

# Brain Research and Prevention

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# Age of Onset

- Early start
- Scratch off tickets as gifts
- Parent programs, education



# New research on the adolescent brain

- Discoveries from Neuroimaging
  - fMRI
  - Diffusion Spectrum Imaging
  - SQUID Magnetometry
  - MEG Magnetoencephalography



# Brain Facts

- 200 Billion Cells
- Gray Matter/White Matter



# Adolescent hormones

- Testosterone
  - Primary and Secondary Sex Characteristics

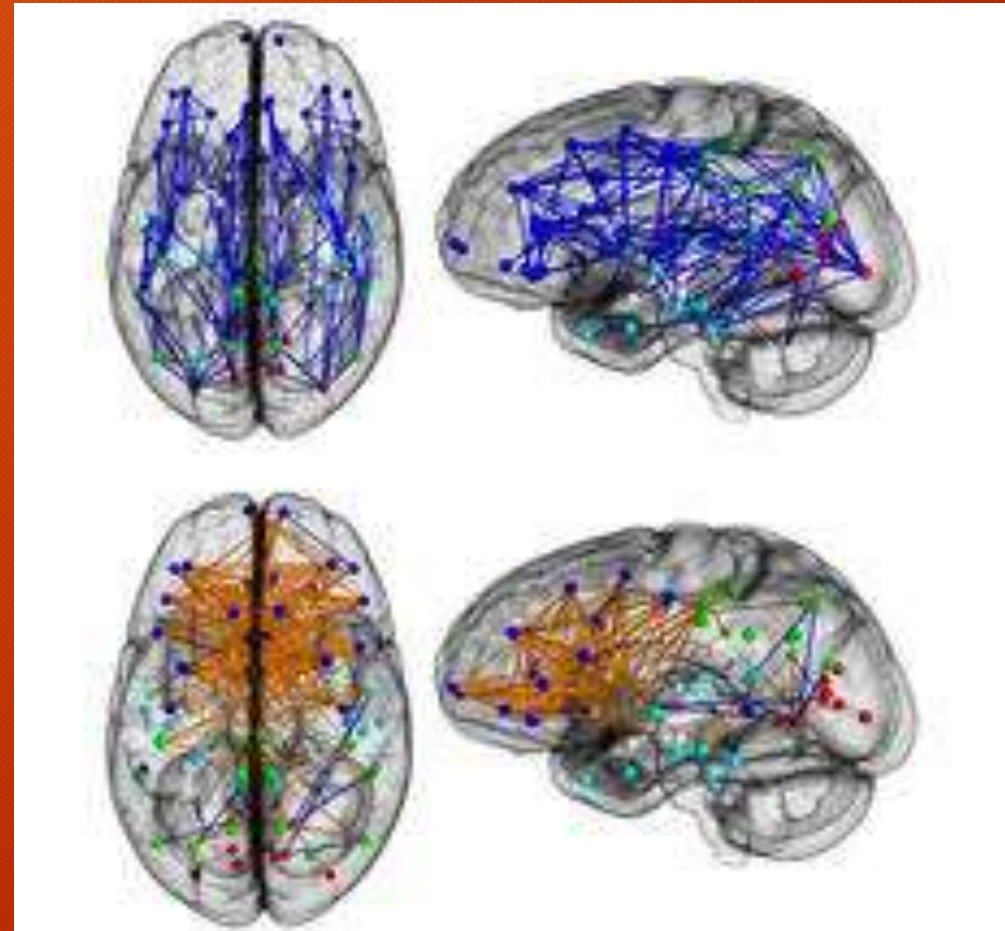


- Estrogen
  - Primary and Secondary Sex Characteristics

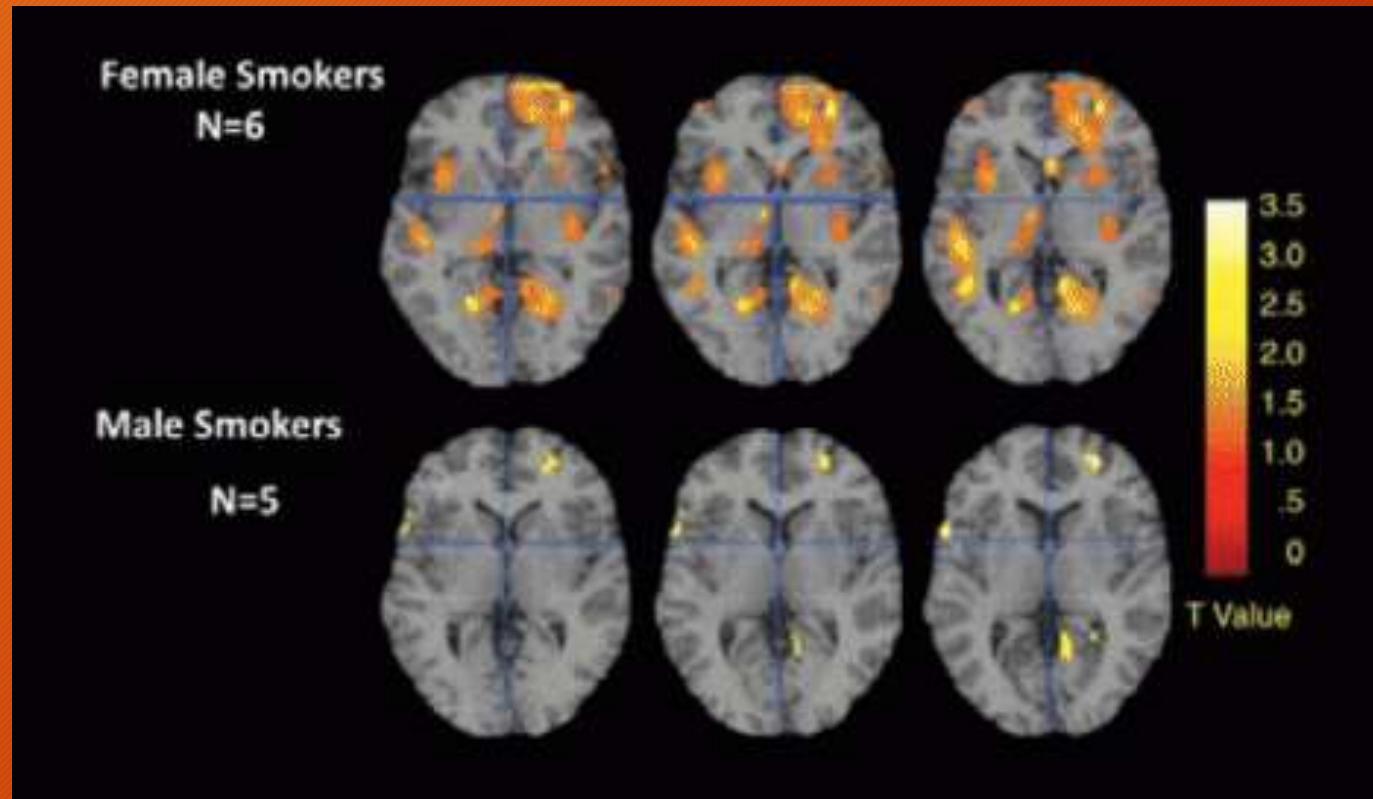


# Gender connectome project

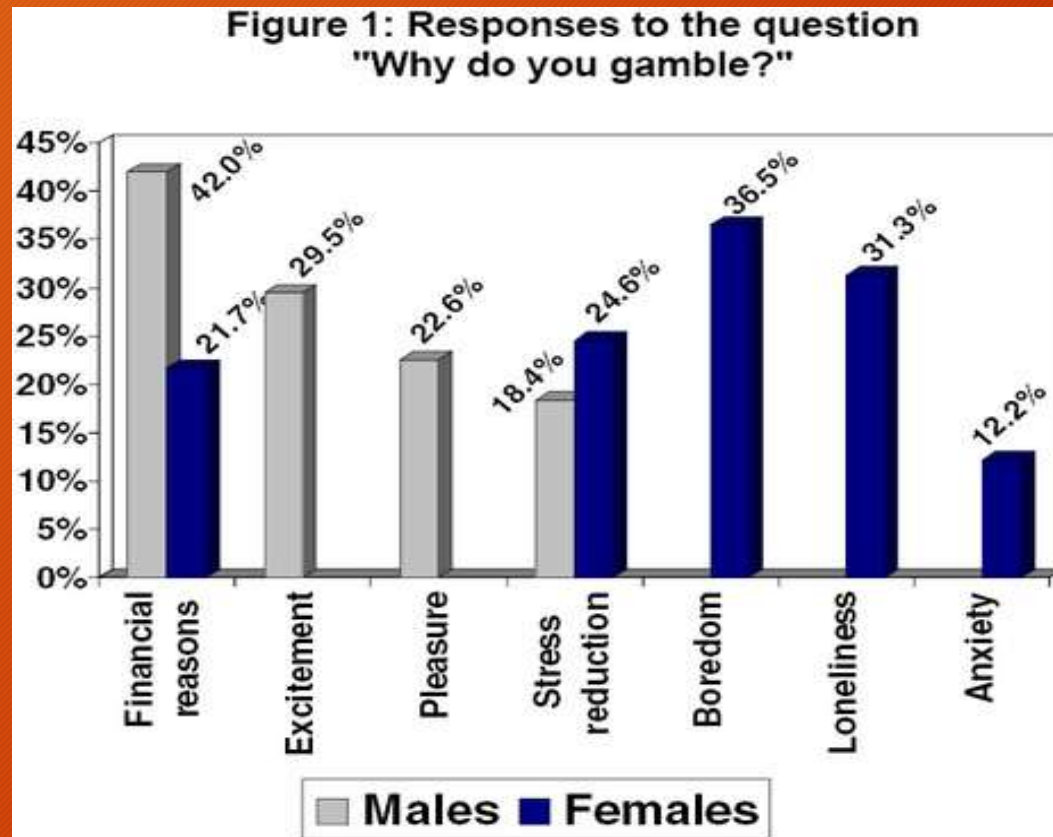
- University of Pennsylvania
  - Raquel and Reuben Gur
  - DTI
  - 949 subjects 521 Females,
    - 428 Males 8-22 years of age
  - Male Brain
  - *Female Brain*



# Gender Differences



Male Female





# Why is this Brain at Risk?

- Emotional Intensity
  - 2 to 4 Times
  - More Frequent Change
  - Male/Female
- Legitimate/Normal



# At Risk for Risk

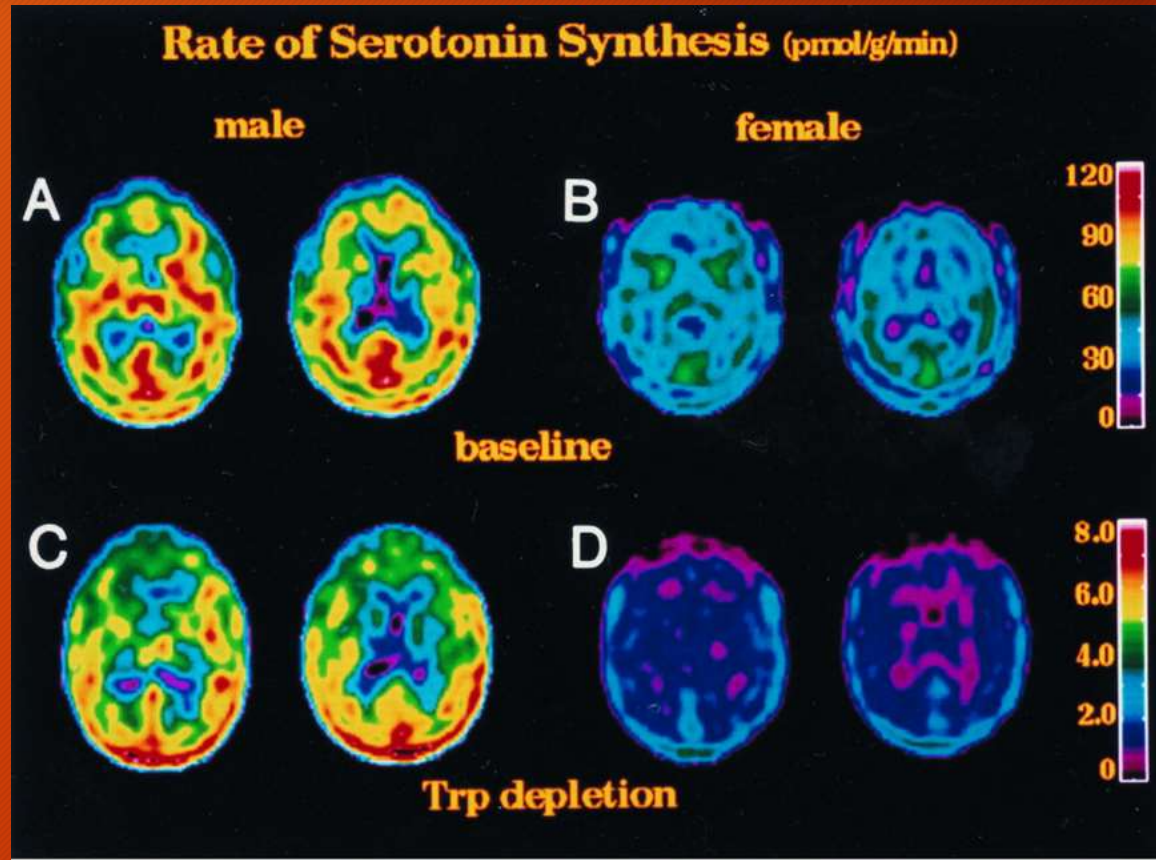
- Emotional Intensity
  - A/A sites
  - Many more
  - What does all night gambling do for your “look”
- Male/Female Brain Differences



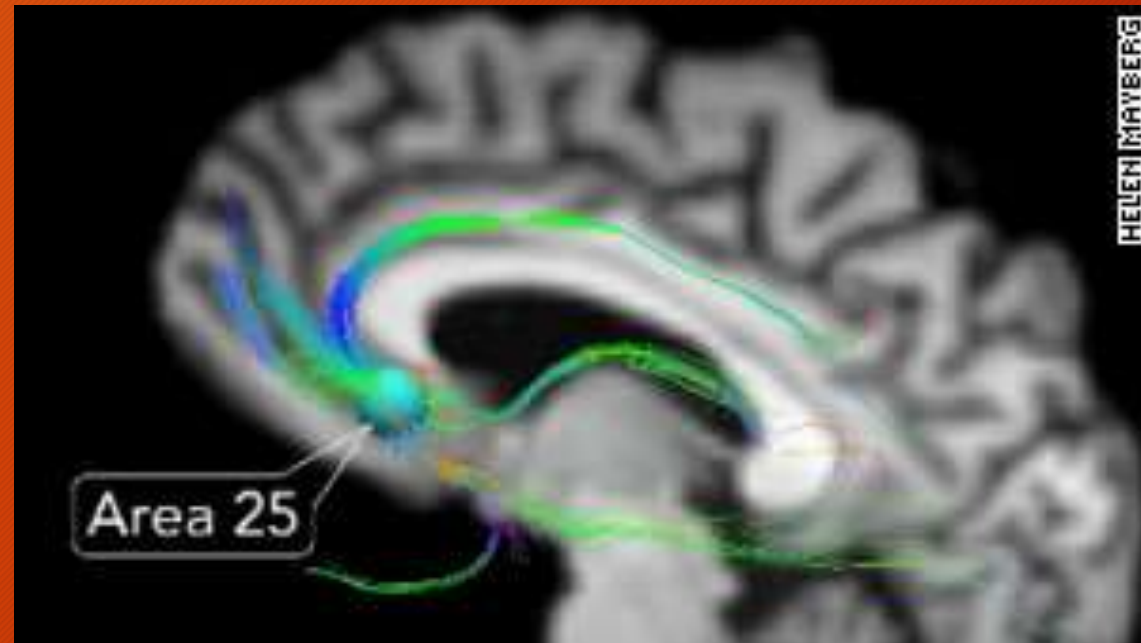
# Why is this Brain at Risk?

Depression

Serotonin Synthesis



# At Risk Brain

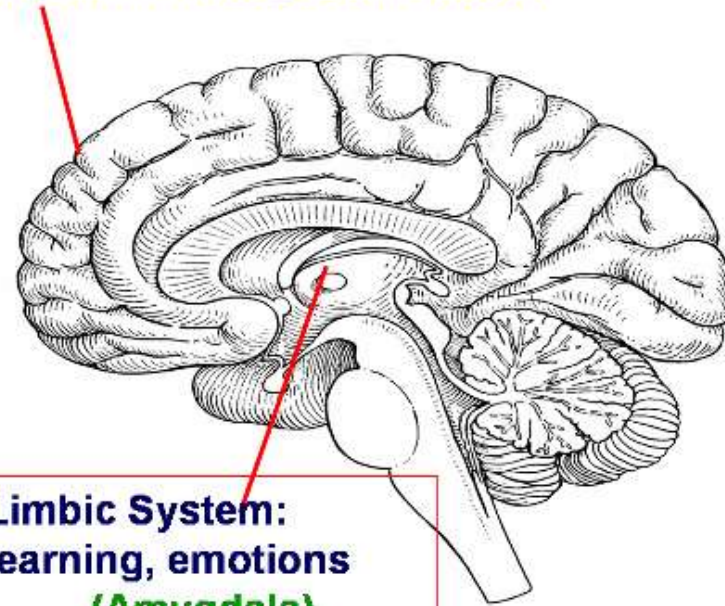


# Brain Facts

- Jumping Genes

- Migration and Activation

**Frontal Cortex:**  
decision-making, self-control



**Limbic System:**  
learning, emotions  
**(Amygdala)**

# Brain Facts

- Risk Taking
  - New Sites of Activity
  - Influence of Peers
  - Male/Female



- Emotional Reward      Normal behavior

# Brain facts

- Influence of Peers



- Be All That You Can Be

# I Second That Emotion

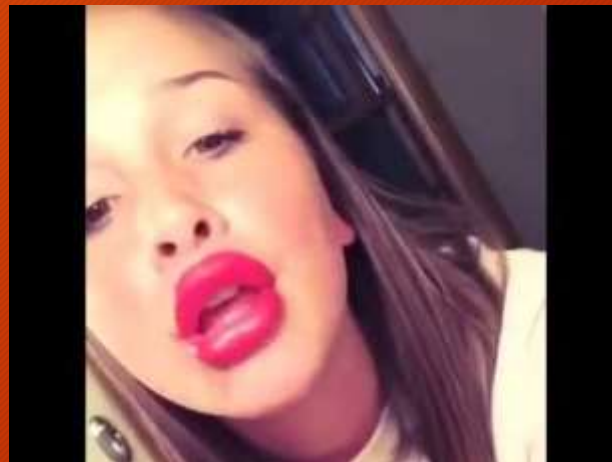
- Social Bonding and Connecting
- You got to have friends.
- Like and Admire





# Risk taking

- Kylie Jenner Challenge



# Risky Business



**SnöBar**  
frozen cocktails

**14.6% Alcohol**  
**100% Cool**

**GIMME SOME!**  
SNOBARCOCKTAILS.COM

21 and over only  
enjoy responsibly

COSMO POP
























# Risk Taking



## THE CHOKING GAME

AND SOME OF THE LIVES IT'S TAKEN

 John Hamilton - 10 Lafayette, CA Aug 1, 1991 - Nov 11, 2007	 Eric Stuffer - 10 San Jose, CA Apr 25, 1990 - Nov 11, 2007	 Brian Tyler Mason - 11 San Jose, CA Feb 9, 1991 - Nov 11, 2007
 Steven Wolf - 13 Livermore, CA Oct 4, 2000	 Steven Wolf - 13 Livermore, CA Oct 4, 2000	 Steven Wolf - 13 Livermore, CA Oct 4, 2000
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# Cultural and Environmental Influences

- Role Models



- TV



- Social Media



# The Role of Parents and Third Party Adults

- Beliefs and Expectations
- Encouraging Autonomy
- Foster Discussion
  - How can we fill need?





# Drugs and Alcohol

- Increased Risk Factors

# Effective Language for Risk Assessment

- Immediate
- Social/Emotional
- Impact on Others

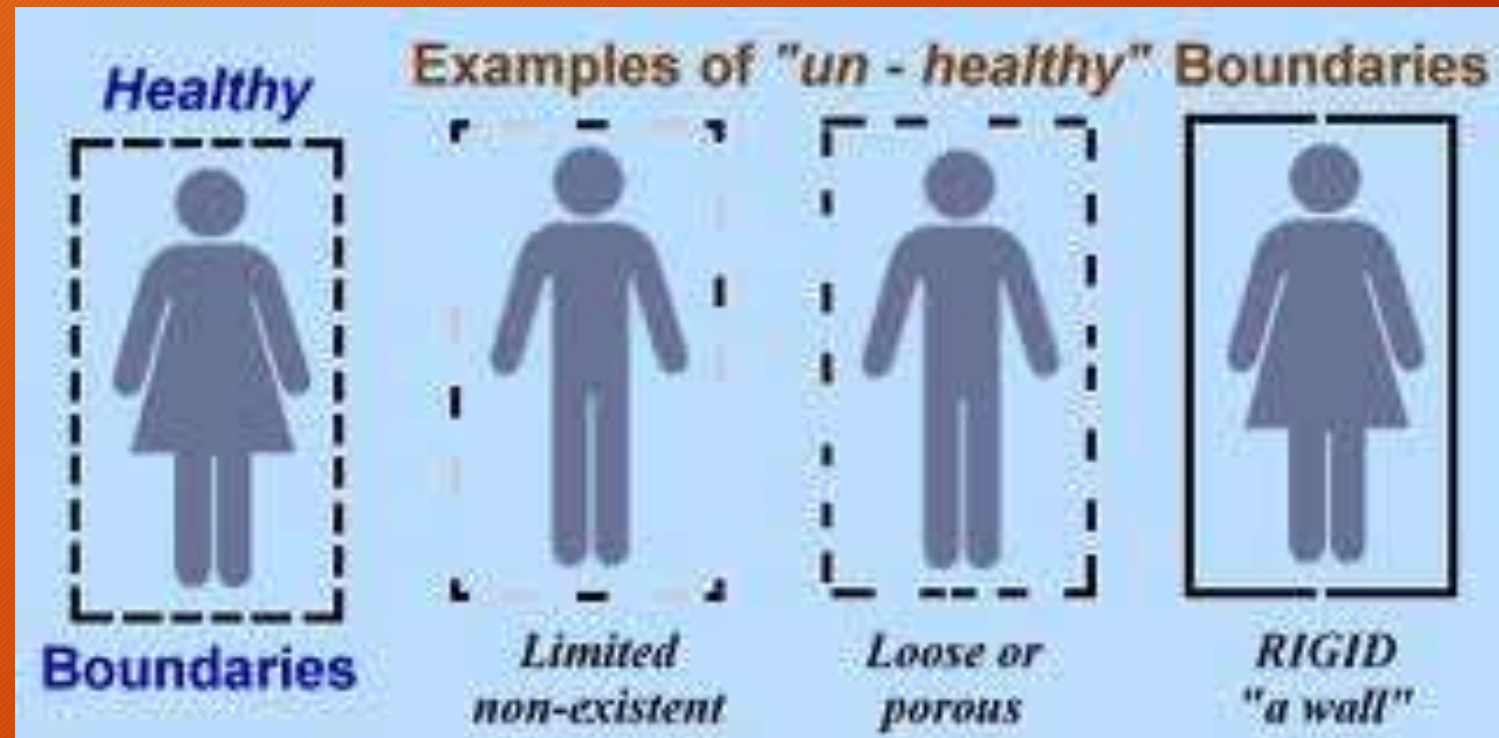


# Boundaries

## Boundaries



# boundaries



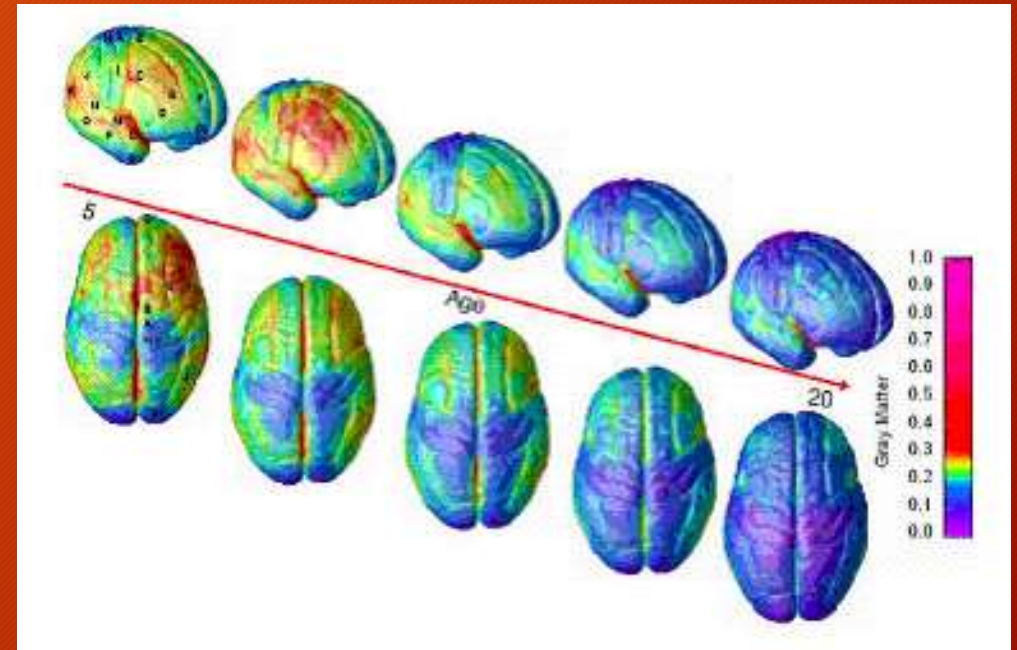
# Why is this brain at risk?

## A Work in Progress

- Stages of Adolescent Development

## Emerging Adult Brain

- The Long and Winding Road



# Boundaries

Negotiable vs Non-Negotiable

Curfew

and Alcohol

Sleepovers

Concerts

Transportation

Peer Drivers

Drugs

Parental Contact

Impaired Drivers

# Boundaries

- Both Parents
- Sleepover Parents
- Flex toward Restrictive
- Change with age, maturation, responsibility

# Consequences

- Immediate
- Proportional
- Short term
- No Add Ons



# Effective language

- The “If - then” construct
  - Signifies accountability, not power
  - Has remindability built in
  - Not what we want, but what is necessary

