

The Brain: Brainstem

Figure 2.15, page 69

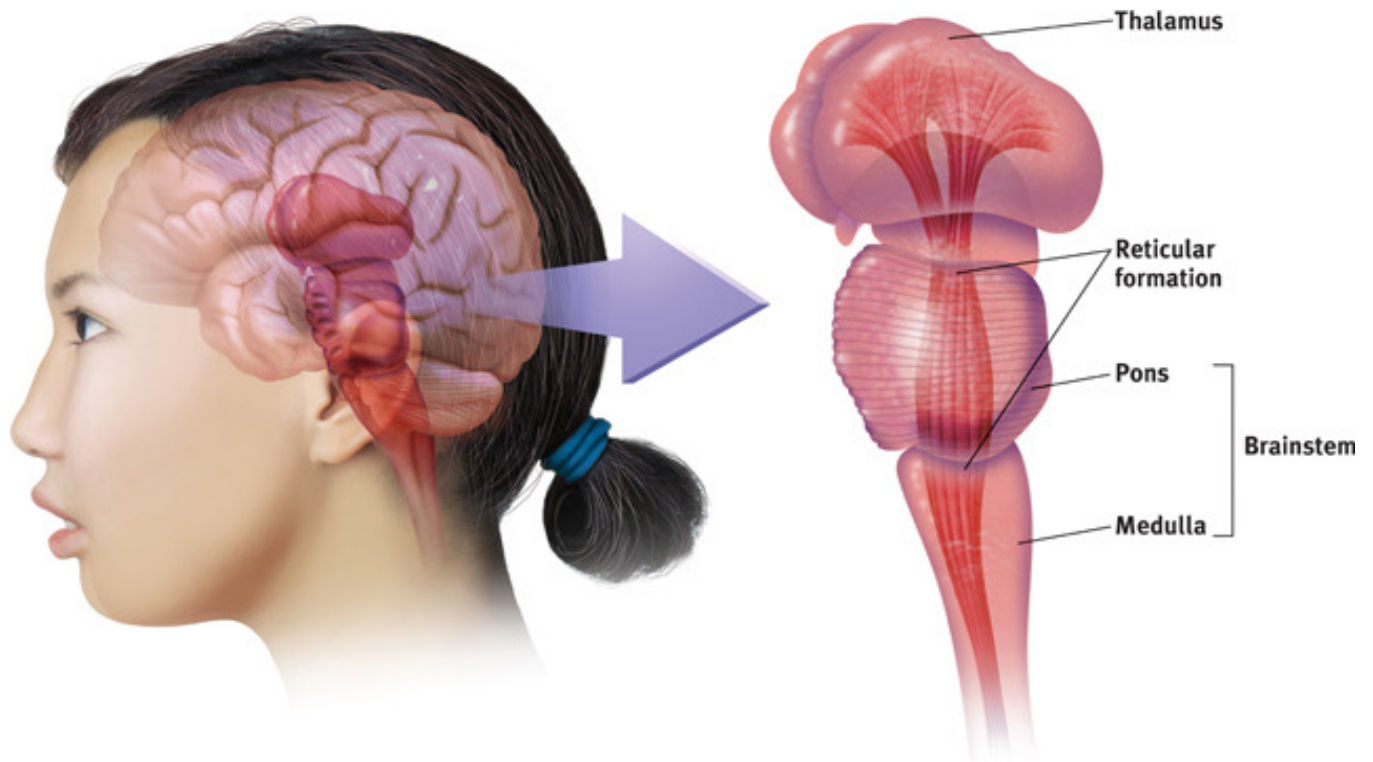


image source: Myers and DeWall, *Psychology*, 11th edition, 2015

<u>Brain Stem</u>	The oldest part of the central core of the brain, beginning where the spinal cord swells as it enters the skull; the brainstem is responsible for automatic survival functions.
• Medulla	The base of the brainstem; controls heartbeat and breathing.
• Pons	Helps coordinate movements and controls sleep.
• Thalamus	The brain's sensory control center, located on top of the brainstem; it directs messages to the sensory receiving areas in the cortex and transmits replies to the cerebellum and medulla.
• Reticular Formation	A nerve network that travels through the brainstem into the thalamus and plays an important role in controlling arousal.
• Cerebellum	The "little brain" at the rear of the brainstem; functions include processing sensory input, coordinating movement output and balance, and enabling nonverbal learning and memory.

Medusa

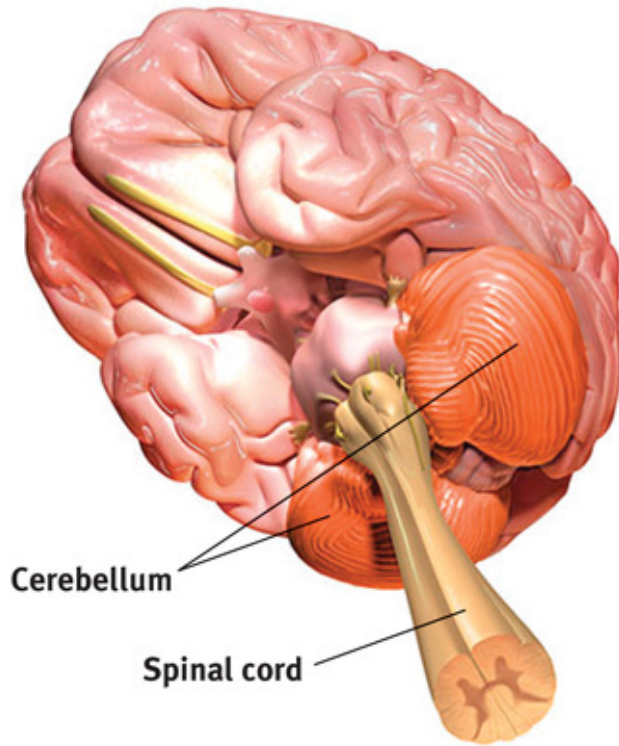


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**Medulla
Medusa**

The Cerebellum

Figure 2.17, page 70



The Brain: The Limbic System

Page 2.18, page 71

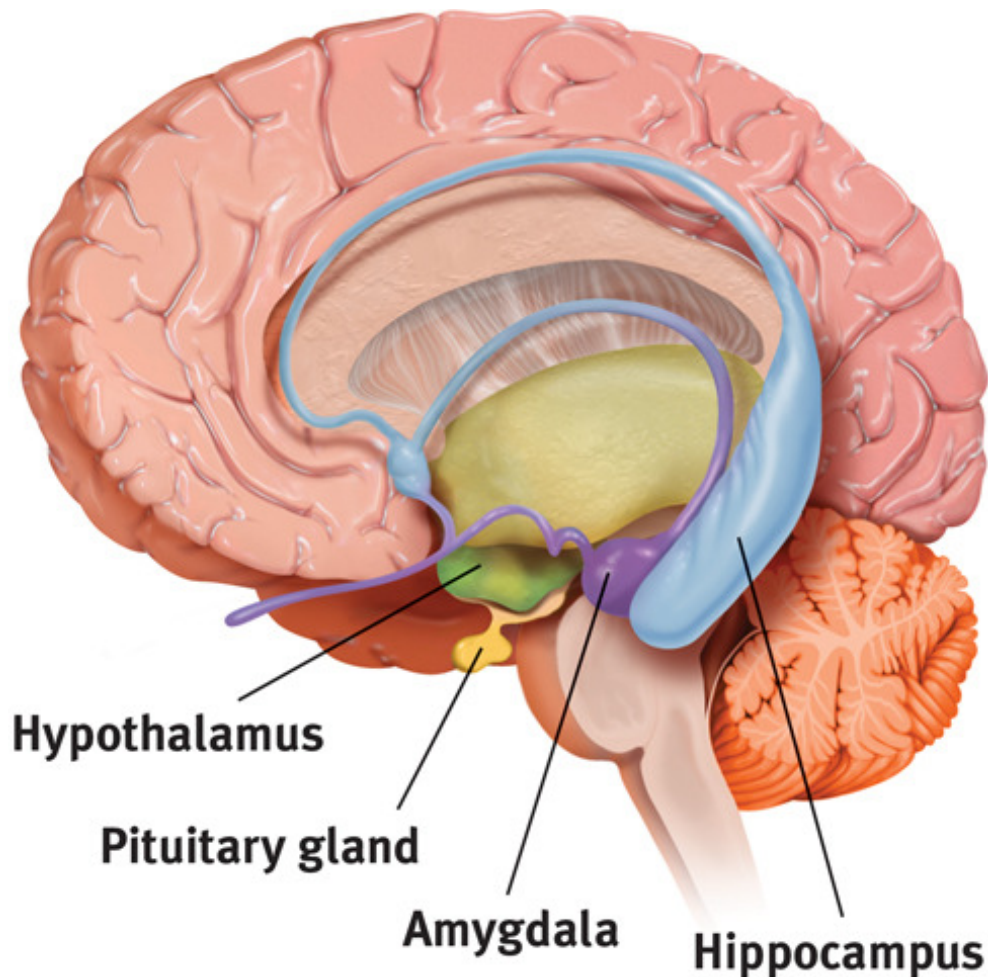


image source: Myers and DeWall, *Psychology*, 11th edition, 2015

The Limbic System: Neural system located below the cerebral hemispheres; associated with emotions and drives.

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- | | |
|----------------|--|
| • Amygdala | Two lima-bean-sized neural clusters in the limbic system; linked to emotion. |
| • Hypothalamus | A neural structure lying below the thalamus; it directs several maintenance activities (eating, drinking, body temperature), helps govern the endocrine system via the pituitary gland, and is link to emotion and reward. |
| • Hippocampus | A neural center located in the limbic system; helps process explicit memories for storage. |
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The Brain: Cerebral Cortex

Figure 2.23, page 75

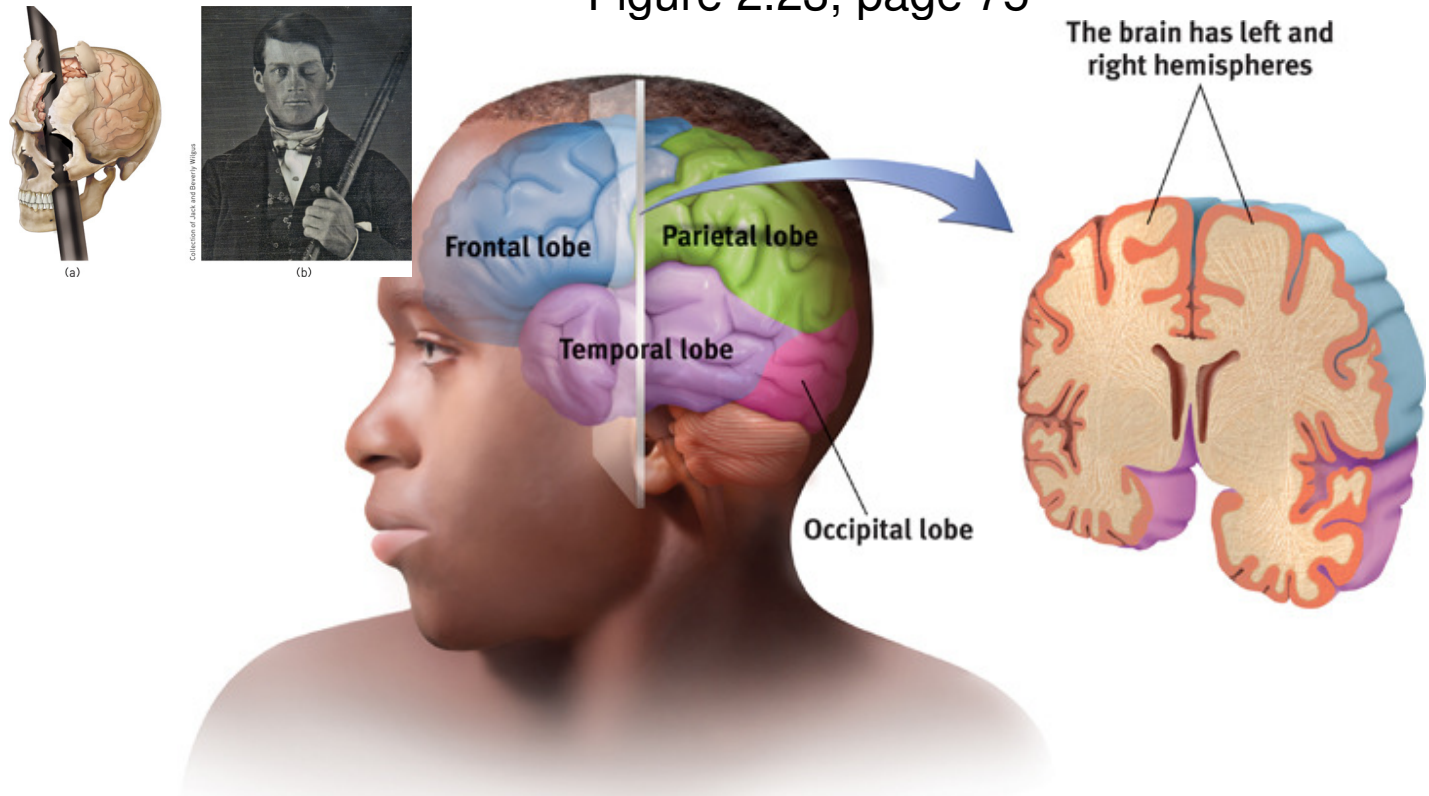
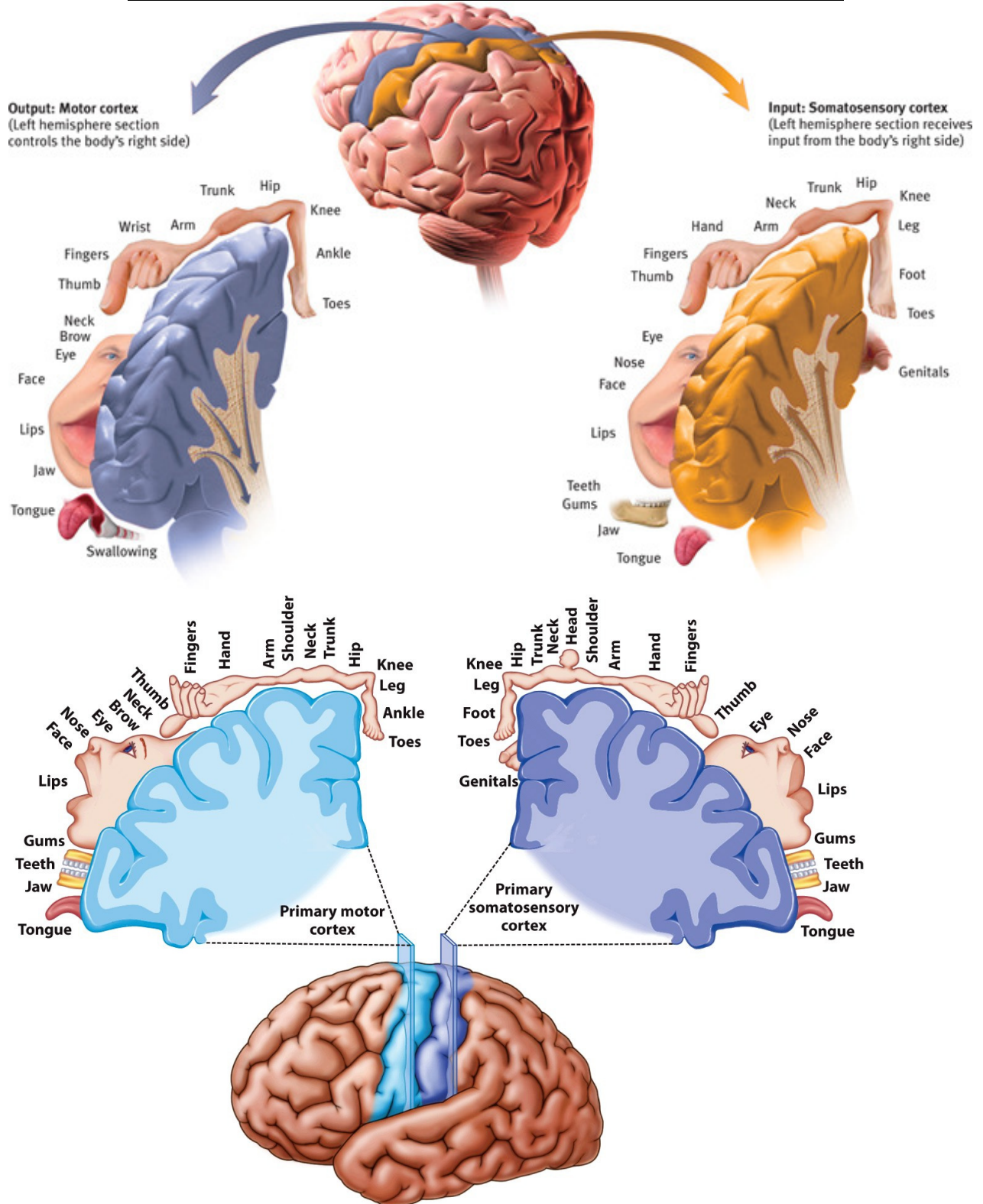


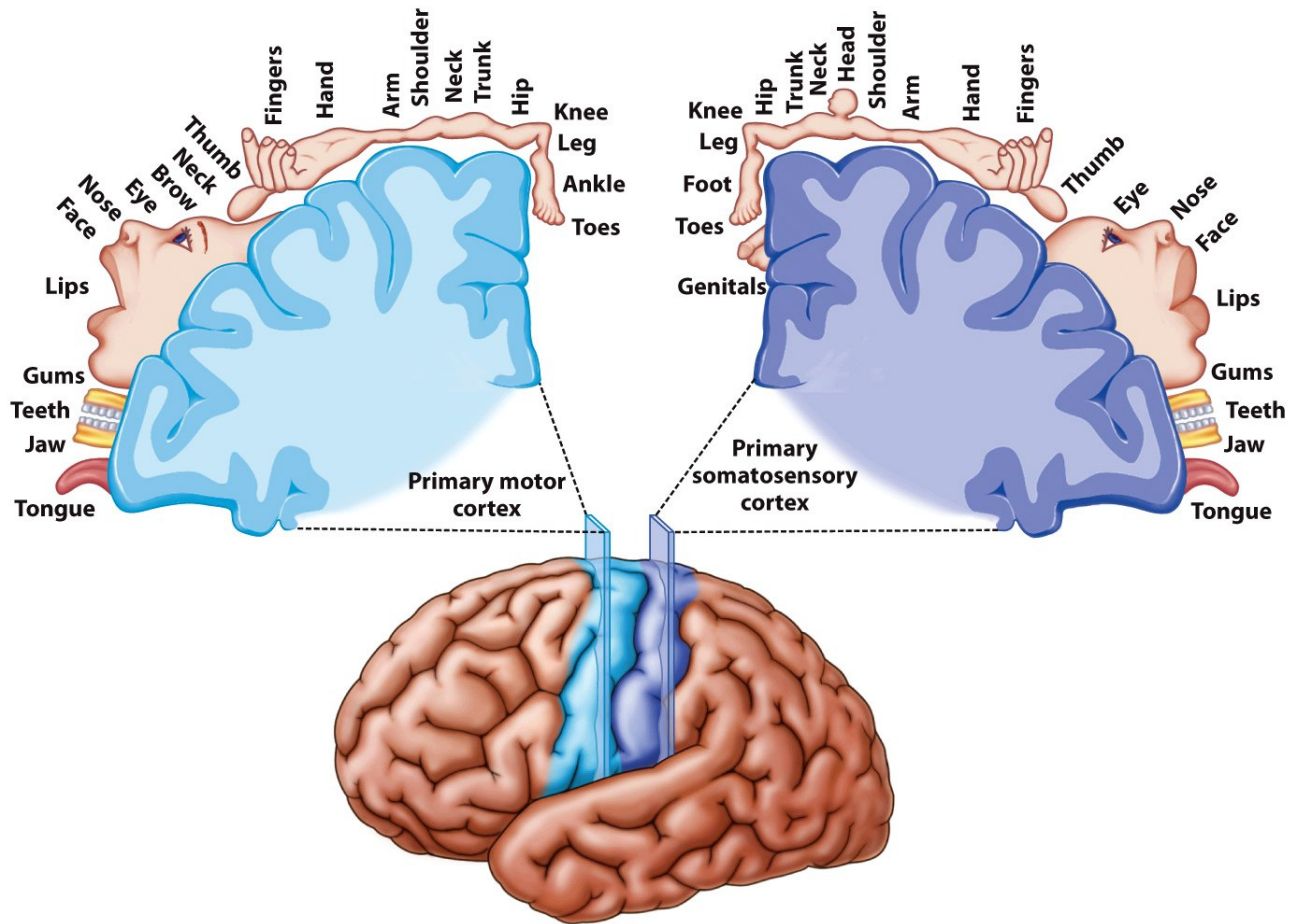
image source: Myers and DeWall, *Psychology*, 11th edition, 2015

The Cerebral Cortex: The intricate fabric of the interconnected neural cells covering the cerebral hemispheres; the body's ultimate control and information-processing center.

- | | |
|-------------------|--|
| • Frontal lobes | Portion of the cerebral cortex lying just behind the forehead; involved in speaking and muscle movements and in making plans and judgments. |
| • Parietal lobes | Portion of the cerebral cortex lying at the top of the head and toward the rear; receives sensory input for touch and body position. |
| • Occipital lobes | Portion of the cerebral cortex lying at the back of the head; includes areas that receive information from the visual fields. |
| • Temporal lobes | Portions of the cerebral cortex lying roughly above the ears; includes the auditory areas, each receiving information primarily from the opposite ear. |
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Motor Cortex and Somatosensory Cortex





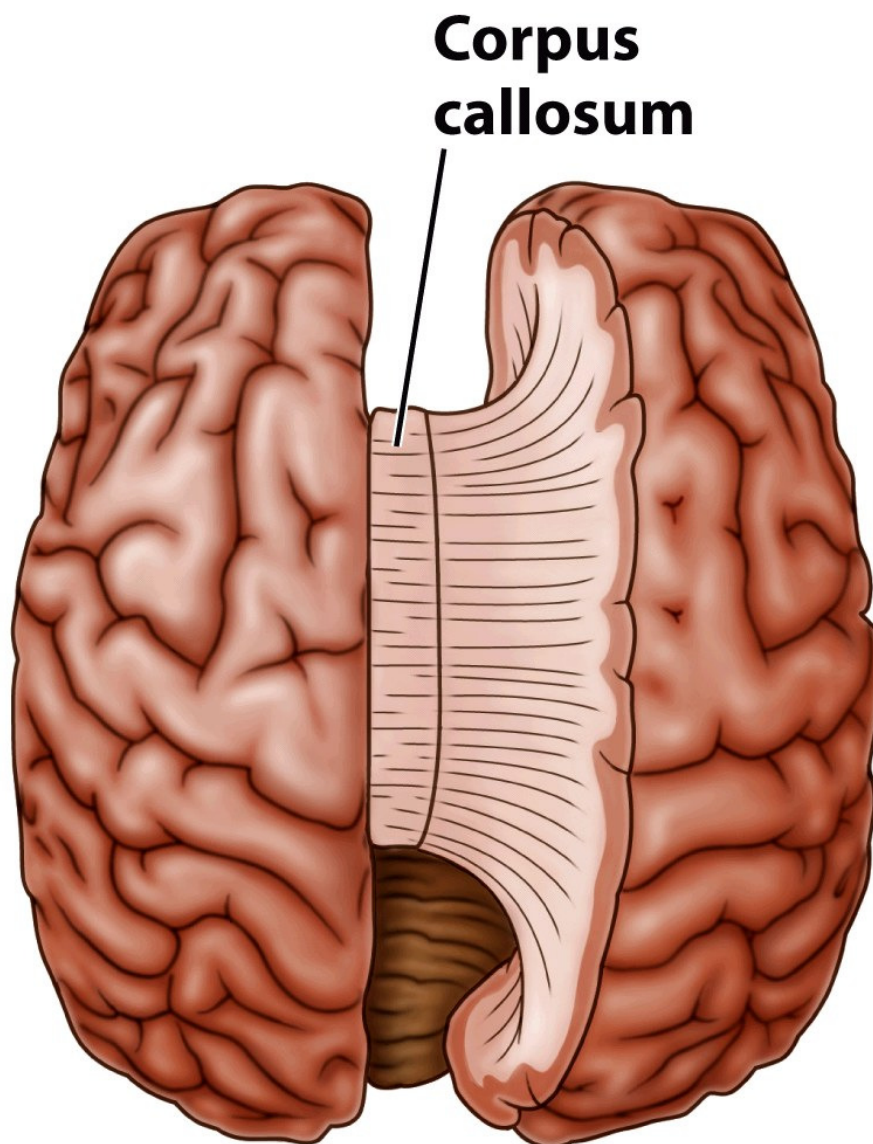
Psychological Science, 4/e Figure 3.21a
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image source: Gazzaniga, Heatherton, Halpern, Psychological Science (2013).



(image source: Schacter, Gilbert and Wegner, (2011), Psychology 2nd edition)

The Brain: Cerebral Cortex



Psychological Science, 4/e Figure 3.20
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Corpus Callosum: A massive bridge of millions of axons that connects the hemispheres and allows information to flow between the hemispheres.

The Brain: Language Regions

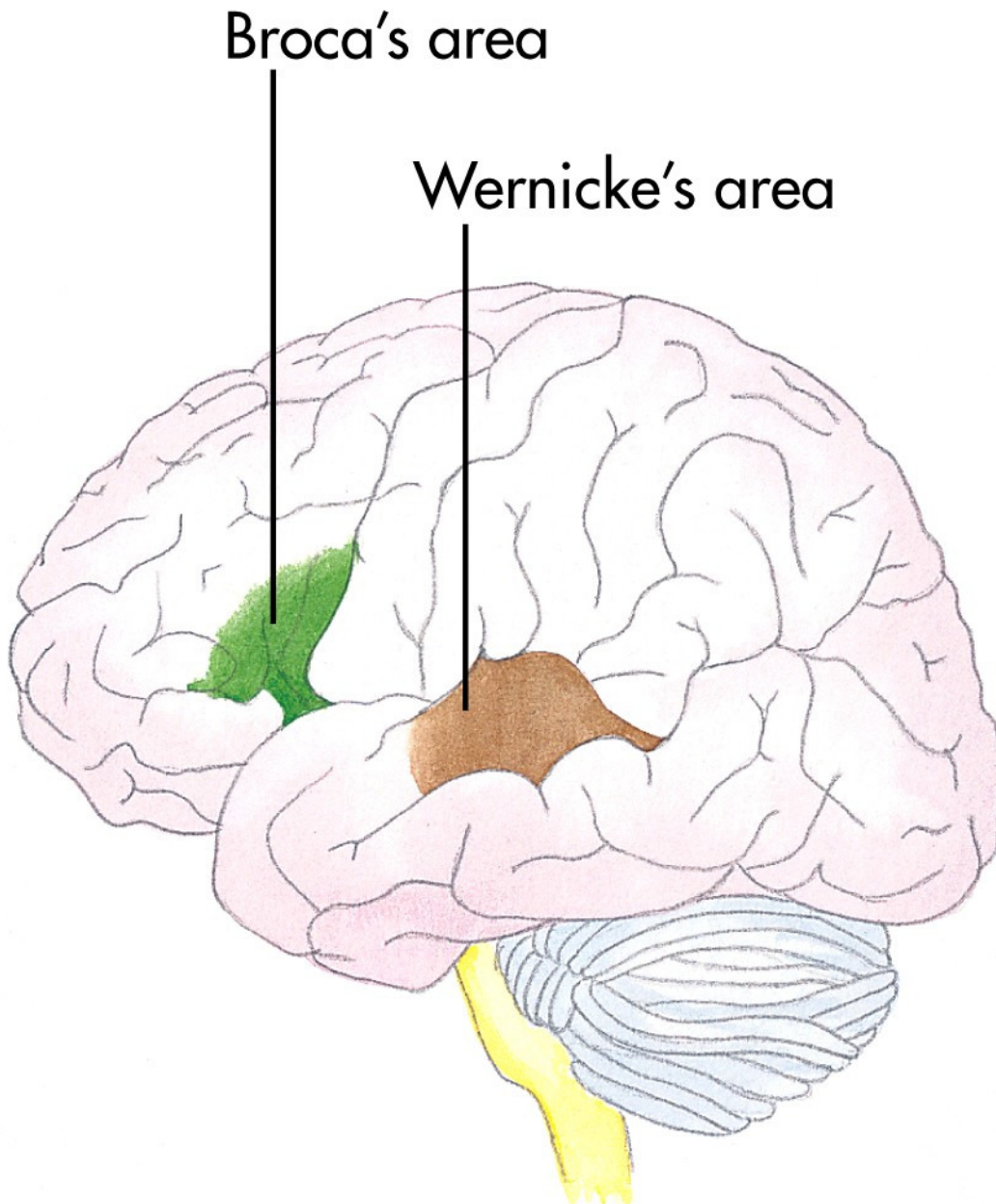
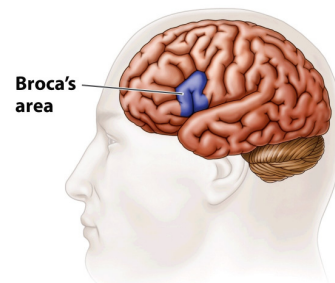


image source: Hockenbury and Hockenbury, (2009), Psychology



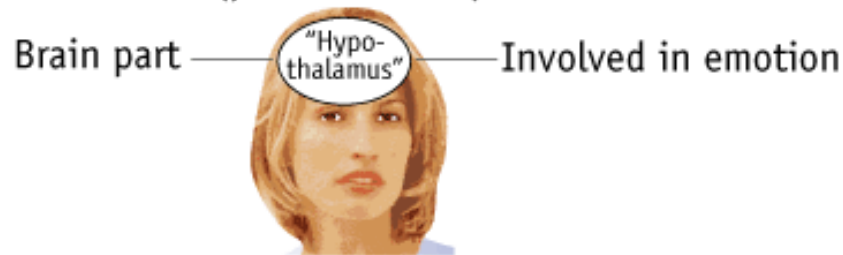
Chapter 6: Memory

Using elaborative rehearsal to remember information (page [REDACTED]):

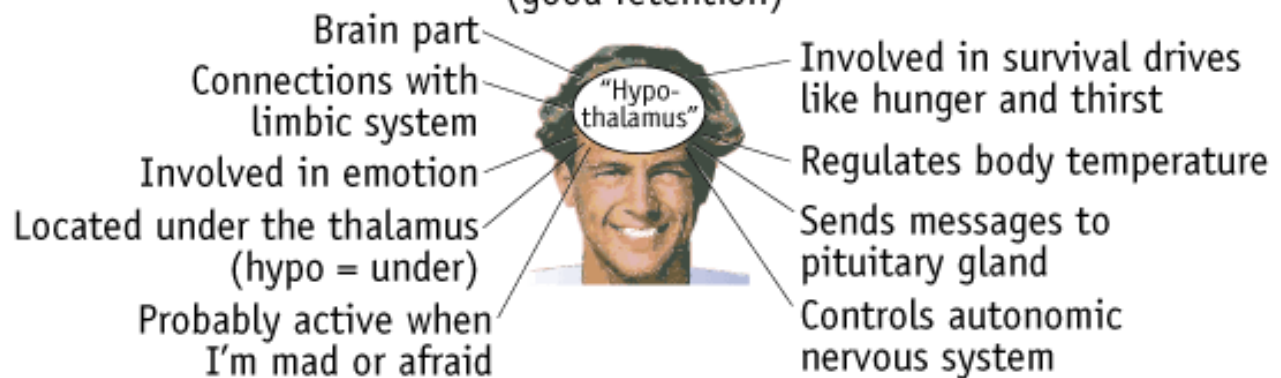
But if you elaborated on the information in some meaningful way, you would be more likely to recall it. For example, you could think about the limbic system's involvement in emotions, memory, and motivation by constructing a simple story.

- “I knew it was lunchtime because my hypothalamus told me I was hungry, thirsty and cold.
- My hippocampus helped me remember a new restaurant that opened on campus,
- but when I got there, I had to wait in line and my amygdala reacted with anger.

IMPOVERISHED ENCODING (poor retention)



ELABORATE ENCODING (good retention)



Chapter 9: Motivation and Emotion

The hypothalamus and regions around it play an important role in regulating eating behavior. Damage to ventromedial hypothalamus (VMH) increases eating behavior for appetizing food. Damage to the lateral hypothalamus (LH) decreases eating (and other behaviors).



(image source: Hockenbury and Hockenbury, 2005, Psychology)

Rat with a Damaged VMH: When a particular section of the hypothalamus, called the ventromedial hypothalamus, is destroyed, rats will eat until they become obese—but only if the food is appetizing.