



Stimulants 101

Catching Up With COSSAP, February 2023

Snow. Crystal. Cat. Bath salts. Addies. Ecstasy. Kibbles and bits. These are but a few of the many street names used to refer to stimulants, a class of drugs associated with the highest percentage change of overdose deaths among the general population of the United States between August 2021 and July 2022 (see Table 1). In a study of drug- and alcohol-associated deaths in American jails, the number of overdose deaths associated with stimulants among individuals in custody trailed only the “other” drug category (a range of nonopioid medications).¹

diagnosis of stimulant use disorder and opioid use disorder, that risk is 2.5 times greater.⁴

What are stimulants?

Stimulants are illicitly used or prescribed drugs that speed up the body’s systems. In 2021, 34 million people used amphetamines, 21 million used cocaine, and 20 million used Ecstasy worldwide.⁵

Amphetamine-type stimulants

Amphetamine-type stimulants include methamphetamine, crystal methamphetamine, synthetic cathinones, and prescription drugs prescribed for certain conditions (e.g., asthma, narcolepsy, congestion, attention deficit hyperactivity disorder, eating disorders), which are often used for nonmedical purposes.

Table 1: Provisional Number of Drug Overdose Deaths by Drug or Drug Class

Drug	August 2021	July 2022	Percent change
Cocaine	22,167	25,217	13.8 ↑
Psychostimulants with abuse potential	30,290	31,842	5.1 ↑
Synthetic opioids, excluding methadone	66,418	69,071	4.0 ↑
Opioids	77,033	77,237	.26 ↑
Methadone	3,642	3,225	11.4 ↓
Natural and semi-synthetic opioids	13,744	11,902	13.4 ↓
Heroin	10,330	6,813	34.0 ↓

Source: National Center for Health Statistics, National Vital Statistics System, *Provisional Drug Overdose Death Counts*, retrieved December 29, 2022, from <https://www.cdc.gov/nchs/nvss/vsrr/drug-overdose-data.htm#notes>.

Table 2: Examples of Illicit Amphetamine-type Stimulants

Substance	Sample Street Names	Characteristics	Forms
Methamphetamine	Meth Speed Tweak	Effects similar to cocaine, but more potent and longer lasting	Powder Pill
Crystal methamphetamine	Glass Ice Shabu	Stronger, more addictive form of methamphetamine	Crystal
Synthetic cathinones	Bath Salts Vanilla Sky Bliss	Marketed as substitutes for amphetamines and cocaine	Powder Pill Crystal

Notably, the frequency of methamphetamine use and combined use with cocaine in the general population substantially increased (by 66 percent and 60 percent, respectively) between 2015 and 2019, with researchers also noting higher-risk use patterns (e.g., use disorders).² A study of two neighboring county jails found that substance use disorder (SUD) involving stimulants increased eight-fold among individuals detained in 2008 and in 2016 and is now more common than alcohol use disorder.³ Individuals with stimulant use disorder are more at risk for overdose (fatal or nonfatal) upon release from incarceration than those without an SUD; with a dual

Cocaine

Cocaine is derived from the cocoa plant and varies in potency. It is available as white, crystalline powder or small, irregular-shaped rocks. Cocaine can cause euphoria,

increased energy, focus, self-confidence, hypersexuality, and decreased appetite.

MDMA

The synthetic drug methylenedioxymethamphetamine (MDMA) is referred to as “Ecstasy” and “Molly,” among other street names. It is unique in that it is both a stimulant and a hallucinogen.

How do stimulants affect the body and mind?

Stimulants often make a person feel more awake, alert, confident, and energetic. Symptoms of intoxication (see Table 3) may come on suddenly as a “rush” or a “flash.” Some signs, such as psychosis, hallucinations, and delusions, can be difficult to distinguish from mental illness.⁶

Table 3: Signs and Symptoms of Acute Stimulant Intoxication

Physical	Behavioral
<ul style="list-style-type: none"> • Dilated pupils • Profuse sweating, often with chills • High blood pressure • Increased heart rate, with or without an irregular heartbeat and chest pain • Elevated temperature • Suppressed appetite, weight loss • Nausea and vomiting • Abnormal body movements • Teeth grinding • Insomnia • Tremors • Headache (occasionally) 	<ul style="list-style-type: none"> • Euphoria, heightened sense of self • Increased vigor, giddiness, and sense of enhanced mental acuity and performance • Agitation, restlessness, irritability • Increased alertness • Decreased appetite • Increased libido • Poor concentration, although some individuals may report improved concentration • Grandiosity, exaggerated self-esteem, egocentricity • Hypervigilance • Fearlessness • Suspiciousness, psychotic symptoms (e.g., paranoia, hallucinations) • Clarity (not usually disoriented) • Emotional instability with potential for violence, perceptions of persecution

Source: Modified from Substance Abuse and Mental Health Services Administration, 2021, [Treatment for Stimulant Use Disorders: Treatment Improvement Protocol \(TIP\) 33](#).

Both dependence and tolerance (when more of a drug is needed to produce the same effects) can develop rapidly. Abruptly stopping stimulant use usually results in withdrawal or “crashing,” the signs of which can mimic the signs of intoxication.

Potential Signs and Symptoms of Stimulant Withdrawal⁷

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| <ul style="list-style-type: none"> • Agitation • Psychotic symptoms • Anxiety • Dysphoria/depression | <ul style="list-style-type: none"> • Suicidality/impulsive self-harm • Strong cravings • Intense desire for sleep, often accompanied by insomnia |
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What risks are associated with stimulant use?

Health implications

Individuals with stimulant use disorder may develop cardiovascular conditions, respiratory problems, cerebrovascular events (issues affecting blood flow and the blood vessels in the brain), muscular and kidney dysfunction, and gastrointestinal problems. They may be at risk for contracting HIV/AIDS and hepatitis C.⁸ The potential for these and other co-occurring conditions is high and requires attentive medical care. Anyone entering a jail who appears unwell should be immediately referred for a medical assessment.

Overdose

Because stimulants affect cardiovascular health and temperature regulation, an overdose can cause fever, convulsions, heart failure, and death.

Polysubstance use (taking more than one drug at once or one after another) applies to both illicit drugs and legal substances. The current illicit drug supply comprises multiple substances, so composition of the drug being used is often unknown. The most common, and deadliest, combination of illicit drugs is methamphetamine mixed with a potent opioid, such as the synthetic drug [fentanyl](#). More than two-thirds of deaths from overdose or drug poisoning in the United States involve a synthetic opioid.⁹ Given the high potency of fentanyl mixed in with the drug supply, multiple doses of [naloxone](#) may be necessary to reverse an overdose.¹⁰

Suicide

Depression during stimulant withdrawal is common, and its intensity demands close monitoring and timely intervention for self-harm and suicidality. Individuals who stop using high doses of methamphetamine are prone to a longer period of depression than those who stop using cocaine.¹¹

How is stimulant use disorder diagnosed?

As explained by the Substance Abuse and Mental Health Services Administration (SAMHSA) in its [Treatment for Stimulant Use Disorders: Treatment Improvement Protocol \(TIP\) 33](#), diagnosis is determined by patient history, laboratory tests (e.g., urine toxicology screen), and clinical observation of physical signs and mental status.¹² The severity of the disorder is based on the American Psychiatric Association's [Diagnostic and Statistical Manual of Mental Disorders \(DSM-5-TR\)](#), which considers four groups of symptoms: impaired control, social problems, risky use, and drug effects.

How is stimulant use disorder treated?

Behavioral management strategies, such as contingency management, cognitive behavioral therapy, community reinforcement approach, motivational interviewing, and exercise have been found to be effective in addressing stimulant use disorder.¹³

To reduce agitation associated with withdrawal, to the extent possible, decrease stimulation by minimizing exposure to other people, dimming lights, and dampening noise. At no time should individuals experiencing stimulant withdrawal be physically restrained because of the risk of [rhabdomyolysis](#) (often called rhabdo). Rhabdomyolysis is a serious, potentially fatal, medical condition that can occur when muscle tissue is restricted or compressed for long periods of time.¹⁴

When agitation or depression is significant, escalating, or unrelenting, a qualified health care professional may recommend medications for symptom relief or psychiatric consultation. Proper sleep, nutrition, and hydration are critical during stimulant withdrawal.

Although there are currently no U.S. Food and Drug Administration-approved medications available for stimulant use disorder, research is ongoing and evolving. Several systematic reviews and meta-analyses on various treatment options for stimulant use disorder have been conducted, but further data and study are needed.

For More Information

- [Rising Stimulant Deaths Show That We Face More Than Just an Opioid Crisis](#), from the National Institute on Drug Abuse
- [Stimulants and Their Impact on Brain and Behavior: Best Practices and Approaches for Effective Treatment and Recovery](#), from the Addiction Technology Transfer Center Network
- Drug Fact Sheets, from the U.S. Department of Justice/U.S. Drug Enforcement Administration (DEA)
 - [Stimulants](#)
 - [Amphetamines](#)
 - [Methamphetamine](#)
 - [Bath Salts](#)
 - [Cocaine](#)
 - [Ecstasy/MDMA](#)
 - [Fentanyl](#)
- [Slang Terms and Code Words: A Reference for Law Enforcement Personnel](#), from DEA
- [Stop Overdose](#), from the Centers for Disease Control and Prevention
- [Suicide Prevention Resource Guide: National Response Plan for Suicide Prevention in Corrections](#), from the National Commission on Correctional Health Care in collaboration with the American Foundation for Suicide Prevention
- [Treatment for Stimulant Use Disorders: Treatment Improvement Protocol \(TIP\) 33](#), from SAMHSA

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8. Ibid., 33.
9. U.S. Drug Enforcement Administration, 2022, *Fentanyl Awareness*, retrieved December 14, 2022, from <https://www.dea.gov/fentanylawareness>.
10. National Institute on Drug Abuse, 2017, *Naloxone for Opioid Overdose: Life-saving Science*, retrieved December 14, 2022, from <https://nida.nih.gov/publications/naloxone-opioid-overdose-life-saving-science>.
11. See note 7 above, Substance Abuse and Mental Health Services Administration, *Treatment for Stimulant Use Disorders*, 49.
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