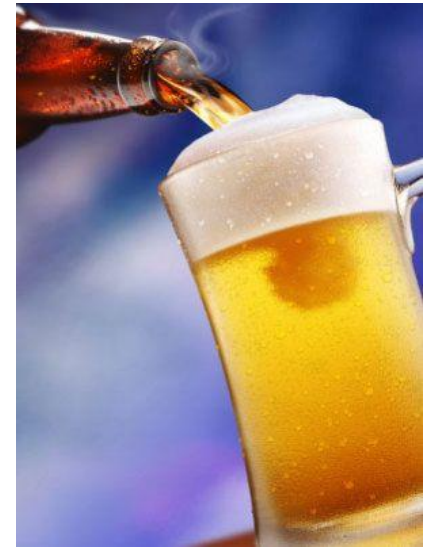
# Medicines

- drugs that treat medical problems
- 2 classes of medicine
  - prescription
  - over-the-counter (OTC)



# Nervous System Drugs

- Stimulants
  - speed up CNS
  - Cocaine, nicotine
- Depressants
  - slow down CNS
  - Alcohol, heroin
- Inhalants + Hallucinogens
  - alter perception
  - LSD, paint thinner
- Anabolic Steroids
  - Increase muscle and strength
  - Heart and liver damage



**DEPRESSANTS** slow messages between the body and brain.

Signals from the eyes and other senses reach the brain slowly.

Heart rate drops, leaving the body with less energizing oxygen.

Breathing rate decreases; risk of lung infections rises.

Messages to muscles are slower; arms and legs can't move well.

**RESULT:** The body can't sense—or respond to—danger quickly.

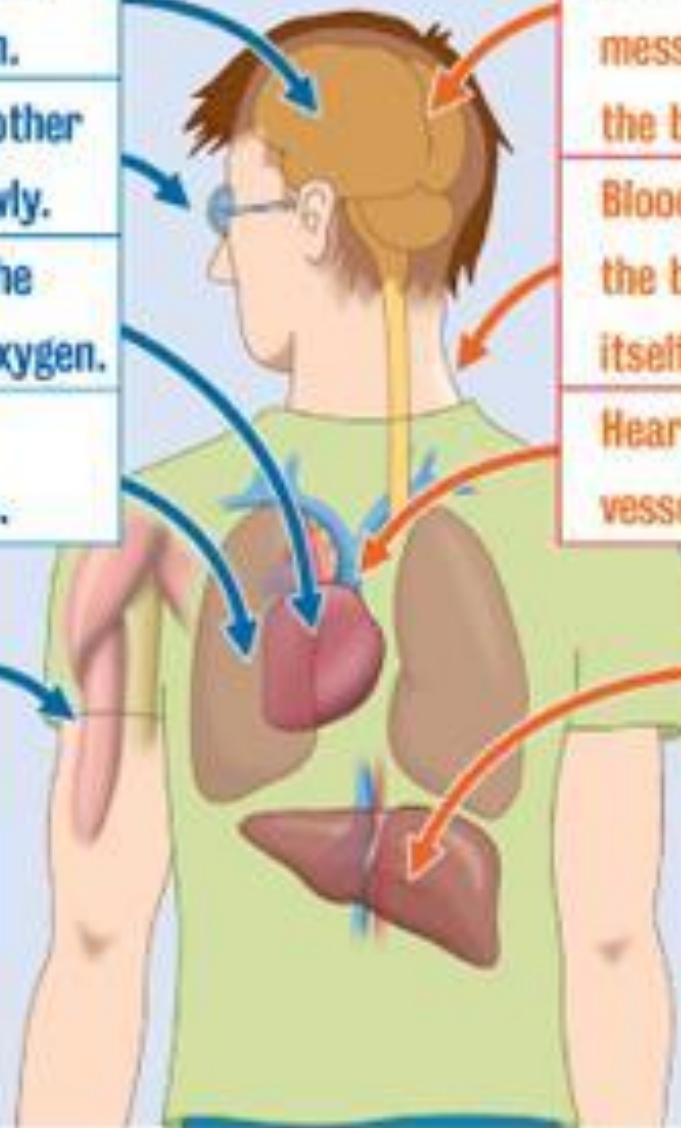
**STIMULANTS** create fake messages in the brain, telling the body that it's under stress.

Blood to skin decreases; the body is less able to cool itself. Overheating is a risk.

Heart rate speeds up. Blood vessels to the heart constrict.

The liver releases sugar into the blood, reducing the body's energy stores.

**RESULT:** If real stress occurs, the body won't be able to respond.





# Drug Misuse vs Drug Abuse

- Misuse
  - improper usage
  - ignoring directions
  - taking more than suggested, etc
- Abuse
  - using illegal drugs or
  - using medicines other than for intended use



# Dangers of Abuse

- Tolerance - need larger amounts to get the same effect
- Dependence (addiction) - cannot control drug use
  - Psychological: emotional need
  - Physical: body needs drug in order to function
- Withdrawal - painful effects when an addicted person stops taking a drug
- Overdose - taking too much of a drug
- [Medical Education Video of the Brain on Drugs](#)

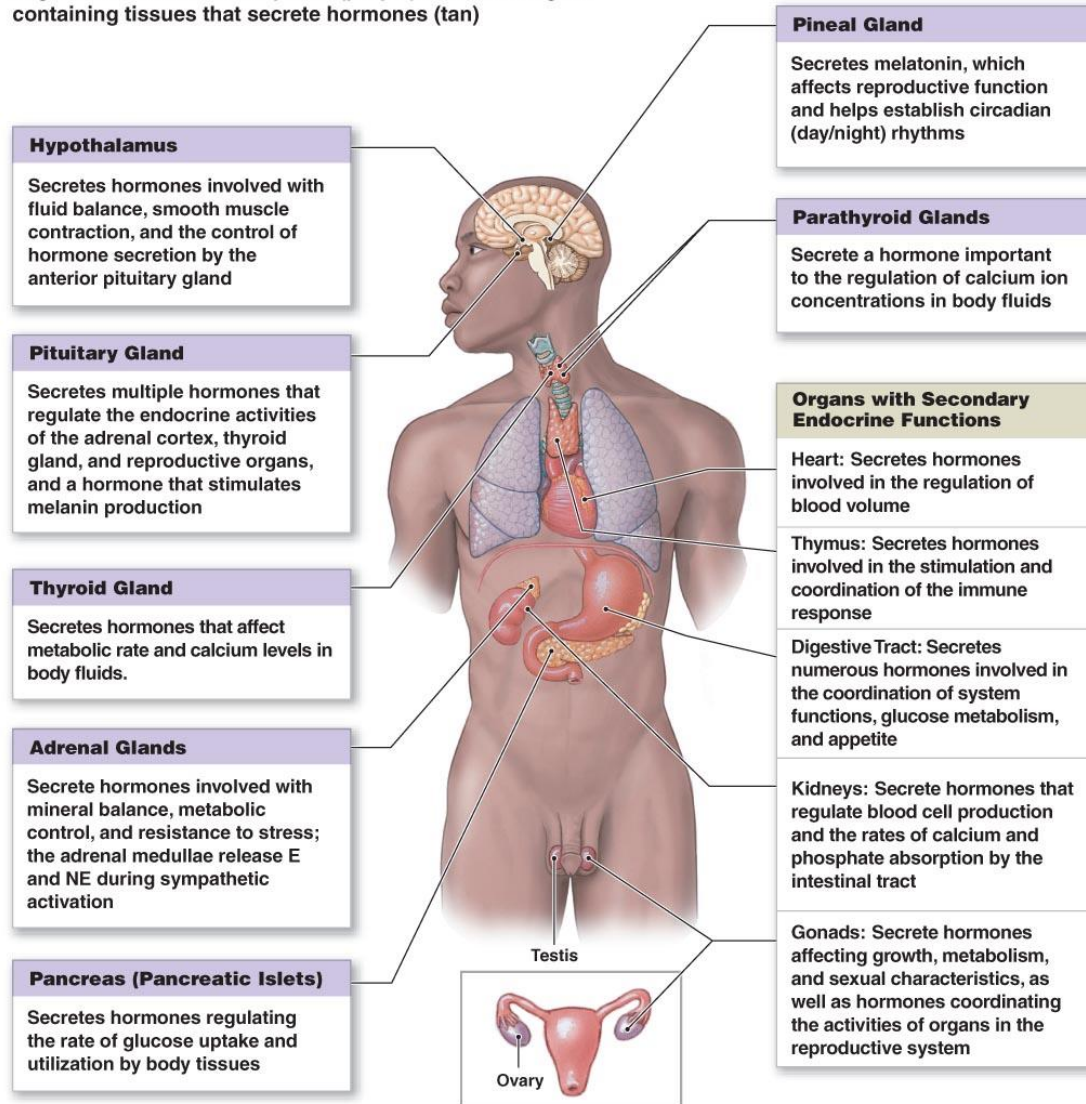


# Chapter 19: Hormones & Reproduction



# The Endocrine System

Organs of the endocrine system (purple) and other organs containing tissues that secrete hormones (tan)



- Produces chemical messengers called **HORMONES** that control body activities



# How It Works

- Endocrine glands produce and/or release hormones **directly into the bloodstream**
- Hormones turn on, turn off, speed up, or slow down body organs/activities.





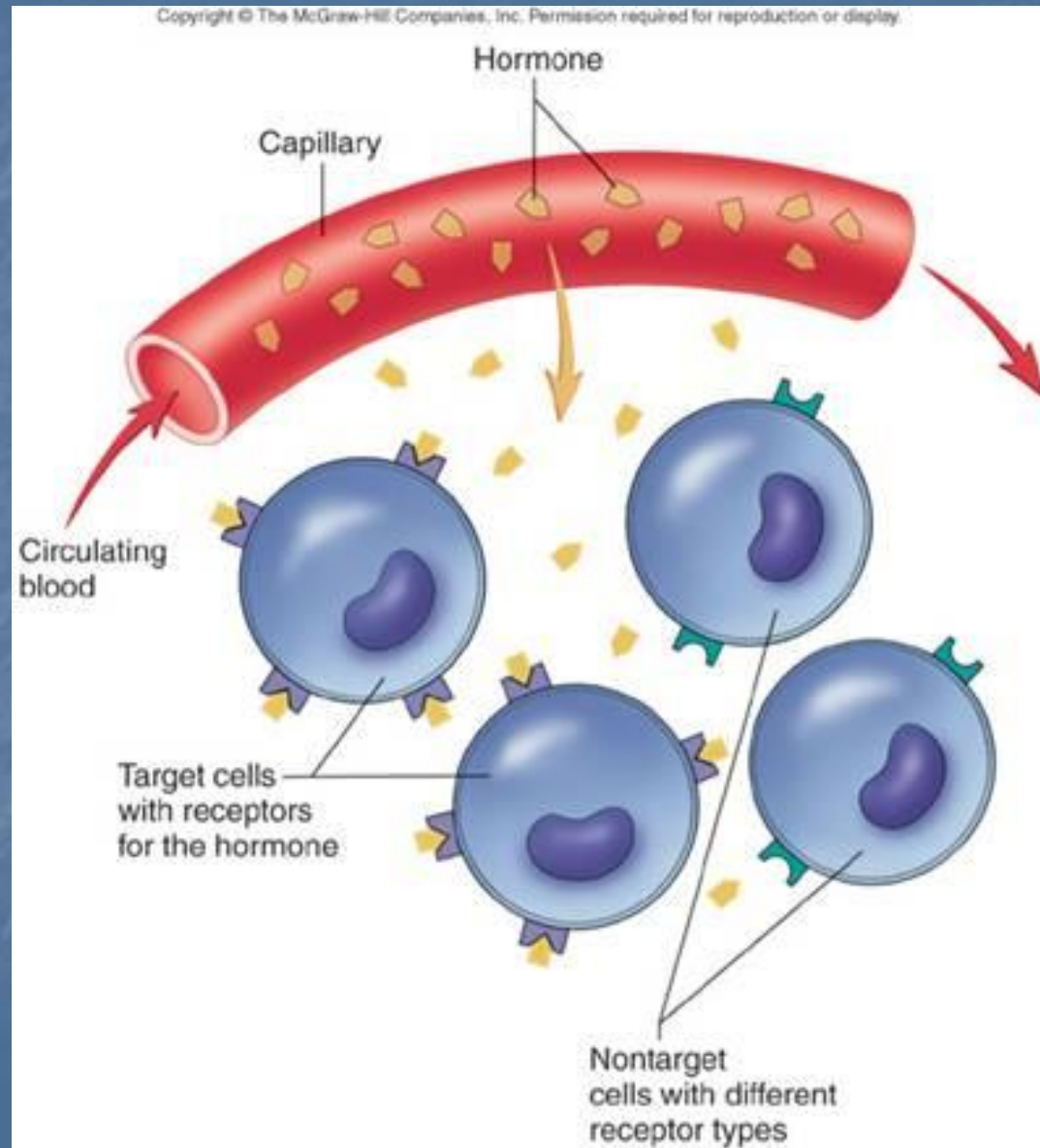
# For Example

- You see a burglar
- Nerve impulse to brain
- Brain sends impulse to adrenal glands to release adrenaline
- Heart and breathing rates increase



# How Does It Know?

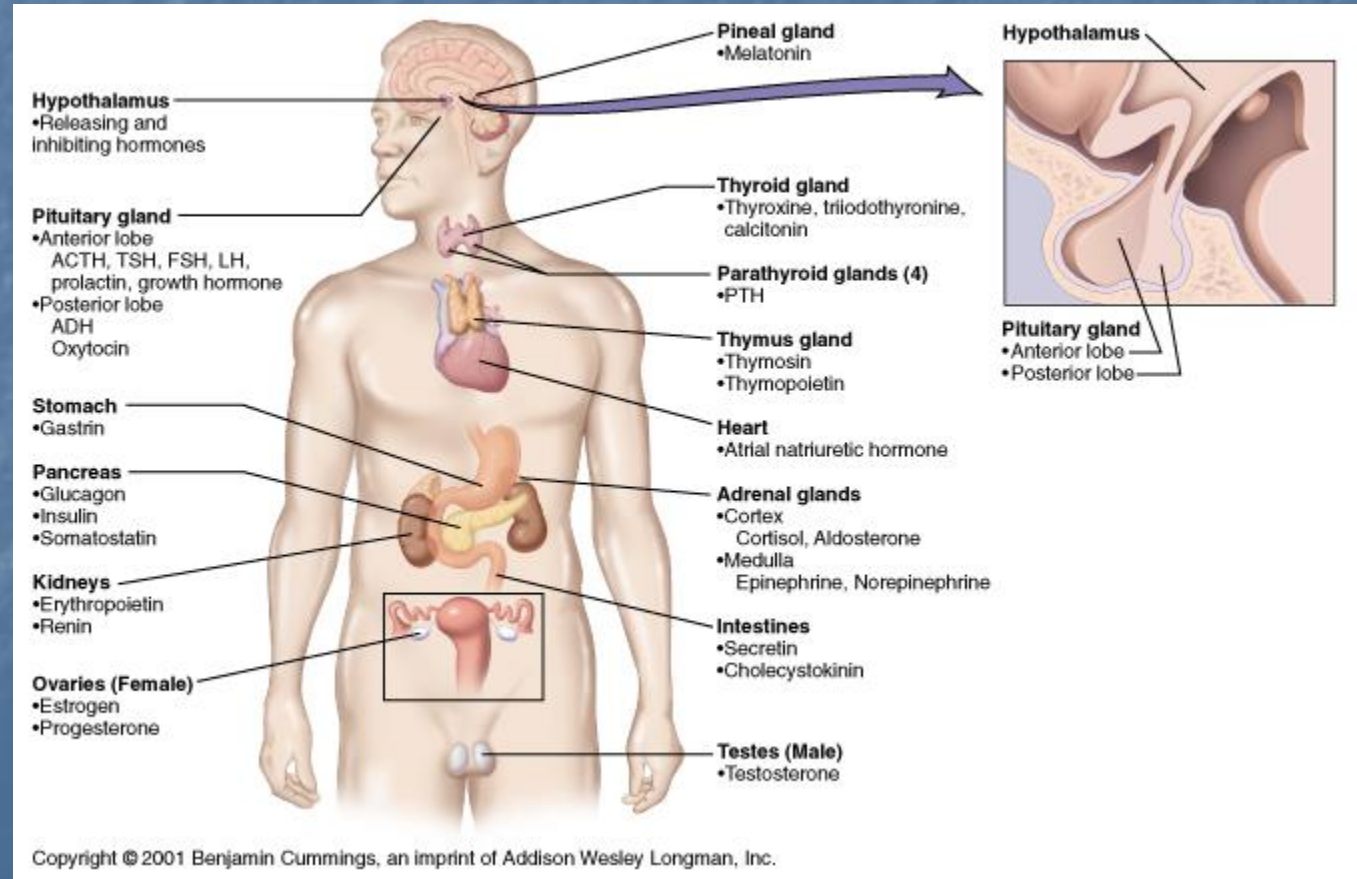
- Hormones only interact with **TARGET CELLS**
- They attach to Receptors on the cell surface with lock and key binding that is specific to tissue type





# Hypothalamus

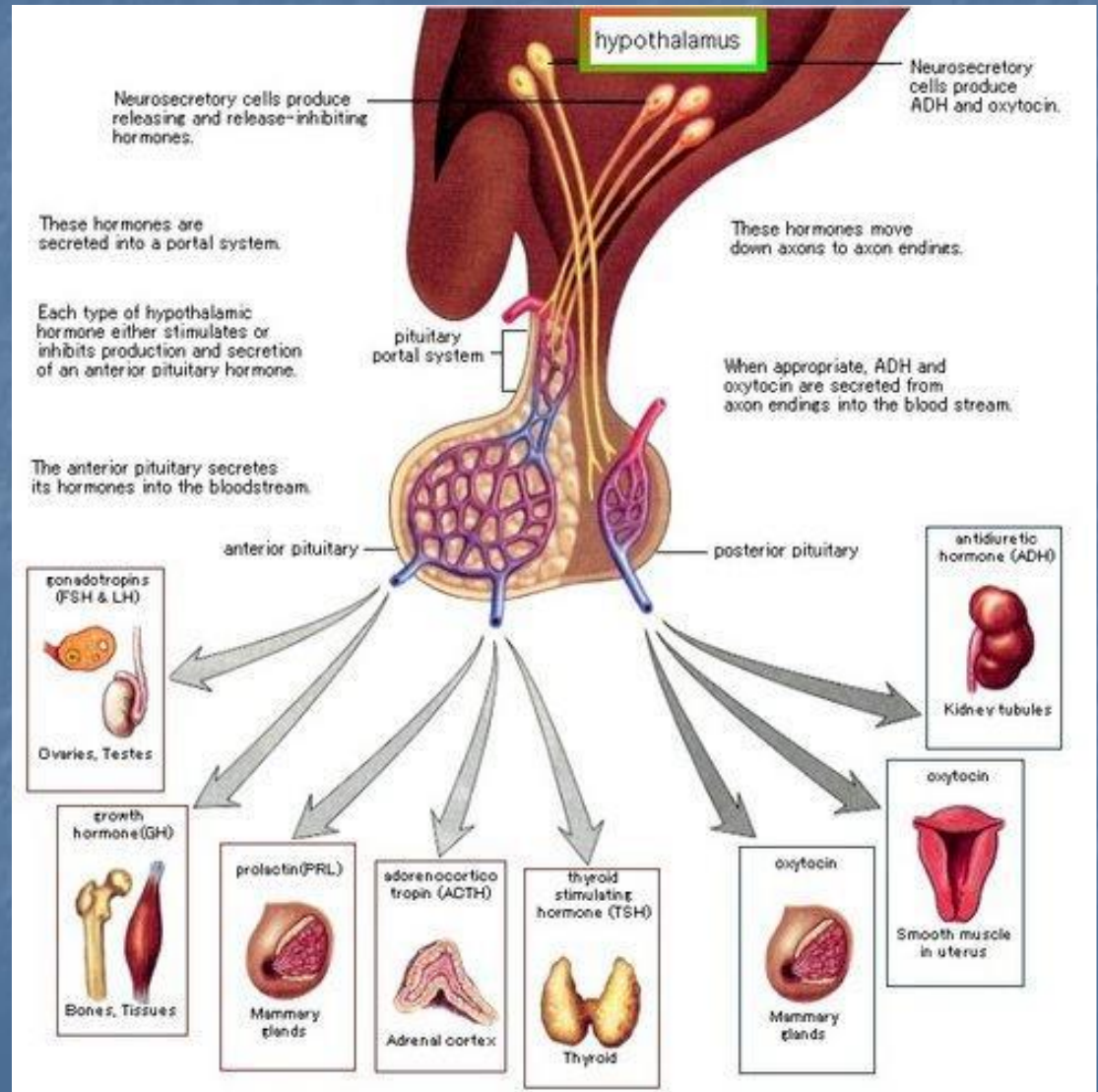
- In the cerebrum
- Links Nervous System to Endocrine System





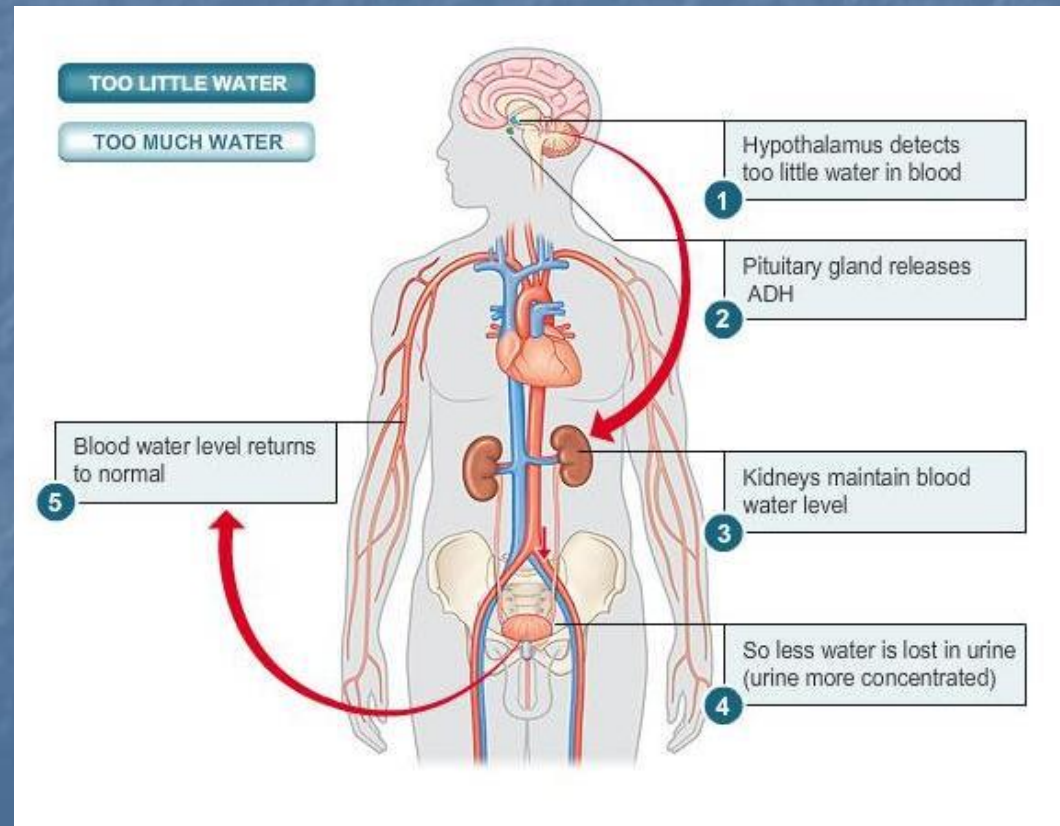
# Pituitary Gland

- “Master Gland” that regulates other glands
- Examples
  - metabolism (thyroid)
  - growth (bones)
  - puberty (gonads)
  - water regulation (kidneys)



# Negative Feedback Loop

- When hormone levels are high, endocrine system signals to stop release of hormone



# Puberty “Wake Up” Hormones

- Follicle Stimulating Hormone (**FSH**) from pituitary “wakes up” gonads
- Luteinizing Hormone (**LH**), also from pituitary, signals maturation of **sperm & egg**
- Both rise and fall together during menstrual cycle

