Adolescent Development: Forensic Implications

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Kids Are Not Little Adults
OR
The Importance of Early Intervention

Adolescent Development: Clinical Considerations

1. It is well established that reasoning capabilities increase through childhood into adolescence and that preadolescents and younger teens differ substantially from adults in their cognitive abilities.

2. These developmental improvements in reasoning are complemented by increases in specific and general knowledge gained through education and experience and by improvements in basic information processing skills, including attention, short- and long-term memory, and organization.

3. Studies using of future orientation, impulsivity, and susceptibility to peer pressure indicate that brain systems implicated in planning, judgment, impulse control, and decision making continue to mature into late adolescence.

4. Adolescents, as compared with adults, are more susceptible to influence, less future oriented, less risk averse, and less able to manage their impulses and behavior, and that these differences likely have a neurobiological basis.

5. The important conclusion for our purposes is that juveniles may have diminished decision-making capacity compared with adults because of differences in psychosocial capacities that are likely biological in origin. This can impact culpability.

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**Developmental Considerations**

- Youths are "moving targets"
  - They change from year to year
  - They experience spurts, delays, and regressions
  - Increases in one developmental area may not signify increases in other developmental areas
- Youths are socially dependent
- Adolescent psychopathology is complicated
  - Youth’s mental disorders are influenced by continuing development, and can take different forms as they mature

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**Examples of Uneven Development**

1. Various capacities do not develop at the same rate
2. Physical maturity typically precedes psychological maturity
3. A youth may be mature in one domain (e.g., cognitively) but not in another domain (e.g., interpersonally)
Developmental Considerations: Examples of Uneven Development

4. A youth might exhibit a relatively mature response in one context, and quite another in a different context.

5. A youth might appear to exhibit a capacity one day, but the next appear to be much shakier in that same capacity.

- Therefore, it is often not helpful to refer to a youth as “mature” or “immature” without greater specification of ability and context.

Immaturity

- Immaturity is a relative term
  - Importance of identifying cognitive, emotional, and behavioral anchors
  - “Immature compared to whom?”
  - Adults? Average adolescent? Same age peers?

- Maturation is not an all-or-none concept
  - Importance of identifying the specific ability or characteristics in question

- Age is not synonymous with developmental level
  - Do not presume level of maturity based on age alone

Domains of Maturity

1. Biological development
2. Physical development
3. Brain development
   a. MRI: prefrontal development, and affect regulation
4. Intellectual development
   a. Cognitive abilities (reasoning capacity)
   b. Experience – gaining information
5. Psychosocial development - more

Psychosocial Development

- Psychosocial maturity = factors that have to do with ability to take a perspective in practical social situations, especially when problem-solving (Grisso, 2005)
  a. Autonomy
  b. Risk Perception
  c. Time Perspective
  d. Abstract Thinking
Psychosocial Development

1. Perceived Autonomy
   a. Dependence on adults decreases across adolescence
   b. Capacity for self-direction gradually increases
   c. Sense of identity gradually becomes more lasting and meaningful
   d. Peer influence increases early in adolescence and then gradually decreases
   e. Lack of autonomy can be manifested as passivity, inattention, or simple acquiescence to authority and/or peers

Psychosocial Development

2. Perceptions of Risk
   a. Very young adolescents may not recognize risks
   b. Once risks are recognized, youths differ from adults in estimates of risks
      i. Under-estimation of likelihood of risk
      ii. Lesser capacity to delay impulsive response in risky situations
      iii. Tendency to weigh risks differently (e.g., preference for immediate gains, and willingness to risk negative consequences, which are often underestimated)

Psychosocial Development

3. Time Perspective
   a. Tendency to focus on short-term consequences
   b. Picturing oneself several years from now is difficult in light of uncertainty of “self” (which is changing)
   c. Immature time perspective manifests as failure to balance long-term losses with short-term gains

Psychosocial Development

4. Abstract Thinking
   a. Required in order to:
      i. Grasp some concepts (e.g., a “right”)
      ii. Recognize others’ motives
      iii. Consider hypotheticals (e.g., if X, then Y)
      iv. Concrete thinking makes it difficult to imagine consequences one has not experienced before
Individual Differences

“Nature, Mr. Allnut, is what we were put on this earth to rise above.”

Temperament

The Infant From Hell
Current Research In Neuro-Imaging
Jay Giedd MD. Child Psychiatry Branch NIMH

Phineas Gage

Parts of the Brain

Frontal Lobe Parietal Lobe
Temporal Lobe Occipital Lobe
Brain Stem Cerebellum
Gray Matter Thickness: Ages 4 to 22 years
White Matter Development

White Matter vs Gray Matter

- **White Matter**
  - Linear increase
  - Not different by region

- **Gray Matter**
  - Inverted “U”
  - Regionally specific
Brain Development in Healthy Children & Adolescents
Longitudinal and Cross-Sectional Data
(243 Scans from 145 Subjects)

Frontal Gray Matter

Neuronal Branching

Dendrites & Synapse:

Adolescent “pruning”

Images by Diane Murphy, PhD, National Institutes
IQ and cortical thickness

Questions raised from the cortical thickness findings

- What are the social/judicial/parenting/personal implications of late DLPFC maturation?
- What influences the build up stage?
  - Parenting / Medications / Diet / Video games / Other
- Does the “use it or lose it” principle guide the adolescent pruning?

Milestones

Teens and Adults process emotions differently

- Adults and teen subjects have been shown to process emotions differently, they use different areas of their brain to recognize feelings
- Many teen subjects failed to interpret the emotion in faces like this one as fear.
When reading emotion, teens (left) rely more on the amygdala, while adults (right) rely more on the frontal cortex.

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Emotions

Deborah Yurgelon-Todd, 2000

Teens show reduced recruitment of motivational but not consummatory components of reward-directed behavior

- Color® extra oxygen flow after a signal indicating that they could win cash
- Young adults (part A), ventral striatum robustly activated.
- Adolescents (part B), ventral striatum showed less activation.
- Brain activity in response to learning that money had been won, however, did not differ between the two age groups.
- Teens "like" obtaining the money but are less energized to prepare and respond to obtain it.

James Bjork, Ph.D, NIAAA, 2004

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Trauma And The Developing Brain

The Adverse Childhood Experiences Study (ACES)
The Effect of Neglect

The Effect of Trauma

Putting It Together

If I knew then what I know now