

32-1: Memory Storage



Explicit Memory- info that is easily recalled and recited

Damage leads to
.....**disruption**



No find food if
H removed

L: Verbal R: Visual

Hippocampus=  Save button
for explicit new memories

Brain scans/autopsies show that explicit memories of names, images and events are laid down here



=H activity ↑

- Replaying day's events
- Transfers to cortex

Capacity for storing long-term memories **limitless**

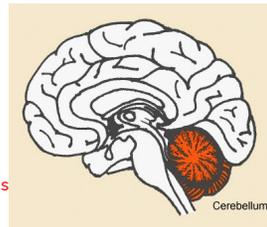
Flashbacks: neural stimulation during surgery would often provoke vivid images, were later found to be invented

Karl Lashley's Rat Maze: rats kept partial memory of how to navigate maze despite removal of brain matter, **did not matter** what part was removed

Information + memories not stored in specific locations = parts of brain interact to store / retrieve info

32-3: Implicit Memory

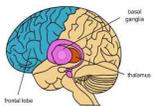
- **Implicit Memory:** AKA nondeclarative memory
- Retention that is independent of conscious recollection
 - Implicit memories are **automatically processed** rather than conscious
- What information do we process automatically?
 - Space, time, and frequency
- The automatic processing track tucks away routine details so that the other track is free for thoughtful, conscious processing.
- The **cerebellum** plays a key role in forming and storing the implicit memories created by **classical conditioning** (which does not work w/o a functioning cerebellum)
- The **basal ganglia** (deep brain structures involved in motor functions) allows formation of procedural memories involved in skills
- Our implicit memory system explains **why reactions/skills we learned in childhood persist into adulthood**



- **Infantile Amnesia:** adults do not remember the first 3 years of life. This is caused by:
 - Our explicit memory is indexed using words that nonspeaking children (ages 0-3) haven't yet learned
 - The hippocampus is one of the last brain structures to mature

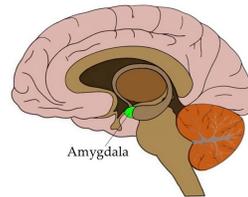


If you ever learned how to ride a bike, thank your basal ganglia. And probably also your parents.



32-4: Amygdala, Emotions, and Memory

- Emotions trigger stress hormones that influence memory and therefore provoke the **amygdala**
- Emotional arousal can sear memories into the brain
- Significantly stressful events can form almost **unforgettable memories**
- Emotions can even persist **without a conscious memory** of what caused them
 - When shown a happy or sad movie, patients with damage to the hippocampus couldn't remember what happened in the movies **but** remember a happy or sad feeling associated with it



Flashbulb memories: perceived clarity of memories of surprising or significant events