

The Truth About Methamphetamines

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Disclaimer



- ▶ Please note that this Power Point presentation is an educational tool that is general in nature. It is not intended to be a extensive review of methamphetamines as data and information on most substances changes frequently. The presenters are clinicians who work with women with methamphetamine use disorders. Materials in this presentation may encompass the use of other resources and will be cited appropriately at the close of the presentation.

Learning Objectives



1. The history of methamphetamines in the U.S
2. The impact of methamphetamines on the individual and community risk factors
3. Treating methamphetamine addiction
4. Strategies for helping pregnant and parenting women succeed in stopping and recovering from methamphetamine use.





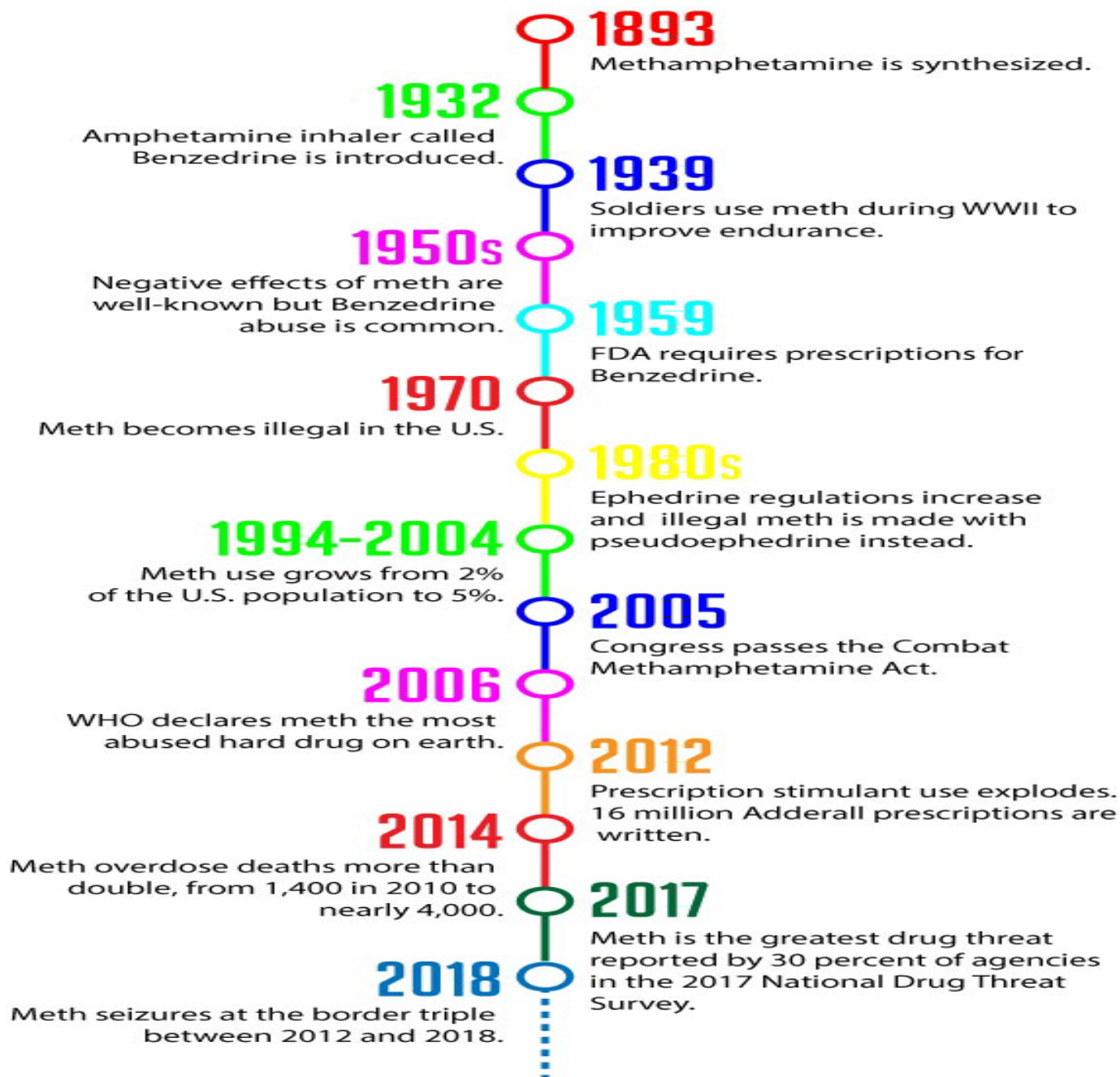
<https://www.mentimeter.com/>

History of Methamphetamine

- Amphetamine created in Germany in 1887
- Used widely during WWII by the Nazi and Japanese armies
- Japanese kamikaze pilots were documented to be high on meth
- Major challenge in postwar Japan
- Biker gangs in California after WWII began to distribute meth

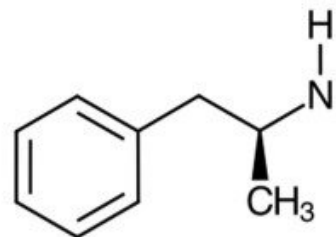


THE HISTORY OF METHAMPHETAMINE

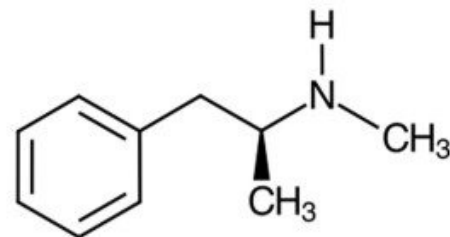


What is Methamphetamine?

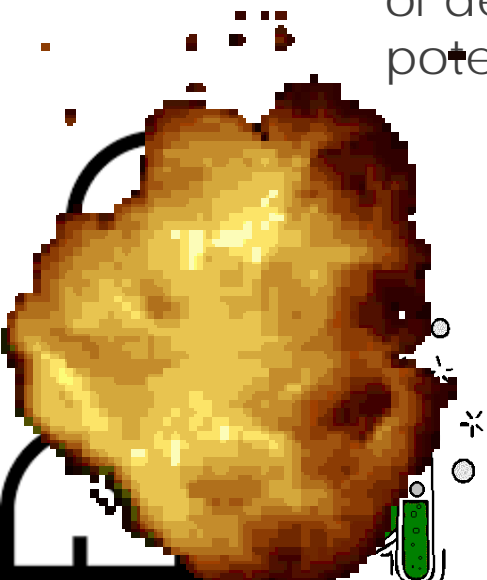
- ▶ Produced most commonly using the ephedrine/pseudoephedrine reduction method
- ▶ Meth is commonly manufactured in illegal, hidden laboratories, mixing various forms of amphetamine or derivatives with other chemicals to boost its potency.



(+)-amphetamine
(AMP)



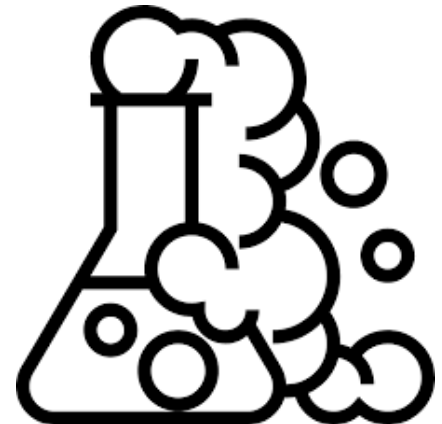
(+)-methamphetamine
(METH)



What is Methamphetamine?

Continued...

- ▶ Meth is a highly addictive drug made from a variety of toxic ingredients.
- ▶ Man made substance using common household chemicals
- ▶ Meth is a central nervous system stimulant, similar to cocaine.
- ▶ Meth produces a rush, followed by a state of agitation..





Highly Toxic Substances

Drain Cleaner



Battery Acid



Antifreeze



Over-the-counter asthma medicine containing ephedrine or pseudoephedrine



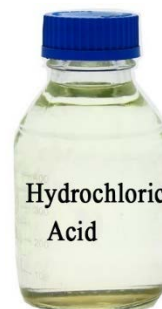
Match-box striker
(Red phosphorous)



Lantern Fuel



Hydrochloric Acid



Lye



What Does Methamphetamine Look Like?

- Typically an odorless powder that dissolves quickly in water
- Another form of meth is clear chunky crystals referred to as crystal meth or ice smoke-able meth which includes terms like Hanyak, Hironpon, Hiropon, Hot Ice, Cristy, Batu, Kaksonjae, LA Glass, LA Ice, Quartz, and Super Ice.
- May be in the form of small brightly colored tablets, referred to as YABA



Methamphetamine



Source – Novarecoverycenter.com

Methamphetamine Laboratories

AKA Meth Labs

- ▶ Contain dangerous chemicals which are potentially explosive.
- ▶ Meth cooks are typically individuals with substance use disorder problems who make a significant amount of money from meth sales.
- ▶ Cooking can cause severe burning , disfigurement and explosions that are dangerous



Methamphetamine Laboratories

AKA Meth Labs

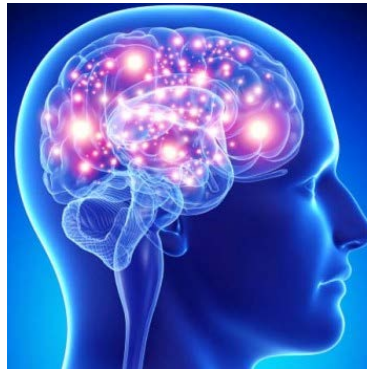
Continued...



- ▶ The illegal laboratories create a lot of toxic waste — the production of one pound of methamphetamine produces five pounds of waste.
- ▶ People exposed to this waste material can become poisoned and sick.
- ▶ Nearby homes or buildings along with health concerns for the community.

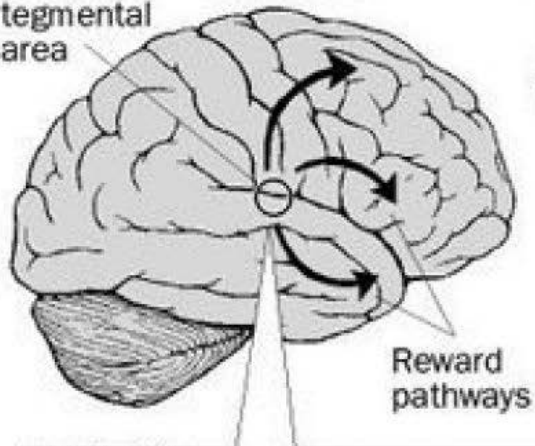
How Does Methamphetamine Work?

- ▶ Methamphetamine releases large amounts of dopamine in the brain, causing feelings of pleasure and euphoria.



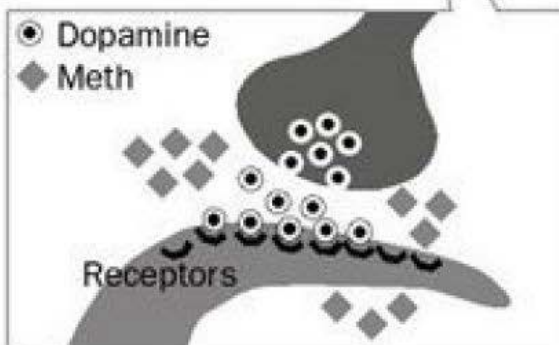
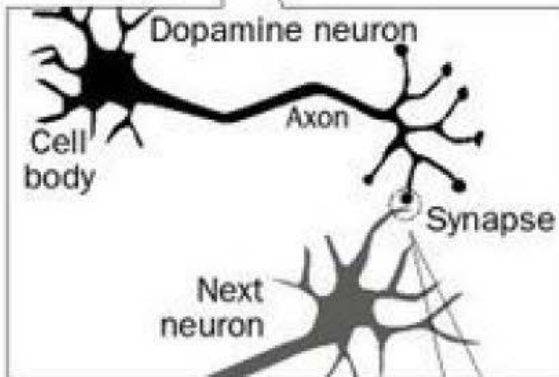
Source: National Institute on Drug Abuse. April 1998, Reprinted January 2002. Research Report Series: Methamphetamine Abuse and Addiction. www.nida.nih.gov/ResearchReports/methamph/methamph.html

Ventral
tegmental
area



How meth affects the brain

1. We feel pleasure when neurons in "reward pathways" release a neurotransmitter called **dopamine** into various brain areas.
2. Dopamine in the reward centers is released into the gap (synapse) between neurons, crosses to the next neuron and binds to receptors, providing a jolt of pleasure.
3. Methamphetamine stimulates the release of excess dopamine heightening the feeling of pleasure.



Source: NIH

Source: National Institute of Health (NIH)



The Reward Circuit

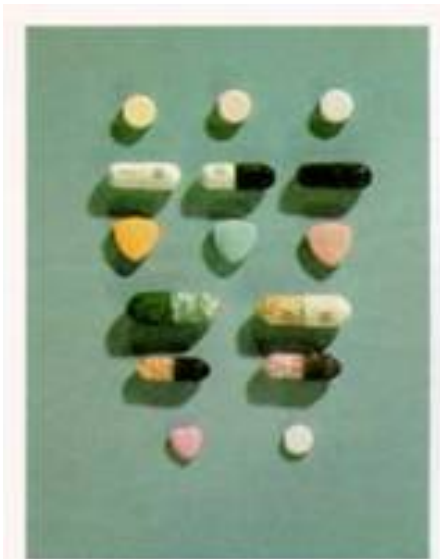
How the Brain Responds
to Methamphetamine

Craving for Stimulants is a Central and Very Powerful Component of Stimulant Dependence

- ▶ Classical conditioning and craving
- ▶ The brain and addiction
- ▶ Craving is automatic and creates a powerful push to use
- ▶ For many the craving seems overpowering and uncontrollable
- ▶ The craving is triggered by external (people, places, things, times of day) and internal (emotional states) stimuli
- ▶ Managing exposure to triggers and responses to triggers is important



Forms of Distribution



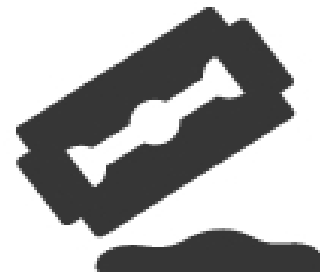
How is Methamphetamine Used?



SMOKED



INJECTED



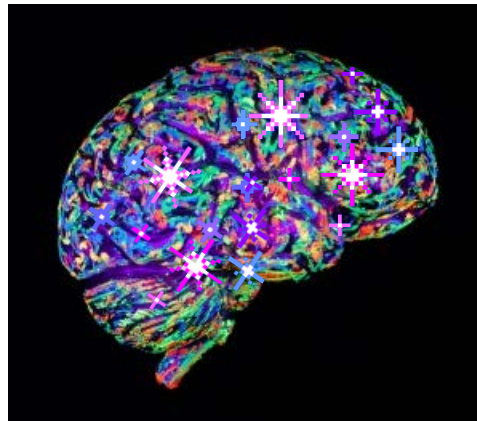
SNORTED



INGESTED

Why Methamphetamine

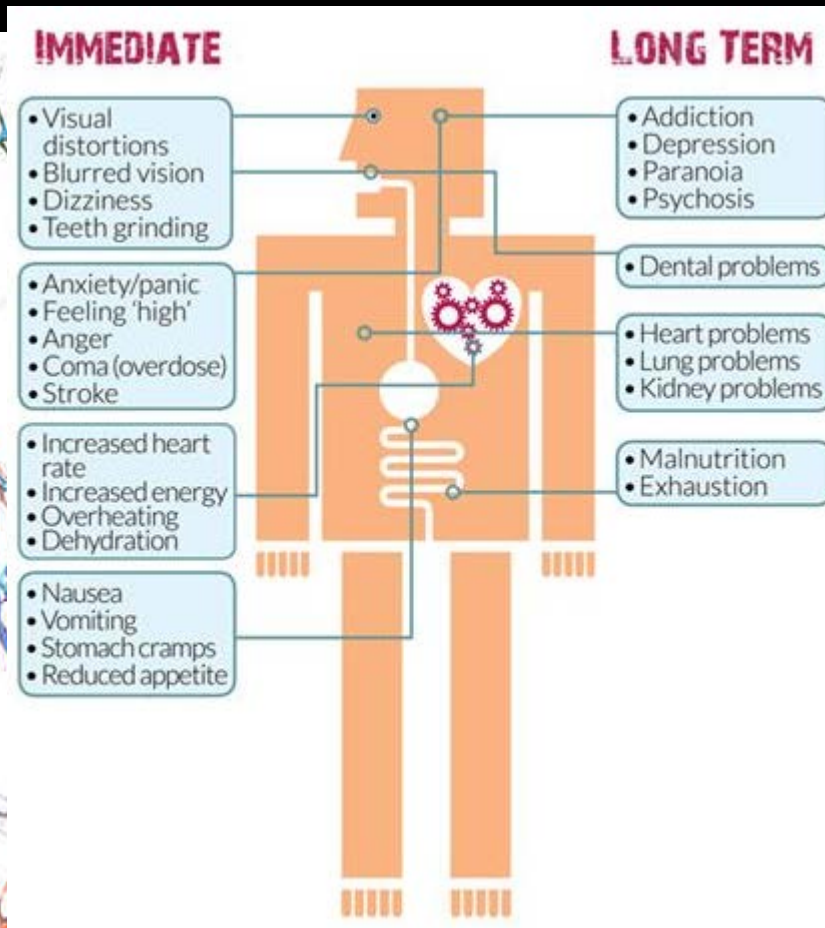
- ▶ Methamphetamine is three times as powerful as cocaine and is among the most difficult drugs to permanently quit.
- ▶ It triggers dependency faster than a majority of other illicit substances.
- ▶ Methamphetamine forces the brain to release an unnatural amount of dopamine at a given time, as well as norepinephrine, also known as adrenaline.
- ▶ The result is a rush, followed by a high. This chemical combination deeply affects the brain's limbic system, which is responsible for **emotion** and **memory**.





- ▶ People who use meth will often spiral into something called a binge, in which they become hyperactive and repeatedly dose with methamphetamine in hopes of maintaining the initial, euphoric high.
- ▶ This uncontrolled drug use will often decrease its potency, however, making achieving the high impossible.
- ▶ Many users continue to seek lines of meth to attempt to obtain the same high

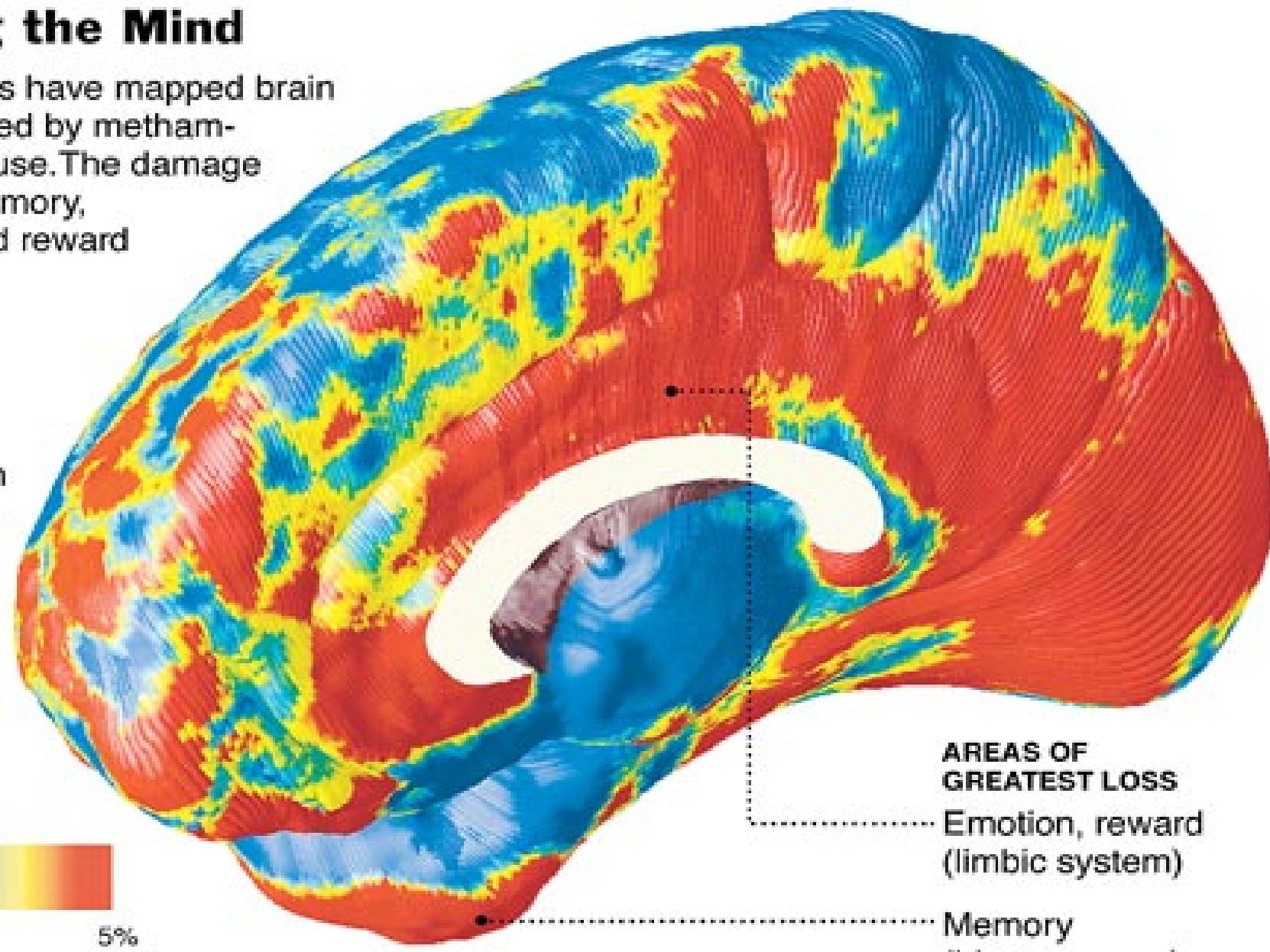
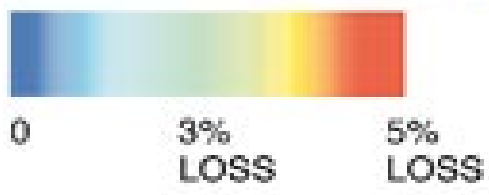
- ▶ Eventually, a user will stop experiencing a high and “tweaking” begins. While tweaking, a user feels emptiness and unease.
- ▶ Many people testify to feeling a loss of identity during this time. It is also common for users to experience hallucinations and extreme itchiness.
- ▶ Addicts at this stage are at high risk for self-harm.



Eroding the Mind

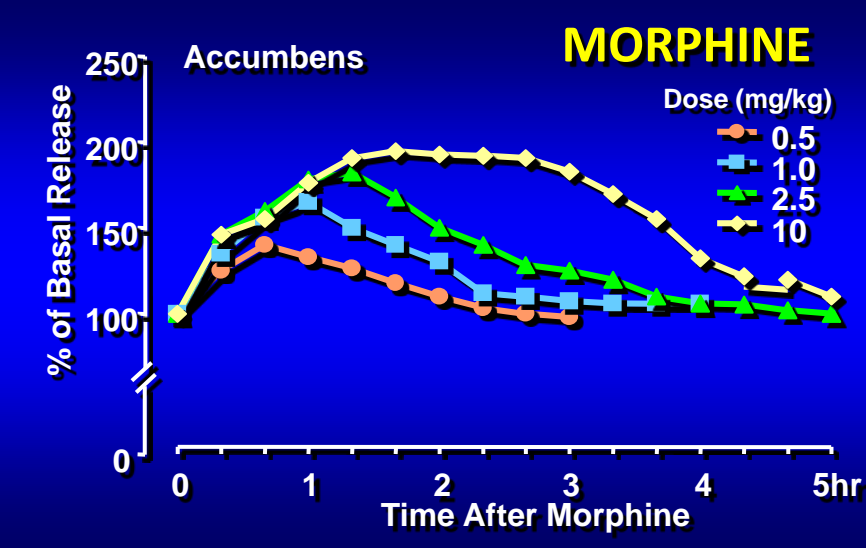
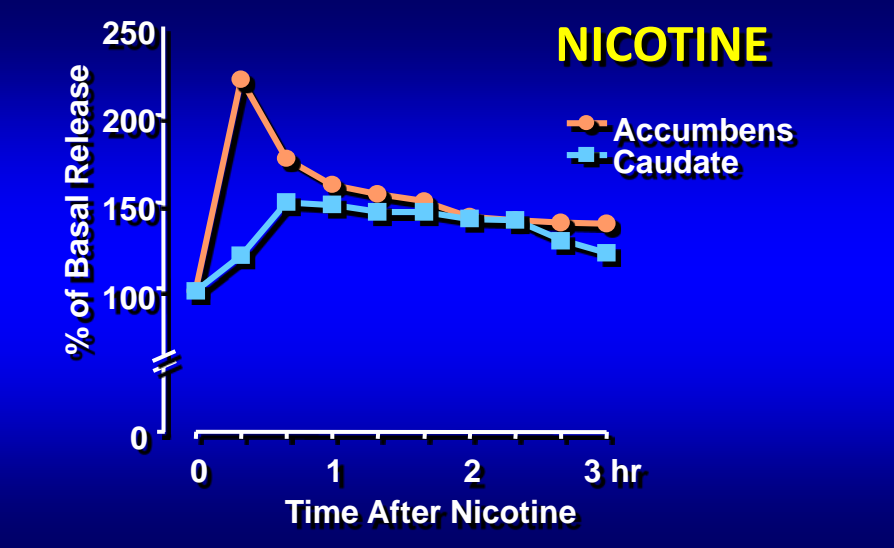
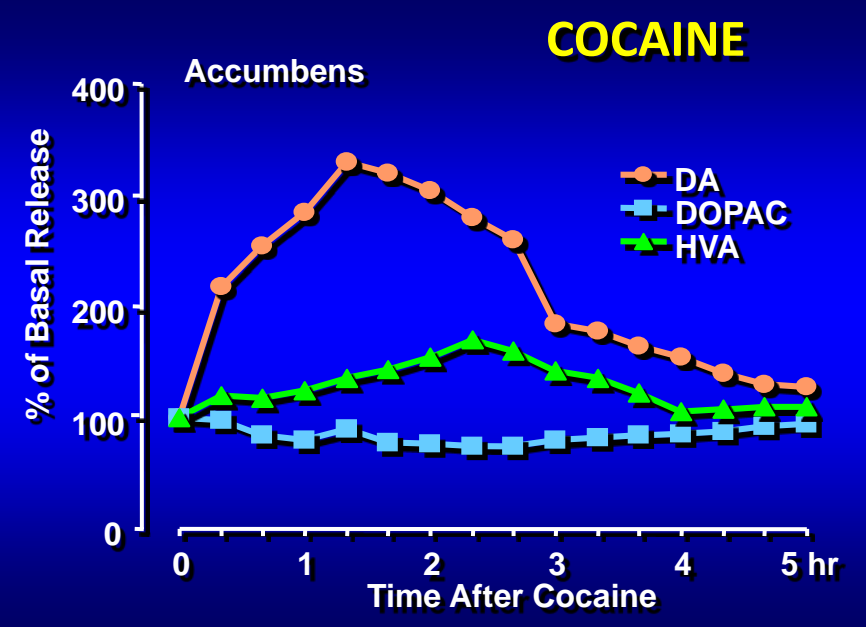
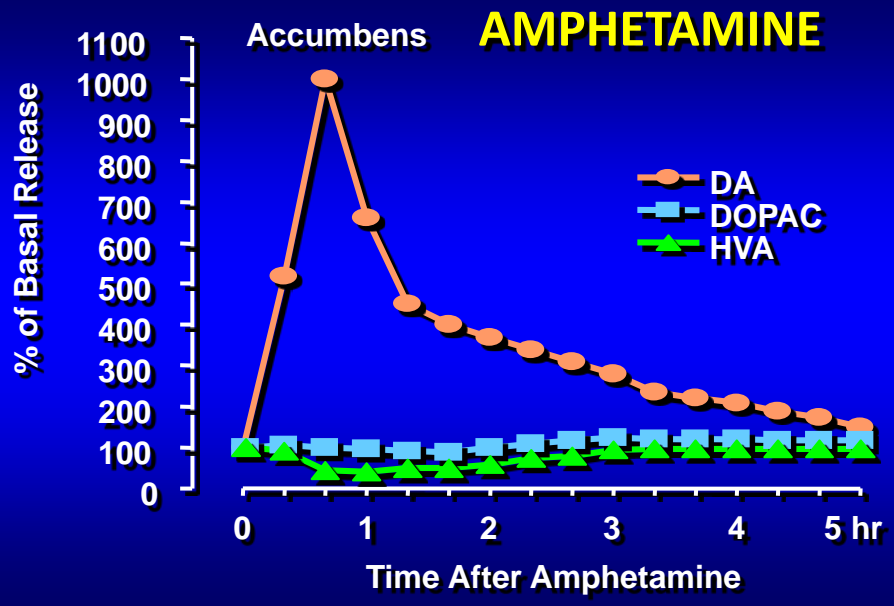
Researchers have mapped brain decay caused by methamphetamine use. The damage affected memory, emotion and reward systems.

Average difference in brain tissue volume of methamphetamine users, as compared with non-users:



AREAS OF GREATEST LOSS
Emotion, reward (limbic system)
Memory (hippocampus)

Effects of Drugs on Dopamine Levels



Effects of Methamphetamine Use

- Increased alertness
- Decreased appetite
- A distorted sense of well-being
- Effects that can last 8 to 24 hours

STIMULANTS

LEAD TO INCREASED...



ALERTNESS



ENERGY



ATTENTION



**HEART
RATE**



**BLOOD
PRESSURE**



**RESPIRATORY
RATE**

Behavior Changes

Health Changes

- ▶ Psychotic behavior
- ▶ Paranoia
- ▶ Aggression
- ▶ Anxiety
- ▶ Fatigue
- ▶ Depression
- ▶ Delusions
- ▶ Mood swings
- ▶ Confusion
- ▶ Insomnia
- ▶ Hallucinations

- ▶ Stroke
- ▶ Brain damage
- ▶ Weight loss
- ▶ Death



**DO NOT OR
CANNOT SLEEP**



**LOSS OF
APPETITE**



**LOSE A LOT
OF WEIGHT**



**UNUSUALLY
ACTIVE/
FIDGETS**



**ANXIOUS AND
NERVOUS**

Source: Congressional Research Sites

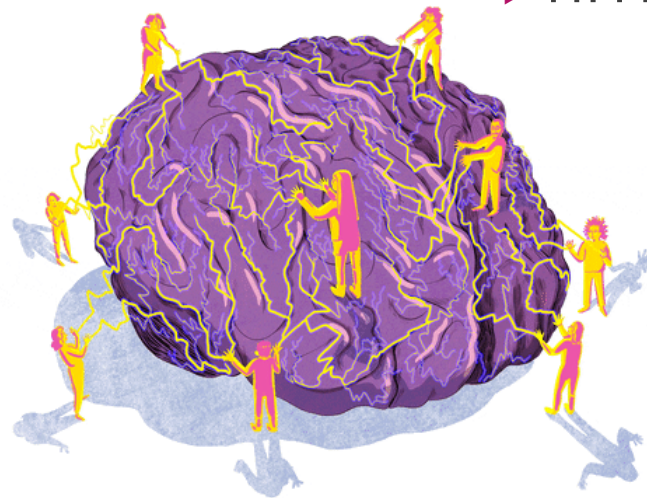
Methamphetamine - Acute Psychological Effects

► Increases

- Confidence
- Alertness
- Mood
- Sex drive
- Energy
- Talkativeness

► Decreases

- Boredom
- Loneliness
- Timidity



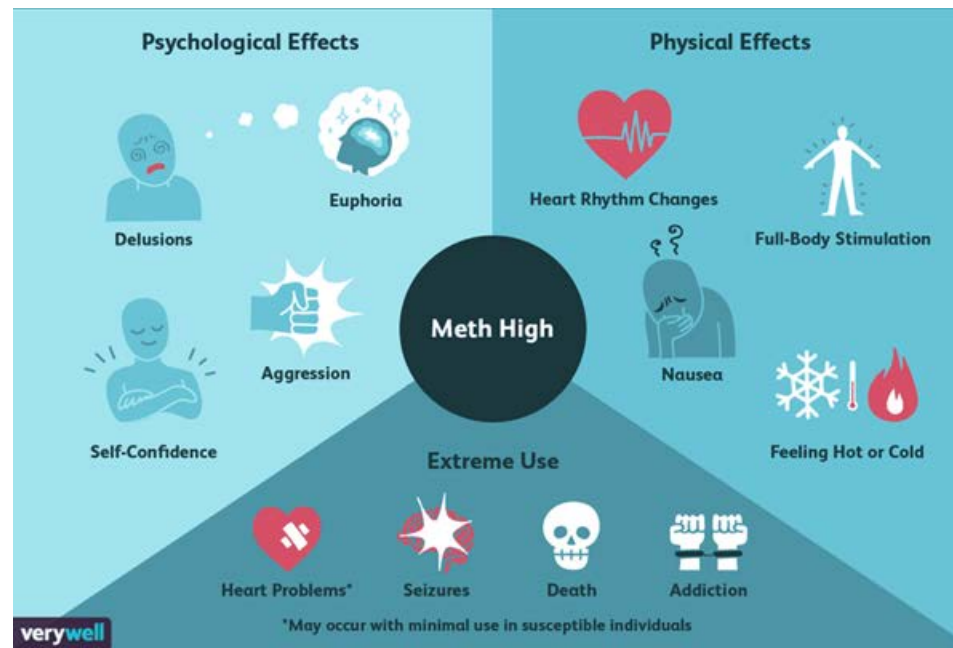
Methamphetamine - Acute Psychological Effects

► Increases

- Heart rate
- Blood pressure
- Pupil size
- Respiration
- Sensory acuity
- Energy

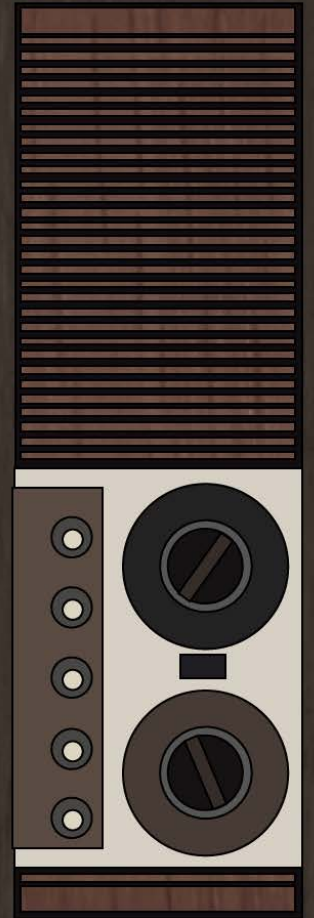
► Decreases

- Appetite
- Sleep
- Reaction Time





<https://www.youtube.com/watch?v=yjCwXqHZ8mE>



Treatment Approaches

- ▶ Counselor relationship
- ▶ Classes and discussion on other addictions; Physical Health Classes, Emotional Health Classes, Life Skills
- ▶ No judgment (Weight and Teeth)
- ▶ Support and motivation
- ▶ Specialized relapse prevention techniques
- ▶ Focus on the entire family
- ▶ Empathy



Clinical Challenges With Stimulant Dependent Individuals

- ▶ Limited understanding of Stimulant Addiction
- ▶ Ambivalence about need to stop use
- ▶ Cognitive impairment and poor memory
- ▶ Short attention span
- ▶ Anhedonia
- ▶ Powerful Pavlovian trigger-craving response
- ▶ Sleep Disorders
- ▶ Poor retention in outpatient treatment
- ▶ Elevated rates of psychiatric co-morbidity



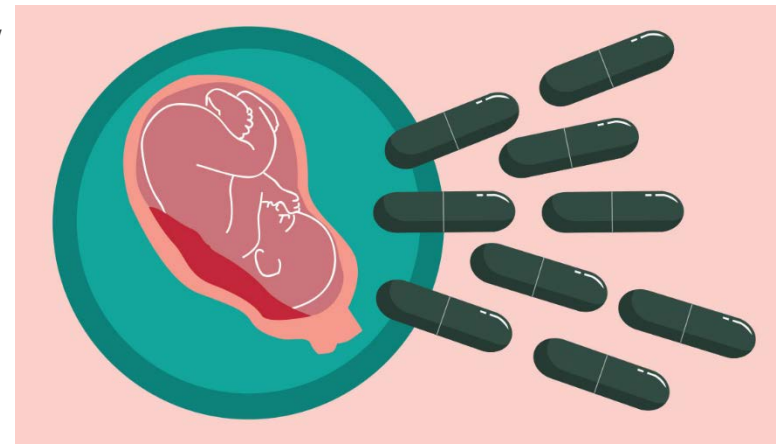
Key Points with Clinical Implications

- ▶ Powerful reflexive, conditioned cravings
 - ▶ Requires behavior change
 - ▶ Avoid drug using friends
 - ▶ Treatment session can trigger cravings
- ▶ Cognitive Impairment
 - ▶ With currently active users, memory is impaired
 - ▶ Long therapy session are pointless
 - ▶ Provide simple, redundant, information
 - ▶ Schedule. Write it down.



Methamphetamine Use & Pregnancy

- ▶ Studies suggest that stimulant use and physical effects of the use can cause miscarriages.
- ▶ Methamphetamine use can cause a greater chance of premature delivery prior to 37 weeks
- ▶ Babies born with poor growth
- ▶ Low birth weight
- ▶ Increase in blood pressure during pregnancy
- ▶ Placental eruption
- ▶ SIDS Sudden Infant Death Syndrome



Methamphetamine Use & Pregnancy

Continued...

- ▶ Babies can experience withdrawal when mother used excessively in last trimester
- ▶ Symptoms include trouble eating, sleeping problems
- ▶ Poor muscle control
- ▶ Breathing problems
- ▶ Children exposed to methamphetamine in embryo could have a higher chance of having a child with learning difficulties and behavior problems



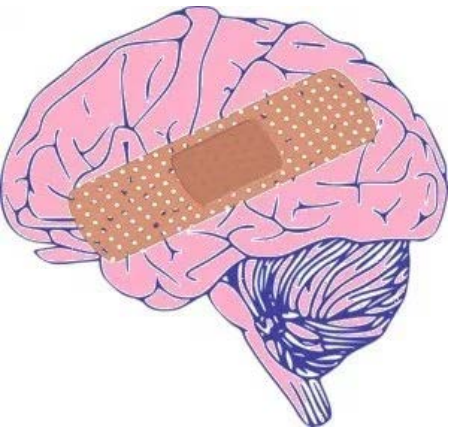


- Danger of children being exposed to toxic fumes
- Children are more at risk than adults to environmental hazards, as their bodies are immature
- Risk of explosion, fire, and chemical burns
- Exposure to weapons, finished drugs, and unsanitary conditions

More Impacts on Families



- Increase in child abuse and neglect cases
- Increased risk for substance abuse among children in later life
- A rise in domestic disputes
- Incarceration
- Trauma
- Greater risk of family cycle of abuse increasing



Approaches in Working with Women Who Use Methamphetamines

- ▶ Cognitive Behavioral Therapy
- ▶ Individual Counseling
- ▶ Weekly sessions on Women's Health related issues
- ▶ Trauma Groups
- ▶ Mindful Parenting/Temperance
- ▶ Contingency Management
- ▶ Mental Health Counseling
- ▶ Motivational Interviewing



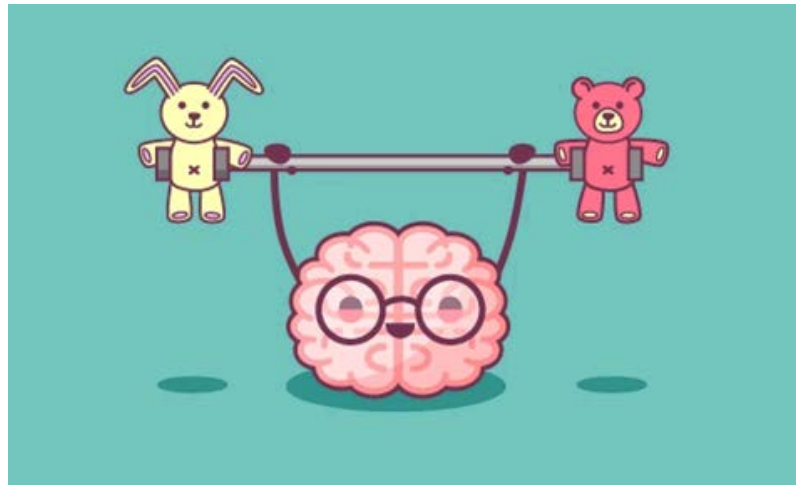
DON'T BE
*ashamed of
your story*
IT WILL
INSPIRE OTHERS

- ▶ Peer relationship vs. authority
- ▶ Different life experiences of women in recovery and staff
- ▶ Being able to share about domestic violence and other issues openly



What Treatments Are Effective for Stimulant Use Users?

- ▶ Stimulant use and addiction is a complex problem involving biological changes in the brain as well as a myriad of social, familial, and environmental factors
- ▶ Treatment strategies need to assess the psychological, social, and pharmacological aspects of the patient's drug use



Is there an Effective Treatment for Methamphetamine Abuse?



- ▶ Cognitive behavioral interventions designed to help modify the patient's thinking, expectancies, and behaviors
- ▶ CBT and MI Motivational interviewing increase skills in coping with various life stressors.
- ▶ Methamphetamine recovery support groups also appear to be effective adjuncts to behavioral interventions that can lead to long-term drug-free recovery.

EBP



Resources

- Addiction Treatment Approaches: Nova Recovery Center. (n.d.). Retrieved July 5, 2019, from <https://novarecoverycenter.com/treatment-programs/#>
- Congressional Research Service. (n.d.). Retrieved July 3, 2019, from <https://crsreports.congress.gov/>
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THANK YOU

THANK YOU

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