

Brain Development in Youth

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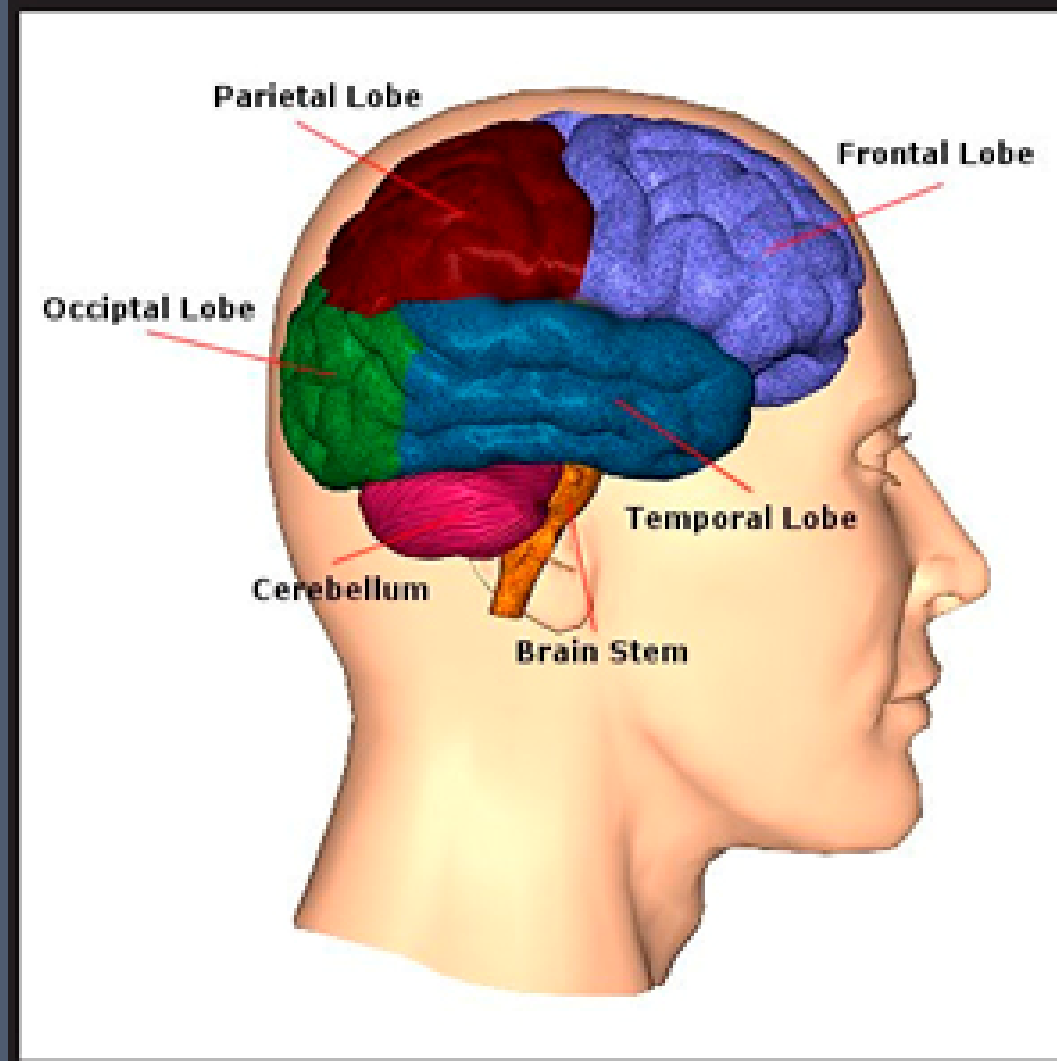
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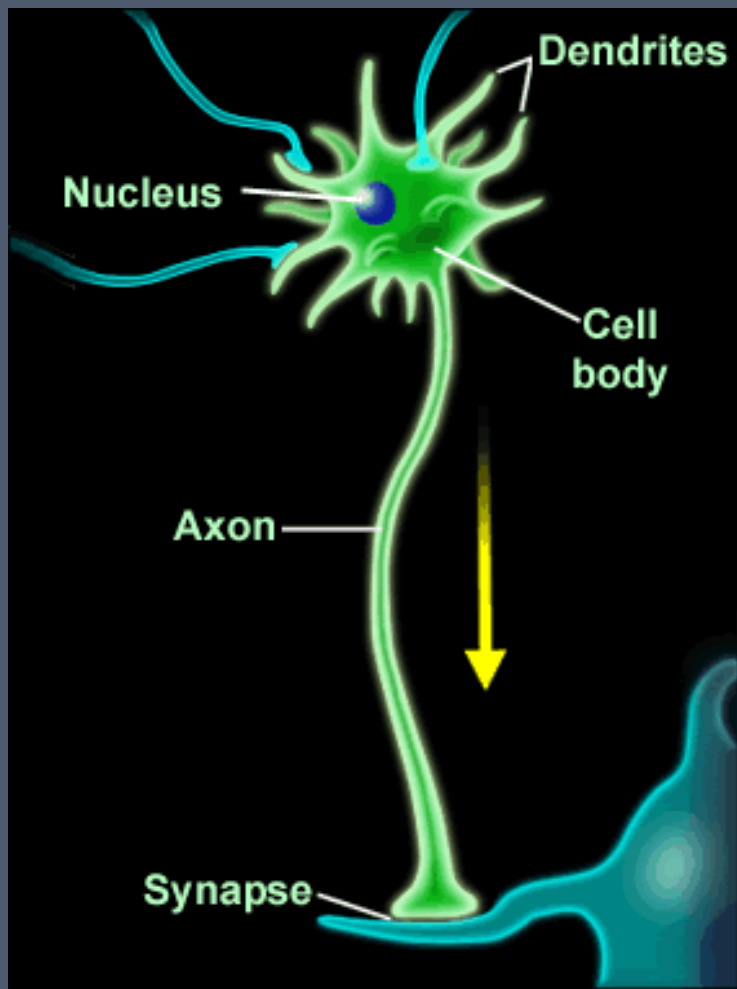
Topics

- Overview of Brain Structures and Functions
- Changes in the Brain during Adolescence
- Influence of Brain Changes on Behavior and Legal Competencies

Brain Structures



The Neuron: Transmitter of Information

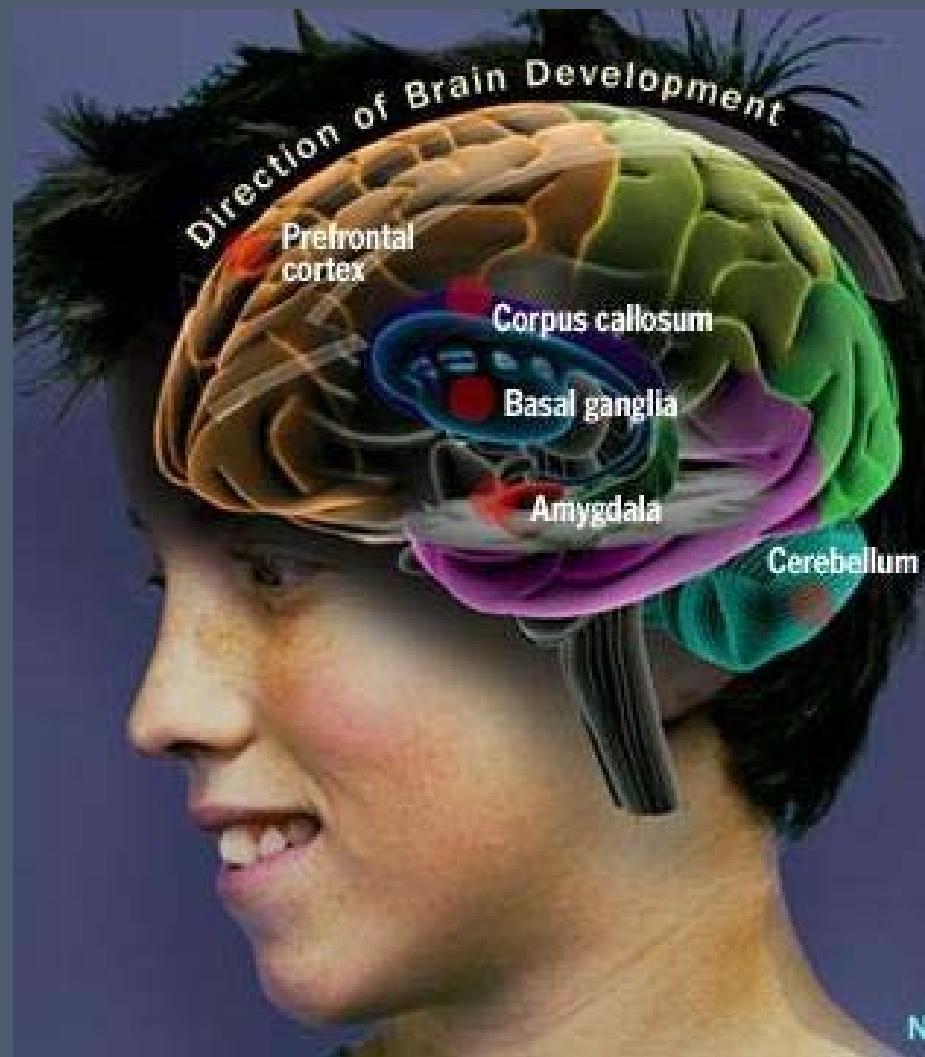


When do Neurons
develop?

“Gray matter” versus
“White” Matter:
Myelinazation

Adolescent Brain Development

- Changes in gray and white matter
- Location and direction of change
- Neurotransmitters



Ken Winters, Ph.D. University of Minnesota
<http://pruegill.wordpress.com/>

Effect of Adolescent Brain Development on Behavior

Ineffective levels of neurotransmitters



Problems with mood, attn/concentration, problem solving, & more risky behaviors

Less reliance on frontal lobes in decision making



Impulsivity, “gut” reactions; problems ignoring distractions

Less efficient connections, such as those to and from memory centers of the brain

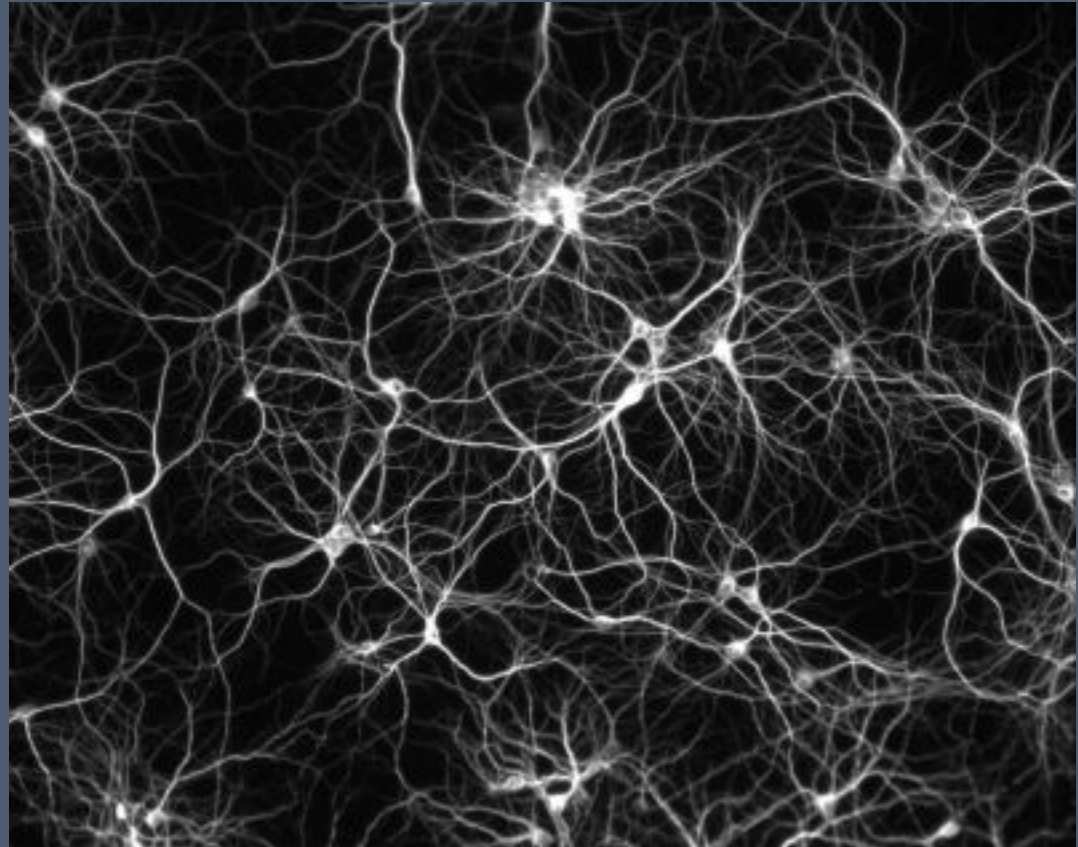


Less reliance on experience and memory in decision making

Treatment Amenability

Pruning:

Connections between neurons become more efficient with learning and experience



Summary of Changes

- Decision making and problem solving ability
- Impulsivity and behavioral disinhibition
- Risk taking behavior
- Time perspective and weighing of consequences
- Treatment amenability

Influence of Brain-Behavior Research on Juvenile Justice and Legal System

- Legal Competencies
- Culpability
- Disposition and Treatment Planning

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