Guide to Quitting Smoking

What do I need to know about quitting?

The US Surgeon General has said, “Smoking cessation [stopping smoking] represents the single most important step that smokers can take to enhance the length and quality of their lives.”

It’s hard to quit smoking, but you can do it. To have the best chance of quitting and staying a non-smoker, you need to know what you’re up against, what your options are, and where to go for help. You’ll find this information here.

Why is it so hard to quit smoking?

Mark Twain said, “Quitting smoking is easy. I’ve done it a thousand times.” Maybe you’ve tried to quit, too. Why is quitting and staying quit hard for so many people? The answer is mainly nicotine.

Nicotine

Nicotine is a drug found naturally in tobacco, which is as addictive as heroin or cocaine. Over time, a person becomes physically dependent on and emotionally addicted to nicotine. This physical dependence causes unpleasant withdrawal symptoms when you try to quit. The emotional and mental dependence (addiction) make it hard to stay away from nicotine after you quit. Studies have shown that to quit and stay quit, smokers must deal with both the physical and mental dependence.

How nicotine gets in, where it goes, and how long it stays

When you inhale smoke, nicotine is carried deep into your lungs. There it’s quickly absorbed into the bloodstream and carried, along with the carbon monoxide and other toxins, to every part of your body. In fact, nicotine inhaled in cigarette smoke reaches the brain faster than drugs that enter the body through a vein (intravenously or IV).

Nicotine affects many parts of your body, including your heart and blood vessels, your hormones, the way your body uses food (your metabolism), and your brain. Nicotine can be found in breast milk and even in the cervical mucus of female smokers. During pregnancy, nicotine crosses the placenta and has been found in amniotic fluid and the umbilical cord blood of newborn infants.

Different factors affect how long it takes the body to remove nicotine and its by-products. In most cases, regular smokers will still have nicotine and/or its by-products, such as cotinine, in their bodies for about 3 to 4 days after stopping.

How nicotine hooks smokers

Nicotine causes pleasant feelings and distracts the smoker from unpleasant feelings. This makes the smoker want to smoke again. Nicotine also acts as a kind of depressant by interfering with the flow of information between nerve cells. Smokers tend to smoke more cigarettes as the nervous system adapts to nicotine. This, in turn, increases the amount of nicotine in the smoker's blood.

Over time, the smoker develops a tolerance to nicotine. Tolerance means that it takes more nicotine to get the same effect that the smoker used to get from smaller amounts. This leads to an increase in smoking. At some point, the smoker reaches a certain nicotine level and then keeps smoking to keep the level of nicotine within a comfortable range.

When a person finishes a cigarette, the nicotine level in the body starts to drop, going lower and lower. The pleasant feelings wear off, and the smoker notices wanting a smoke. If smoking is postponed, the smoker may start to feel irritated and edgy. Usually it doesn't reach the point of serious withdrawal symptoms, but the smoker gets more uncomfortable over time. When the person smokes a cigarette, the unpleasant feelings fade, and the cycle continues.

Nicotine withdrawal symptoms can lead quitters back to smoking

When smokers try to cut back or quit, the lack of nicotine leads to withdrawal symptoms. Withdrawal is both physical and mental. Physically, the body reacts to the absence of nicotine. Mentally, the smoker is faced with giving up a habit, which calls for a major change in behavior. Emotionally, the smoker may feel like they've lost their best friend. All of these factors must be addressed for the quitting process to work.

Those who have smoked regularly for a few weeks or longer will have withdrawal symptoms if they suddenly stop using tobacco or greatly reduce the amount they smoke. Symptoms usually start within a few hours of the last cigarette and peak about 2 to 3 days later when most of the nicotine and its by-products are out of the body. Withdrawal symptoms can last for a few days to up to several weeks. They will get better every day that you stay smoke-free.

Withdrawal symptoms can include any of the following:

- Dizziness (which may last 1 to 2 days after quitting)
- Depression
- Feelings of frustration, impatience, and anger
- Anxiety
- Irritability
- Sleep disturbances, including having trouble falling asleep and staying asleep, and having bad dreams or even nightmares
- Trouble concentrating
- Restlessness or boredom
- Headaches
- Tiredness
- Increased appetite
- Weight gain
- Constipation and gas
- Cough, dry mouth, sore throat, and nasal drip
- Chest tightness
- Slower heart rate

These symptoms can make the smoker start smoking again to boost blood levels of nicotine until the symptoms go away. (For information on coping with withdrawal, see the section called “Dealing with smoking withdrawal.”)

Other substances in cigarette smoke

There is some evidence that other chemicals in cigarette smoke may act with nicotine to make it harder to quit smoking. The effects of smoking on monoamine oxidase (a brain chemical) is still being studied. For some people, withdrawing from smoking causes more severe mood problems, which can result in worse cravings and more trouble staying quit.

Smoking affects other medicines

Smoking also makes your body get rid of some drugs faster than usual. When you quit smoking, it may change the levels of these drugs. Though it's not truly withdrawal, this change can cause problems and add to the discomfort of quitting. Ask your doctor if any medicines you take need to be checked or changed after you quit.

How does smoking affect your health?

Health concerns usually top the list of reasons people give for quitting smoking. This is a very real concern: smoking harms nearly every organ of the body.

Half of all smokers who keep smoking will end up dying from a smoking-related illness. In the United States alone, smoking is responsible for nearly 1 in 5 deaths, and more than 16 million people suffer from smoking-related diseases.

Cancer

Nearly everyone knows that smoking can cause lung cancer, but few people realize it is also linked to a higher risk for many other kinds of cancer too, including cancer of the mouth, nose, sinuses, lip, voice box (larynx), throat (pharynx), esophagus, bladder, liver, kidney, pancreas, ovary, cervix, stomach, colon, rectum, and acute myeloid leukemia.

Lung diseases

Smoking greatly increases your risk of getting long-term lung diseases like emphysema and chronic bronchitis. These diseases make it harder to breathe, and are grouped together under the name *chronic obstructive pulmonary disease* (COPD). COPD causes chronic illness and disability, and gets worse over time – sometimes becoming fatal. Emphysema and chronic bronchitis can be found in people as young as 40, but are usually found later in life, when the symptoms become much worse. Long-term smokers have the highest risk of developing severe COPD. Pneumonia and tuberculosis are also included in the list of diseases caused or made worse by smoking.

Heart attacks, strokes, and blood vessel diseases

Smokers are twice as likely to die from heart attacks as non-smokers. Smoking is a major risk factor for *peripheral vascular disease,* a narrowing of the blood vessels that carry blood to the leg and arm muscles. Smoking also affects the walls of the vessels that carry blood to the brain (carotid arteries), which can cause strokes. Smoking can cause *abdominal aortic aneurysm,* in which the layered walls of the body's main artery (the aorta) weaken and separate, often causing sudden death. And men who smoke are more likely to develop erectile dysfunction (impotence) because of blood vessel disease.

Blindness and other problems

Smoking increases the risk of macular degeneration, one of the most common causes of blindness in older people. It promotes cataracts, which cloud the lens of the eye. It also causes premature wrinkling of the skin, bad breath, gum disease, tooth loss, bad-smelling clothes and hair, and yellow teeth and fingernails.

Special risks to women and babies

Women have some unique risks linked to smoking. Women over 35 who smoke and use birth control pills have a higher risk of heart attack, stroke, and blood clots in the legs. A woman who smokes is more likely to have an ectopic pregnancy (tubal pregnancy), which can't be saved and can threaten the mother's life. Smokers are also more likely to miscarry (lose the baby) or have a lower birth-weight baby. Low birth-weight babies are more likely to die or have learning and physical problems. And mothers who smoke during early pregnancy are more likely to have babies with cleft lip and cleft palate.

For more on how smoking can affect women and their babies, please see *Women and Smoking*.

Years of life lost due to smoking

Based on data collected in the late 1990s, the US Centers for Disease Control and Prevention (CDC) estimated that adult male smokers lost an average of 13.2 years of life and female smokers lost 14.5 years of life because of smoking.

Each year, smoking causes early deaths of about 480,000 people in the United States. And given the diseases that smoking can cause, it can steal your quality of life long before you die. Smoking-related illness can limit your activities by making it harder to breathe, get around, work, or play.

Why quit smoking now?

No matter how old you are or how long you've smoked, quitting can help you live longer and be healthier. People who stop smoking before age 50 cut their risk of dying in the next 15 years in half compared with those who keep smoking. Ex-smokers enjoy a higher quality of life – they have fewer illnesses like colds and the flu, lower rates of bronchitis and pneumonia, and feel healthier than people who still smoke.

For decades the Surgeon General has reported the health risks linked to smoking. In 1990, the Surgeon General concluded:

- Quitting smoking has major and immediate health benefits for men and women of all ages. These benefits apply to people who already have smoking-related diseases and those who don't.
- Ex-smokers live longer than people who keep smoking.
- Quitting smoking lowers the risk of lung cancer, other cancers, heart attack, stroke, and chronic lung disease.
- Women who stop smoking before pregnancy or during the first 3 to 4 months of pregnancy reduce their risk of having a low birth-weight baby to that of women who never smoked.
- The health benefits of quitting smoking are far greater than any risks from the small weight gain (usually less than 10 pounds) or any emotional or psychological problems that may follow quitting.

When smokers quit – what are the benefits over time?

20 minutes after quitting

Your heart rate and blood pressure drop.

> (Effect of smoking on arterial stiffness and pulse pressure amplification, Mahmud A, Feely J. *Hypertension*. 2003:41:183)

12 hours after quitting

The carbon monoxide level in your blood drops to normal.

> (*US Surgeon General's Report*, 1988, p. 202)

2 weeks to 3 months after quitting

Your circulation improves and your lung function increases.

> (*US Surgeon General's Report*, 1990, pp.193, 194,196, 285, 323)

1 to 9 months after quitting

Coughing and shortness of breath decrease; cilia (tiny hair-like structures that move mucus out of the lungs) start to regain normal function in the lungs, increasing the ability to handle mucus, clean the lungs, and reduce the risk of infection.

> (*US Surgeon General's Report*, 1990, pp. 285-287, 304)

1 year after quitting

The excess risk of coronary heart disease is half that of a continuing smoker's.

(*US Surgeon General's Report*, 2010, p. 359)

5 years after quitting

Risk of cancer of the mouth, throat, esophagus, and bladder are cut in half. Cervical cancer risk falls to that of a non-smoker. Stroke risk can fall to that of a non-smoker after 2-5 years.

> *(A Report of the Surgeon General: How Tobacco Smoke Causes Disease - The Biology and Behavioral Basis for Smoking-Attributable Disease Fact Sheet, 2010*; and *Tobacco Control: Reversal of Risk After Quitting Smoking*. *IARC Handbooks of Cancer Prevention, Vol. 11*. 2007, p 341)

10 years after quitting

The risk of dying from lung cancer is about half that of a person who is still smoking. The risk of cancer of the larynx (voice box) and pancreas decreases.

> *(A Report of the Surgeon General: How Tobacco Smoke Causes Disease - The Biology and Behavioral Basis for Smoking-Attributable Disease Fact Sheet, 2010;* and *US Surgeon General's Report*, 1990, pp. vi, 155, 165)

15 years after quitting

The risk of coronary heart disease is that of a non-smoker's.

> *(Tobacco Control: Reversal of Risk After Quitting Smoking*. *IARC Handbooks of Cancer Prevention, Vol. 11*. 2007. p 11)

These are just a few of the benefits of quitting smoking for good. Quitting smoking lowers the risk of diabetes, lets blood vessels work better, and helps the heart and lungs. Quitting while you are younger will reduce your health risks more, but quitting at any age can give back years of life that would be lost by continuing to smoke.

What are the immediate rewards of quitting smoking?

Kicking the tobacco habit offers some benefits that you'll notice right away and some that will develop over time. These rewards improve most peoples' day-to-day lives a great deal:

- Breath smells better
- Stained teeth get whiter
- Bad smell in clothes and hair go away
- Yellow fingers and fingernails disappear

- Food tastes better
- Sense of smell returns to normal
- Everyday activities (such as climbing stairs or light housework) no longer leave them out of breath
- They can be in smoke-free buildings without having to go outside to smoke.

Cost

The prospect of better health is a major reason for quitting, but there are other reasons, too.

Smoking is expensive. It isn't hard to figure out how much you spend on smoking: multiply how much money you spend on tobacco every day by 365 (days per year). The amount may surprise you. Now multiply that by the number of years you have been using tobacco and that amount will probably shock you.

Multiply the cost per year by 10 (for the next 10 years) and ask yourself what you would rather do with that much money.

And this doesn't include other possible costs, such as higher costs for health and life insurance, and likely health care costs due to tobacco-related problems.

Social acceptance

Smoking is less socially acceptable now than ever. This can cost you in terms of friends, money, and convenience.

Today, almost all workplaces have some type of smoking rules. Some employers even prefer to hire non-smokers. Studies show smoking employees cost businesses more. In fact, one 2013 study found that for each employee who successfully quits tobacco, an employer can expect to see an annual savings of about $5,800. Employees who smoke tend to be out sick more. Employees who are ill more often than others can raise an employer's need for costly short-term replacement workers. They can increase insurance costs for other employees and for the employer, who often pays part of the workers' insurance premiums. Regular smoking breaks mean time away from work. Smokers in a building also can increase the maintenance costs of keeping odors down, since residue from cigarette smoke gets into to carpets, drapes, and other fabrics.

Smoking is banned in most public elementary and secondary school buildings and, in many states, it's banned on school campuses. It's common for colleges and universities to have no-smoking policies for all campus buildings, including residential housing. And many are moving toward smoke-free campuses, even in outdoor areas.

Landlords may choose not to rent to smokers since maintenance costs and insurance rates may go up when smokers live in buildings. Resale values are lower on buildings, homes, and cars that smell like old smoke.

Friends may ask you not to smoke in their homes or cars. Public buildings, concerts, and even sporting events are largely smoke-free. And more and more communities are restricting smoking in all public places, including restaurants and bars. Like it or not, finding a place to smoke can be a hassle.

Smokers may also find their prospects for dating or romantic involvement, including marriage, are largely limited to other smokers. Cigarette smokers now make up about 18% of the adult population.

Health of others

Smoking not only harms your health but it hurts the health of those around you. Exposure to secondhand smoke (also called *environmental tobacco smoke* or *passive smoking*) includes exhaled smoke as well as smoke from burning cigarettes.

Studies have shown that secondhand smoke causes thousands of deaths each year from lung cancer in healthy non-smokers. Over the past 50 years, this amounts to more than 2.5 million deaths from secondhand smoke.

If a mother smokes, there is a higher risk of her baby developing asthma in childhood, especially if she smoked while she was pregnant. Women who smoke during pregnancy are more likely to have babies with cleft lip, cleft palate, and low birth weight.

Babies and children raised in a household where there is smoking have more ear infections, colds, bronchitis, and problems with breathing than children in non-smoking families. Secondhand smoke is linked to sudden infant death syndrome (SIDS) and slow lung growth in children. Secondhand smoke can also cause eye irritation, headaches, nausea, and dizziness.

To learn more, please see our document called *Secondhand Smoke*.

Setting an example

If you have children, you probably want to set a good example for them. When asked, nearly all smokers say they don’t want their children to smoke. But children whose parents smoke are more likely to start smoking themselves. You can become a better role model for them by quitting now.

Getting help with the mental part of addiction

Smokers have more tools than ever to help quit smoking for good – there's a wide range of counseling services, self-help materials, nicotine replacement therapies, and medicines available.

Some people are able to quit on their own, without the help of others or the use of medicines. But for many smokers, it can be hard to break the social and emotional ties to smoking while getting over nicotine withdrawal symptoms at the same time. Fortunately, there are many sources of support out there.

Telephone-based help to stop smoking

All 50 states and the District of Columbia offer some type of free, telephone-based program that links callers with trained counselors. These specialists help plan a quit method that fits each person's unique smoking pattern. People who use telephone counseling have twice the success rate in quitting smoking as those who don't get this type of help. Help from a counselor can keep quitters from making many common mistakes.

Telephone counseling is also easier to use than some other support programs. It doesn't require driving, transportation, or child care, and it's available nights and weekends.

Counselors may suggest a combination of methods including medicines, local classes, self-help brochures, and/or a network of family and friends.

Call us to get help finding a phone counseling program in your area.

Quit-smoking programs and support groups

Members of support groups for quitters can be helpful, too. One long-standing peer help program is Nicotine Anonymous®, an open support group that offers a way to find others who are quitting tobacco and living smoke-free. It also offers a long-term approach to quitting. (See the "To learn more" section for contact information.) But this is only one of many types of support programs.

Some workplaces, hospitals, and wellness centers have stop-smoking programs, groups, or classes. They may be led by professionals and focus on information and education, or they may be run by volunteers. Some programs may be set up like classes, while others focus on sharing by members of the group. Some groups are set up for just a few weeks, and others go on indefinitely. There are lots of options, and different types of groups work better for different people. Find one that works for you.

For people who can't go to support group meetings, there are online support systems as well as phone-based support (discussed above). Check with your employer, health

insurance company, or local hospital to find a support group that fit your needs. Or call your American Cancer Society at 1-800-227-2345.

What to look for in a stop-smoking program

Stop-smoking programs are designed to help smokers recognize and cope with problems that come up while quitting. This helps the ex-smoker avoid many of the common pitfalls of quitting. The programs should also provide support and encouragement in staying quit. Studies have shown that the best programs include either one-on-one or group counseling. There's a strong link between how often and how long counseling lasts (its intensity) and the success rate – overall, the more intense the program, the greater the chance of success.

Intensity may be increased by having more or longer sessions or by increasing the number of weeks over which the sessions are given. So when looking for a program, try to find one that has the following:

- Each session lasts at least 15 to 30 minutes
- There are at least 4 sessions
- The program lasts at least 2 weeks (longer is usually better)

Make sure the leader of the group is trained in smoking cessation.

Some communities have a Nicotine Anonymous (NicA) group that holds regular meetings. This group applies the 12-step program of Alcoholics Anonymous (AA) to the addiction of smoking. This includes attending meetings and following the program. People new to NicA may choose a sponsor to help them through the steps and help when they are tempted to smoke. The NicA meetings are free, but donations are collected to help cover expenses. NicA also has phone meetings and web meetings, and offers online support.

Often your American Cancer Society, American Lung Association, or local health department will sponsor quit smoking classes, too. Call us for more information.

Not all programs are honest, so be careful. Think twice about any programs that:

- Promise instant, easy success with little to no effort on your part
- Use shots (injections) or pills, especially "secret" ingredients
- Advertise 100% success rate with no ill effects
- Charge a very high fee (check with the Better Business Bureau if you have doubts)
- Will not give you references and phone numbers of people who have used the program

Support of family and friends

Many former smokers say a support network of family and friends was very important during their quit attempt. Other people who may offer support and encouragement are your co-workers and your family doctor. Tell your friends about your plans to quit. Try to spend time with non-smokers and ex-smokers who support your efforts to quit. Talk with them about what you need – for instance, patience as you go through cravings, taking your late-night or early-morning phone calls, and plans for doing things in smoke-free settings. Find out what you can count on each friend or family member to do. You can also suggest that they read our document *Helping a Smoker Quit: Do's and Don'ts.*

Getting help with the physical part of addiction

Remember, tobacco addiction is both mental and physical. For most people, the best way to quit will be some combination of medicine, a method to change personal habits, and emotional support. The next few sections will discuss nicotine replacement therapy (NRT), including types of NRT and how to choose and use NRT, as well as medicines and other methods to deal with the physical part of withdrawal.

Nicotine replacement therapy

As mentioned earlier, the nicotine in cigarettes leads to actual physical dependence. This can cause unpleasant withdrawal symptoms when a person tries to quit. Nicotine replacement therapy (NRT) gives you nicotine – in the form of gums, patches, sprays, inhalers, or lozenges – but not the other harmful chemicals in tobacco. NRT can help relieve some of the physical withdrawal symptoms so that you can focus on the psychological (emotional) aspects of quitting. Many studies have shown using NRT can nearly double the chances of quitting with success.

How does nicotine replacement therapy work?

Nicotine replacement therapy (NRT) can help with the difficult withdrawal symptoms and cravings that 70% to 90% of smokers say is their only reason for not giving up cigarettes. Using NRT reduces those symptoms.

Many smokers can quit smoking without using NRT, but most of those who attempt quitting do not succeed on the first try. In fact, smokers usually need many tries – sometimes as many as 10 or more – before they're able to quit for good. Most quitters go back to smoking within the first 3 months of quitting.

Lack of success is often related to the onset of withdrawal symptoms. So don't be discouraged if you start smoking again. Just make a plan to stop again, and make your

attempt more successful by adding another method or technique to help you quit. You can reduce withdrawal symptoms with NRT and reduce the way they affect you by getting support. This gives you a better chance of quitting and staying quit.

Getting the most from nicotine replacement therapy

Nicotine replacement therapy (NRT) only deals with the physical dependence. It's not meant to be the only thing you use to help you quit smoking. You'll need other methods that help with the psychological (emotional and mental) part of smoking, such as a stop smoking program. Use these support systems during treatment with NRT and for at least a few months after you quit. Studies have shown that this approach – pairing NRT with a program that helps to change behavior – can improve your chances of quitting and staying quit compared to approaches that use only one method.

The best time to start NRT is when you first quit. Often smokers first try to quit on their own then decide to try NRT a day or more into quitting. This does not give you the greatest chance of success, but don't let this discourage you. There are many options for quitting smoking and staying quit. Just remember that it often takes many tries.

Are there smokers who should not use NRT?

The US Agency for Healthcare Research and Quality (AHRQ) Clinical Practice Guideline on Smoking Cessation in 2000 stated that NRT was safe for all adult smokers except pregnant women and people with heart or circulatory diseases. But the 2008 Clinical Practice Guidelines for treating tobacco dependence says that NRT (in this case, the nicotine patch) can be used safely under a doctor's careful monitoring, even in people who have heart or blood vessel disease. Studies have found the benefits of quitting smoking outweigh the risks of NRT in people with cardiovascular (heart and blood vessel) disease. When looking at NRT use, the benefits of quitting smoking must outweigh the potential health risks of NRT for each person.

As of 2014 there's still not enough good evidence one way or the other to be absolutely sure that NRT is safe for pregnant women. A 2012 analysis of 6 studies done on NRT in 1,745 pregnant women showed no significant differences in ill effects (such as miscarriage, premature birth, low birth-weight and newborn admission to an intensive care unit) between the NRT groups and the groups that didn't get NRT. And smoking during pregnancy can cause these problems and many others, so many doctors think NRT is less harmful than smoking during pregnancy.

Also, while NRT exposes the fetus to nicotine, smoking exposes the fetus to nicotine and a number of other chemicals, too. Nicotine may have unknown effects as the child grows up, and this has not been carefully studied over the long term. With all of this in mind, it's best to quit smoking before getting pregnant. If it's too late for that, quitting in early pregnancy can still greatly reduce many risks to the baby. Smokers who find themselves

pregnant should talk with their doctors right away to get help in choosing the best way for them to quit smoking.

Note that NRT has not yet been proven to help people who smoke fewer than 10 cigarettes a day. You might want to talk with your doctor about a lower dose of NRT if you smoke less than that but feel you need nicotine replacement.

Can you get too much nicotine from NRT?

Nicotine overdose is rare, but possible. NRT products are labeled to match the amount of nicotine you get from NRT to the amount you got when you smoked. If used this way, you should get a nicotine dose fairly close to what you've been getting from cigarettes. You don't want to get more than that, because higher doses of nicotine can cause harm. Even just a bit too much can cause some of the milder symptoms listed below. To avoid this, follow dosing instructions carefully. Also, don't use heat (like a heating pad or heat lamp) on the skin near your nicotine patch – you could absorb more nicotine due to the increased blood supply.

Nicotine absorbs through the skin and mucous membranes, so you must store and dispose of your NRT safely. Nicotine overdose can cause death. Because of their smaller size, overdose is more of a problem in children and pets. Keep NRT and used gum, patches, empty cartridges, bottles, etc., safely away from children and pets. Never drop them on the street or in open trash cans where kids and animals can reach them.

It's very rare for an adult who is following the instructions to get a serious overdose. But especially with liquid forms (such as sprays and inhalers) that absorb quickly through the skin and mucous membranes, overdose could happen. All forms of nicotine can cause harm if too much is taken in.

Here are some symptoms of too much nicotine:

- Headache
- Nausea and vomiting
- Belly pain
- Diarrhea
- Agitation, restlessness
- Fast or irregular heartbeat
- Cold sweat
- Pale skin and mouth
- Weakness

- Tremors (shaking)
- Confusion
- Disturbed vision and hearing
- Weakness
- High blood pressure, which then drops
- Dizziness or faintness due to low blood pressure
- Seizures
- Fast breathing in early poisoning, breathing may stop later

Call Poison Control and get emergency help if you suspect an overdose. If you are taking NRT as prescribed and are still having mild symptoms such as headache, vomiting, diarrhea, or sweating, lower your dose and talk to your doctor.

How do I know if I'm a light, average, or heavy smoker?

Most NRT products are recommended on the basis of how much you smoke. But there's no formal category in any textbook or group that defines a light, average, or heavy smoker.

In general, a light smoker is someone who smokes fewer than 10 cigarettes per day. Someone who smokes a pack a day or more is thought of as a heavy smoker. An average smoker falls in between.

Sometimes a doctor will use the term *pack year* to describe how long and how much a person has smoked. A pack year is defined as the number of packs of cigarettes a person has smoked every day multiplied by the number of years he or she has smoked. Since 1 pack is 20 cigarettes, a person who has smoked 20 cigarettes a day for 1 year is considered to have smoked 1 pack year. Someone who has smoked 30 cigarettes a day (1½ packs) for 4 years is described as having smoked 6 pack years (1½ x 4), and so on. This is another way to figure out how high your risk of smoking-related disease might be.

What are the types of nicotine replacement therapy?

The US Food and Drug Administration (FDA) has approved 5 forms of nicotine replacement therapy:

- Patch
- Gum

- Nasal spray
- Inhalers
- Lozenges

Nicotine patches (transdermal nicotine systems): Patches give a measured dose of nicotine through the skin. You're weaned off nicotine by switching to lower-dose patches over a course of weeks. Patches can be bought with or without a prescription. Many different types and strengths are available. Package instructions tell you how to use them, and list special considerations and possible side effects. Follow the directions carefully.

The 16-hour patch works well if you are a light-to-average smoker. It's less likely to cause side effects like skin irritation, racing heartbeat, sleep problems, and headache. But it doesn't deliver nicotine during the night, so it may not be right for those with early morning withdrawal symptoms.

The 24-hour patch provides a steady dose of nicotine, avoiding peaks and valleys. It helps with early morning withdrawal. But there may be more side effects like disrupted sleep patterns and skin irritation.

Depending on body size and smoking habits, most smokers should start using a full-strength patch (15-22 mg of nicotine) daily for 4 weeks, and then use a weaker patch (5-14 mg of nicotine) for another 4 weeks. The patch should be put on in the morning on a clean, dry area of the skin without much hair. It should be placed below the neck and above the waist – for example, on the upper arm or chest. The FDA has approved using the patch for a total of 3 to 5 months.

Side effects are related to:

- The dose of nicotine
- The brand of patch
- Skin characteristics and allergies (some people have reactions to patch adhesives)
- How long the patch is used
- How it's applied

Some possible side effects of the nicotine patch include:

- Skin irritation (redness and itching)
- Dizziness
- Racing heartbeat
- Sleep problems or unusual dreams

- Headache
- Nausea
- Muscle aches and stiffness

No one has all of the side effects, and some people have none. Some side effects, such as racing heart, may occur because the dose of nicotine is too high for you. Stop using the patch and talk to your doctor if this happens. You can also have nicotine withdrawal symptoms during this time if your NRT dose is too low.

What to do about side effects

- Do not smoke while you are using a patch unless your doctor tells you it's OK.
- Try a different brand of patch if your skin becomes irritated.
- Reduce the amount of nicotine by using a lower-dose patch.
- Sleep problems may go away in 3 or 4 days. If not, and you're using a 24-hour patch, try switching to a 16-hour patch.
- Stop using the patch and try a different form of NRT.

Nicotine gum (nicotine polacrilex): Nicotine gum is a fast-acting form of replacement in which nicotine is taken in through the mucous membrane of the mouth. You can buy it over the counter (without a prescription). It comes in 2 mg and 4 mg strengths.

For best results, follow the instructions in the package. Chew the gum slowly until you get a peppery taste or tingle. Then hold it inside your cheek until the taste fades. Chew it to get the peppery taste back, and park it again. Do this off and on for 20 to 30 minutes. Food and drink can affect how well the nicotine is absorbed, so don't eat or drink for at least 15 minutes before and during gum use.

In choosing your dose, think about whether you

- Smoke 25 or more cigarettes per day
- Smoke within 30 minutes of waking up
- Have trouble not smoking in restricted areas

If any of these describe you, you may need to start with the higher 4mg gum dose.

Chew no more than 24 pieces of gum in one day. Nicotine gum is usually recommended for 6 to 12 weeks, with the maximum being 6 months. Tapering down the amount of gum you use as you approach 3 months may help you stop using it.

If you have sensitive skin, you might prefer the gum to the patch.

Another advantage of nicotine gum is that it allows you to control the nicotine doses. The gum can be used as needed or on a fixed schedule during the day. The most recent research has shown that scheduled dosing works better. A schedule of 1 to 2 pieces per hour is common. On the other hand, with an as-needed schedule, you can use it when you need it most – when you have cravings.

Some possible side effects of nicotine gum:

- Bad taste
- Throat irritation
- Mouth sores
- Hiccups
- Nausea
- Jaw discomfort
- Racing heartbeat
- Nausea

The gum can also stick to and damage dentures and dental work.

Symptoms related to the stomach and jaw are usually caused by improper use of the gum, such as swallowing the nicotine or chewing too fast. No one has all of the side effects, and some people have none. If your heart is racing or beating irregularly, stop using the gum and talk to your doctor. You can also have nicotine withdrawal symptoms during this time if your NRT dose is too low.

Long-term dependence is one possible drawback of nicotine gum. In fact, research has shown that a small percentage of gum users who are able to quit smoking keep using the gum beyond 6 months. Nicotine is addictive, and people can transfer their dependence from cigarettes to the gum. The maximum recommended length of use is 6 months, but continuing to use the gum may be safer than going back to smoking. Because there's little research on the health effects of long-term nicotine gum use, most health care providers still recommend limiting its use to 6 months. Talk to your doctor if you are having trouble stopping the gum.

Nicotine nasal spray: The nasal spray delivers nicotine to the bloodstream quickly because it's absorbed through the nose. Nicotine nasal spray requires a doctor's prescription.

The nasal spray relieves withdrawal symptoms very quickly and lets you control your nicotine cravings. Smokers usually like the nasal spray because it's easy to use. Nicotine is addictive, and a person can transfer their dependence from cigarettes to the fast-

delivering nasal spray. Use it only as long as you need it, as prescribed by your doctor. The FDA recommends that the spray be prescribed for 3-month periods and that it not be used for longer than 6 months.

The most common side effects last about 1 to 2 weeks and can include:

- Nasal irritation
- Runny nose
- Watery eyes
- Sneezing
- Throat irritation
- Coughing

There's also the danger of using more than is needed. If you have asthma, allergies, nasal polyps, or sinus problems, your doctor may suggest another form of NRT.

This form of NRT poses a more serious risk to small children and pets, since even empty bottles of nasal spray contain enough nicotine to harm them. Nicotine absorbs through the skin as well as mucous membranes like the mouth or eyes, and can cause serious harm. If there's any skin contact, rinse thoroughly with plain water right away. If a bottle breaks or liquid leaks out, put on plastic or rubber gloves to clean it up. Call Poison Control and get emergency help if there's any question of overdose.

Nicotine inhalers: Inhalers are available only by prescription. The nicotine inhaler is a thin plastic tube with a nicotine cartridge inside. It looks a bit like a fat cigarette with a mouthpiece. When you take a puff from the inhaler, the cartridge puts out a pure nicotine vapor. Unlike other inhalers, which deliver most of the medicine to the lungs, the nicotine inhaler delivers most of the nicotine vapor to the mouth where it's absorbed into the bloodstream. Nicotine inhalers are the FDA-approved nicotine replacement method that's most like smoking a cigarette, which some smokers find helpful.

The recommended dose is between 4 and 20 cartridges a day, slowly tapering off over 6 months.

The most common side effects, especially when first using the inhaler, include:

- Coughing
- Mouth and/or throat irritation
- Upset stomach

This form of NRT poses an extra risk to small children and pets because the used cartridges still have enough nicotine in them to cause harm if it gets on skin or mucous

membranes (for instance, if licked or touched to the eyes, mouth, or other mucous membrane). Be sure to store and dispose of the cartridges away from children and pets.

At this time, inhalers are the most expensive form of NRT available. They are not the same as electronic cigarettes, which are not approved by the FDA to help people quit smoking. (For more on these, see “Other nicotine and tobacco products not reviewed or approved by the FDA” in the “Other methods of quitting smoking” section.)

Nicotine lozenges: Nicotine-containing lozenges can be bought without a prescription. Like nicotine gum, the lozenge is available in 2 strengths: 2 mg and 4 mg. Smokers choose their dose based on how long after waking up they normally have their first cigarette.

Lozenge makers recommend using them as part of a 12-week program. The recommended dose is 1 lozenge every 1 to 2 hours for 6 weeks, then 1 lozenge every 2 to 4 hours for weeks 7 to 9, and finally, 1 lozenge every 4 to 8 hours for weeks 10 to 12. The lozenge makers also recommend:

- Stop all smoking when you start using the lozenge.
- Do not eat or drink for 15 minutes before using a lozenge. (Some drinks can reduce how well the lozenge works.)
- Suck on the lozenge until it is fully dissolved, about 20 to 30 minutes. Do not bite or chew it like a hard candy, and don’t swallow it. The nicotine absorbs through the mucous membranes of the mouth.
- Do not use more than 5 lozenges in 6 hours, or more than 20 lozenges per day.
- Stop using the lozenge after 12 weeks. If you still feel you need to use the lozenge, talk to your doctor.
- Do not use the lozenge if you keep smoking, chewing tobacco, using snuff, or use any other product containing nicotine (such as the nicotine patch or nicotine gum).

Possible side effects of the nicotine lozenge include:

- Trouble sleeping
- Nausea
- Hiccups
- Coughing
- Heartburn
- Headache

- Gas

Choosing and using nicotine replacement therapy

Which type of nicotine replacement may be right for you?

There's no evidence that any one type of nicotine replacement therapy (NRT) is any better than another. When choosing the type of NRT you will use, think about which method will best fit your lifestyle and pattern of smoking. For example, do you want/need something in your mouth or something to keep your hands busy? Are you looking for once-a-day convenience?

Here are some important points to think about as you decide:

- Nicotine gums, lozenges, and inhalers are substitutes you can put into your mouth that let you control your dosage to help keep cravings under better control.
- Nicotine gums and lozenges are generally sugar-free, but if you are diabetic and have any doubts, check with the manufacturer.
- Nicotine nasal spray works very quickly when you need it.
- Nicotine inhalers allow you to mimic the use of cigarettes by puffing and holding the inhaler. It also works very quickly.
- Nicotine patches are convenient and only have to be put on once a day.
- Both inhalers and nasal sprays require a doctor's prescription.
- Some people may not be able to use patches, inhalers, or nasal sprays because of allergies or other conditions.
- Nicotine gum may stick to dentures or dental work making it hard to chew before "parking."

Whatever type you use, take your NRT at the recommended dose, and use it only for as long as it's recommended. If you use a different dose or stop taking it too soon, it can't be expected to work like it should. If you are a very heavy smoker or a very light smoker, you may want to talk with your doctor about whether your NRT dose should be changed to better suit your needs.

Combining the patch and other nicotine replacement products: Using the nicotine patch along with shorter-acting products, like the gum, lozenge, nasal spray, or inhaler, is another method of NRT. The idea is to get a steady dose of nicotine with the patch and then use one of the shorter-acting products when you have strong cravings.

The few studies that have been done on combination NRT used this way have found that it may work better than a single product and it's relatively safe. Still, more research is needed to prove this and find safe and effective doses. And the combined use of NRT products has not yet been approved by the FDA. If you're thinking about using more than one NRT product, be sure to talk it over with your doctor first.

High-dose nicotine replacement therapy for heavy smokers: Another NRT option is to give smokers a higher dose based on the amount of nicotine that they have been getting from cigarettes. Sometimes this method requires larger than usual doses of NRT. High-dose NRT with patches has been studied with patients getting from 35 mg to 63 mg of nicotine per day. The research suggests that patients' withdrawal symptoms go away with these higher doses and their cravings improve without harmful effects on the heart and circulation. Patients were carefully watched in these studies to make sure they were OK and were not becoming ill or having any problems. But not much is known about this option and research results using high-dose patches are mixed. High-dose NRT should be considered only with a doctor's guidance and supervision. It may worsen things if you already have heart disease or other health problems.

When may I begin using nicotine replacement therapy?

You can start using NRT as soon as you throw away your last cigarette. You don't need to wait a certain length of time to put on the patch or start using the gum, lozenge, nasal spray, or inhaler. You should double-check this information with the instructions on your chosen method of nicotine replacement, but in general there is no need to wait to start using NRT.

Can people start nicotine replacement therapy while still smoking?

Many smokers ask if it's OK to start NRT while they're still smoking. At this time the companies that make NRT products say that they should not be used if you're still smoking, and the FDA has not approved them to be used in this way in the United States. But some research has been done with smokers using NRT while still smoking, with the intent to cut down on cigarettes and, over time, stop completely.

In 2009, researchers looked at several studies in which active smokers were given NRT over the long term. Overall, those who got NRT were more likely to quit smoking than those who got placebo (fake NRT), but all the studies included a lot of support and supervision from the doctor and health team. Side effects were minor in these studies. The most important thing is being sure that you are not overdosing on nicotine, which can affect your heart and blood circulation. It's safest to be under a doctor's care if you wish to try smoking and using NRT while you are tapering down your cigarette use.

Stopping nicotine replacement therapy

As mentioned before, most forms of NRT are meant to be used for limited periods of time. Use should be tapered down to a low dose before NRT is stopped. Studies to date have not shown that extending NRT use longer than the recommended time greatly impacts quit success.

Research is still being done to refine the use of NRT. For example, even though the patch is usually used for 3 to 5 months, some studies have suggested that using it for 8 weeks or less works just as well. But other researchers have noted that the risk of relapse goes up when nicotine replacement is stopped, even after it's been used for 5 months. These differences have not been fully explained. More studies are needed to learn which smokers are likely to be successful using shorter or longer NRT than usual. If you feel that you need NRT for a different length of time than is recommended, it's best to discuss this with your doctor.

Prescription drugs to help you quit smoking

Prescription drugs are also available to help smokers quit. Some can be used along with nicotine replacement therapy (NRT), and some must be started before your planned Quit Day. Talk to your doctor if you want to use medicine to help you quit smoking. You will need a prescription for any of these drugs.

Bupropion (Zyban)

Bupropion (brand names are Zyban®, Wellbutrin®, or Aplenzin®) is a prescription anti-depressant in an extended-release form that reduces symptoms of nicotine withdrawal. It does not contain nicotine. This drug acts on chemicals in the brain that are related to nicotine craving. Bupropion works best if it's started 1 or 2 weeks before you quit smoking. The usual dosage is one or two 150 mg tablets per day.

If you are able to quit smoking after 7 to 12 weeks of bupropion your doctor may have you keep taking it for some time afterward to help keep you from going back to smoking. Keep up with your other support systems during this time and for at least a few months after you quit.

This drug should not be taken if you have or have ever had:

- Seizures (it can cause or worsen seizures)
- Heavy alcohol use
- Cirrhosis
- Serious head injury

- Bipolar (manic-depressive) illness
- Anorexia or bulimia (eating disorders)

You also shouldn't take it if you're taking sedatives or have recently taken a monoamine oxidase inhibitor (MAOI, an older type of antidepressant).

The most common reported side effects of bupropion include dry mouth, trouble sleeping, tiredness, agitation, irritability, indigestion, and headaches. People using bupropion should call their doctors if they feel depressed or start thinking of suicide. They should also call their doctors for changes such as feeling anxious, agitated, hostile, aggressive, overly excited and hyperactive, confused, or unable to sleep. These are rare, but can happen, often near the start of treatment or after a dose change. Bupropion shouldn't be used with certain other drugs, so tell all your doctors that you are taking it.

Combining bupropion and NRT for quitting smoking

Some doctors may recommend combination therapy for heavily addicted smokers, such as using bupropion along with a nicotine patch and/or a short-acting form of NRT (such as gum or lozenges). Combinations have been found to work better for some people than using any one part alone, but you should only use them together if your doctor is monitoring you.

Varenicline (Chantix)

Varenicline (brand name Chantix®) is a prescription medicine developed to help people stop smoking. It works by interfering with nicotine receptors in the brain. This means it has 2 effects: it lessens the pleasure a person gets from smoking, and it reduces the symptoms of nicotine withdrawal. Varenicline should be started a week before your Quit Day.

Several studies have shown taking varenicline can more than double the chances of quitting smoking when compared to taking no medicines at all. Some studies have also found it may work better than bupropion, at least in the short term.

Varenicline comes in pill form and is taken after meals, with a full glass of water. The daily dose increases over the first 8 days it's taken. The dose starts at one 0.5 mg pill a day for the first 3 days, then the 0.5 mg pill twice a day for the next 4 days. At the start of the second week, the dose is raised to 1 mg in the morning and evening. For people who have problems with the higher dose, a lower dose may be used during the quit effort. Varenicline is given for 12 weeks, but people who quit during that time may get another 12 weeks of treatment to boost their chances of staying quit. Keep up with your other support systems during this time and for at least a few months after you quit.

Tell your doctor about any medical conditions and allergies before you start varenicline. Reported side effects have included headaches, nausea, vomiting, trouble sleeping,

unusual dreams, gas, and changes in taste. People with heart disease may have a higher risk of heart attacks while on varenicline. There have also been reports of depressed mood, thoughts of suicide, attempted suicide, anxiety, panic, aggression, confusion, and other changes in behavior or mood in people taking varenicline. People who notice these problems should contact their doctors right away. Reports of these side effects have been rare, but can be serious when they do happen. Most people don't have these emotional or behavioral problems while taking the drug.

Because of the reported side effects, some researchers have looked at people who were known to have depression before taking the drug. In those whose depression was well controlled, varenicline seemed to be safe. Studies are still underway on people with mental health or mood disorders. If you've ever had a mental health problem, discuss it with your doctor before starting this drug.

Combining varenicline and NRT or bupropion for quitting smoking

Not much research has been done to find out if varenicline is safe to use at the same time as nicotine replacement therapy (NRT). One study has suggested that using varenicline along with NRT is well-tolerated and safe, even though more people using both had side effects than those using only one. The company that makes varenicline had already noted that people who used the drug along with NRT had more side effects such as nausea and headaches. A 2013 study that compared varenicline plus a nicotine patch with varenicline plus a placebo patch showed no difference in quit rates, cravings, symptoms, or side effects.

Other researchers tested the use of varenicline along with bupropion. The group taking both drugs had more anxiety and depression than those on varenicline alone, and long term quit rates weren't significantly higher. Research on combining drugs is ongoing.

"Off-label" prescription drugs to help smokers quit

For those who can't use any of the FDA-approved drugs for helping smokers quit, or for those who have not been able to quit using them, other drugs have shown promise in research studies. They are recommended by the Agency for Healthcare Research and Quality for this kind of use, but have not been approved by the FDA for this purpose and so are used "off-label." (See our document called *Off-label Drug Use* for more on this.) These drugs are only available with a prescription and are not recommended for pregnant smokers, teens, or people who smoke less than 10 cigarettes per day.

Nortriptyline

This is an older anti-depressant drug. When used in groups of smokers, it has been found to double the chances of success in quitting smoking when compared to those taking no medicine. It's started 10 to 28 days before a person stops smoking to allow it to reach a stable level in the body.

Some people have side effects like a fast heart rate, blurred vision, trouble urinating, dry mouth, constipation, weight gain or loss, and low blood pressure when they stand up. The drug can affect a person's ability to drive or operate machinery, and certain drugs cannot be used along with it.

If you and your doctor decide to use this drug, be sure your doctor and pharmacist know exactly what other drugs you're taking before you start this medicine. Also be sure you know how to take it and how to taper it down when you are ready to stop. The dose of nortriptyline must be slowly lowered, since the drug cannot be stopped suddenly without the risk of serious effects. The drug must be used cautiously in people with heart disease. While you're taking it, be sure to tell any doctor you visit that you are taking the drug.

Clonidine

Clonidine is another older drug. It's FDA approved to treat high blood pressure. When used for smoking cessation, it can be given as a pill twice a day or as a once-a-week skin patch. In one study of heavy smokers who had failed in previous quit attempts, the group treated with clonidine was twice as likely to succeed in quitting smoking as the control group (which was given a fake pill) at the end of 4 weeks.

If you're planning to use this drug, be sure your doctor and pharmacist know exactly what else you're taking before you start taking it. The most common side effects of clonidine are constipation, dizziness, drowsiness, dry mouth, and unusual tiredness or weakness. There are rarely more severe side effects, such as allergic reactions, a slow heart rate, and very high or very low blood pressure. Your doctor may want to watch your blood pressure while you are on this drug. The drug can affect your ability to drive or operate machinery.

Clonidine can be started up to 3 days before you quit smoking, but can also be started the day you quit. It shouldn't be stopped suddenly. The dose must be lowered over 2 to 4 days to prevent a rapid increase in blood pressure, agitation, confusion, or tremors.

Other drugs being studied to help smokers quit

Other medicines such as naltrexone, which comes as a pill, are being studied. It's being used along with other treatments (like bupropion and NRT) to see if it can help reduce cravings. But the newest analysis of previous studies suggested it wasn't helpful.

A drug called cytisine was recently tested in Poland and found to help reduce smoking. About 8% of smokers still didn't smoke after a year, compared to about 2% of those on placebo. This drug is being studied in the United States, although most studies posted looked at rodents rather than people. Another drug being tested is sazetidine-A, but again, most published studies to date are on rodents.

Also still being tested are anti-smoking vaccines that are given as a series of shots.

Tests of these new treatments have been promising. So far they seem to be safe, but larger studies are needed to show these treatments work before the FDA can approve them for this use. Large studies of these treatments are now under way.

Other methods of quitting smoking

Other tools may help some people, but there's no strong proof that they can improve your chances of quitting.

Methods without nicotine

Hypnosis

Hypnosis methods vary a great deal, which makes it hard to study as a way to stop smoking. For the most part, reviews that looked at controlled studies of hypnosis to help people quit smoking have not supported it as a quitting method that works. Still, some people have reported that it helped them quit. If you'd like to try it, ask your doctor to recommend a good licensed therapist who does hypnotherapy.

Acupuncture

This method has been used to quit smoking, but there's little evidence to show that it works. Acupuncture for smoking is usually done on certain parts of the ears. (See our document *Acupuncture* for more on this.) For a list of doctors who do acupuncture, contact the American Academy of Medical Acupuncture at 323-937-5514 or visit their website at www.medicalacupuncture.org.

Magnet therapy

Magnet therapy to quit smoking involves 2 small magnets that are placed at a certain location, opposite each other on either side of the ear. Magnetism holds them in place. There's no scientific evidence to date to suggest that magnet therapy is an effective method of helping smokers stop. There are many on-line companies that sell these magnets, and they report various "success" rates. But there's no clinical trial data to back up these claims.

Low-level laser therapy

This technique, also called *cold laser therapy*, is related to acupuncture. In this method, cold lasers are used instead of needles for acupuncture. The treatment is supposed to relax the smoker and release endorphins (pain relief substances that are made naturally by the body) to mimic the effects of nicotine in the brain, or balance the body's energy to

relieve the addiction. Despite claims of success by some cold laser therapy providers, there's no scientific evidence that shows this helps people stop smoking. (See our document called *Cold Laser Therapy* for more.)

Filters

Filters that reduce tar and nicotine in cigarettes do not work. In fact, studies have shown that smokers who use filters tend to smoke more.

Smoking deterrents

Other methods have been used to help stop smoking, such as over-the-counter products that change the taste of tobacco, stop-smoking diets that curb nicotine cravings, and combinations of vitamins. At this time there's little scientific evidence that any of these work.

Herbs and supplements

There's little scientific evidence to support the use of homeopathic aids and herbal supplements as stop-smoking methods. Because they are marketed as dietary supplements (not drugs), they don't need FDA approval to be sold. This means that the manufacturers don't have to prove they work, or even that they're safe.

Be sure to look closely at the label of any product that claims it can help you stop smoking. No dietary supplement has been proven to help people quit smoking. Most of these supplements are combinations of herbs, but not nicotine. They have no proven track record of helping people to stop smoking.

Mind-body practices

Some studies have looked at cessation programs using yoga, mindfulness, and meditation to aid in quitting smoking. Results were not clearly in favor of these methods, but some showed lower craving and less smoking; studies are still going on. Cognitive processing methods (cognitive-behavioral approaches) are also being studied.

Researchers looking at 15 studies of exercise found that short bouts of light to moderate exercise helped reduce cravings, but most studies were too small to show reliable effects on quitting. One study suggested that people who actively took part in structured exercise programs were more likely to quit but study volunteers sometimes avoided the actual exercise, making it hard to test the effectiveness of exercise in quitting. More research using larger studies is needed.

Nicotine and tobacco products not reviewed or approved by the FDA

Electronic cigarettes

In 2004, a Chinese company started making a refillable “cigarette” with a battery and an electronic chip in it. It’s designed to look like a cigarette, right down to the glowing tip. When the smoker puffs on it, the system delivers a mist of liquid, flavorings, and nicotine that looks something like smoke. The smoker inhales it like cigarette smoke, and the nicotine is absorbed into the lungs.

The electronic cigarette, or e-cigarette, is sold with cartridges of nicotine and flavorings. Several brands and varieties of the e-cigarette are now sold in the United States. The e-cigarette is usually sold as a way for a smoker to get nicotine in places where smoking is not allowed, but some have sold it as a way to quit smoking. The cartridges are sold as having different doses of nicotine, from high doses to no nicotine at all.

Some research is now looking at whether e-cigarettes might help people quit smoking. One early study from New Zealand found that e-cigarettes were about as effective as nicotine patches in helping people quit after 6 months. This was only a single study, and the researchers noted that more studies are needed to determine the possible benefits and risks of e-cigarettes in helping people quit. E-cigarettes are not approved by the FDA to help people quit smoking.

There are questions about how safe it is to inhale some substances in the e-cigarette vapor into the lungs. The ingredients in e-cigarettes are not labeled, so the user doesn’t know what’s in them. The amounts of nicotine and other substances a person gets from each cartridge are also unclear. The manufacturers say that the ingredients are safe, but it’s not clear if they are safe to inhale – many substances that are safe to eat can harm delicate tissues inside the lungs.

E-cigarettes are not supposed to be sold for therapeutic purposes (such as quitting smoking) and are not yet regulated by the FDA as of early 2014. Still, information from the FDA suggests that e-cigarettes are not always safe. A 2009 analysis of 18 samples of cartridges from 2 leading e-cigarette brands found cancer-causing substances in half the samples. There were other impurities noted as well. For example, diethylene glycol, a toxic ingredient found in antifreeze, was found in one sample.

Information from the same testing suggests that there may be manufacturing problems with some brands of e-cigarettes. Nicotine levels from each puff varied a great deal, even between cartridges labeled as having the same nicotine amounts. Testing also found small amounts of nicotine in most of the cartridges labeled nicotine-free.

Because the American Cancer Society doesn’t yet know whether e-cigarettes are safe and effective, we cannot recommend them to help people quit smoking. There are proven

methods available to help people quit, including pure forms of inhalable nicotine as well as nasal sprays, gums, and patches.

Until electronic cigarettes are scientifically proven to be safe and effective, ACS will support the regulation of e-cigarettes and laws that treat them like all other tobacco products.

At this time it doesn't look like e-cigarettes work any better than other forms of nicotine to help people quit smoking. Their safety has not yet been proven, and their labels don't say what's in them. More information is needed.

Like other forms of nicotine, e-cigarettes and nicotine cartridges can be toxic to children or pets. They can also pose a choking hazard.

Tobacco lozenges and pouches

Lozenges that contain tobacco and small pouches of tobacco that you hold in your mouth are being sold as other ways for smokers to get nicotine in places where smoking is not allowed. The FDA has ruled that these are types of oral tobacco products much like snuff and chew, and are not smoking cessation aids. There's no evidence that these products can help a person quit smoking. Unlike scientifically proven treatments with known effects, such as nicotine replacement products, anti-depressants, nicotine receptor blockers, or behavioral therapy, these tobacco products have never been tested to see if they can help people quit tobacco.

We know that oral tobacco products such as snuff and chewing tobacco contain human carcinogens. These products cause mouth cancer and gum disease. They also destroy the bone sockets around teeth and can cause teeth to fall out. There are studies showing potential harmful effects on the heart and circulation, as well as increased risks of other cancers. They also cause bad breath and stain the teeth. They are not safe alternatives to cigarettes, nor do they help people quit tobacco.

To learn more about these products, see *Smokeless Tobacco*.

Nicotine lollipops and lip balms

In the past, some pharmacies made a product called a *nicotine lollipop*. These lollipops often contained a product called *nicotine salicylate*, which is not approved by the FDA for pharmacy use. The FDA warned pharmacies to stop selling nicotine lollipops and lip balm on the Internet, calling the products "illegal." The FDA also said "the candy-like products present a risk of accidental use by children."

Other smoking cessation products like these that do not use nicotine salicylate may be legal if they are prescribed by a doctor. Because doses vary, you will need to talk with your doctor about how to use them. But they still pose a risk for children and pets if they are not well-labeled, carefully stored, and disposed of safely.

A word about success rates for quitting smoking

Before you start using nicotine replacement or sign up for a stop smoking program, you may wonder about success rates. Success rates are hard to figure out for many reasons. First, not all programs define success in the same way. Does success mean that a person is not smoking at the end of the program? After 3 months? 6 months? 1 year? Does smoking fewer cigarettes (rather than stopping completely) count as success? If a program you're considering claims a certain success rate, ask for more details on how success is defined and what kind of follow-up is done to confirm the rate.

The truth is that quit smoking programs, like other programs that treat addictions, often have fairly low success rates. But that doesn't mean they're not worthwhile or that you should be discouraged. Your own success in quitting and staying that way is what really counts, and you have some control over that. Even if you don't succeed the first few times, keep trying. You can learn from your mistakes so that you'll be ready for those pitfalls next time.

Success rates in general

Only about 4% to 7% of people are able to quit smoking on any given attempt without medicines or other help.

Studies in medical journals have reported that about 25% of smokers who use medicines can stay smoke-free for over 6 months. Counseling and other types of emotional support can boost success rates higher than medicines alone. There's also early evidence that combining certain medicines may work better than using a single drug. (See the section called "Prescription drugs to help you quit smoking.")

Behavioral and supportive therapies may increase success rates even further. They also help the person stay smoke-free. Check the package insert of any product you are using to see if the manufacturer provides free telephone-based counseling.

Steps for long-term success

Smokers often say, "Don't tell me why to quit, tell me how." There's no one right way to quit, but there are some requirements for quitting with success. These 4 factors are key:

- Making the decision to quit
- Setting a Quit Day and making a plan
- Dealing with withdrawal

- Staying tobacco-free (maintenance)

Making the decision to quit smoking

The decision to quit smoking is one that only you can make. Others may want you to quit, but the real commitment must come from you.

Think about why you want to quit.

- Are you worried that you could get a smoking-related disease?
- Do you really believe that the benefits of quitting outweigh the benefits of continuing to smoke?
- Do you know someone who has had health problems because of smoking?
- Are you ready to make a serious try at quitting?

If you're thinking about quitting, setting a date and deciding on a plan will help move you to the next step.

Setting a quit smoking date and making a plan

What's important about picking a Quit Day?

Once you've decided to quit, you're ready to pick a quit date. This is a very important step. Pick a day within the next month as your Quit Day. Picking a date too far away can allow you time to rationalize and change your mind. But you want to give yourself enough time to prepare and come up with a plan. You might choose a date with a special meaning like a birthday or anniversary, or the date of the Great American Smokeout (the third Thursday in November each year). Or you might want to just pick a random date. Circle the date on your calendar. Make a strong, personal commitment to quit on that day.

Remember that if you're planning to use a prescription drug, you will need to talk with your doctor about getting it in time for your Quit Day. If you plan to use bupropion (Zyban) or varenicline (Chantix), you must start taking the drug at least a full week, or maybe even 2 weeks, before your Quit Day. Talk with your doctor about exactly when to start, and how to use the medicine. Also find out what side effects to watch for and report. If you are using a prescription drug, put a note on your calendar to remind you when to start taking it.

Prepare for your Quit Day

There's no one right way to quit. Most smokers prefer to quit cold turkey – they stop completely, all at once, with no medicines or nicotine replacement. They smoke until

their Quit Day and then quit. Some may smoke fewer cigarettes for a few weeks before their Quit Day. Another way is to cut down on the number of cigarettes you smoke a little bit each day. This way, you slowly reduce the amount of nicotine in your body. You might cut out cigarettes smoked with a cup of coffee, or you might decide to smoke only at certain times of the day. It makes sense to cut down before your quit date in order to reduce withdrawal symptoms, but this can be hard to do.

Quitting smoking is a lot like losing weight: it takes a strong commitment over a long time. Smokers may wish there was a magic bullet – a pill or something that would make quitting painless and easy – but there's no such thing. Nicotine replacement can help reduce withdrawal symptoms, but it works best when used as part of a stop-smoking plan that addresses both the physical and psychological components of quitting smoking.

Here are some steps to help you get ready for your Quit Day:

- Pick the date and mark it on your calendar.
- Tell friends and family about your Quit Day.
- Get rid of all the cigarettes and ashtrays in your home, car, and at work.
- Stock up on oral substitutes – sugarless gum, carrot sticks, hard candy, cinnamon sticks, coffee stirrers, straws, and/or toothpicks.
- Decide on a plan. Will you use NRT or other medicines? Will you attend a stop-smoking class? If so, sign up now.
- Practice saying, "No thank you, I don't smoke."
- Set up a support system. This could be a group program or a friend or family member who has successfully quit and is willing to help you. Ask family and friends who still smoke not to smoke around you, and not to leave cigarettes out where you can see them.
- If you are using bupropion or varenicline, take your dose each day leading up to your Quit Day.
- Think about your past attempts to quit. Try to figure out what worked and what didn't.

Successful quitting is a matter of planning and commitment, not luck. Decide now on your own plan. Some options include using nicotine replacement or other medicines, joining a stop-smoking class, going to Nicotine Anonymous meetings, using self-help materials such as books and pamphlets, or some combination of these methods. For the best chance at success, your plan should include at least 2 of these options.

Your Quit Day

On your Quit Day:

- Do not smoke. This means not at all – not even one puff!
- Keep active – try walking, short bursts of exercise, or other activities and hobbies.
- Drink lots of water and juices.
- Start using nicotine replacement if that's your choice.
- Attend a stop-smoking class or follow your self-help plan.
- Avoid situations where the urge to smoke is strong.
- Avoid people who are smoking.
- Drink less alcohol or avoid it completely.
- Think about how you can change your routine. Use a different route to go to work. Drink tea instead of coffee. Eat breakfast in a different place or eat different foods.

Read on to find out more about the kinds of thoughts and temptations that come up when you try to quit, as well as ideas for ways to deal with or avoid them.

Dealing with smoking withdrawal

Withdrawal from nicotine has 2 parts – the physical and the mental. The physical symptoms are annoying but not life-threatening. Still, if you're not prepared for them, they can tempt you to go back to smoking. Nicotine replacement and other medicines can help reduce many of these symptoms. Most smokers find that the mental part of quitting is the bigger challenge.

If you've been smoking for any length of time, smoking has become linked with a lot of the things you do – waking up in the morning, eating, reading, watching TV, and drinking coffee, for example. It will take time to "un-link" smoking from these activities. This is why, even if you're using nicotine replacement therapy, you may still have strong urges to smoke.

Rationalizations are sneaky

One way to overcome urges or cravings is to notice and identify *rationalizations* as they come up. A rationalization is a mistaken thought that seems to make sense at the time, but the thought isn't based on reality. If you choose to believe in such a thought even for a short time, it can serve as a way to justify smoking. If you've tried to quit before, you'll probably recognize many of these common rationalizations:

- “I’ll just have one to get through this rough spot.”
- “Today is not a good day. I’ll quit tomorrow.”
- “It’s my only vice.”
- “How bad is smoking, really? Uncle Harry smoked all his life and he lived to be over 90.”
- “Air pollution is probably just as bad.”
- “You’ve got to die of something.”
- “Life is no fun without smoking.”

You probably can add more to the list. As you go through the first few days without smoking, write down any rationalizations as they come up and recognize them for what they are: messages that can trick you into going back to smoking. Look out for them, because they always show up when you’re trying to quit. After you write down the thought, let it go and move on. Be ready with a distraction, a plan of action, and other ways to re-direct your thoughts.

Use these ideas to help you stay committed to quitting

Avoid temptation. Stay away from people and places that tempt you to smoke. Later on you’ll be able to handle these with more confidence.

Change your habits. Switch to juices or water instead of alcohol or coffee. Choose foods that don’t make you want to smoke. Take a different route to work. Take a brisk walk instead of a smoke break.

> **Choose other things for your mouth:** Use substitutes you can put in your mouth such as sugarless gum or hard candy, raw vegetables such as carrot sticks, or sunflower seeds. Some people chew on a coffee stirrer or a straw.
>
> **Get active with your hands:** Do something to reduce your stress. Exercise or do something that keeps your hands busy, such as needlework or woodworking, which can help distract you from the urge to smoke. Take a hot bath, go for a walk, or read a book.
>
> **Breathe deeply:** When you were smoking, you breathed deeply as you inhaled the smoke. When the urge strikes now, breathe deeply and picture your lungs filling with fresh, clean air. Remind yourself of your reasons for quitting and the benefits you’ll gain as an ex-smoker.
>
> **Delay:** If you feel that you’re about to light up, hold off. Tell yourself you must wait at least 10 minutes. Often this simple trick will allow you to move beyond the strong urge to smoke.

Reward yourself. What you're doing isn't easy, and you deserve a reward. Put the money you would have spent on tobacco in a jar every day and then buy yourself a weekly treat. Buy a book or some new music, go out to eat, start a new hobby, or join a gym. Or save the money for a major purchase.

You can also reward yourself in ways that don't cost money: visit a park or go to the library. Check local news listings for museums, community centers, and colleges that have free classes, exhibits, films, and other things to do.

Staying smoke-free

Remember the Mark Twain quote? Maybe you, too, have quit many times before. If so, you know that staying quit is the final, longest, and most important stage of the process. You can use the same methods as you did to help you through withdrawal. Think ahead to those times when you may be tempted to smoke, and plan on how you'll use other ways to cope with those situations.

More dangerous, perhaps, are the unexpected strong desires to smoke that can sometimes happen months or even years after you've quit. Rationalizations can show up then, too. To get through these without relapse, try these:

- Remember your reasons for quitting and think of all the benefits to your health, your finances, and your family.
- Remind yourself that there is no such thing as just one cigarette – or even just one puff.
- Ride out the desire to smoke. It will go away, but don't fool yourself into thinking you can have just one.
- Avoid alcohol. Drinking lowers your chance of success.
- If you're worried about weight gain, put some energy into planning a healthy diet and finding ways to exercise and stay active.

Recovering from slips

What if you do smoke? Here's the difference between a slip and a relapse: a slip is a one-time mistake that's quickly corrected. A relapse is going back to smoking. You can use the slip as an excuse to go back to smoking, or you can look at what went wrong and renew your commitment to staying away from smoking for good.

Even if you do relapse, try not to get too discouraged. Very few people are able to quit for good on the first try. In fact, it takes most people several tries before they quit for good. What's important is figuring out what helped you when you tried to quit and what

worked against you. You can then use this information to make a stronger attempt at quitting the next time.

Special concerns after quitting smoking

Weight gain

Many smokers do gain weight when they quit. But even when steps aren't taken to try to prevent this, the average gain in most studies is less than 10 pounds. There's some evidence that smokers will gain weight after they quit even if they don't eat more. Some studies suggest that nicotine replacement therapy or bupropion may help delay weight gain, but they don't prevent it. Increasing your exercise level is not only a way to lower your cravings for cigarettes in the short-term, it can also lessen weight gain over the long term.

For some people, a concern about weight gain can lead to a decision not to quit. But the weight gain that follows quitting smoking is usually small. It's much more dangerous to keep smoking than it is to gain a small amount of weight.

You are more likely to quit smoking successfully if you deal with the smoking first, and then later take steps to lose weight. While you're quitting, try to focus on ways to help you stay healthy, rather than on your weight. Stressing about your weight may make it harder to quit. Eat plenty of fruits and vegetables and limit fat. Be sure to drink plenty of water, and get enough sleep and regular physical activity.

Try walking

Walking is a great way to be physically active and increase your chances of not smoking. Walking can help you by:

- Reducing stress
- Burning calories and toning muscles
- Giving you something to do instead of thinking about smoking

A pair of comfortable shoes is all most people need for walking, and most people can do it pretty much anytime. You can use these ideas as starting points and come up with more of your own:

- Walk around a shopping mall
- Get off the bus one stop before you usually do
- Find a buddy to walk with during lunch time at work

- Take the stairs instead of the elevator
- Walk with a friend, family member, or neighbor after dinner
- Push your baby in a stroller
- Take a dog (yours or a maybe neighbor's) out for a walk

Set a goal of at least 2½ hours of moderate intensity physical activity spread throughout each week. But if you don't already exercise regularly, check with your doctor before you start. If you'd like to learn more, please see our *American Cancer Society Guidelines on Nutrition and Physical Activity for Cancer Prevention*.

Stress management

Smokers often mention stress as one of the reasons for going back to smoking. Stress is part of life for smokers and non-smokers alike. The difference is that smokers have come to use nicotine to help cope with stress and unpleasant emotions. When quitting, you have to learn new ways of handling stress. Nicotine replacement can help for a while, but over the long term you will need other methods.

As mentioned before, physical activity is a good stress-reducer. It can also help with the short-term sense of depression or loss that some smokers have when they quit. There are also stress-management classes and self-help books. Check your community newspaper, library, or bookstore.

Spiritual practices involve being part of something greater than yourself. For some, that includes things like religious practices, prayer, or church work. For others, it may involve meditation, music, being outside in nature, creative work, or volunteering to help others. Spirituality can give you a sense of purpose and help you remember why you want to stay smoke-free.

The spiritual practices of admitting that you cannot control your addiction and believing that a higher power can give you strength have been used with much success to deal with other addictions. These practices, along with the fellowship of others on a similar path, are a key part of 12-step recovery programs. These same principles can be applied to quitting smoking.

Think about how you can deal with stress and not smoke. Look at the resources around you and plan on how you will handle the stressors that will come your way.

Taking care of yourself

It's important for your health care provider to know if you use any type of tobacco now or have in the past, so that you will get the preventive health care you need. It's well known that using tobacco puts you at risk for certain health-related illnesses, so part of

your health care should focus on related screening and preventive measures to help you stay as healthy as possible. For example, you will want to regularly check inside your mouth for any changes. Have your doctor or dentist look at your mouth, tongue, or throat if you have any changes or problems. The American Cancer Society recommends that medical check-ups should include looking in the mouth. This way, tobacco users may be able to learn about changes such as leukoplakia (white patches on the mouth tissues) early, and prevent oral cancer or find it at a stage that's easier to treat.

You should also be aware of any of the following changes:

- Change in cough
- A new cough
- Coughing up blood
- Hoarseness
- Trouble breathing
- Wheezing
- Headaches
- Chest pain
- Loss of appetite
- Weight loss
- General tiredness
- Frequent lung or bronchial infections

Any of these could be signs of lung cancer or a number of other lung conditions and should be reported to a doctor right away.

Heavy smokers are at higher risk for lung cancer. But lung cancer often doesn't cause symptoms until it's advanced (has spread). The American Cancer Society has guidelines on the use of low dose computed tomography (CT) to screen for lung cancer in certain people at high risk. These people are heavy smokers and formerly heavy smokers between the ages of 55 and 74 years old who are in fairly good health.

If you meet these requirements, talk with your doctor about your lung cancer risk and the potential benefits and risks of lung cancer screening. After discussing what is and is not known about the value of early lung cancer detection, you and your doctor can decide whether to go ahead with testing. If you do decide in favor of testing, then be sure to have it done at a center that has experience in all aspects of testing people at high risk. For more information on this, please see *Lung Cancer Prevention and Early Detection*.

Remember that tobacco users have a higher risk for other cancers, too. You can learn about the types of cancer you may be at risk for by reading our document that discusses the way you use tobacco. (See the "To learn more" section to find this information.) Other risk factors for these cancers may be more important than your use of tobacco, but you should know about the extra risks that might apply to you.

If you have any health concerns that may be related to your tobacco use, please see a health care provider as soon as possible. Taking care of yourself and getting treatment for problems early on will give you the best chance for successful treatment. The best way, though, to take care of yourself and decrease your risk for life-threatening health problems is to quit using tobacco.

To learn more

It's hard to stop smoking. But you can quit! Since 2002, there have been more former smokers in the US than there are current smokers – you can become one of this growing number!

Many organizations offer information, counseling, and other services to help you quit, as well as information on where to go for help. Other good resources to ask for help include your doctor, dentist, local hospital, or employer.

More information from your American Cancer Society

Here's more information you might find helpful. You also can order free copies of our documents from our toll-free number, **1-800-227-2345**, or read most of them on our website, www.cancer.org.

More on how to quit

Increase Your Chances of Quitting Smoking

Quitting Smoking: Help for Cravings and Tough Situations (also in Spanish)

Guide to Quitting Smokeless Tobacco

Smoking and using tobacco

Questions About Smoking, Tobacco, and Health (also in Spanish)

Smokeless Tobacco

Cigarette Smoking (also in Spanish)

Cigar Smoking (also in Spanish)

Child and Teen Tobacco Use

Women and Smoking (also in Spanish)

Smoking in the Workplace: A Model Policy

Tobacco and the LGBT Community

Death and harm from smoking

Smoking and Cancer Mortality Summary Table

Tobacco-Related Cancers Fact Sheet

If someone you know is quitting

Helping a Smoker Quit: Do's and Don'ts

Cancer screening

Lung Cancer Prevention and Early Detection

American Cancer Society Guidelines for the Early Detection of Cancer (also in Spanish)

National organizations and websites*

If you want to quit smoking and need help, contact one of the following organizations. Along with the American Cancer Society, other sources of information and support include:

Centers for Disease Control and Prevention
Office on Smoking and Health
Free quit support line: 1-800-784-8669 (1-800-QUIT-NOW)
TTY: 1-800-332-8615
Website: www.cdc.gov/tobacco

> The quit support line offers information on smoking and health as well as help with quitting. Languages and range of services vary by your state of residence

Nicotine Anonymous (NicA)
Toll-free number: 1-877-879-6422 (1-877-TRY-NICA)
Website: www.nicotine-anonymous.org

> For free information on their 12-step program, meeting schedules and locations, print materials, or information on how to start a group in your area

QuitNet
Website: www.quitnet.com

Offers free, cutting-edge services to people trying to quit tobacco**National Cancer Institute**
Free tobacco line: 1-877-448-7848 (1-877-44U-QUIT) (also in Spanish)
Direct tobacco website: www.smokefree.gov

> Quitting information, quit-smoking guide, and counseling are offered, as well as referral to state telephone-based quit programs (if needed for special services)

American Heart Association
Toll-free number: 1-800-242-8721 (1-800-AHA-USA-1)
Website: www.americanheart.org

> Quitting tips and advice can be found at www.everydaychoices.org or by calling 1-866-399-6789

Environmental Protection Agency (EPA)
Telephone: 202-272-0167
Website: www.epa.gov

> Has advice on how to protect children from secondhand smoke, a Smoke-free Homes Pledge, and other tobacco-related materials on the direct website, www.epa.gov/smokefree, or at 1-866-766-5337 (1-866-SMOKE-FREE)

American Lung Association
Toll-free number: 1-800-548-8252
Website: www.lungusa.org

> Printed quit materials are available, some in Spanish. Also offers a low cost quit-smoking program “Freedom from Smoking Online” at www.ffsonline.org; a free version is available, too

**Inclusion on this list does not imply endorsement by the American Cancer Society.*

No matter who you are, we can help. Contact us anytime, day or night, for information and support. Call us at **1-800-227-2345** or visit www.cancer.org.

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