



National Institute
on Drug Abuse

DrugFacts

www.drugabuse.gov

Cigarettes and Other Tobacco Products

What is tobacco?

Tobacco is a plant grown for its leaves, which are dried and fermented before being put in tobacco products. Tobacco contains nicotine, an ingredient that can lead to addiction, which is why so many people who use tobacco find it difficult to quit. There are also many other potentially harmful chemicals found in tobacco or created by burning it.



Tobacco leaves
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How do people use tobacco?

People can smoke, chew, or sniff tobacco. Smoked tobacco products include cigarettes, cigars, bidis, and kreteks. Some people also smoke loose tobacco in a pipe or hookah (water pipe). Chewed tobacco products include chewing tobacco, snuff, dip, and snus; snuff can also be sniffed.

How does tobacco affect the brain?

The nicotine in any tobacco product readily absorbs into the blood when a person uses it. Upon entering the blood, nicotine immediately stimulates the adrenal glands to release the hormone epinephrine (adrenaline). Epinephrine stimulates the central nervous system and increases blood pressure, breathing, and heart rate. As with drugs such as cocaine and heroin, nicotine activates the brain's reward circuits and also increases levels of the chemical messenger *dopamine*, which reinforces rewarding behaviors. Studies suggest that other chemicals in tobacco smoke, such as acetaldehyde, may enhance nicotine's effects on the brain.

What are other health effects of tobacco use?

Although nicotine is addictive, most of the severe health effects of tobacco use comes from other chemicals. Tobacco smoking can lead to lung cancer, chronic bronchitis, and emphysema. It increases the risk of heart disease, which can lead to stroke or heart attack. Smoking has also been linked to other cancers, leukemia, cataracts, Type 2 Diabetes, and pneumonia. All of these risks apply to use of any smoked product, including hookah tobacco. Smokeless tobacco increases the risk of cancer, especially mouth cancers.

Pregnant women who smoke cigarettes run an increased risk of miscarriage, stillborn or premature infants, or infants with low birth weight. Smoking while pregnant may also be associated with learning and behavioral problems in exposed children.

People who stand or sit near others who smoke are exposed to secondhand smoke, either coming from the burning end of the tobacco product or exhaled by the person who is smoking. Secondhand smoke exposure can also lead to lung cancer and heart disease. It can cause health problems in both adults and children, such as coughing, phlegm, reduced lung function, pneumonia, and bronchitis. Children exposed to secondhand smoke are at an increased risk of ear infections, severe asthma, lung infections, and death from sudden infant death syndrome.

Electronic Cigarettes

Electronic cigarettes, also known as e-cigarettes or e-vaporizers, are battery-operated devices that deliver nicotine with flavorings and other chemicals to the lungs in vapor instead of smoke. E-cigarette companies often advertise them as safer than traditional cigarettes because they don't burn tobacco. But researchers actually know little about the health risks of using these devices. Read more about e-cigarettes in our [Electronic Cigarettes \(E-cigarettes\) DrugFacts](#).

How does tobacco use lead to addiction?

For many who use tobacco, long-term brain changes brought on by continued nicotine exposure result in addiction. When a person tries to quit, he or she may have withdrawal symptoms, including:

- irritability
- problems paying attention
- trouble sleeping
- increased appetite
- powerful cravings for tobacco

How can people get treatment for nicotine addiction?

Both behavioral treatments and medications can help people quit smoking, but the combination of medication with counseling is more effective than either alone.

Surgeon General's Report on Smoking Cessation

The Surgeon General's Report on Smoking Cessation, released in January 2020, offers evidence that smoking cessation is beneficial at any age, improves health status and enhances quality of life. It also reduces the risk of premature death and can add as much as a decade to life expectancy.

The U.S. Department of Health and Human Services has established a national toll-free quitline, 1-800-QUIT-NOW, to serve as an access point for anyone seeking information and help in quitting smoking.

Behavioral Treatments

Behavioral treatments use a variety of methods to help people quit smoking, ranging from self-help materials to counseling. These treatments teach people to recognize high-risk situations and develop strategies to deal with them. For example, people who hang out with others who smoke are more likely to smoke and less likely to quit.

Nicotine Replacement Therapies

Nicotine replacement therapies (NRTs) were the first medications the U.S. Food and Drug Administration (FDA) approved for use in smoking cessation therapy.

Current FDA-approved NRT products include chewing gum, transdermal patch, nasal sprays, inhalers, and lozenges. NRTs deliver a controlled dose of nicotine to relieve withdrawal symptoms while the person tries to quit.

Other Medications

Bupropion (Zyban®) and varenicline (Chantix®) are two FDA-approved non-nicotine medications that have helped people quit smoking. They target nicotine receptors in the brain, easing withdrawal symptoms and blocking the effects of nicotine if people start smoking again.

Government Regulation of Tobacco Products

On May 5, 2016, the FDA announced that nationwide tobacco regulations now extend to *all* tobacco products, including:

- e-cigarettes and their liquid solutions
- cigars
- hookah tobacco
- pipe tobacco

This ruling includes restricting sale of these products to minors. For more information, see the FDA's webpage, [The Facts on the FDA's New Tobacco Rule](#).

In December 2019, the federal government [raised the legal minimum age](#) of sale of tobacco products from 18 to 21 years, and in January 2020, in January 2020, the FDA issued a [policy](#) on the sale of flavored vaping cartridges.

Can a person overdose on nicotine?

Nicotine is poisonous and, though uncommon, overdose is possible. An overdose occurs when the person uses too much of a drug and has a toxic reaction that results in serious, harmful symptoms or death. Nicotine poisoning usually occurs in young children who accidentally chew on nicotine gum or patches used to quit smoking or swallow e-cigarette liquid. Symptoms include difficulty breathing, vomiting, fainting, headache, weakness, and increased or decreased heart rate. Anyone concerned that a child or adult might be experiencing a nicotine overdose should seek immediate medical help.

Reports of Deaths Related to Vaping

The Food and Drug Administration has [alerted](#) the public to hundreds of reports of serious lung illnesses associated with vaping, including several deaths. They are working with the Centers for Disease Control and Prevention (CDC) to investigate the cause of these illnesses. Many of the suspect products tested by the states or federal health officials have been identified as vaping products containing THC, the main psychotropic ingredient in marijuana. Some of the patients reported a mixture of THC and nicotine; and some reported vaping nicotine alone. No one substance has been identified in all of the samples tested, and it is unclear if the illnesses are related to one single compound. Until more details are known, FDA officials have warned people not to use any vaping products bought on the street, and they warn against modifying any products purchased in stores. They are also asking people and health professionals to [report](#) any adverse effects. The CDC has posted an [information page](#) for consumers.

Points to Remember

- Tobacco is a plant grown for its leaves, which are dried and fermented before being put in tobacco products. Tobacco contains nicotine, the ingredient that can lead to addiction.
- People can smoke, chew, or sniff tobacco.
- Nicotine acts in the brain by stimulating the adrenal glands to release the hormone epinephrine (adrenaline) and by increasing levels of the chemical messenger dopamine.
- Tobacco smoking can lead to lung cancer, chronic bronchitis, and emphysema. It increases the risk of heart disease, which can lead to stroke or heart attack. Smoking has also been linked to other cancers, leukemia, cataracts, and pneumonia. Smokeless tobacco increases the risk of cancer, especially mouth cancers.
- Secondhand smoke can lead to lung cancer and heart disease as well as other health effects in adults and children.
- For many who use tobacco, long-term brain changes brought on by continued nicotine exposure result in addiction.
- Both behavioral treatments and medication can help people quit smoking, but the combination of medication with counseling is more effective than either alone.
- Nicotine overdose is possible, though it usually occurs in young children who accidentally chew on nicotine gum or patches or swallow e-cigarette liquid.
- Anyone concerned that a child or adult might be experiencing a nicotine overdose should seek immediate medical help.

Learn More

For more information about tobacco products and nicotine, visit our [Tobacco/Nicotine webpage](#).

For more information about how to quit smoking, visit smokefree.gov.

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