

Guide to Brain Anatomy and Function



Frontal Lobe

Function: Integral to personality, involved in tracking, sense of self, arousal, voluntary motor activity, and awareness of environment. Responsible for executive functioning and judgements, problem solving, emotional response and stability, speaking/ language, and memory for habit

Symptoms of Impairment

- Changes in personality and social behavior
- Loss of spontaneity in interacting with others
- Sequencing (difficulty planning and completing complex tasks in correct order)
- Perseveration (repeating same actions & comments over without conscious awareness of having done so)
- Loss of flexibility in thinking (mental rigidity)
- Distractibility
- Mood swings
- Diminished abstract reasoning
- Difficulty with problem solving
- Language difficulties & word finding)
- Loss of simple movement of various body parts

Brain Stem

Function: Plays role in heart rate, swallowing, reflexes to sight and sound, sweating, blood pressure, digestion, temperature, levels of alertness, ability to sleep, and balance

Symptoms of Impairment

- Decreased vital capacity in breathing
- Swallowing food & water
- Difficulty with organization/perception of environment
- Problems with balance and movement
- Dizziness and nausea
- Sleeping difficulties

Temporal Lobes

Function: Play key role in intellect, understanding language, behavior, as well as auditory perception (hearing), long-term memory and some visual perception

Symptoms of Impairment

- Difficulty remembering names and faces
- Difficulty understanding spoken words
- Difficulty with identification of, and verbalization about objects
- Difficulty with concentration
- Short-term memory loss
- Interferences with long-term memory
- Aggressive behavior
- Change in sexual interest
- Persistent talking (right lobe damage)
- Difficulty locating objects in environment
- Inability to categorize objects
- Self-centered, lack of empathy
- Seizure disorders, aura and strange reveries (appearing to be lost in thought)

Parietal Lobes

Function: Involved in visual perception, tactile (touch) perception, knowing right from left, body orientation, integration of sensory information that allows for understanding of concepts, and goal-directed voluntary movements

Symptoms of Impairment

- Difficulties naming objects
- Difficulties writing words
- Inability to attend to more than one object at a time
- Inability to focus visual attention
- Problems with reading
- Poor hand-eye coordination
- Confusion left-right orientation
- Difficulty performing math calculations
- Difficulty drawing
- Poor visual perception
- Lack of awareness of certain body parts and/or surrounding space

Occipital Lobe

Function: Visual and color perception system

Symptoms of Impairment

- Impaired Vision
- Loss of color

Cerebellum

Function: Involved in coordination and control of voluntary movement, balance and muscle tone

Symptoms of Impairment

- Tremors
- Involuntary movement of the eye, usually from side to side (Nystagmus)
- Lack of coordination of the muscles, especially in the extremities (Ataxia)
- Weak muscles (Hypotonia)
- Inability to judge distance and when to stop (Dysmetria)
- Inability to perform rapid altering movements
- Slurred speech (ataxic dysarthria)