HEALTH BASICS

Stimulants

Stimulants are substances that increase alertness and can raise heart rate and blood pressure.

WHAT IT IS
Substances that increase activity in the brain and body

WHERE IT COMES UP
Prescriptions, caffeine labels, nicotine products, and illicit drugs

WHY IT MATTERS
Affects alertness, sleep, appetite, heart rate, and blood pressure

WHAT IT IS NOT
Not a disease or diagnosis

WHO TO ASK
A pharmacist, primary care clinician, or substance-use service

HOW IT IS CHECKED
History, medication review, and sometimes blood or urine tests

Overview

Stimulants like methylphenidate or lisdexamfetamine are a broad group of medicines and other substances that increase activity in the brain and body. They can make you feel more awake, focused, energetic, or restless. They may also raise your heart rate and blood pressure.

Prescription stimulants include amphetamine-based medicines and methylphenidate. They are used for conditions such as attention-deficit/hyperactivity disorder, known as ADHD, and narcolepsy, a condition that causes severe daytime sleepiness.

Caffeine and nicotine also have stimulant effects. Cocaine and methamphetamine are powerful stimulants that carry substantial risks, especially when their strength or contents are unknown.

These substances are not interchangeable. A prescribed dose taken under medical supervision is different from using an illicit stimulant or taking more medicine than prescribed. Effects also differ according to the substance, dose, formulation, route of use, and your health.

"Stimulant" is not a diagnosis or disease. It describes how a substance affects the nervous system.

How it works

Nerve cells communicate using chemical messengers called neurotransmitters. Many stimulants increase the activity of dopamine and norepinephrine. These messengers help regulate attention, motivation, movement, alertness, heart rate, and blood pressure.

Prescription amphetamine and methylphenidate affect these chemical systems in different ways. When appropriately prescribed, they can improve attention and impulse control in some people with ADHD. They can also help maintain wakefulness in certain sleep disorders.

Caffeine works differently. It blocks adenosine, a brain chemical that builds up while you are awake and helps create sleepiness. Blocking adenosine can make you feel more alert, but it does not replace sleep.

Nicotine activates receptors involved in attention, mood, and reward. It can create short-lived alertness while also causing dependence. Dependence means the body adapts to regular use, making cravings and withdrawal more likely.

Illicit stimulants may produce rapid or intense effects. Smoking, injecting, or snorting a substance can deliver it to the brain quickly, increasing the risk of toxicity and compulsive use.

Why it matters for your health

Stimulants can affect sleep, appetite, mood, and the cardiovascular system, which includes the heart and blood vessels. Even everyday caffeine may cause shakiness, anxiety, stomach upset, a racing heartbeat, or difficulty sleeping in some people.

With prescription stimulants, clinicians may monitor blood pressure, pulse, appetite, sleep, and weight. Children and teenagers may also have their growth followed. The exact monitoring plan is based on the medicine, medical history, age, and any side effects.

Stimulants can interact with other medicines and substances. Combining several products that raise heart rate or blood pressure may increase unwanted effects. This can include combining a prescription stimulant with large amounts of caffeine, illicit stimulants, or certain cold medicines.

The US Food and Drug Administration requires strong warnings for prescription stimulants about misuse, addiction, overdose, and sharing medicines. These warnings describe possible risks, not what will happen to every person taking a stimulant as prescribed.

Pregnancy, breastfeeding, heart conditions, high blood pressure, seizures, and some mental health conditions may affect decisions about stimulant use. A clinician or pharmacist can review the specific substance and your circumstances.

What can go wrong

Unwanted effects may include reduced appetite, headache, dry mouth, nausea, sleep problems, nervousness, irritability, or a faster heartbeat. Persistent effects deserve routine follow-up, especially if they interfere with eating, sleep, work, school, or daily life.

Stimulant toxicity or overdose happens when the brain, heart, or body becomes dangerously overstimulated. It may follow a large dose, repeated doses over a short period, an interaction, or exposure to a substance of unknown strength.

Call emergency services for:

Illicit or counterfeit stimulants can contain fentanyl or another opioid without the user knowing. Naloxone can reverse an opioid overdose but does not treat stimulant toxicity. If someone is unresponsive or not breathing normally, call emergency services, give naloxone if available, and follow dispatcher instructions.

Stimulant use disorder is a medical condition involving continued stimulant use despite harm or difficulty controlling use. Cravings, using more than intended, and neglecting responsibilities can be warning signs. Effective care may include behavioural therapies, practical support, and treatment for related physical or mental health needs.

Withdrawal can occur after regular stimulant use, particularly with high doses. It may involve tiredness, increased sleep, low mood, increased appetite, or strong cravings. Seek urgent help for suicidal thoughts, severe depression, or concern that you cannot stay safe.

- Chest pain, severe trouble breathing, collapse, or an irregular heartbeat
- A seizure, severe confusion, extreme agitation, or hallucinations
- Very high body temperature, heavy sweating, or rigid muscles
- Sudden weakness, facial drooping, or difficulty speaking
- Loss of consciousness or inability to wake

What you can do

If you take a prescription stimulant, use it exactly as directed. Do not share it, and store it where other people cannot access it. Ask a pharmacist before crushing, opening, or splitting a dose because some long-acting products must remain intact.

Keep a current list of:

Ask your prescriber what benefit the medicine is meant to provide, when it should be

noticeable, and how follow-up will work. Mention ongoing appetite loss, sleep problems, mood changes, or a racing heartbeat. Do not change or stop a prescribed stimulant without discussing how to do so safely.

Check caffeine labels and consider your total intake from coffee, tea, soft drinks, energy products, medicines, and supplements. Product caffeine levels can differ widely. If caffeine causes palpitations, anxiety, or poor sleep, reducing the amount or avoiding it later in the day may help.

If stimulant use feels difficult to control, you can contact a primary care clinician or addiction service. You do not need to wait for an emergency or meet a particular level of use before asking for support.

There is no routine test that everyone who uses a stimulant needs. Blood or urine tests may be used in an emergency, as part of some treatment programmes, or to clarify an unexpected drug-screen result. Screening tests can occasionally give false-positive results, so confirmatory testing may be needed.

- Prescription and non-prescription medicines
- Caffeine, nicotine, supplements, and energy products
- Side effects and when they occur
- Blood pressure or pulse readings if monitoring was recommended

Common questions

Are all stimulants prescription drugs?

No. Caffeine and nicotine are widely available, while cocaine and methamphetamine may be illicit. Prescription stimulants are regulated medicines, and legal controls differ by country.

Why can a stimulant help someone with ADHD feel calmer?

A stimulant may improve the brain systems involved in attention and impulse control. Better control of attention or behaviour can feel calming, even though the medicine still has stimulant effects on the body.

Is caffeine safe with a prescription stimulant?

Some people tolerate the combination, while others develop shakiness, palpitations, anxiety, or poor sleep. Ask a pharmacist or prescriber about your medicine and usual caffeine intake rather than assuming the combination is harmless.

Can I stop a prescription stimulant suddenly?

The answer depends on the medicine, dose, length of use, and reason for stopping. A prescriber can explain whether a gradual reduction is needed and what changes to watch for.

Will a stimulant appear on a drug test?

Some tests detect particular stimulants or their breakdown products. Results depend on the substance, test, timing, and laboratory method. Tell the testing service about prescribed medicines, and ask whether an unexpected screening result will be confirmed with a more specific test.

Are energy drinks the same as coffee?

No. Both may contain caffeine, but energy drinks can include other ingredients and may contain different amounts per serving. Check the serving size and total caffeine on the label where it is listed.

Sources

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