

## Neurobiology of Drug Use Worksheet

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### Part I. Neurobiology of Drug Use

Review Chapter 4 and the following websites to complete the chart below, identifying the neurobiological and psychological effects of substance abuse.

Inhalants: <http://www.drugfree.org/drug-guide/inhalants>

Heroin: <http://www.drugfree.org/drug-guide/heroin>

OxyContin: <http://www.drugfree.org/drug-guide/oxycontin>

**Neurobiology** = how does this substance interact with the brain.

**Psychological Effects** = how does long-term use affect cognition, emotion, and behavior

Drug	Neurobiology	Psychological Effects
Alcohol		
Barbituates		
Caffeine		
Cocaine		

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Drug	Neurobiology	Psychological Effects
Ecstasy		
Heroin		
Inhalants		
LSD		
Marijuana		
Methamphetamine		
Nicotine		

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Drug	Neurobiology	Psychological Effects
OxyContin		
PCP		

#### Part 2. Addiction

Review “Focus On Neuroscience: The Addicted Brain” on page 168 then answer these questions.

- Which neurotransmitter is correlated with addiction?
- Initial exposure to addictive drugs results in what changes to the brain?
- What happens after repeated drug use?
- What do you call the chemical changes in the brain after prolonged exposure to an addictive drug?  
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- As a result of these chemical changes in the brain, the user experiences what?
  - 1.
  - 2.
  - 3.

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#### Part 3. Methamphetamines and Ecstasy on the Brain

Review “Focus On Neuroscience: how Methamphetamines Erodes the Brain” on page 174 and Figure 4.7 on page 177, then answer these questions.

- How much brain loss did methamphetamine users have compared to the brains of healthy adults?

4 percent or 10 percent or 20 percent

- In which part of the brain was this tissue loss measured in methamphetamine users and what effect(s) which functions would be affected the most?
- Which gender was more susceptible to brain damage as a result of ecstasy use? WOMEN / MEN
- How does moderate to heavy ecstasy use damage the brain?