

What to Know About Nicotine Use

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Nicotine, a stimulant found in tobacco plants, is one of the most heavily used drugs in the United States—and it's just as addictive as [cocaine](#) or [heroin](#), according to the surgeon general. Nicotine products are regulated by the Federal Drug Administration (FDA). While nicotine is legal, it is illegal to sell or distribute nicotine-containing products to people under 18.

Cigarette smoking is the primary source of nicotine, with one pack of cigarettes providing some 250 "hits" of the extremely addictive substance.

Fewer people over the age of 18 are smoking today than ever before, but it still remains the most preventable cause of death in the United States accounting for 480,000 deaths annually.

Estimates from the Centers for Disease Control and Prevention for 2017 indicate that 14% of the U.S. adult population smoke cigarettes.¹

Also Known As: Nicotine products include cigarettes (also known as "smokes"), pipes, cigars (sometimes referred to as "stogies"), chewing tobacco (also known as "dip" or "chew"), snuff, hookahs, and e-cigarettes (also known as "e-cigs" and "vapes").

Drug Class: Nicotine is classified as a stimulant.

Common Side Effects: Nicotine is known to cause decreased appetite, heightened mood, increased heart rate and blood pressure, nausea, diarrhea, better memory, and increased alertness.

How to Recognize Nicotine

Nicotine is rarely sold as a singular product, rather it's most often found as an ingredient in tobacco products like cigarettes and some smoking cessation products like nicotine gum and patches. Nicotine is sold as a liquid for use in e-cigarettes.

The FDA requires warning statement labels on tobacco products: "WARNING: This product contains nicotine. Nicotine is an addictive chemical."

What Does Nicotine Do?

When a person inhales cigarette smoke, the nicotine in the smoke is rapidly absorbed into the blood and starts affecting the brain within 10 seconds. Once there, nicotine triggers a number of chemical reactions that create temporary feelings of pleasure and concentration. But these sensations are short-lived, subsiding within minutes.

These chemical reactions include the release of catecholamines such as adrenaline, the "fight or flight" hormone. Physically, adrenaline increases heart rate and blood pressure. When this occurs, smokers may experience rapid, shallow breathing and the feeling of a racing heartbeat. Adrenaline also tells the body to dump excess glucose into the bloodstream.

Nicotine also curbs appetite and may contribute to weight loss in complex ways.

What the Experts Say

Many researchers are beginning to question whether nicotine is any more harmful than a daily dose of caffeine. To date, there have been studies showing positive effects of nicotine, including decreased tension and increased thinking, as well as the stimulant's potential in warding off cognitive decline into Alzheimer's, delaying the progression of Parkinson's disease, and as a therapeutic approach for [ADHD](#) and [schizophrenia](#).

Still, health professionals continue to warn about the dangers of nicotine, especially when used by adolescents whose brains are still developing (until age 25).

Nicotine impacts the parts of the brain that play a role in attention, memory, learning, and brain plasticity.

While cigarette smoking is on the decline, vaping and e-cigarettes are on the rise. The American Academy of Pediatrics warns that “e-cigarettes are threatening to addict a new generation to nicotine” and recommended increasing the minimum age to purchase e-cigarettes to 21 nationwide. ²

Off-Label and Approved Uses

Nicotine replacement therapy (NRT) was the first pharmacological treatment approved by the FDA for smoking cessation. In fact, studies show that using the nicotine patch can double the rate of a person's smoking cessation success, especially when combined with support.

There are a variety of available NRT products, including:

- Nicotine patch
- Nicotine gum
- Nicotine nasal spray
- Nicotine inhaler
- Nicotine lozenges

Common Side Effects

Nicotine causes a range of effects on both the body and mind, including:

- Decreased appetite
- Heightened mood
- Increased activity in the intestines
- Increased production of saliva and phlegm
- Increased heart rate
- Increased blood pressure
- Sweating
- Nausea
- Diarrhea
- Better memory
- Increased alertness

Signs of Use

If your loved one is smoking cigarettes, you'll likely be able to smell it on them. Detecting vaping can be a bit more difficult—but there are still some signs of use:

- **Devices:** E-cigarettes or "vape pens" can look like a thumb drive, pen, or stylus, with holes on each end.
- **Irritability:** This is a classic sign of withdrawal.
- **Sweet smells:** Vapor juice is often flavored, so if you suddenly catch a whiff of fruit punch or bubble gum (and there's no candy around) it could be a red flag.
- **Nosebleeds:** Vaping can dry out the nasal passages and cause nose bleeds.
- **Drinking more liquids:** The vaporized liquid in e-cigs contains propylene glycol, which attracts and holds water molecules from the mouth, causing constant dry mouth.

Can You Overdose on Nicotine?

Nicotine is poisonous and overdose is possible, though not common. Most often, nicotine poisoning occurs when children mistake nicotine gum or lozenges for candy.

If you or someone you care about experiences the following signs of nicotine overdose, call 911 or poison control (800-222-1222) immediately:

- Difficulty breathing
- Vomiting
- Fainting
- Headache
- Weakness
- Increased or decreased heart rate

Myths & Common Questions

Many people think that nicotine causes cancer—but the jury is still out. Nicotine is certainly a harmful, addictive substance but it is mainly the tar and the other toxic chemicals in cigarette smoke that cause cancer.

Research does suggest that nicotine can increase the risk of cancer due to its damaging effects on DNA, although the risk is much lower than those from smoking cigarettes. [A study by the National Cancer Institute](#) found that those who were most addicted to nicotine—smoking a cigarette within five minutes of waking up—had the greatest risk of developing lung cancer.

Many teens think that using e-cigarettes is safer, however, they still contain high levels of nicotine. The brand JUUL packs perhaps the most potent dose: one pod contains roughly 20 cigarettes worth of nicotine and the product claims to deliver the addictive substance 2.7 times faster than other e-cigarettes.³

Tolerance, Dependence, and Withdrawal

Nicotine is extremely addictive and, when used regularly, your body and mind learn to expect a certain amount of nicotine each day—and if it doesn't get it, withdrawal can be intense. You can quickly build a tolerance to nicotine, needing more to reach the desired effect. This is one reason why it's so hard (but not impossible) to quit smoking.

How Long Does Nicotine Stay in Your System?

Nicotine (in the form of a cigarette, pipe, or e-cigarette smoke) is mostly absorbed into the body through the lungs as well as the membranes in the mouth and throat. It can also be absorbed in your gastrointestinal tract (via chewing tobacco, nicotine gum, and lozenges) or your skin if you use a nicotine patch.

Nicotine is mainly metabolized in the liver and is excreted via urine through the kidneys as well as in feces. How long it stays in your system depends on many factors, including age, weight, type, frequency of use, and hydration and physical activity levels.

That said, the estimated timeframe is as follows:

- Urine test: Two to four days
- Blood test: Two to four days
- Saliva test: One to four days
- Hair follicle test: Up to 90 days

Many routine drug tests screen for nicotine.

Addiction

Nicotine is a highly addictive substance that's found in all tobacco products, including cigarettes, pipes, cigars, chewing tobacco, snuff, hookahs, e-cigarettes, and other vaping devices.

Nicotine activates the same reward pathways in the brain that other drugs such as cocaine or amphetamines do, although to a lesser degree. Research has shown that nicotine increases the level of dopamine in the brain, a neurotransmitter that is responsible for feelings of pleasure and well-being.⁴

Withdrawal

As the nicotine level drops in the blood, people may feel edgy and agitated—the start of nicotine withdrawal. The acute effects of nicotine wear off within minutes, so people who smoke must continue dosing themselves frequently throughout the day to maintain the pleasurable effects of nicotine and to prevent nicotine withdrawal, which causes a host of physical and psychological symptoms:

- Cravings to smoke
- Irritability, crankiness
- Insomnia
- Fatigue
- Inability to concentrate
- Headache
- Cough
- Sore throat
- Constipation, gas, stomach pain
- Dry mouth
- Sore tongue and/or gums
- Postnasal drip
- Tightness in the chest