

Questions About Smoking, Tobacco, and Health

Is smoking tobacco really addictive?

Addiction is marked by the repeated, compulsive seeking or use of a substance despite its harmful effects and unwanted consequences. Addiction is mental or emotional dependence on a substance. Nicotine is the known addictive substance in tobacco, and researchers are looking for other substances that may also contribute to tobacco dependence.

Regular use of tobacco products leads to addiction in many users. Nicotine is a drug found naturally in tobacco, which is as addictive as heroin or cocaine:

- When taken in small amounts, nicotine creates pleasant feelings that make the smoker want to smoke more. It acts on the chemistry of the brain and central nervous system, affecting the smoker's mood. Nicotine works very much like other addicting drugs, by flooding the brain's reward circuits with dopamine (a chemical messenger). Nicotine also gives you a little bit of an adrenaline rush – not enough to notice, but enough to speed up your heart and raise your blood pressure.
- Nicotine reaches the brain within seconds after taking a puff, and its effects start to wear off within a few minutes. This is what most often leads the smoker to light up again. If the smoker doesn't smoke again soon, withdrawal symptoms start and get worse over time.
- The typical smoker takes about 10 puffs from each cigarette. A person smoking a pack per day gets about 200 "hits" of nicotine each day.
- Smokers usually become dependent on nicotine and suffer physical and emotional (mental or psychological) withdrawal symptoms when they stop smoking. These symptoms include irritability, nervousness, headaches, and trouble sleeping. The true marker for addiction, though, is that people still smoke even though they know smoking is bad for them – affecting their lives, their health, and their families in unhealthy ways. In fact, most people who smoke want to quit.

Researchers are also looking at other chemicals in tobacco that make it harder to quit. In the brains of animals, tobacco smoke causes chemical changes that are not fully explained by the effects of nicotine.

In one regular cigarette, the average amount of nicotine the smoker gets ranges between about 1 mg and 2 mg. But the cigarette itself contains more nicotine than this. The amount people actually take in depends on how they smoke, how many puffs they take, how deeply they inhale, and other factors.

All forms of tobacco have nicotine and other chemicals which are easily absorbed through the lungs with smoking and through the mouth or nose with oral tobacco (spit, snuff, or smokeless tobacco). From these entry points, nicotine quickly spreads throughout the body.

How powerful is nicotine addiction?

About 70% of smokers say they want to quit and about half try to quit each year, but only 4% to 7% succeed without help. This is because smokers not only become physically dependent on nicotine. There's also a strong emotional (psychological) dependence; this is what leads to relapse after quitting. The smoker may link smoking with social activities and many other activities, too. Smokers also may use tobacco to help manage unpleasant feelings and emotions, which can become a problem for some smokers when they try to quit. All of these factors make smoking a hard habit to break.

In fact, it may be harder to quit smoking than stop using cocaine or opiates like heroin. Researchers recently reviewed 28 different studies of people who were trying to quit using the substance they were addicted to. They focused on the people in the studies who didn't get any medicines to help them quit. (Many of these people had other kinds of support for quitting, such as behavioral therapy, so success rates may have been higher than if they'd had no help at all.) About 18% were able to quit drinking, and more than 40% were able to quit opiates or cocaine, but only 8% were able to quit smoking.

What does nicotine do?

Nicotine is a poison, and a large dose of nicotine can kill by stopping the muscles a person uses to breathe. But smokers usually take in much smaller amounts that the body can quickly break down and get rid of. The first dose of nicotine makes a person feel awake and alert, while later doses make them feel calm and relaxed.

Nicotine can make new smokers, and regular smokers who get too much of it, feel dizzy or sick to the stomach. The resting heart rate for young smokers increases 2 to 3 beats per minute. Nicotine also lowers skin temperature and reduces blood flow in the legs and feet. It may play a role in increasing smokers' risk of heart disease and stroke, but other substances in cigarette smoke likely play a bigger part.

Many people mistakenly think that nicotine is the substance in tobacco that causes cancer. This belief may cause some people to avoid using nicotine replacement therapy when trying to quit. Nicotine is what helps get (and keep) people addicted to tobacco, but other substances in tobacco cause cancer.

Research has shown that nicotine itself does affect the activities of certain normal cells and cancer cells. And some animal studies have shown that nicotine may help existing tumors grow and spread, but whether this happens in people is not yet known and more research is needed.