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18 ANNIVERSARY

MAJOR PARTS OF THE BRAIN

IMP. FOR MEMORY

Basics every Psychology Aspirant should know

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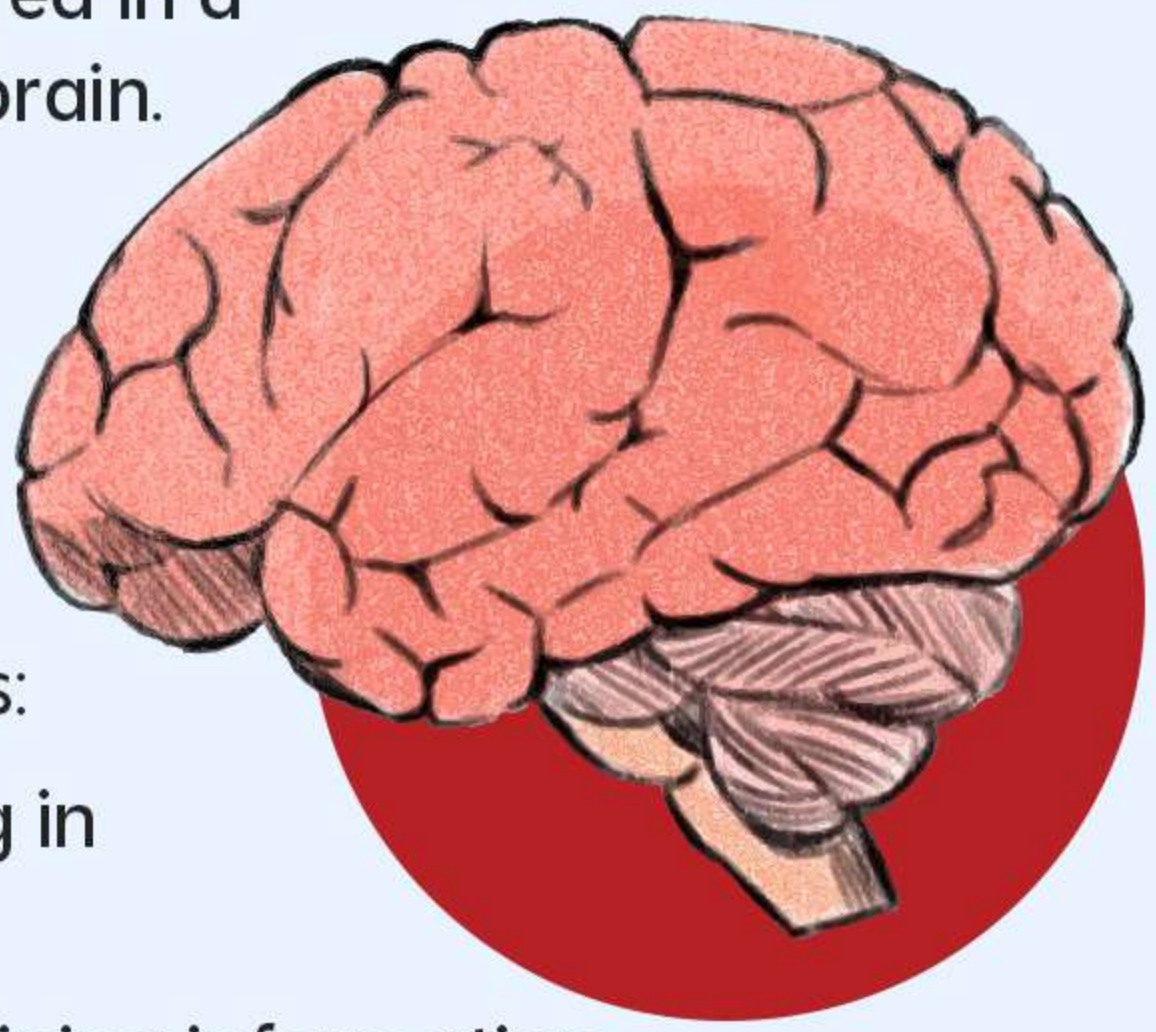
What is Memory?

Memory is not located in a single "spot" in the brain.



It is a distributed process involving multiple structures working together.

Three key processes:

- **Encoding** – taking in information
- **Storage** – maintaining information
- **Retrieval** – accessing it later

Different brain regions specialize in different stages of memory.

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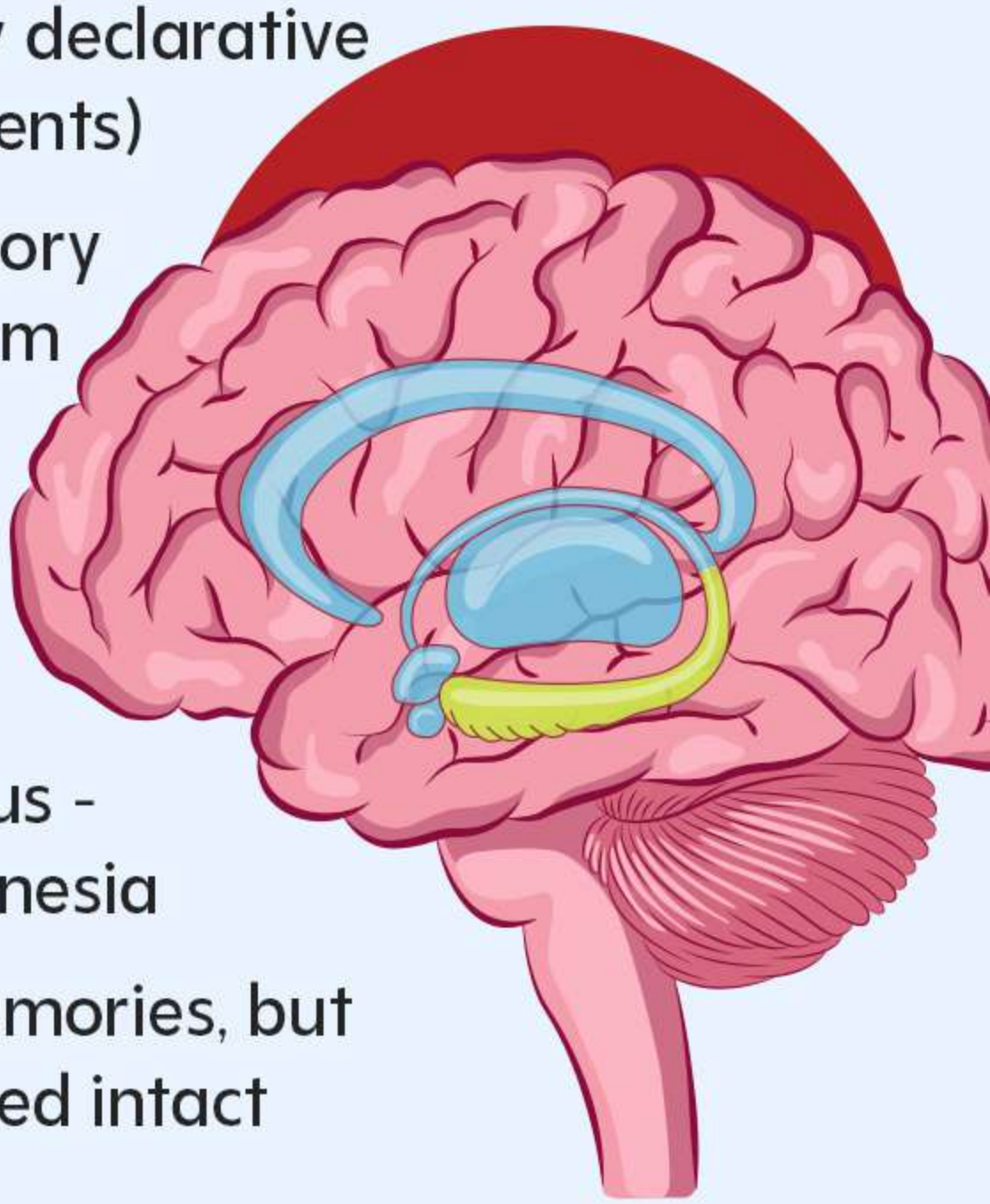
Hippocampus – The Memory Builder

- Located in the medial temporal lobe
- Critical for forming new declarative memories (facts and events)
- Plays a key role in memory consolidation (short-term - long-term)



Classic Case: Henry Molaison (H.M.)

- Removal of hippocampus - severe anterograde amnesia
- Unable to form new memories, but older memories remained intact

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Amygdala – Emotional Memory

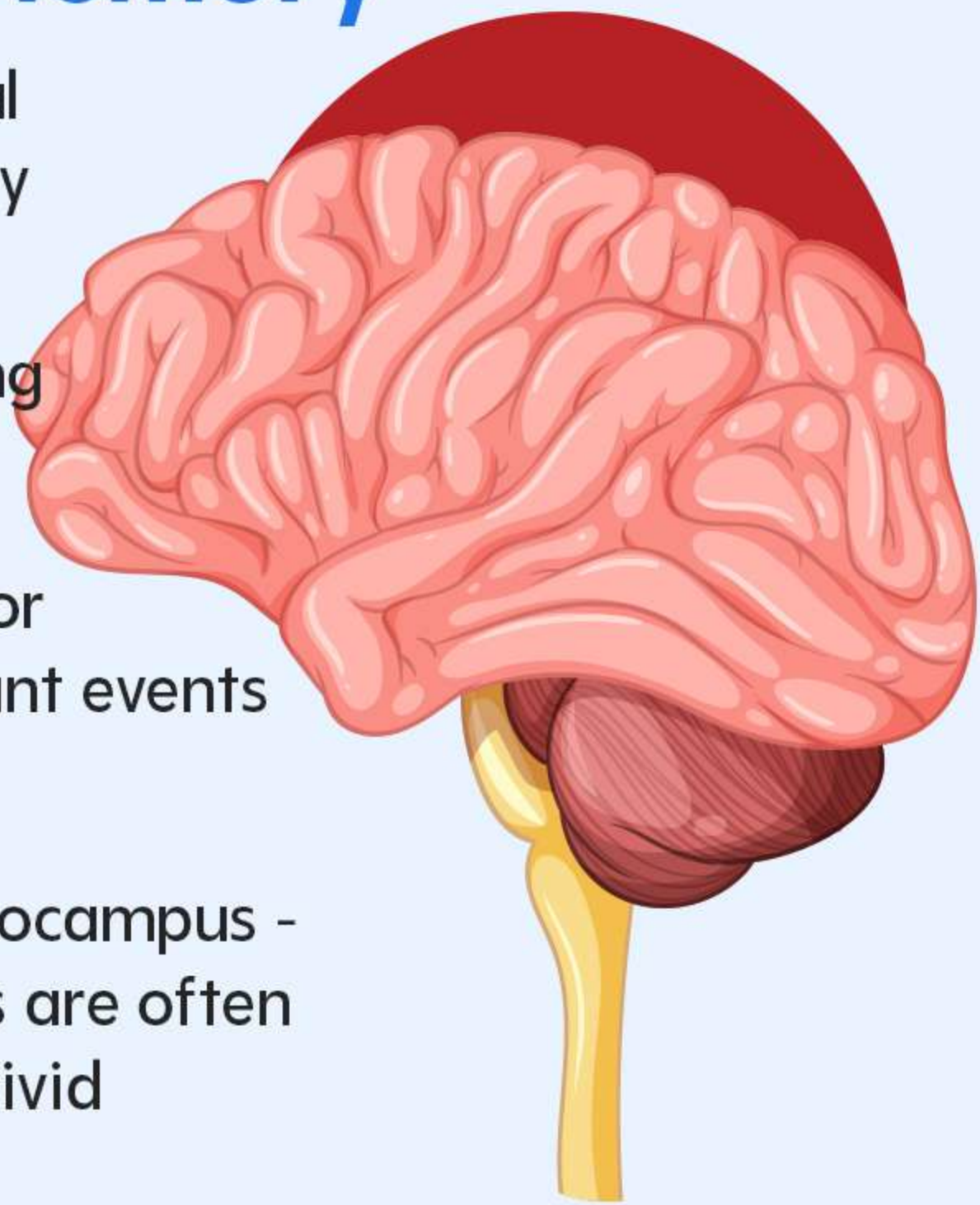
- Involved in emotional learning and memory
- Strongly associated with fear conditioning

Key role:

- Enhances memory for emotionally significant events

Connection:

- Works with the hippocampus - emotional memories are often stronger and more vivid



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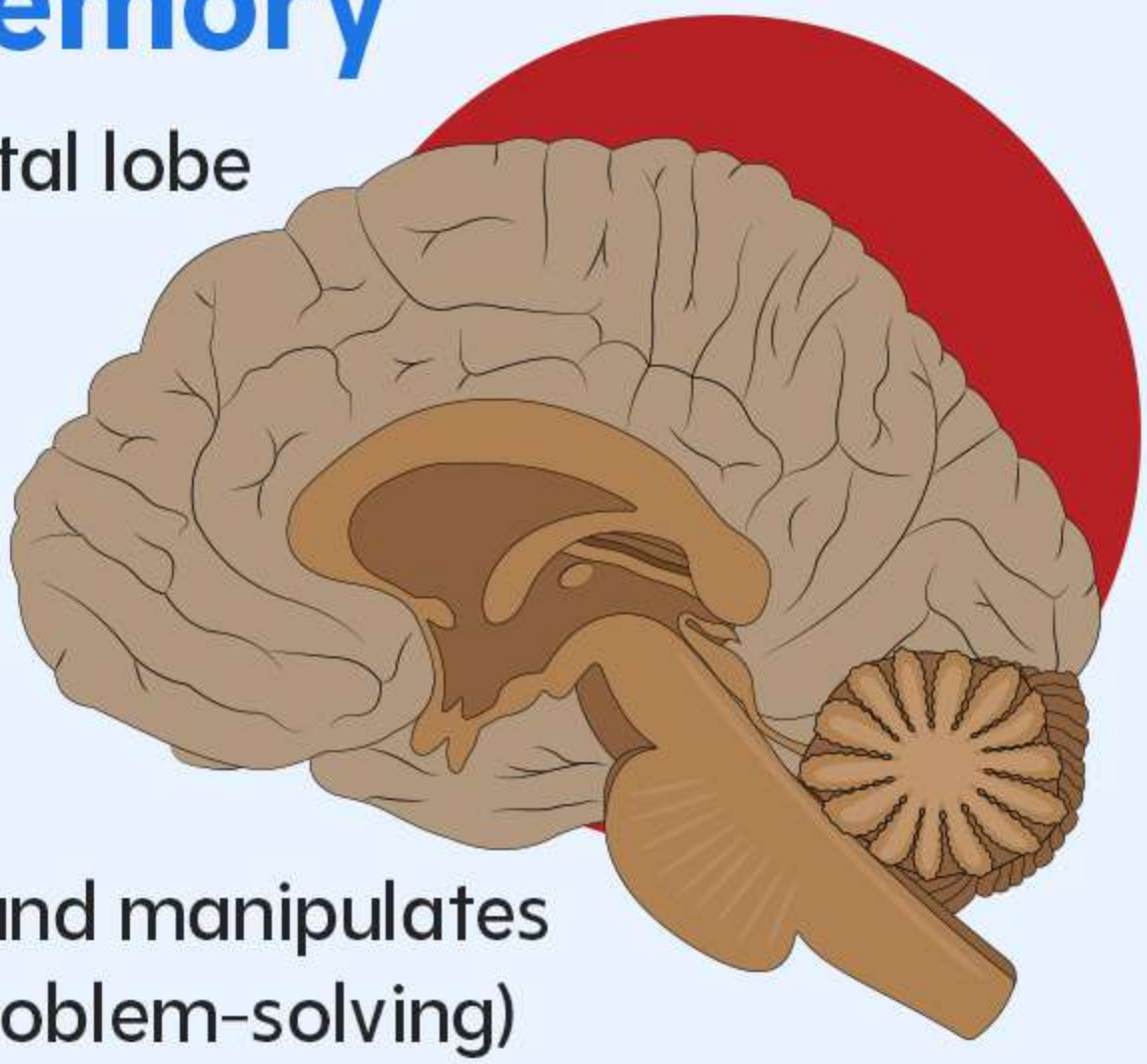
Prefrontal Cortex – Working Memory

- Located in the frontal lobe
- Responsible for:
  - Working memory
  - Decision-making
  - Planning



Function:

- Temporarily holds and manipulates information (e.g., problem-solving)

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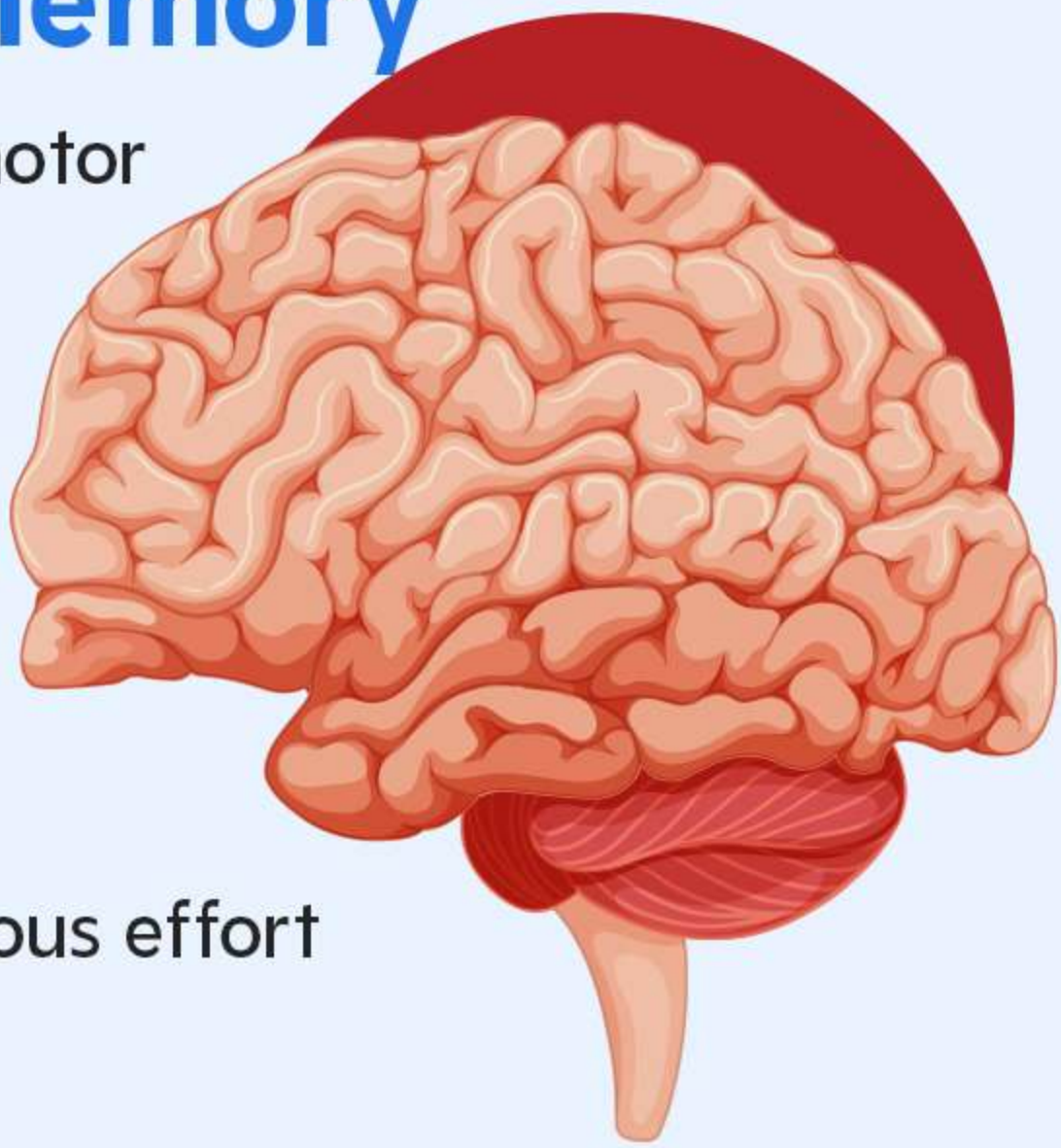
Cerebellum – Procedural Memory



- Primarily known for motor coordination
- Also involved in procedural memory (skills and habits)

Examples:

- Riding a bicycle
- Typing without conscious effort

Also involved in:

- Classical conditioning (motor responses)

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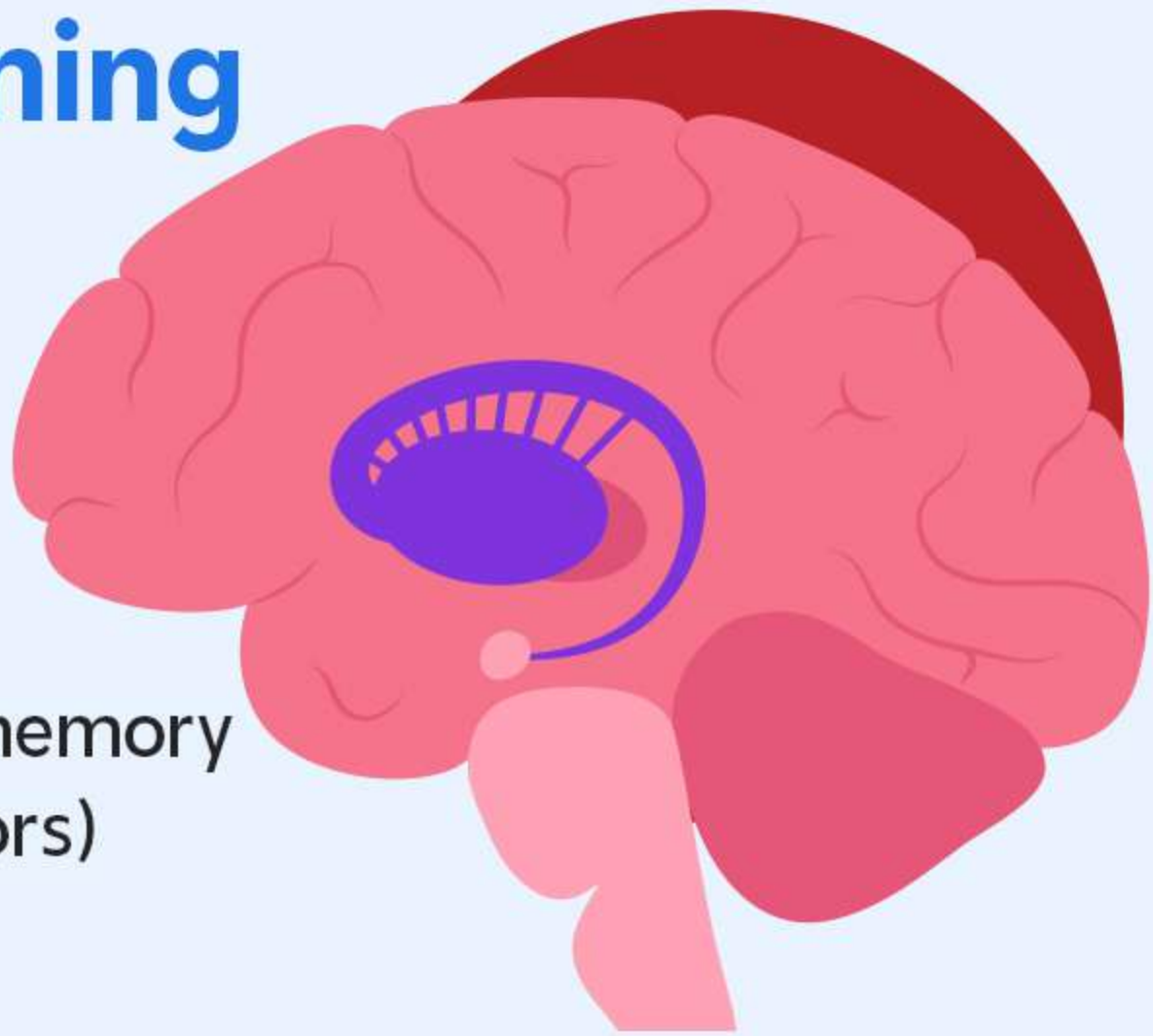
Basal Ganglia – Habit Learning



- Involved in:
  - Habit formation
  - Skill learning

Key point:

- Supports implicit memory (automatic behaviors)

Difference:

- Hippocampus - conscious (explicit) memory
- Basal ganglia - automatic (implicit) memory

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Thalamus – Memory Relay System

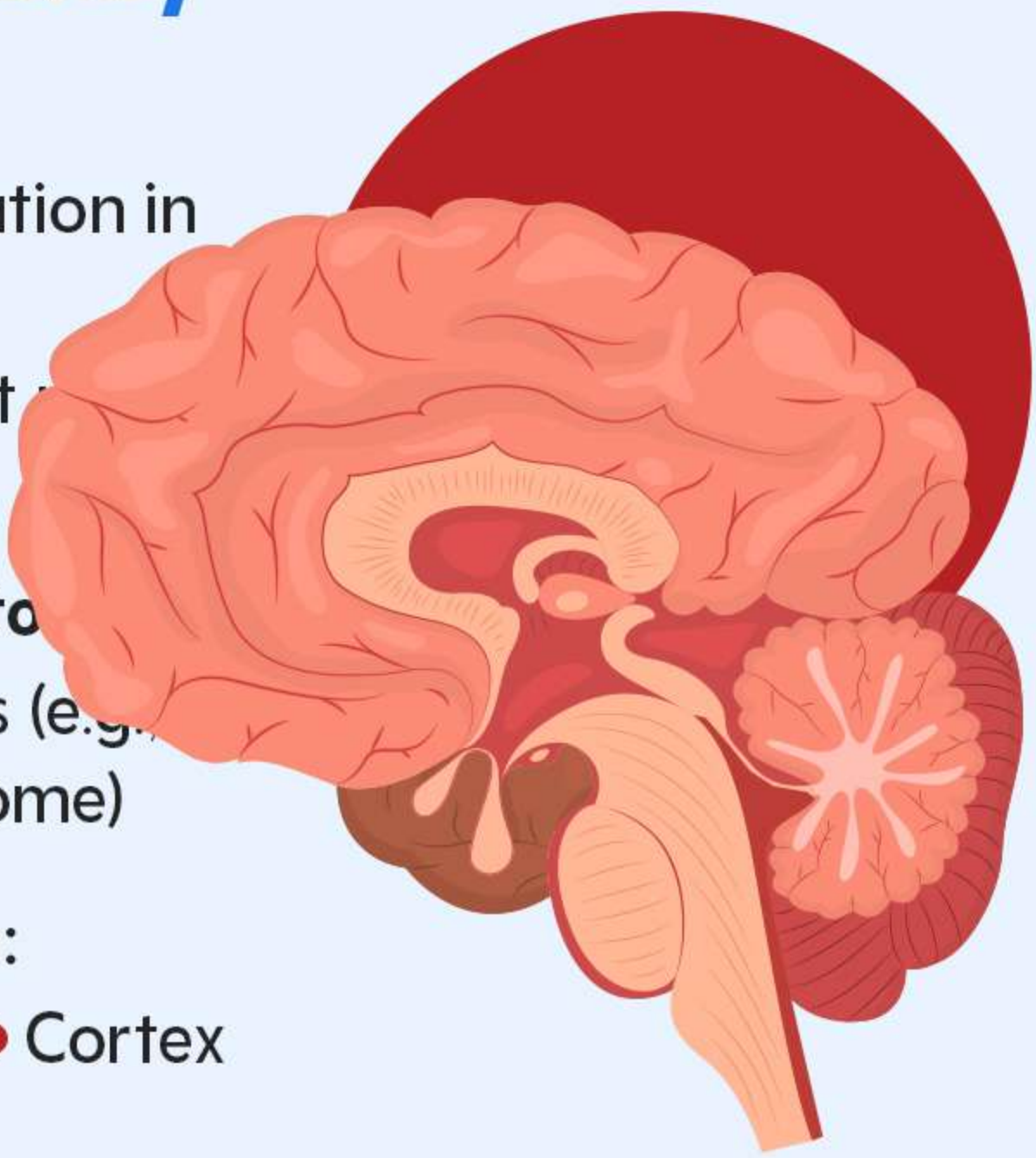
- Acts as a relay station in the brain
- Connects different
  -related regions

Damage can lead to

- Memory disorders (e.g.
  Korsakoff's syndrome)

Works closely with:

- Hippocampus
- Cortex



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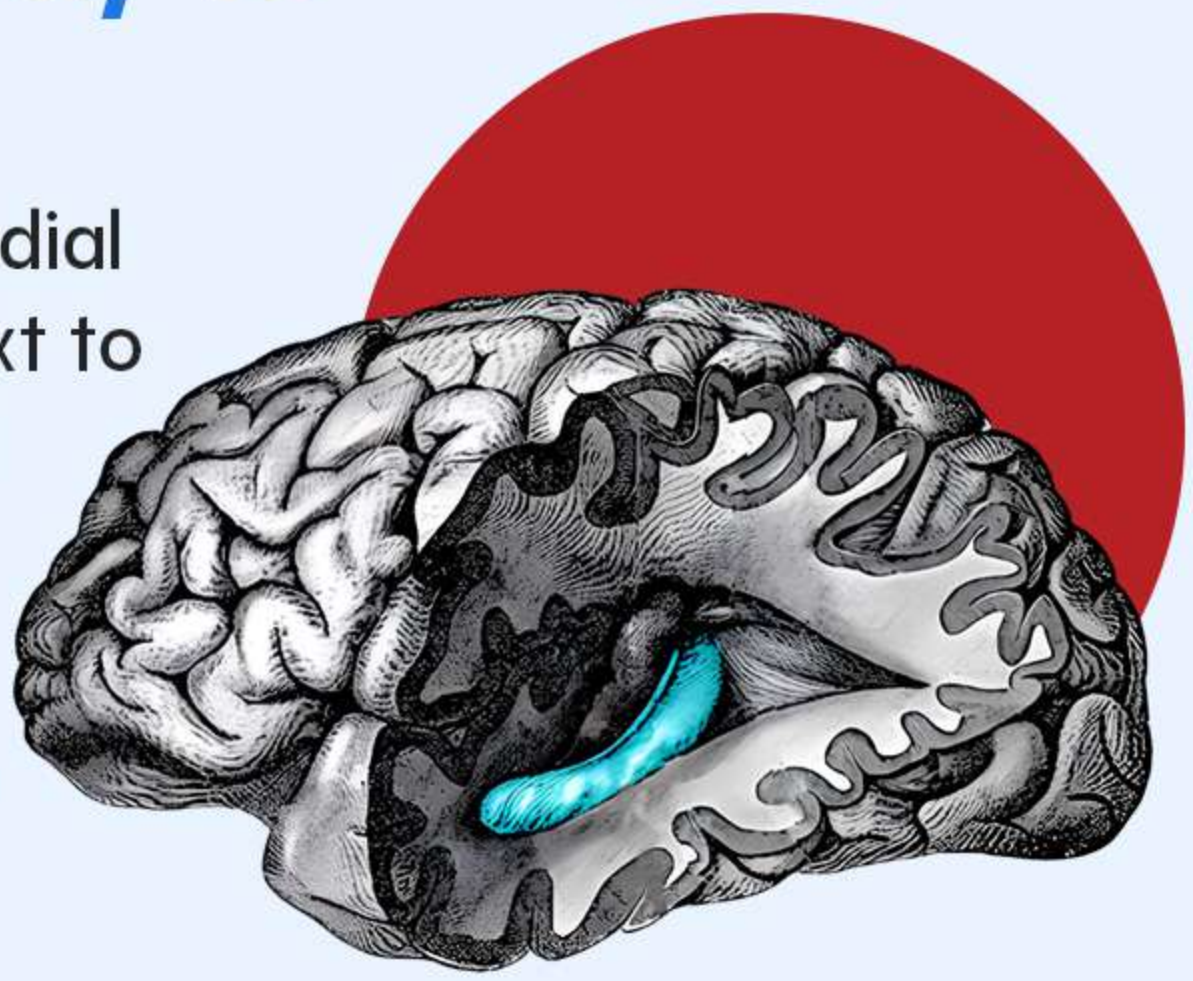
Entorhinal Cortex – The Gateway to Memory

- Located in the medial temporal lobe (next to the hippocampus)
- Acts as a bridge between the hippocampus and cerebral cortex



Key Functions:

- Memory encoding and consolidation support
- Important for spatial memory (navigation)

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