

AP PSYCHOLOGY

# NEUROPLASTICITY & TOOLS OF DISCOVERY

UNIT 1: BIOLOGICAL BASES OF BEHAVIOR

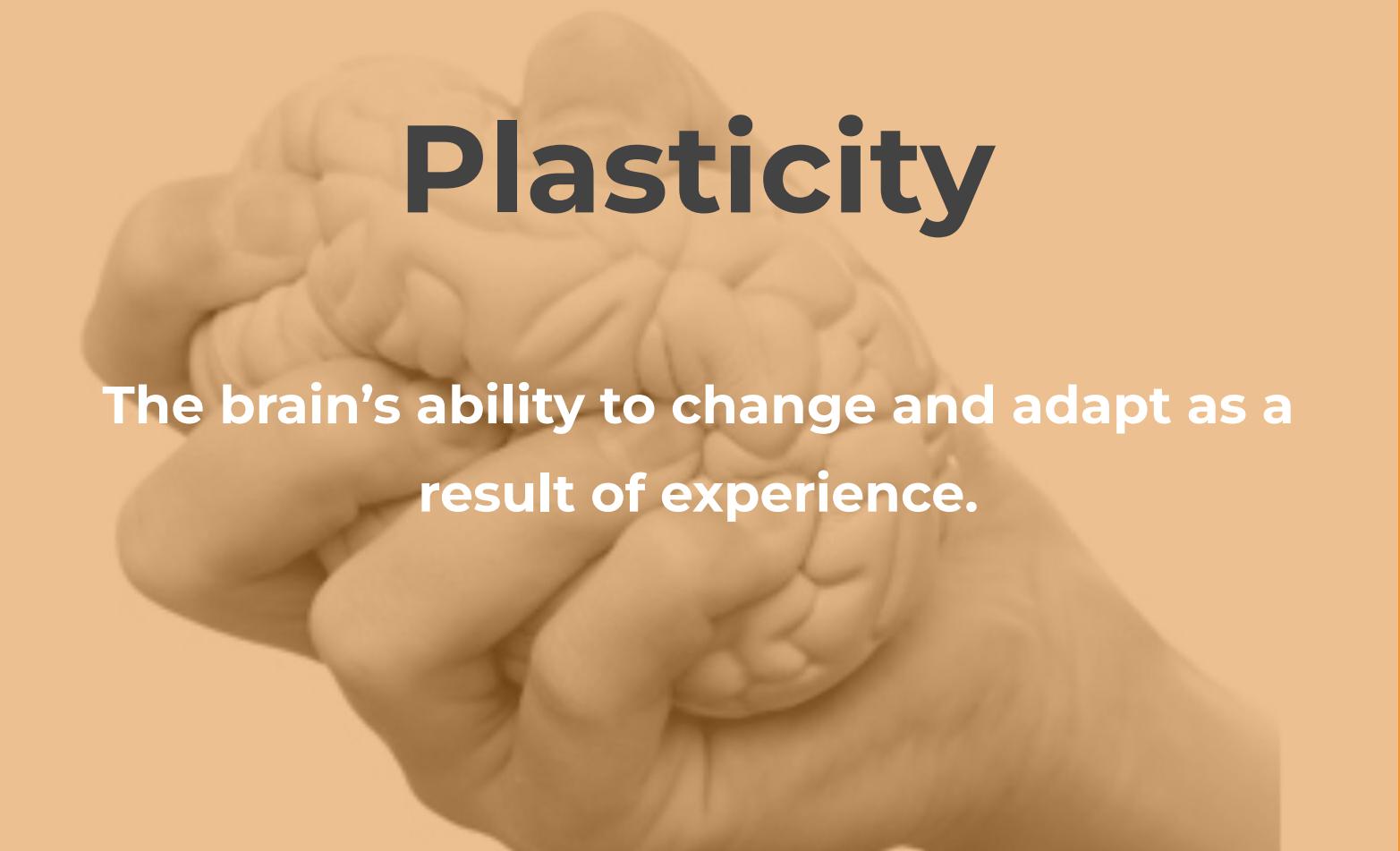
# Biopsychology

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**A field of study that  
examines how our brains  
and biology affect our  
thoughts and behaviors**

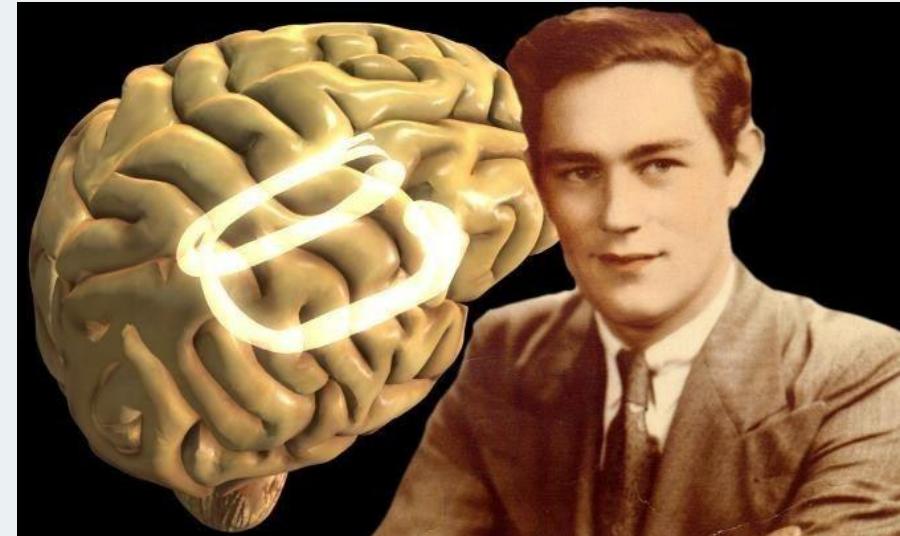
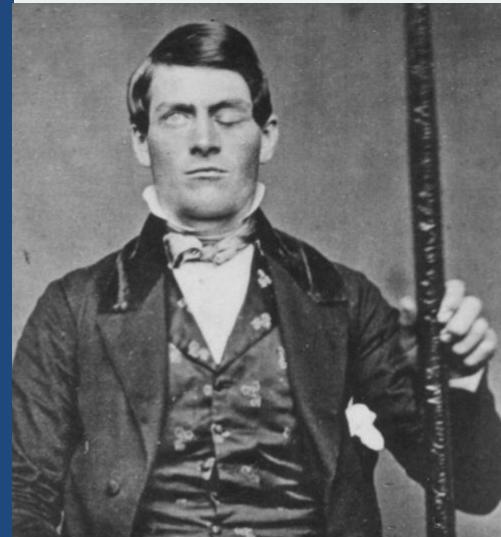
**Environmental influence on the brain across the lifespan**



# Plasticity

The brain's ability to change and adapt as a result of experience.

# CASE STUDIES



## Phineas Gage

1823-1860

Prefrontal cortex

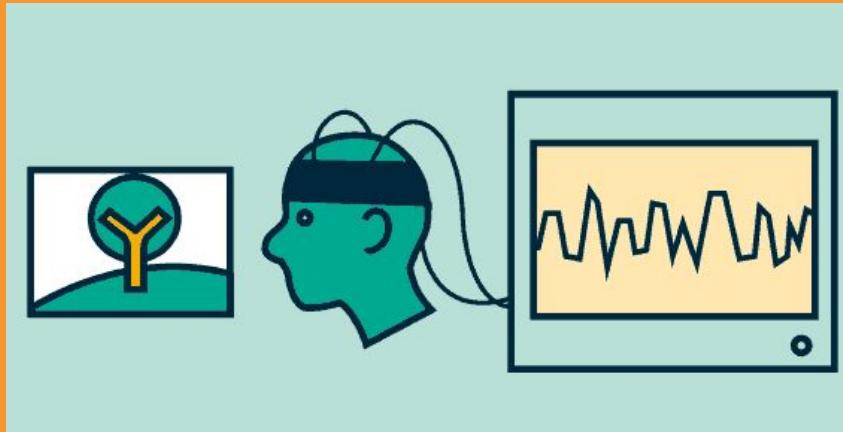
## Henry Molaison-“HM”

1926-2008

Hippocampus

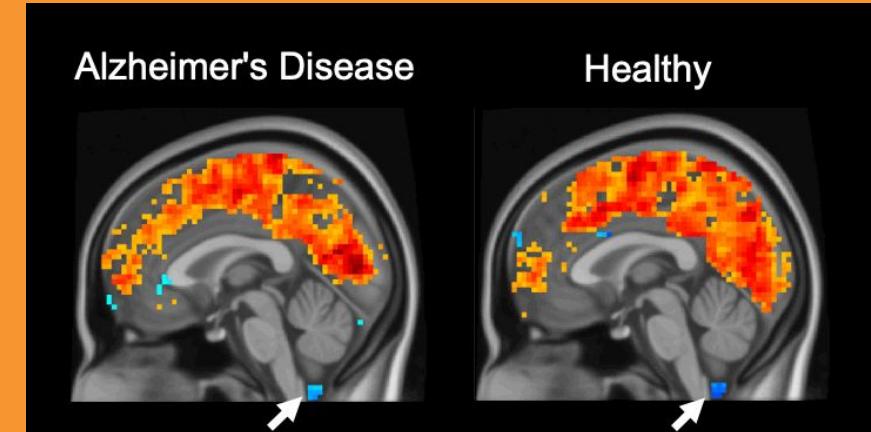
# IMAGING TECHNIQUES

## EEG



Electrical activity  
Function  
Sleep stages

## fMRI



Oxygen consumption  
Structure AND function  
Levels of activity

# LESIONING

**Disruption of or damage**

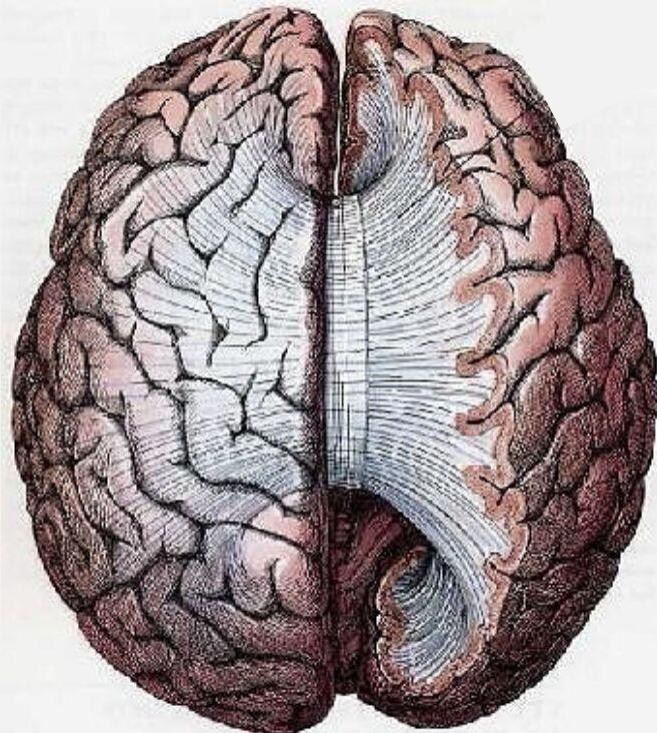
**Due to:**

- Injury
- Disease
- Surgery

**-Drugs**

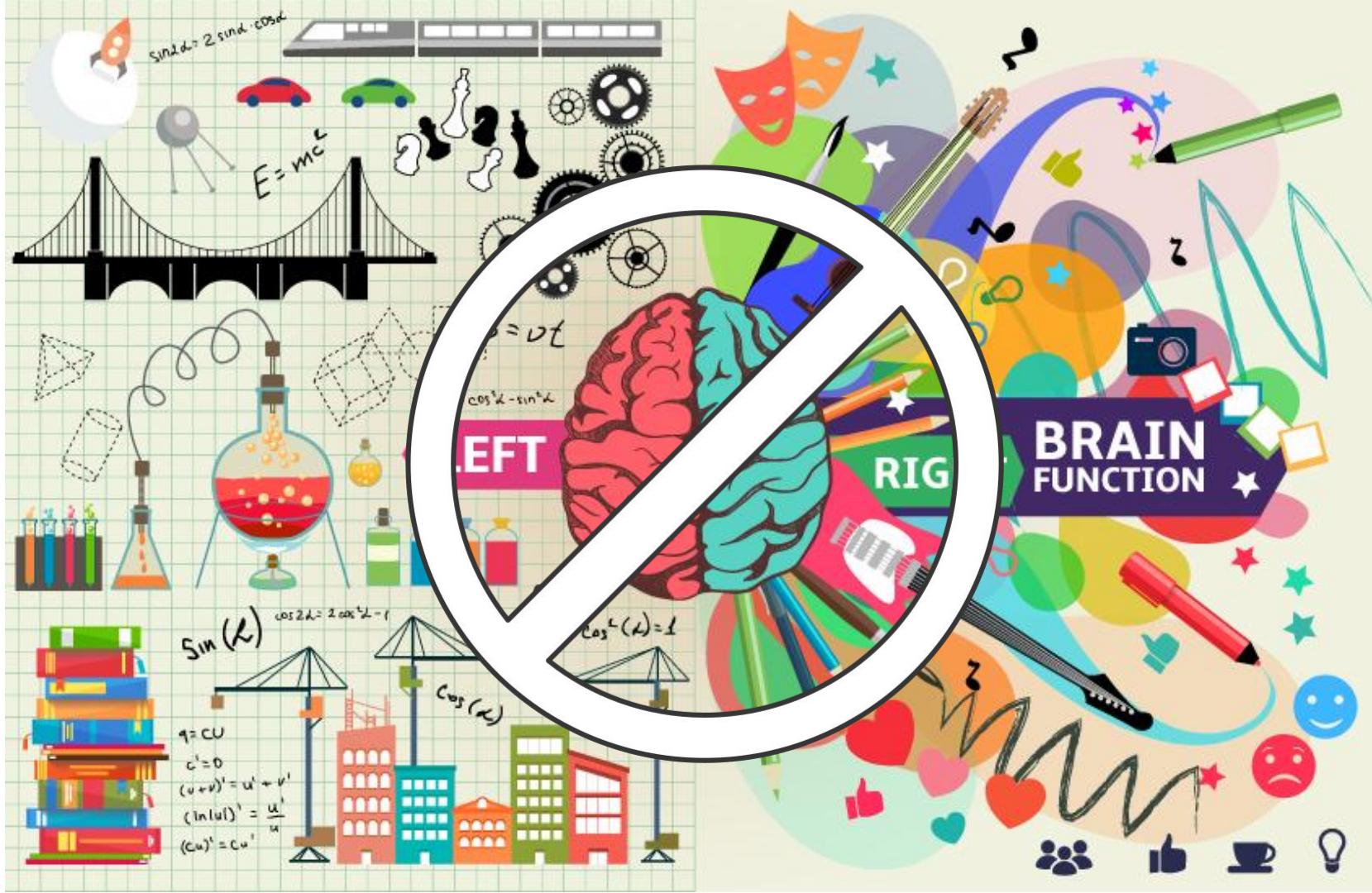
**-Stimulation**





# Split-Brain Research

**Corpus callosum**

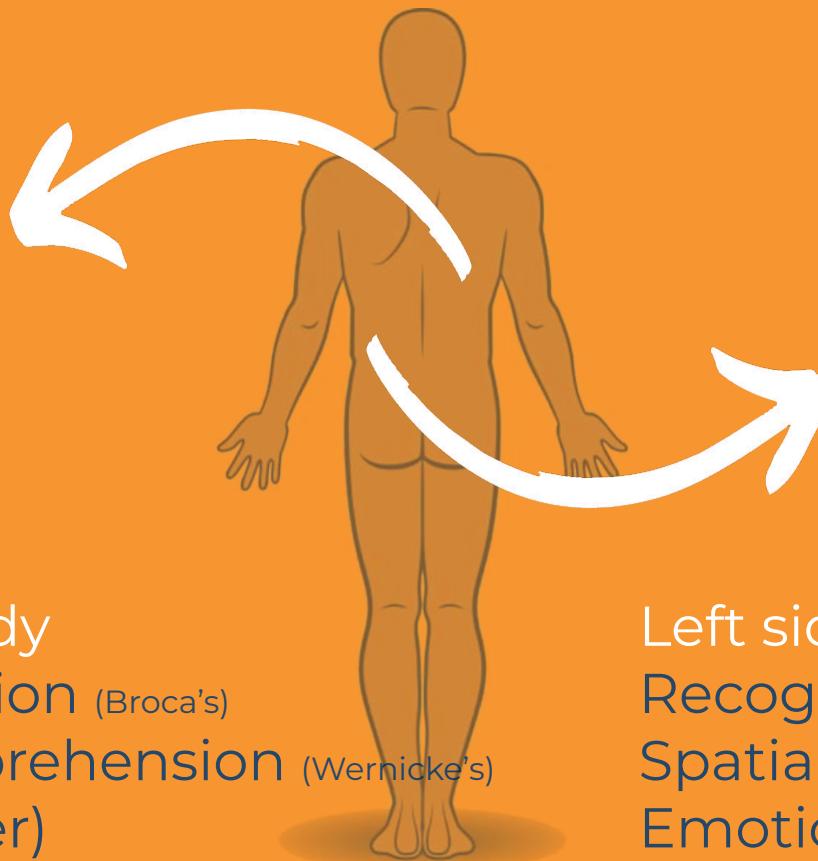


# CONTRALATERAL HEMISPHERIC ORGANIZATION & CORTEX SPECIALIZATION

LEFT  
HEMISPHERE



Right side of body  
Speech production (Broca's)  
Language comprehension (Wernicke's)  
Logic (interpreter)



RIGHT  
HEMISPHERE



Left side of body  
Recognizing faces  
Spatial reasoning (2D/3D)  
Emotions Art/Music