Brain Development in Youth

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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: Myelination
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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