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A NEUROSCIENCE PRIMER FOR SLPs
Kathleen M. Howland, Ph.D., CCC-SLP

Agenda

As a result of this Continuing Education Activity, participants will be able to:

1) identify key structures of the brain and its functions

2) identify relationships amongst the brain structures/functions and how this influences behaviors and development

3) identify how meaningful engagement changes the brain
what does the brain do?

cerebral hemispheres
terms of direction

gray/white matter
white matter

- intrahemispheric
- arcuate fasciculus
- interhemispheric
- corpus callosum

hemispheres

LEFTHAND
Prefrontal cortex
Speech center
Writing (right-handed)
Auditory cortex (right-side)
General interpretive center (language and mathematical calculation)
Visual cortex (right visual field)

RIGHTHAND
Prefrontal cortex
Analysis by touch
Auditory cortex (left-side)
Spatial visualization and analysis
Visual cortex (left visual field)
the neuron

plasticity

- the ability of the brain to change given experiences
- developing brain
- damaged brain
- quality of engagement
dendritic arborization

- brainstem
- cerebellum
- limbic system
- cerebrum
Franz Gall (1758–1828) and others believed that measuring the skull was indicative of mental faculties and character trait.

Popular into the 20th century.
summary

» in order to achieve highly complex skills, many areas of the brain may be involved

» neuroplasticity is the driving force for change in the developing and damaged brain

» as SLPs, we want to use the highest quality neural engagement to effect behavioral change in the plastic brain