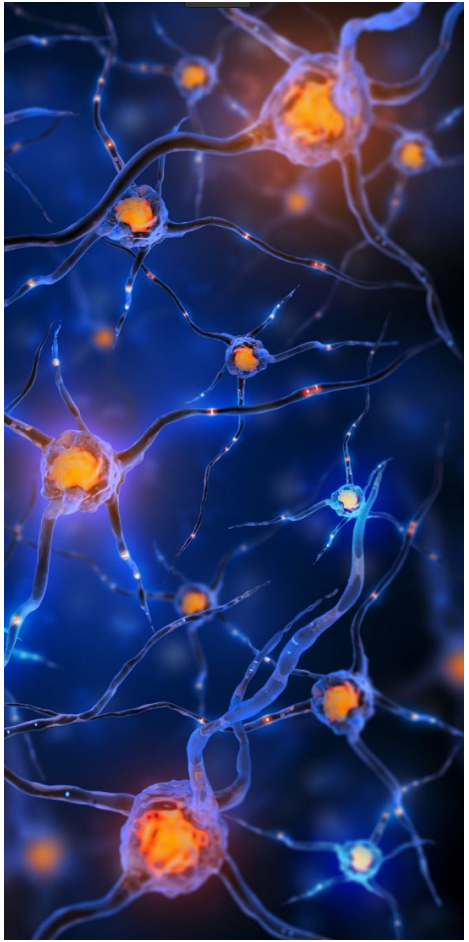
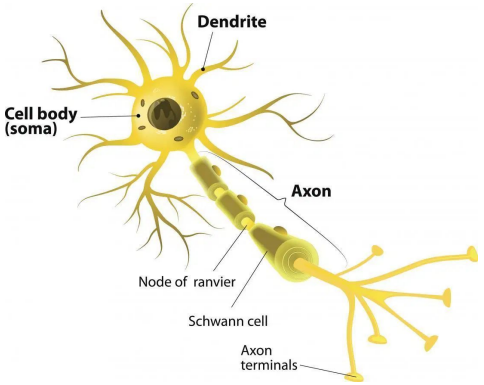
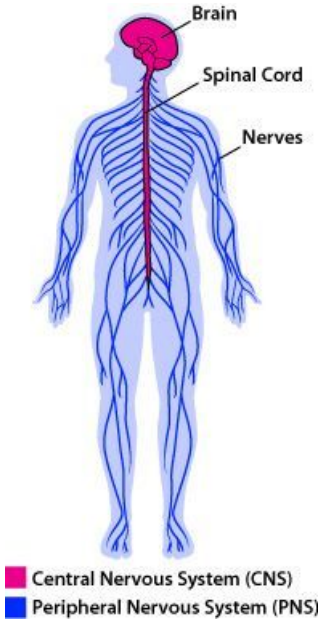


Section 11.3 The Central Nervous system

By Danny Liu

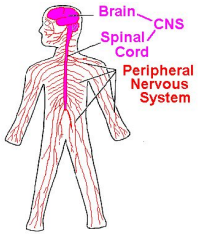


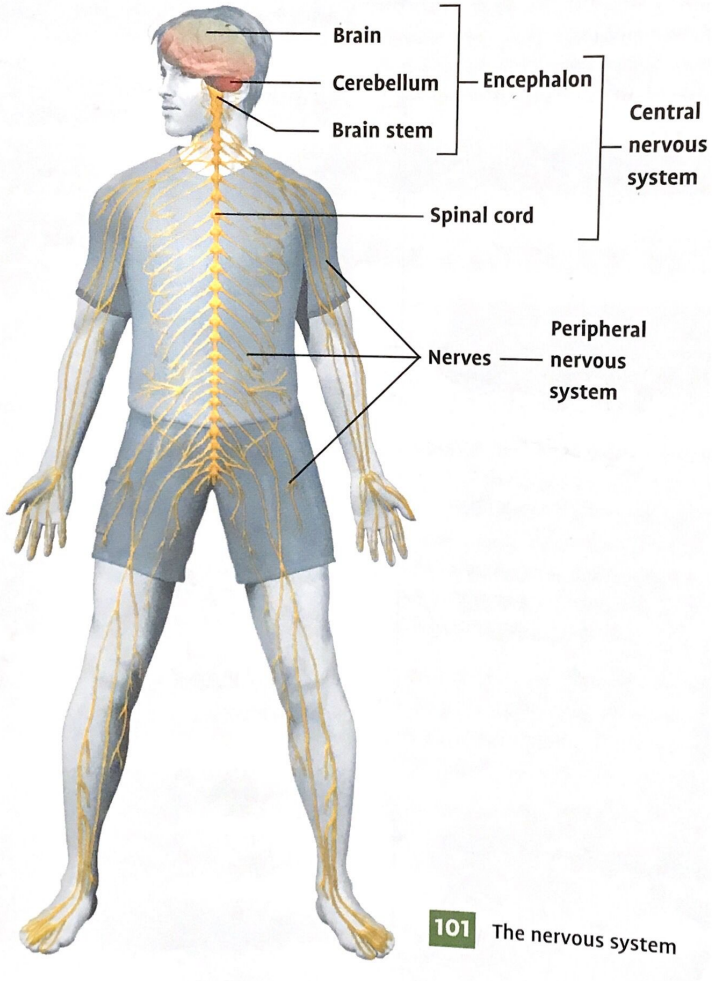


Nervous System

The nervous system is made up of two parts...

- **The Central Nervous System**
  - Encephalon
    - Brain
    - Cerebellum
    - Brain Stem
  - Spinal Cord
- **The Peripheral Nervous System**
  - Sensory and Motor Nerves.



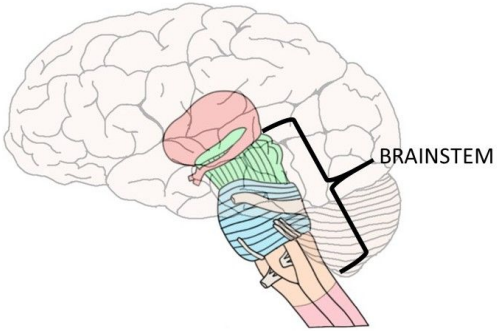


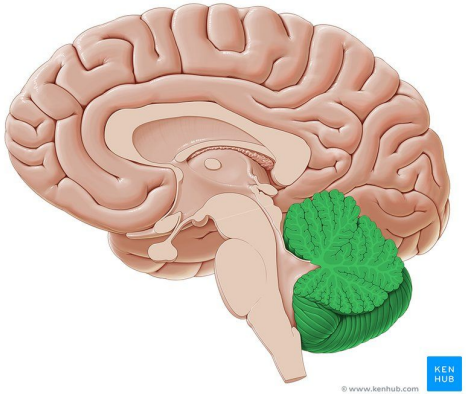
Central Nervous System

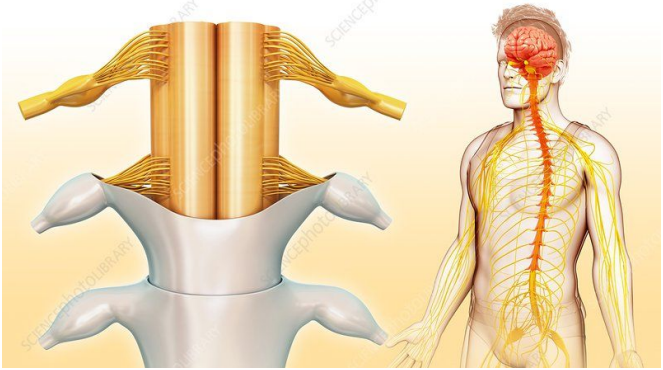
The central nervous system is comprised of the **encephalon** and **spinal cord**.

The encephalon is comprised of the...

- Brain
- Cerebellum
- Brain Stem

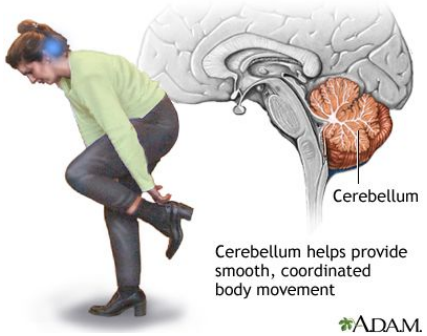






Central Nervous System- Encephalon

- **The brain** regulates intellectual faculties, analyzes and interprets information and produces nerve impulses.
- **The cerebellum** coordinates movement.
- The **brain stem** regulates the vital centres (respiratory rhythm, heart rate and blood pressure) and ensures information is transmitted between the encephalon and spinal cord. It also regulates reflexes such as coughing, swallowing, and vomiting.

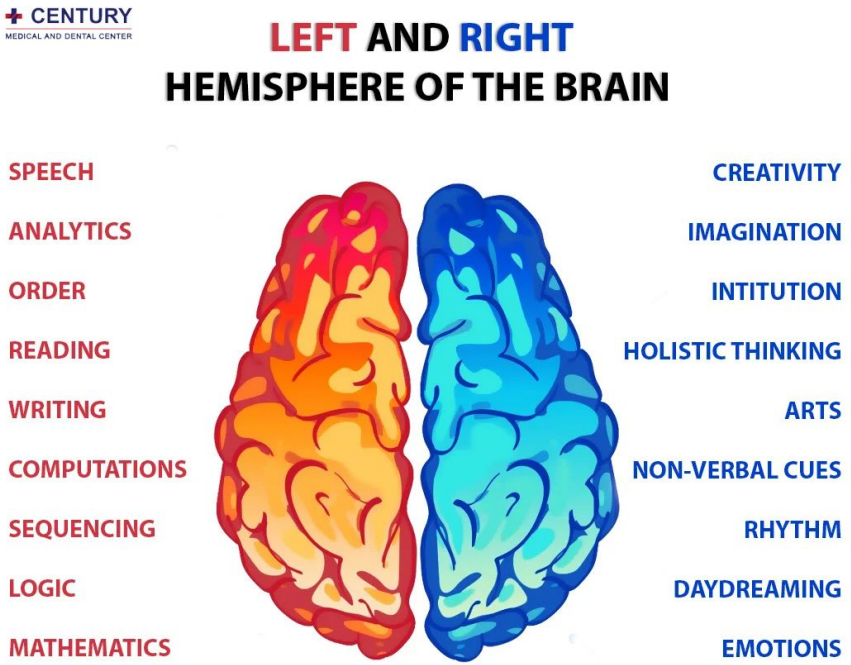


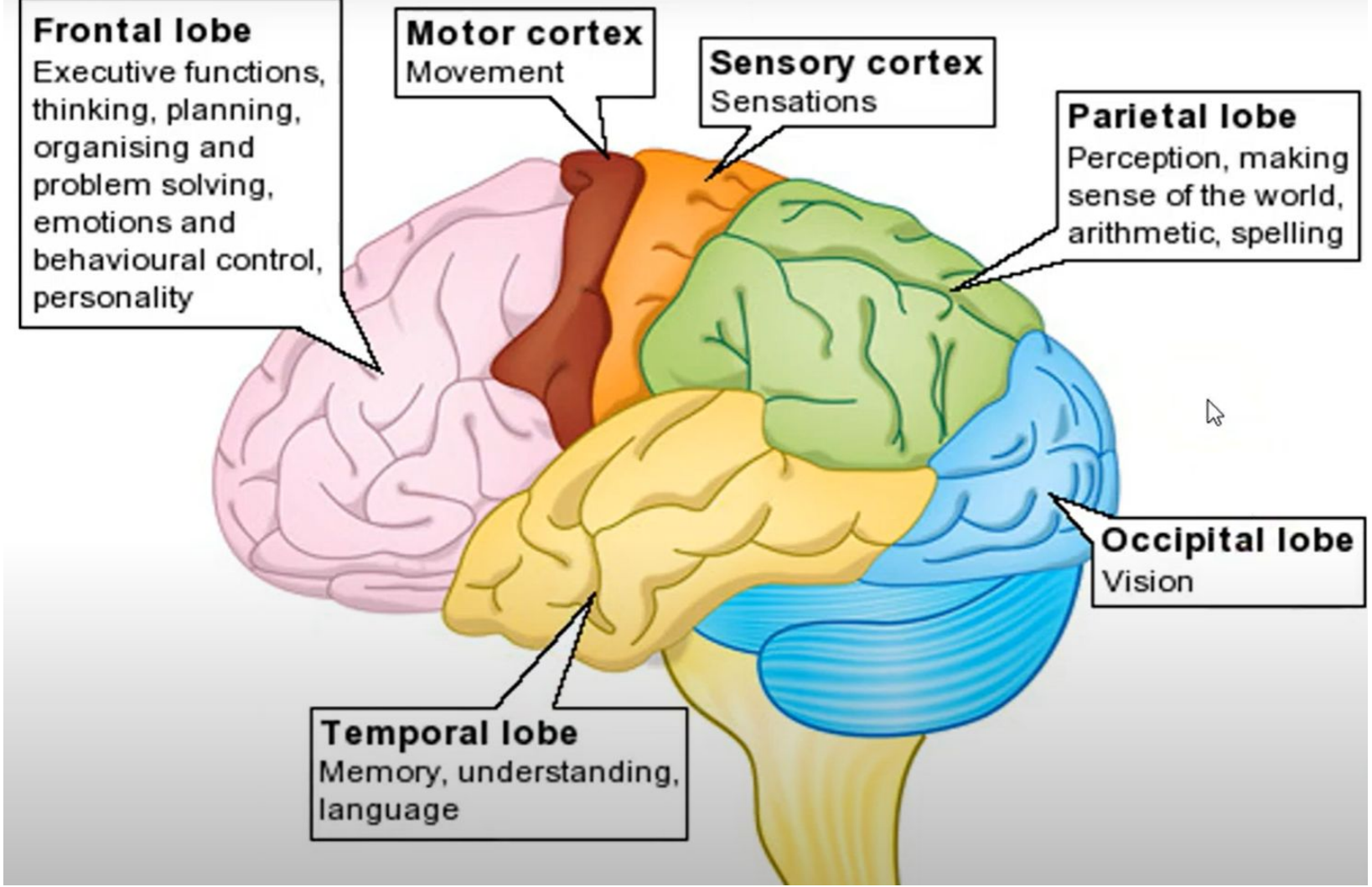
Central Nervous System

- Left Brain, Right Brain

Left Hemisphere: Handles language, logic, and exact math.

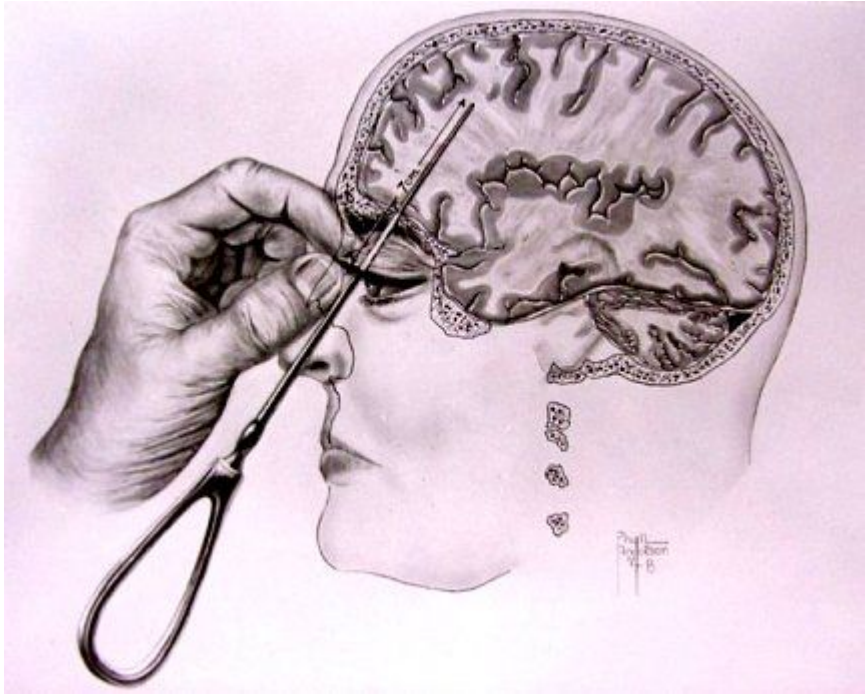
Right Hemisphere: Manages intuition, art, music.




Frontal lobe
Executive functions, thinking, planning, organising and problem solving, emotions and behavioural control, personality
Motor cortex
Movement
Sensory cortex
Sensations
Parietal lobe
Perception, making sense of the world, arithmetic, spelling
Occipital lobe
Vision
Temporal lobe
Memory, understanding, language

Central Nervous System

- Lobotomy
- It was a form of psychosurgery developed in the 1930s
- It severe mental illnesses such as depression and bipolar disorder.
- The procedure involved severing connections in the brain's frontal lobe.



Central Nervous System

- Lobotomy
- **Personality Changes**: Apathy, passivity, lack of initiative, and a general decrease in emotional responsiveness were commonly observed.

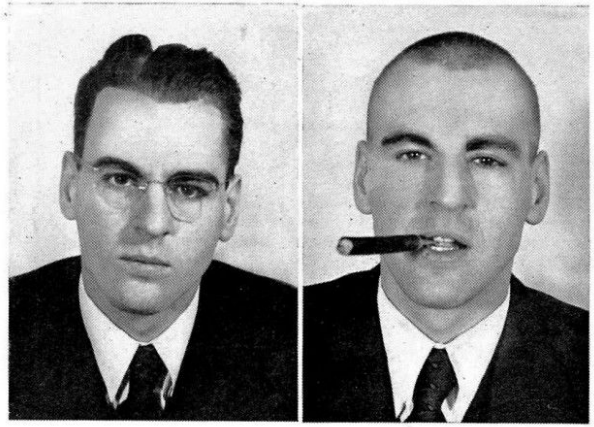


Figure 71. Case 123. March 31, 1942, before operation. Perplexed, unable to solve the simplest problem.

Figure 72. Case 123. Ten days after operation. He was no longer troubled by his obsessions, and seemed rather pleased with himself.

Figure 132 (a). Case 121. March 23, 1942, before operation. "Forever fighting . . . . the meanest woman."

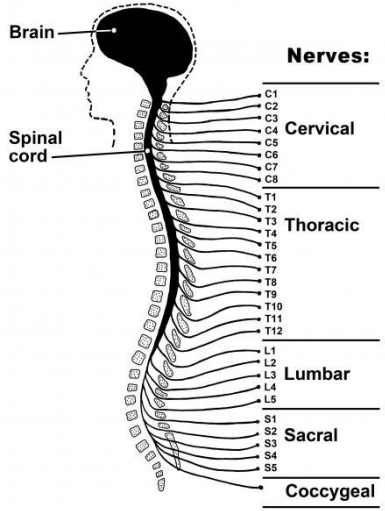
Figure 132 (c). Case 121. April 4, 1942, eleven days after lobotomy. She giggles a lot.

Figure 123. Case 22. Before operation, 85 lbs.

Figure 124. Case 22. Three years after operation, 210 lbs.

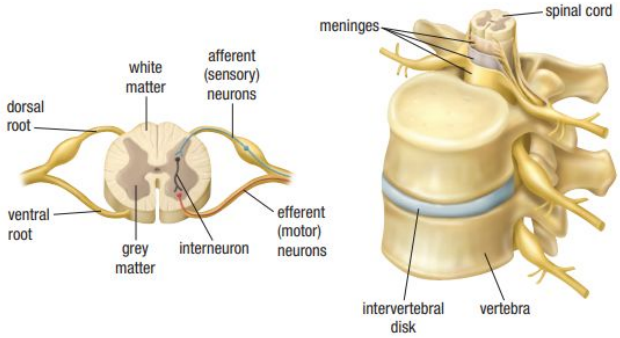
Central Nervous System- Spinal Cord

- The **spinal cord** carries nerve impulses from the encephalon to motor nerves and in the opposite direction, sensory nerves to the encephalon. It is also responsible for spinal reflexes.



Central Nervous System- Spinal Cord

- **Grey Matter**: Center, contains nerve cell bodies.
- **White Matter**: Outer layer, contains myelinated axons for signal transmission.
- **Afferent Nerves**: Carry sensory info into spinal cord.
- **Efferent Nerves**: Carry motor commands from spinal cord to muscles/organs.



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