NO PREP

Cocaine and the Teenage Brain

Includes: Student reading, case study, differentiated questions, teacher key

Name: Period: Date:

Cocaine and the Teenage Brain

What Cocaine Is and How It's Used

Cocaine is a stimulant derived from the leaves of the coca plant, primarily found in South America. Often appearing as a fine white powder, it can be snorted, rubbed on the gums, or dissolved for injection. Some teens might be drawn to cocaine for its reputation as a party drug that boosts energy and confidence. However, the substance significantly accelerates heart rate, constricts blood vessels, and alters dopamine levels in the brain—posing serious risks even for first-time users. Cocaine's immediate effects don't negate the potential for long-term harm, including addiction and damage to cardiovascular health.

Immediate Effects: Energy, Alertness, and Risk-Taking

Name: **Period:** **Date:**

Cocaine and the Teenage Brain

What Cocaine Is and How It's Used

Cocaine is a stimulant derived from the leaves of the coca plant, primarily found in South America. Often appearing as a fine white powder, it can be snorted, rubbed on the gums, or dissolved for injection. Some teens might be drawn to cocaine for its reputation as a party drug that boosts energy and confidence. However, the substance significantly accelerates heart rate, constricts blood vessels, and alters dopamine levels in the brain, posing serious risks even for first-time users. Cocaine's immediate effects don't negate the potential for long-term harm, including addiction and damage to cardiovascular health.

Immediate Effects: Energy, Alertness, and Risk-Taking

Upon ingestion, cocaine users typically feel a surge of energy and heightened alertness. This can be accompanied by talkativeness, restlessness, and an inflated sense of capability or invulnerability. Such effects might sound appealing to teens under academic or social pressures, but they come with a steep price. Users can become impulsive, engaging in risk-taking behaviors like reckless driving, fights, or unprotected sex. Additionally, the high is fleeting: when it subsides, irritability and craving set in, perpetuating a cycle that can escalate into dependency.

Long-Term Brain and Heart Damage

Repeated cocaine use wreaks havoc on the cardiovascular system, raising the likelihood of heart attacks or strokes, even in young people. The drug constricts blood vessels, compounding stress on the heart. Neurologically, cocaine disrupts the brain's reward circuitry by oversaturating it with dopamine. Over time, the brain's ability to naturally regulate mood and motivation is compromised. This can manifest as chronic depression, anxiety, or the inability to feel pleasure from normal daily activities. Teens, whose brains are still in critical developmental stages, may find these changes particularly challenging to reverse.

High Relapse Rate

Cocaine has a notorious relapse rate. Even after periods of sobriety, a single exposure or emotional trigger can reignite cravings. This is partly because of cocaine's intense, dopamine-driven reinforcement and partly because of the psychological habit loops formed around the drug's use—such as partying or stress relief. For teens, relapse risks skyrocket when returning to the same social circles or environments where cocaine was prevalent. Comprehensive recovery plans often involve therapy, support groups, and possibly lifestyle changes to minimize temptation.

Dangerous Combinations with Alcohol

Many teens may mix cocaine with alcohol at parties, wrongly assuming the stimulant will "balance out" the depressant effects. In reality, the combination places additional strain on the body and mind. The liver metabolizes both substances into a compound called cocaethylene, which is more toxic than either drug alone. This synergy increases the risk of cardiac issues, liver damage, and violent or reckless behaviors. Teens often underestimate how quickly mixed substances can overwhelm their system, leading to critical health emergencies.

Key Information: Quick-Reference Table: Cocaine Impact

Area Affected	Common Effects
Brain	Surge of dopamine, risk of depression post-use
Heart	Increased heart rate, higher stroke/heart attack risk
Behavior	Risk-taking, aggression, poor judgment
Social Life	Potential for conflict, dropping old hobbies

Case Study Excerpt

Carlos had always been outgoing, but as he juggled sports, advanced classes, and a part-time job, he found himself running on fumes. One night, a friend offered him cocaine, promising it would keep him sharp and awake for late-night study sessions. The immediate effects were as advertised—Carlos felt alert, energetic, and unbothered by fatigue. But once the drug wore off, he crashed hard, feeling even more tired and irritable than before. Over time, Carlos started depending on cocaine whenever deadlines loomed. He pulled off decent grades initially, but his moods swung wildly. Sometimes he'd be chatty and confident; other times, depressed and anxious. He also began taking bigger risks—speeding on the highway, picking fights with teammates—driven by a sense of invincibility during his highs. Despite friends warning him, Carlos believed he had it under control. Eventually, a severe nosebleed during class exposed his habit. Panicked, he realized he might lose his sports eligibility and scholarship opportunities if the administration discovered the cause. With help from a school counselor, he sought professional treatment, including therapy that addressed his stress-management skills. Though quitting wasn't easy—withdrawal brought headaches, lethargy, and cravings—Carlos found a healthier routine, reevaluating how he spent his time and practiced self-care. The experience underscored how deceptively harmful cocaine could be, even for someone who seemed to have it all together.

1. What initially convinced Carlos that cocaine could help, and how did it impact his daily life?

2. In what ways did Carlos's cocaine use ultimately threaten his future goals?

Multiple Choice

1. Cocaine often makes users feel:

    a) More alert and energetic, leading to potential risk-taking

    b) Immediately regretful with no physical effects on the user

    c) Calmer and more subdued

    d) Extremely hungry and drowsy

2. Mixing cocaine and alcohol can lead to:

    a) Guaranteed protection against overdose and no risk of harmful effects

    b) No additional complications

    c) Formation of a more toxic substance, increasing health risks

    d) A safer, balanced intoxication

3. One major reason for high relapse rates in cocaine users is:

    a) There is no treatment available for cocaine addiction at all

    b) Users forget how to ingest it

    c) Cocaine doesn't affect the brain's reward system

    d) Emotional or social triggers can reignite strong cravings

Matching

Write the letter of the correct definition on the line next to each term.

Term	Definition
1. ___ Cocaethylene	A) Drug category that increases alertness, heart rate, and blood pressure
2. ___ Stimulant	B) Toxic compound formed when cocaine is combined with alcohol in the liver
3. ___ Relapse	C) Increased chance of stroke, heart attack, and artery damage from drug use
4. ___ Dopamine Flood	D) A return to drug use after a period of sobriety
5. ___ Cardiovascular Risks	E) Oversaturation of the brain's pleasure circuits that leaves mood and motivation harder to regulate

Fill-in-the-Blank

1. Cocaine is a _____ that can cause heightened alertness and energy.

2. Repeated use of cocaine can disrupt the brain's _____ system, leading to mood and motivation problems.

3. Combining alcohol with cocaine produces _____, a compound more harmful than cocaine alone.

Short Answer

Answer each question in 2-4 complete sentences.

1. Why might teens overlook the dangers of cocaine when facing academic or social pressures?

_____

_____

_____

2. How can emotional triggers contribute to relapse in someone recovering from cocaine use?

3. What are some healthier alternatives for teens looking for energy or stress relief?