Marijuana and the Adolescent Brain: Understanding the Risks (and What to Do About It)

Nicole Danforth, M.D.
Elizabeth Booma, M.D.
Newton-Wellesley Hospital
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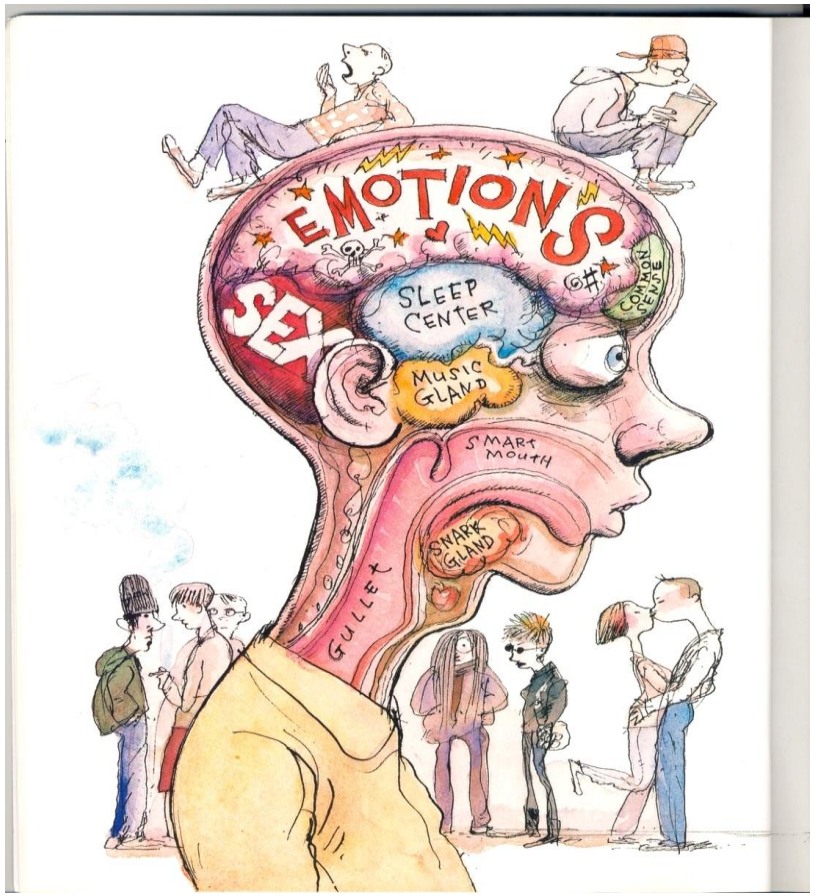
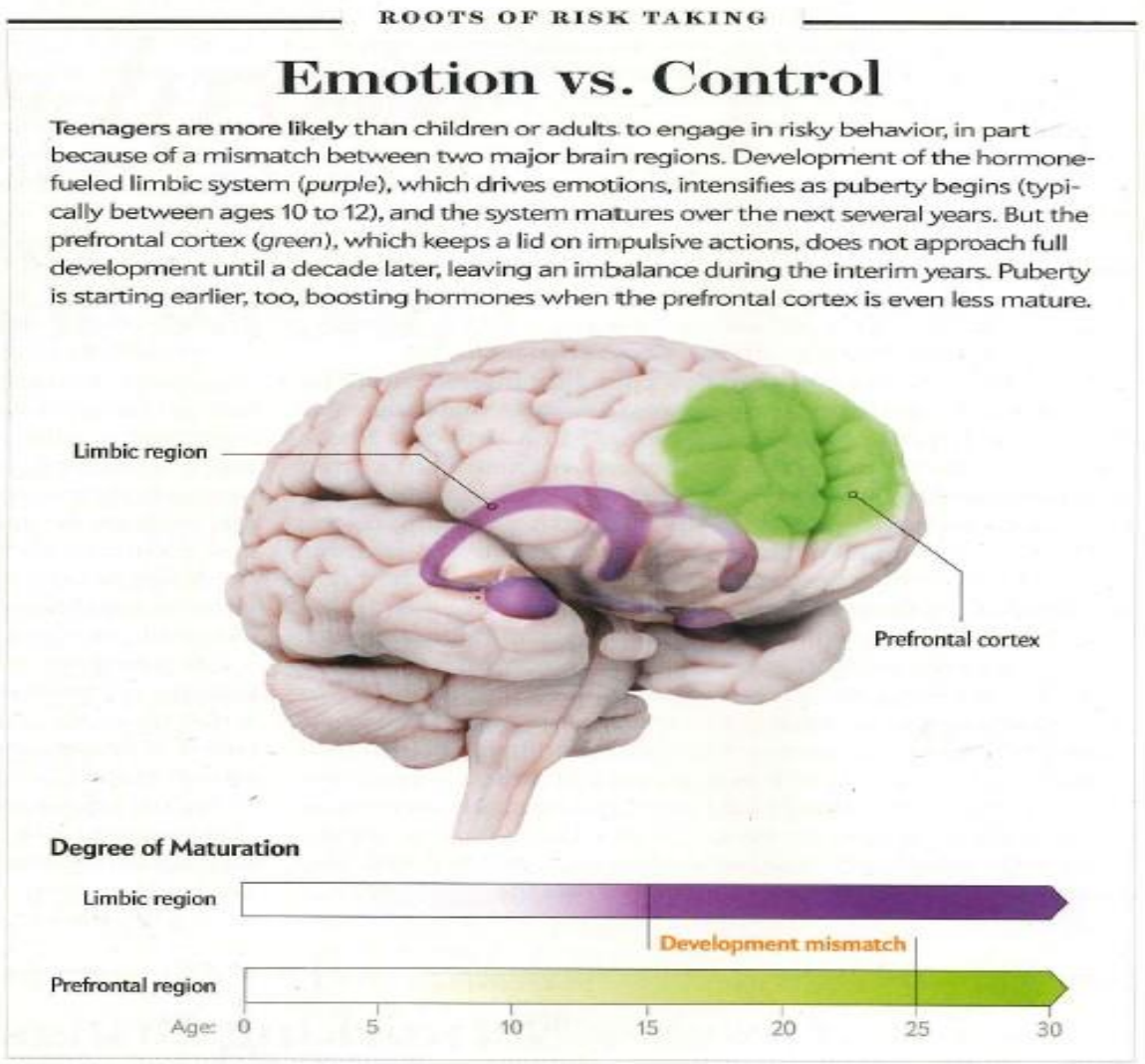
A (Brief) Primer on Adolescent Development

- The Drive
- The Wish to Impress
- What is Normal
- Adolescent Math

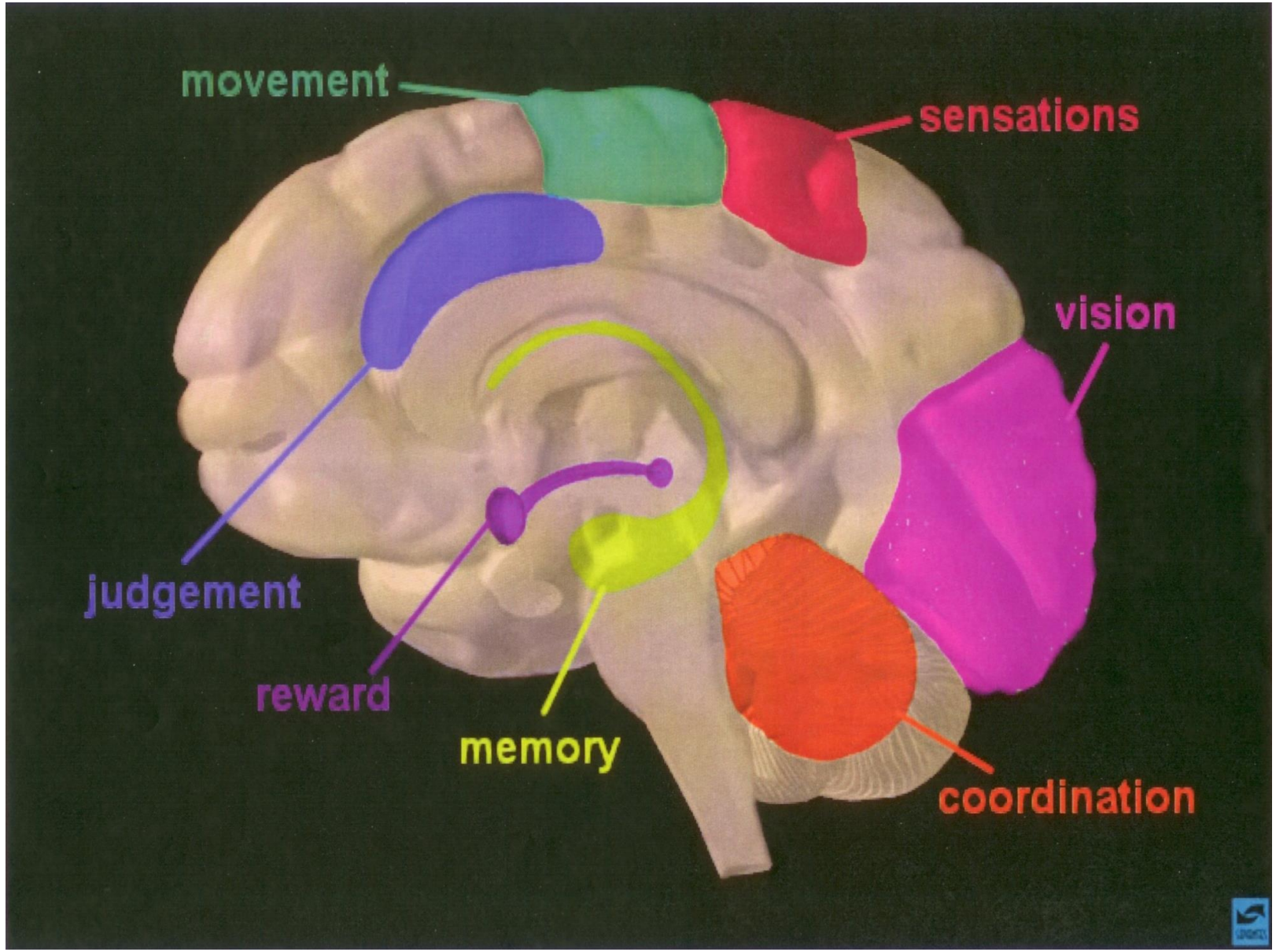


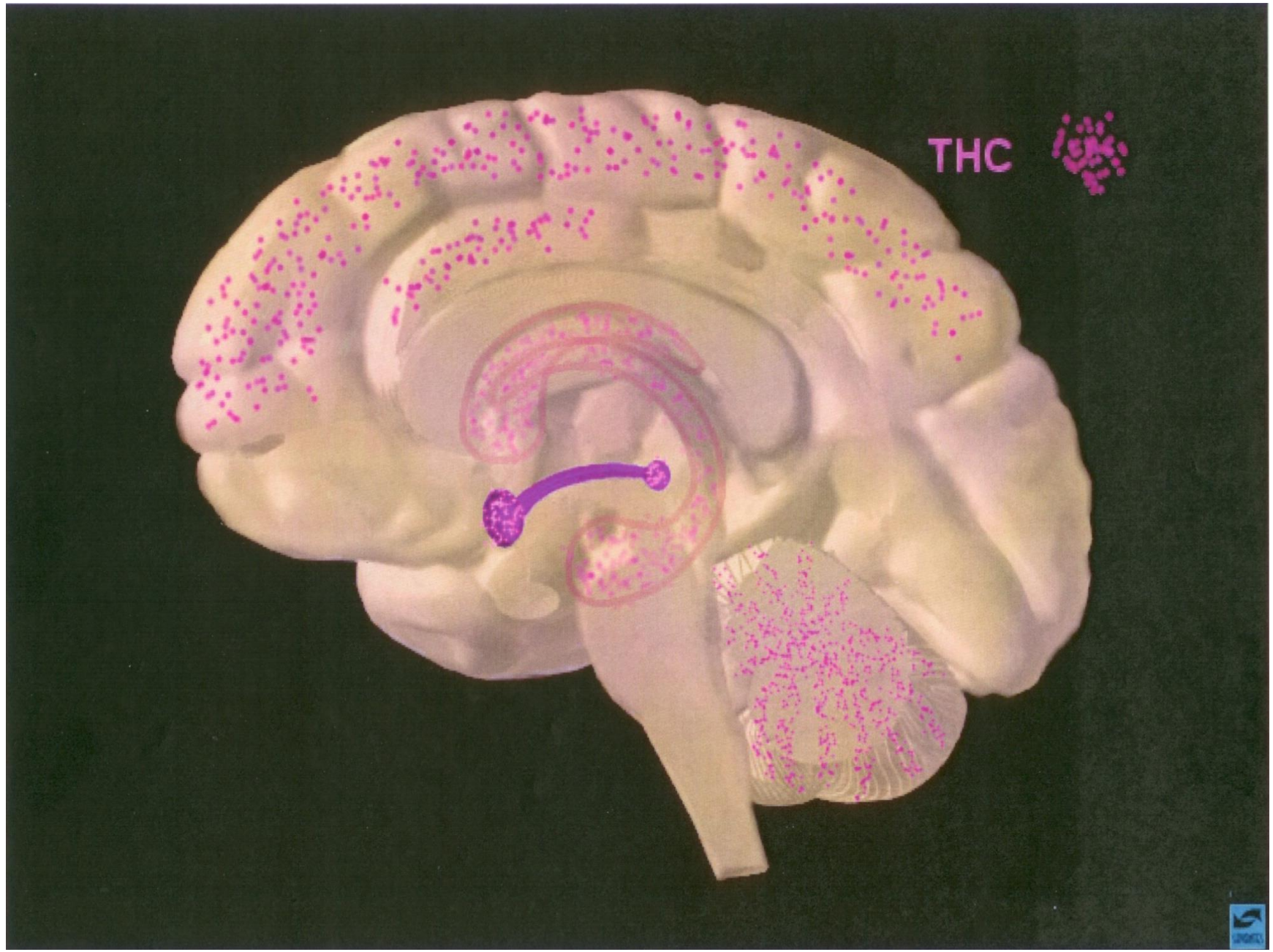
Adolescents are Not Mini-adults



The Developing Adolescent Brain

AP: “Idaho teen lights driver's armpit hair on fire, causing crash with injuries.”


movement
sensations
vision
judgement
reward
memory
coordination


THC

What Are the Risks of Marijuana Use for Teens?

- Short term: attention, memory, learning, decision making
- Long term: lower IQ, lower life satisfaction, lower earning potential
- Increased risk of mood, psychotic, and other SU disorders
- Interferes with social/emotional development
- Impaired driving

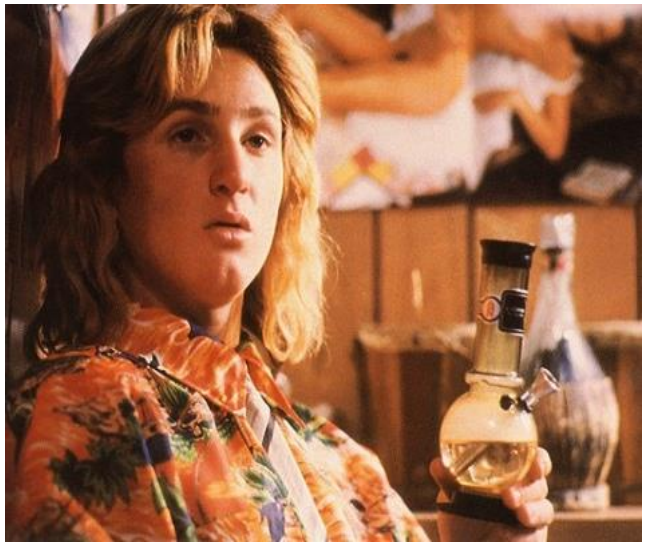
The Risks Are a Big Deal

• Dependence before age 18 leads to 8-point IQ drop in adulthood

• Even light smokers show significant brain changes associated with loss of motivation, attention, functional memory and emotion processing

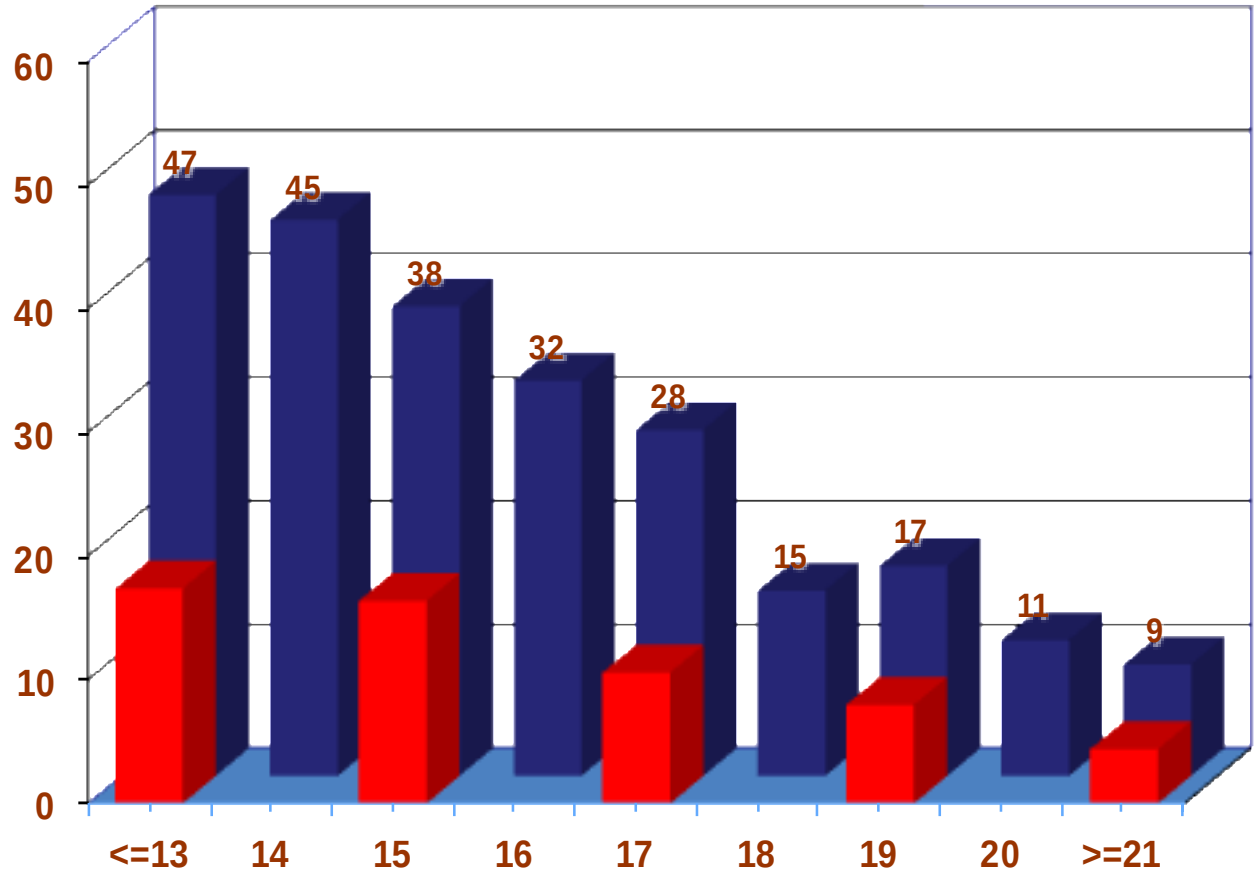
• Strong link to depression and anxiety symptoms (up to 5x the risk of non-smokers)

• For youth with certain genetic variants, smoking in youth increases the risk of developing schizophrenia *seven-fold*



These problems do not happen to those who start smoking after 25!

Lifetime Risk of Addiction



% Lifetime risk of addiction to Alcohol or Marijuana affected by age of initial use

Risks of Easier Access

- Less harmful ≠ harmless
  - Just because it's legal doesn't mean it is healthy
- Losing control of one's cannabis intake
  - Thus, more time spent not fully functional
- More impaired driving
- Increased availability of higher potency products
- What have we learned from other states?

Driving While High

- THC impairs the physical and cognitive functions needed for safe driving
- Cannabis use while driving substantially increases the risk for motor vehicle crashes
- Driving high is illegal (33% of teens, 27% of parents think it is legal)
- Driving under influence of alcohol and marijuana is more deadly than either one alone
- In fatal accidents, THC+ patients were significantly less likely to be wearing a seatbelt or helmet

Edibles

- Higher concentration of THC
- Effects are delayed up to an hour
- Effects of edibles last much longer

Setting the Frame: Talking Points

- Marijuana contains more than 400 chemicals and is much more potent than in the past; Higher THC = Higher risk
- Moderate use before age 25 can lead to lower IQ, lower life satisfaction, and lower income
- Driving while high is dangerous and illegal
- Marijuana can be physically addictive
  - Withdrawal syndrome: irritability, restlessness, insomnia, mild nausea
- Frequent use increases risk of depression and schizophrenia
- **Most teens/young adults *do not use* marijuana**

EVERFI

Normative Perceptions

56% do not use marijuana

53% Estimate typical person their age uses at least weekly.

- Actual use
- Perceived use by same age group

How often do you think the typical person your age used marijuana for recreational purposes?

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UNIVERSITY of WASHINGTON

Source: Kilmer (2015)

Have the Conversation

- Make it “talk aboutable”
- Kids need credible information
- Not a one/off discussion
- Be prepared for the “have you ever?” question
  - Keep in mind it’s not your father’s Oldsmobile
- Avoid mixed messages and clarify your own ambivalence

A Primer on How to Talk to Your Kid

- Know it will be awkward
- When to start the discussion
- Be a good listener…if your kid quits listening, stop talking
- Validate their point of view
- Try to stay calm
- The art of motivation
  - More support than pressure
  - Help your young person identify what they want
  - Let your young person reflect internally

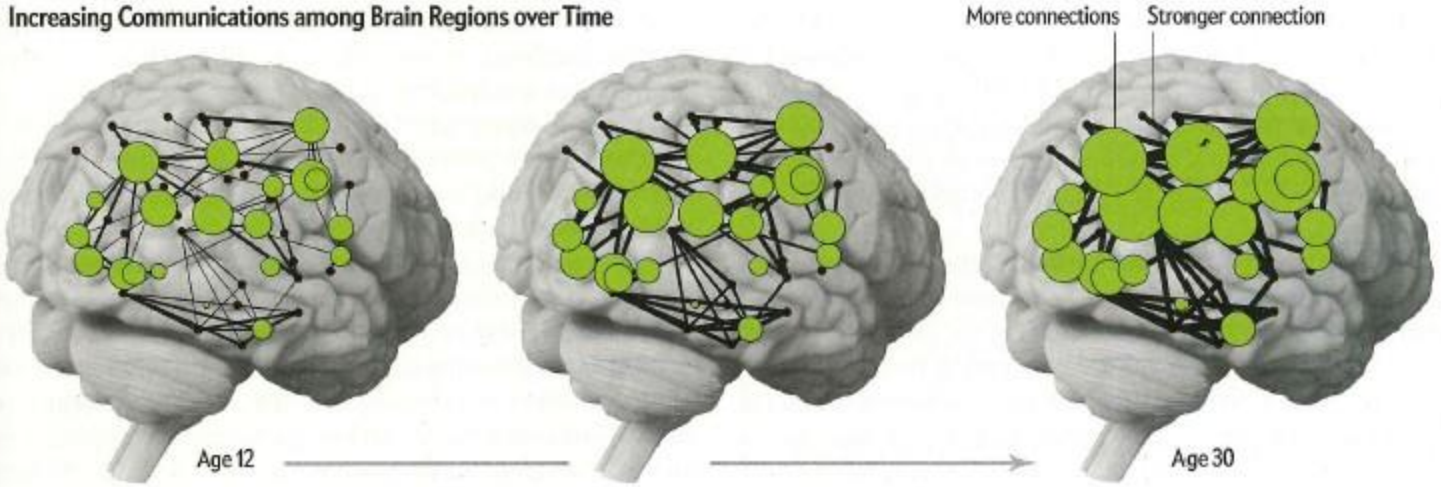
They Do Grow Up…

A NEW VIEW

Greater Networking Brings Maturity

The most significant change taking place in an adolescent brain is not the growth of brain regions but the increase in communications among groups of neurons. When an analytical technique called graph theory is applied to data from MRI scans, it shows that from ages 12 to 30, connections between certain brain regions or neuron groups become stronger (*black lines that get thicker*). The analysis also shows that certain regions and groups become more widely connected (*green circles that get larger*). These changes ultimately help the brain to specialize in everything from complex thinking to being socially adept.

Increasing Communications among Brain Regions over Time



Effective Prevention Strategies

- Avoid normalization: teach about the risks and harms of marijuana use *early* and *often*
- Communicate: stay engaged and pay attention
- Learn the lessons from the tobacco industry about commercialization and marketing to young people
- Emphasize skill building such as coping and stress management
- Commit to good health habits such as sleep and nutrition
- Delay, delay, delay

“We are finding evidence that there are negative effects related to cannabis use, especially if you start early; if you can hold off as long as you can…then it's less likely there'll be an impact on your brain.”

Natalie Castellanos-Ryan, Ph.D.

University of Montreal