

Stimulant Addiction

In This Installment:

- Information about stimulants, including cocaine, methamphetamine ("meth"), MDMA ("ecstasy"), caffeine, nicotine, and the prescription ADHD drugs Adderall® and Concerta®
- How stimulants affect the brain
- How using stimulants damages the heart and other parts of the body



Dear Teacher:

Despite the positive news of a decline in teen drug use, the use of stimulants, such as cocaine, is still at levels that raise concern. Results from the 2007 "Monitoring the Future" survey showed that 2.0 percent of 8th-graders, 3.4 percent of 10th-graders, and 5.2 percent of 12th-graders had abused cocaine within the last year. Further cause for concern is the perceived availability of stimulants among teens. According to the same survey, 19.0 percent of 8th-graders, 30.0 percent of 10th-graders, and 41.2 percent of 12th-graders responded that cocaine powder was "fairly easy" or "very easy" to get.

In this year's third installment of *Heads Up*, we hear the personal account of a teen drug user and provide the latest facts from NIDA scientists to highlight the hard truth about the effects of stimulants, especially cocaine, on the brain and the body. We hope you will share the article with your students so they will be well informed about the health risks and harmful effects of these powerfully addictive drugs.

Sincerely,

Nora D. Volkow, M.D.
Director,
National Institute on Drug Abuse (NIDA)



Lesson Plan and Worksheet

NATIONAL STANDARDS

Science (NSES): Life Science: Regulation and Behavior, Behavior of Organisms; Science in Personal and Social Perspectives: Personal Health, Risks and Benefits, Personal and Community Health

KEY CONCEPTS

- Stimulants are a class of drugs that "stimulate" the brain and central nervous system, temporarily increasing energy and alertness.
- Cocaine interferes with the brain's natural "reward system." It blocks the normal recycling of dopamine, causing the chemical to build up in the brain.
- Stimulants can be highly addictive and can have many harmful effects on the body, including potentially irreversible problems resulting from cardiovascular events (e.g., heart attacks, strokes).

BEFORE READING

- Introduce the topic by asking students whether they have heard of cocaine ("coke") or methamphetamine ("meth"). What do they know about these drugs? How do the drugs affect a person's behavior? How do they affect the body?

- Have students take the quiz on the student worksheet. After they complete the worksheet, have them read the article "Stimulant Addiction." Have students compare their answers with the information in the article.

AFTER READING

- Have students retake the quiz on the student worksheet.
- How do the effects of stimulants on the brain explain why the drugs can be addictive?
- How can long-term use of stimulants affect the body?

CRITICAL THINKING

- What fact about stimulants surprised you the most? Why?
- You may have heard rumors about celebrities, such as the "It Girls" in Hollywood, taking cocaine. How might this affect a teen's decision about using the drug?

WRITING PROMPT

Have students write an essay about what they would say to a friend who wants to take cocaine or another stimulant because he or she heard it was a "great high."

ANSWERS to Activity Reproducible: 1. A; 2. A; 3. A; 4. A; 5. A; 6. A; 7. B; 8. D; 9. D; 10. C

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What Do You Know About Stimulants?

Answer the questions below to find out what you know about stimulants.

- Stimulants are drugs that can temporarily increase energy and alertness.
(A) True
(B) False
- Nicotine and cocaine are both stimulants.
(A) True
(B) False
- Stimulants affect the brain's natural "reward system."
(A) True
(B) False
- Cocaine can cause paranoia.
(A) True
(B) False
- Some of the effects of cocaine use can result in death.
(A) True
(B) False
- Abusing cocaine can cause a person to lose the ability to feel happy without the drug.
(A) True
(B) False
- How does cocaine affect the brain?
(A) It slows down brain function.
(B) It increases the amount of dopamine in the brain.
(C) It stops pleasurable signals from flowing through the brain.
(D) It increases the number of neurons in the brain.
- Which of the following is a possible short-term effect of using stimulants?
(A) Constricted blood vessels
(B) Diarrhea
(C) Vomiting
(D) All of the above
- Which of the following effects on the body can some stimulants cause?
(A) Bowel gangrene
(B) Disturbed heart rhythms
(C) Frequent nosebleeds
(D) All of the above
- Which of the following statements is FALSE?
(A) Nicotine is a stimulant.
(B) Cocaine can cause a young person to have a heart attack.
(C) Cocaine abuse has no effect on the brain.
(D) Using some stimulants can put a person at higher risk of contracting HIV.