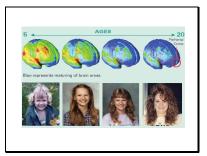
The Neuroscience of High-Risk Behavior:
Scientific Justification for
Marijuana Use Prevention

Crystal Collier, PhD, LPC-S
Therapist, Researcher, Educator

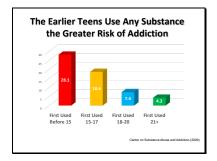
Slide 2

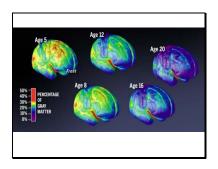


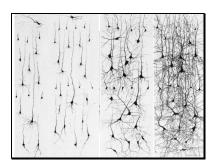
Slide 3

90% of adult addicts began engaging in the high-risk behavior when they were teens

Slide 4







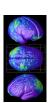
Executive Functioning

Elementary/Middle

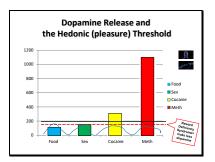
- Task Initiation
- Flexible Thinking
 Planning and Prioritizing
- Organization
- Working Memory
 Self-Monitoring
- Selective Attention Coordination
- Middle/High School
- Abstract; conceptual understanding
- Impulse Control
 Problem-Solving

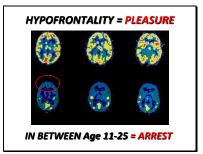
- Decision-Making
 Judgment
 Emotion Regulation
 Frustration Tolerance
- Ability to Feel Empathy

Slide 8

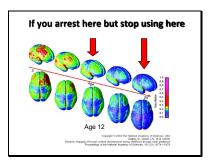


How do alcohol/drugs and other high-risk behaviors effect the brain during critical growth process?





Slide 11

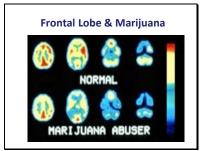






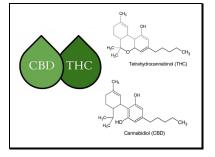
16 y/o — 2 year history of daily abuse. Underside surface view. Prefrontal and temporal lobe activity 18 y/o — 3 year history of 4 x week use. Underside surface view. Decreased PFC and temporal lobe activity

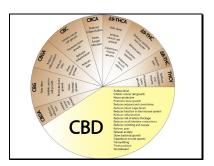
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Slide 14







Slide 17

MJ Affects Cannabinoid Receptor Sites All Over the Brain and Body

- Hippocampus: important for short-term memory.
- Cerebellum: controls coordination.
- Basal ganglia: controls unconscious muscle movements.
- Skin, immune cells, bone, organs, muscles, gastrointestinal tract



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Marijuana Extracts

Dabbing: Smoking Hash Oil resins extracted from the marijuana plant made with butane.

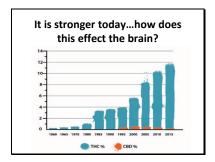
Wax, Ear Wax, Oil, Honey Bowl, Butter, Dabs, Shatter







Slide 19





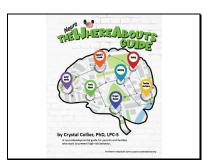
Summary	Level of Confidence in the Evidence for Adverse Effects of Marijuana on Health and Well-Being		
	Addiction to marijuana and other substances	High	
	Abnormal brain development	Medium	
	Progression to use of other drugs	Medium	
	Schizophrenia	Medium	
	Depression or anxiety	Medium	
	Diminished lifetime achievement	High	
	Motor vehicle accidents	High	
	Symptoms of chronic bronchitis	High	
	Lung cancer	Low	
		Volkow et al, 2014	



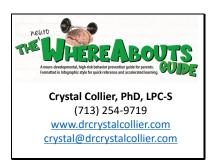
Slide 23







Slide 26



Slide 27

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