

HEADS UP REAL NEWS ABOUT DRUGS AND YOUR BODY



Drugs Change Your Brain

Drug abusers may alter their brains forever.

Drugs of abuse change the way an abuser's brain works. Some of those changes might last for minutes. But other changes may be permanent. Brain cells may be killed or damaged. Damaged neuron fibers may grow back, but not exactly as they were. An abuser's brain may never be the same—or function exactly the same way—again. Check out what drugs can do to the brain, then fill in the blanks in the box below.

Brain shrinkage: Inhalants can kill so many brain cells that the brain actually shrinks! Memories and skills begin to disappear. Learning new things becomes more difficult.

Memory loss: Marijuana, inhalants, and ecstasy change neurons in the **hippocampus**, damaging short-term memory. Phone numbers are hard to remember; directions and even conversations may become difficult to follow.

Interrupted thinking: MDMA (ecstasy) can destroy brain cells in the **cerebral cortex**, the center of thinking used in math, language, planning, and game strategies.

Increased pressure: Cocaine may boost the pressure of blood flowing through the brain until blood vessels explode. Then, brain cells can't receive oxygen from blood and die. This "brain attack" is called a **stroke**.

Slowed breathing: Heroin acts on the **brain stem** to slow breathing—sometimes so much that the user stops breathing and dies. Heroin also blocks pain messages from the body so they can't reach the brain.

Craving: Drugs such as nicotine, cocaine, and methamphetamine retrain the brain to crave drugs. To a drug abuser, the good things in life—food, the company of others, achievements—no longer feel as pleasurable.

Impaired movement: Inhalants can damage or destroy **myelin**, a coating on neurons that helps messages travel quickly from brain to body. Muscle spasms, tremors, or permanent movement difficulties may result.

FILL IN THE BLANK

- The brain may _____ [_] when inhalants kill cells.
- Cocaine abusers risk damage to their brains from _____ [_] _____ because the drug boosts blood pressure.
- Heroin acts on the brain stem, slowing the user's _____ [_] _____.
- Inhalants can damage _____ [_] _____, a protective coating on neuron fibers, resulting in tremors or spasms.
- Heroin users may feel little _____ [_] if they injure themselves.
- Marijuana changes the brain's hippocampus, the seat of short-term _____ [_] _____.
- Memories and _____ [_] _____ disappear when inhalants kill brain cells.
- Drug addicts have a _____ [_] _____ for drugs, not food or fun with other people.
- To think of a game [_] _____, you use your cerebral cortex.
- MDMA (ecstasy) users may have problems _____ [_] _____ their own birthday party!

BONUS Unscramble the bracketed letters from above.

If you do this, you can actually boost your brainpower!

_____ a new _____

KNOW YOUR BRAIN GLOSSARY, PART TWO

Brain stem: The base of the brain, in charge of breathing, heart rate, and digestion—things you don't think about.

Cerebral cortex: The thinking part of the brain, which you use when you speak, plan, do math, and create strategies.

Hippocampus: The part of the brain's limbic system where short-term memories are formed and stored.

Myelin: A fatty coating on the fibers of neurons that helps messages travel quickly along neurons in the brain.

Stroke: A "brain attack" caused by burst blood vessels in the brain. Without a flow of blood and oxygen, brain cells die.

For a brain diagram and more brain terms, see "Messed-Up Messages," p. 3.