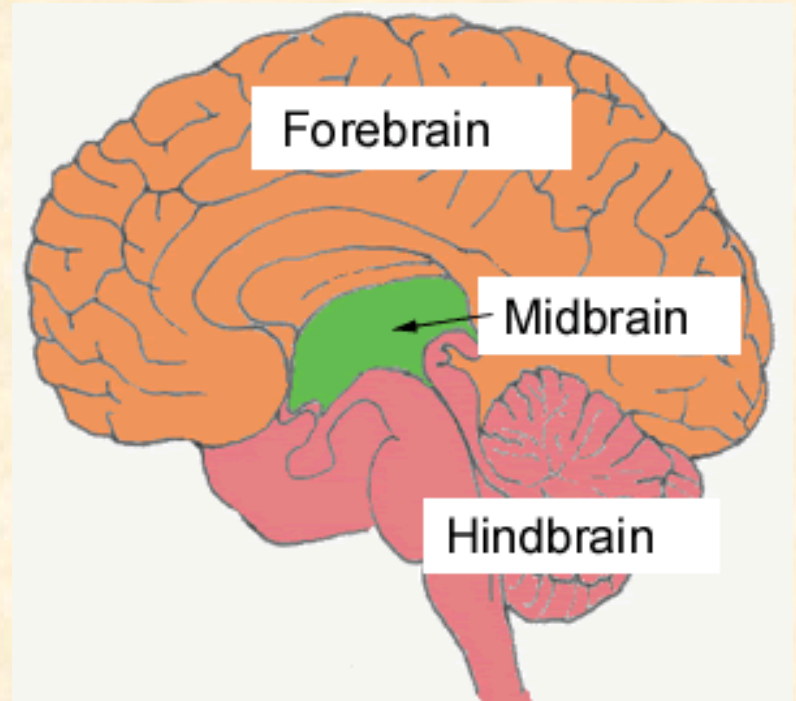


The Brain



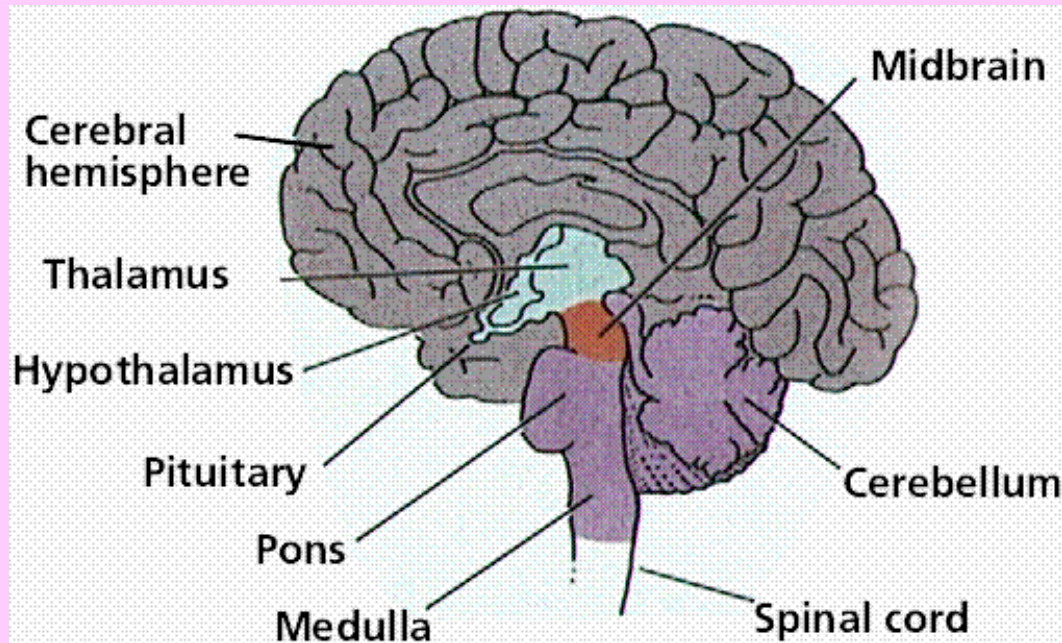
Brain Structures

1. Hindbrain
2. Midbrain
3. Forebrain
4. Cerebral Cortex (part of forebrain)



Hindbrain

- Structures on top of our spinal cord.
- Controls basic biological structures.



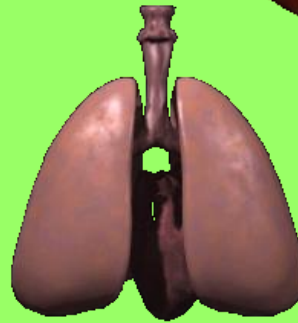
The brain in purple makes up the hindbrain.

Medulla Oblongata

- Connects the brain to the spinal cord.

Involved in control of

- blood pressure
- heart rate
- breathing
- swallowing



Disorders affecting region:
stroke

Pons

In Latin it means "bridge"

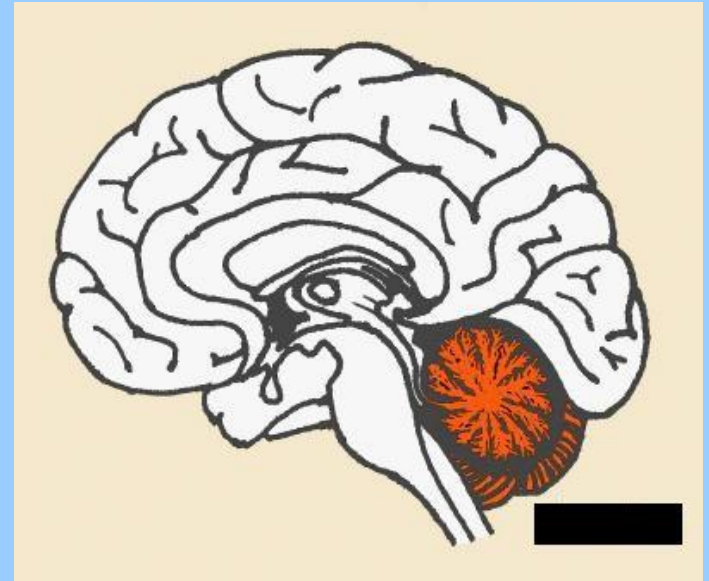


Disorders affecting region:
stroke
sleep disorders

- Located just in front of the medulla.
- Connects brainstem with cerebellum.
- Involved in sleep, arousal, vision, taste and coordination.
- Connection between higher brain functions and the body.
- Also involved in facial expressions.

Cerebellum

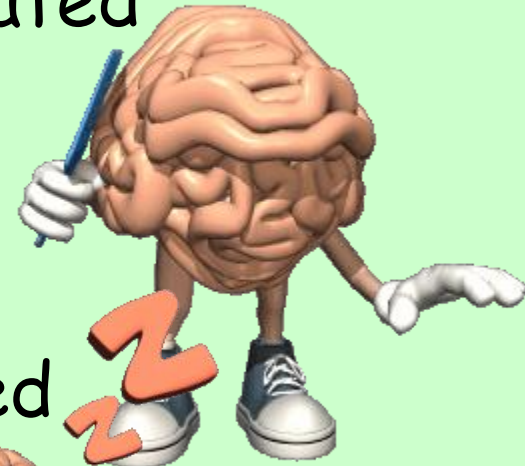
- Bottom rear of the brain.
- Coordinates fine muscle movements, balance and posture.
- Relies on information from the eyes to coordinate voluntary movements.
- Responsible for motor (procedural) memory, and implicit memory.



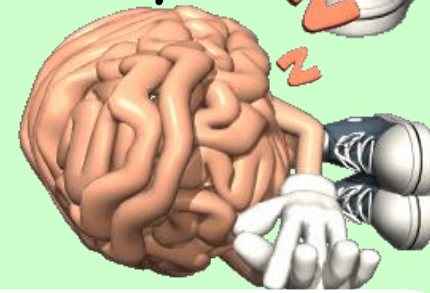
Disorders
affecting region:
stroke

Midbrain ^{2 cm long}

If stimulated



If Destroyed



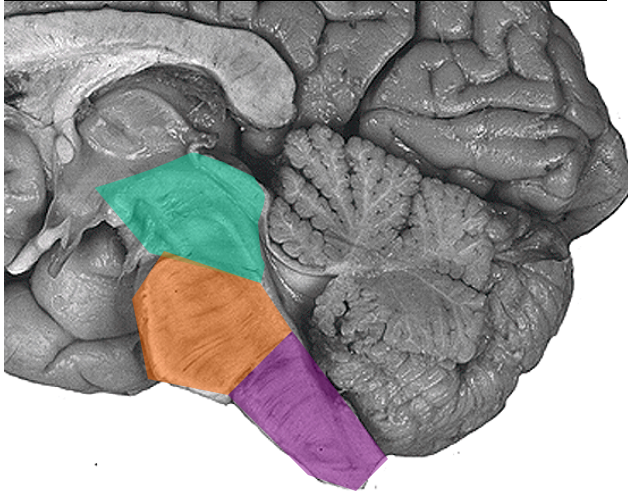
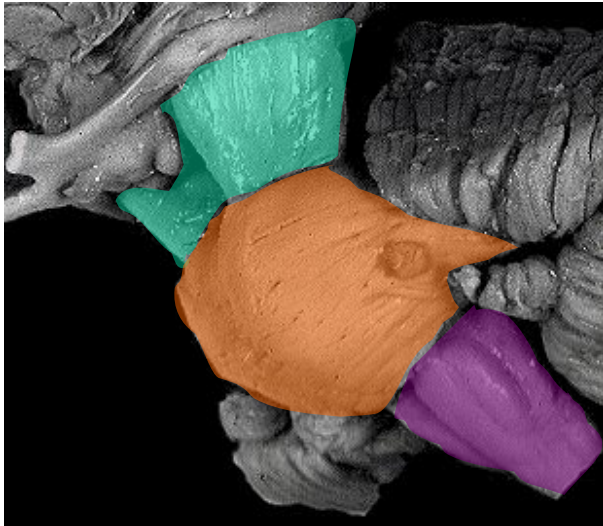
- Coordinates simple movements with sensory information.

- Most important structure in Midbrain is the **Reticular Formation**: controls arousal and ability to focus our attention.

A cat with a cut reticular formation lapses into a permanent coma.

Disorders affecting region:
sleep disorders
schizophrenia

Brain Stem

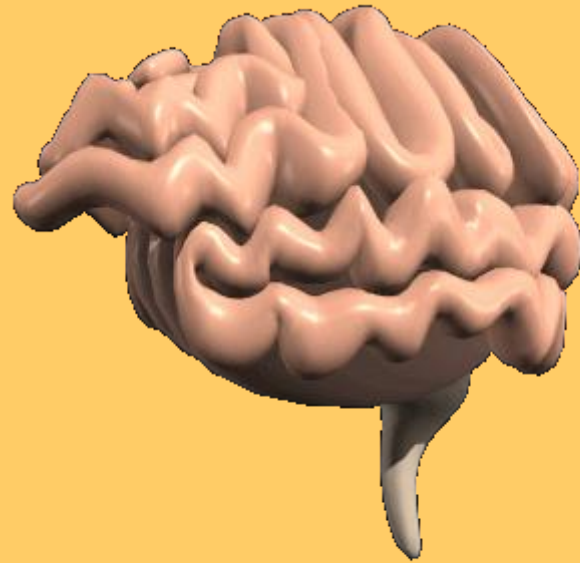


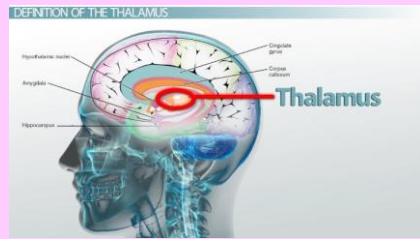
- Midbrain (Essentially, the parts we have just discussed, minus the cerebellum)
- Pons
- Medulla

1. Ascending and descending neural cables run through it
2. Contains reflex centers that are associated with respiration and CVS.

Forebrain

- What makes us human.
- Largest part of the brain.
- Made up of the Thalamus, Limbic System and Cerebral Cortex.





Thalamus



- Sensory router of the brain.
- Receives sensory signals from the spinal cord and sends them to other parts of the forebrain.
- Routes every sense except smell.

Also like cell phone tower, 911 dispatcher, air traffic controller, airport terminal.

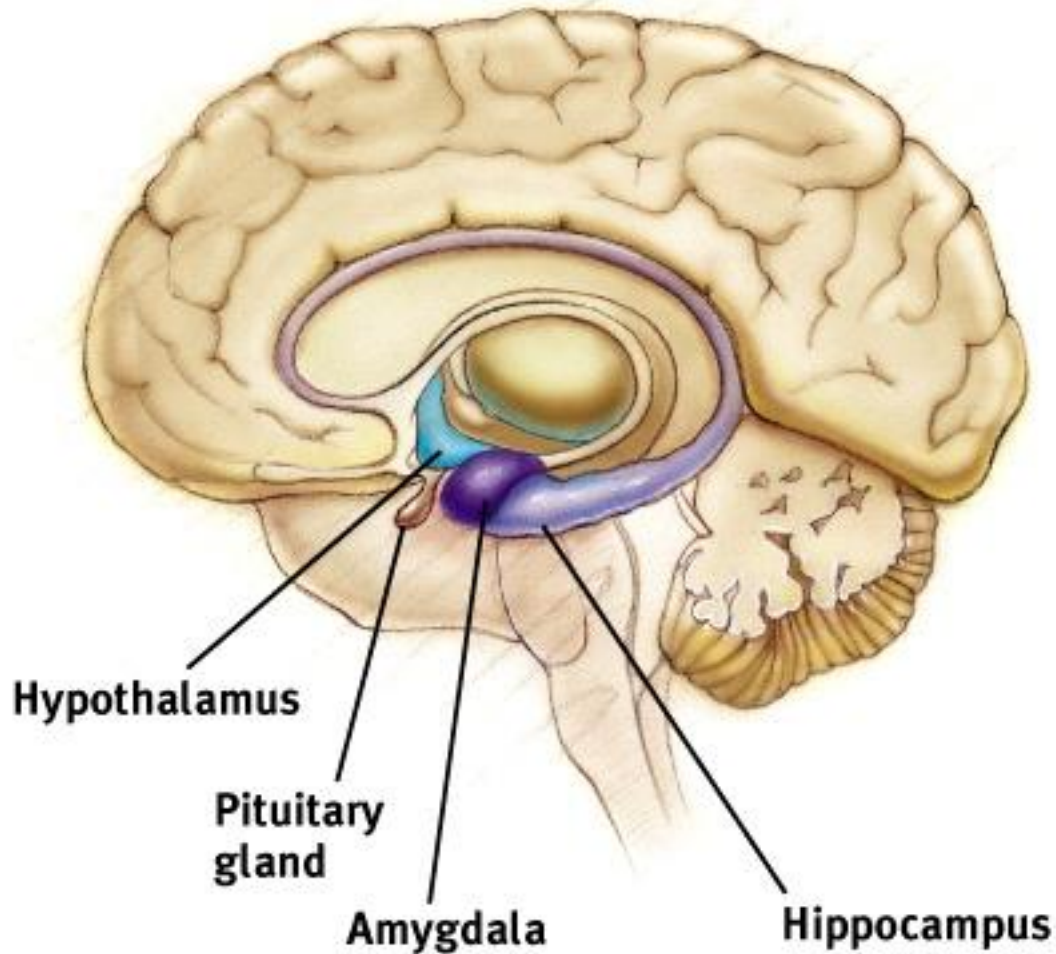


A router determines how information is passed in the most efficient manner.

Without **Thalamus**, the brain cannot diagnose the sensory information transmitted to it.



The Limbic System



- Expands on the more basic functions of the brain stem.
- Involved in instinctive behaviors and deep-seated emotions such as:
 - ✓ Sex
 - ✓ Anger
 - ✓ Pleasure
 - ✓ General survival

Hippocampus

- Involved in the conscious processing and storage of explicit & declarative memories.
- Connects present with prior memories
- Damage to the area can prevent a person from forming new memories, even though memories from before the damage remain intact.



Disorders affecting region:
Alzheimer's Disease
mania

A Damaged Hippocampus

