

DrugFacts

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Prescription Stimulants DrugFacts

What are prescription stimulants?

Prescription stimulants are medicines generally used to treat attention-deficit hyperactivity disorder (ADHD) and narcolepsy—uncontrollable episodes of deep sleep. They increase alertness, attention, and energy.



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What are common prescription stimulants?

- dextroamphetamine (Dexedrine[®])
- dextroamphetamine/amphetamine combination product (Adderall[®])
- methylphenidate (Ritalin[®], Concerta[®]).

How do people use and misuse prescription stimulants?

Most prescription stimulants come in tablet, capsule, or liquid form, which a person takes by mouth. Misuse of a prescription stimulant means:

- taking medicine in a way or dose other than prescribed
- taking someone else's medicine
- taking medicine only for the effect it causes—to get high

When misusing a prescription stimulant, people can swallow the medicine in its normal form. Alternatively, they can crush tablets or open the capsules, dissolve the powder in water, and inject the liquid into a vein. Some can also snort or smoke the powder.

Do Prescription Stimulants Make You Smarter?

Some people take prescription stimulants to try to improve mental performance. Teens and college students sometimes misuse them to try to get better grades, and older adults misuse them to try to improve their memory. Taking prescription stimulants for reasons other than treating ADHD or narcolepsy could lead to harmful health effects, such as addiction, heart problems, or psychosis.

How do prescription stimulants affect the brain and body?

Prescription stimulants increase the activity of the brain chemicals *dopamine* and *norepinephrine*. Dopamine is involved in the reinforcement of rewarding behaviors. Norepinephrine affects blood vessels, blood pressure and heart rate, blood sugar, and breathing.

Short-Term Effects

People who use prescription stimulants report feeling a "rush" (euphoria) along with the following:

- increased blood pressure and heart rate
- increased breathing
- decreased blood flow
- increased blood sugar

- opened-up breathing passages

At high doses, prescription stimulants can lead to a dangerously high body temperature, an irregular heartbeat, heart failure, and seizures.

What are the other health effects of prescription stimulants?

Repeated misuse of prescription stimulants, even within a short period, can cause psychosis, anger, or paranoia. If the drug is injected, it is important to note that sharing drug injection equipment and having impaired judgment from drug misuse can increase the risk of contracting infectious diseases such as HIV and hepatitis.

Can a person overdose on prescription stimulants?

Yes, a person can overdose on prescription stimulants. An overdose occurs when the person uses enough of the drug to produce a life-threatening reaction or death (read more on our [Intentional vs. Unintentional Overdose Deaths](#) webpage).

When people overdose on a prescription stimulant, they most commonly experience several different symptoms, including restlessness, tremors, overactive reflexes, rapid breathing, confusion, aggression, hallucinations, panic states, abnormally increased fever, muscle pains and weakness.

They also may have heart problems, including an irregular heartbeat leading to a heart attack, nerve problems that can lead to a seizure, abnormally high or low blood pressure, and circulation failure. Stomach issues may include nausea, vomiting, diarrhea, and abdominal cramps. In addition, an overdose can result

Risk of Later Substance Use

Some people may be concerned about later substance misuse in children and teens who've been prescribed stimulant drugs to treat ADHD. Studies so far have not shown a difference in later substance use in young people with ADHD treated with prescription stimulants compared with those who didn't receive such treatment. This suggests that treatment with ADHD medication does not positively or negatively affect a person's risk of developing problem use.

in convulsions, coma, and fatal poisoning.

How can a prescription stimulant overdose be treated?

Because prescription stimulant overdose often leads to a heart attack or seizure, the most important step to take is to call 911 so a person who has overdosed can receive immediate medical attention. First responders and emergency room doctors try to treat the overdose with the intent of restoring blood flow to the heart and stopping the seizure with care or with medications if necessary.

Can prescription stimulant use lead to substance use disorder and addiction?

Yes, misuse of prescription stimulants can lead to a *substance use disorder* (SUD), which takes the form of addiction in severe cases. Long-term use of stimulants, even as prescribed by a doctor, can cause a person to develop a tolerance, which means that he or she needs higher and/or more frequent doses of the drug to get the desired effects. An SUD develops when continued use of the drug causes issues, such as health problems and failure to meet responsibilities at work, school, or home. Concerns about use should be discussed with a health care provider.

If a person develops an SUD and stops use of the prescription stimulant, he or she can experience *withdrawal*. Withdrawal symptoms can include:

- fatigue
- depression
- sleep problems

Points to Remember

- Prescription stimulants are medicines used to treat ADHD and narcolepsy.
- Most prescription stimulants come in tablet, capsule, or liquid form, which a person takes by mouth. When misusing a prescription stimulant, a person can swallow, snort, smoke, or inject the drug.

- Prescription stimulants increase the activity of the brain chemicals dopamine and norepinephrine.
- Prescription stimulants increase alertness, attention, and energy. Their misuse, including overdose, can also lead to psychosis, anger, paranoia, heart, nerve, and stomach problems. These issues could lead to a heart attack or seizures.
- Prescription stimulant misuse can lead to a substance use disorder, which takes the form of addiction in severe cases, even when used as prescribed by a doctor.
- Withdrawal symptoms include fatigue, depression, and sleep problems. Concerns about use should be discussed with a health care provider.
- Behavioral therapies can be effective in helping people stop prescription stimulant misuse, including cognitive-behavioral therapy and contingency management.

How can people get treatment for prescription stimulant addiction?

Behavioral therapies, including cognitive-behavioral therapy and contingency management (motivational incentives), can be effective in helping to treat people with prescription stimulant addiction. Cognitive-behavioral therapy helps modify the patient's drug-use expectations and behaviors, and it can effectively manage triggers and stress. Contingency management provides vouchers or small cash rewards for positive behaviors such as staying drug-free. Read more about drug addiction treatment in our [Treatment Approaches for Drug Addiction DrugFacts](#).

Learn More

For more information about prescription stimulants, see our:

- [Commonly Used Drugs chart](#)
- [Misuse of Prescription Drugs Research Report](#)
- [NIDA for Teens Drug Facts on Prescription Stimulant Medications \(Amphetamines\)](#) - Offers resources for teens and teen influencers. Get the latest on how drugs affect the brain and body. Features videos, games, blog posts, and more!

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