

Ms BT's

AP Psychology 12

Ch. 2 Biology

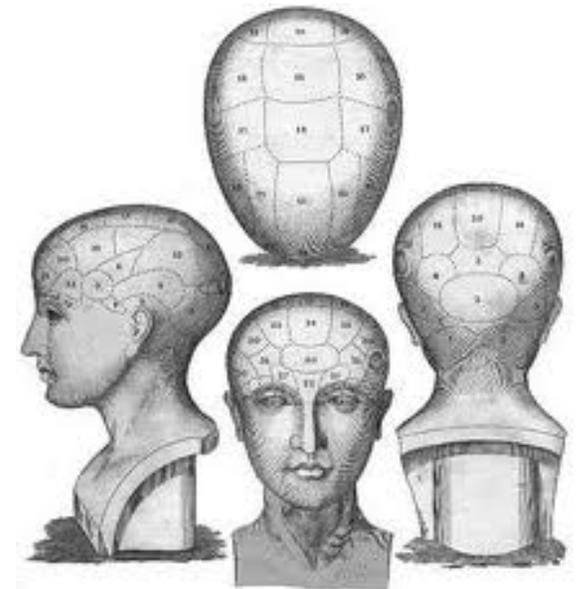
Review: Terms

What is Phrenology?

The study of the size of the head in relation to intelligence;

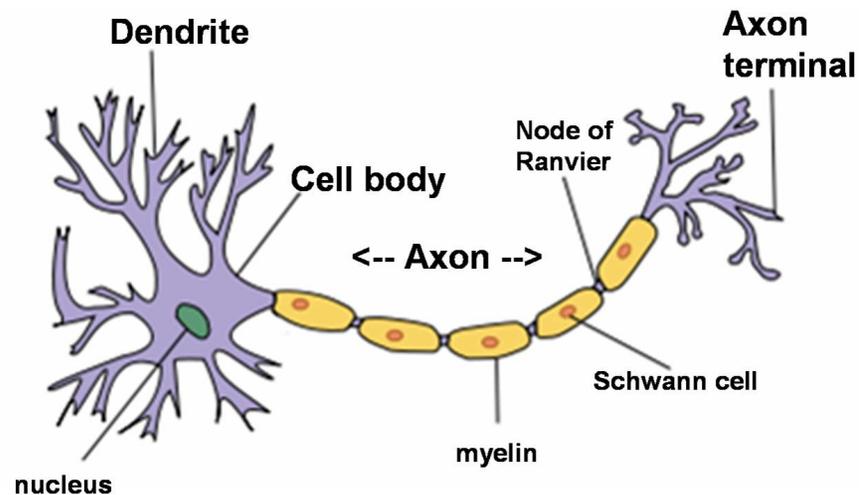
people used to have “parlor” games where they theorized the shape, parts of the brain, & its function

- Franz Gall pioneered the study of localization of mental functions in the brain

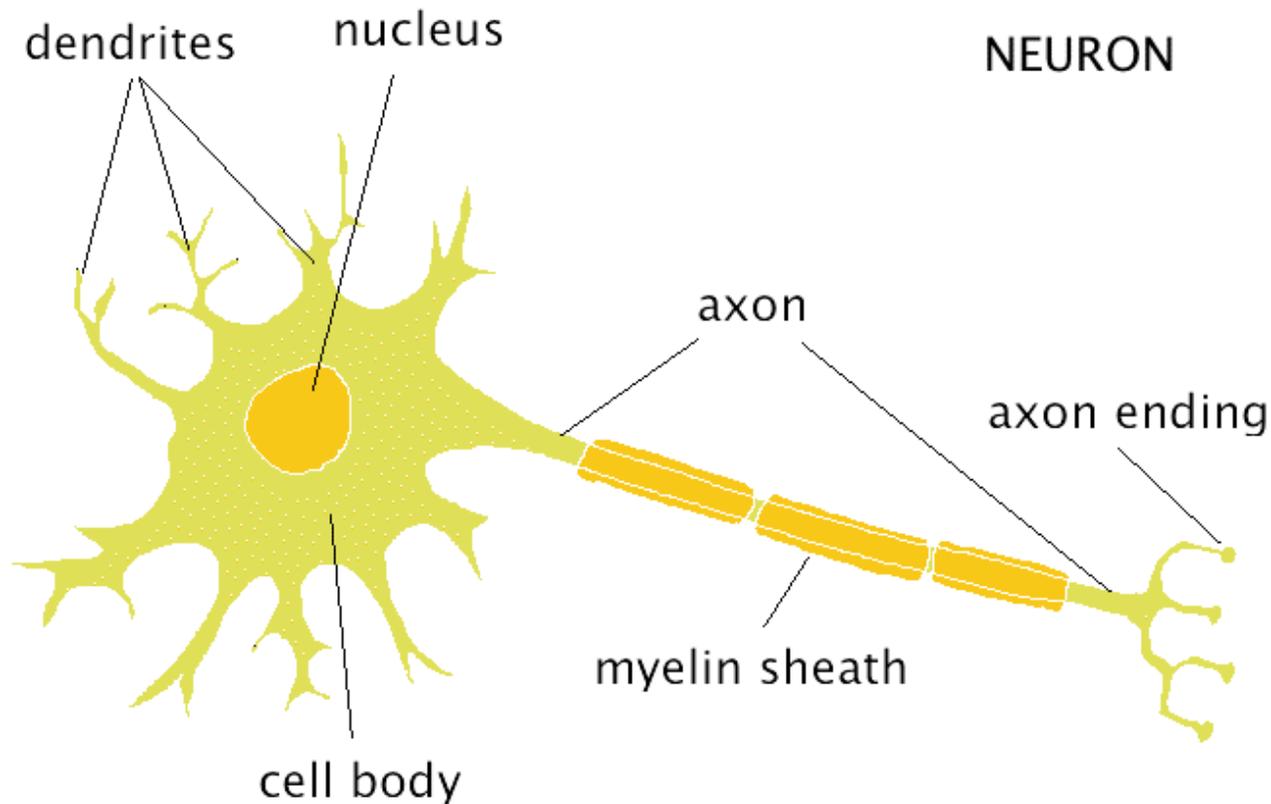


Biological Psychology

- The school of thought that *biological* aspects, like chemistry, hormones, and structures of the brain, apply to human attitudes and behaviour



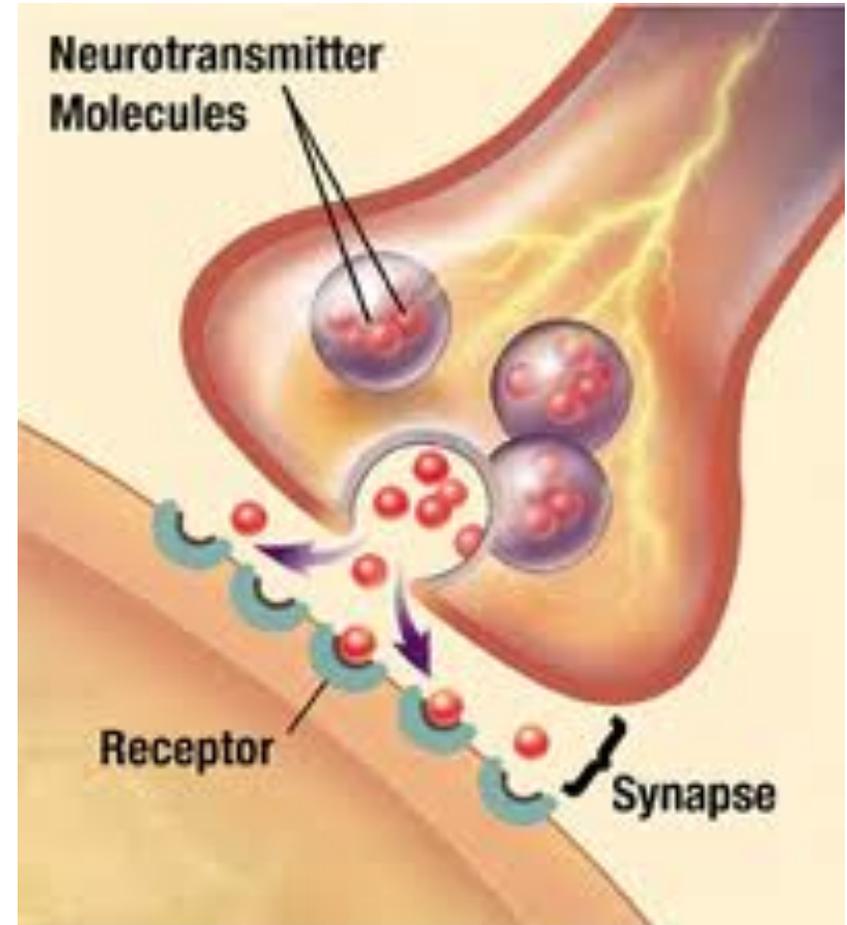
Structure & Function of Neuron



- Dendrites
- Neural communication
- Action potential
- Synapses

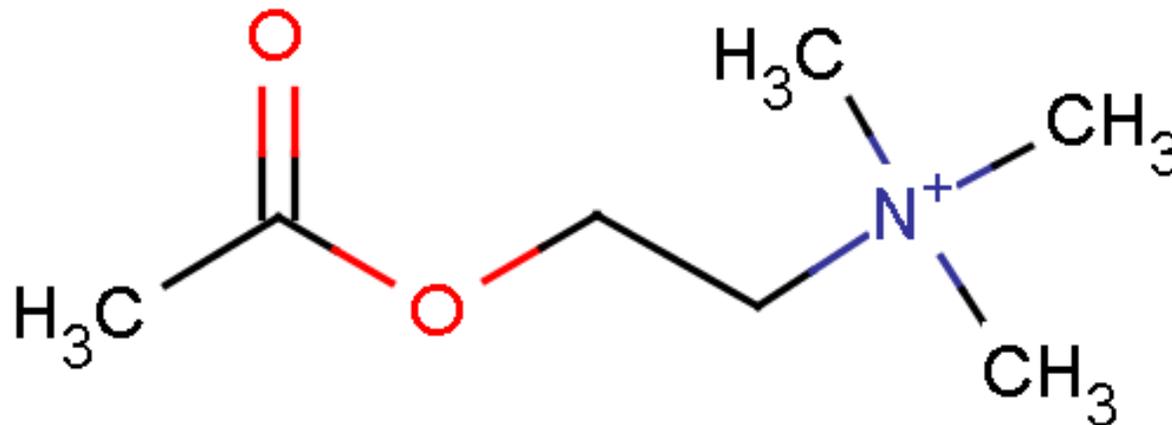
Neurotransmitters & Reuptake

- Neurotransmitters (chemicals) are sent to the “receiving” neuron
- Receiving neuron *receives* chemical & excess chemical is sent back to “sending” neuron
- Sending neuron “sucks up” (reuptake) the “excess” chemical



Neurotransmitters

- Alzheimers & Acetylcholine
- Negative Correlation between lower levels of Acetylcholine and Alzheimers



NERVOUS SYSTEM

(majority of cells: glial cells OR interneural)

NERVOUS SYSTEM

-
Peripheral

(nerves & ganglia)

Central

(Spinal cord)

• Autonomic

(involuntary)

• Somatic

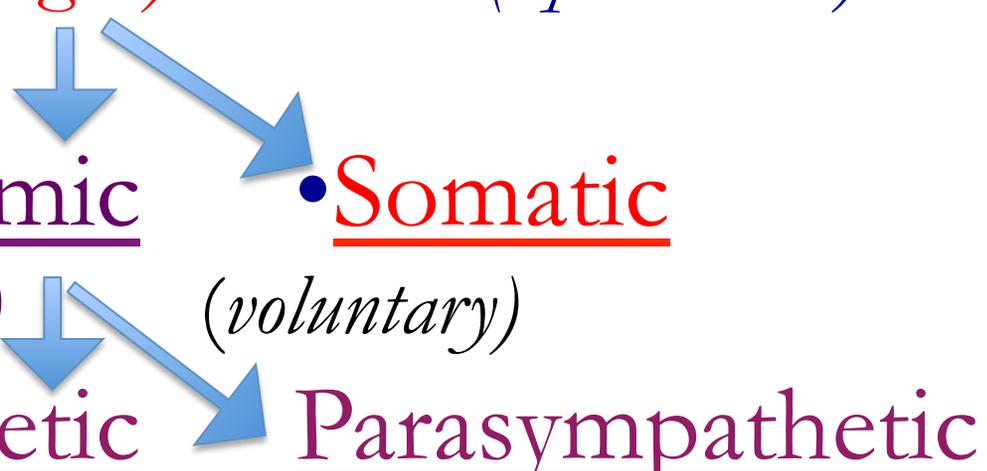
(voluntary)

Sympathetic

(arouses)

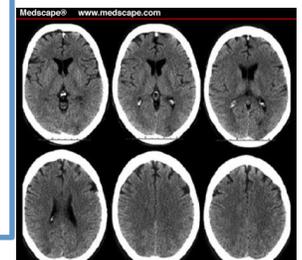
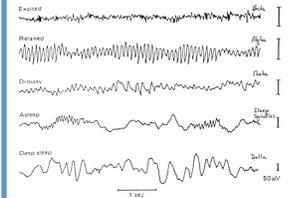
Parasympathetic

(calms & balances)



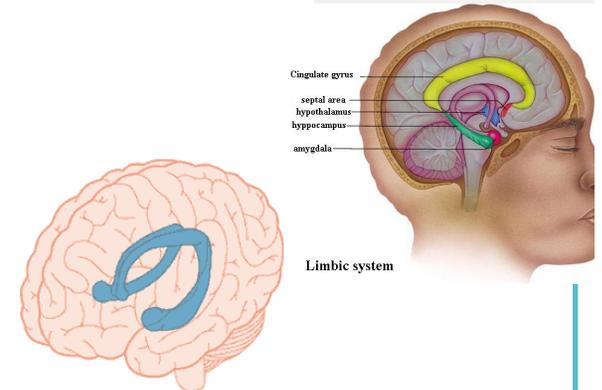
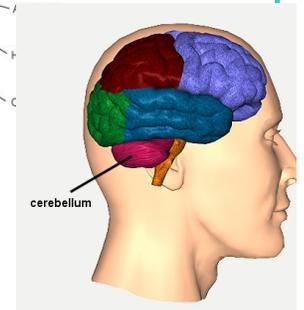
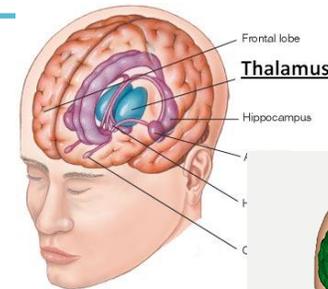
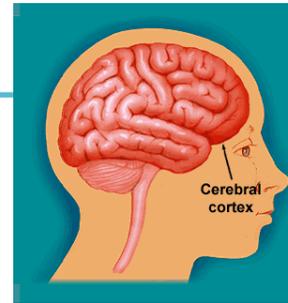
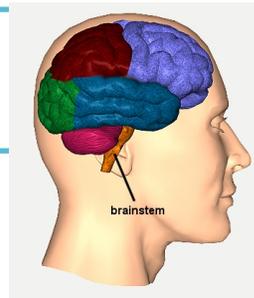
What is an EEG? Lesions? MRI? CT?

- An EEG is an *amplified tracing of waves of electrical activity* in the brain
- A Lesion is *tissue destruction* (naturally or experimentally)
- An MRI is a *scan via a strong magnetic field which aligns the spinning atoms*; this becomes a computer generated image
- A CT is *x-ray photographs* that can reveal brain damage



What is the Oldest part of the brain? Newest? What is the function of the Thalamus? Cerebellum? Limbic System? Hippocampus?

- Oldest: Brain stem
- Newest: Cerebral cortex
- Thalamus (*Thelma*): sensory switchboard
- Cerebellum: Voluntary balance
- Limbic System: Emotion center
- Hippocampus: Memory



What is the cerebral cortex? Lobes? Broca's Area? What are the functions?

- **Cerebral cortex:** outer layer of brain; higher level thinking association

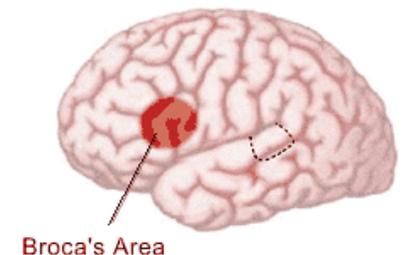
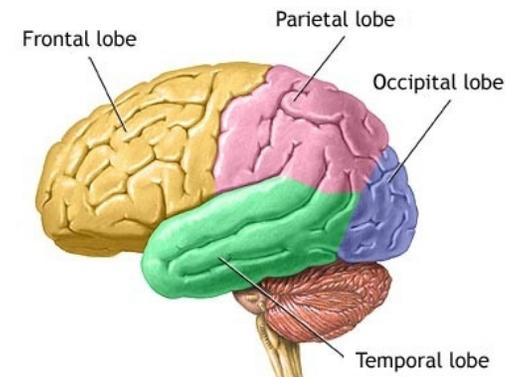
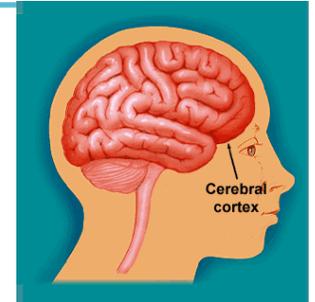
- Lobes: **Frontal** -organizer;

Parietal-sensations;

Occipital-vision;

Temporal-hearing

- **Broca's Area:** the area in brain that coordinates the muscles for speech



Hemispherectomy

Is when one of the hemispheres is removed from the brain;

Here a 7 year-old girl had a hemispherectomy

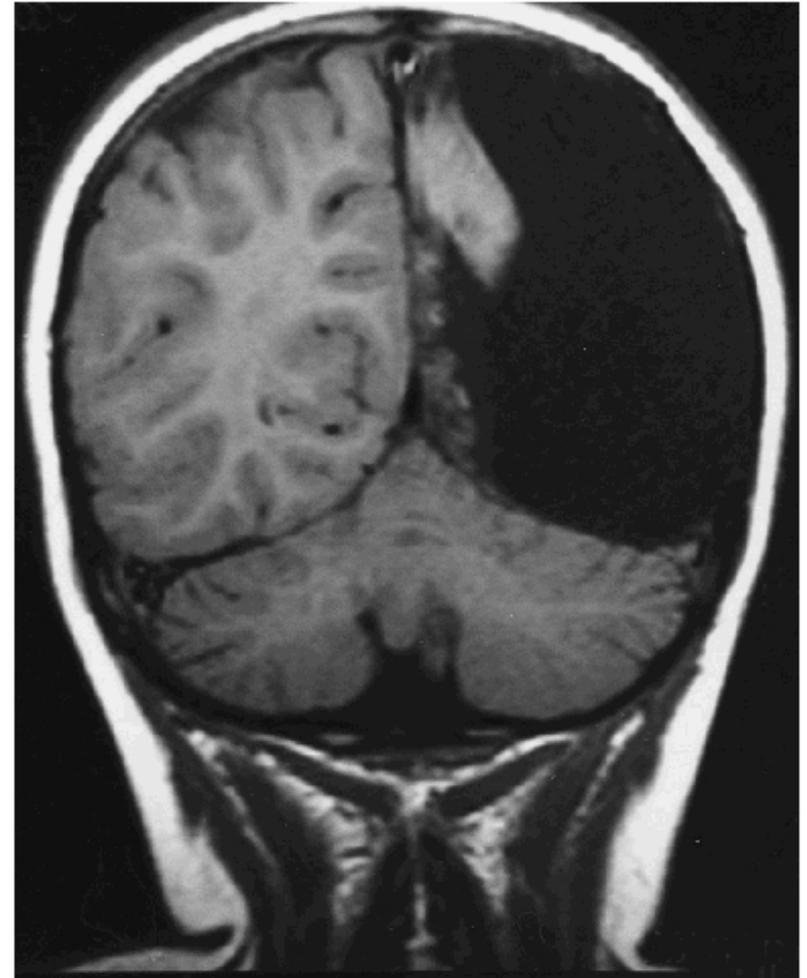
Clinical picture

The Lancet, 359, February 6, 2002

Half a brain

*Johannes Borgstein,
Caroline Grootendorst*

This 7-year-old girl had a hemispherectomy at the age of 3 for Rasmussen syndrome (chronic focal encephalitis). Intractable epilepsy had already led to right-sided hemiplegia and severe regression of language skills. Though the dominant hemisphere was removed, with its language centres and the motor control for the left side of her body, the child is fully bilingual in Turkish and Dutch, while even her hemiplegia has partially recovered and is only noticeable by a slight spasticity of her left arm and leg. She leads an otherwise normal life.



Right & Left Hemispheres & Reading

- Left analyzes the shapes & curves
- Right recognizes shapes & identifies the letter
- Left analyzes the larger image
- Right identifies the whole word (spatial/visual)

