Challenging What We Think We Know: Transforming Adolescent Pregnancy Prevention with Brain Science

July 31, 2018
3:00-4:30 pm ET

U.S. Department of Health and Human Services
Administration for Children, Youth and Families
Family and Youth Services Bureau
Adolescent Pregnancy Prevention (APP) Program

Presented by:

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Objectives

As a result of this webinar, you will be able to:

1. Describe with confidence three emerging developmental neuroscience principles.
2. Discuss the implications of these three principles for adolescent pregnancy prevention.
3. Identify at least one action step for applying the developmental neuroscience principles into APP program planning and implementation.

Who's Online?

In the chat box, share:

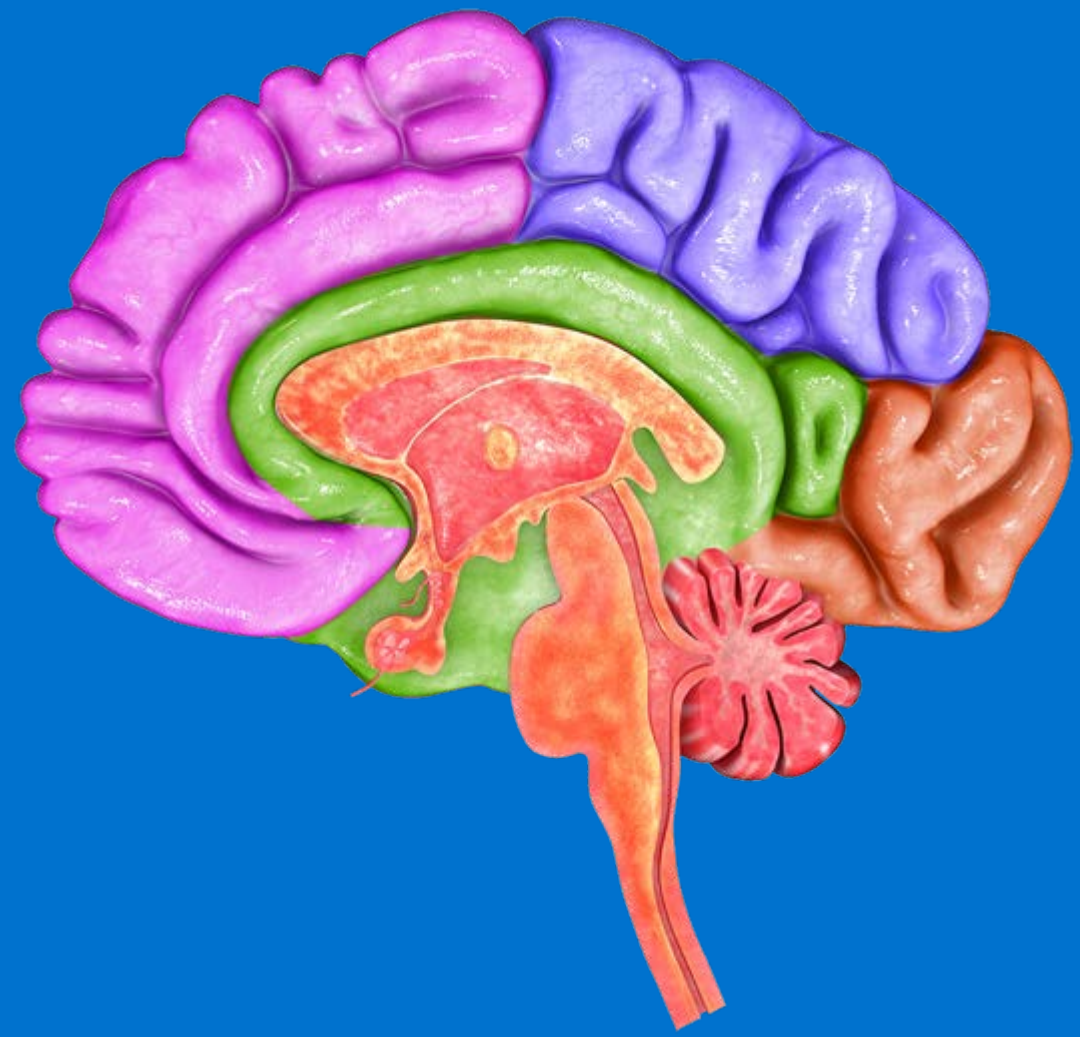
1. Name
2. State, territory, or tribe
3. One thing that excites you about the adolescent brain, OR
4. One question you have about the adolescent brain

Kirby Summit

Disruptor Alert!

The Developing Brain:

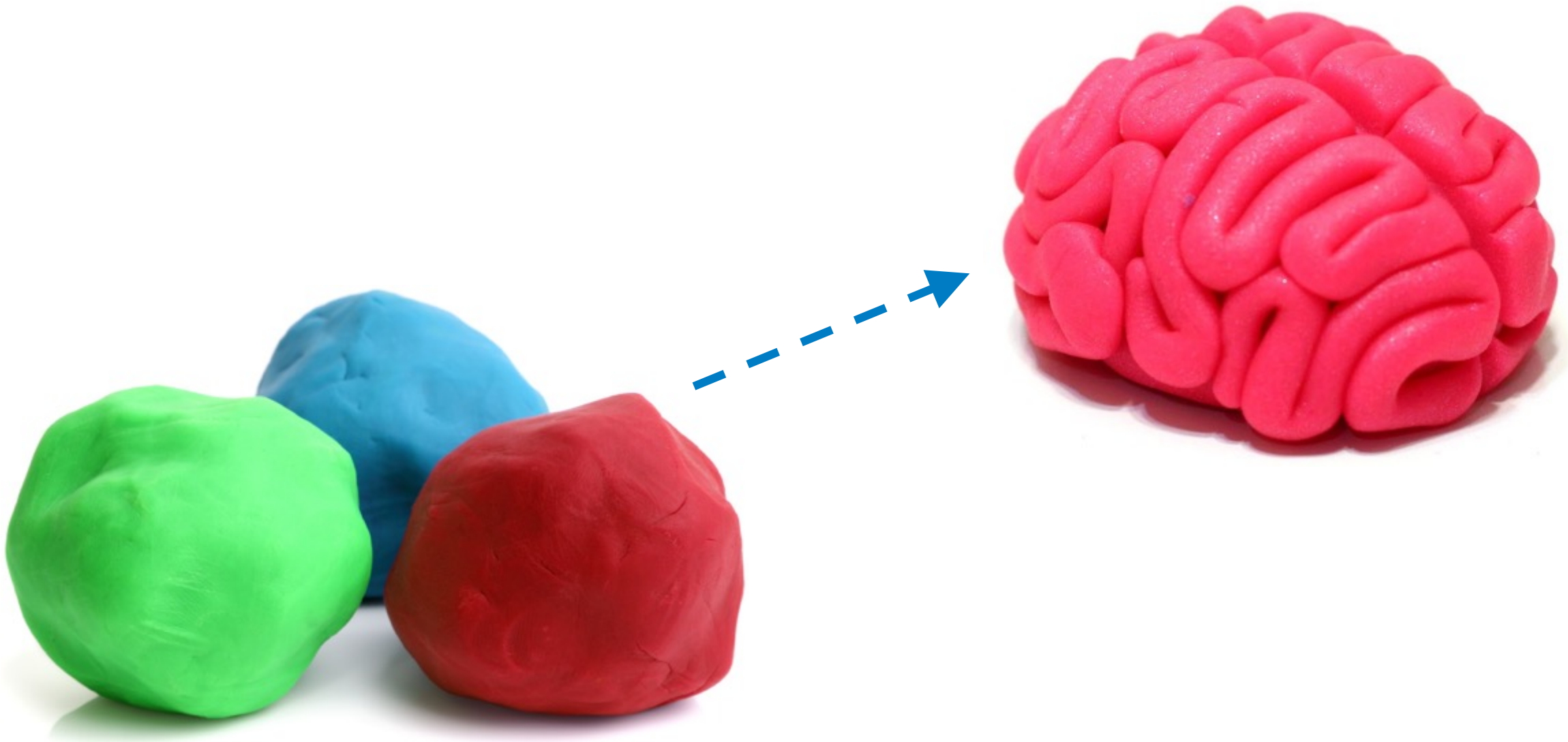
A Brief Refresher



Neuroplasticity shapes the brain

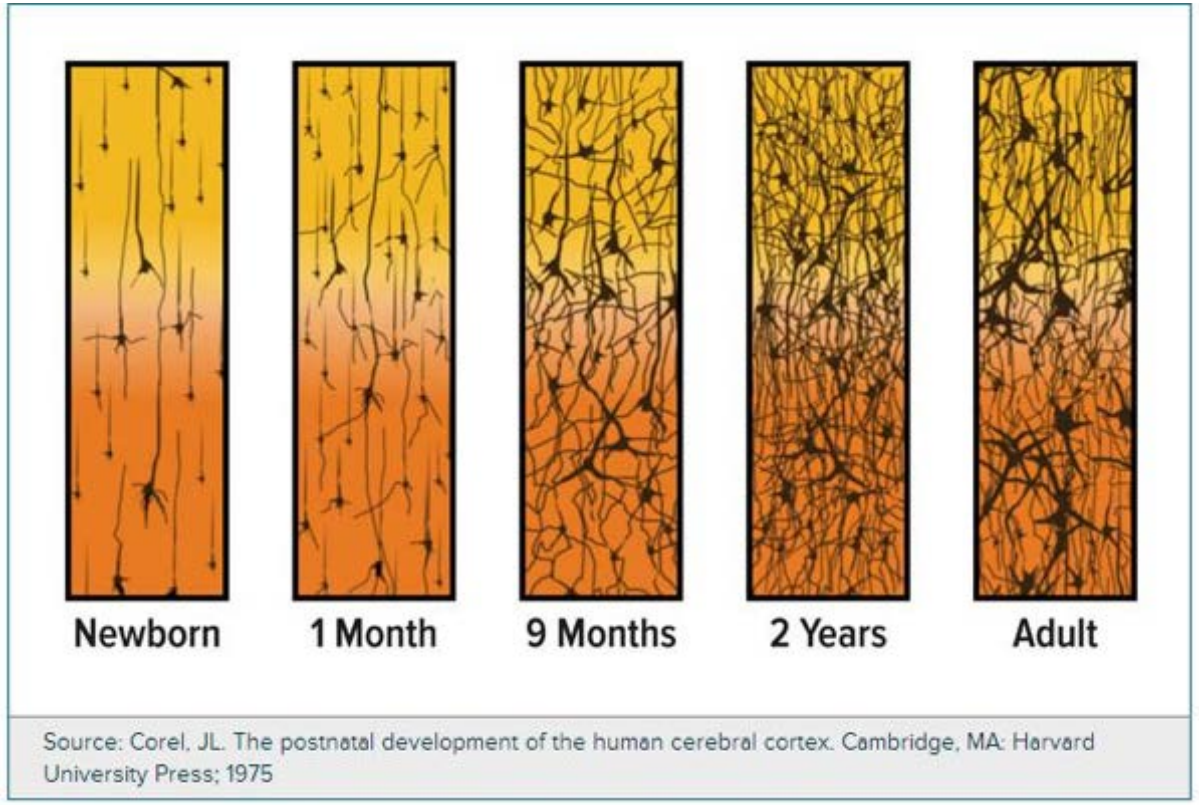
- Neuroplasticity means that the brain is “adaptable” and able to form new connections and learn new things
- The brain is most plastic in childhood and adolescence

Neuroplasticity shapes the brain



Neuroplasticity occurs through overproduction, pruning, and myelination

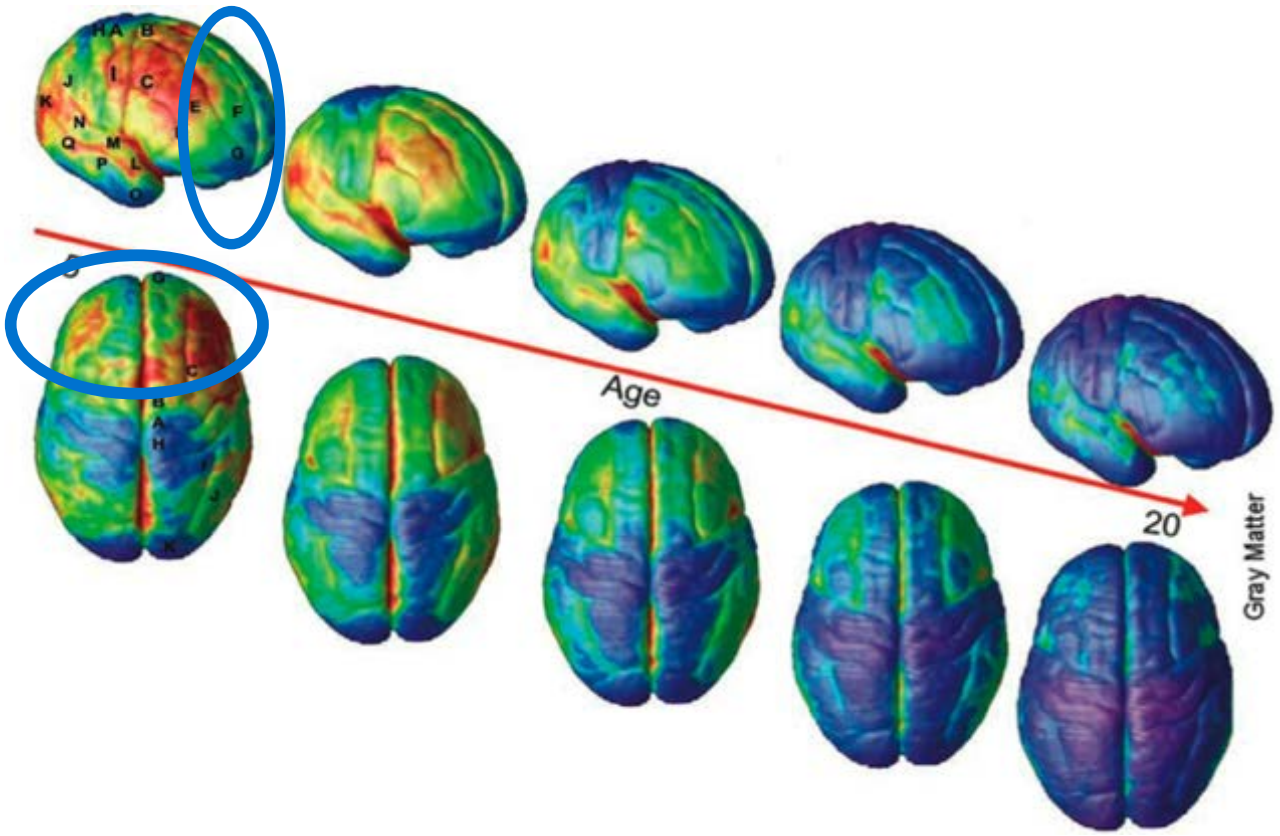
- **Overproduction** – forming new connections between neurons
- **Pruning** – removing neural connections that are not used
- **Myelination** – strengthening remaining connections that are used



Source: Corel, JL. The postnatal development of the human cerebral cortex. Cambridge, MA: Harvard University Press; 1975

Brain regions mature differently over time

- Brain matures from back to front
- Prefrontal cortex is the last to fully mature
- Integration is an important part of maturation



Development depends on nature *and* nurture

- Genetics shape some aspects of brain development
- Plasticity and maturation are also shaped by experience
- Pruning is thought to allow people to adapt to their environment

Quick Review!

Summary of Key Points

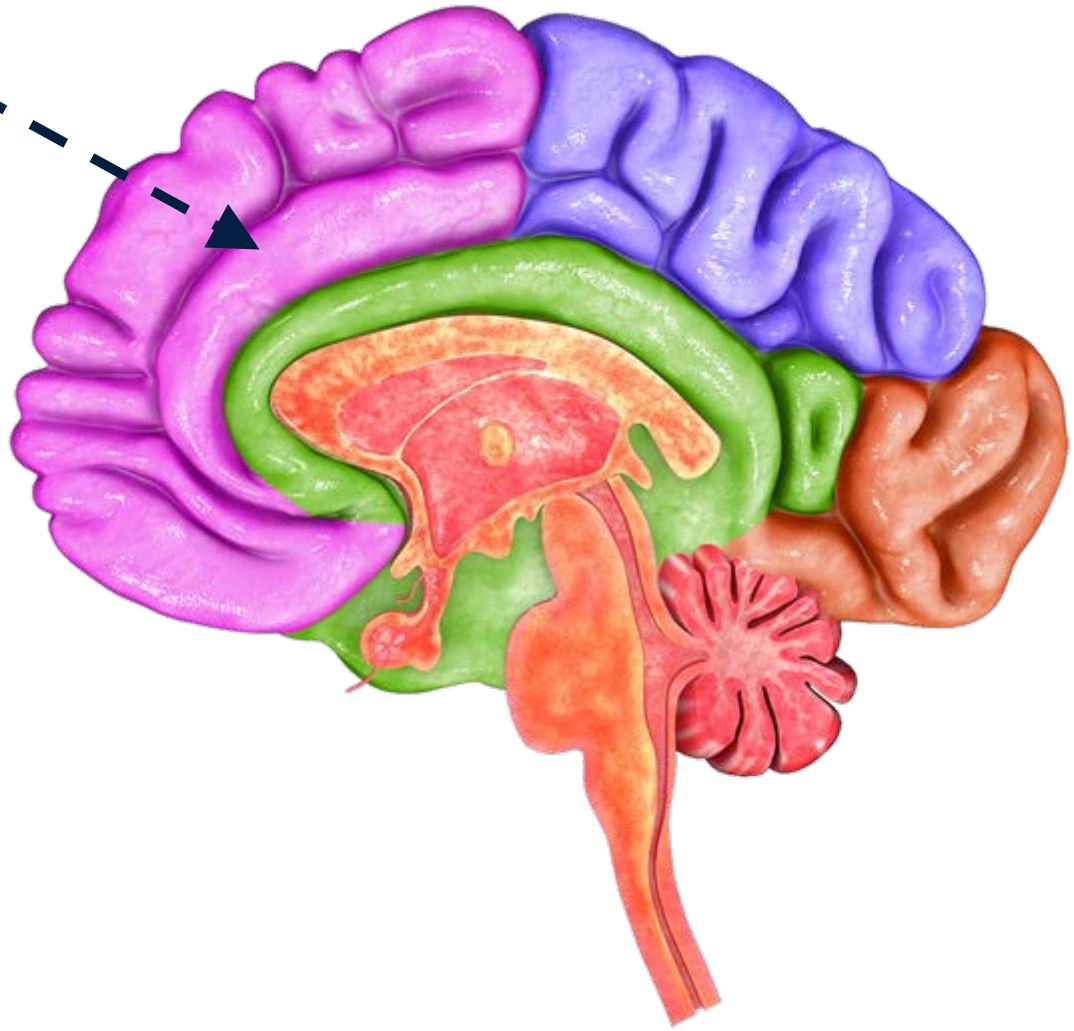
1. Neuroplasticity shapes the brain
2. Neuroplasticity occurs through a process of overproduction, pruning, and myelination
3. Different brain regions with different functions mature at different times
4. Brain development depends on both nature and nurture

The Birth of Three Principles

Emotion

Prefrontal Cortex

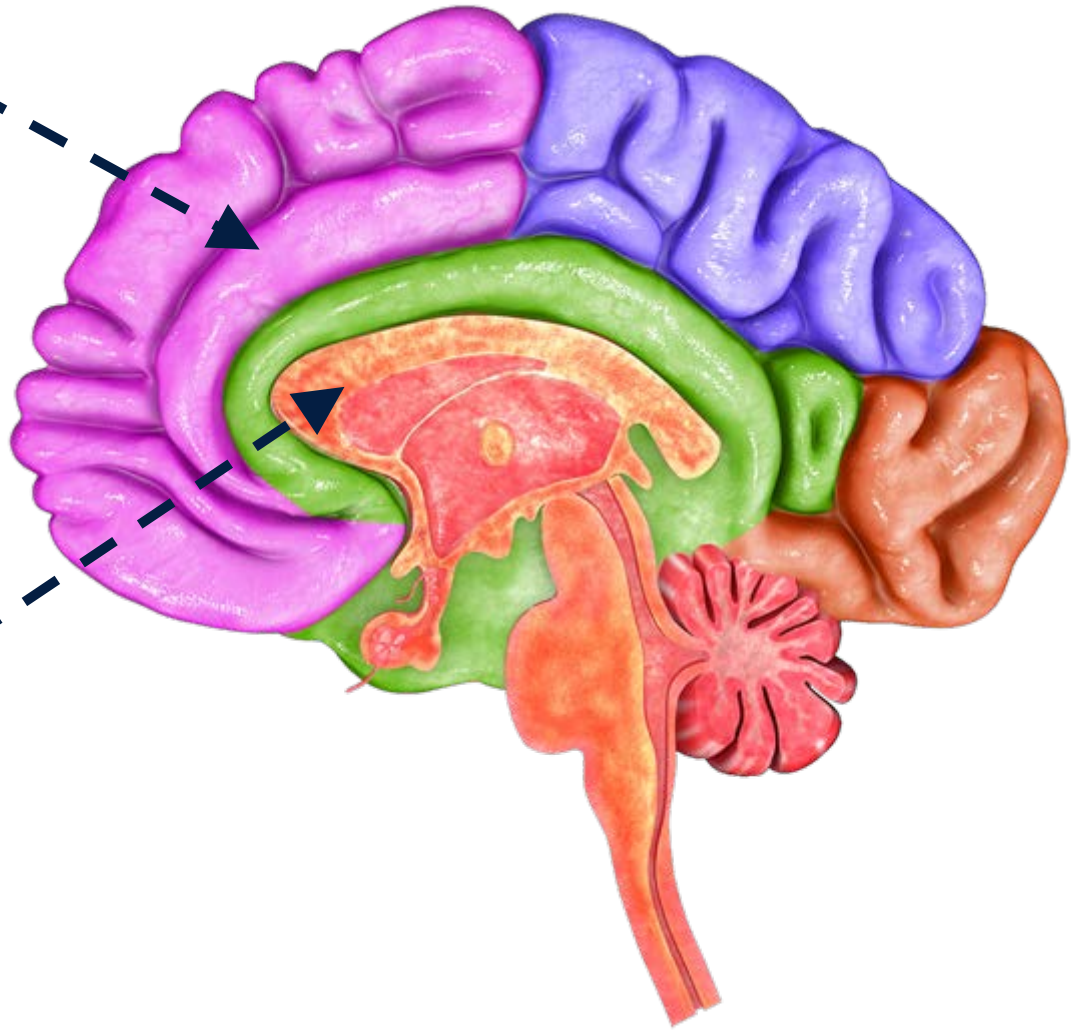
+ Decision-making
+ Planning
+ Emotional regulation
+ Attention



Emotion

Prefrontal Cortex

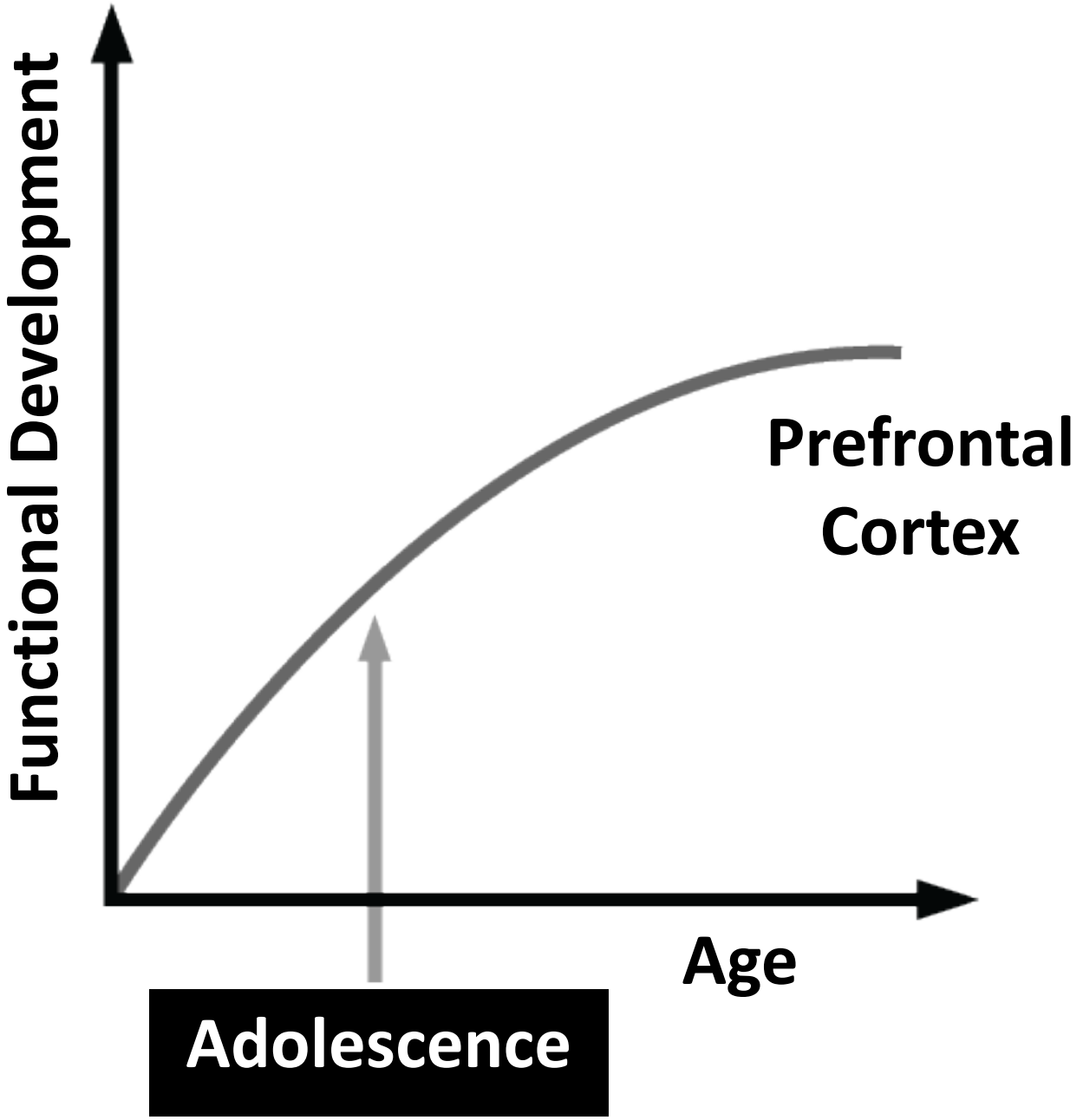
+ Decision-making
+ Planning
+ Emotional regulation
+ Attention



Limbic System

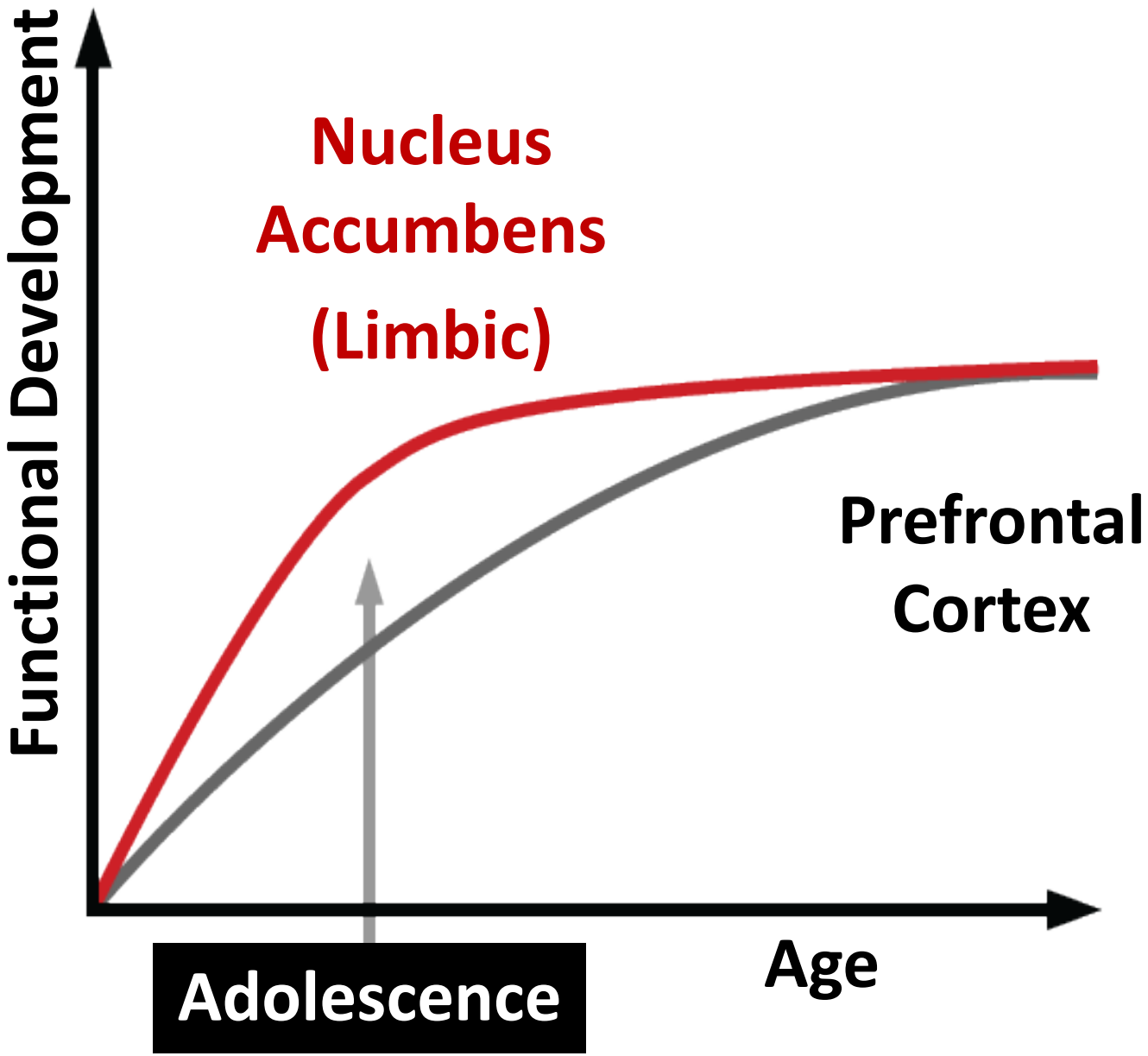
+ Arousal
+ Motivation
+ Emotion
+ Memory

Emotion



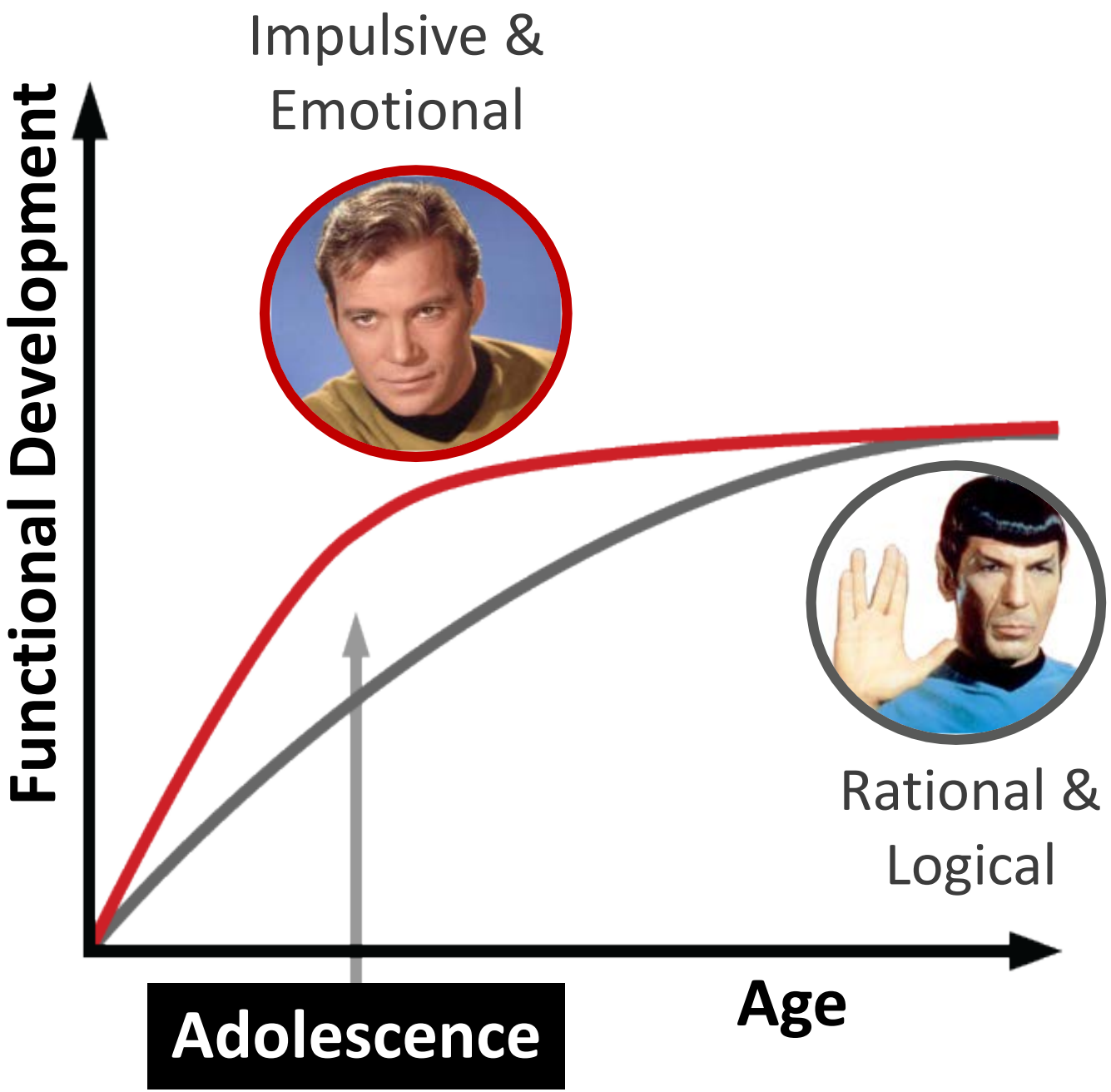
(Casey, 2008)

Emotion



(Casey, 2008)

Emotion

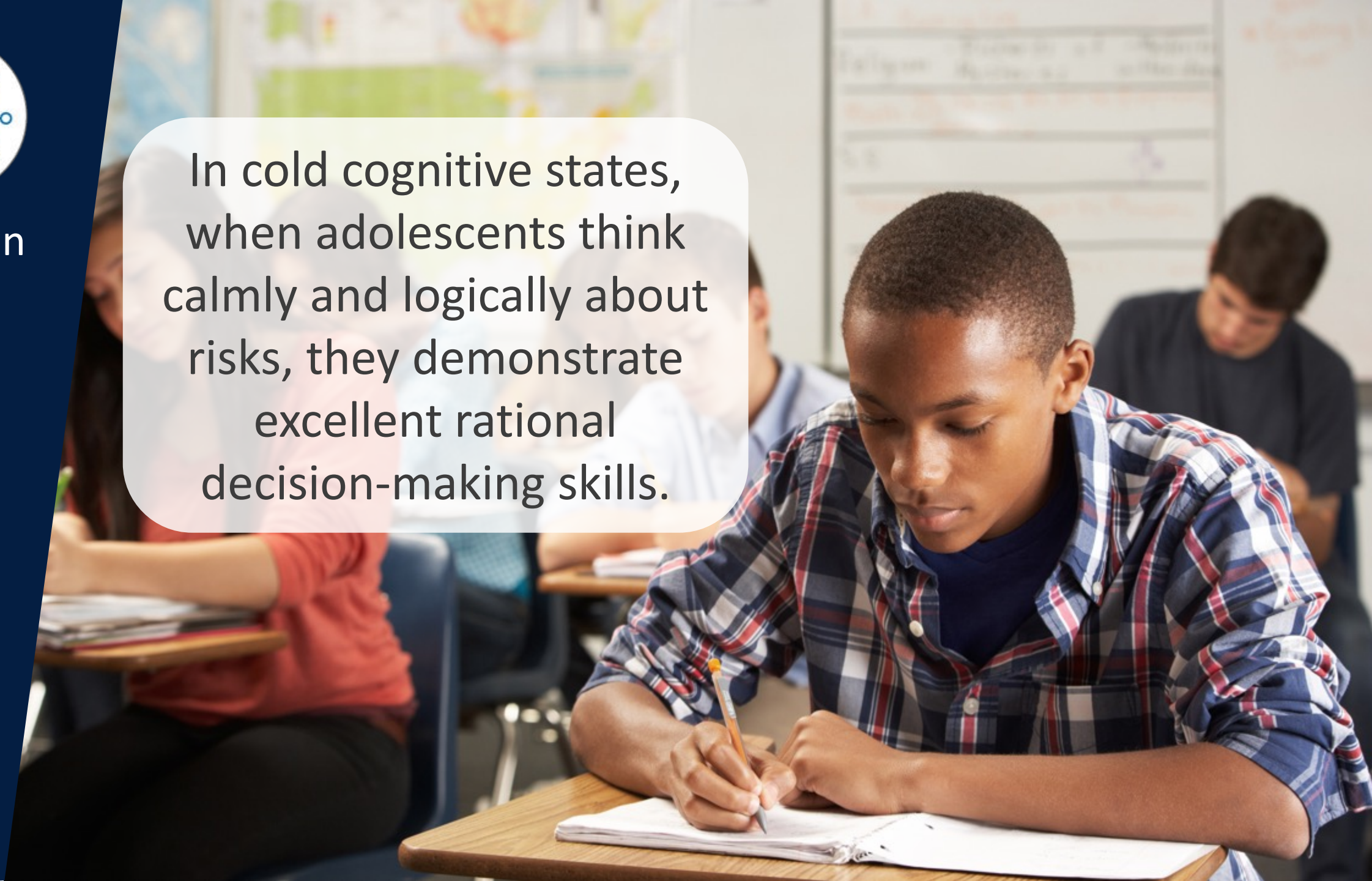

Impulsive &
Emotional
Functional Development
Rational &
Logical
Age
Adolescence

Emotion

Cold Cognition
(calm and unemotional states)

Emotion

In cold cognitive states, when adolescents think calmly and logically about risks, they demonstrate excellent rational decision-making skills.



Emotion

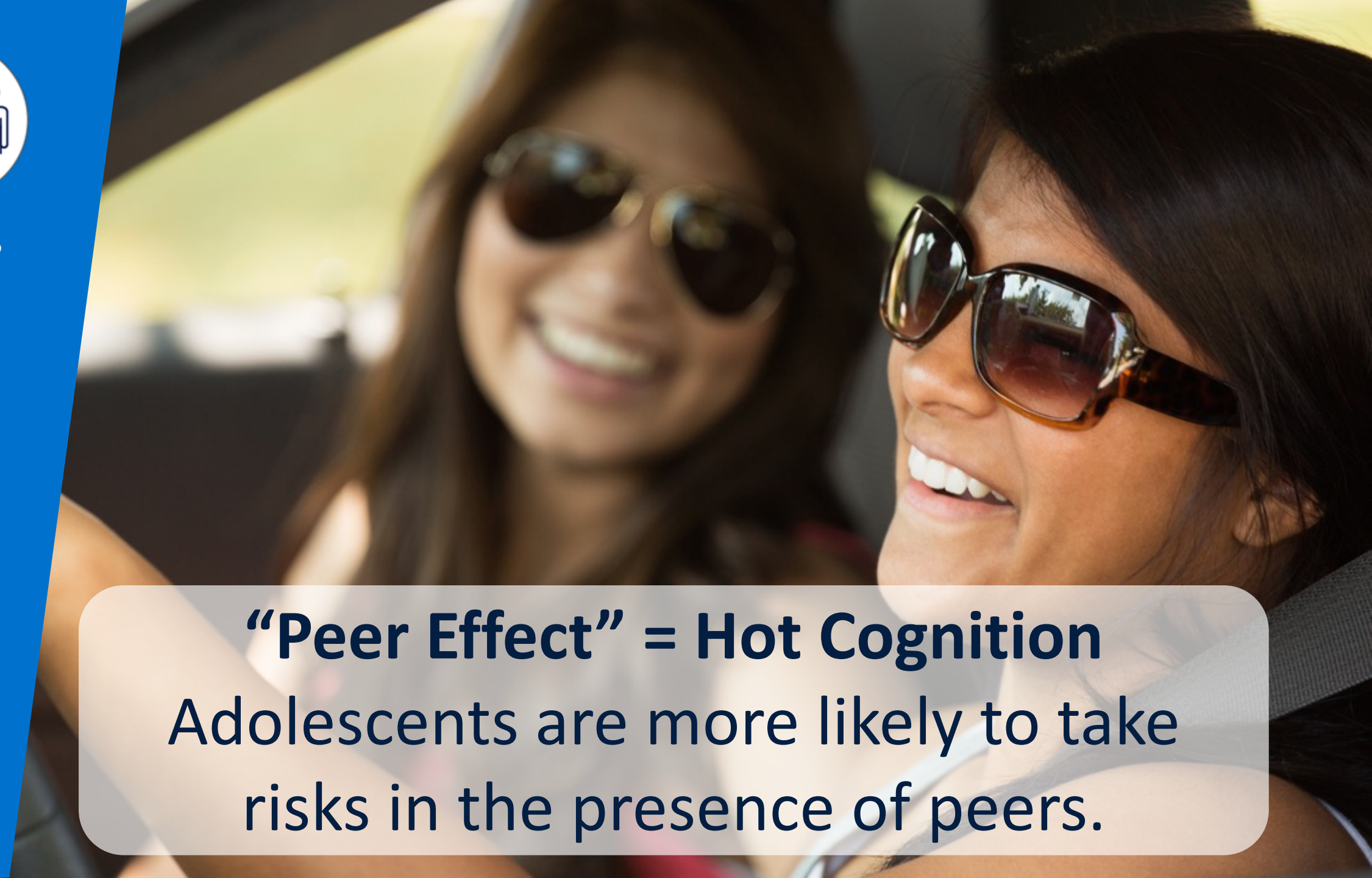
HOT Cognition
(emotionally aroused states)

Emotion

In hot cognitive states, the reward circuitry of the limbic system takes over, and immediate rewards outweigh the risks.

Process Check

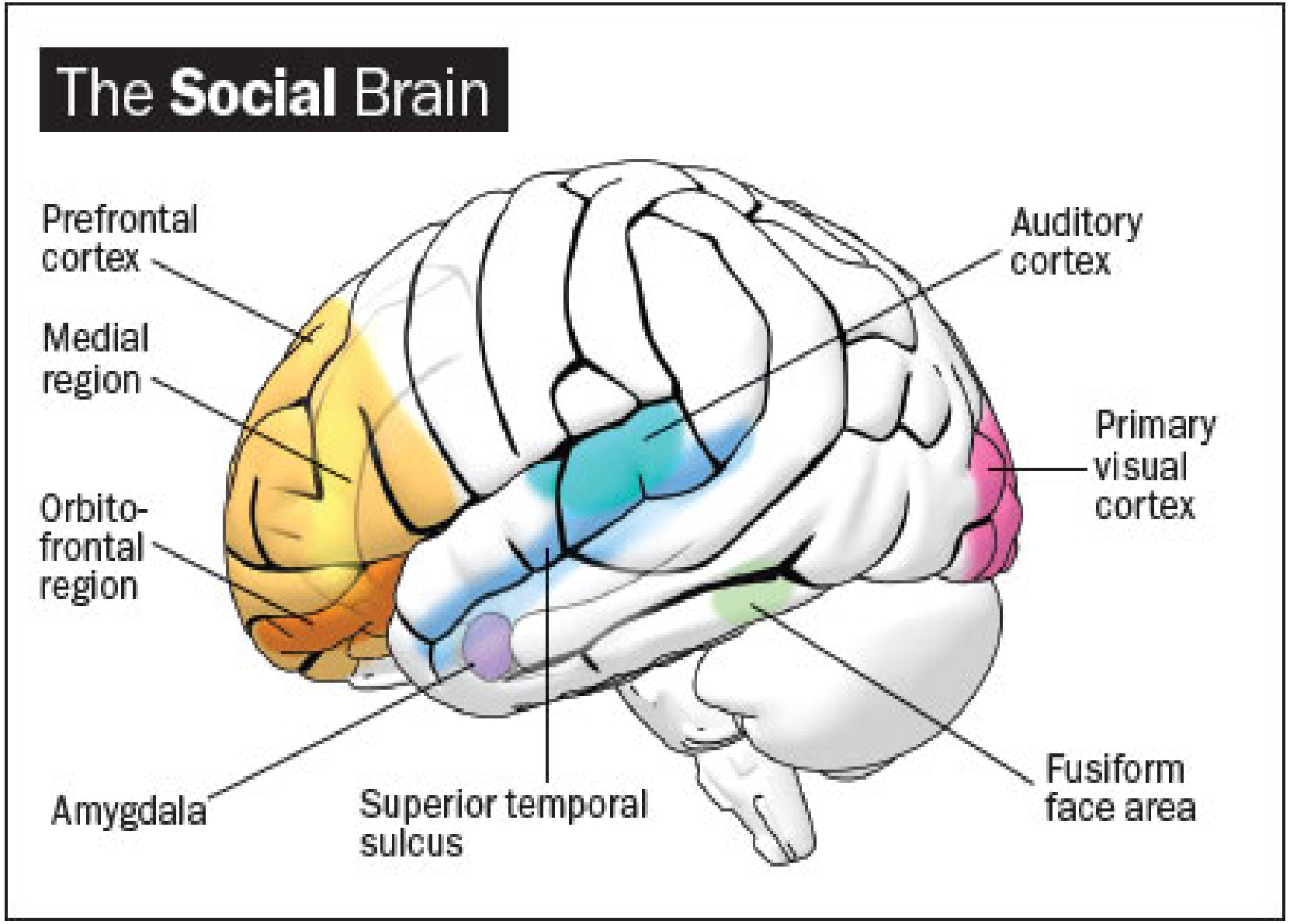
Peers



“Peer Effect” = Hot Cognition

Adolescents are more likely to take risks in the presence of peers.

Peers


The Social Brain
Prefrontal cortex
Medial region
Orbito-frontal region
Amygdala
Superior temporal sulcus
Auditory cortex
Primary visual cortex
Fusiform face area

Peers

Adolescents are refining their social skills, including processing facial expressions and gestures and evaluating others' thoughts and feelings. They are also sensitive to how they are perceived by others.

Peers

Adolescents are more likely to take risks after they have felt peer rejection.

Process Check

Social Status & Autonomy

Social Status
&
Autonomy

Social Status

+ How a person ranks among others
+ Determined by feelings of respect, admiration, or belonging
+ Driven by an increase in testosterone in the brain

Autonomy

+ Contributes to feelings of respect and status
+ Being able to think, feel, and make decisions independently

Social Status & Autonomy

- The TRUTH Campaign channeled youth's desire for autonomy.
- It empowered adolescents to rebel against the tobacco industry.

Social Status
&
Autonomy

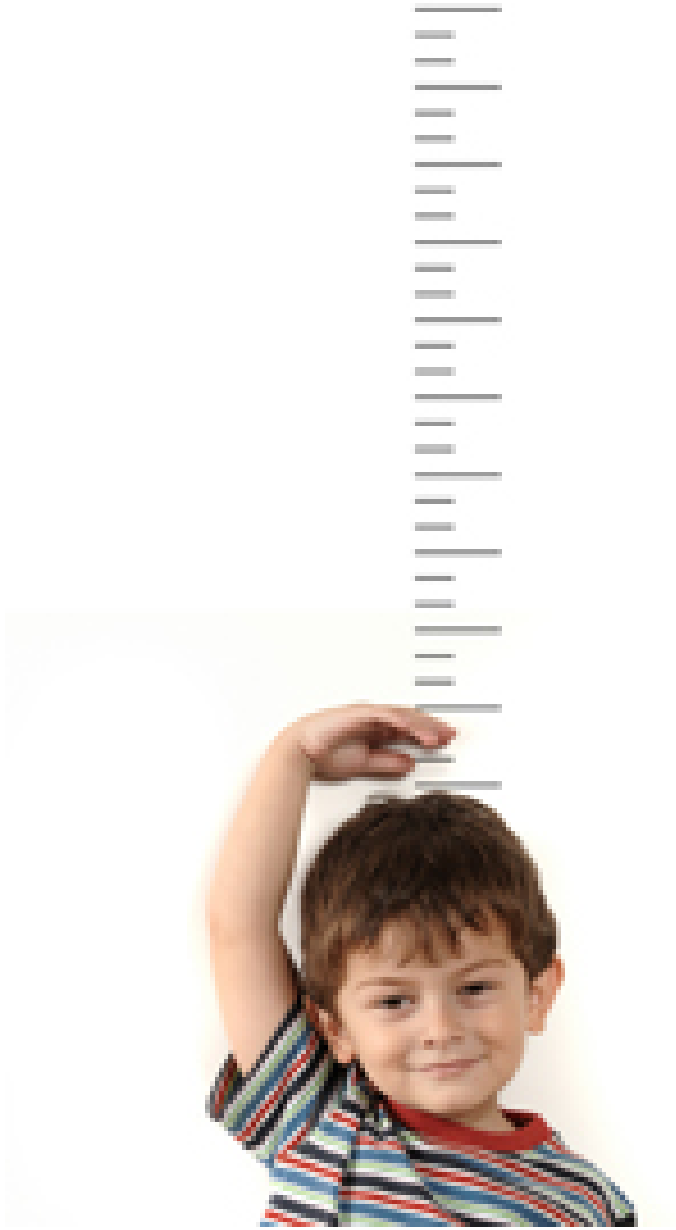
The Parkland youths' rise against gun violence and the gun industry is an organic example of this principle.

Reflection

In the chat box, share:

In what ways, if any, does your current APP programing harness youth's desire for social status and autonomy to *improve* health outcomes?

Entering the Growth Zone



Emotion

Emphasis on *cognitive decision-making* processes

Cognitive decision-making takes a back seat in situations when the emotional center of the brain takes over

Emotion

The Growth Zone

Thinking about your APP program, how might you approach your work with adolescents differently, based on the EMOTIONS principle?

(type ideas into the chat box)

Emotion

Some Strategies

1. Teach adolescents about their brains!
2. Support adolescents to become aware of and regulate strong emotions (e.g., self-regulation).
3. Provide opportunities to practice decision-making in hot cognitive states (e.g., homework with reflection).
4. Ignite adolescent passions and encourage healthy risk-taking (and rewarding) experiences (e.g., community service).

Peers

Emphasis on *peer norms* and *peer pressure*

The “peer effect” activates reward centers of the brain & youth take more risks after peer rejection

Peers

The Growth Zone

Thinking about your APP program, how might you approach your work with adolescents differently, based on the PEERS principle?

(type ideas into the chat box)

Peers

Some Strategies

1. Teach adolescents how decision-making changes in the presence of peers.
2. Promote healthy social experiences with peers and friends (e.g., extracurricular activities).
3. Provide opportunities for youth to understand and reflect on the thoughts and feelings of others.
4. Provide opportunities to discuss and navigate feelings of peer rejection (e.g., relationship breakups).

Social Status & Autonomy

Motivate youth by saying that healthy behaviors will help them achieve their goals

Youth are motivated by social status and autonomy

Social Status & Autonomy

The Growth Zone

Thinking about your APP program, how might you approach your work with adolescents differently, based on the SOCIAL STATUS & AUTONOMY principle?

(type ideas into the chat box)

Social Status & Autonomy

Some Strategies

1. Provide opportunities for discovery learning (e.g., interview caregivers and other adults).
2. Support adolescents to make informed choices about their health (e.g., information and access).
3. Suggest what youth “might consider” instead of telling them “what they should do” (e.g., qualities in a partner).
4. Motivate youth by empowering them to challenge injustices or negative stereotypes (e.g., contraceptive access or stereotypes of teenagers in relationships).


time for ACTION

questions?

References and Resources

1. ETR Associates. Kirby Summit: www.etr.org/kirby-summit.
2. Casey, B.J., Jones, R.M., Hare, T.A., 2008. The adolescent brain. Ann. N. Y. Acad. Sci. 1124, 111–126. doi:10.1196/annals.1440.010
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4. Siegel, Daniel (2013). Brainstorm; The Power and Purpose of the Teenage Brain.
5. Steinberg, Laurence (2014). Age of Opportunity: Lessons from the New Science of Adolescence.

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