

ADOLESCENT BRAIN DEVELOPMENT

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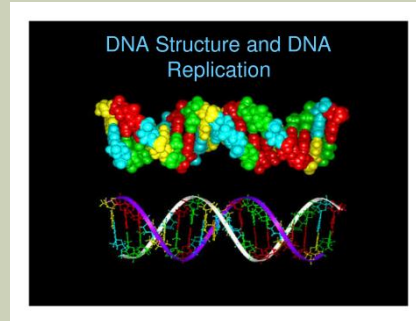
Risky Business:
Drugs and Alcohol

A DISEASE OF THE BRAIN

- ASAM
- Primary chronic disease of the brain reward, motivation, memory, and related circuitry.
- Clarify and de-stigmatize
- Public Perception
- Percentage change 38% to 47% but no change in stigma

WHO IS AT RISK?

- Genetics



- Environment

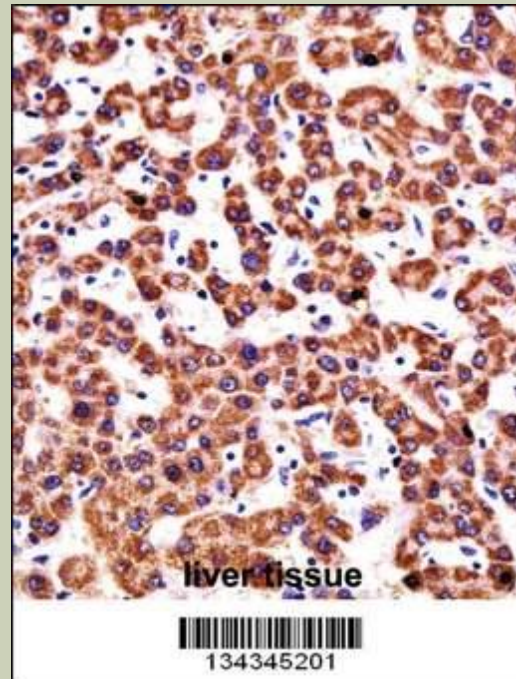


- Experiences



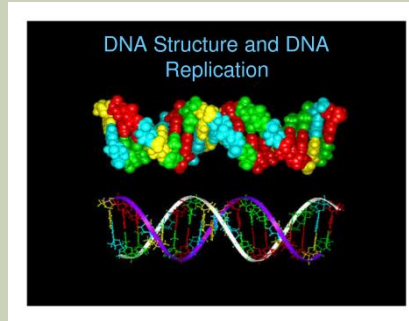
P450 CYP2D6

- Codeine converted to Morphine
- Metabolic function
- Poor
- Effective
- Moderate
- Ultra fast



A DISEASE OF THE BRAIN WHO IS AT RISK?

■ Genetics



■ Environment

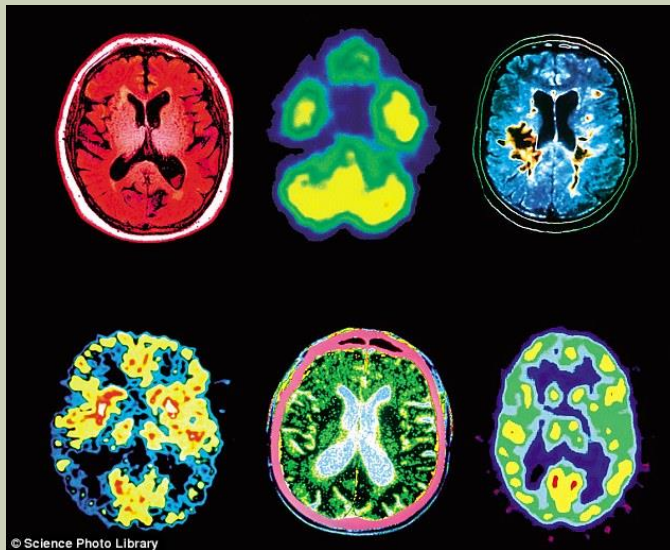


■ Exposure



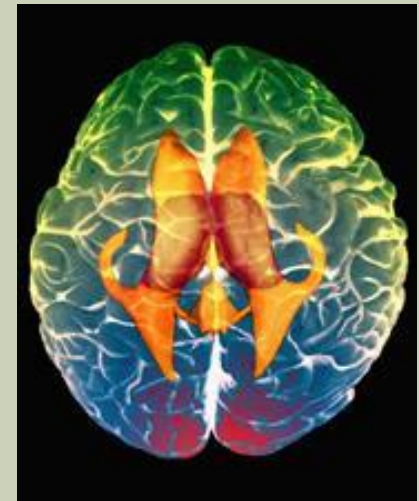
BRAIN IMAGING SYSTEMS

■ CAT



■ PET

■ MRI/fMRI



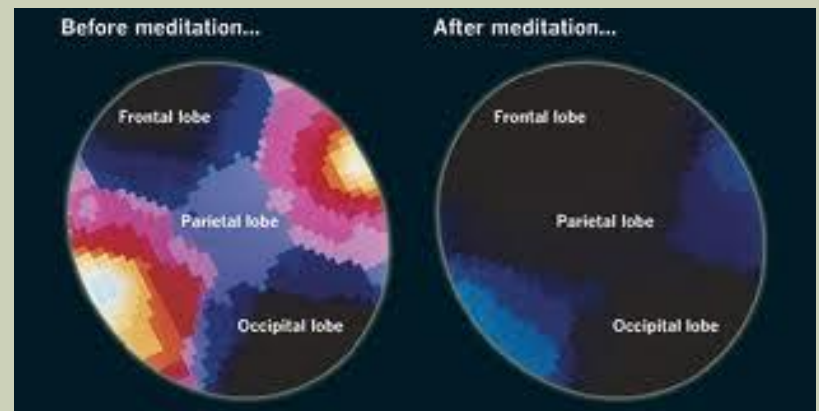
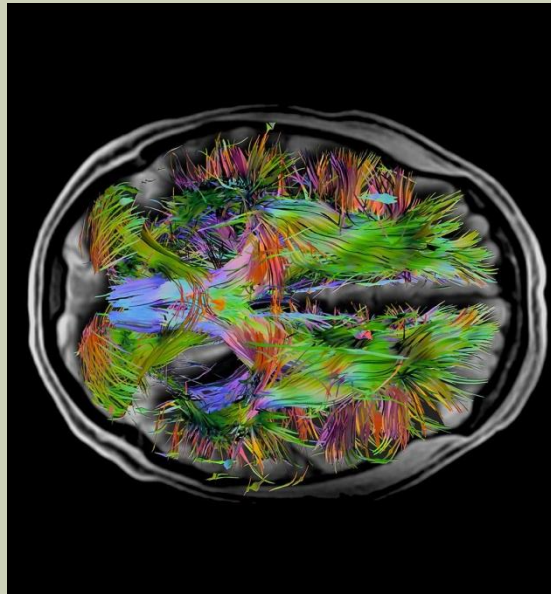
BRAIN IMAGING SYSTEMS

■ TDI

■ DTI

■ DSI

■ SEM

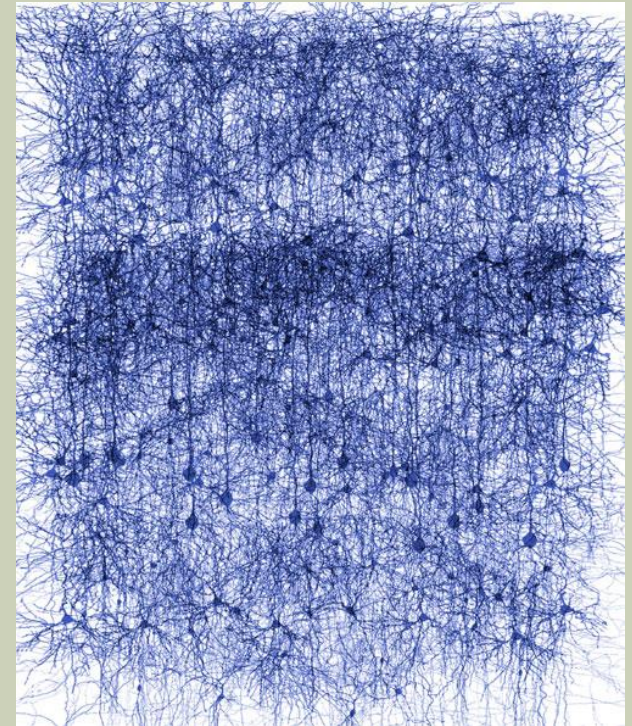


SYSTEMS INVESTIGATED

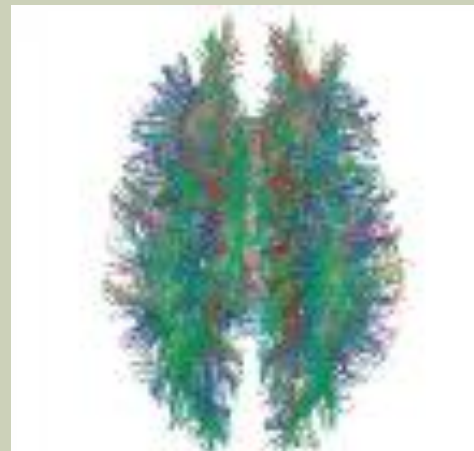
- Structural



- Gray Matter

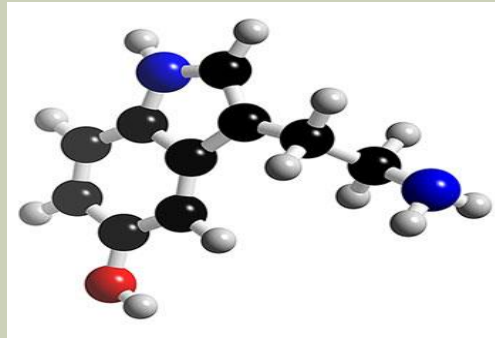


- White Matter



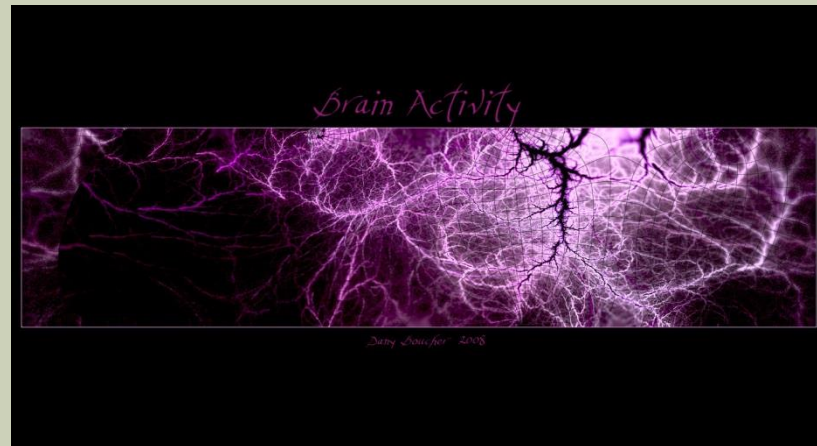
SYSTEMS INVESTIGATED

- Chemical



- Electrical

- Molecular



BRAIN DISEASE

■ Just the Facts

- Relapse ranges from 50%-90%

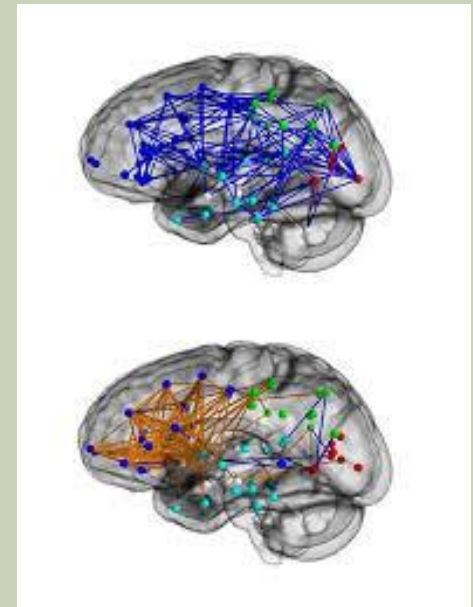
■ Multiple factors

- Definition
- Drug of Addiction
- Gender, Age,
- Length of Use
- Length of Treatment
- Reliability of Instrument



MOTIVATION FOR DRUG USE

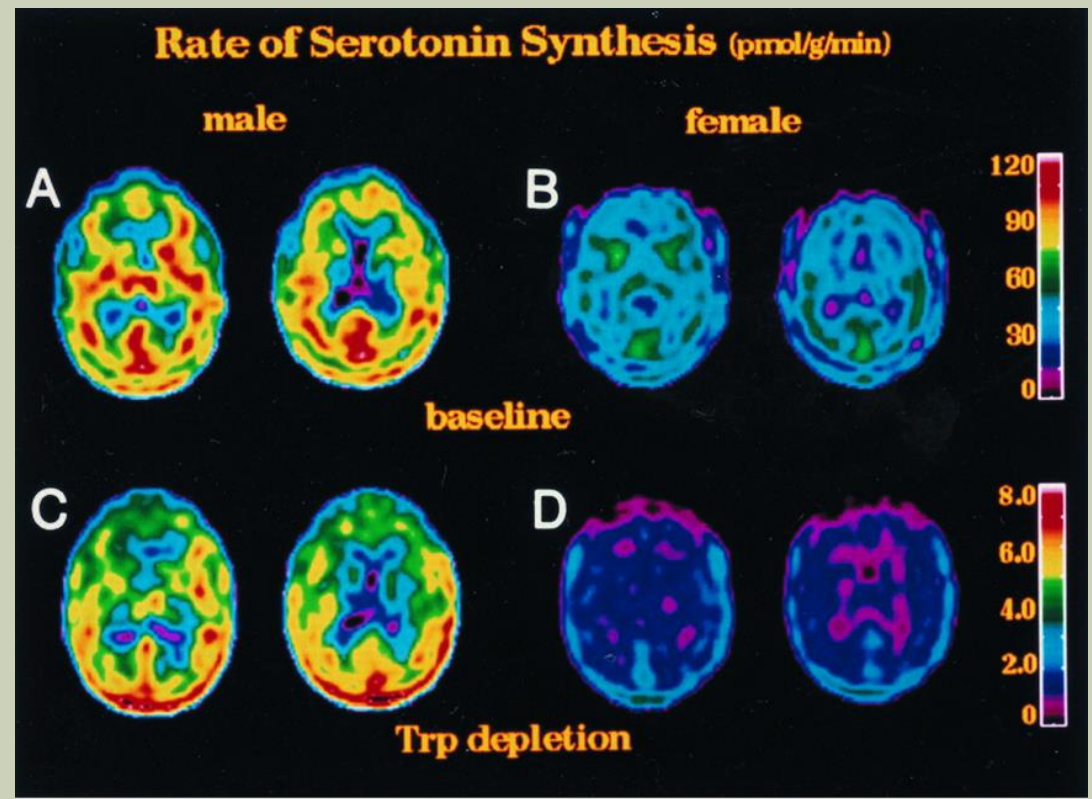
- **Seek drugs for:**
 - Create positive effect in brain chemistry
 - Dopamine release in reward sites
 - Suppress negative emotions
 - Activation in specific sites



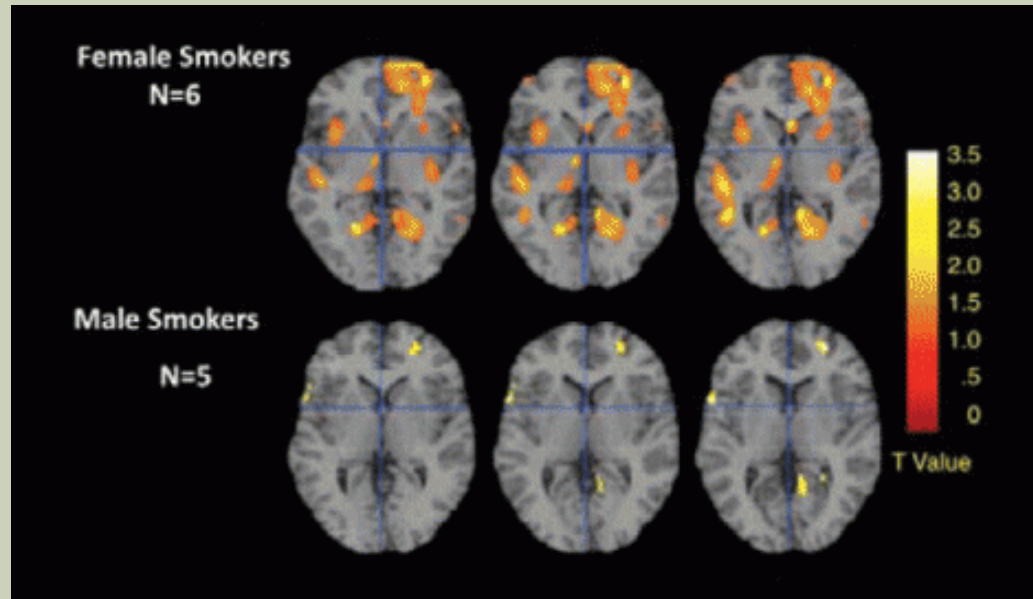
WHY IS THIS BRAIN AT RISK?

■ Depression

■ Serotonin Synthesis



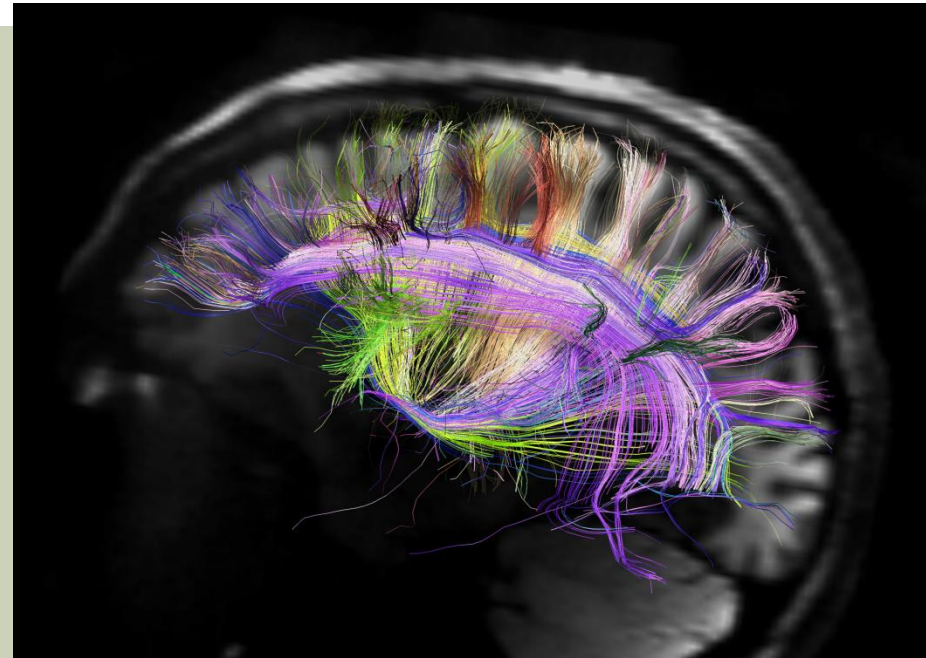
GENDER DIFFERENCES



THE ADOLESCENT BRAIN FACTOR

■ Emotional Intensity

- Ages 10 – 24 years
- Amygdala
 - Hormones
 - Larger and more active
- 2 to 4 times

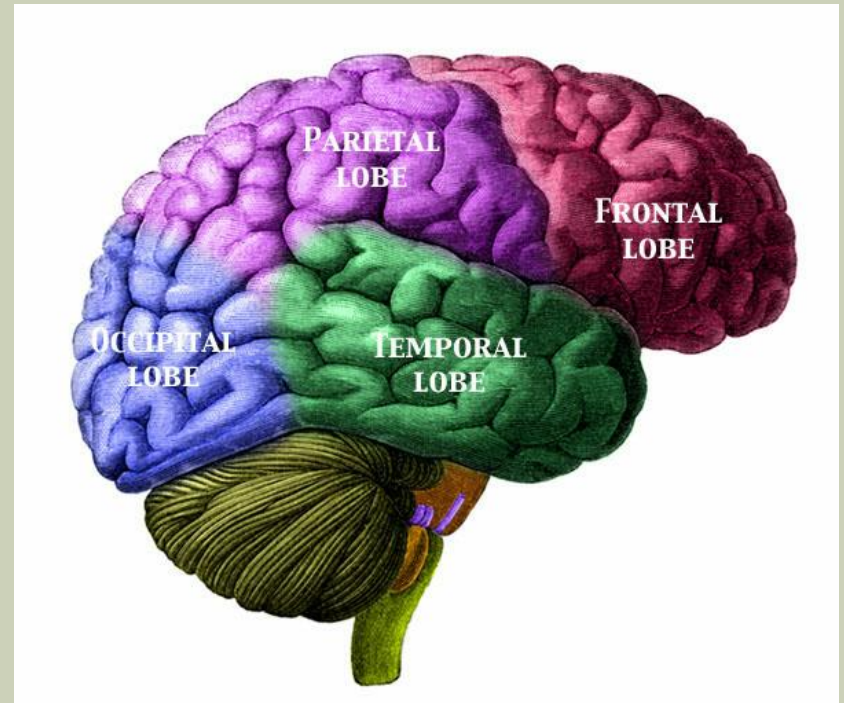


<https://images.nonexiste.net/popular/2012/03/30/diffusion-spectrum-imaging-reveals-an-orderly-weave-of-nerve-fibers-in-the-brain/>

THE ADOLESCENT BRAIN FACTOR, CON'T.

■ Risk Taking and Peers

- Change at 12- 13 years old
- New sites appear in brain
- Emotional reward for risk taking
- Peer influence



CULTURAL AND ENVIRONMENTAL INFLUENCES

- Role Models



- TV

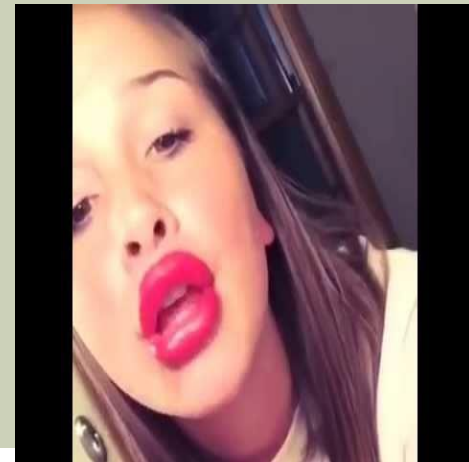


- Social Media



RISK TAKING

- Kylie Jenner Challenge



RISK TAKING



THE CHOKING GAME AND SOME OF THE LIVES IT'S TAKEN



Josh Hartington - 18
York Pa, Illinois
Mar 7, 1989 - Nov 14, 2007



Leo McPhee - 16
Saint John's N.S. Canada
Sep 26, 1991 - March 21, 2003



Eric Matthew Greenup - 15
Alma, Texas
April 17, 1991 - Dec 11, 2005



Sean Sanders - 16
Lakeland in 1998, Illinois
Sep 27, 1981 - Feb 19, 2003



Utah Thomas Gilard Martin - 12
Alpena, Michigan
April 11, 1990 - Nov 14, 2008



Erik Robinson - 12
Juan Antonio, California
Jan 27, 1998 - April 21, 2010



Cody Ryan - 14
Lindsay, Michigan
Jul 1, 1997 - Mar 17, 2008



Tyler Mison - 15
Ipswich, United Kingdom
Feb 5, 1990 - Sep 6, 2005



Laurian Joy Brunker - 15
Pasadena, South Carolina
Feb 23, 1997 - Jul 4, 2010



Brianna Bold Conant - 12
Genoa, Colorado
Oct 3, 1997 - June 15, 2010



Skylee W. Smith - 12
York Pa, Illinois
April 4, 1999 - May 8, 2001



Braden Erickson - 15
Tulsa, Arizona
Feb 19, 1992 - May 20, 2005



Austin H. Remonson - 18
Detroit, Michigan
Feb 30, 2002 - March 11, 2012



Jaucha - 15
Lees, Texas
Feb 25, 2000



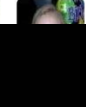
Cayden Scott Wines - 12
Newark, Ohio
Dec 12, 1994 - Jan 7, 2007



Marisa Lynn Rodda West - 15
Aurora, Michigan
Dec 30, 1990 - Jul 16, 2009



Alex Quinby - 18
Vincennes, Indiana
Jan 20, 1991 - Nov 10, 2009



Dallas Teri Steven Drenth - 13
Farmington, New Mexico
Jan 22, 1995 - Oct 20, 2008



Jay Smith - 17
Johns, Tennessee
April 17, 1991 - Aug 5, 2008



Justin Paul Butler - 16
Culbert, California
Jan 20, 1990 - Nov 10, 2006



Joshua Lee Eagle - 15
Baltimore, Texas
Aug 4, 1990 - Nov 21, 2005



Kelly Carole LaRoque - 18
Hillsbeck & Juvettinque, Okla County
Nov 20, 1987 - Jul 2, 2006



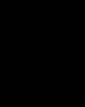
Mirakle - 15
St. Louis, Missouri
Feb 20, 2000



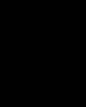
Harry Robinson - 13
England
March 16, 1990 - Jan 7, 2010



Harry Ayre - 16
England
Feb 17, 1994 - Jan 7, 2010



Al Murphy - 11
Ipswich, United Kingdom
Feb 20, 2000



Jason Isaac Linkins - 14
Wichita, North Carolina
Feb 18, 1995 - April 23, 1999



Nicolas Cochler - 14
St. Louis, Missouri
Nov 6, 1995 - Sep 20, 2009



Dorian Richard - 11
Saint Louis in Jay, Texas
Oct 11, 1999 - Jan 20, 2001



Nicholas Ryan Dossally - 16
Perry, Ohio
March 24, 1994 - Dec 17, 2010



Thomas Evan Hyder - 12
Hemlock, British Columbia
Aug 18, 1994 - March 10, 1997



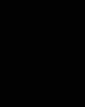
Xavier John Darr - 15
California
June 4, 1999 - May 2, 2000



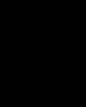
Jack Austin Doyle - 15
Waco, Texas
Nov 4, 1992 - Oct 25, 2006



Alexa Beth Sorenson - 14
Alton, Georgia
Oct 28, 1995 - Oct 5, 2009



Billy Jay Crow - 11
Salem, Ohio
Dec 28, 1998 - Dec 21, 2010



Brady Everett Hagaman - 14
Birmingham, Illinois
Dec 14, 1997 - April 3, 2012



David C Wright - 13
Lawrenceville, Georgia
April 18, 1997 - Oct 8, 2010



Drew Paul Alan Fink - 11
David City, Nebraska
March 17, 1998 - March 12, 2009



Florent Tuel - 13
Genève, Switzerland
May 20, 2009



Gage Andrew Weeks - 12
Sheffield, Wisconsin
Oct 25, 1999 - Sep 15, 2012



Zachary Michael Hughes - 15
Hemlock, British Columbia
Dec 17, 1995 - Aug 5, 2007



Zaxon Jay Ridge - 14
Hemlock, Kentucky
June 27, 1999 - Aug 5, 2011



Kristian Tyler Marzeno - 15
Cap. North Carolina
Mar 29, 1995 - Nov 2, 2008

ALCOHOL: COMBINATIONS

■ Robo-shots

- Dextromethorphan
- Opioid cough suppressant
- Plus alcohol
- Rapid and powerful intoxication
- Motor control
- Impulse control
- Delusional



IMPULSE CONTROL

- PRDM2
- Down regulated
- Disrupts impulse control
- Big factor in trying new drugs



ALCOHOL AND HEROIN

- Backdoor Path
- Synergistic
- Overdose Fatalities



PRESCRIPTION PAIN MEDICATIONS

- Oxycontin



- Vicodin



- Roxanol



- Opana



OPIOIDS AND PAIN

- Good for short term
- Postoperative
- Elements of Pain



OPIOID EFFECTS

- *NOT* better than other options
(Patient and Medical Education)
- Pain complex; physical, emotional, social, vocational
- Sleep
 - *Only opioids*: Decrease Pain, Reduce Anxiety, Induce Sleep, and Create Euphoria

INJURED ATHLETES

- Surgical Repair
- Home Alone
- Long Recovery
- Scholarship???



HEROIN AND OTHER DRUGS

Heroin use is part of a larger substance abuse problem.

Nearly all people who used heroin also used at least 1 other drug.

Most used at least **3** other drugs.

Heroin is a highly addictive opioid drug with a high risk of overdose and **death** for users.

People who are addicted to...



ALCOHOL

are

2x



MARIJUANA

are

3x



COCAINE

are

15x



Rx OPIOID PAINKILLERS

are

40x

...more likely to be addicted to heroin.

SOURCE: National Survey on Drug Use and Health (NSDUH), 2011-2013.

HEROIN: PHARMACOLOGY

■ Source



ON THE STREET

- Price
- As low as \$12



HEROIN

■ Potency



HEROIN

- Pain Medication



- Street Drug



ACETYL FENTANYL/CARFENTANYL

- Black Dahlia, Phantom, Gray Death
- PINK U-47700
- W-18



Carfentanil
Origin China
1000x as potent

ROUTE OF ADMINISTRATION

- Routes of Administration

- Snorting



- Smoking

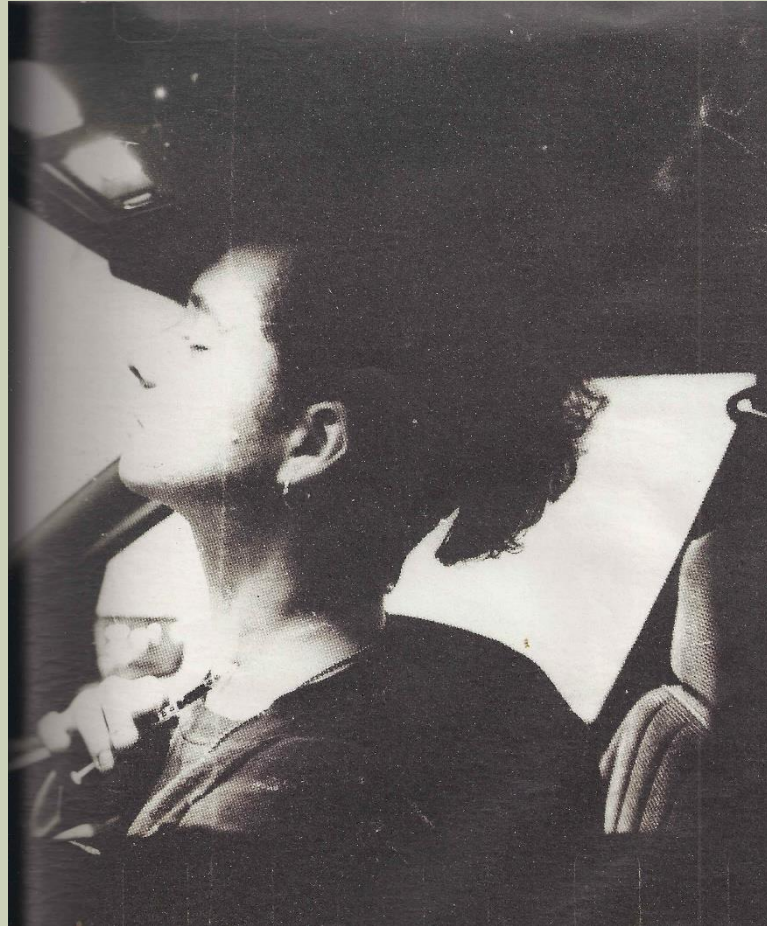


- Injecting

- IV, SC



ROUTE OF ADMINISTRATION



RISK FACTORS

- Addiction



- Infection

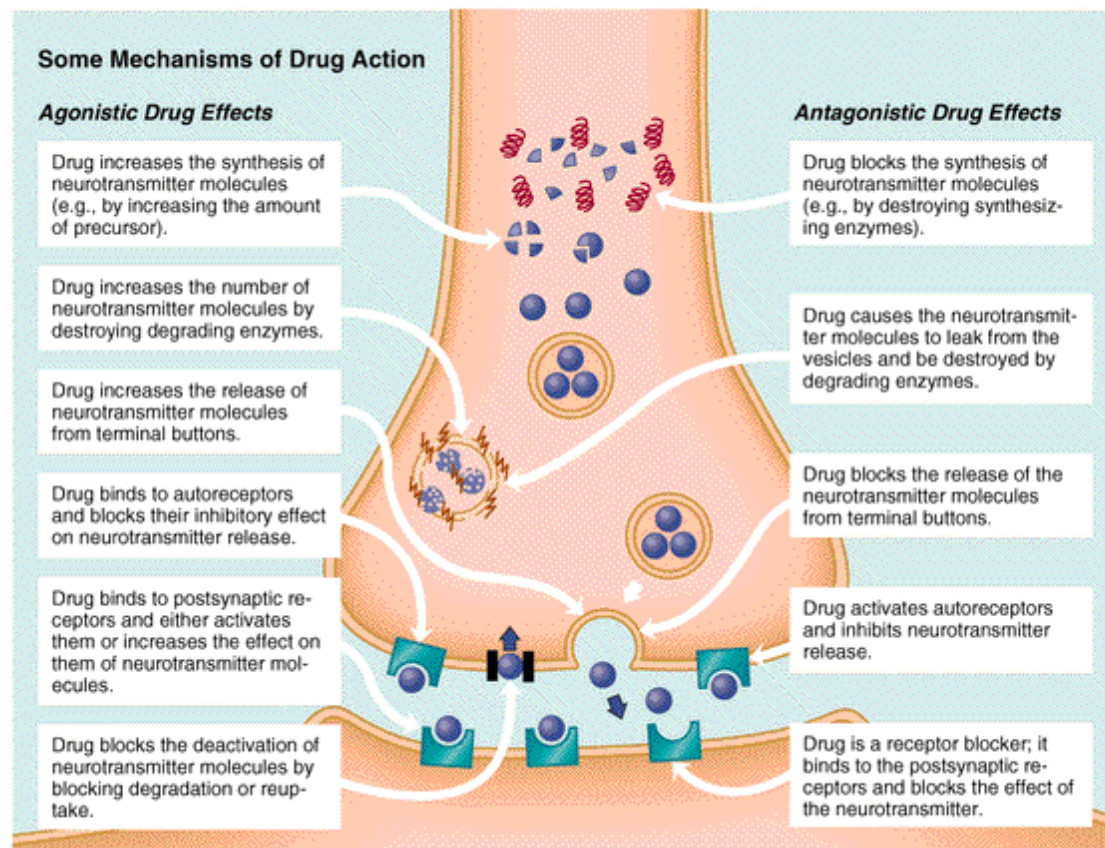


- Overdose



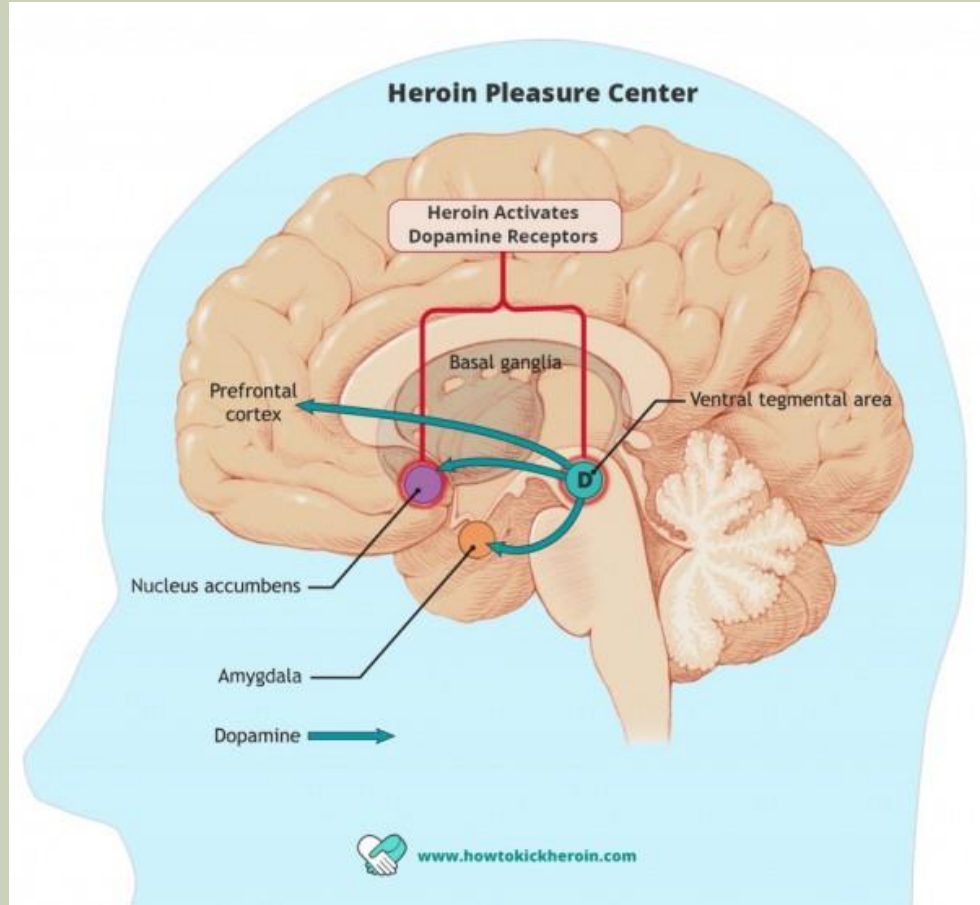
HEROIN IN THE BRAIN

► Mechanisms of Drug Effects



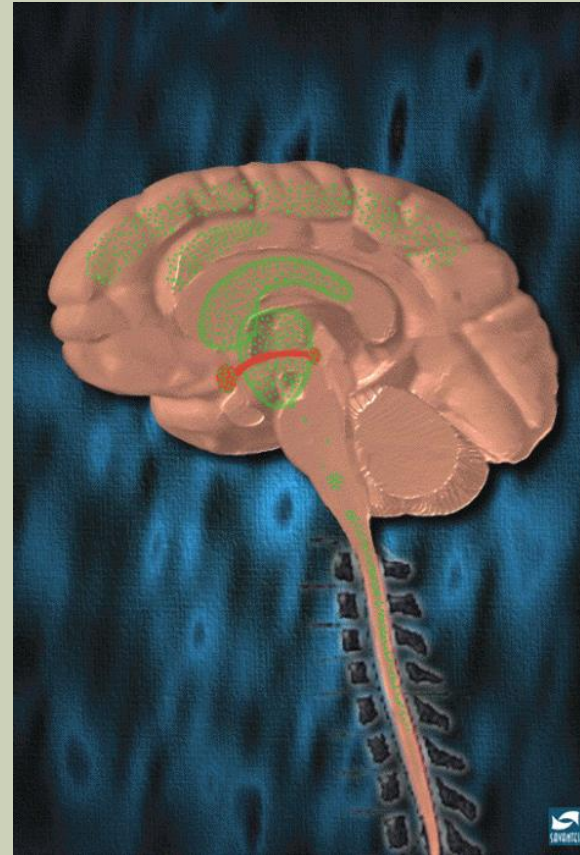
HEROIN IN THE BRAIN

- Spinal Cord
- Midbrain
- Hippocampus
- Cerebral Cortex



HEROIN IN THE BRAIN

- Reward
- Pain Relief
- Anxiety
- Hippocampus
 - Diminished neurogenesis



HEROIN AND ADDICTION

- Tolerance

- Withdrawal

- Loss of Control



- Continued Abuse in Spite of Consequences

CONCERNS

- BRAIN CHANGES:
 - Reward System Shutdown
 - Too much DA
 - CREB
 - Gene code
 - Synthesize Dynorphin
 - Nothing but the drug



CONCERNS

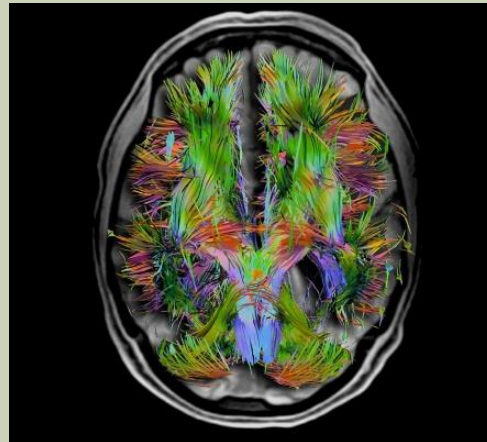
■ New Research on the Brain

■ Embedded Memory

- Too much DA
- DeltaFosB

■ Chemical Changes

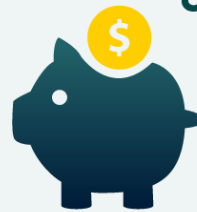
- Protein shift
- PKMzeta
- Stores the high



ON THE HORIZON

- Codeine
- Imodium
- Gabapentin

GABAPENTIN RECREATIONAL USE & ABUSE



**CHEAP ON
THE STREETS**

- It makes users feel relaxed
- Similar to a Marijuana high
- Safer than Xanax or Valium
- It's not a controlled substance

IMPACT ON THE FAMILY

■ CONTEXT:

- Which drug?



- Which parent?



- What time frame?

IMPACT ON FAMILY

- **NEGATIVE EMOTIONAL ENVIRONMENT**
- **Stress**
- **Conflict**
- **COMMAND LANGUAGE**



INCREASED POTENTIAL

■ PHYSICAL ABUSE/NEGLECT

- Postnatal
 - Preemies
 -
 - Health Risks
 -
 - Foster Care



INCREASED POTENTIAL “ACE”

- Childhood
- Neglect
- Abuse
- Sexual Abuse
- Foster Care, Health Care



INCREASED POTENTIAL

- Adolescence
- Sexual Abuse
- Runaways
- Drug and Alcohol Abuse
- Foster Care, Juvenile Detention



INCREASED POTENTIAL, CONT.

- SEXUAL ABUSE
- FAMILY ROLE DYSFUNCTIONALITY
- ROLE MODELS

PHYSICAL ABUSE

- Fatalities



- Assaults



PHYSICAL ABUSE

- Side Stream Vapors
- Cooking
- Smoking



PHYSICAL NEGLECT

- Absence of Food



- Absence of Clothing

- Absence of Furniture



SEXUAL ABUSE

- Cocaine and Methamphetamine Disinhibitors

- Alcohol

- Heroin

- Prostitution

- Law Enforcement

- Health Care



FAMILY DYSFUNCTIONALITY

■ Stealing



■ Dealing



ROLE MODELS

- Drug involved lifestyle



- Early onset of drug use/abuse



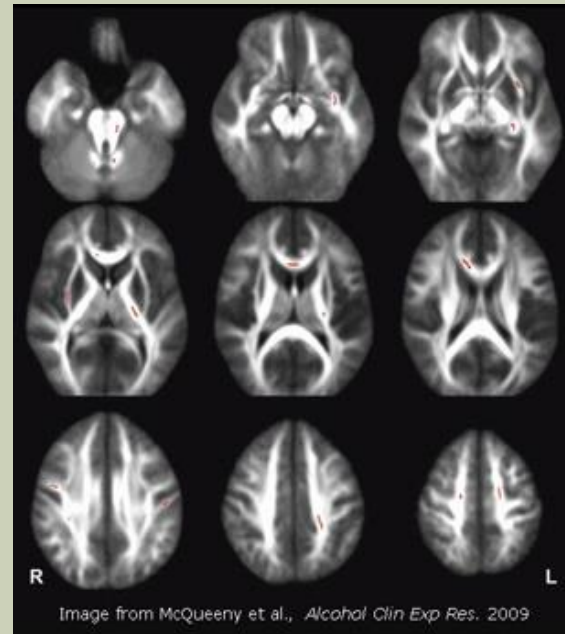
IMPACT ON EDUCATION

- Supervision of children compromised
- School Attendance
- School Responsibilities
Homework, Projects, Supplies, Consent Forms

Access to drugs and alcohol in the home

ALCOHOL IN THE MIX

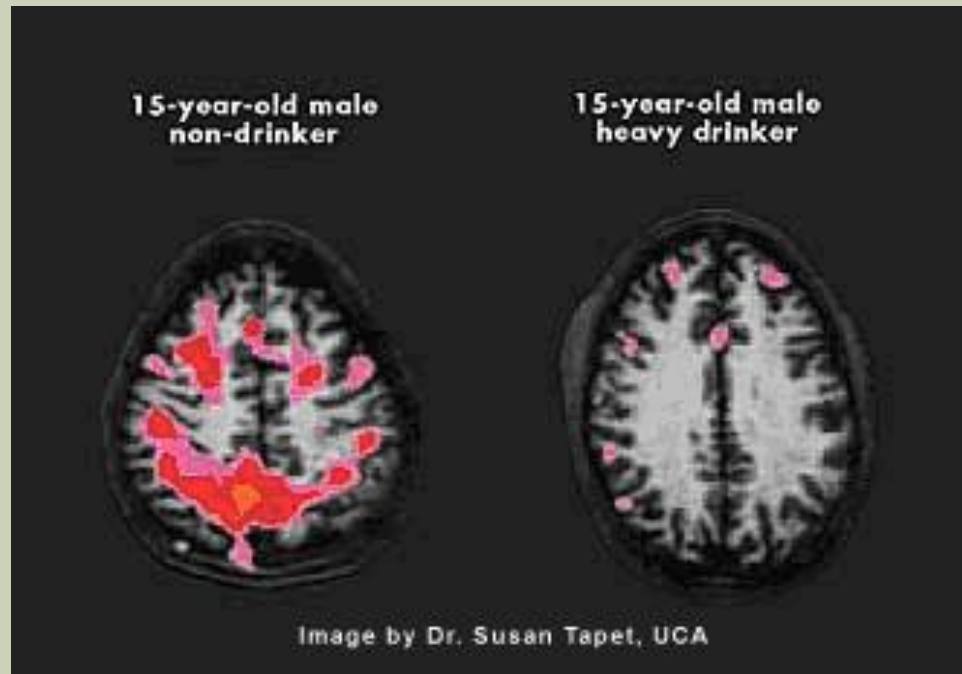
- Long Term Outcomes of Underage Drinking and Drug Abuse
- 10% Loss of Volume in Prefrontal Cortex
 - Executive Function
 - Learning
 - Reasoning



LONG TERM OUTCOMES

- **10% Loss of Volume in Hippocampus**

- **Memory**
- **Motivation**
- **Social Behaviors**



MARIJUANA IN THE MIX

- Global/Detail
- Declarative Memory
- Motivation
- Time Management
- Critical Self Evaluation



IMPACT ON EDUCATION

- Sleep Deficits

- Impact on school performance

- Double digit drop in memory, and problem solving
- Attentional deficits, problematic behaviors, hostility
- Tardiness, missing homework, less class participation



NO PARENTAL LINK: GROWTH-ORIENTED MINDSET

- Success Stories
- How hard work and effort create success
- Specific Language of Praise
- Strategies
- Focus
- Effort
- Persistence



EDUCATION

- Public Schools
- Parents
- Workplace
- Hospitals
 - Drug seeking



She gets her hair from her mom.
Her eyes from her dad.
And her drugs from her grandma's
medicine cabinet.

BE AWARE. DON'T SHARE.
For more information, go to www.lockyourmeds.org.

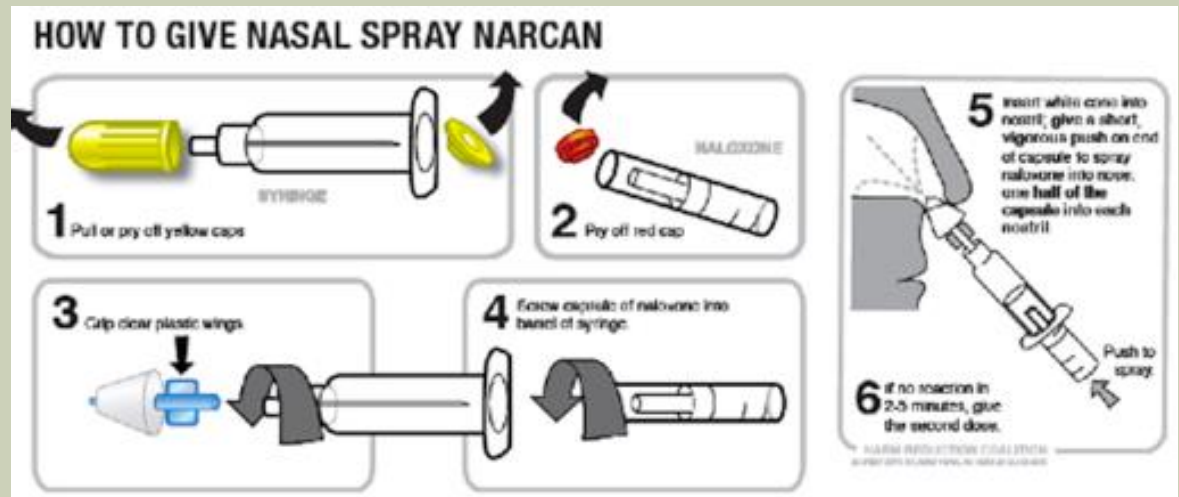
  

For more information about the Lock Your Meds™ Campaign or Informed Families/The Florida Family Partnership, please call: (305) 856-4886, or visit us at www.informedfamilies.org.

PREVENTION

- Public Health Model
- Gordon's Categories

- Universal
- Selective
- Indicated



STAFF ISSUES

- **Training**



- **Support**

- **Secondary Trauma**

- **Personal Life**

COMPONENTS OF TRUST

1. Reliability

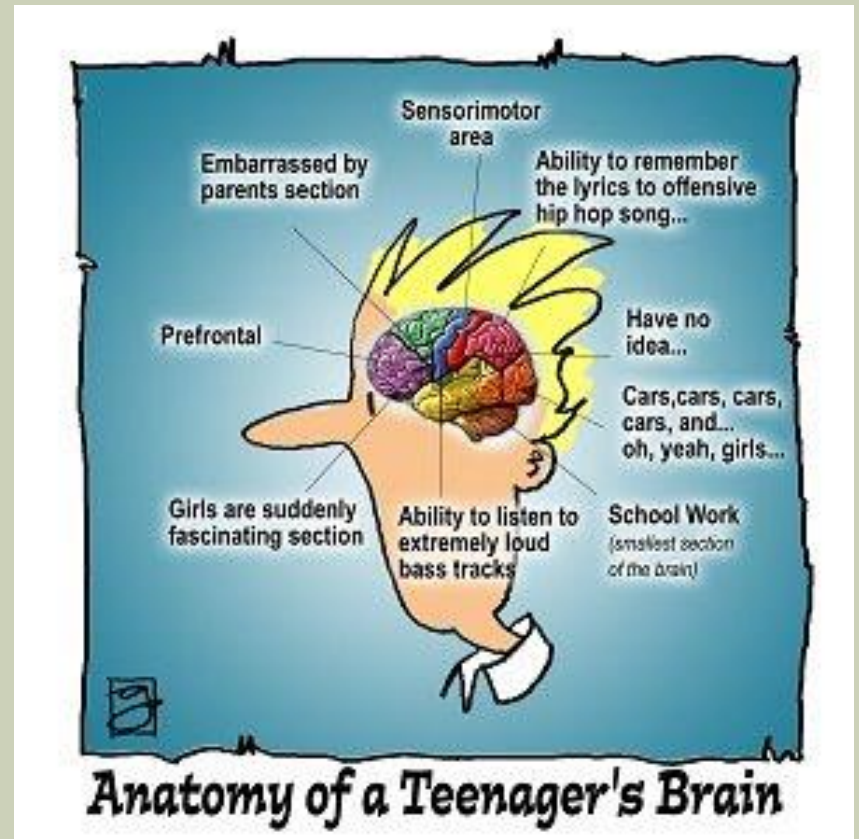
2. Predictability

3. Faith



WRAP UP

- Validate Emotions
- Social Bonding
- Risk-Taking Opportunities
- Crisis Support
- Early Intervention



THE PRACTICE OF RECOVERY

- Practice and Repetition



- Learn from Failure

QUOTESVALLEY.COM

failure
is success
if we learn from it.