

Hypothalamus

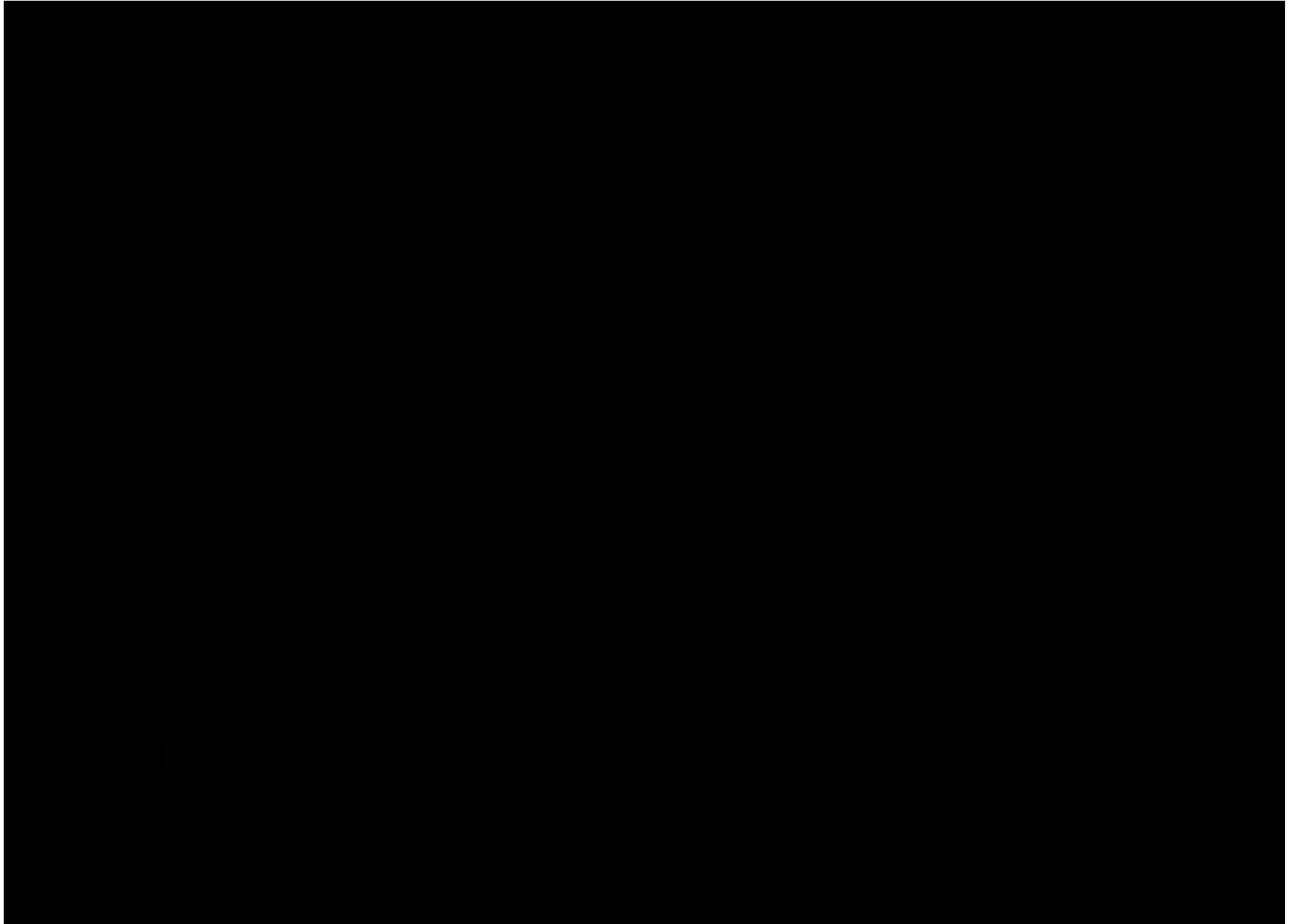


Remember
the 4 F's
kids!

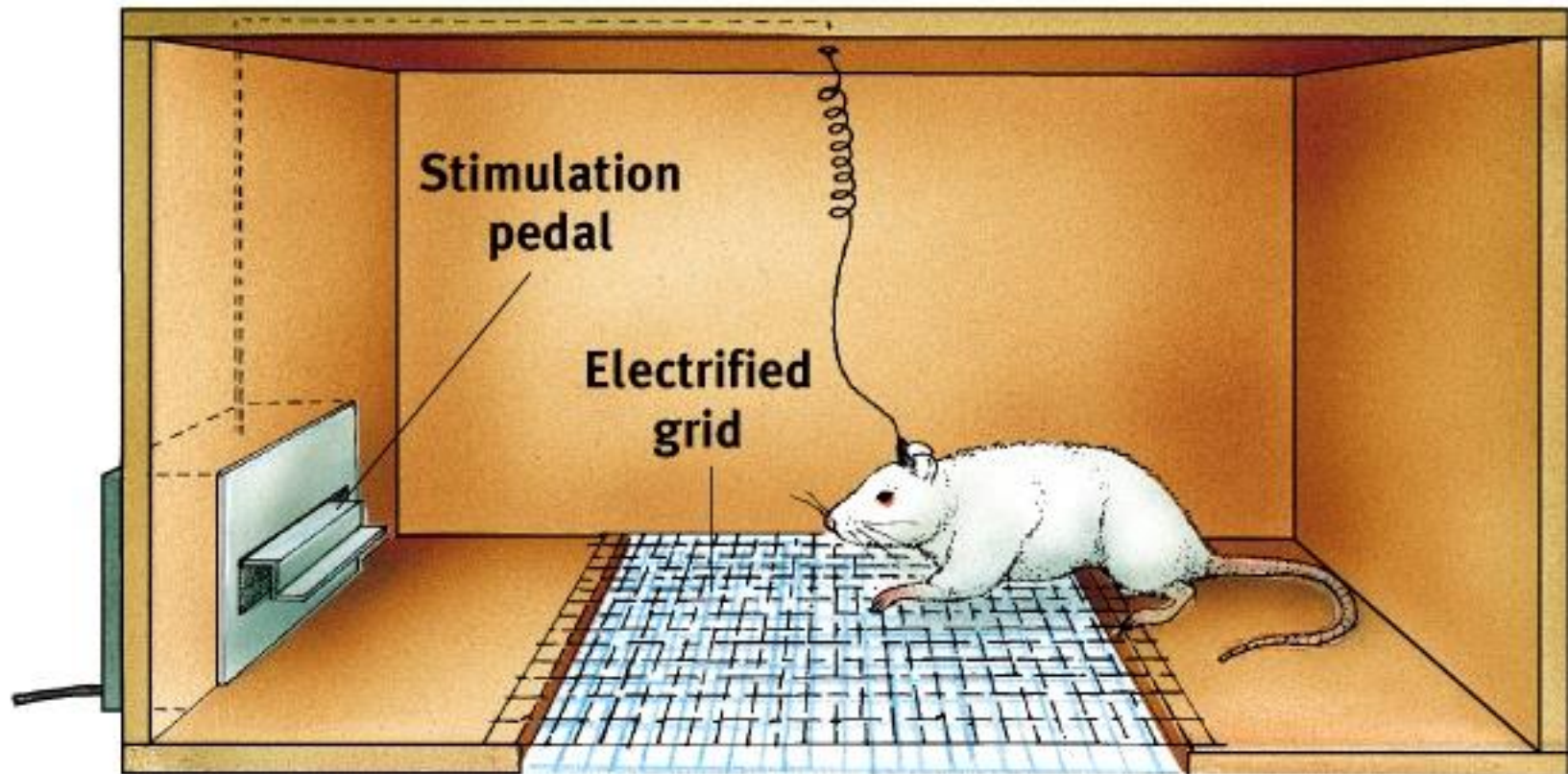


- Maybe most important structure in the brain.
- Links nervous system and endocrine system via the *pituitary gland*
- Controls and regulates
 - Body temperature
 - Sexual Arousal
 - Hunger
 - Thirst
 - Endocrine System

The Hypothalamus and orexin



Rat with an Implanted Electrode in reward center of Hypothalamus



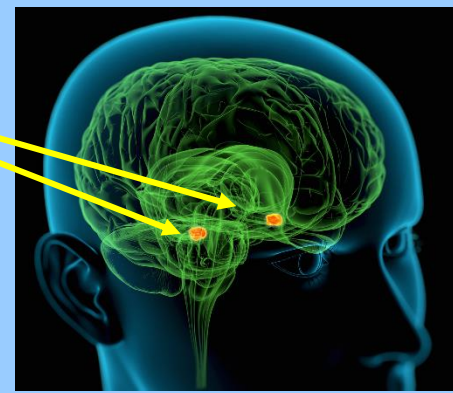


The Hypothalamus, reward centers and drug addiction



Amygdala

- Involved in learning, and the processing of emotional memories.
- Measures sensory input for potential threat level, then → hypothalamus
- Regulates volatile emotions like fear and anger.



Disorders affecting region:

depression
anxiety

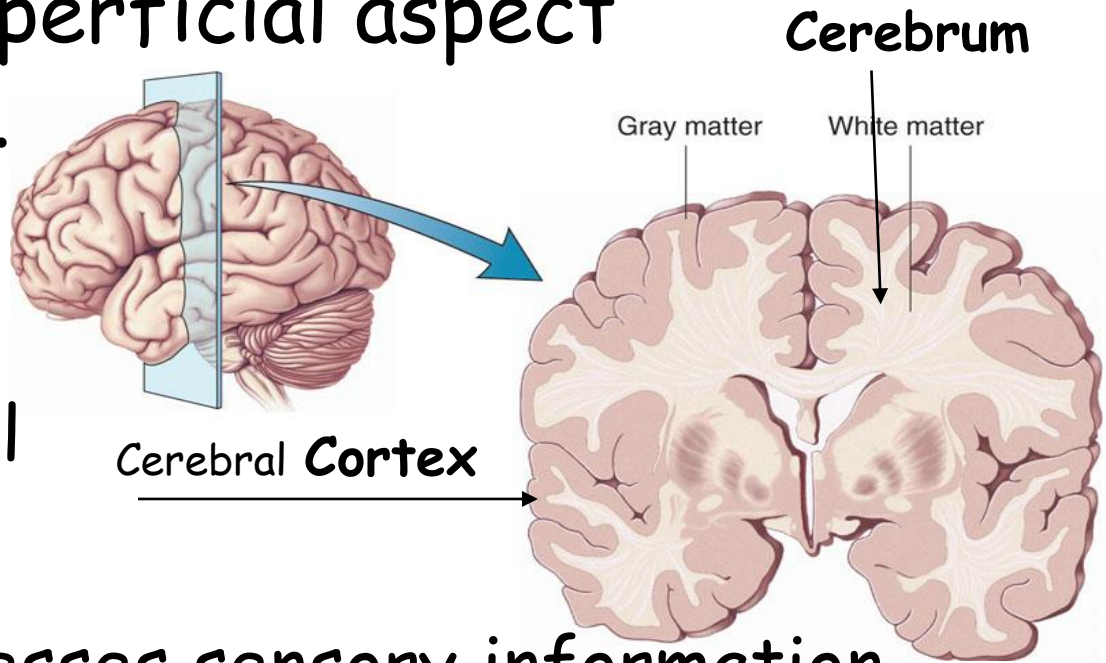
Cerebrum -The largest division of the brain. It is divided into two hemispheres, each of which is divided into four lobes.



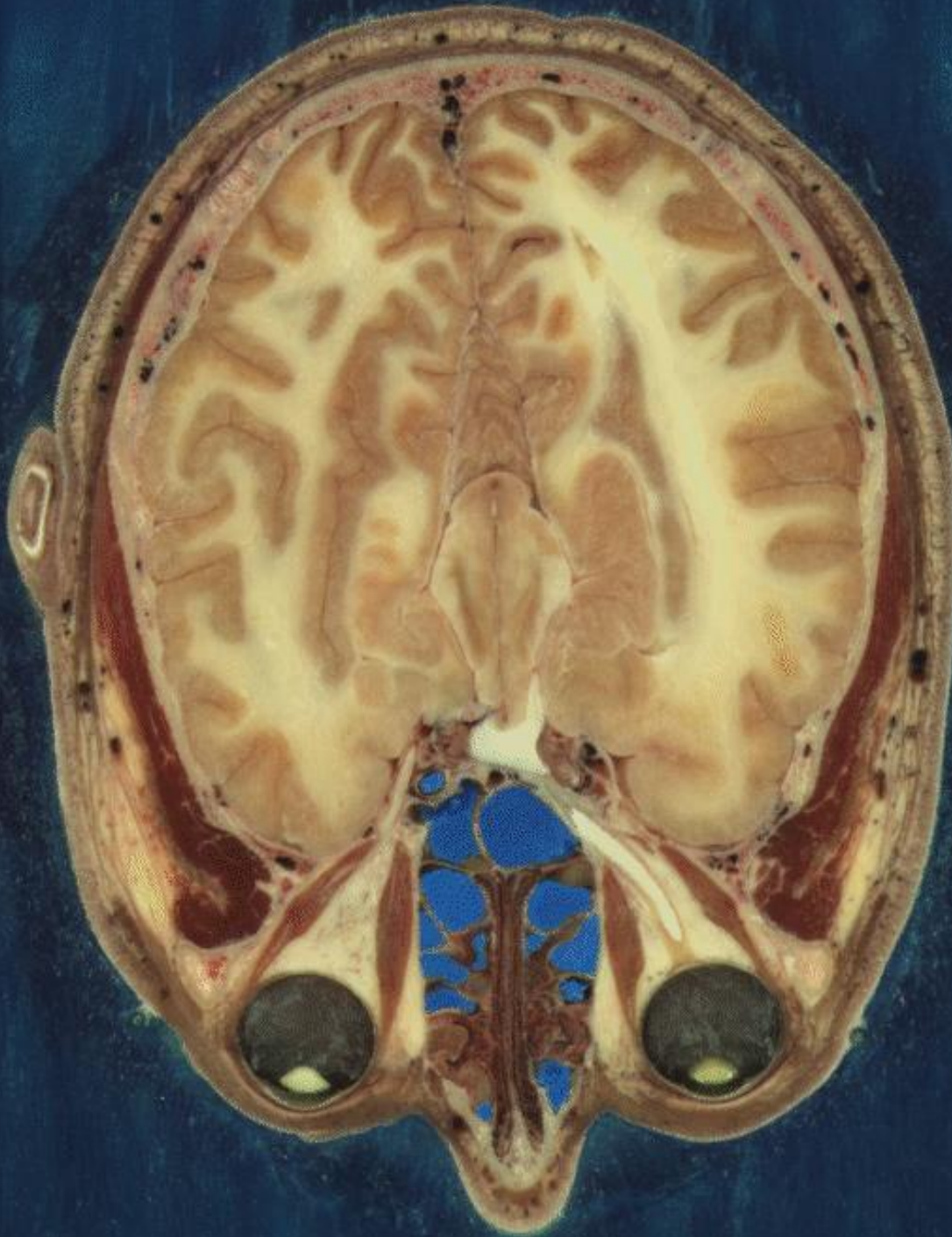
Cerebral Cortex - The outermost layer of gray matter making up the superficial aspect of the cerebrum.

Neurons in cerebral cortex: 16.5 billion

Glial cells in cerebral cortex: 60 billion



- Receives and processes sensory information.
- Made up of densely packed neurons we call "gray matter".
- Glial Cells - Supports brain cells, creates myelin, involved with learning and thinking, they "clean up" NT's and ions. "Neural nannies"



White matter

- 60% of brain
- Myelinated
(causes color)
- Transmission
to and from gray, and
from gray to other
parts of the body

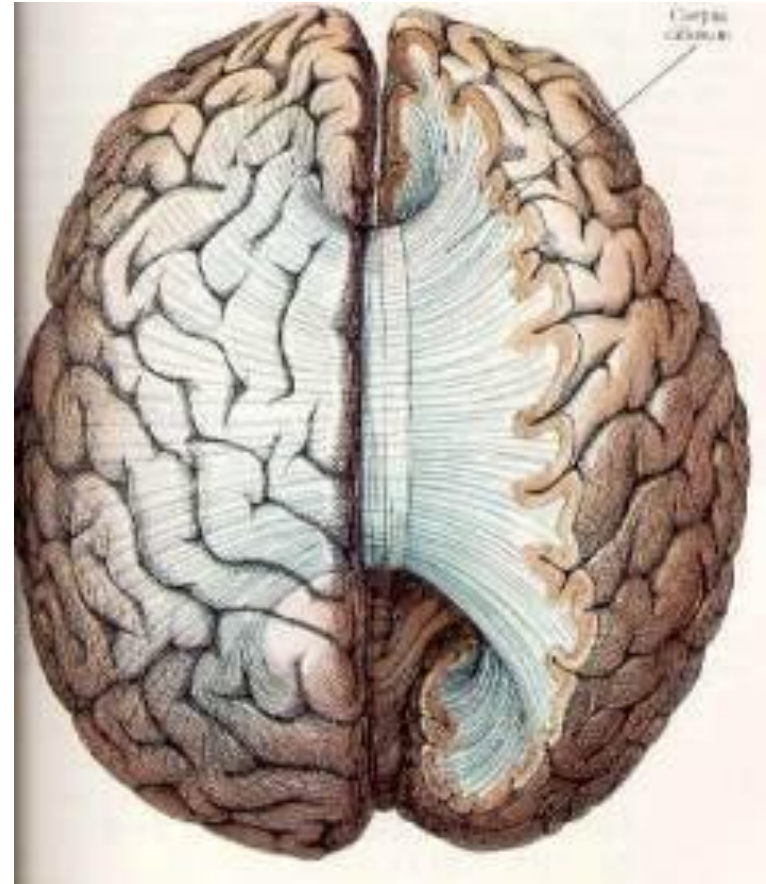
Gray matter

- 40% brain
- Gray nuclei causes
color
- No myelin
- Processing and
"decisions"

Cerebral Cortex Principles

Lateralization

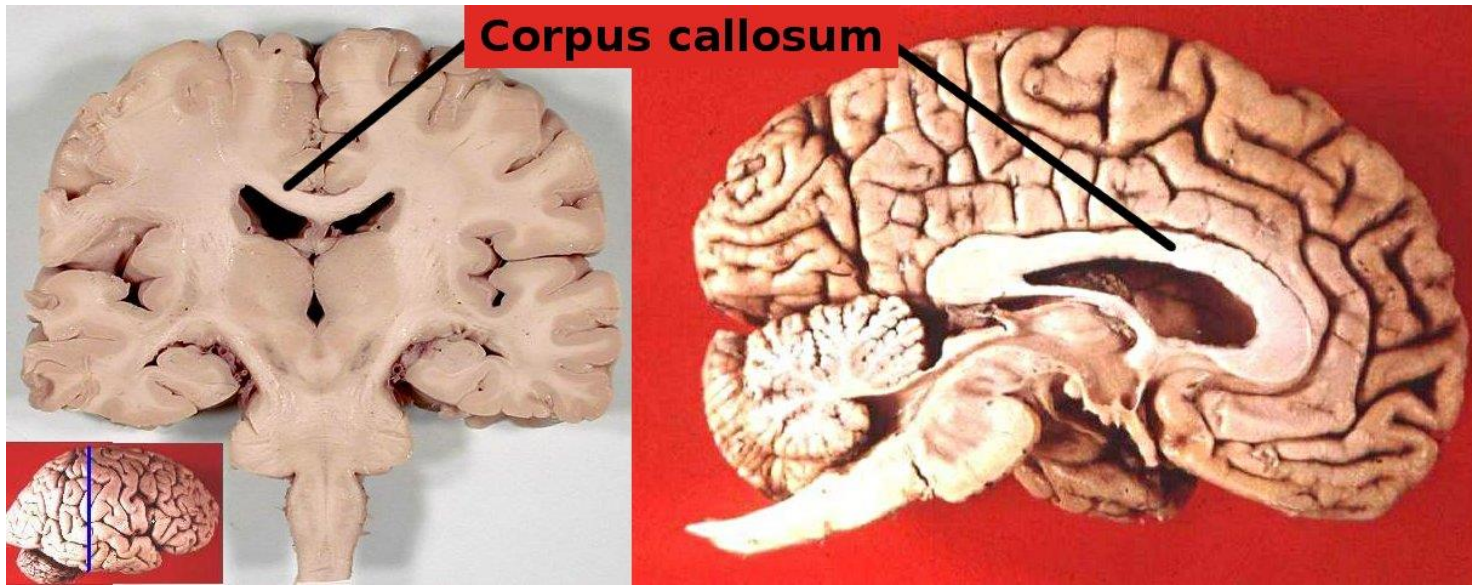
- ❑ The two different cerebral hemispheres (halves of the brain) DO differ.
- ❑ The hemispheres are connected via the corpus callosum.



Cerebral Cortex Principles

CORPUS CALLOSUM

- Largest white matter structure in the brain.
- Neural fibers connecting left and right lobes.
- Allows communication between hemispheres.
- Primary function is to connect gray areas together with neural impulses.



Cerebral Cortex Principles

- **contralaterality**—the right half of your brain controls the left half of your body and vice versa. (contralateral control.)
- **Localization of function**
 - Specific mental processes are correlated with discrete regions of the brain.
 - Explicit memory encoding ??????
 - "talking" to the endocrine system ??????
 - Forming words *We will find out*
 - Thinking of words *We will find out*
- **Hemispheric Specialization (lateralization)**
 - Each lobe of the brain has specialized functions *(Have to be careful with this one.)*