

• Epinephrine (adrenaline) is produced by the adrenal glands so it is a hormone but it also exists in the brain and is a neurotransmitter.

• The effect of the endocrine system on behavior.

• Interaction: Hypothalamus (brain region controlling the pituitary gland).

Cholera

Testosterone.

Hormone cause emotion?
Emotion cause hormone?
Think vs. Feel.

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Major Brain Area: - Hindbrain, Midbrain, Forebrain. ^{largest area.}

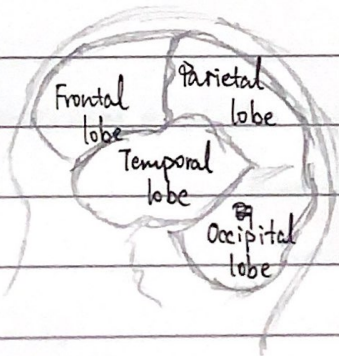
- Brainstem, ~~visceral info.~~ Cerebellum, Thalamus, and Reticular formation.

Forebrain (subcortical)

• Limbic system: Donut shaped group of structures ~~included~~ including the hippocampus, amygdala, hypothalamus.

• Pituitary gland: Endocrine gland located below the cortex and the below the hypothalamus.

Cerebrum - 4 lobes



The brain has left and right hemispheres.

Output: Motor cortex (right hemisphere section controls the body's left side).

Input: Somatosensory Cortex (left hemisphere section receives input from the body's right side).

~~Motor~~ Motor and Somatosensory ~~homunculus~~ homunculus: A model of the proportion of the motor cortex dedicated to moving each body part and sensory cortex dedicated to touch sensation for each part of the body is depicted by its size on the distorted figure.

Cerebrum: The largest area of the brain including the surface (cortex) and subcortical regions in each of the two hemispheres. Functions include language, complex thought, consciousness, and sensory and motor processing.

Corpus callosum: A group of nerve fiber that relay information between the two ~~half~~ halves of brain.

Cerebral Cortex: The approximately 1/4" thick, wrinkled outer layer of the brain covering both hemispheres. Includes the motor cortex, somatosensory cortex, auditory cortex, visual cortex, and olfactory and gustatory areas. It also contains numerous association areas for thought, language, and reasoning.

Cerebellum: The cauliflower shaped "little brain" responsible for controlling balance, coordinating fine motor movement, and the creation of procedural implicit memories. This structure is located in the hindbrain.

Association areas - The regions on the cerebral cortex not responsible for either sensory or motor functions that are instead related to higher-level thinking including language, ^{Speaking} Broca's area and ^{Hearing} Wernicke's area) and reasoning.

Language Association Areas

Paul Broca - Found early evidence for the region responsible for language production in the brain.

Carl Wernicke - Found early evidence for the region responsible for language comprehension in the brain.

Brain Lateralization and Hemisphere ~~Specialization~~ Specialization

Left hemisphere - contains most language-related functions (Broca's and Wernicke's Area).

Right hemisphere - contains areas specializing in ~~rec~~ recognizing faces and ~~emotional~~ emotional responses.

Split Brain Surgery - A procedure in which the ~~corpus~~ corpus callosum (the network of fibers connection to the two hemispheres) is cut to treat severe epileptic seizures.

- No effects on personality or ~~the~~ intellect and seizures were mostly eliminated.

- Research on individuals who have had split brain surgery allows neuroscientists to study lateralization of function and ~~hemisphere~~ hemispheric specialization.

- Split-brain ~~participate~~ participants are put in front of an apparatus that presents images in only one visual field (flushed ~~briefly~~ briefly). In a split-brain patient under these conditions, only it is ~~re~~ possible to see the hemisphere that controls language.

Split Brain Research - Participants look at a central focal point and images are briefly flashed to either their left or right visual field.

- Word or ~~symbol~~ symbols shown to the left Visual Field are sent to the Right hemisphere. The right hemisphere controls the Left Hand.

- Words or symbols shown to the Right Visual Field are sent to the Left hemisphere. The left hemisphere controls the Right Hand.
- Participants look at a central focal point, and images are briefly flashed to either their left or right visual field.

Results Split Brain Studies - Left Visual Field.

- Images sent to the left visual field only are sent to the right hemisphere.
- Because the right hemisphere has no language, the individual cannot name the object and cannot write the word.
- Because the right hemisphere controls the left hand, the person can pick the object out of a group of other objects with their left hand.
- If they are asked to draw the object with their left hand, they will eventually recognize what they are ~~draw~~ drawing and say the word.

Result Split Brain Studies - Right Visual Field.

- Images sent to the right visual field only are sent to the left hemisphere.
- Because the left hemisphere has the language association areas, the individual can name the object or say the word.
- Because the left hemisphere controls the right hand, the person can pick the object out of a group of other objects with their right hand.