

Marijuana

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No Conflicts of Interest

DON'T LET MICHIGAN MISS THE MARKET.

\$1.53 BILLION:

THE AMOUNT THE NATIONAL LEGAL MARIJUANA MARKET IS WORTH

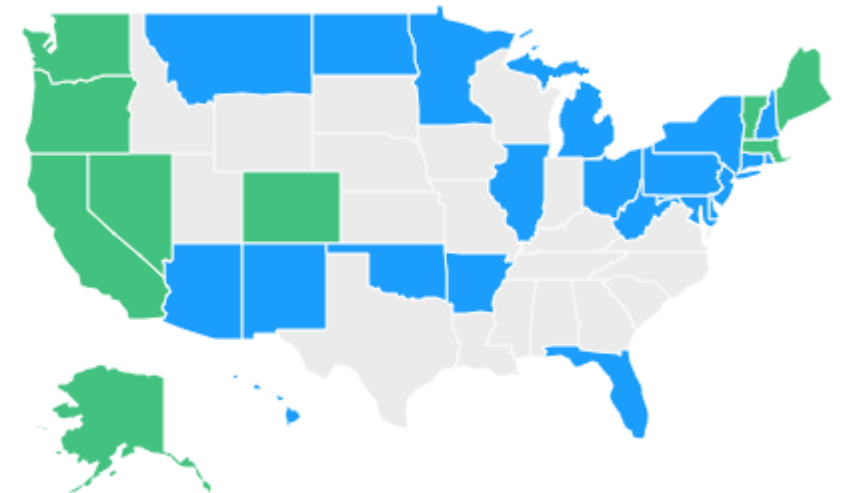
\$10.2 BILLION:

THE ESTIMATED AMOUNT THE NATIONAL LEGAL MARIJUANA MARKET WILL BE WORTH IN FIVE YEARS

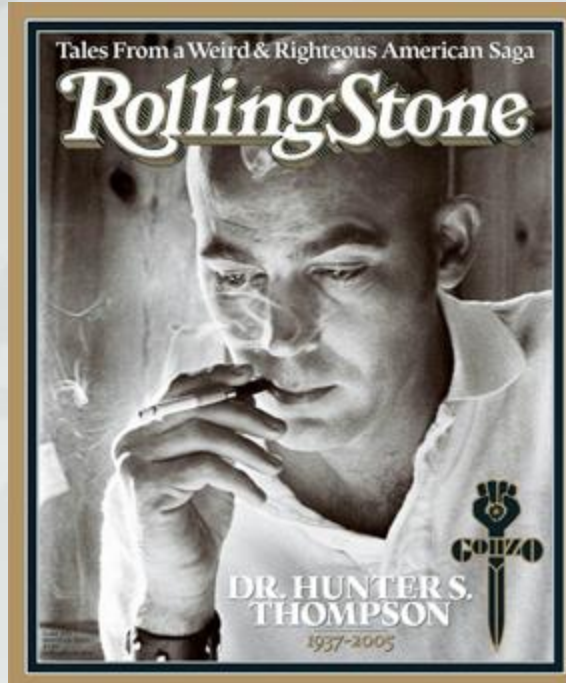
Source: Nov. 2013 report from ArcView Market Research, a San Francisco-based investor group focused on the marijuana industry.



States and their marijuana laws



- Legal medical and recreational marijuana
- Legal medical marijuana



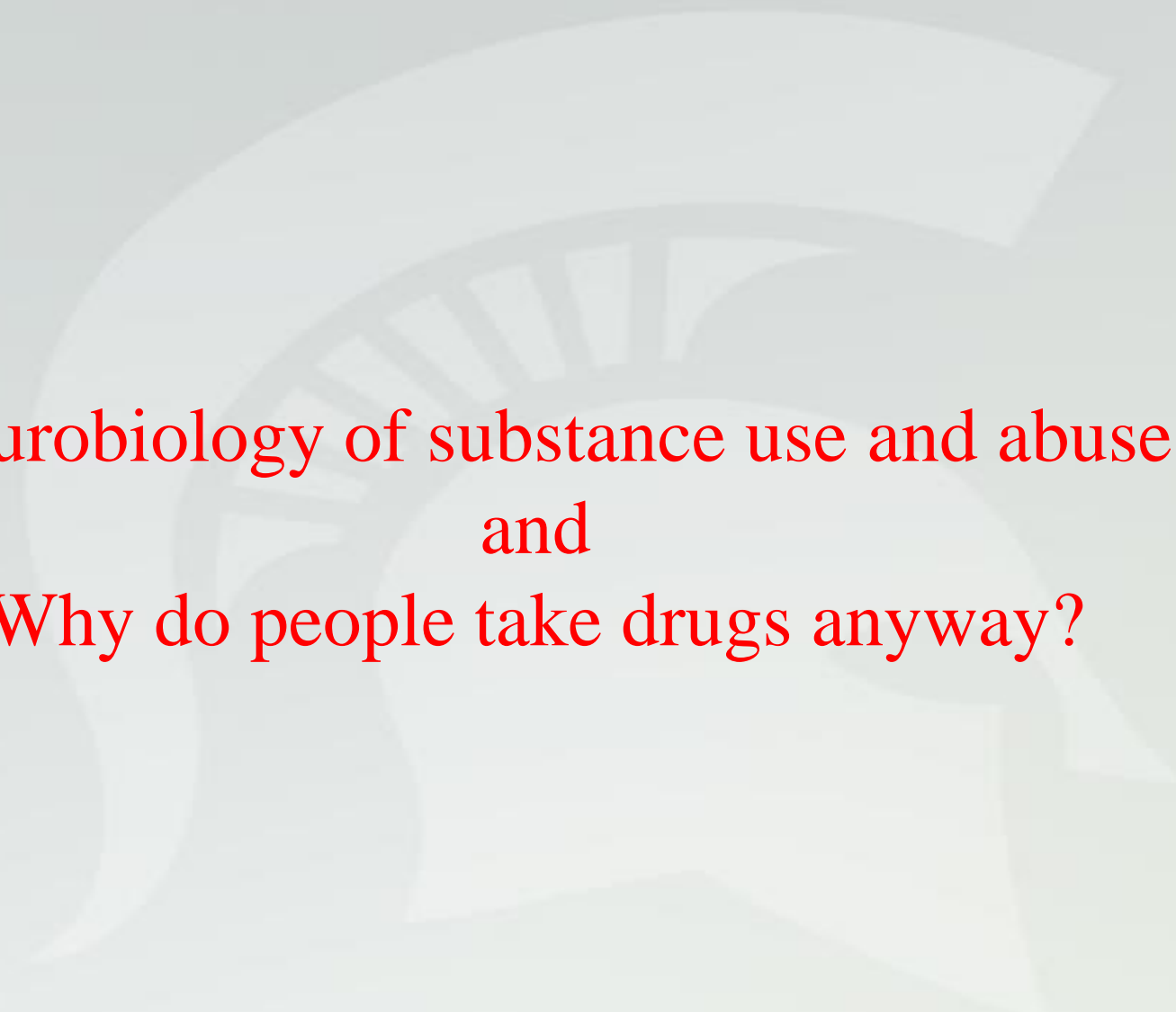
"I hate to advocate drugs, alcohol, violence or insanity to anyone, but they've always worked for me."

Hunter S. Thompson

Public discussion about legalization is less informed by what we know than by what people wish and believe

or.....





Neurobiology of substance use and abuse
and
Why do people take drugs anyway?

Transitions to chronic substance use

- voluntary use in search of a hedonic experience
- loss of control over this behavior
- habitual and compulsive behavior

Rewards!

increase dopamine levels in nucleus accumbens

Nucleus accumbens ~ Ventral striatum

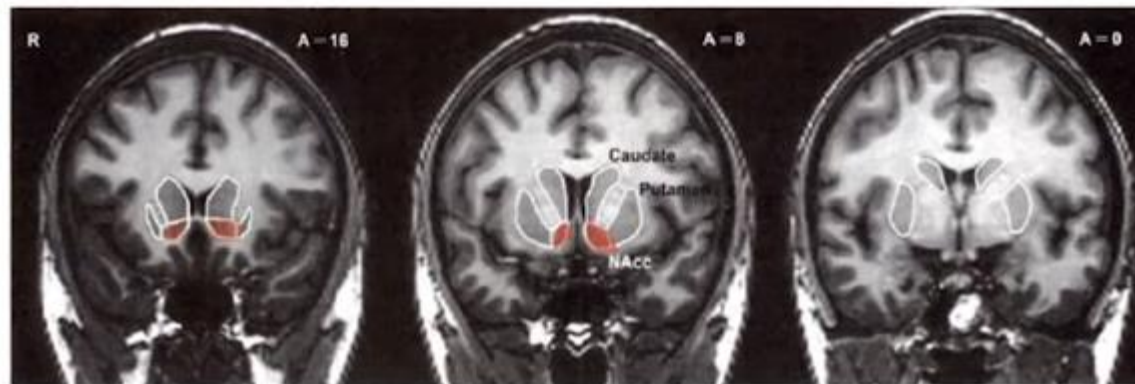


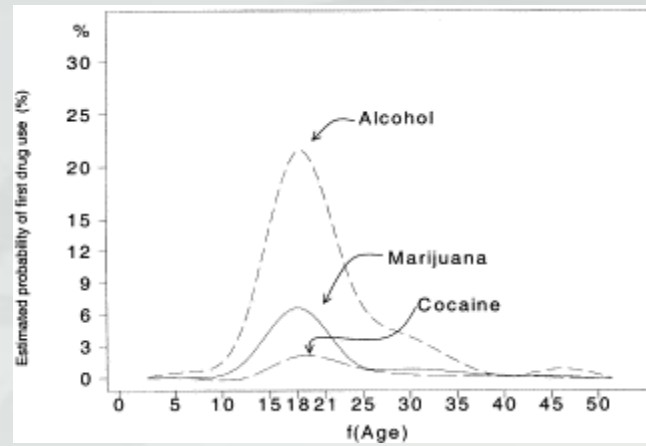
FIGURE 25.2 Nucleus accumbens (NAcc), caudate, and putamen. (as specified by Breiter *et al.*, 1997.)



Anything that causes pleasure elevates dopamine levels

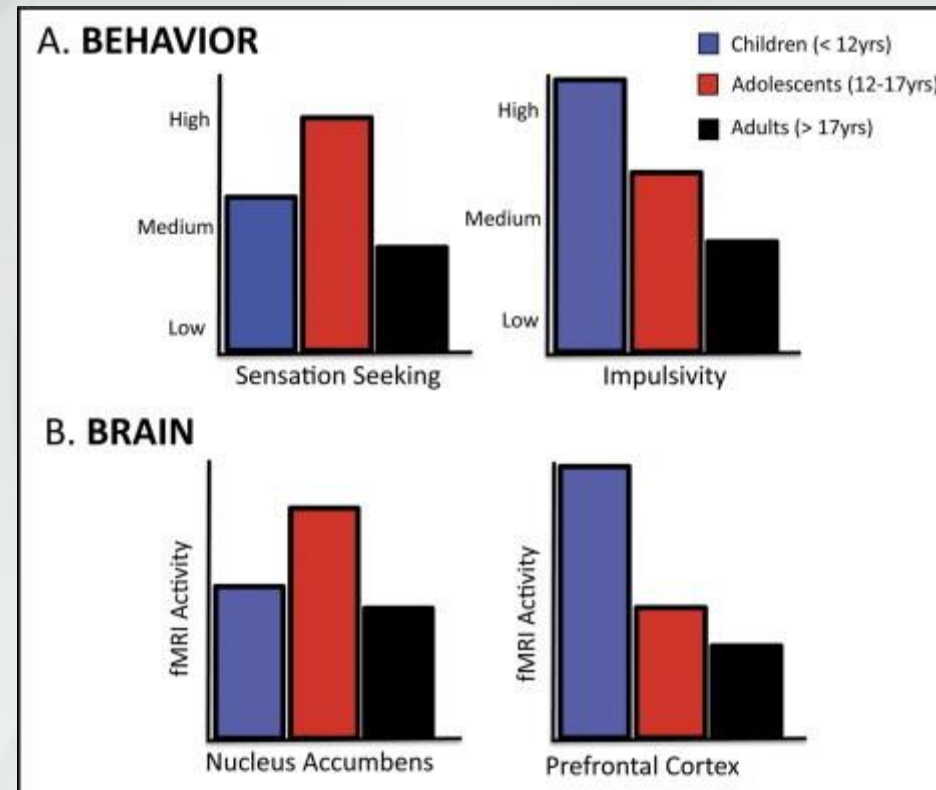


Adolescents and Adult Brains are Different



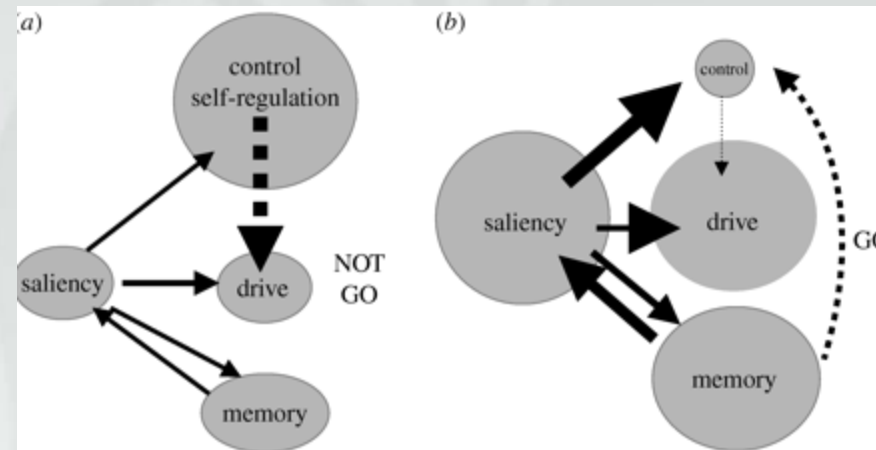
Estimated age-specific risk for first use of selected drugs.
Data from the U.S. National Comorbidity Survey, 1990-92.

Wagner F and Anthony J. **From First Drug Use to Drug Dependence: Developmental Periods of Risk for Dependence upon Marijuana, Cocaine, and Alcohol** *Neuropsychopharmacology* (2002) 26 479-488



Response to reward choices

Neurobiology of the Adolescent Brain and Behavior: Implications for Substance Use Disorders.
Journal of the American Academy of Child and Adolescent Psychiatry. 49:12 December 2010



Volkow N, Wang G-J, Fowler J, Telang F. Overlapping neuronal circuits in addiction and obesity: evidence of systems pathology *Philosophical Transactions of the Royal Society* 2008

What's in marijuana anyway?

D9-tetrahydrocannabinol (THC)

cannabidiol (CBD)

and a lot of other stuff....



Does marijuana cause psychosis?

THC =bad

CBD=good, maybe

Potential Medical Uses (Cannabidiol)

- control of some kinds of seizures
- pain relief

Marijuana use:

- probably not risky for periodic adult users
- a problem for any heavy user
- a potential problem for anyone under approximately 20
- a problem for individuals vulnerable to psychosis
- impairment
- gateway drug?