

NICOTINE ADDICTION, ABUSE, AND SYMPTOMS

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Nicotine is the chemical found in tobacco products, including cigarettes, cigars, snuff, chewing tobacco, and pipe tobacco. Purified nicotine, not tobacco, is also found in the liquid used in electronic cigarettes (e-cigarettes) and vaping devices. Nicotine is highly addictive, even if you only use nicotine for a short time. Most of the 58.8 million people aged 12 or older in the United States who used tobacco in 2018 smoked cigarettes. Although there has been some decline in smoking cigarettes, the increased use of vaping devices as a substitute for getting nicotine may counter this decline.

Tobacco products are marketed as providing pleasure, enjoyment, satisfaction, and refreshment. Nicotine affects the brain and central nervous system, producing physical and mood-altering results that give the user temporary feelings of pleasure. Nicotine may also reduce stress and anxiety, distracting the user from unpleasant feelings and potentially improving alertness and concentration. As your body adjusts to the nicotine you smoke, dip, chew, or vape, you develop a tolerance and need more nicotine to prevent withdrawal symptoms. Eventually, you can develop nicotine dependence and become addicted.

The Centers for Disease Control and Prevention currently lists [tobacco use](#) as the [most common preventable cause of death](#) in the United States with more than 480,000 deaths each year caused by smoking cigarettes. Since the first Surgeon General's report on smoking and health in 1964, more than [20 million people](#) in America have died due to smoking cigarettes. Smoking can harm nearly every organ and cause cancer nearly anywhere in your body, which includes about 90% of all lung cancer deaths. Smoking can also cause numerous diseases, including about 80% of deaths due to chronic obstructive pulmonary disease (COPD) and 32% of deaths due to coronary heart disease. Smoking reduces your overall health, and evidence indicates that long-term cigarette [smoking reduces life expectancy by an average of 10 years](#).

This guide explains the effects, trends, and dangers of nicotine use and provides an unbiased analysis of the medicinal and behavioral treatment methods for nicotine addiction based on current research and publicly available statistics. Nicotine usage statistics are derived from overall tobacco use, including nicotine received through smoking, dipping, and chewing tobacco products. In some cases, usage statistics also include using vaping devices that deliver pure nicotine instead of tobacco.

Primary Nicotine Dangers

- **Addictiveness:** Nicotine is physically and mentally addictive, but [addiction is also behavioral](#). In a comprehensive 2007 study by [Nutt et al.](#), the addictive potential of 20 substances were evaluated based on pleasure and physical and psychological dependence. Tobacco only ranked ninth overall in the study, due in large part to an overall score of 1.24 out of 3 for physical harm, despite scoring 2.9 out of 3 for chronic harm, because of a zero ranking for intravenous harm. In other categories, it scored 2.21 out of 3 for dependence, ranking it third below heroin and cocaine, and scored 2.4 out of 3 for health care costs, ranking it second behind heroin.
- **Risk of overdose:** Nicotine overdose is referred to as [nicotine poisoning](#). While rare, nicotine poisoning has recently become more common, potentially due to the pure liquid nicotine delivered via e-cigarettes/vaping devices. Although children are more vulnerable to nicotine poisoning, it can also occur in adults. Symptoms of nicotine poisoning typically begin within 15 minutes, with treatment focusing on individual symptoms. According to the Archives of Toxicology, [30 to 60 milligrams](#) of nicotine is considered lethal in adults, but fatalities are relatively rare.
- **Unintended side effects:** Nicotine use can lead to chronic bronchitis, dental issues, diabetes, emphysema, eye issues, heart disease, impotence, infertility, leukemia, loss of sense of taste or smell, lung cancer, miscarriage and pregnancy complications, osteoporosis, peptic ulcer disease, premature aging, respiratory infections, stroke, and a weakened immune system.
- **Legal risks:** Nicotine isn't included in the Controlled Substance Act, so there aren't any legal risks in this regard. However, the federal minimum age for purchasing tobacco products was [raised from 18 to 21](#), making it illegal to sell to anyone under 21. [Penalties vary by state](#) but can include confiscation, community service, fines, and/or jail time for persons under 21 in possession of tobacco products and to business owners and/or individuals who sell tobacco products to persons under 21.

Nicotine Background Information

Derived From	Primarily derived from the tobacco plant, a member of the nightshade family, but can also be produced synthetically .
Ways Used	Smoked, vaped, chewed, dipped, sniffed
Scientific Name	Nicotiana tabacum
Slang/Street Names for Tobacco	Cigarettes, cigars, pipes, smokes, butt, snuff, bone, coffin nail, cancer stick, stogie, cigs, ciggies, chew, dip, vape, vaping, e-juice, e-liquid, juice
How Long in Bodily System	Half-life is approximately 2 hours , but nicotine stays in your bloodstream for one to three days.
Punitive Legal Measures: Using/Possession	Nicotine isn't a scheduled controlled substance, so punitive legal measures for possession or using tobacco products only affect those under age 21, and penalties vary based on state and local laws.
Punitive Legal Measures: Selling/Distributing	Nicotine isn't a scheduled controlled substance, so business owners or individuals selling or distributing tobacco products to persons under the age of 21 face punitive penalties based on state and local laws.
DEA Drug Rating	Not Applicable

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II. Signs of Abuse

Behavioral Symptoms of Nicotine Usage and Abuse

[How nicotine affects the brain](#)

Nicotine acts as both a [sedative and a stimulant](#) and mimics several neurotransmitters, sending signals to the brain that create pleasurable sensations. Over time, your brain begins to compensate for these signals, and you develop nicotine tolerance, which requires continued and increased use to get the same effects. [Nicotine also causes changes in the brain](#) that lead to withdrawal symptoms when you attempt to cut back or quit. To alleviate these uncomfortable symptoms, you reach for another cigarette. This makes nicotine addiction difficult to break. Because adolescent brains are still developing, they're especially susceptible to [getting hooked on nicotine](#).

Besides the addictive effects on your brain, nicotine can affect your brain in numerous adverse ways. The longer you smoke, the higher your risk of [losing brain volume](#) as you age. Smokers may experience [cognitive decline](#) faster than nonsmokers and have an [increased risk of dementia](#). Smoking also increases the risk of stroke and may also cause personality changes. Although [research on e-cigarettes is limited](#), using these devices can produce similar changes in the brain as smoking cigarettes, potentially having the same negative impacts.

Behavioral signs of nicotine usage and abuse

Because smoking can physically change your brain's structure, it can also change behavior. One negative effect of behavioral changes in the brain is developing mood disorders, such as depression. Researchers often question the connection between daily smoking and the onset or worsening of [psychiatric disorders](#), with numerous studies indicating that smoking may cause anxiety disorders and schizophrenia. Smoking may also be a gateway to other substance abuse, including alcohol abuse.

The physical and mental addiction to smoking can also cause behavioral changes in social situations. You may specifically look for social activities in which it's okay to smoke, choosing to hang out with other people who smoke and ignoring invitations from those who don't or shunning friends or family members with negative opinions about your habit. You may also skip activities you previously enjoyed, such as going to movies, museums, or other places where you know you won't be able to smoke for long periods of time. If you do go to events where smoking isn't allowed, you might make excuses to go outside to grab a smoke and miss important parts of the event.

Changes in behavior can also affect you financially. You may miss out on job opportunities because more employers are requiring employees to be smoke-free. You may lose a job because you continually get grumpy with coworkers due to symptoms of withdrawal when you can't smoke. You may also find yourself being late for appointments because you had to stop to smoke before you were stuck somewhere you couldn't smoke. Employment issues may lead to money troubles, and some people end up spending money on nicotine products instead of paying bills or buying food.

Smoking can interfere with the personal aspects of your life. You may become irritable or even hostile with friends and family who suggest you cut down or stop smoking. Because smokers use cigarettes to relieve stress, you may lose your ability to cope with stressful situations or people, causing friction with loved ones. You may even make excuses to smoke, intentionally looking for [triggers](#) that give you a reason to smoke.

Physical Symptoms of Nicotine Abuse

How nicotine affects the body

Smoking causes numerous [health issues](#) because it harms nearly all your organs with some harmful effects immediate. Your lungs are most affected, with coughing, frequent colds, asthma, and increased risk for emphysema, COPD, and lung cancer. Smoking also damages your heart and blood circulation, increasing your risk of coronary heart disease, damaged blood vessels and arteries, heart attack, and stroke. You can develop digestive issues like acid reflux and have an increased chance for ulcers or stomach cancer. Smokers are more prone to osteoporosis because smoking causes bones to become brittle. [Health problems from smoking](#) may also include fertility issues, pregnancy complications, Type 2 diabetes, poor oral health, issues with vision, and unhealthy skin and hair.

Early physical effects of nicotine

The [physical effects of smoking](#) are felt almost immediately because it only takes [6 to 10 seconds](#) for nicotine to reach your brain. Early effects typically include mild euphoria, feeling relaxed, elevated alertness, and increased heart rate, blood pressure, and respiration. You may also feel negative effects like throat irritation, coughing, dizziness, nausea, and headache. In as little as [20 minutes](#), the nicotine begins to leave your system and physical effects start to wane. Your heart rate and blood pressure return to normal, but you may also start feeling anxious and begin craving another cigarette.

This table illustrates the possible short-term physical effects associated with nicotine.

	Short-Term Physical Symptoms
Initial (direct effects of drug, within seconds)	<ul style="list-style-type: none"> Nicotine buzz Enhanced mood Pleasant feelings Stress relief Increased alertness Increased heart rate Increased respiration Increased blood pressure Throat irritation Coughing
Lingering (about 20 minutes after taking the drug)	<ul style="list-style-type: none"> Heart rate returns to normal Blood pressure returns to normal Throat irritation Coughing Decreased alertness Anxiety
Post-Use (several hours to days after use)	<ul style="list-style-type: none"> Moodiness Irritability Increased Anxiety Cravings Withdrawal symptoms

Severe and long-term physical effects of nicotine

Cigarettes contain thousands of chemicals, many of which are poisons, that damage your body's tissues. Cigarette smoke reaches your lungs quickly and [causes lung damage](#) right away. The longer you smoke, the more damage occurs. Serious lung issues caused by smoking include chronic bronchitis, worsening asthma, and emphysema. Smokers are also 12 to 13 times more likely to develop and die from COPD.

Smoking dramatically increases your chance for lung cancer, with men [25 times more likely](#) to develop lung cancer and women 25.7 times more likely. Besides your lungs, smoking can cause cancer almost anywhere in your body, including your stomach, kidneys, pancreas, bladder, blood, colon, esophagus, liver, throat, and larynx. Smoking also causes coronary heart disease and stroke, which are among the leading causes of death.

Besides harming yourself, smoking can also harm those around you via secondhand smoke. Some of the [health effects of secondhand smoke](#) include stroke, coronary heart disease, and lung cancer. Children exposed to secondhand smoke may develop more severe/frequent asthma attacks, ear infections, and respiratory infections. Infants may be more susceptible to sudden infant death syndrome. Women who smoke while pregnant also expose their unborn babies to the harmful effects of nicotine, including addiction, premature birth, low birth weight, damaged brain and lungs, and stillbirth.

This table illustrates the possible long-term physical effects associated with nicotine.

	Long-Term Physical Symptoms
Casual	Acid reflux Bad breath Breathing problems Constricted blood vessels Decreased physical performance Dry mouth Increased blood pressure Increased heart rate Increased phlegm production Persistent cough Sinus issues Throat irritation
Chronic <i>Including all the above effects for casual use</i>	Asthma Chronic bronchitis Dental issues Diabetes Emphysema Eye issues

Heart disease
Impotence
Infertility
Leukemia
Loss of sense of taste or smell
Lung cancer
Osteoporosis
Peptic ulcer disease
Pregnancy complications
Premature aging
Respiratory infections
Stroke
Weakened immune system

Withdrawal

Anxiety
Bad dreams
Chest tightness
Constipation
Cough
Depression
Difficulty concentrating
Dizziness
Headaches
Increased appetite
Insomnia
Irritability
Nasal drip
Restlessness
Slower heart rate
Tiredness
Tremors
Weight gain

Further Resources

Both the [National Institute of Drug Abuse](#) (NIDA) and the [Substance Abuse and Mental Health Services Administration](#) (SAMHSA) offer in-depth information on the symptoms and treatment of nicotine addiction.

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III. Nicotine Usage

Global tobacco use remains high and increasing among adolescents

There are an estimated [1.1 billion smokers](#) worldwide. According to the [2018 Tobacco Atlas](#) published by the American Cancer Society, this estimate included 941 million men and 175 million women, ages 15 or older. A major concern was the recent increase in smoking among adolescents, particularly females. The [World Health Organization](#) reported that approximately 43 million adolescents worldwide between the ages of 13 and 15 used tobacco in 2018. Tobacco products in their report included cigarettes, cigars, smokeless tobacco products, pipes, waterpipes, and heated tobacco products, but e-cigarettes weren't covered.

Cigarettes are the [most commonly used tobacco product](#) [✓], with smokers in 75 countries consuming more than [6 trillion cigarettes](#) in 2012. With numerous efforts to curb smoking, these numbers dropped to about [5.7 trillion cigarettes](#) in 2016. However, the tobacco epidemic has become more complex with the popularity of alternative delivery systems, such as waterpipes and electronic cigarettes. [Tobacco remains a major threat](#) to the health of the world's population, killing more than [8 million people](#) every year worldwide, including deaths by secondhand smoke.

Nicotine Use Throughout the World

	Highest	Second	Third
Countries With the Largest Reduction in Smokers	North America 13.9 million	Japan 9.3 million	United Kingdom 6 million
Countries With the Largest Reduction in Smokers	China 99.6 million	India 35.7 million	Indonesia 29.1 million

**Global trends in tobacco usage between 1980 and 2012.*

Sources: [Institute for Health Metrics and Evaluation](#)

Nicotine Usage Demographics in the United States

Nicotine use remains high in the United States, especially among young adults

Although cigarette smoking declined to some degree, this decline may soon rise with electronic vaping devices being used as a substitute for delivering nicotine. This may be especially true in adolescents and young adults. While the [2018 National Survey on Drug Use and Health](#) didn't ask separate questions about vaping nicotine, it showed a slightly lower use of cigarettes, but the percentages were still relatively high.

Data showed that approximately 672,000 or 2.7% of adolescents between 12 and 17 used cigarettes. The number of young adults between 18 and 25 who smoked was estimated at 6.5 million or 19.1% of this age group. An estimated 39.8 million or 18.5% of adults age 26 or older smoked cigarettes. Of the 47.6 million cigarette smokers age 12 or older, 27.3 million smoked daily. These numbers included about 99,000 adolescents, 2.4 million young adults, and 24.8 million adults who smoked cigarettes every day.

Demographics of Nicotine Usage

<i>Any Cigarettes</i>	Past Year (2018)	Lifetime
8th grade (14-15 yo)	2.30%	10%
10th grade (15-16 yo)	3.40%	14.20%
12th grade (17-18 yo)	5.70%	22.30%

<i>Any Vaping</i>	Past Year (2018)	Lifetime
8th grade (14-15 yo)	12.20%	24.30%
10th grade (15-16 yo)	25.50%	41%
12th grade (17-18 yo)	30.90%	45.60%

<i>Smokeless Tobacco</i>	Past Year (2018)	Lifetime
8th grade (14-15 yo)	2.5%	7.10%
10th grade (15-16 yo)	3.20%	9.20%
12th grade (17-18 yo)	3.50%	9.80%

Source: [2015-2018 Monitoring the Future Study: Trends in Prevalence](#)

IV. How to Find Help

According to Jeremy Barnett, a Credentialed Alcoholism and Substance Abuse Counselor, “Nicotine tends to be overshadowed because it doesn’t have the same immediate consequences as ‘hard drugs,’ but it is nonetheless considered to be one of the most difficult substances to quit. Most of the harm associated with nicotine use arises from the chemicals released from the tobacco smoke of a cigarette. Unfortunately, it is all too common for those in sobriety, especially inpatient treatment, to pick up a smoking habit as a means of easing cravings and post-acute withdrawal symptoms from other substances.”

Dependency on nicotine can occur in a relatively short time, even after only smoking a few cigarettes. Once you’re physically and mentally addicted to smoking, the habit is hard to kick, especially because withdrawal symptoms can begin in as little as 20 minutes after your last cigarette. Extreme anxiety and irritability may make you reach for a cigarette, even when you’re committed to quitting. There are numerous programs and treatment plans available to help you kick the nicotine habit. To learn more about the treatment process, read [our Nicotine rehabilitation guide](#), which provides a comprehensive resource for starting the process.

Staging an Intervention

If you have a loved one who’s struggling with addiction, staging an intervention is often the first necessary step towards sobriety, but it’s important to be strategic and loving in your approach. Even the most well-meaning of interventions can have a negative effect if they aren’t handled correctly.

5 Tips for Staging an Intervention

1. Don’t Do It Alone. A professional interventionist is always the most qualified to guide a successful intervention. Also, rely on non-addict family and friends – especially those who have a close relationship with you or the addict.

2. Research Ahead of Time. It’s best to do plenty of research ahead of time to gather insight on the addiction and how it affects the addict. Also, be prepared with local resources for getting help.

3. Write Out Your Statement. During the actual intervention, emotions will likely be running high, so it’s best to have a statement of how the person’s addiction has impacted you and your relationship with him or her. These statements should be honest, yet written from a place of love – no personal attacks.

4. Offer Help. It's important for everyone attending the intervention to offer tangible help and support as the person works through detox and rehabilitation.

5. Set Boundaries. If the person refuses to seek help and take the next steps outlined, it's important that they understand that everyone present will end codependence and enabling behaviors.

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