

Understanding the Impact of Marijuana on Today's Youth: Compassionate Care Act

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Disclosures



- No conflict of interest with this content
- Potential perception of conflict:
 - Collaborator: Caron Foundation
 - Consultant: Alvee Laboratories, Braeburn Pharmaceuticals, Millennium Laboratories
 - Founder: The Parents Academy (supported, in part, by Caron Foundation)
 - Managing Partner: Treatment Partners LLC (Two Dreams Outer Banks)
 - Medical Director: Encounter Medical Group, P.C.
 - Partner: EMGlobal LLC
 - Former Consultant: GW Pharmaceuticals

Outline

- Debunking the myths
- Prevention works



My Opinions



- Extensive review of scientific literature
- Personal communications with scientists in the area
- Physician in addiction medicine
- Former member of FDA advisory board
- Former policy advisor to President Bush



The Marijuana Problem

Bigger Than Previously Recognized



The Marijuana Problem

- Most widely used illicit drug in America
- Of 5.6 million suffering, 62% are using marijuana
- Young people represent 23% of the suffering population



Problem, Continued

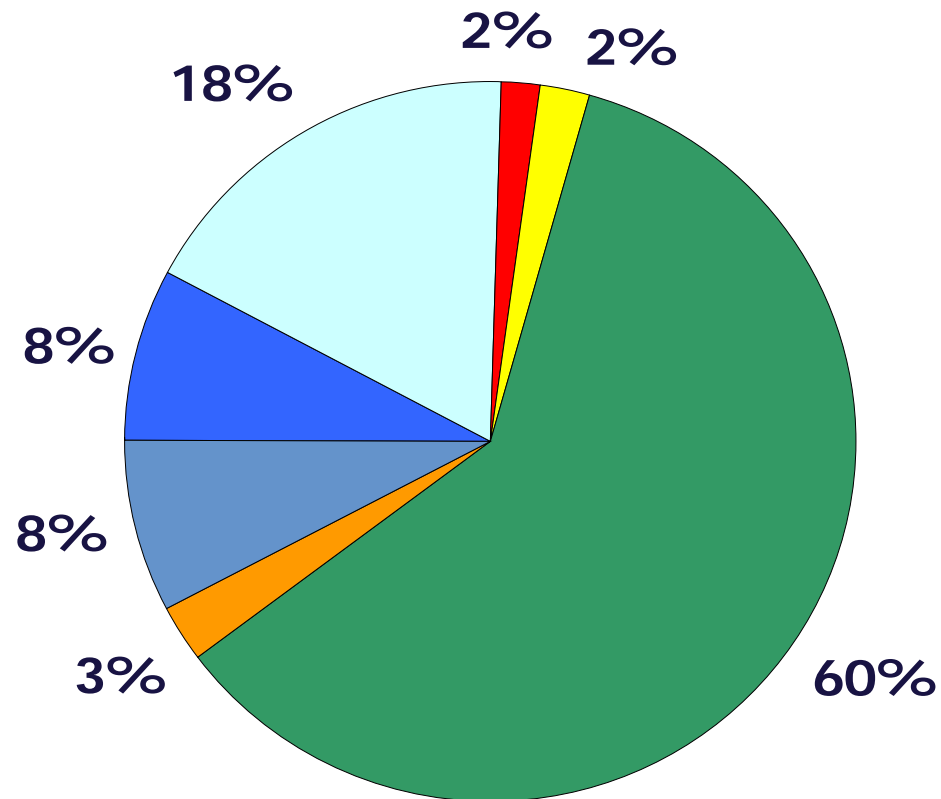
- Average age of initiation decreasing
- Marijuana's potency is increasing
- With increasing potency and earlier use, marijuana poses significant threat

Problem, Continued

- Of all teens in drug treatment, 62% had primary marijuana diagnosis
- More young people in treatment than for alcohol
- Almost equal numbers from criminal justice and other sources



Treatment Admissions (Ages 12 - 17) Primary Diagnosis



SOURCE: SAMHSA, *Treatment Episode Data Set, 1999*

Debunking the Myths



- Marijuana is harmless
- Marijuana is not addictive
- Youth experimentation is inevitable
- The criminalization of marijuana use is what leads to crime, not the drug itself

Myth 1: Marijuana Is Harmless



- Health consequences
- Social consequences
- Economic consequences

Health Consequences Defined



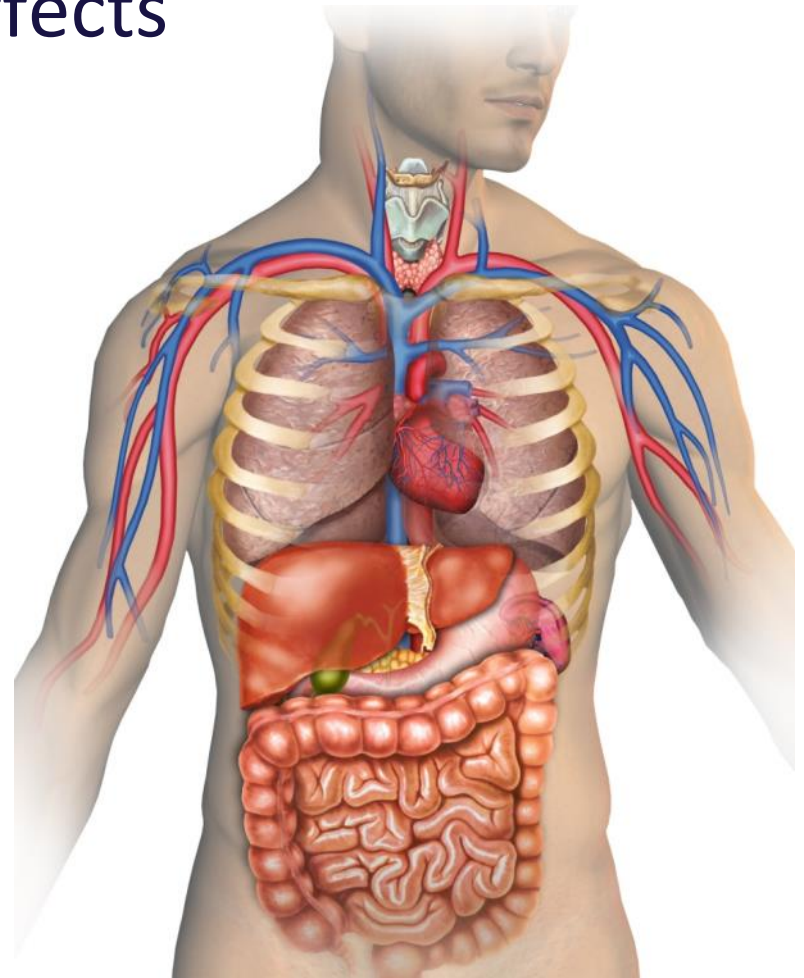
- Acute Effects
 - while intoxicated
- Post acute withdrawal
 - abstinent state in the regular, dependent user

Health Consequences Defined



■ Persistent and Chronic Effects

- impairments developed as a result prolonged use, endure beyond the period of intoxication
- impairments due to use, structural and functional changes to major organs



Acute Effects



- Time sense alterations
- Short term memory loss
- Attention skills
- General difficulty expressing simple thoughts in words

Acute Effects

- Motor skills
- Increase in hunger
- Nausea
- Dizziness



Acute Effects



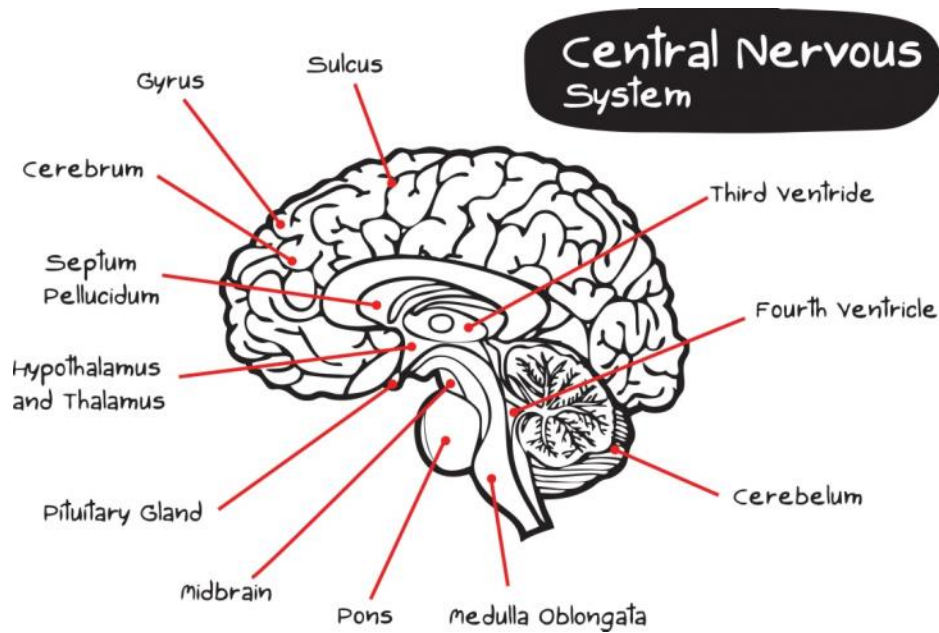
- Alter mood
- Euphoria
- State of relaxation
- Panic

Acute Effects

- Trait and state anxiety
- Tension and anger
- Confusion
- Depersonalization and other behavioral effects



Areas of Harm

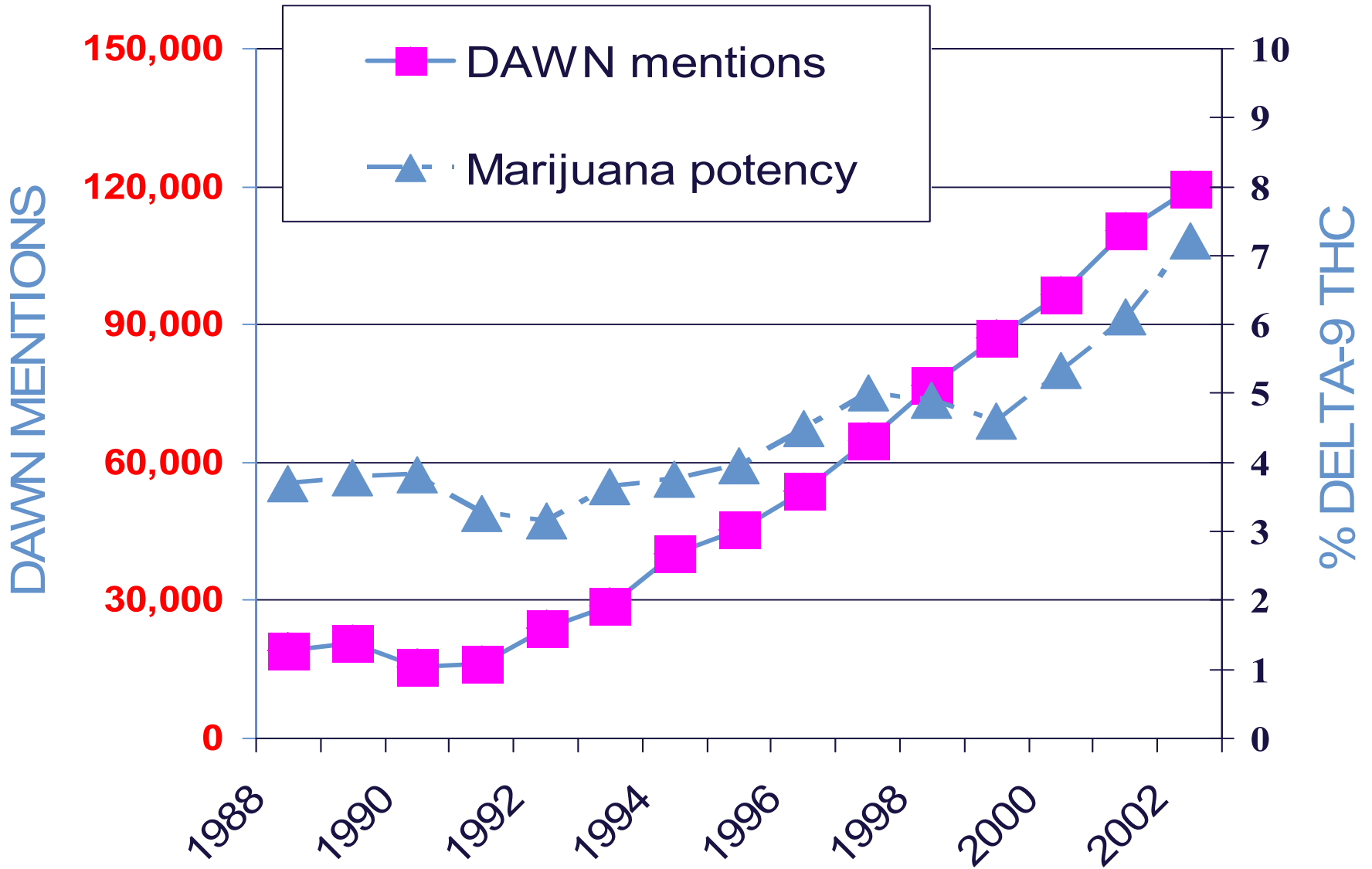


- Need for acute care
- Central Nervous System



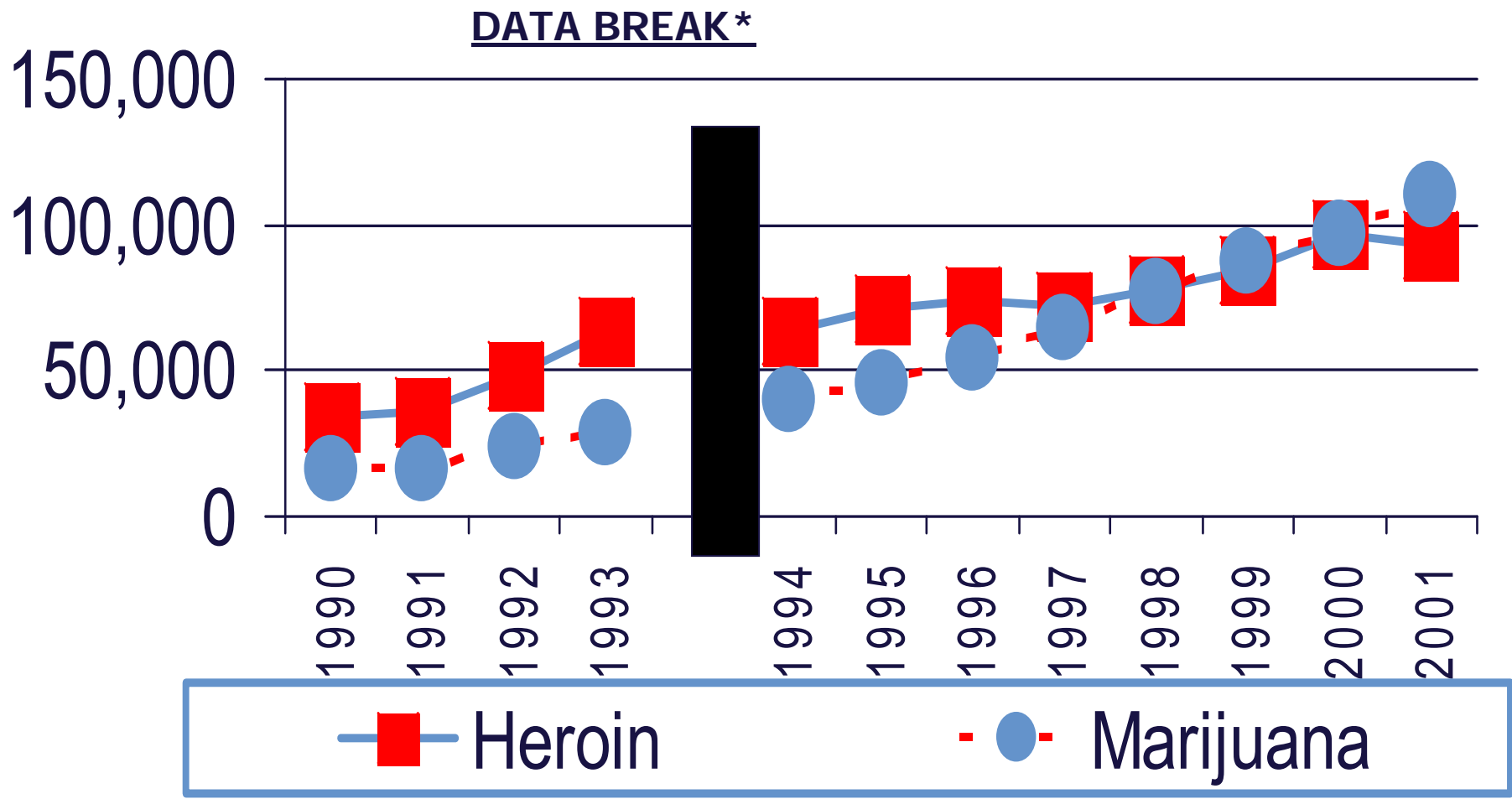
Need for Acute Care

- Relationship to acute need for medical assistance
- Rising faster than heroin caused need for medical assistance



Sources: Drug Abuse Warning Network, SAMHSA, August 2003
 Univ of Miss Marijuana Potency Report #82, Aug 2003

*NOTE: Data prior to 1994 may not be comparable to 1994 through 2001



Source: SAMHSA, Drug Abuse Warning Network

Central Nervous System



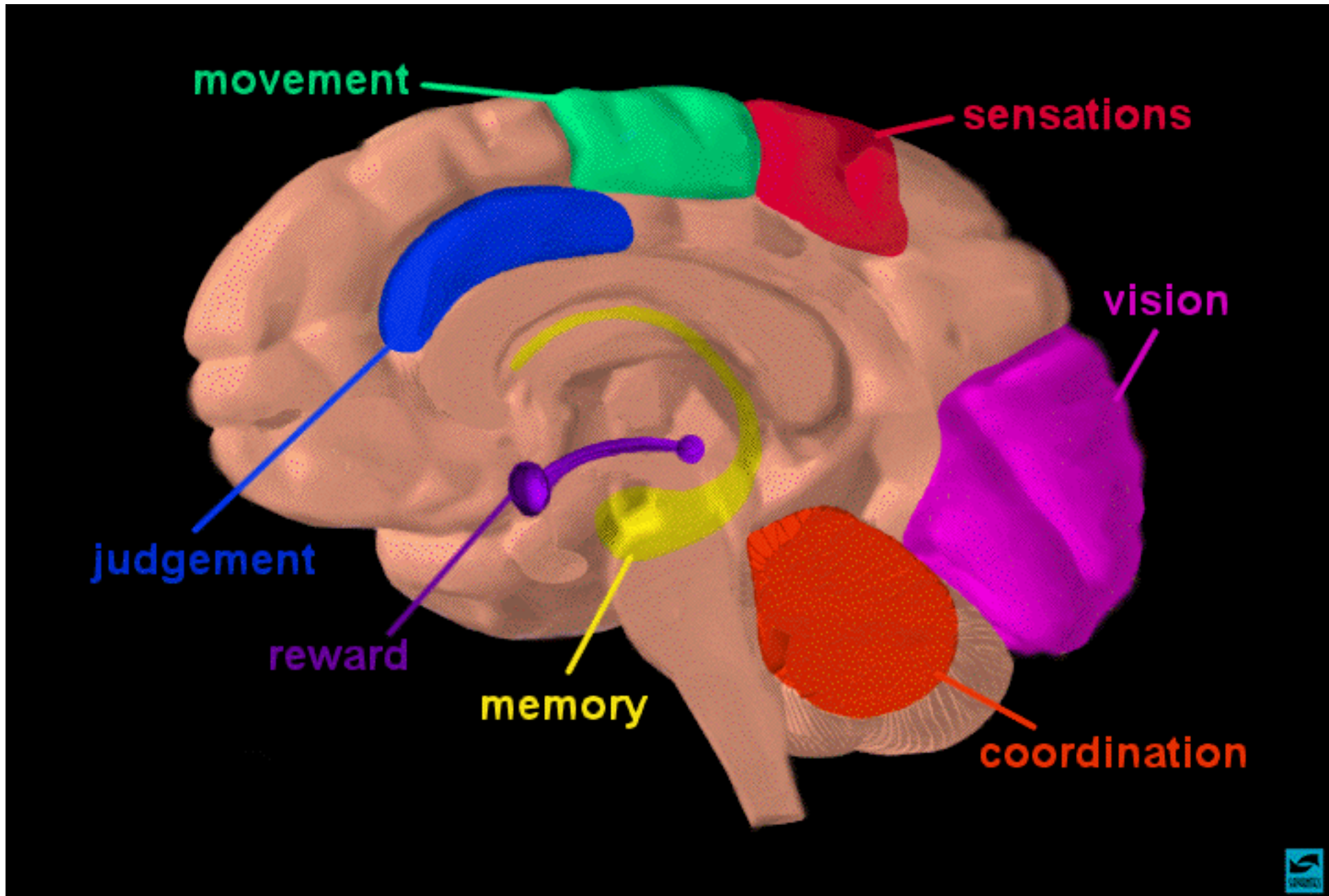
- Sites of action
- Memory
- Psychological vulnerability

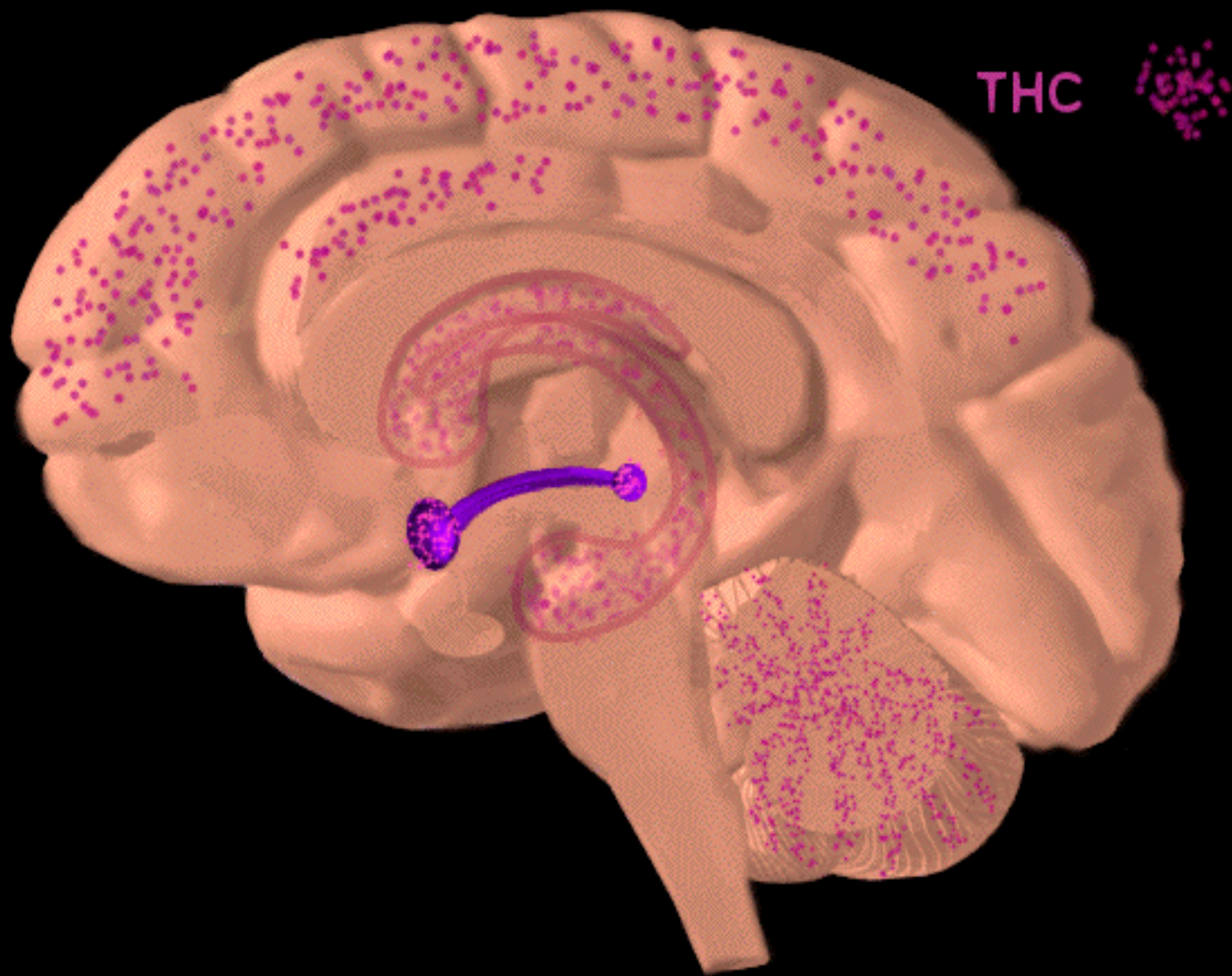




Mechanisms of Action

- Produces anticipated and unanticipated effects binding with receptors
- High-affinity sites specific for Cannabinoids
- Two receptors CB1 And CB2





Human Memory



- Most profound effect on recent memory
- Long term memories not affected
- Incapable of functioning on the basis of knowledge regarding his personal life

More on Memory



- Hippocampus has receptors for endogenous “marijuana” (anandamide)
- Hippocampal damage is associated with failure to make new memories
- If stimulate receptor, hippocampus activity decreases



More on Memory

- With repeated use, tolerance to loss of memory develops
- With repeated use, tolerance to drug develops and user uses more drug
- You do the math



Post Acute Effects

- Human aggressive responding
- Conditions
 - Provoke subjects coming off drug
 - Provide opportunity to retaliate
 - Measure amount of retaliation
- Acute Marijuana, Ss with ASPD
 - Increased aggressive responding

Persistent and Chronic Effects



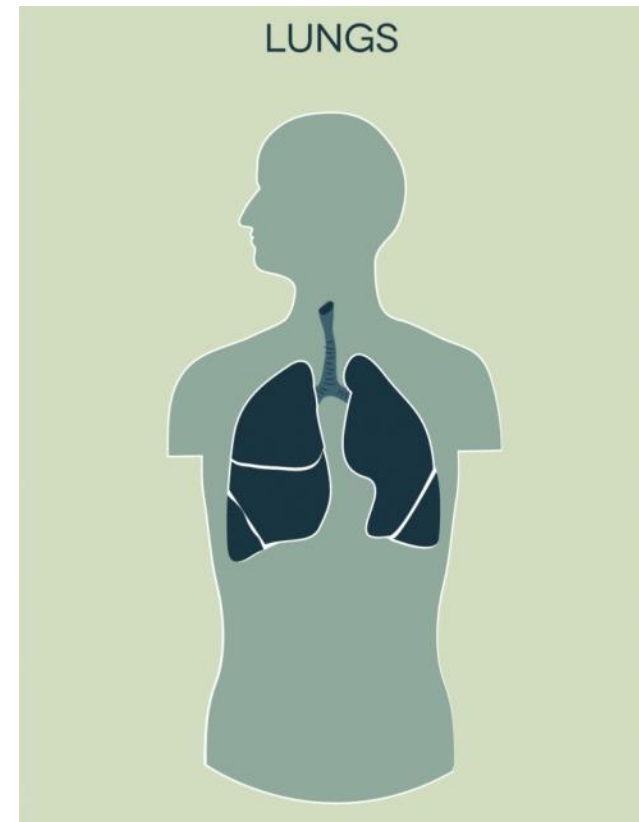
- Physical
- Psychological

Physical

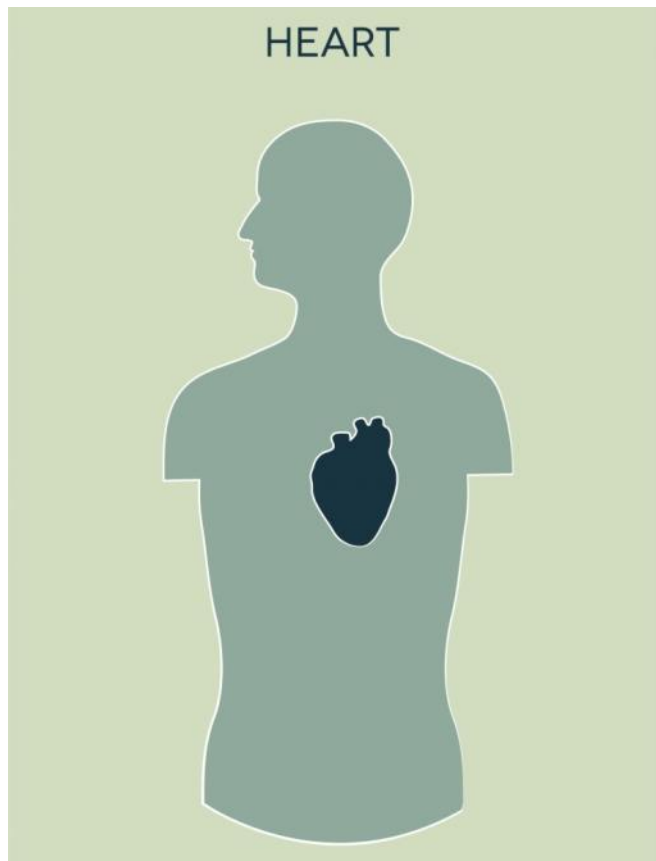


■ Respiratory

- Carcinogenic components
- Air obstruction
- Decreased exercise tolerance
- Chronic cough
- Bronchitis
- Decreased pulmonary function
- Cancer



Physical



- Cardiovascular
 - Increases in heart rate
 - Can aggravate existing cardiac conditions or hypertension
 - Reversed with abstinence

Physical



■ Reproductive

- Inhibitory effects on pituitary leutenizing hormone, prolactin, and growth hormone
- Decreases plasma testosterone, sperm count and motility
- Marijuana is antiandrogenic with decreased libido or impaired fertility
- Disrupts female reproductive system
- Impacts pregnancy in adverse ways

Physical



- Immune impairment
 - Contradictory in human studies
 - Animal models show impairment
 - Decreases signals to T helper cells
 - Interferes with macrophage antigen processing
 - May increase the risk of cancer (cancer surveillance system)

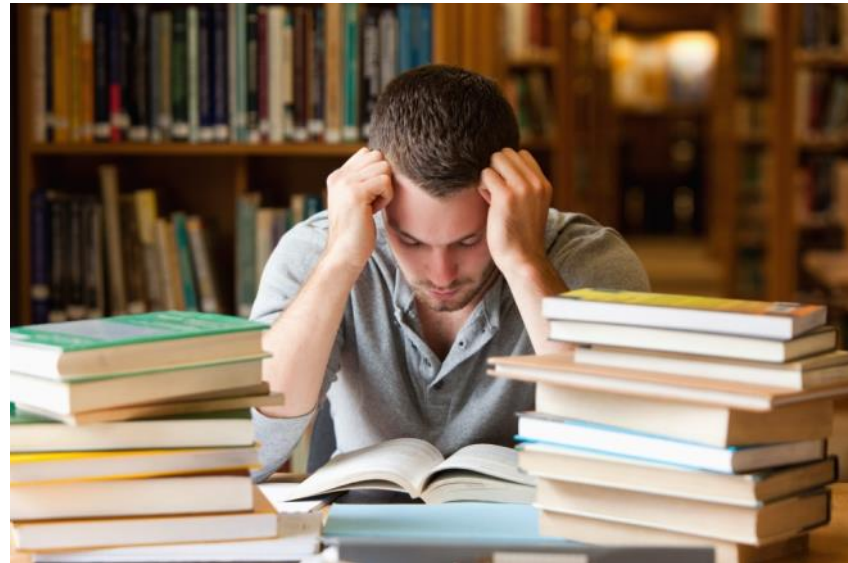


Psychological

- Psychiatric illness- no specific syndromes, however, may precipitate an illness
- Visual distortions
- Decrease in color discrimination
- Decrease in ocular tracking
- Decreased detection, recognition and analysis of peripheral visual field

Social Consequences

- Marijuana changes the way sensory information is processed
- Poor performance in school
- Increased delinquency





Psychological- Cognitive

- Impairment in ability to learn
- Listening and repetition learning compromised
- Heavy use associated with deficits in mathematical skill and verbal expression

Economic Consequences:



- Lost employee productivity
- Public health care costs
- Accidents and crashes
- Americans spent \$10.6 billion on marijuana purchases in 1999

MYTH 2: Marijuana Is Not Addictive



- Science of dependence and addiction
- Syndrome described



Laboratory Evidence

- Marijuana is much more powerful today than it was 30 years ago
- Marijuana addicts experience withdrawal
- There is an animal model for dependence

Absorption and Metabolism



- Self administration is by smoking and inhalation
- Can be taken orally





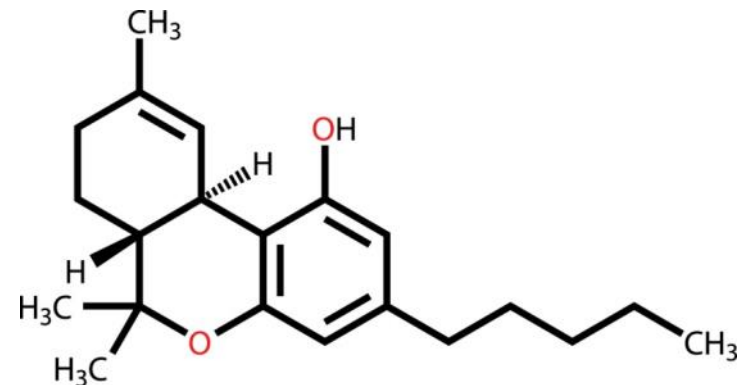
Absorption and Metabolism

- Smoke contains more than 150 compounds
- Many of the Cannabinoids have psychoactive properties

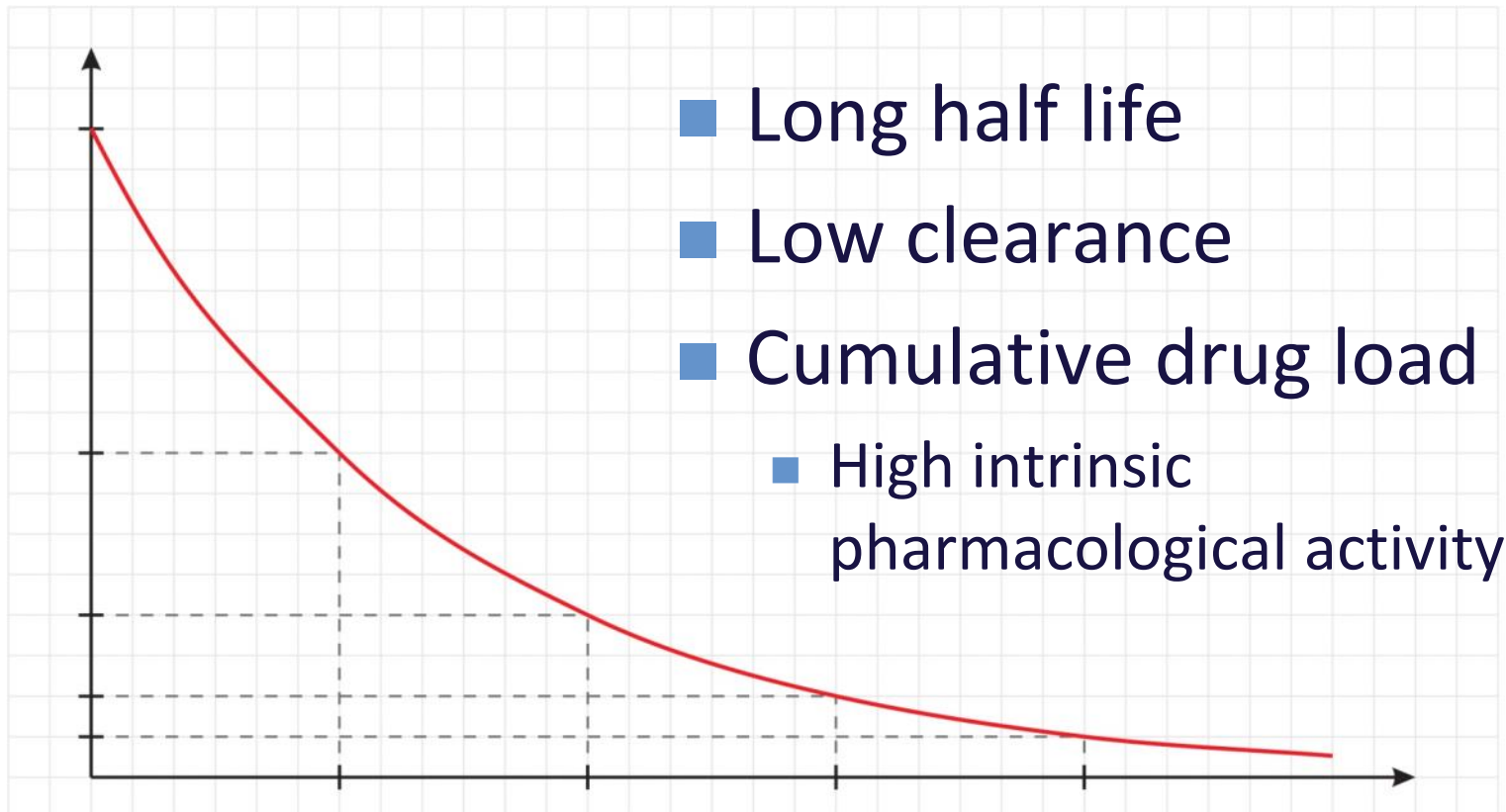


Pharmacology Is Complex

- Volatilized THC
- Deep inhalation
- Rapid absorption from the lungs
- THC and major metabolites traced throughout body and brain



Physical Dependence Producing Properties





Reinforcing Properties

- Rapid absorption
- High intrinsic pharmacological activity
- Rapid entry into specific regions of brain

Tolerance



- Extreme tolerance develops quickly and continues for a long time after stopping

Addiction Liability



- Reproducible tolerance
- Acute physical dependence
- Physical dependence

Syndrome Described

- Insomnia
- Abstinence
- Nausea
- Anorexia



Syndrome Described



- Agitation
- Restlessness
- Irritability
- Depression
- Tremor

Syndrome Described



- After 21 days of heavy use
 - Onset 10 hours of cessation
 - Peaks within 48 hours
 - Terminates by fifth day of abstinence



Clinical Observations

- Antisocial problems associated with progression
- One in ten who try develop dependence

MYTH 3: Youth Experimentation With Marijuana Is Inevitable



- Peer to peer spread has been misunderstood
- The majority of young people do not use
- Recent decreases belie the belief that “nothing works”

MYTH 4: Criminalization Leads to Crime, Not the Drug



- Research links
- Why non-dependent use is harmful
- When controls are lifted, harms are increased

Research Links



- Marijuana use and violence
- Availability increases use
- The Dutch experience
- Prison data
 - Numbers of those serving time
 - Percent dealers





Responsible Public Policy

- Stopping Initiation
- Brief and Early Interventions
- Treatment Improvement
 - Denial Gap
 - Motivation Gap
 - Treatment Gap
 - Recovery Gap

When Controls Are Lifted



- Drug Culture Messages
 - Drugs can't hurt you
 - Drugs are fun
 - You can use responsibly
- 1970s experience



During the 1970s

- 11 states decriminalized marijuana
- 30,000 head shops
- “Responsible-use” messages
- Drinking age of 18
- Sale of cigarettes, alcohol to teens



By 1979:



- 35 percent of adolescents
- 65 percent of high school seniors
- 70 percent of young adults had tried an illicit drug



Prevention Messages

- Drugs can hurt you
- Drugs cause addiction and death
- Drugs are not healthy
- Breaking the law is not responsible

Parent Movement



- Formed 3,000 parent groups
- Stopped decriminalization
- Banned head shops

Parent Movement



- “No-use” messages
- Drinking age of 21
- Worked to stop sale of cigarettes, alcohol to adolescents



Results From 1979 to 1992...

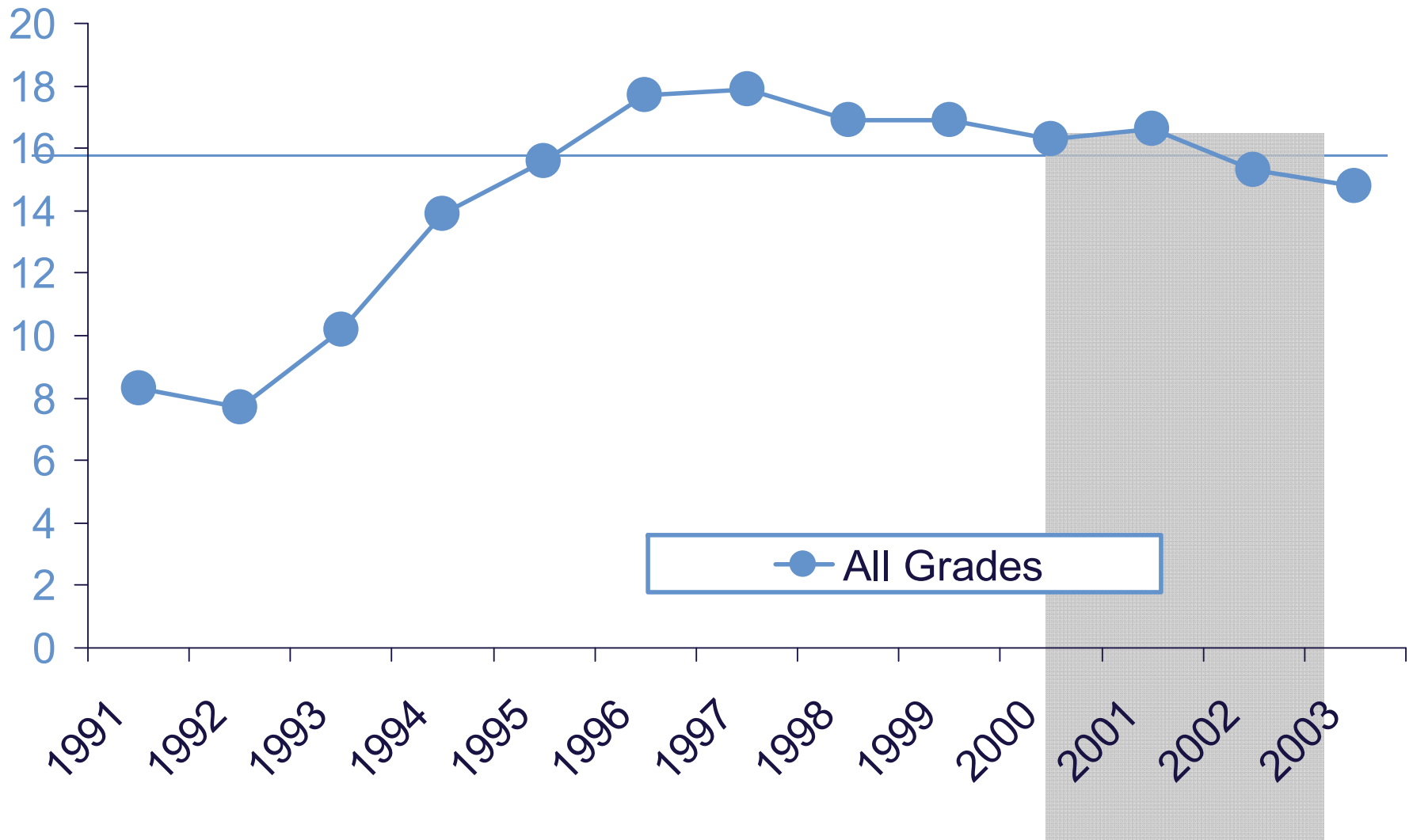


- Drug use drops by 2/3 among adolescents, young adults
- Daily marijuana use drops 500 percent

Fact: We Can Make A Difference



- When communities come together, the drug problem recedes
- Proven techniques can halt marijuana use:
 - Student drug testing
 - Parent involvement
 - Respect for community norms and laws
 - Science-based drug prevention



Source: University of Michigan, *Monitoring the Future Study*, 2003



Parenting

Identifying Risky Behaviors

Objectives



- Describe path to use, abuse, and dependence
- Explain developmental tasks of adolescence
- Explore parenting for development
- Understand variables to use



Objectives, continued

- Minimize enabling feelings, beliefs and behaviors
- Encourage growth and responsibility
- Outline potential consequences of potential insults
- Create recovery plan

Major Forms of Drug Use

- Alcohol Use
- Cocaine Use
- Hallucinogen Use
- Heroin Use
- Inhalant Use
- Marijuana Use
- Methamphetamine Use
- Sedative-Hypnotics and Anxiolytics Use





**STOP
Turn
Back**

**Community
Coalitions**

**SDFS
CSAP**

The Lure and the Trap

- Start to use drugs
- Pleasure experienced



Path to Addiction



- Innocent beginning
 - Minor effects
 - Pleasurable effects
 - Cannot “unlearn”
- Continued social use
 - Unpleasant effects diminish
 - Economic costs minimal
 - No interference with activities

Path to Addiction

- Line crossed
 - Consequences increase
 - Use to feel normal
 - Hard to connect experience to drugs
- Majority of students, no observable major consequences

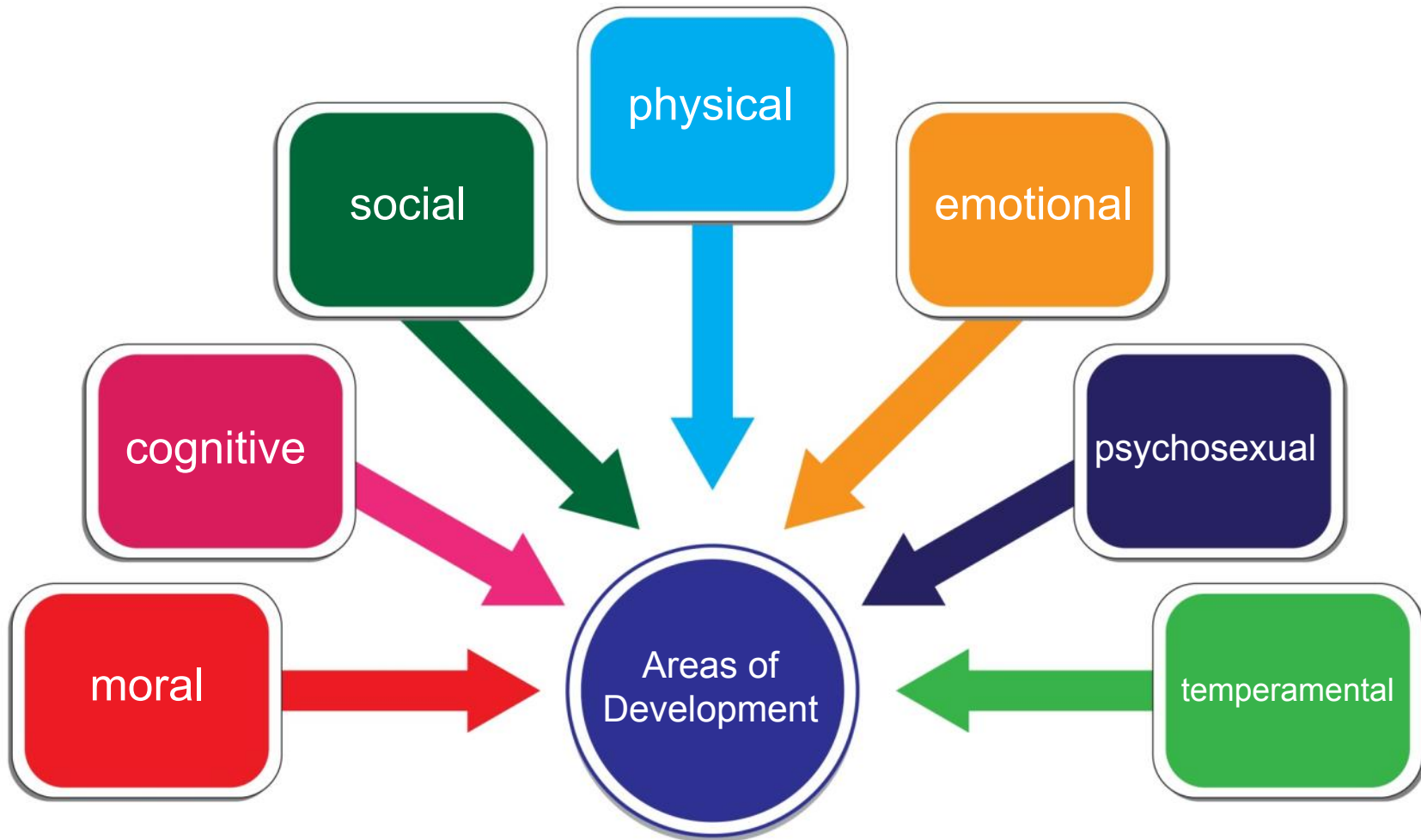


Why Use a Developmental Model?



- To assess
- To encourage and promote growth
- To understand

Seven Areas of Development





Four Tasks of Adolescence

- Seven areas translate into four major areas where major developmental tasks are defined as:



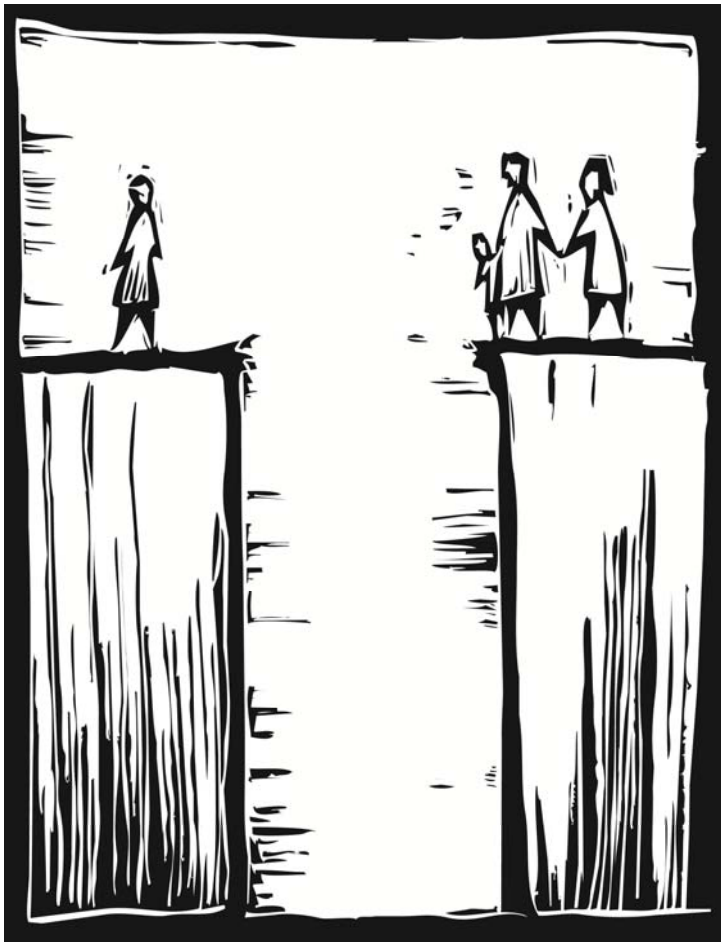
Goals of Development are Balanced by Preoccupations of Adolescence



- Sexual identity
 - Body image (fertility)
- Self identity
 - Friends
- Separation
 - Independence (family)
- Vocational selection
 - Value clarification (future)



Early Adolescence



- First efforts at separation
- Recognition of non-perfect parent and rebellion against them
- Strong identification with peers

Early, continued

- Abstract thinking
- Verbalization of values
- Mood swings
- Difficulty with impulse control
- Insecurity about body changes



Middle Adolescence



- Peak of rebellion
- Transition from parental to peer direction
- Increased sexual interest

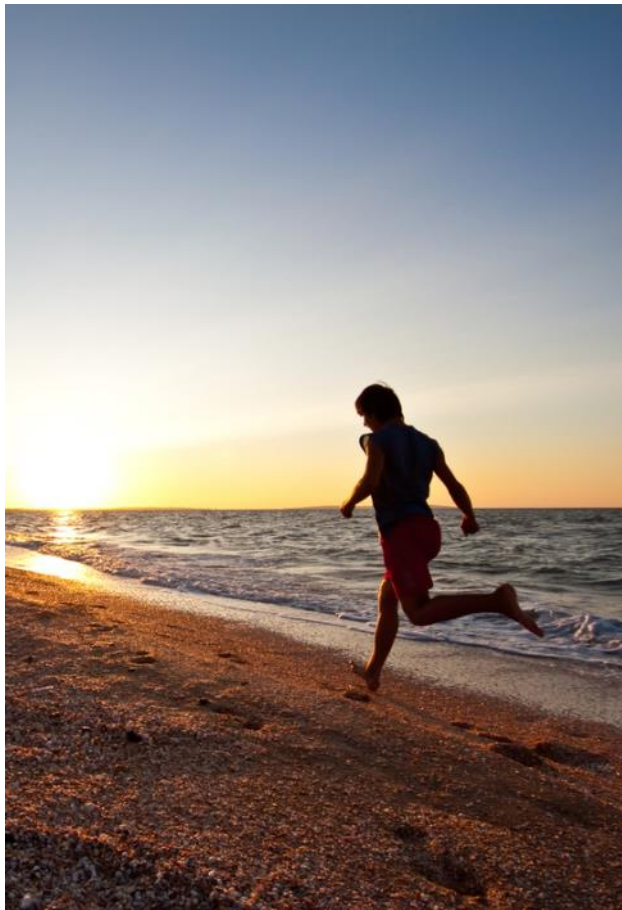
Middle, continued



- Difficulty with postponement of gratification
- Increased cognitive abilities
- Values clarification



Late Adolescence



- Firmer identity
- Increased ability to express emotions
- Increased ability to postpone gratification

Late, continued

- Resolution of relationship with authority figure
- Increased emotional stability
- Increased self reliance



Why Use a Developmental Model?



- To assess
- To encourage and promote growth
- To understand

Parenting



- Description
- Security v. Freedom
- Limits
 - Clear
 - Age Appropriate
 - Earned
 - Growth Oriented

Good Consequences

- Related
- Reasonable
- Timely
- Basic
- Escalate
- Consistently applied
- Calmly applied



Bad Consequences



- **Revengeful**
- **Self-punishing**
- **Empty**
- **Shaming**
- **Primary**

Why Kids Use: Contrasting Views



Parents

- School
- Parents
- Peers
- Pushers
- Media
- Police
- Role Models

Adolescents

- Feelings
- Fun
- Risk Taking
- Thrill Seeking
- Autonomy
- Experimentation
- New Identity

Variables to Experimentation



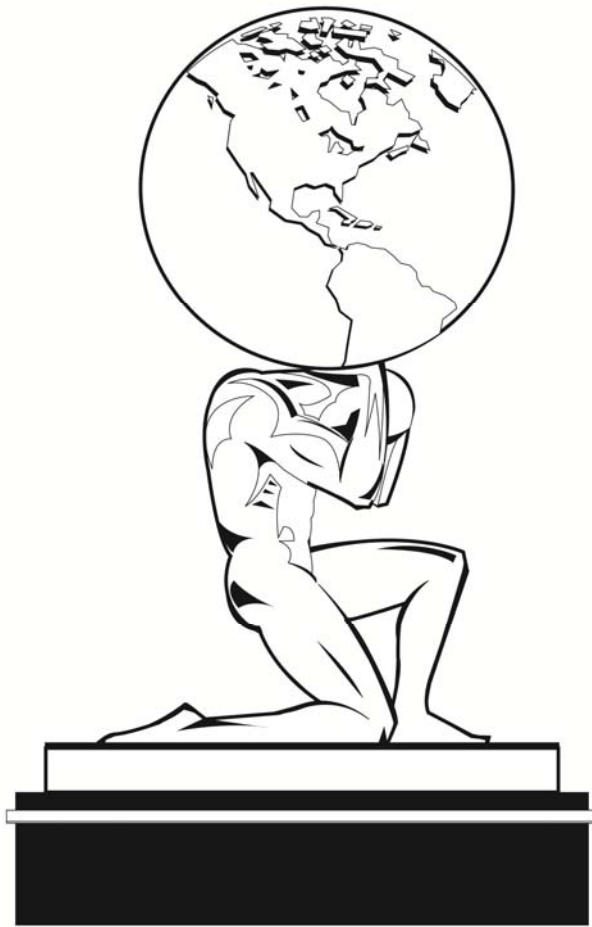
- Availability
- Access
- Perceived Risk
- Prior Use
- Peer Use
- Respect Norms

Enabling: Feelings

- Protective instinct
- Self-doubt
- Fear
- Performance anxiety
- Anger



Enabling: Beliefs



- Pressures are too great
- I am not relevant
- All kids do it
- I love, therefore, I trust



Enabling: Behaviors

- Keeping secrets
- Avoiding conflict
- Shielding from consequences
- Doing their work



Adolescents' Responsibilities



- Feelings
- Behaviors
- Performance
- Social life
- Outside life
- Future



Teaching Adolescents



- Modeling
- Reinforcement
- Consistency
- Encouraging
- Patience
- Allowing mistakes



Consequences Early

- Ambivalence about separation
- Persistent anger
- Self harming behaviors
- Rebellious peers/subculture
- Doubts



Early, continued



- Frustration and isolation
- Inability to deal with the abstract
- Confusion
- Inability to learn from experiences

Consequences, Middle



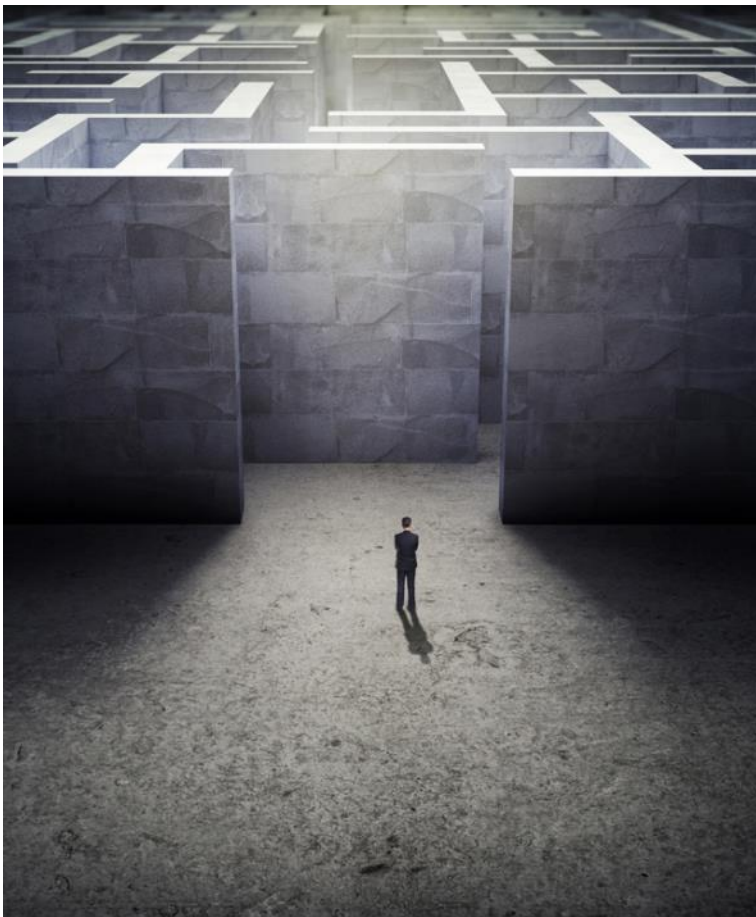
- Struggles with parents
- Self involvement
- Peer approval seeking
- Active sexual fantasy life

Middle, continued

- Inability to postpone gratification
- Unable to abstract
- Poorly defined moral values
- Inability to use wisdom and to evaluate situations according to appropriate values



Consequences, Late

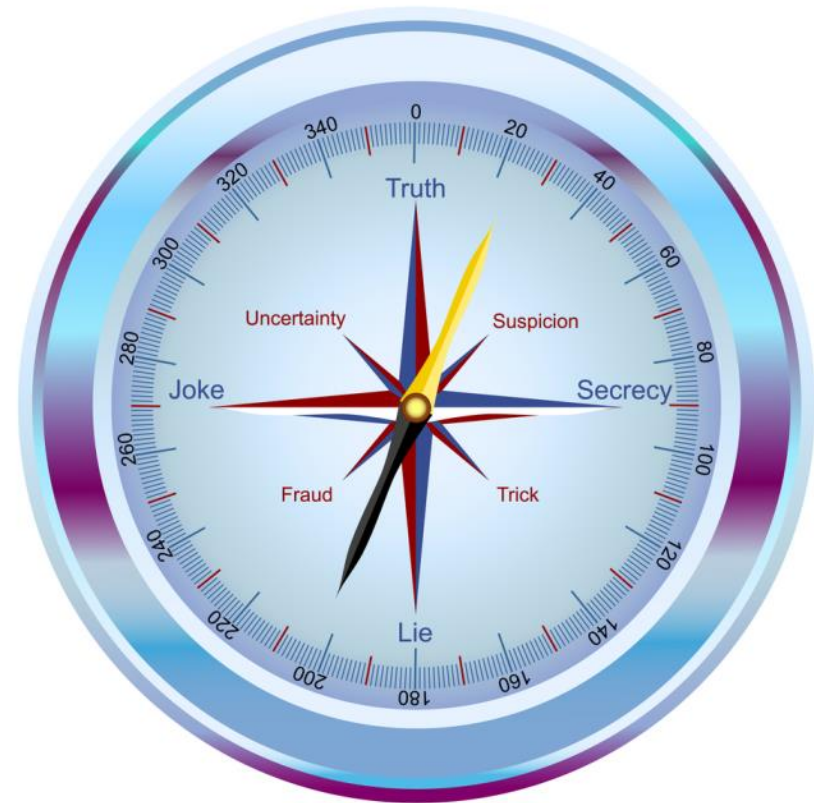


- Minor adult disturbances
 - Unresolved relationship and identity issues
 - Expression stunted
 - Unable to postpone gratification
 - Persistent emotional instability
 - Personal responsibility lags
 - Ability to make choices confused

Late, continued



- Mood swings
- Difficulty in defining vocational goals
- Deficits in formulation of moral, religious, and sexual values



Model Treatment Programs

- Bio-behavioral assessment
- Detoxification considerations
- Counseling
- Medical treatment
- Psychiatric care
- Referral to wrap around services
- Long term follow-up





Resources

- ASAM website for PPC
(<http://www.asam.org/publications/patient-placement-criteria/ppc-2r>)
- NIDA (<http://drugabuse.gov/>)
- Two Dreams (<http://www.twodreams.com>)
- Dr. AGB (<https://twitter.com/dragb>)
- Dr. AGB Goes to Back Rehab
(<http://drbarthwell.wordpress.com/>)
- The Challenge in Higher Education: Confronting and Reducing Substance Abuse on Campus
(https://www.ncjrs.gov/ondcppubs/publications/pdf/challenge_higher_ed.pdf/)



Thank You!

Questions?