



CENTER *for*
ADOLESCENT
HEALTH

a CDC Prevention Research Center at the Johns Hopkins Bloomberg School of Public Health

The Teen Years Explained

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Presenter Disclosures

- Ready by 21 Task Force—Harford County
 - There are no financial interests to disclose

Workshop Objectives



explain adolescence as a developmental process



discuss adolescent brain development as a major phase



identify positive influential role of adults



Feel better prepared to support adolescents

Training Opportunities

- Half Day
- Full Day
- Two Day

Bingo

THE TEEN YEARS EXPLAINED



A GUIDE TO
HEALTHY
ADOLESCENT
DEVELOPMENT



www.jhsph.edu/adolescenthealth/

Why did we write it?

- Request from community partner
- Nothing else on the market like it
- Desire to tackle head-on negative myths about teens



What is its purpose?



- Explain the science behind adolescent development
 - Challenge and empower adults to invest more attention and more time in young people
 - Empower professionals to work with young people in developmentally appropriate ways

True or False

- In small groups, discuss the statements and decide if each is true or false.

Popular Myths About Adolescents



Myth

- Most teens think they are invincible

Reality

- Teens assess certain risks better than adults do

Popular Myths About Adolescents



Myths

- Most teens only listen to friends

Reality

- Adults matter

Popular Myths About Adolescents



Myths

- Most adolescents live to push your buttons

Reality

- Teens often view conflict as expressing themselves

Popular Myths About Adolescents



Myths

- Most teens can eat whatever they want & burn it off

Reality

- Obesity rates have tripled since 1980

Popular Myths About Adolescents



Myths

- Teens need 8 hours of sleep

Reality

- Teens need 9 to 10 hours of sleep per night

Popular Myths About Adolescents



Myths

- Good self-esteem keeps teens away from risky behavior

Reality

- Sometimes risky behavior brings status and teens with high self-esteem are *more* likely to participate

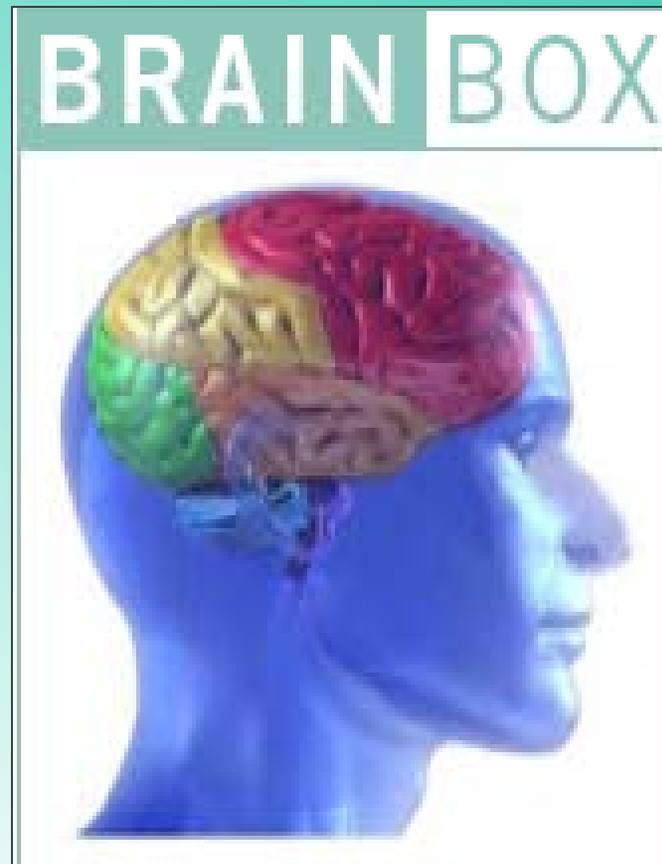
How Is It Structured?

SEXUALITY

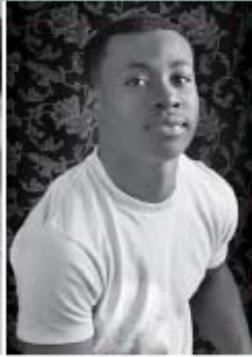


Understanding sexual development

Boxes Take You Inside Teen Brain



Charts And Graphs

NORMAL PHYSICAL GROWTH	
	
Girls	Boys
<ul style="list-style-type: none"> • Appearance of breast buds (between 8 and 12 years of age), followed by breast development (13-18) • Development of pubic hair (11-14) • Growth spurt begins (average age, 10), which adds inches to height and hip circumference • Menstruation begins (average age, 12, normal age range between 9 and 16) • Enlargement of ovaries, uterus, labia, and clitoris; thickening of the endo-metrium and vaginal mucosa • Appearance of underarm hair (13-16) • Dental changes, which include jaw growth and development of molars • Development of body odor and acne 	<ul style="list-style-type: none"> • Testicular enlargement, beginning as early as 9-15 years of age • Appearance of pubic hair (10-15) • Onset of spermarche, or sperm found in the ejaculate • Lengthening of genitals (11-14) • Rapid enlargement of the larynx, pharynx, and lungs, which can lead to alterations in vocal quality (i.e., voice cracking) • Changes in physical growth (average age, 14), first seen in the hands and feet, followed by the arms and legs, and then the trunk and chest • Weight gain and increases in lean body mass and muscle mass (11-16) • Doubling of heart size and vital lung capacity, increase in blood pressure and blood volume • Growth of facial and body hair, which may not be completed until the mid-20s • Dental changes, which include jaw growth and development of molars • Development of body odor and acne

Sidebars And How Tos



Decision-making strategies

Adolescents need opportunities to practice and discuss realistic decision-making. Here are some ways adults can facilitate the process:

- Get youth actively practicing decision-making through role-playing and group problem-solving exercises.
- Take a look at how you make decisions and then lead by example.
- Demonstrate to teens how to choose between competing pressures and demands.
- Many adolescents live in the now. Show them the benefits of future thinking by anticipating difficult situations and planning in advance how to handle them.
- Encourage adolescents to spend time with friends who share their values.

Stand Alone Pages

Sleep and Cognitive Development



Teen brains need more Zzzzzzzs

Brain development even affects the way teens sleep. Adolescents' normal sleep patterns are different from those of children and adults. Teens are often drowsy upon waking, tired during the day, and wakeful at night.

Until the age of 10, most children awaken refreshed and energetic. In adolescence, the brain's biological clock, or circadian rhythm, shifts forward. Melatonin secretions, which trigger sleepiness, start later at night and turn off later in the morning. This natural shift peps up adolescents at the traditional weekday bedtime of 9 or 10 p.m. and can explain why it is so hard to rouse them at sunrise. In contrast, circadian rhythms in middle-aged people tend to swing backward, and many parents struggle to stay awake when their adolescent children are at their most alert.

Teenagers actually need as much sleep or more than they get as children—nine to 10 hours are optimum. Most adolescents are chronically sleep-deprived, averaging a scant six to seven hours a night. Part of the blame can be placed on early starting times for school, which, coupled with many teens' 11 p.m. and midnight bedtimes, results in a considerable sleep deficit.

Too little sleep can result in uncontrolled napping (either in class or, more dangerously, behind the wheel), irritability, inability to do tasks that are not exciting or of a competitive nature, and dependence on caffeine drinks to stay alert.

Sleep debt also has a powerful effect on a teen's ability to learn and retain new material, especially in abstract subject areas such as physics, philosophy, math, and calculus.

Handling biology can be daunting, but adults can help teenagers get enough sleep by keeping TVs and electronic gadgets out of their bedrooms, switching to caffeine-free drinks in the evening, and getting them to wind down activity by a reasonable hour.

Catch-up sleep on weekends is a second-best option because it can confuse the brain as to when nighttime occurs and is not as restorative as regular slumber.





Themes of the book

Positive youth development

- Adolescents are resources to be developed, not problems to be solved



Positive youth development

- Promote the 5 C's
 - ❑ connection
 - ❑ competence
 - ❑ caring
 - ❑ character
 - ❑ confidence

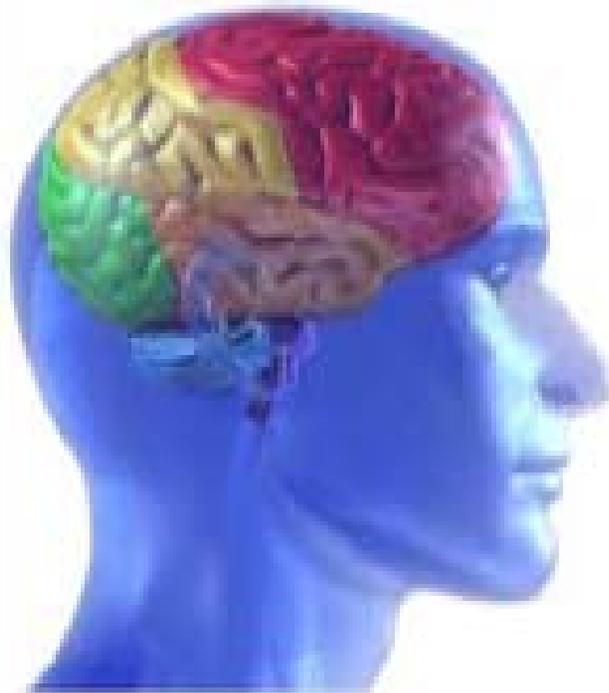
Time of opportunity

When we appreciate what is really happening with adolescents, we can see it as the time of opportunity that it is



The ever-expanding teenage brain

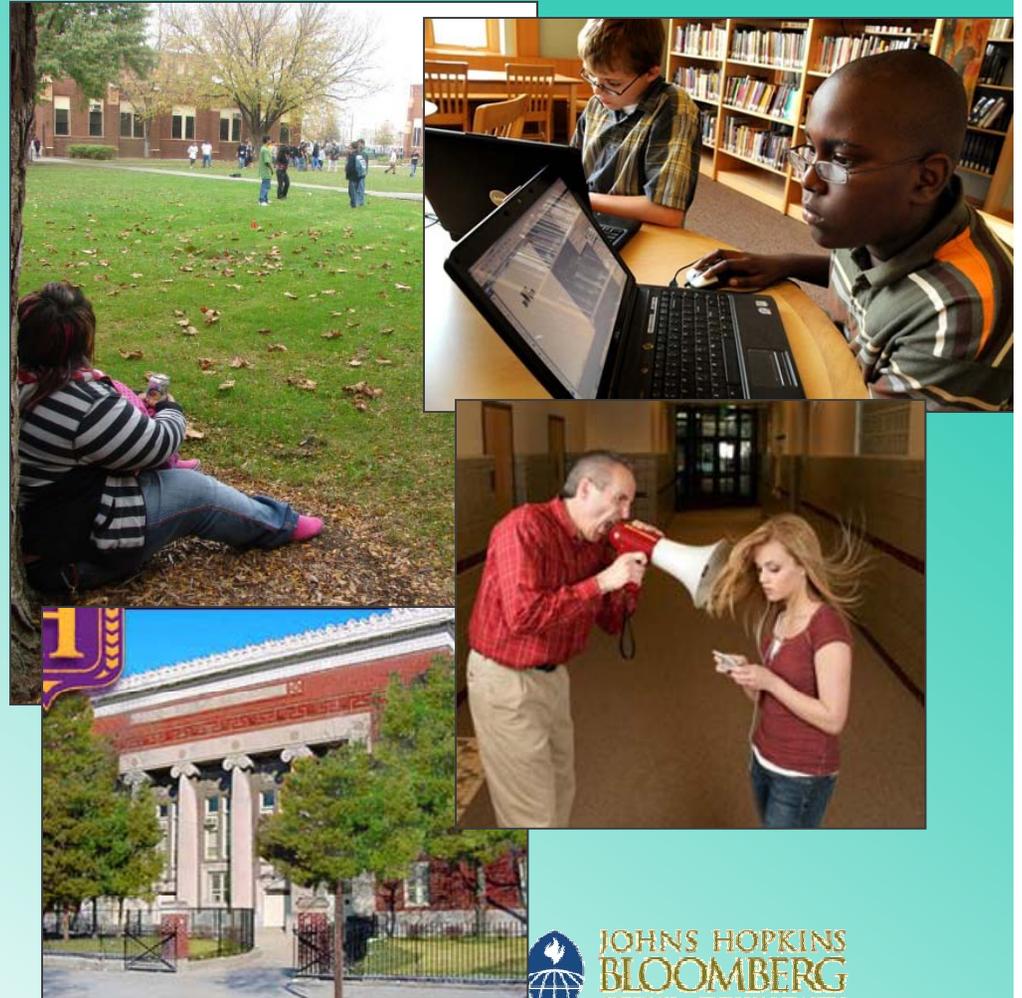
BRAIN BOX



- Changes in the brain impact a young person's physical, emotional, sexual, and spiritual development

Adults and settings matter—a lot

Development doesn't happen in a vacuum, or by itself



Out of Sync Is Completely Normal



Healthy development can occur unevenly
or out of sync

Profiles of Development

MARIA

Outgoing and verbally expressive, 17-year-old Maria is at home with all kinds of people. Her social skills are unbeatable, and she has a knack for seeming to hang on every word someone says. People gravitate toward Maria because of her natural warmth and gift of gab. Her parents are proud of her popularity and her social ease, which they believe will open many doors for her in college and future life—so they don't push her so much to get better grades. And, truth be told, she can usually talk her way out of most situations, especially with teachers and authority figures. For all her verbal dexterity though, Maria can also be scattered organizationally and can rarely see anything to completion. She has problems thinking through all the steps in making a plan and gets distracted easily. She makes decisions impulsively, without thinking about their implications.



TYLER

Tall and with a lifeguard's build, 16-year-old Tyler excels at sports and in the classroom. He likes to exercise his brain and especially enjoys memorizing and dealing with facts. Absolutes make the most sense to him, as Tyler prefers the neatness of black-and-white thinking. What makes Tyler a little uncomfortable is hypothetical situations and "what ifs"—if you can't see it or prove it, in Tyler's mind, then it doesn't exist. This kind of thinking serves him well in sports and doing what the coach says, but he has more trouble when asked to anticipate what the other team members are going to do. Sometimes, with his friends, it is the same way—he thinks things out to a rational conclusion but has difficulty when things stray from what should logically be happening. He also has trouble putting himself in other people's shoes and empathizing with their situations.



What do we know about teen risk-taking?

- Capable of assessing risk (they do not feel invulnerable)
- Get greater rewards from risk than do adults
 - the emotional rewards are higher
 - the meaning is different



What do we know about teen risk-taking?



- Do not have the cognitive skills to regulate impulses and novelty-seeking as well as adults do
- Social context—peers, adults, media diet— affect how teens act on impulses and seek out new thrills

What do we know about teen risk-taking?

- Risk-taking is necessary to transition to adulthood



To reduce teen risk behaviors settings must take into account ...

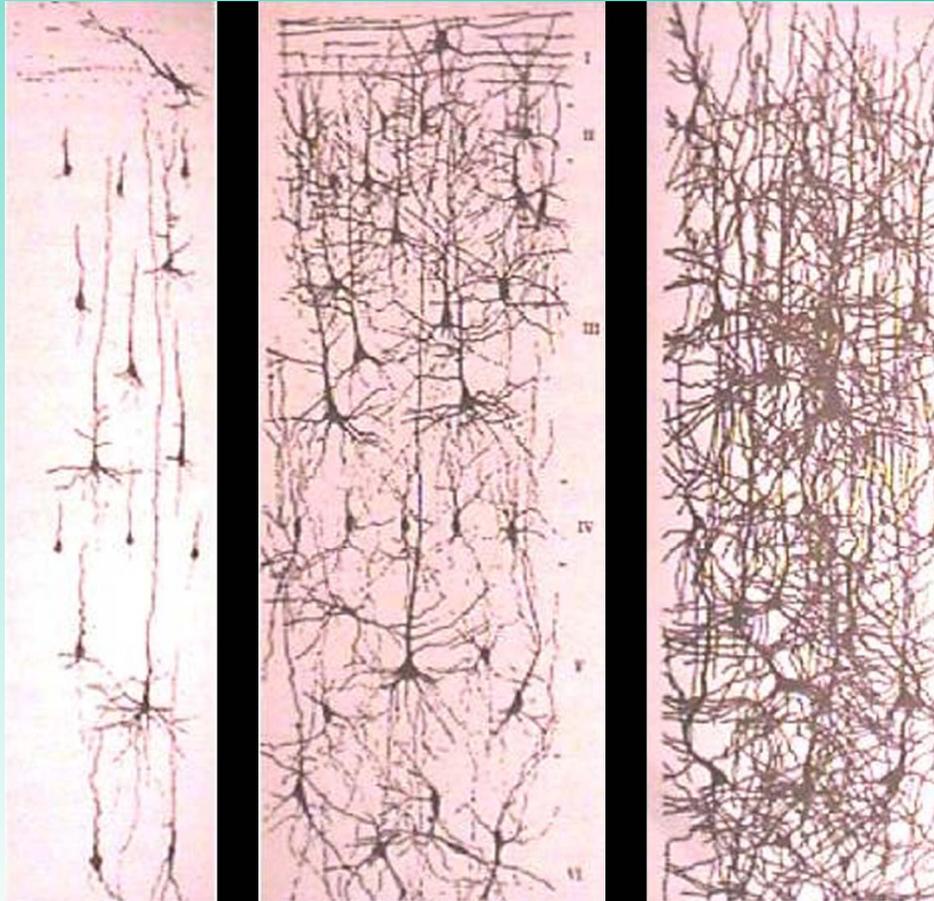
- How teens understand and regulate emotions—theirs and others
- Teens' capacity to resist impulses
- Utility of novelty-seeking and sensation-seeking
- Meaning of risky behaviors for teens
- Peer influences
- Adult influences





Brain Development

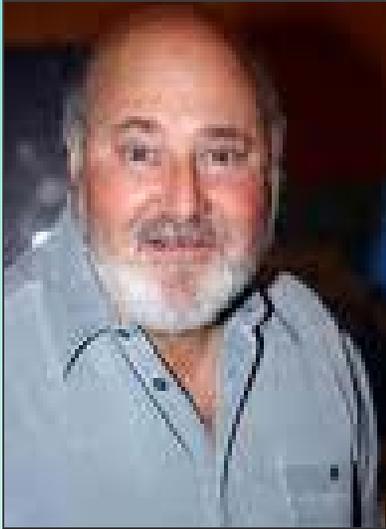
Gray Matter



Birth

3 months

2 years



“We now know through science that the first three years of life is the most critical time period when the brain develops at a greater rate than any time during the course of a person’s life... but by age 10 your brain is cooked and there’s nothing much you can do.”

- Rob Reiner, National Governor’s Association Speech, February 1997

The second period: Adolescence

Dr. Giedd et al., 1999

- Longitudinal study on 145 children/adolescents
- Two waves of gray matter over-production
 - Conception to 18 months
 - Adolescence
- each wave of over-production followed by a period of “pruning” of synapses and increased white matter

Teen Brain

- Short talk, huh?
- They found one?
- Contradiction of Terms?
- Next talk on Loch Ness Monster?

Different not Defective

- The Adolescent Brain is not a broken or defective adult brain
- It is exquisitely forged by the forces of evolutionary history to have different features than adults or children.

Gray vs. White Brain Matter

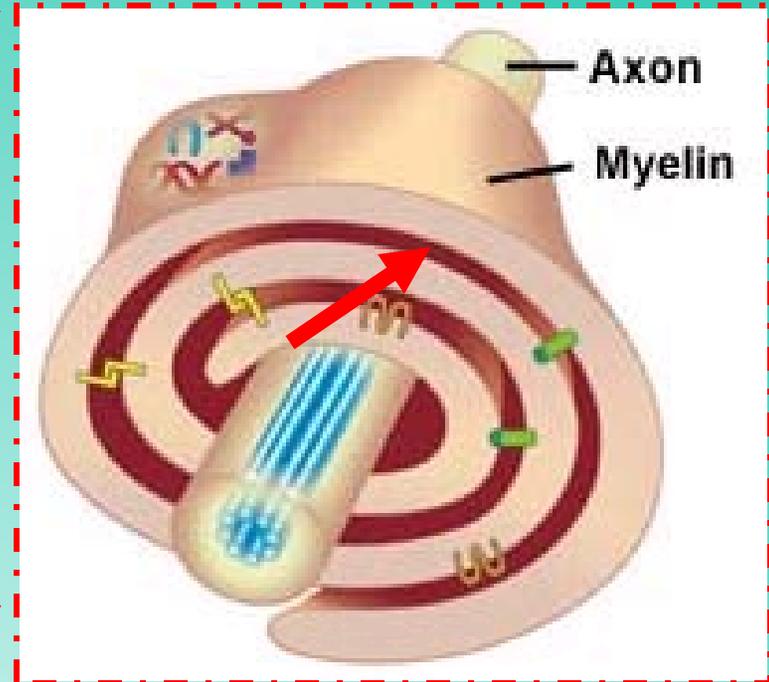
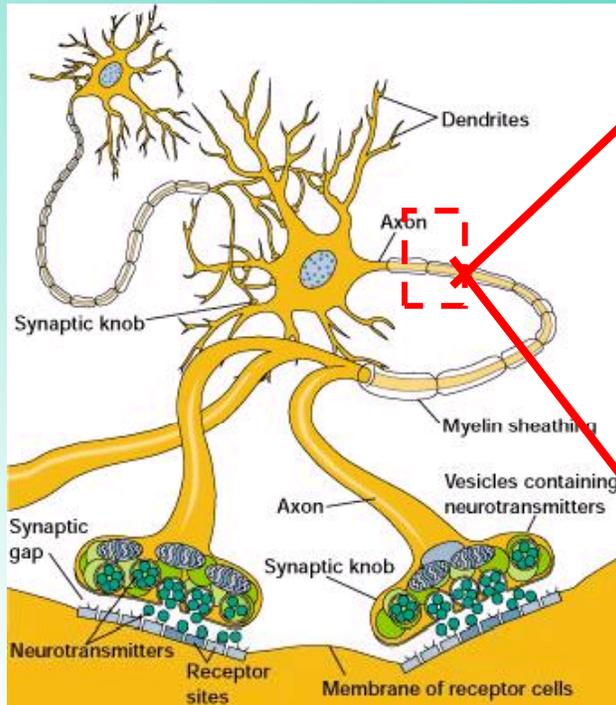
Gray Matter

- Neurons' cell bodies and dendrites
- “Thinking” portion of the brain

White Matter

- Insulation for neurons = myelination
- Enhances efficiency

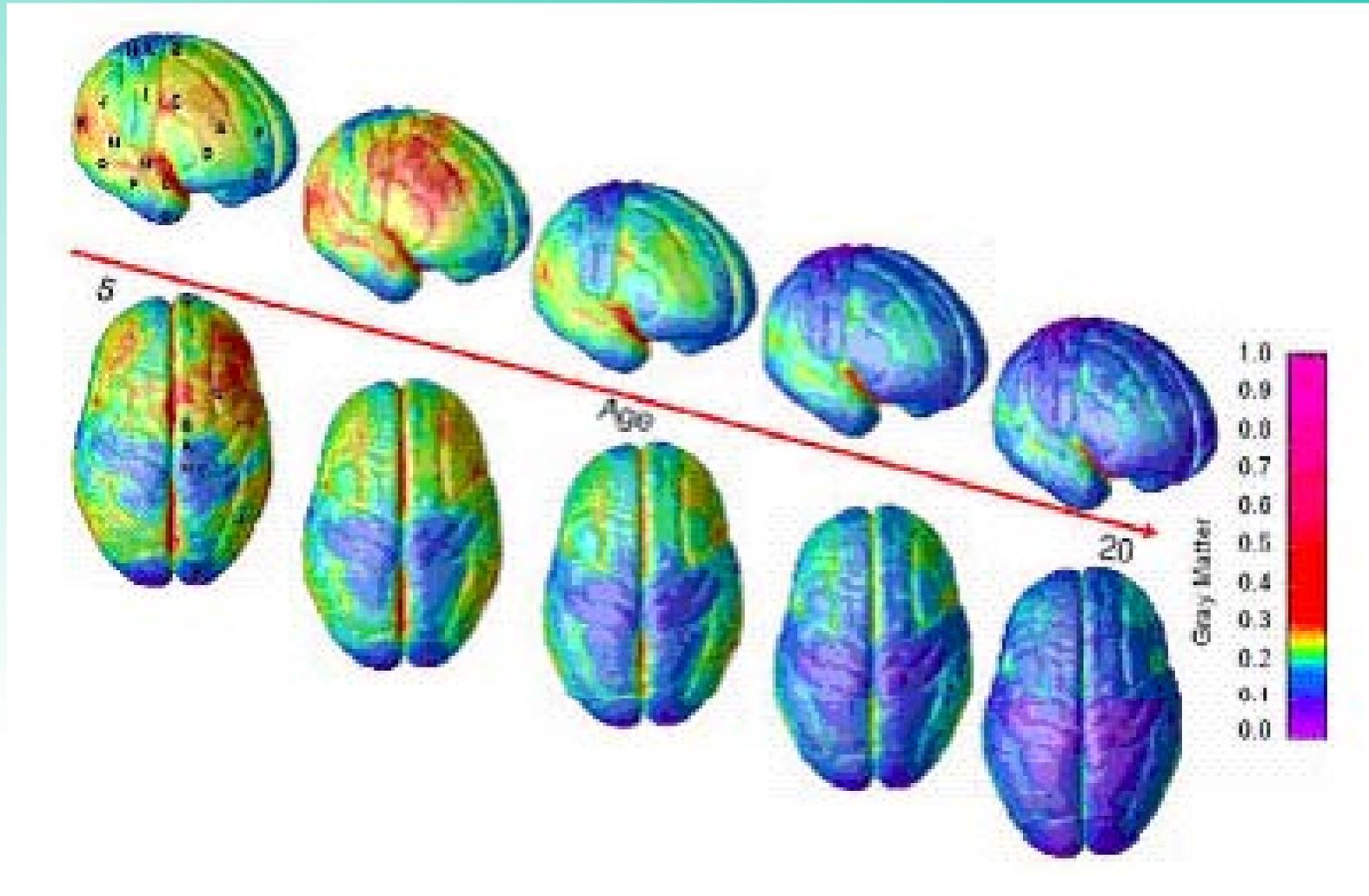
Gray vs. White Brain Matter



Efficiency

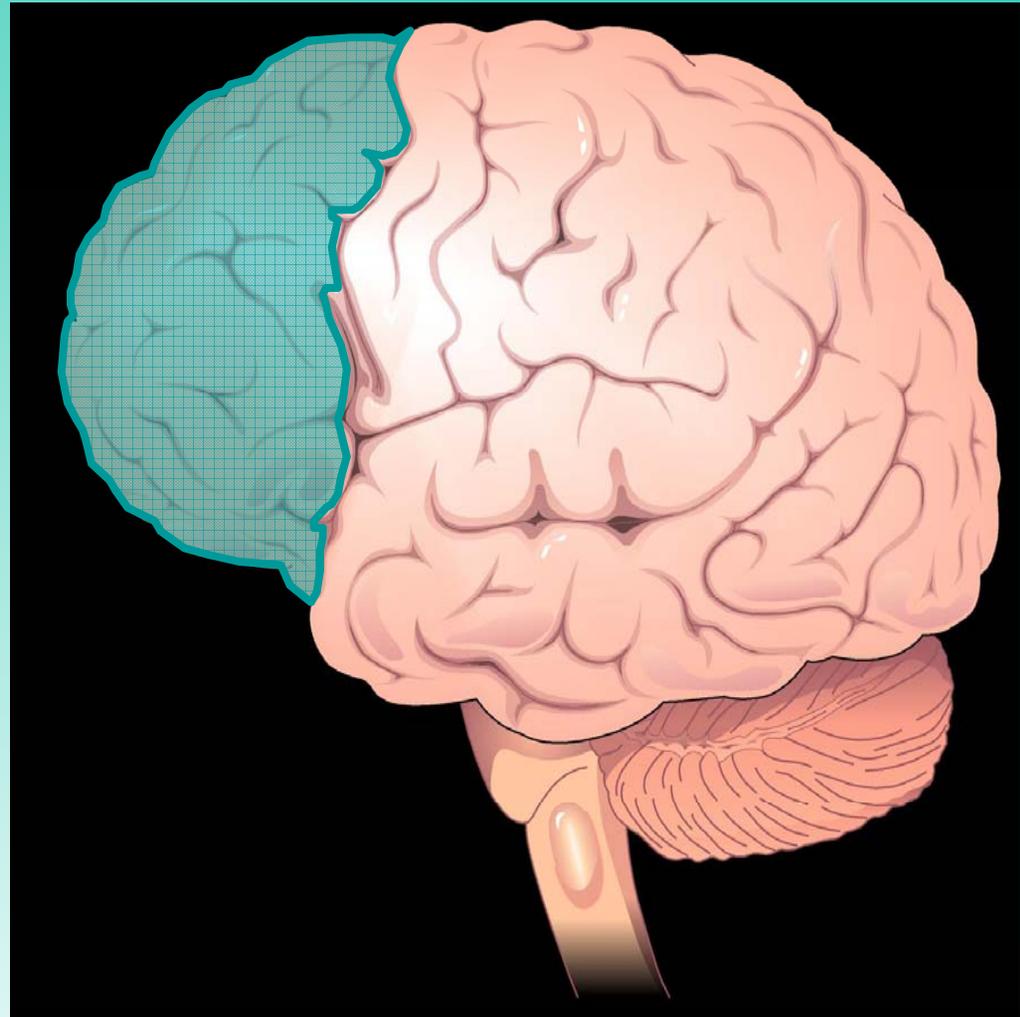
- Increased White Matter = Increased Efficiency
 - Efficiency of communication is a better predictor than activity
 - Memory and resistance to peer pressure
- Fundamental Pattern
 - Increased cognitive activity relies on tying together and integrating information from different sources

The Adolescent Brain



Prefrontal Cortex

- Prefrontal cortex
 - Advanced Reasoning
 - Planning
 - Cause and Effect
 - Manage Impulses

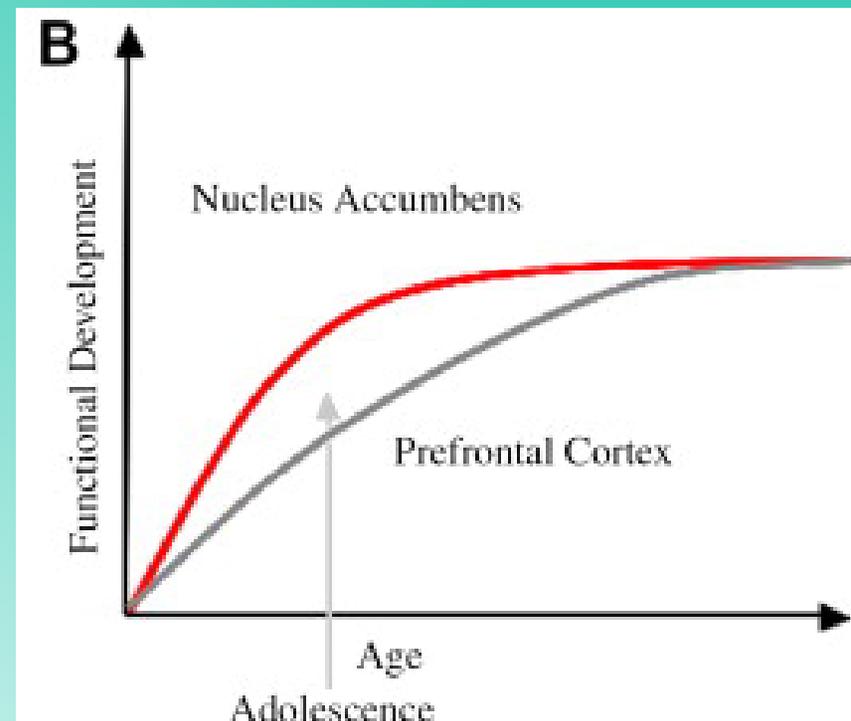


Prefrontal Cortex

- Gray matter loss occurs latest in Prefrontal cortex
 - reaches adult levels in 20s
- Sowell et al. 1999
 - Compared MRI scans of 23-30 year olds to 12 – 16 year olds
 - Areas of frontal lobe showed the largest differences among these two groups

Risk Taking in Adolescence

- Brain regions developing at different rates
- Limbic system in early adolescence
- Frontal lobes later
 - More areas involved in processing emotions
 - Self-control develops



What did you do?

- Take a couple minutes and think about the teenage you...
 - Think of one risk you took without thinking twice that you would never dream of taking today.

Dam sliding



Risk Taking in Adolescence

- It will never happen to me
 - Invulnerability as a stage of development
- Adolescents do feel vulnerable, however being aware of risks doesn't stop them from taking action
 - Reward vs. avoidance
 - Hot vs. cold cognition

Risk Taking in Adolescence

- Taking risks allows young people to take on new challenges
 - Younger adolescents – help them take safe risks
 - Older adolescents – help them strengthen their capacity for cognitive control

Reflection Exercise

- Reflection Discussion: Given what you have learned today about the teen brain and teen risk-taking, how does your curriculum and workshops with young people reflect this knowledge?
- What are you currently doing?
- How could you modify or change your approach?



cognitive development

Understanding Cognitive Development

- Strengthened advanced reasoning skills
 - What if?
- Abstract thinking skills
 - Faith, love, trust, beliefs
- Meta-cognition
 - Thinking about thinking

I Don't Think That's Fair

- Early advances in reasoning tend to lead adolescents to view things in the extremes
 - Need practice to develop these skills
- View conflicts from different perspectives
 - Is a clean room a personal choice or a reflection of morals?



What Adults Can Do

- Ask open-ended questions.
- Highlight the role of emotions in decision-making processes.
- Focus on strengths youth bring to the decision-making process.
- Get youth actively practicing decision making

What Adults Can Do

- Be patient when teens “test drive” their newly acquired reasoning skills.
- Never correct or put down an adolescent’s logic.
- Don’t take it to heart when teens criticize adult opinions and behaviors.

What pushed your buttons?

Take a couple moments to think about a situation when you lost it, when you were very frustrated with a young person and their behavior...

SOS

- Stop
 - Breathe
- Orient
 - Take a moment to reflect on the situation
 - What are we upset about?
- Self-Check
 - Am I being respectful?
 - Can I address the current issue?



social and emotional development

a quest for social and emotional
competence

What is social and emotional competence?



- Emotional competence: the ability to perceive, assess and manage one's own emotions
- Social competence: the capacity to be sensitive and effective in relating to other people.

Emotional/Social development

- Self-awareness
- Social awareness
- Self-management
- Peer relationships



Self-awareness

- What do I feel?
 - learning to recognize and name emotions
 - going deeper means a teen may discover he feels **anxious** about a test or she feels **sad** when a love interest kicks her to the curb
 - identifying the source of a feeling leads to constructive ways to resolve problems

Social awareness

- What do other people feel?
 - also known as developing **empathy**
 - understanding the thoughts and feelings of others and appreciating the value of human differences are the cornerstones of social awareness

Social Awareness Tough for Teens

- Adolescents actually read emotions through a different part of the brain than adults do.



What do you see?

Social Awareness Tough for Teens

- MRIs were taken of adult and teen brains as they were shown faces expressing fear
 - All adults correctly identified fear
 - Half the teens got it wrong
- Adults used multiple areas of their brains, teens did not

Source: *Inside the teenage brain: Introduction*. Retrieved January 18, 2007 from

<http://www.pbs.org/wgbh/pages/frontline/shows/teenbrain/etc/synopsis.html>

Ways adults can help

- Tell teens exactly how you are feeling
 - For example, an adult can say “I’m not mad at you, just tired and crabby”
- Help teens learn to describe how they are feeling to others

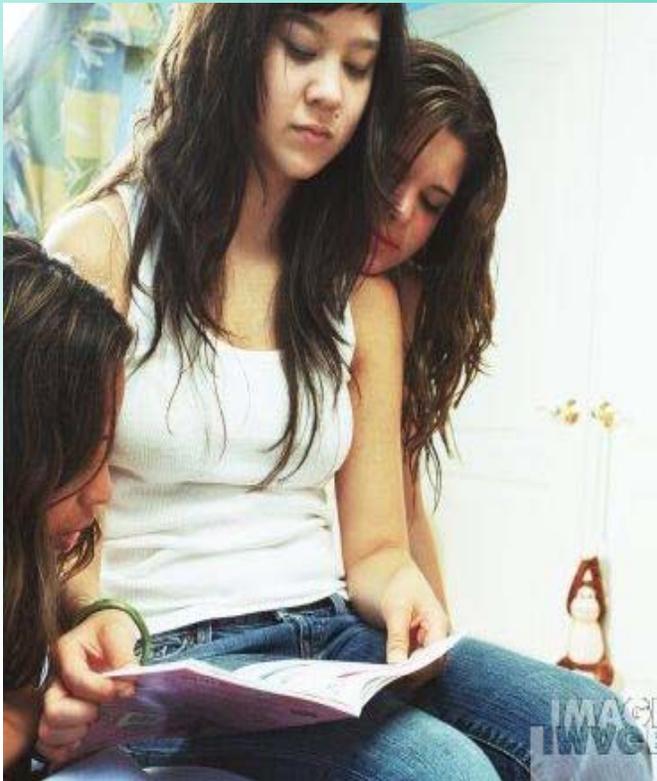


Emotions can (and should) be managed

- Self-management is monitoring and regulating one's emotions.
- In young people, it involves using their developing reasoning and abstract thinking skills.



Here come those peers



- Decisions about how to act are often made in group situations, settings that rouse intense feelings and impulses

Peers and risk

- When participants were alone, the levels of risky driving were the same for all 3 groups
- When they played the game in front of friends, risky driving **doubled** for teens & went up by 50% for college students
- The level stayed unchanged for adults

Peers and risk

- In a follow-up study, Laurence Steinberg and colleagues used MRIs to map brain activity during the video driving game
- Brain scans showed teen brains responding differently with friends:
 - reward parts of the brain lit up, suggesting that risk behaviors are even more tempting in the presence of peers

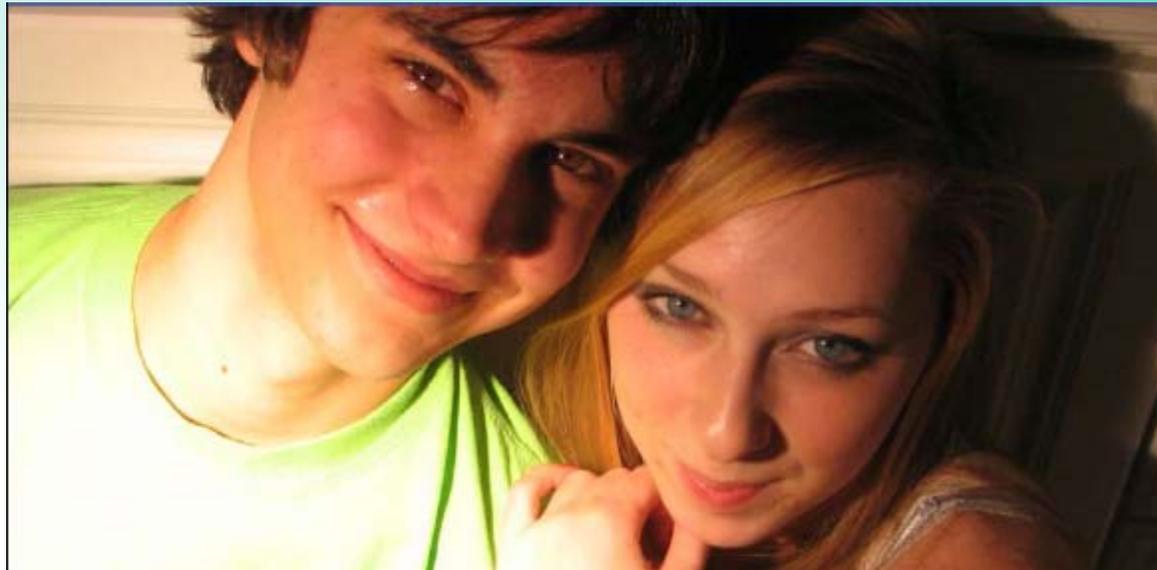
Establishing social status

- The experience of social acceptance is more rewarding for teens than adults
 - the reward center in the brain is more active when teens experience peer acceptance
- Implication: taking risks to impress or go along with the crowd has clear benefits



Dating: the positives

- Dating leads to emotional growth
 - through dating teens experience happiness, excitement, disappointment & despair
- Both boys & girls value emotional intimacy in romantic relationships



Dating: the consequences of inexperience

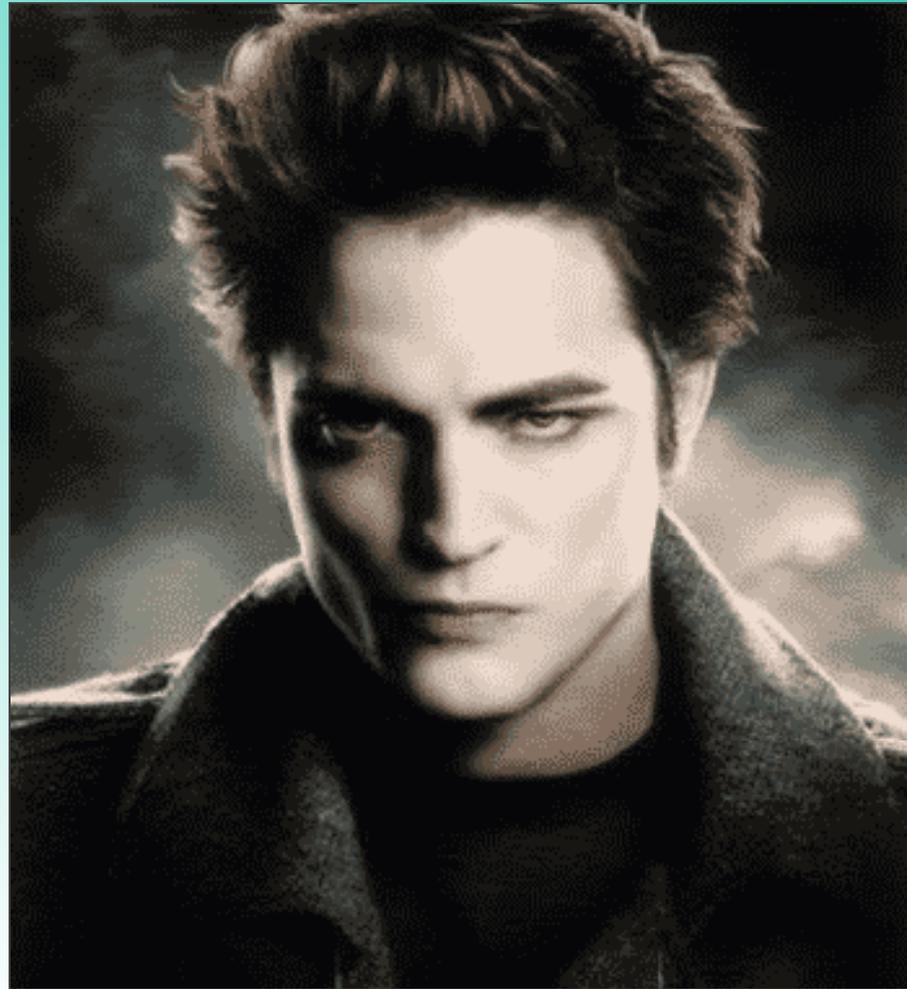
Most teens don't understand what a healthy relationship is, often mistaking the controlling behaviors that characterize abuse for signs of love



In a study by Dr. Liz Miller (UC Davis), 100% of middle school students said possessiveness and jealousy are part of true love



Where might those messages come from?



What adults can do

- Model healthy romantic relationships
- Explain what healthy relationships “look like”
- Help teens work on skills to identify their own emotions and resolve conflicts in relationships
- Given that most adults don’t manage their own emotions and resolve conflicts in mature ways, this is a tall order!



Identity formation

Who am I, and what do I think
about that?

what is identity?

- **Self-concept:** what a person believes about herself

- Influenced by:
 - religious or political beliefs
 - gender and ethnicity
 - family and friends
 - Media



- **Self-esteem:** how a person feels about her self-concept
 - Ebbs and flows, especially in early adolescence
 - Not necessarily the magic bullet we once thought

forming an identity

- 5 themes during the identity formation process

trying on
different
identities

creating a
sense of
achievement

seeking
autonomy

establishing
social
status

examining sexual
identity and
capacity for
intimacy



Concluding comments

Developmental context of adolescent risk-taking

- Brain development
- Social and emotional development
- Cognitive development
- Extreme importance of settings and adults
- Promoting healthy development in as many arenas as possible is key



Implications for programming

- Teen risk-taking is not simply the result of an accumulation of risk factors
 - reducing risk factors is not sufficient
- Teen risk-taking is not simply due to underestimating risk
 - throw away the health belief model (or at least supplement it)

Implications for programming

- Teen risk-taking is related to cognitive development
 - help adolescents develop reasoning and thinking skills
- Teen risk-taking is more rewarding with peers
 - focus on policies that affect the peer context (but we don't know how to do this very well yet)

Implications for programming

- Teen risk-taking is necessary for the transition to adulthood
 - focus on creating safe spaces for risk-taking, where consequences are not severe



Questions?

www.jhsph.edu/adolescenthealth

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