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**SOME FACTS ABOUT NICOTINE**

Nicotine is a naturally occurring, colorless chemical found in tobacco. It is also recognized as one of the most frequently used addictive drugs. Of the 4,000 different chemicals found in tobacco products, nicotine is the primary component of tobacco that affects the brain. Nicotine alters a person's mood, appetite and alertness.

Here are some other facts you should know about the chemical nicotine:

- Nicotine is 1,000 times more addictive than alcohol, nearly 100 times more addictive than barbiturates (painkillers), and five to ten times more addictive than cocaine and morphine. <sup>1</sup>
- Pure nicotine is an extremely potent poison. It is three times as toxic as arsenic! To put this into perspective, it would take 200 milligrams of arsenic to kill a 150-pound adult and only *60 milligrams* of nicotine to have the same affect.
- Chemically, nicotine is classified as an alkaloid and has been used in everything from pesticides to darts that can bring down an elephant. Nicotine is no longer used as an insecticide because of the lethal effects it has when ingested. These effects include vomiting, tremors, convulsions and death. Death would occur just minutes after ingestion due to respiratory failure caused by paralysis.

Nicotine poisoning is particularly problematic with young children and infants. Every year children are hospitalized after accidentally eating cigarettes or cigarette butts.

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<sup>1</sup> University of Minnesota. Nicotine Addiction. <[www1.umn.edu/period/tobacco/nicaddct.html](http://www1.umn.edu/period/tobacco/nicaddct.html)>

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Whether it's chewed, smoked or snuffed, as soon as nicotine enters your body, it circulates quickly through your entire system, causing some very dangerous side effects, including chemical alterations in your brain.

## Effects of Nicotine on Your Body

- Increased heart rate, elevated blood pressure and oxygen depletion in the heart. Studies show that a smoker's first cigarette of the day can increase his or her heart rate by ten to 20 beats per minute.
- Increased metabolism and decreased appetite. It is estimated that smokers tend to weigh nine to ten pounds less than nonsmokers.
- "Swimminess" in new smokers. Since nicotine is a poison, people who are new to smoking experience nausea, vomiting, fainting and rapid cardiac action before acquiring a level of tolerance to such side effects. Once tolerance has been established, smokers will unconsciously alter their puff rates when given high or low nicotine cigarettes to maintain a steady flow of nicotine to the body.
- Respiratory distress or difficulty breathing is common.
- Increased susceptibility to seizures and hypothermia.
  
- **Lung damage**—In healthy people, the thin lining of the lungs allows oxygen and carbon dioxide to pass through easily. Healthy lungs also trap dust and harmful particles and push them out of your body using tiny little hairs called cilia. Toxins in tobacco severely damage the lining of the lungs. Lungs become clogged with tar, making the lining thick, black and scarred. This makes it difficult to transfer oxygen properly. Tobacco damages and kills cilia. Tiny particles and mucus get stuck in the lungs, causing the smoker difficulty in breathing and putting the smoker at risk for infection and lung cancer.
  
- **Heart disease**—Smoking causes blood vessels to constrict, increasing blood pressure and making your heart work harder to pump blood. Tobacco increases the level of cholesterol deposits and blood clots. This in turn contributes to hardening of the arteries, a condition known as *arteriosclerosis*. This damage is responsible for heart attacks, coronary heart disease, deep vein thrombosis and irregular heartbeat. In some cases, blood flow is so restricted that limbs have to be amputated.

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- **Digestive damage**—Nicotine increases the production of stomach acid, weakening the stomach lining and thus increasing the risk of the smoker developing painful ulcers that can rupture and cause internal bleeding.
- **Excretory damage**—Tobacco use puts a smoker at risk for developing Crohn’s disease. Symptoms of this disease include inflammation, diarrhea and blood in stools. Smoking also damages the kidneys, bladder and liver as well.
- **Brain damage**—Arteriosclerosis and weakened blood flow also affect the brain. These symptoms are reasons smokers are at a very high risk for suffering a stroke caused by a blocked artery in the brain.
- **Blindness**—Cataracts are the leading cause of blindness. The presence of free radicals (unbalanced molecules which damage healthy cells due to an oxidizing effect) in the body is the leading cause of cataract formation. Antioxidants attack these free radicals, reducing the risk of cataracts. Smokers have lower levels of antioxidants and thus have a 50 percent greater risk of developing cataracts than nonsmokers. Furthermore, free radicals are one of the many chemicals found in tobacco smoke.
- **Mouth and throat damage**—The poisons found in tobacco are damaging to the immune system. Smokers are thus more vulnerable to upper respiratory tract infections from viral and bacterial invaders. Smoking also leads to tooth decay and periodontitis (gum disease).
- **Reproductive damage**—Female smokers have an increased risk of developing cervical cancer. This makes having a baby difficult, both in conception and in pregnancy. Mothers who smoke during pregnancy double the incidence of their baby suffering from SIDS (sudden infant death syndrome), low birthweight and being premature. Male smokers are more likely to be impotent than nonsmokers.

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## **Effects of Nicotine on Your Brain**

Upon inhalation, it takes as little as ten seconds for nicotine to reach the brain, faster than if it is chewed or snuffed. Once nicotine is in the brain, it interacts with specific receptors, altering the brain's natural balanced chemistry in a variety of ways. While nicotine enters the brain quickly, it leaves just as fast. Its effects subside after just a few minutes, creating the craving for more to maintain a balance.

### **Nicotine and Neurotransmitters**

- Acetylcholine is a naturally occurring chemical found in the brain. It is responsible for causing arousal and cognitive enhancement. Nicotine decreases the amount of acetylcholine in the brain by “stealing” the receptors it needs to bind to. Nicotine has a stronger effect on the neurological system than acetylcholine. With continued smoking, the neurons in the brain adapt to the stronger electrical activity caused by nicotine. The smoker's body and brain thus become reliant on nicotine to do the job acetylcholine once did.
- The caudate nucleus is the area in the brain that controls voluntary movement. Nicotine causes neurons in this area to become hyperaware, increasing reflexes. If nicotine levels drop, the neurons are incapable of working at the level they once did causing “smoker's tremors” which last until nicotine is reingested or until the smoker quits for good.
- Nicotine increases the level of serotonin in the brain, which is responsible for regulating mood and appetite.
- Nicotine increases norepinephrine, causing arousal and appetite suppression.
- Nicotine increases vasopressin, causing memory improvement.
- Nicotine increases beta-endorphin, reducing anxiety and tension.

### **Nicotine and Dopamine**

- There are certain “reward pathways” in the brain that are responsible for controlling feelings of pleasure. Nicotine increases the levels of dopamine in these pathways, causing an increased sense of euphoria in the user.
- Dopamine is a chemical in the brain that causes feelings of pleasure as well as reduced appetite.

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- Dopamine is the same chemical that is released when someone uses heroin or cocaine. Nicotine similarly releases extra dopamine in the brain.

### **Nicotine and Acetaldehyde**

- Acetaldehyde is a chemical found in tobacco smoke that enhances the reinforcing, addictive properties of nicotine. It makes the effects of nicotine stronger and increases the chances that one will become addicted.
- Studies have shown that in adolescent animals, acetaldehyde has an even greater effect. This is a huge warning sign that it possibly has a greater effect on adolescent humans as well, putting teens at a greater risk for addiction than someone older.

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Many people use the words *addiction* and *habit* interchangeably. The truth is, these words are not synonymous. The word *habit* is defined as a regular disposition or tendency. For example, brushing your teeth in the morning is a common habit. Addiction, on the other hand, is far more enslaving. To understand how dangerous tobacco addiction is, you must first understand the term itself.

Addiction is the continual physiological need for a habit-forming substance. Addiction causes people to pursue a substance even when it is associated with negative health or social consequences. Addiction is marked by certain physical and psychological characteristics. Here are some helpful definitions associated with addictive behavior:

### **Compulsion**

The strong urge to carry out a given act.

### **Craving**

Intense desire for a drug, often triggered by people, places or things that the addict associates with the drug. The trigger or "ritual" often becomes so connected with the drug in the addict's brain that exposure to it causes a chemical need for the drug.

### **Tolerance**

The condition in which higher doses of a drug are required to reach the same degree of stimulation or relaxation.

### **Dependence**

The state in which a drug user's brain has adjusted to the presence of the drug and needs it to function normally. Someone who is dependent on a certain drug no longer uses it to feel good, but simply to feel normal.

### **Withdrawal**

The negative physiological and psychological symptoms a drug user suffers when the addict stops using. The result is that the body cannot function the same way in the absence of the drug as it did before, at least in the short term.

These addictive behaviors present themselves in people addicted to alcohol, hard drugs and of course, nicotine.

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Nicotine addiction has its own special glossary of terms that define the addictive properties of tobacco. Here are some terms Dr. Joseph R. DiFranza uses in his studies on nicotine addiction:

### **Nicotine Withdrawal**

A cluster of symptoms that include craving, restlessness, nervousness, irritability, difficulty concentrating and difficulty sleeping.

### **Latency to Withdrawal (LTW)**

The symptom-free interval between the last cigarette and the onset of withdrawal symptoms. It can shrink from weeks to minutes over many years of tobacco use. For new smokers, the LTW is long, and a cigarette every now and then is enough to keep withdrawal symptoms at bay.

### **Withdrawal-Related Adaptations**

The chemical adaptations the brain makes after the very first cigarette to balance the effects of nicotine and return to a level of homeostasis. A new smoker's brain makes these adaptations right away. These adaptations are what cause cravings to hit once nicotine has left the brain.

### **Dependence-Related Tolerance**

With continued nicotine use, tolerance develops and the impact of a cigarette diminishes. The LTW is shortened and the smoker needs nicotine at closer intervals to avoid feeling symptoms of withdrawal. Dependence-related tolerance takes a long time to occur.

### **Abstinence-Related Adaptation**

A mechanism that mimics the action of nicotine by inhibiting craving. It develops in ex-smokers to counter the enduring effects of dependence-related tolerance.

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Previous theories on nicotine addiction suggested that it takes years for addiction to develop and that withdrawal symptoms only affect long-term, heavy smokers. New research headed by Dr. Joseph R. DiFranza and the National Institute on Drug Abuse (NIDA) is beginning to overturn this theory by showing how the brain's chemistry is potentially dramatically altered after smoking even a single cigarette.

## A Healthy Balance

According to Dr. DiFranza, the brain has two systems for generating and inhibiting cravings:

- the *Craving Generation System* triggers cravings for behaviors
- the *Craving Inhibition System* stops the cravings once the craving has been fulfilled

## The First Cigarette

- Nicotine stimulates the *Craving Inhibition System*, making it hyperactive to the point that its activity outweighs that of the *Craving Generation System*.
- Since the brain is always working to maintain a balance between these two systems, it responds to the increased activity in the *Craving Inhibition System* by rapidly developing "withdrawal-related adaptations" in the *Craving Generation System* to boost its activity, making it equal to that of the *Craving Inhibition System*.
- Once again, balance is temporarily restored in the brain.

## Withdrawal

- Once the effect of nicotine in the brain has worn off, activity in the *Craving Inhibition System* is lowered.
- The brain's chemistry is once again imbalanced. The only way the brain can restore a balance is to fulfill the cravings being generated—the craving being more nicotine.
- The smoker will smoke another cigarette and the brain's chemistry will temporarily be restored. This cycle explains how addiction begins and perpetuates. These findings also refute the previously held belief that withdrawal symptoms are the result of long-term smoking; rather, withdrawal symptoms are the reason people become heavy smokers.



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**HOOKED ON NICOTINE CHECKLIST**

Developed by Dr. Joseph R. DiFranza, the Hooked on Nicotine Checklist (HONC) is a series of yes or no questions intended to measure the presence of addiction in an individual. Basically, if the individual answers “yes” to any of the questions, it is an indication that he or she finds it difficult or uncomfortable to quit smoking, thus showing that a level of addiction is present.

<b>The Hooked On Nicotine Checklist</b>	<b>Y / N</b>
Have you ever tried to quit smoking but couldn't?	
Do you smoke now because it is really hard to quit?	
Have you ever felt like you were addicted to tobacco?	
Do you ever have strong cravings to smoke?	
Have you ever felt like you really needed a cigarette?	
Is it hard to keep from smoking in places where you are not supposed to, like school?	
When you tried to stop smoking (or when you haven't used tobacco in a while:	
• Did you find it hard to concentrate because you couldn't smoke?	
• Did you feel more irritable because you couldn't smoke?	
• Did you feel a strong need or urge to smoke?	
• Did you feel nervous, restless or anxious because you couldn't smoke?	

Available in 13 languages, HONC is the most validated indicator of nicotine addiction and is widely used. It was given to hundreds of teens over three years. Here are some conclusions Dr. DiFranza came to based on the HONC study and other studies administered to teens in a New Zealand case study:

- On average, teens were only smoking about two cigarettes a week when symptoms of addiction appeared.
- Of those who were addicted to tobacco, ten percent experienced their first signs of addiction within two days of their first cigarette, and 25 to 35 percent experienced signs of addiction within a month.
- 25 percent of smokers showed symptoms of addiction after smoking just one to four cigarettes.

Source: “Hooked from the First Cigarette” by Joseph R. DiFranza, *Scientific American*, May 2008.

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Now that nicotine, its effects on the body and the term *addiction* have been explained, it is time to show how they all connect together, starting with the very first puff and ending with addiction.

### **Step 1: Puffff...**

Within ten to 19 seconds after inhalation, nicotine reaches the brain, interacting with a plethora of chemicals, causing a chemical imbalance between the Craving Generation System and the Craving Inhibition System.

### **Step 2: Five Minutes After Lighting Up**

The cigarette is finished and over the course of five minutes, the smoker has taken on average ten puffs and has absorbed approximately one to two milligrams of vaporized nicotine.

### **Step 3: I'm Pumped!!**

After getting over the initial feelings of "swimminess" that come with being a novice smoker, you finally get the payoff! Your heart rate is increased, your mind feels sharp, you have a sense of euphoria and suddenly you don't feel so hungry. This is due to nicotine messing with the reward centers and dopamine in your brain.

### **Step 4: Lost That Lovin' Feeling**

Shortly after finishing your cigarette, the effects of nicotine begin to diminish. Depending on your Latency to Withdrawal rate, it may take a few hours or even days for a new smoker to crave another cigarette. An experienced smoker will start craving another cigarette within minutes due to his or her Dependence-Related Tolerance.

### **Step 5: Gimme More!**

Now that your body has officially begun to crave cigarettes, chances are, you're smoking more than you used to when you first started. Congratulations! Dependence-Related Tolerance has set in! You now need to smoke a little more each day to get the same buzz you experienced after the first puff. On a side note, this is due to the fact that nicotine has depressed the ability of your brain to experience pleasure the way it used to be able to before your little addiction.

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### **Step 6: Hey, That Reminds Me...**

Somehow, just buckling your seat belt or turning on the radio makes you want a cigarette. Or maybe smelling smoke coming from someone else's cigarette. Every smoker has different triggers and rituals that make them want to smoke. No matter how random they may seem, every smoker develops these compulsions that make them feel like lighting up.

### **Step 7: I Want a Cigarette... No, I Need a Cigarette**

Maybe you've been smoking for a few weeks, maybe a couple of months, but it has begun to feel like if you don't smoke a cigarette when you crave one, you experience some very uncomfortable side effects. This is what we call **withdrawal** and it can manifest itself both pharmacologically and behaviorally.

- **Pharmacological Side Effects:** Irritability, anger, anxiety, nervousness, depression, fatigue, lightheadedness, loss of focus, insomnia, dry mouth, sore throat, coughing fits, increased appetite, upset stomach and most of all, CRAVINGS for nicotine. If you choose to quit, these cravings can last 6 months or longer.
- **Behavioral Side Effects:** These side effects can increase the severity of the pharmacological manifestations of withdrawal syndrome. For some people, the feel, smell and sight of a cigarette and the ritual of handling, lighting and smoking a cigarette become associated with positive feelings, thus making cravings worse. Nicotine replacement treatments can help alleviate the pharmacological symptoms, but it is often the behavioral side effects of withdrawal that lead to relapse and make quitting harder.

### **Step 8: Diagnosis—Addicted to Nicotine**

At this point, it is safe to say that you are addicted to nicotine. Maybe you smoke cigarettes, chew tobacco or use snuff. Either way, you have successfully completed all the steps and have arrived at destination addiction. Good news? This doesn't have to be your final destination. Go ahead; take the next exit off the highway toward a nicotine freeway!!

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Using tobacco is a dangerous thing to do at any age. However, studies show that the younger you are when you start smoking, the more likely you are to become addicted—and the more likely you are to experience the health risks that go along with nicotine addiction.

Here are some facts to think about before lighting up:

- In 2004, 23 percent of high school students and 11.7 percent of middle school students in the United States smoked cigarettes.
- Every day in the United States, approximately 4,000 teens between the ages of 12 and 17 start smoking. Of those, 1,140 young people become daily cigarette smokers.
- People who begin smoking at an early age are more likely to develop severe nicotine addictions than those who start later. Of teens who have smoked at least 100 cigarettes, 61 percent strongly desire to quit and 54 percent have already seriously tried to quit and have relapsed.
- Tobacco use in teens is associated with other risky, health-compromising behaviors. This can include an increased likelihood of being involved in fights, carrying weapons, engaging in risky sexual behavior and using alcohol and other drugs.
- Tobacco really does act as a “gateway drug.” Teens who reported having smoked in the past 30 days were three times more likely to drink alcohol, eight times more likely to smoke marijuana, and 22 times more likely to use cocaine within those past 30 days than those who had not used tobacco.
- Studies suggest that the chemical acetaldehyde found in tobacco enhances nicotine’s addictive properties in teens more than in adults.

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The battle continues: Big Tobacco comes up with new strategies to target teens to start smoking, while anti-tobacco crusaders stay busy trying to educate young consumers so they don't fall for Big Tobacco's tricks. These are just a few starting points to get you thinking. What else can you come up with based on your personal experience?

## Tobacco's Lure

- The minimum age to purchase cigarettes in the United States is 18. When one considers the large number of smokers under the age of 18, there would seem to be an obvious lack of enforcement.
- Between the years of 2002 and 2003, Big Tobacco has increased the spending on promotions and advertisements by 2.7 billion dollars.
- Big Tobacco companies went to court to fight for the right to keep tobacco advertisements near high schools and won.
- 39 percent of high school students say they frequently see tobacco advertisements on the Internet.

## The Fight Against Tobacco

- Television stations that are popular with teens (like MTV and VH1) produce many commercials aimed at informing teens about the risks of smoking.
- Cartons of cigarettes are now required by law to include the Surgeon General's warning about the dangers of smoking. Often, they also include a pamphlet giving information about where to go to get help quitting.
- Many high schools and college campuses have banned smoking lounges and smoking in dorms and other common areas.
- The FDA banned the use of the notorious "Joe Camel" cartoon advertisements for Camel cigarettes on the grounds that these ads targeted a young audience.
- Many popular TV shows like *Grey's Anatomy*, *House* and *Scrubs* place the focus squarely on the dangers of smoking.

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Tobacco isn't just addictive; it is deadly. The facts are in the numbers:

- One in five deaths is smoking related.
- Lung cancer is the number one killer in America *as well as* the number one preventable disease.
- It is estimated that by the year 2020, tobacco will be the cause of death for ten million people a year worldwide.
- Over 400,000 Americans die each year due to smoking-related illnesses. That means that more people die from smoking than from AIDS, illegal drug overdoses, alcohol abuse, suicide, motor vehicle injuries and murders *combined*.
- On average, a smoker's life is 13 to 14 years shorter than that of a nonsmoker.
- Estimations show that one in three smokers will eventually die from a smoking-related disease.

Here are the facts on the leading deadly tobacco-related diseases:

## Cancer

### What it is:

The uncontrollable growth of abnormal body cells. The cells can form a tumor that edges out normal cells and may spread to other parts of the body.

### Tobacco's role:

The toxins in tobacco smoke damage the cell's DNA, making it more likely that an abnormal cell will begin to grow out of control. Tobacco especially increases the risk of cancer of the lungs, mouth, pharynx, larynx, esophagus, kidney, pancreas, bladder, stomach and cervix.

### Annual U.S. deaths:

Lung cancer has the highest mortality rate of any cancer (more than colon, breast and prostate cancer combined). In 2007, an estimated 160,390 people died of lung cancer. Smoking accounts for 87 percent of lung cancer deaths. Nonsmokers have a 20 to 30 percent chance of developing lung cancer if exposed to secondhand smoke on a regular basis.

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## Heart Disease

### What it is:

A broad term for several heart disorders including obstructed blood flow in the coronary arteries, scar tissue on the heart, heart attack and disease of the heart muscle.

### Tobacco's role:

The poisons in tobacco increase the risk for heart disease by causing arteriosclerosis. Arteriosclerosis is the progressive hardening of the artery walls from the deposit of fatty plaques, scarring and thickening of the walls. Smokers are two to four times more likely to develop heart disease than nonsmokers.

### Annual U.S. deaths:

In 2004, heart disease was responsible for 869,724 deaths. About 2,400 Americans die every day from cardiovascular disease. More than 148,000 of these deaths occurred in people under the age of 65. Heart disease is the leading cause of death among women.

## Chronic Obstructive Pulmonary Disease (COPD)

### What it is:

COPD is a term describing both chronic bronchitis and emphysema. People with COPD have damaged alveoli in the lungs as well as narrowed air passages clogged with mucus.

### Tobacco's role:

Toxins and tar in tobacco damage the lungs, turning them thick, black and scarred. This makes the transfer of oxygen and carbon dioxide difficult. Smoking exponentially increases the risk of dying from COPD.

### Annual U.S. deaths:

COPD is the fourth leading cause of death in America. In 2005, 127,000 Americans died of COPD. Of these deaths, 80 to 90 percent were smoking related.

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## Stroke

### What it is:

A blockage or rupture in a blood vessel in the brain. Even with the quickest treatment, a stroke victim can be left with paralysis, brain damage including the inability to recognize previously familiar objects, and slurred or distorted speech.

### Tobacco's role:

Tobacco increases blood pressure and contributes to hardening of the arteries. This is especially dangerous when it occurs in the brain. Women taking contraceptives are at an increased risk of suffering from a stroke if they are smokers.

### Annual U.S. deaths:

Approximately 780,000 Americans suffer from strokes each year. Strokes kill more than 150,000 people every year, making them the third leading cause of death in America.



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Once a smoker, not always a smoker. Should you make the healthy decision to quit tobacco use, you will find that there are many benefits that come with being nicotine-free. While of course these benefits have a significant positive impact on your physical health, there are also everyday improvements that will benefit your social and personal well-being.

- Nonsmokers on average have fewer colds—you'll miss fewer days of school and you won't be constantly coughing up phlegm.
- Your sense of smell and taste will improve; you can enjoy eating out and cooking!
- Your teeth and fingers won't be yellow and stained; you'll be less self-conscious and will look healthier.
- The smell of tobacco won't cling to your clothes, hair and fingers. You won't have to worry about smelling like an ashtray on a date, when you babysit or visit family.
- You will have increased stamina as shortness of breath and coughing decreases and circulation improves. You can start working out, get involved in a sport and appreciate what your healthy body can do.
- You will be more accepted in the homes of nonsmoking families and friends. Smokers are often so used to the smell of smoke that they no longer notice it. Nonsmokers do and usually do not like it. Also, many nonsmokers do not appreciate smoking in their homes or backyards or around their family.
- You'll be able to sit through a movie, go out to dinner and sit at your desk without needing or constantly thinking about going out for a smoke break. Your friends or your boss will appreciate this.
- You'll find that you will save a lot more money when you stop buying cigarettes. With higher taxes bringing a pack of cigarettes up to ten dollars in some states, the money you save will impact your life significantly.

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**BENEFITS OF QUITTING**

- Your larynx will begin to recover and your speaking (or singing) voice will dramatically improve. If you aspire to be an actor, singer or public speaker, you will appreciate this new change!
- You won't develop premature signs of aging caused by smoking like wrinkles around your eyes or "smoker's mouth" (wrinkles around your lips caused by pursing them when inhaling).
- If you drive, your car won't smell like smoke, you will avoid getting ashes all over the interior, holes in the seats from the lighted end of a cigarette, nasty "spit" bottles lying around, and most importantly, you'll reduce your risk of getting into a car accident caused by trying to light up and steer at the same time.

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It may be tough, but smokers can quit. In many cases the damage done by tobacco can slowly be reversed. Within minutes of smoking that last cigarette, the body begins to repair itself. Here are some encouraging numbers:

**Within 20 minutes of the last cigarette:**

- Blood pressure drops to normal.
- Pulse rate drops to normal.
- Body temperature of hands and feet increase to normal.

**After 8 hours:**

- Carbon monoxide level in the blood drops to normal.
- Oxygen level in the blood increases to normal.

**After 24 hours:**

- Chance of heart attack decreases.

**After 48 hours:**

- Nerve endings start to regrow.
- Ability to smell and taste things increases.

**After 72 hours:**

- Bronchial tubes relax, making breathing easier.
- Lung capacity increases.

**After 1 to 9 months:**

- Coughing, sinus congestion, fatigue and shortness of breath decrease.
- Cilia in the lungs are reactivated, increasing the ability to handle mucus, clean the lungs and reduce infection.

**After 5 years:**

- Lung cancer death rate for the average pack-a-day smoker decreases from 137 deaths per 100,000 to 72 deaths per 100,000.

**After 10 years:**

- Lung cancer death rate for the average smoker drops to 12 deaths per 100,000—almost the same rate as nonsmokers.
- Risk of other cancers—such as those of the mouth, larynx, esophagus, bladder, kidney and pancreas—decrease.

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There is a wealth of information available for those looking to learn more about tobacco addiction, as well as hotline numbers and websites to help smokers overcome their addiction. The sites below are a good starting point:

## **TOBACCO WEBSITES**

### **Action on Smoking and Health—Fact Sheet “Nicotine and Addiction”**

[<www.ash.org.uk/html/factsheets/html/fact09.html>](http://www.ash.org.uk/html/factsheets/html/fact09.html)

### **American Heart Association**

[<www.americanheart.org>](http://www.americanheart.org)

### **American Lung Association**

[<www.lungusa.org>](http://www.lungusa.org)

### **Campaign for Tobacco-Free Kids**

[<www.tobaccofreekids.org>](http://www.tobaccofreekids.org)

### **Centers for Disease Control (CDC) Tobacco Prevention and Control**

[<www.CDC.gov/prc/pdf/PRC-tpbacco-fact-sheet-Fall2004.pdf>](http://www.CDC.gov/prc/pdf/PRC-tpbacco-fact-sheet-Fall2004.pdf)

### **HelpGuide.org**

[<www.helpguide.org/mental/quit\\_smoking\\_cessation.html>](http://www.helpguide.org/mental/quit_smoking_cessation.html)

### **How Stuff Works: Nicotine**

[<www.health.howstuffworks.com/nicotine>](http://www.health.howstuffworks.com/nicotine)

### **Mayo Clinic.com “Nicotine Dependence.”**

[<www.mayoclinic.com/health/nicotine-dependence/DS00307/DSECTION=2>](http://www.mayoclinic.com/health/nicotine-dependence/DS00307/DSECTION=2)

### **National Institute on Drug Abuse**

[<www.teens.drugabuse.gov/drnida/drnida\\_nic1.asp>](http://www.teens.drugabuse.gov/drnida/drnida_nic1.asp)

### **National Institute on Drug Abuse—“Tobacco Addiction”**

[<www.drugabuse.gov/PDF/RRTobacco.pdf>](http://www.drugabuse.gov/PDF/RRTobacco.pdf)

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**TOBACCO RESOURCES**

**Nicotine Anonymous**

<[www.nicotine-anonymous.org](http://www.nicotine-anonymous.org)>

**NicotineVictims.com**

<[www.nicotinevictims.com/poison.htm](http://www.nicotinevictims.com/poison.htm)>

**The Truth**

<[www.thetruth.com](http://www.thetruth.com)>

**TOBACCO HOTLINES**

American Cancer Society Hotline: 1-800-ACS-2345 (800-784-8669)

National Cancer Institute Hotline: 1-800-QUIT-NOW (800-227-2345)

**NOTE:** Most states have locally based quit lines. To find local help, visit your state government's website.

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## Pre/Post Test

Decide whether the following statements are true or false.

1. **TRUE or FALSE:** Every year, cigarette smoking is responsible for one in five deaths in the United States. \_\_\_\_\_
2. **TRUE or FALSE:** Approximately 50 percent of smokers are able to kick their nicotine addiction. \_\_\_\_\_
3. **TRUE or FALSE:** Smoking is less addictive than cocaine or heroin. \_\_\_\_\_
4. **TRUE or FALSE:** Nicotine withdrawal is primarily a mental or psychological battle. \_\_\_\_\_
5. **TRUE or FALSE:** Your brain chemistry can be permanently altered after only one cigarette. \_\_\_\_\_
6. **TRUE or FALSE:** Teens are less likely to become addicted to cigarettes than older smokers because their brains are not fully developed. \_\_\_\_\_
7. **TRUE or FALSE:** It takes at least a month of daily smoking for nicotine addiction to set in. \_\_\_\_\_
8. **TRUE or FALSE:** Approximately 80 percent of teen smokers report feeling a sense of addiction after smoking their first pack of cigarettes. \_\_\_\_\_
9. **TRUE or FALSE:** Cravings to smoke usually occur only in the presence of a lit cigarette. \_\_\_\_\_
10. **TRUE or FALSE:** Avoiding the people, places or things associated with smoking can help someone who is trying to quit. \_\_\_\_\_

*The Answer Key for this activity appears on the next page.*