

Health Effects and Treatment for Meth Users

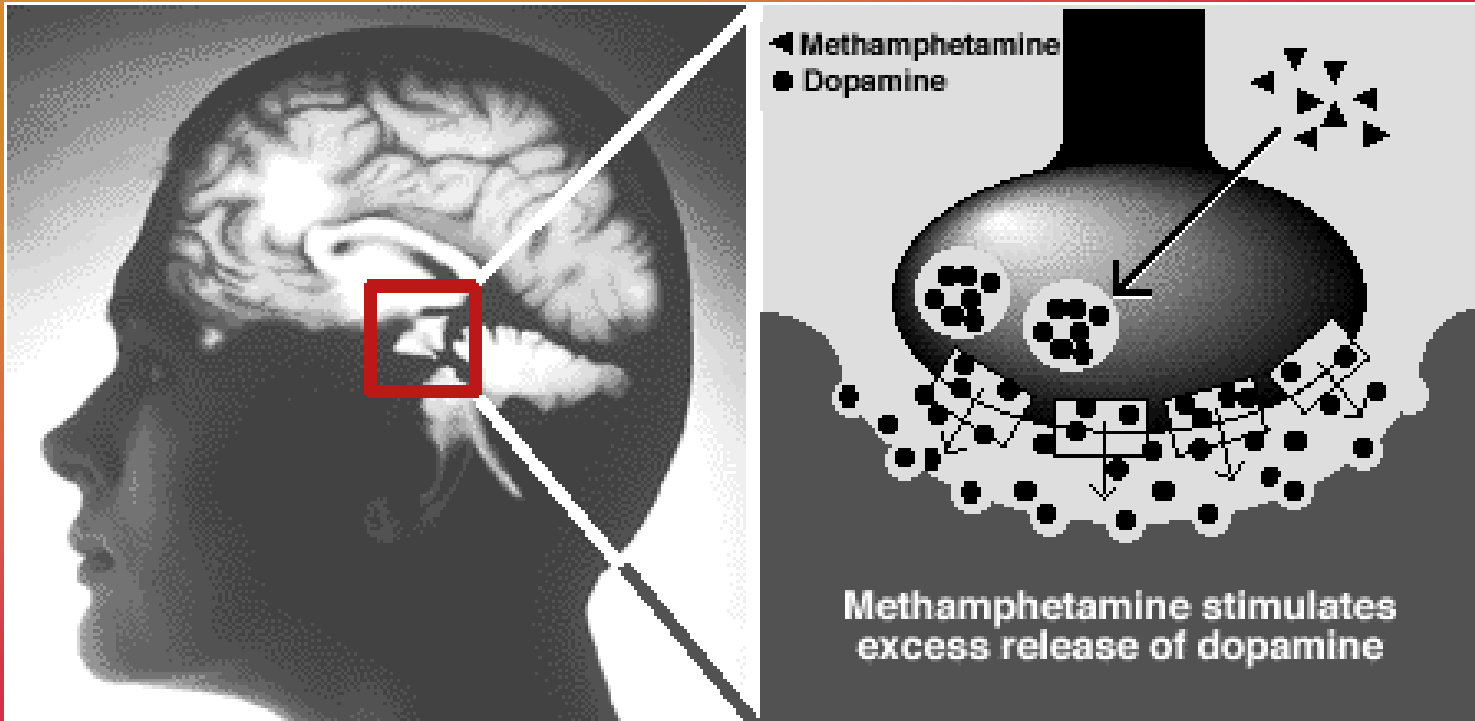
Methamphetamine

Methamphetamine Effects

- How Methamphetamine works in the brain
- Parts of the brain affected by methamphetamine

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Methamphetamine Physiology



- Dopamine centers in the brain: caudate nucleus
- Methamphetamine stimulates excess release of dopamine
- Flood the dopamine centers

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Metabolism

- Ingested, Smoked, IV, Oral
- Half-life is variable (4-24 hrs)
- Metabolized by the liver
- Excreted in the urine
 - 1/3 of meth is excreted in active form as meth

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Short Term Effects

- Increased energy, sexual arousal, euphoria
- Decreased appetite
- Increased heart rate, abnormal rhythm, high blood pressure, heart attack
- Dizziness, seizures
- Extremely high temperature

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Long Term Effects

- Powerful addiction: unable to stop use, tolerance, withdrawal symptoms
- Neurotransmitters “turned off”
- Tremor, uncontrolled movements (Parkinson’s Disease)
- Paranoia, hallucinations, compulsive and aggressive behavior
- Weight loss
- Insomnia, memory loss
- Persistent abnormal heart rhythms, stroke

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Permanent Effects

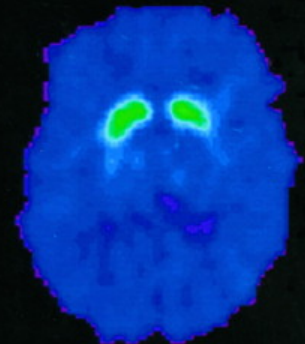
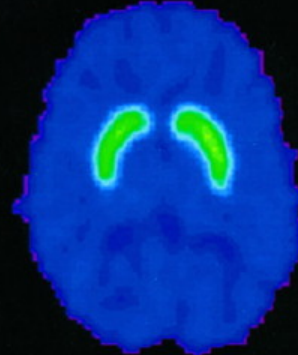
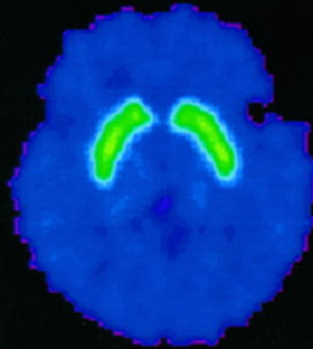
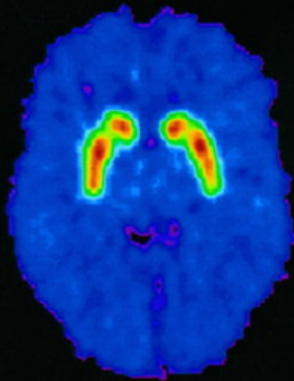
- After meth is stopped
- At least 6-12 months of symptoms
 - Profound depression, lack of pleasurable feelings
 - Insomnia
 - Psychosis, paranoia
- Permanent brain changes
 - Brain scan studies show 25-80% reduction in dopamine metabolism after > 6 months abstinence

Davidson 2001

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Brain Changes with Meth Use

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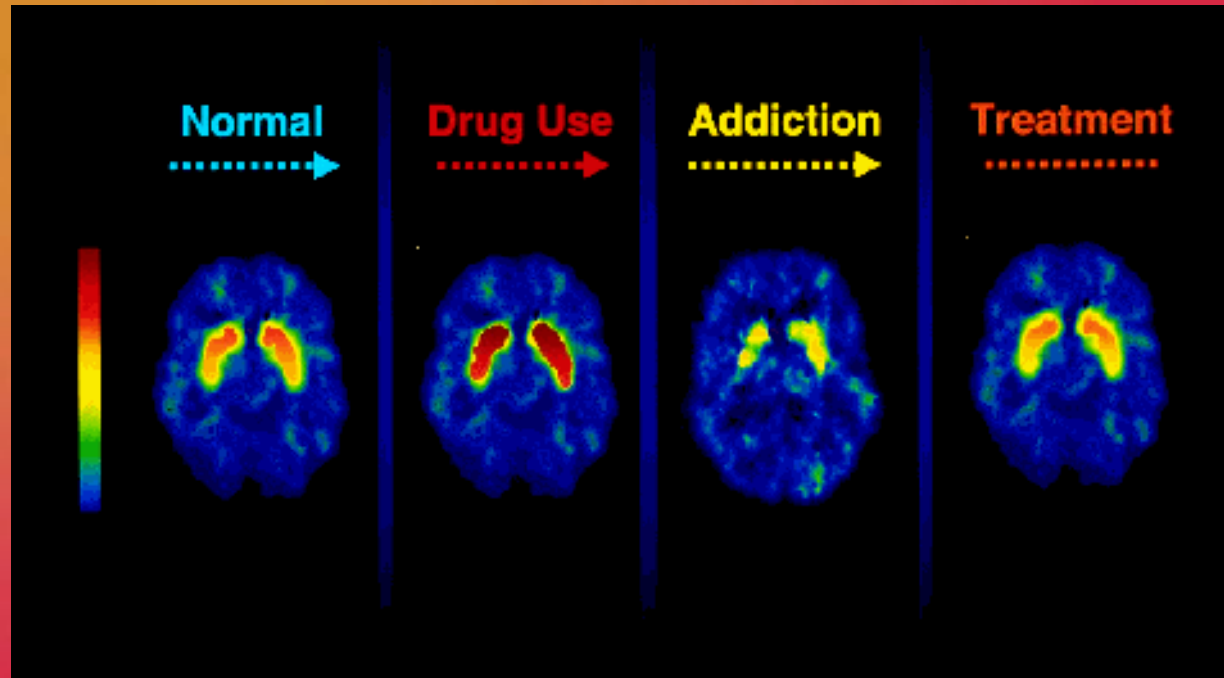
Control Methamphetamine Methcathinone PD

- PET scans comparing dopamine metabolism in control subject, abstinent meth subject (~3 yrs), and Parkinson's Disease

McCann 1998

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Brain Changes with Meth Use



- PET scans show loss of dopamine transporters
- with meth use/addiction, and improvement
- after long-term sobriety

-Volkow 2001

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Brain Changes with Meth

However.....

- Axons don't always grow back correctly
- Different parts of brain recover at different rates
- Impairment of word and picture recall persist
- Impaired ability to manipulate information
 - Ignore information
 - Inability to filter irrelevant information
 - Studies show impairment worse at 12 weeks of non-use than is evident in current user
 - Word recall gets worse, picture recall gets better

Volkow 2001

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Emergency Treatment Protocol

- Typical ER Protocol for Methamphetamine Psychosis
 - Haloperidol 5mg
 - Clonazepam 1 mg
 - Cogentin 1 mg
 - Quiet, dimly lit room
 - Restraints
 - Trazadone can create stimulation: should not be used for sleep

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Meth Withdrawal

- Depression
- Difficulty concentrating
- Severe Cravings
- Paranoia
- Exhaustion
- Confusion

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Treatment Protocol: The Matrix Model

- Originally developed specifically for stimulant abuse and dependence.
- Components include:
 - Individual Sessions
 - Early Recovery Groups
 - Relapse Prevention Groups
 - Family Education Group
 - 12-Step Meetings
 - Social Support Groups
 - Relapse Analysis
 - Urine Testing

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The Matrix Model

- Outpatient treatment for MA abuse
 - Less expensive than residential or inpatient
 - Easy to access
 - Can be combined with job or school
 - Can be delivered with varying intensities
 - Is often modified to treat concurrent medical or psychiatric disorders

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The Matrix Model

- Phases

- Withdrawal Day 1-15
- Honeymoon Day 16-45
- The Wall Day 46 – 120
- Adjustment Day 120-180
- Resolution Day 180 +

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The Matrix Model

- Empirically supported recommendations
 - Multiple weekly sessions for at least 90-120 days
 - Front loaded programs step down prior to “the Wall”
 - Can encompass more than one level of care
 - Should include strategies to engage and retain patients to avoid premature termination

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The Matrix Model

- Family involvement important
 - More effective when at least one supportive family member is engaged
- 12-step facilitation and participation valuable
 - Combination of CBT groups and self-help support most efficacious

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The Matrix Model

- Adaptation of Cognitive Behavioral Therapy
 - Not thinking clearly
 - Poor judgment
 - Poor verbal recall (5 words or less)
 - 20-30 minute sessions 3-4 x per week
 - Emphasis on visuals: handouts, “painting a picture”

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The Matrix Model

- Single, best prognostic indicator of success

Retention

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Summary on Research Findings

- Quality of relationship is stronger predictor of outcomes than experience level, theoretical orientation, or education
- Client's perception of relationship better predictor than therapist's perception
- No correlation between length of time and strength of alliance
- Clients usually do not report negative reactions to clinician prior to terminating

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