

Chapter 9

Tobacco

Lesson 9.1

The Health Effects of Tobacco

Lesson 9.2

Why People Use Tobacco

Lesson 9.3

Treating and Preventing Nicotine Addiction

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What's Your Health and Wellness IQ?

Take this quiz to see what you do and do not know about the negative consequences of using tobacco products. If you cannot answer a question, pay extra attention to that topic as you study this chapter.



Health and Wellness IQ

1. People who smoke are addicted to the carbon monoxide present in tobacco smoke.	True	False	It Depends
2. Smoking is a relatively easy habit to break.	True	False	It Depends
3. Smoking leads to stained teeth and bad breath.	True	False	It Depends
4. People who are regularly exposed to secondhand smoke are at increased risk of developing cancer.	True	False	It Depends
5. On average, long-term smokers die 13 to 15 years earlier than nonsmokers.	True	False	It Depends
6. Smoking is extremely harmful to the lungs, but does not typically affect heart health.	True	False	It Depends
7. Tobacco smoke contains carcinogens.	True	False	It Depends
8. Nicotine addiction is only physical.	True	False	It Depends
9. Spending time with people who smoke increases the chances that you will smoke.	True	False	It Depends
10. Increasing the cost of cigarettes has little impact on reducing smoking among teenagers.	True	False	It Depends

1. Identify each statement as True, False, or It Depends. Choose It Depends if a statement is true in some cases, but false in others.
2. Revise each False statement to make it true.
3. Explain the circumstances in which each It Depends statement is true and when it is false.

Setting the Scene

Companies that sell tobacco products need you and other teenagers to become their future customers. They want you to believe that buying their products will make you more attractive and popular. They want you to believe that their customers drive expensive cars and lead exciting, active lives—while using tobacco.

Every day in the United States, nearly 4,000 people younger than 18 smoke their first cigarette. This is unfortunate because starting to smoke during adolescence can lead to a lifetime of health issues. Friends and family members of smokers also develop health problems from inhaling secondhand smoke. In this chapter you will learn about the health effects of tobacco products and why some people choose to use these products. You will also learn specific strategies for kicking a tobacco habit and preventing tobacco use.



Lesson 9.1

The Health Effects of Tobacco

Key Terms

E-Flash Cards

In this lesson, you will learn the meanings of the following key terms.

asthma

carbon monoxide

carcinogens

chronic bronchitis

chronic obstructive pulmonary disease (COPD)

emphysema

leukoplakia

nicotine

secondhand smoke

smokeless tobacco

tar

tobacco

Before You Read

It Says, I Say, So

Create a visual chart like the one shown below to connect information in the text with the knowledge you already have. Add as much information as you can, and make your columns as long as you need them to be.

IT SAYS	I SAY	SO
What the text says	What I think the text means	How do I interpret this?

Lesson Objectives

After studying this lesson, you will be able to

- identify various forms of tobacco and the addictive substance in tobacco products;
- assess the hazardous effects nicotine has on the cardiovascular and respiratory systems;
- describe harmful substances in tobacco products and smoke that result in serious illnesses and diseases; and
- analyze the impact of secondhand smoke on individuals.

Warm-Up Activity

Cigarette Smoking and Death
The table below presents the top 10 leading causes of death in the United States. Before you read this chapter, make a new list predicting how this table might look if everyone chose not to smoke. Explain your reasoning.

Leading Causes of Death in Adults	Number of Deaths
Heart Disease	599,413
Cancer	567,628
Chronic Lower Respiratory Diseases	137,353
Stroke (cerebrovascular diseases)	128,842
Accidents (unintentional injuries)	118,021
Alzheimer's disease	79,003
Diabetes	68,705
Influenza and Pneumonia	53,692
Nephritis, nephritic syndrome, and nephrosis	48,935
Intentional self-harm (suicide)	36,909



Smoking is the leading cause of preventable death in the United States. This lesson examines different types of tobacco products, the physical effects of tobacco use on the body, and the health impact of being around others who smoke.

Tobacco Products

Tobacco is a plant used for the production of tobacco-related products, such as cigarettes and chewing tobacco. Tobacco leaves contain the chemical **nicotine**, an addictive, toxic substance that gives tobacco products their addictive quality. The most common method of using tobacco is smoking cigarettes. Other methods of tobacco use include cigars, pipes, hookahs, smokeless tobacco, and electronic cigarettes. Some people believe that these methods of tobacco use are safer, healthier, or less addictive than regular cigarettes. The reality is that all forms of tobacco use are associated with addiction and serious health consequences (Figure 9.1).

tobacco
a plant that is used to produce cigarettes and other products; contains nicotine

nicotine
an addictive, toxic substance present in tobacco products

Health Risks of Using Tobacco over Time

Nervous System

- Stroke
- Exposure to nicotine during adolescence is linked to lasting adverse effects on brain development
- Addiction

Mouth

- Cancers of the mouth
- Gum disease and loss of teeth
- Loss of ability to taste and smell

Cardiovascular System

- Increased heart rate and blood pressure
- Constricted blood vessels and buildup of plaque
- Carbon monoxide interferes with the ability of blood cells to carry oxygen
- Increased risk of heart attack or stroke (nonsmokers who inhale secondhand smoke have a greater risk of stroke)

Immune System

- Weakened immune system, leaving smokers more susceptible to colds, the flu, and other illnesses and diseases

Reproductive System

- Smoking while pregnant is linked to birth defects
- Infertility
- Impotence in men

Eyes

- Vision loss

Lungs

- Lung cancer, chronic bronchitis, and emphysema
- Smoking during adolescence—when the lungs are still growing—may permanently stunt the growth of the lungs so they never perform at full capacity
- More lung infections and asthma attacks

Digestive System

- Cancers of the stomach, liver, pancreas, and esophagus
- Colorectal cancer

Endocrine System

- Insulin resistance and diabetes

Urinary System

- Cancers of the kidney and bladder

Appearance and Hygiene

- Bad breath
- Smelly hair and clothes
- Yellow-brown stained teeth
- Stained fingertips and fingernails
- Premature aging of the skin (more wrinkles)
- Loss of teeth due to gum disease

Figure 9.1

Tobacco use affects the entire body, and its harmful effects are not always reversible.

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Figure 9.2 Chemicals Found in Cigarettes	
Chemical	Other Locations
acetone	found in nail polish remover
acetic acid	an ingredient in hair dye
ammonia	a common household cleaner
arsenic	used in rat poison
benzene	found in rubber cement
butane	used in lighter fluid
cadmium	active component in battery acid
carbon monoxide	released in car exhaust fumes
formaldehyde	embalming fluid
hexamine	found in barbecue lighter fluid
lead	used in batteries
naphthalene	an ingredient in mothballs
methanol	a main component in rocket fuel
nicotine	used as insecticide
tar	material for paving roads
toluene	used to manufacture paint

Tobacco and Your Body

On average, long-term smokers die 13 to 15 years earlier than nonsmokers. Tobacco use increases a person's risk for developing a number of major health problems, including cancers of the mouth, pharynx, esophagus, lung, and bladder. People who smoke also increase their risk for developing coronary heart disease, stroke, emphysema, bronchitis, and respiratory infections.

The Surgeon General of the United States recently issued a report on smoking and health that linked smoking with numerous additional illnesses. This report showed higher risk factors among smokers for developing diabetes, colorectal and liver cancers, vision loss, tuberculosis, and arthritis. People who smoke also have a higher risk factor for minor health problems.

Tobacco products and smoke contain thousands of chemicals and toxic substances that harm the body. Nicotine, carbon monoxide, tar, and carcinogens are just a few of the harmful substances present in tobacco products (Figure 9.2). Many health problems result from damage to the cardiovascular and respiratory systems caused by the harmful substances in tobacco products.

The Cardiovascular System

The cardiovascular system includes the heart and blood transportation system in your body. Smokers have a higher risk of developing heart disease and hypertension (high blood pressure) than nonsmokers. Smokers are also twice as likely to die from a heart attack as nonsmokers. This is partly because of the substantial impact that nicotine and carbon monoxide have on the cardiovascular system.

Nicotine. When people use forms of tobacco, nicotine enters their bloodstream. Its presence triggers the release of the hormone *adrenaline*, a *stimulant*. Adrenaline triggers an increase in heart rate, breathing rate, and blood pressure. This increase in speed and pressure of blood flow in the body makes the heart work harder to pump blood faster around the body.

Nicotine also causes the blood vessels to constrict. The heart must work harder to pump blood through increasingly narrow vessels. Gradually, nicotine leads to changes in the walls of the blood vessels, which make it easier for fatty substances such as cholesterol (*plaque*) to build up in the arteries. This can disrupt the flow of blood through the body because the fatty deposits restrict the ease of blood transportation. Over time, this buildup increases the risk of a heart attack or stroke, which occur when an artery becomes completely blocked.

Carbon Monoxide. Cigarette smoke contains high levels of **carbon monoxide**, a poisonous gas. When inhaled, carbon monoxide interferes with the ability of blood cells to carry oxygen. This reduces the amount of oxygen in the blood and the amount of oxygen that reaches the heart.

carbon monoxide
a poisonous gas found in cigarette smoke; negatively affects cells' ability to carry oxygen

The Respiratory System

The respiratory system's primary function is to enable breathing. First, the nose takes in air, which then travels down the respiratory tract. The nose, bronchial tubes, and lungs are all lined with tissue containing fine, hair-like projections called *cilia*. The cilia trap and move foreign particles out of the respiratory tract. Air then travels into tubes (*bronchi*) and into the lungs.

When a person smokes, damage is done to the respiratory system that makes breathing more difficult. The burning of tobacco produces a residue known as **tar**, which consists of small, thick, sticky particles. Over time, as smoke repeatedly passes through the bronchial tubes, tar builds up in the lungs. Tar disrupts the ability of the cilia to effectively clear the lungs of foreign particles.

Smoking-related damage to the lungs also contributes to the development of chronic respiratory diseases and can trigger asthma attacks.

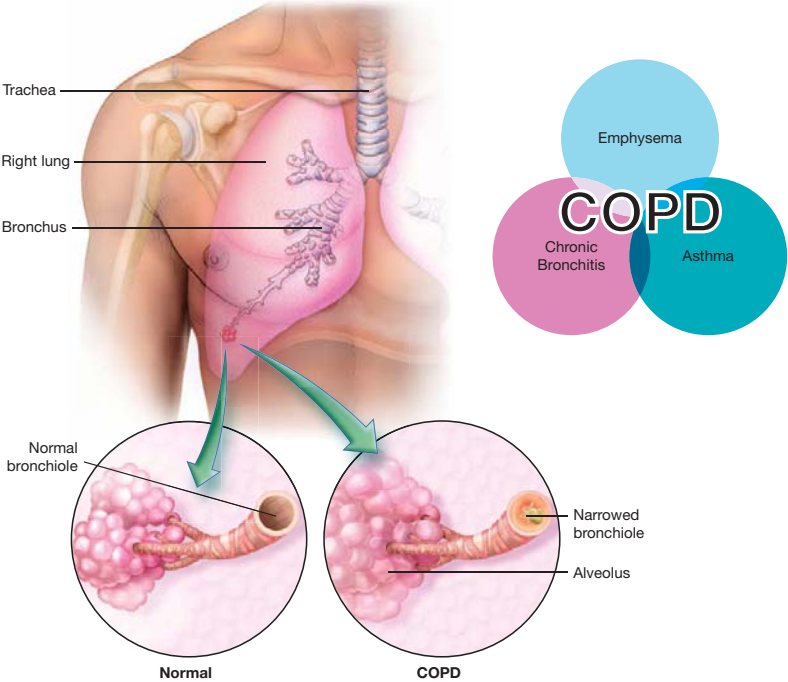
Chronic Obstructive Pulmonary Disease (COPD). **Chronic obstructive pulmonary disease (COPD)** refers to a group of diseases that make it more difficult to breathe (Figure 9.3). Most smokers who develop COPD have a combination of chronic bronchitis and emphysema.

tar
a thick, sticky substance produced by burning tobacco; can disrupt the respiratory systems of smokers

chronic obstructive pulmonary disease (COPD)
term for a group of diseases that cause difficulty breathing; includes chronic bronchitis and emphysema

Figure 9.3

Chronic obstructive pulmonary disease (COPD) clogs the bronchioles and damages the lungs, making it more difficult to breathe.



chronic bronchitis

a condition in which the bronchial tubes swell and become irritated

emphysema

a disease that permanently enlarges lung airways and destroys lung tissue, making it difficult for a person to breathe

asthma

a chronic disease characterized by episodes of blocked airflow to the lungs

Figure 9.4

Below, on the left, is a healthy, normal lung. On the right is a smoker's lung, which has been damaged in many ways. For example, constant irritation from the tar in smoke keeps a smoker's lungs inflamed, resulting in a buildup of scar tissue that reduces the lung's elasticity.



Chronic bronchitis is an ongoing condition in which the bronchial tubes become swollen and irritated. Smoking causes the mucous membrane in the lungs' bronchial passages to become inflamed, which narrows the pathway to the lungs. This makes it increasingly difficult for the lungs to take in enough oxygen, which is why people with bronchitis often experience coughing spells and have difficulty catching their breath. Smoking and inhaling secondhand smoke are primary causes of chronic bronchitis, but regularly inhaling air pollution and smoke from tobacco products contributes to the condition as well.

Emphysema is a disease that causes the airways in the lungs to become permanently enlarged. Emphysema destroys the sacs of air that make up lung tissue (*alveoli*), which is where oxygen and carbon dioxide are traded during the breathing process. The destruction of the alveoli makes it more difficult to breathe. As a result, the person has to breathe faster to get enough oxygen into the lungs and into the bloodstream. This extra work places a burden on the heart, leading to more health problems (Figure 9.4).

Asthma and Other Illnesses. **Asthma** is a chronic disease caused by blockages of the airflow to and from the lungs. When a person with asthma inhales tobacco smoke—either by smoking a cigarette or by being around people who are smoking—the lining of the airways becomes irritated. This irritation can then cause an asthma attack. Moreover, because tobacco smoke damages the cilia, they are unable to eliminate unwanted particles in the lungs. This means these particles stay in the airways and continue to trigger asthma attacks.

Similarly, smoking interferes with a person's ability to participate in even casual forms of physical activity. For example, after beginning to smoke, someone who once ran one lap around the track without becoming out of breath may be breathless after running half as far. This is because smoking leads to reduced lung capacity, and the hearts of smokers are already overworked before they begin physical activity.

Smoking also leads to a weakened immune system. Your *immune system* consists of the organs, tissues, and cells in the body that help defend itself from disease-causing agents such as bacteria, parasites, and viruses. Smokers are at greater risk of becoming ill from germs that cause colds and the flu.

Tobacco use can lead to a number of other health problems. Smokers have a higher risk factor than nonsmokers for developing osteoporosis, ulcers, fertility problems, and gum disease. Tobacco use can also interfere with eating by changing the shape of taste buds. When food does not taste as good, some long-term smokers lose their appetite and interest in eating.

Lung Cancer and Other Cancers. Lung cancer occurs when abnormal cells in one or both lungs grow rapidly and form a mass of cells, which is called a *tumor*. This growth usually happens in the cells that line the air passages. As the tumors grow, they interfere with the lungs' ability to transport oxygen to the bloodstream. Tumors can also spread from the lungs to other parts of the body.

Tobacco smoke contains over 70 **carcinogens**, or cancer-causing agents, that can lead to the abnormal growth of cells in the mouth, throat, and lungs. This is why smokers have higher rates of cancer than nonsmokers.

Your Appearance

Tobacco use has numerous negative internal effects, but it also has negative external effects. People who smoke for at least 10 years show more wrinkles in their skin. This is because the nicotine in tobacco causes blood vessels to get smaller, which makes it more difficult for oxygen and nutrients to reach the skin. Tobacco use causes stained teeth, brittle nails, and thin hair. Smokers also tend to have bad breath, and clothes and hair that smell of smoke (Figure 9.5).



Figure 9.5

Tobacco use yellows teeth and can cause bad breath and other oral problems.

The Hazards of Smokeless Tobacco

Forms of **smokeless tobacco** include chewing tobacco, snuff, *snus* (a form of snuff), and dissolvable tobacco. Chewing tobacco involves placing wads, or *plugs*, of tobacco leaves between the cheeks and gums (Figure 9.6). Snuff is a finely cut or powdered tobacco that is inhaled or placed between the cheek and gums. Dissolvable tobacco is taken in the form of flavored mouth drops or strips.



Figure 9.6

When Hall of Fame baseball player Tony Gwynn died of salivary gland cancer at the age of 54, many major league baseball players pledged to quit chewing tobacco. Prior to his death Gwynn had blamed his longtime chewing habit for the development of the cancer. *Do you know high school athletes who chew tobacco? Do you think these athletes are aware of the dangers of smokeless tobacco?*

carcinogens

substances that cause cancer

smokeless tobacco

a tobacco-related product that does not require burning; includes chewing tobacco and electronic cigarettes

leukoplakia

a condition characterized by white, leathery spots inside the mouth; may develop into oral cancer

secondhand smoke

tobacco smoke in the environment that may affect a person even if he or she does not smoke

Personal Profile

Are You at Risk of Tobacco Use?

These questions will help you assess whether your tobacco use or the tobacco use of others is putting your health at risk.

I have smoked a cigarette. **yes no**

I have used chewing tobacco or snuff. **yes no**

I spend time with friends who smoke. **yes no**

I spend time with family members who smoke. **yes no**

I sometimes have a craving for a cigarette or chewing tobacco. **yes no**

I smoke a cigarette every day. **yes no**

I smoke more than one cigarette a day. **yes no**

I would find it difficult to go a whole day without smoking. **yes no**

Add up your number of yes answers to assess your own personal risk of developing health problems related to tobacco use.

All forms of smokeless tobacco contain nicotine and carcinogens, so the harmful effects of these substances are the same as if they were smoked. The presence of nicotine also means that smokeless tobacco is just as addictive as cigarettes. In fact, smokeless tobacco is often placed directly into the mouth, so users of these products actually absorb even more nicotine than smokers.

Because using smokeless tobacco does not involve inhaling smoke, people who use it are less likely to develop lung problems than smokers. These people do, however, increase their risk of developing other serious diseases. When using smokeless tobacco, people absorb nicotine through their mouth tissues. The use of these tobacco products can lead to **leukoplakia**, a condition characterized by thickened, white, leathery spots on the inside of the mouth. This condition can develop into oral cancer. Smokeless tobacco use can also lead to an increased risk of cardiovascular disease, gum disease, and tooth decay.

The Impact of Secondhand Smoke

Secondhand smoke refers to the tobacco smoke you are exposed to in the environment. People who are regularly exposed to secondhand smoke because they live or socialize with smokers are at greater risk of developing lung cancer or heart disease.

Concerns about the dangerous effects of secondhand smoke on health have led a number of states to pass laws banning smoking in many public areas to protect the health of customers and staff. Secondhand smoke greatly affects certain population groups, including pregnant women, infants, and children.

Pregnant Women and Infants

Exposure to nicotine is particularly hazardous to a developing fetus. When a pregnant woman smokes, the nicotine and carbon monoxide she takes into her body pass through the placenta to the fetus. The immediate impact on the fetus is an increased heart rate and reduction in the amount of oxygen the fetus receives.

Women who smoke while pregnant increase their risk of miscarriage, and of having babies born prematurely or with low birth weight. Babies born to mothers who smoked or breathed secondhand smoke during pregnancy also have a higher risk factor for sudden infant death syndrome (SIDS). SIDS is the unexpected and sudden death of a baby less than one year after birth.

Children

Exposure to secondhand smoke is a major cause of health problems in children. Children exposed to secondhand smoke are more likely to have respiratory problems such as pneumonia, bronchitis, and asthma attacks. Children whose parents smoke also have higher rates of sore throats and ear infections.

Behavior-related issues common in children of mothers who smoked during pregnancy include attention deficit disorders, hyperactivity, and aggression. Children of smokers are also more likely to develop smoking habits themselves (Figure 9.7).

If you find yourself sharing the air with smokers, you can take steps to reduce your risk of being exposed to secondhand smoke.

- Avoid spending time in places where smoking may be permitted.
- Do not accept car rides from people who smoke while driving.
- Ask that people smoke only outdoors or in a particular room that is sealed off from the rest of a home or building.
- Increase air circulation in buildings where people are permitted to smoke by opening the windows to let in fresh air.

Perhaps most importantly, you can encourage a friend or family member who smokes to quit smoking, and support his or her efforts toward quitting.

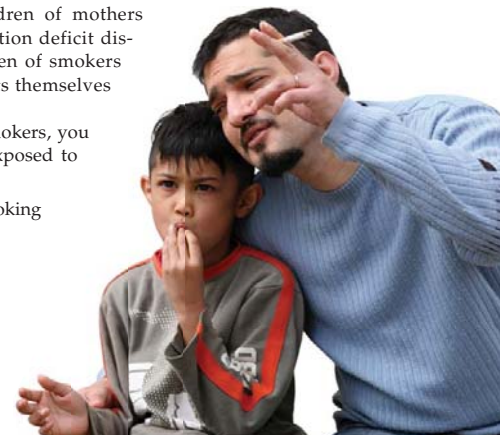


Figure 9.7

Smokers put people around them, including their families, at risk with secondhand smoke. *Where do you usually encounter secondhand smoke? How can you protect yourself from it?*

Lesson 9.1 Review

Know and Understand



1. Define **adrenaline**. How does nicotine affect adrenaline and the body?
2. Explain how nicotine affects the blood vessels. How does this impact on the blood vessels cause smokers to be twice as likely as nonsmokers to die from a heart attack?
3. Describe carbon monoxide and the effect it has on the cardiovascular system.
4. Describe how tar accumulates in the respiratory system and how it affects the lungs.
5. How does smoking or breathing in cigarette smoke impact people with asthma?
6. Most smokers who develop COPD have a combination of what two diseases?

Analyze and Apply

7. Why do smokers have a higher risk of cancer than nonsmokers?
8. Explain how a woman being exposed to secondhand smoke or smoking during pregnancy can impact the developing fetus.

Real World Health

Family Tree Talk to your parents about relatives who were affected by diseases associated with smoking. Make a list of family members, their diseases, and whether or not they are or were smokers. Write a paragraph about the influence that smoking may have had on these family members and their health.

Lesson 9.2

Why People Use Tobacco

Key Terms



In this lesson, you will learn the meanings of the following key terms.

- addiction
- dependence
- peer pressure
- substance abuse
- tolerance
- withdrawal

Lesson Objectives

After studying this lesson, you will be able to

- analyze the development of addiction according to the stages of substance abuse;
- assess how identity development may relate to the decision to use tobacco;
- explain how attitudes about tobacco use from friends and parents influence rates of tobacco use; and
- evaluate the role of the media in encouraging tobacco use.

Before You Read

Give One, Get One

Create a chart like the one shown below. Include as many rows as you need. Before reading the lesson, list facts you already know about people's tobacco use in the Give One column. In the Get One column, list facts you learn as you read the lesson.

Give One (things you already know)	Get One (new information)

Warm-Up Activity

Differences in Smoking Rates

The table below shows differences in smoking rates among adults in the United States based on gender, race, education, and income. Working in groups, after being assigned one of the four topics by your teacher, brainstorm reasons your group thinks these differences exist. Discuss the listed reasons and decide which two or three reasons you think have the most impact. Present your complete list and your two or three most important reasons to the class.

Gender	Race/Ethnicity
21% Adult Men 16% Adult Women	22% Native Americans 20% Non-Hispanic Whites 18% African Americans 13% Hispanics 11% Asian Americans
Level of Education	Income
42% GED Degree 6% Graduate Degree	28% Very Low Income 17% Moderate to High Income

Unfortunately, more people start to smoke each day. Most teenagers who begin to smoke do plan to quit, and they believe that quitting will be fairly easy. They soon find that smoking is a very hard habit to break. The majority of teens who smoke become adults who regularly smoke.

Given the expense and the negative effects of tobacco use on health, people's continued use of tobacco is surprising. Most people who use tobacco know that it can cause them to become ill or even die. This lesson examines some of the factors that lead people to continue to use tobacco.

Addiction

People often talk about addiction in relation to a specific substance. In this case, a **substance** is a drug, such as nicotine, alcohol, or an illegal drug. **Substance abuse** is the use of a drug or intentional misuse of prescription medication that causes harmful, dangerous effects.

Addiction helps explain why many people who start using a substance believe it will be easy to quit, but then have great difficulty quitting. **Addiction** is the physical and psychological need for a given substance or behavior. Addiction to a substance usually develops in four stages (Figure 9.8 on the next page).

substance abuse
the use of a drug (nicotine, alcohol, or illegal drugs) or intentional misuse of medication

addiction
the physical and psychological need for a substance or behavior

Health across the Life Span



Rates of Smoking by Age

A national study conducted by the Centers for Disease Control revealed that the rate of smoking varies considerably across the life span. The rates of smoking by age are represented in the following table.

Why does age make a difference in smoking rates? One major reason is that older adults are more likely to have smoked in the past, but have since quit. About 33% of people 50 to 64 years of age, and about 47% of people 65 years of age and older are former smokers. In contrast, only 12% of people 18 to 29 years of age, and only 23% of those 30 to 49 years of age have quit smoking. People who smoked in the past but have since quit are not counted as smokers for their age range. Smokers in the younger age ranges may end up quitting as they grow older.

Proportion of Age Groups that Smoke	
high school students	18%
adults 18-24	17%
adults 25-44	22%
adults 45-64	20%
adults 65+	9%

Analyzing Data

- Over time, the health consequences of tobacco use have become more well known. How might this information relate to the numbers of smokers and former smokers in different age groups?
- Do you think these differences in smoking rates by age will stay the same over time, or will they change? Explain your reasoning.

Figure 9.8 Stages of Substance Abuse

Stage one: experimentation	Experimentation with a substance begins. Substance use may stop at this stage, or may rapidly develop into other stages.
Stage two: regular use	The user develops a habit of regularly using a substance.
Stage three: tolerance	The user's body develops a tolerance to the substance. Gradually, the user feels the need for more and more of a substance to achieve the same effects as before.
Stage four: dependence and addiction	The user becomes reliant on having the substance present in the body to function normally or feel "normal." Substance use also interferes with personal responsibilities and relationships. The user is physically and psychologically addicted to the substance.

Experimentation

Initially, people often choose to use a substance such as cigarettes or chewing tobacco “just to try it.” This is the stage of experimentation, when a person is trying a substance and, potentially, using it more regularly. Experimentation with a substance often leads to the regular use of a substance.

Regular Use

After initially trying a substance, people may gradually increase their substance use. Over time, people who smoke a few cigarettes may slowly increase the amount of times they smoke per week. Users are then likely to develop a regular pattern of smoking cigarettes.

Tolerance

People who regularly use a substance develop a tolerance for that substance. A **tolerance** develops when the body needs greater amounts of a substance to experience the effects it felt when a lesser amount was used. The body can quickly develop a tolerance to nicotine and require more cigarettes to achieve the original effect.

Dependency and Addiction

After repeated use, the body adjusts to—or becomes *dependent* on—the feelings that result from the presence of nicotine. **Dependence** occurs when the body relies on the presence of an addictive substance in the system to function “normally” or feel “normal.” There are two types of dependence—physical and psychological.

tolerance
a condition in which the body adjusts to given substance, requiring increased amounts of the substance to feel its effect

dependence
a condition in which a person relies on a given substance to function or feel normal

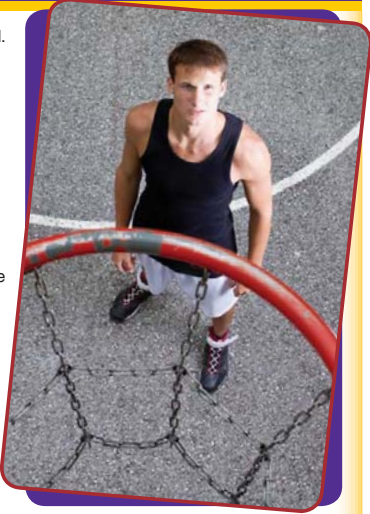
CASE STUDY The Slippery Slope to Addiction

Roberto is 15 years old and a sophomore in high school. As a young child he was bothered by his mother’s smoking. Roberto promised himself he would never smoke. During his freshman year, however, he hung out with older students who smoked. One day, he decided that it would be okay to occasionally have a cigarette during the week with friends.

Roberto, who never intended to become a smoker, soon found himself craving cigarettes. Although he only smokes a few cigarettes each week, he has already noticed that he can’t run as far as he used to without getting winded. He is also beginning to smoke a couple of extra cigarettes each day. He worries that he may have difficulty making the basketball team again this season.

Critical Thinking

- 1. Identify the primary factors that led Roberto to begin smoking. What caused him to continue smoking?
- 2. How does Roberto’s situation relate to the stages of substance abuse?
- 3. How can teenagers who spend time with friends who smoke keep themselves from becoming smokers?



A *physical dependence* occurs when the body relies on having a certain amount of a substance present in the body to function “normally.” Without the substance in the body, the dependent person feels uncomfortable, irritable, and even sick.

People who smoke also develop a *psychological dependence*, which causes people to believe that they need the substance to feel “normal.” People may also develop patterns for using a substance by associating the substance with certain triggers. Whenever smokers encounter triggers they associate with smoking, they feel a strong psychological need to smoke.

Withdrawal Symptoms

When people are addicted to a substance and they try to stop using it, they experience unpleasant symptoms known as **withdrawal**. For people addicted to nicotine, symptoms can include irritability, difficulty concentrating, fatigue, nausea, and weight gain. They also experience intense cravings for nicotine because their body is now addicted to having this chemical. Withdrawal is one of the reasons why tobacco users have such difficulty quitting. People trying to quit smoking experience withdrawal symptoms for several weeks and even months after they stop. Some ex-smokers continue to have occasional cravings for tobacco for years.

withdrawal
the unpleasant physical or psychological symptoms associated with attempting to stop using a substance

Exploring a New Identity

Some teenagers start to smoke as a way of trying out a new identity. Teens may associate smoking with maturity, sophistication, or glamour. They may believe that, by smoking, they will become all of these things. Young people may also begin smoking because they want to be viewed as rebellious and tough, perhaps in part because buying cigarettes is illegal for most high school students.

Most teenagers, however, do not view smokers as popular or cool. Surveys have found that teenagers see smokers as unhealthy, foolish, and poor performers in the classroom.

Social Factors

Some people begin using tobacco products because they want to fit in with or imitate the behavior of parents and peers. These social factors have a strong impact on tobacco use (Figure 9.9).

Parents

Parents' attitudes and behaviors about smoking have a strong influence on whether or not teenagers smoke. Teenagers are much less likely to start smoking if their parents set clear expectations, discussing and following through on consequences for smoking. Teens who describe their parents as being strongly against smoking are less likely to smoke than teens who see their parents as open-minded toward smoking.

Figure 9.9

Smoking can lead to social rejection because of other dangerous behaviors that are associated with smoking.

What behaviors do you associate with smoking?



Friends

Another social factor that influences smoking habits is whether or not a teenager's friends smoke. Many teenagers smoke their first cigarette with a friend. Teenagers who have friends who smoke are much more likely to become smokers themselves. The influence of peers who smoke is stronger than the influence of family members who smoke. Not surprisingly, teenagers whose friends smoke are offered cigarettes much more frequently than those whose friends do not smoke.

Teenagers may experience peer pressure to smoke. **Peer pressure** is the influence of peers on an individual. When used to encourage an individual to do something unsafe, unhealthy, or uncomfortable, peer pressure is negative. Teenagers may worry that they will not be liked or accepted by their peer group if they choose not to smoke. Real friends, however, would not want their friends to endanger their health or do something that makes them feel uncomfortable.

peer pressure
the internal feeling that one must conform to the wishes of friends to earn their approval

Media

Celebrities are trendsetters and role models. People often look to celebrities for ideas about fashionable clothing, new hairstyles, and lifestyle choices. One of these lifestyle choices may be smoking, and teenagers are likely to imitate the smoking habits of celebrities they admire.

Lesson 9.2 Review

Know and Understand



1. Identify the four stages of substance abuse.
2. Define *tolerance*. How does tolerance drive a nicotine addiction?
3. Explain the difference between psychological dependence and physical dependence.
4. Describe how experimentation with identity may lead teenagers to begin smoking.
5. Identify three social factors that may cause a teenager to begin using tobacco.

Analyze and Apply

6. How might withdrawal symptoms cause a person to return to abusing a substance after quitting?
7. How do parents' behavior and attitudes about tobacco influence their children's future decisions about tobacco use?

8. Explain how sports or media figures might influence a teenager to use or not use tobacco.

Real World Health

List every television show or movie you watch over a three-day period, noting those that have characters who smoke. Describe each character and the situation and setting in which smoking occurs. In each instance, describe how the use of a cigarette as a prop conveys information about the character or the story. Could this information have been conveyed in a way that did not use a tobacco product? Write a paragraph about the influence these shows might have on adolescents.

Lesson 9.3

Treating and Preventing Nicotine Addiction

Key Terms



In this lesson, you will learn the meanings of the following key terms.

- laryngectomy**
- nicotine replacement**
- response substitution**
- stimulus control**

Lesson Objectives

After studying this lesson, you will be able to

- assess the difficulty of quitting tobacco use;
- summarize strategies used to quit tobacco use;
- outline effective strategies to prevent and discourage tobacco use;
- analyze the government’s role in preventing tobacco use and encouraging quitting; and
- utilize refusal, literacy, and critical thinking skills to resist tobacco.

Before You Read

KWL Chart: Treating Addiction

Create a chart like the one shown below. Before you read the lesson, outline what you know and what you want to know about treating and preventing nicotine addiction. After you have read the lesson, outline what you learned.

K What I Know	W What I Want to know	L What I Learned

Warm-Up Activity

Smoking’s Impact

Take some time to think about the activities represented by the photos below. Pick two of the four activities and write a paragraph for each activity you chose, describing how smoking would either prevent you from participating in that activity or negatively impact your enjoyment of the activity. Be as specific as possible in describing smoking’s impact.



Shopping



Smiling



Breathing Clean Air



Exercising

Given the many negative health consequences of smoking, almost half of all smokers try to quit each year. This lesson examines treatment and prevention strategies for nicotine addiction.

Treatment

Unfortunately, smoking is a hard habit to break. Even people who experience life-threatening, smoking-related illnesses have difficulty quitting. For example, about 40% of the people who have had a laryngectomy continue to smoke. A **laryngectomy** is a surgical procedure in which the larynx is removed, requiring the person to breathe through an opening in his or her neck (Figure 9.10). This procedure is typically performed when a person has cancer of the larynx. Similarly, more than half the people who have had a heart attack or surgery resulting from lung cancer continue to smoke.

It’s never too late for someone to stop smoking. Smokers who quit successfully experience a number of health benefits. Some of these benefits, such as decreases in blood pressure, heart rate, and coughing, are seen within just a few days of quitting. Other benefits, such as a decreased risk

laryngectomy
the surgical removal of the larynx



Figure 9.10

Sometimes even the threat of needing a procedure as serious as removing the larynx will not deter a person from smoking. *Do you think this government ad is effective in its attempt to get people to stop smoking? Explain your thinking.*



Figure 9.11

Nicotine gum and nicotine patches help tobacco addicts quit smoking. *How helpful do you think these products might be to a person who is quitting smoking?*

nicotine replacement
a method of battling addiction in which tobacco users gradually reduce their nicotine consumption

stimulus control
the technique of avoiding situations that may lead to drug use

of experiencing a heart attack or developing cancer, are seen within a year after quitting. These benefits increase over time, meaning that the longer an ex-smoker goes without using tobacco, the lower the risk of experiencing these major health problems.

Although quitting tobacco can be difficult, nicotine addiction can be treated. Treatment methods include nicotine replacement, medication, and self-management techniques.

Nicotine Replacement

Some approaches to quitting smoking, or *smoking cessation*, rely on **nicotine replacement**. In this treatment, tobacco users continue to put nicotine into their bodies, which lessens their withdrawal symptoms and cravings, making it easier to quit. In this way, tobacco users can gradually treat their addiction to nicotine by using smaller and smaller amounts. Eventually, people find they are no longer dependent on nicotine. The most commonly used nicotine replacement strategies are nicotine gum and the nicotine patch (Figure 9.11).

Electronic cigarettes, or *e-cigarettes*, have also been marketed as a tool for smokers who want to stop using tobacco products (Figure 9.12). E-cigarettes are controversial, however, because the US government has not approved e-cigarettes as a successful and safe form of smoking cessation. E-cigarettes can also lead to nicotine addiction if used by adolescents and other first-time smokers. Because of these risks, the use of e-cigarettes is opposed by the Food and Drug Administration, the American Cancer Society, and the American Heart Association.

Medications Prescribed by a Doctor

Some medications prescribed by a doctor help smokers quit by simulating *dopamine*, a chemical in the brain that leads people to experience the same type of effects caused by nicotine use. People who take these medications may be better able to cope with the withdrawal effects caused by reducing their intake of nicotine.

Self-Management Strategies

Self-management strategies often involve identifying situations that trigger the desire for tobacco use and developing techniques to resist temptation. Once tobacco users understand the situations or feelings that lead them to want to use tobacco, they can respond with two techniques—stimulus control and response substitution. **Stimulus control** involves trying to avoid tempting situations and managing feelings that lead to nicotine use.

With **response substitution**, people learn to respond to difficult feelings and situations with behaviors other than smoking by using stress management, relaxation, and coping skills.

Additional Strategies and Resources

Some people need additional support to quit smoking. The following are additional strategies and resources for treating an addiction to nicotine.

- Attend individual or group counseling.
- Talk to a school guidance counselor, doctor, teacher, or other trusted adult.
- Call a telephone helpline that provides free counseling to those who are trying to quit using tobacco.
- Research online resources for help with quitting.



Local and Global Health

Smoking Rates around the World

Rates of smoking vary considerably by country. People who live in wealthier countries are less likely to smoke than those who live in poorer countries. One explanation for this difference is that people who are wealthy tend to have higher levels of education. People with higher levels of education may be more aware of the substantial health hazards of using tobacco.

Rates of smoking also vary by gender. In most countries, men are more likely to smoke than women. Health experts believe these differences in smoking rates may reflect differences in gender roles. For example, women smoking may be viewed as less acceptable than men smoking in some parts of the world. In addition, women may not have access to money or be able to afford cigarettes in some countries.

Percentage of Smokers around the World

	% Men Who Smoke	% Women Who Smoke
East Asia and Pacific	62	5
Europe and Central Asia	53	16
Latin America and Caribbean	39	22
Middle East and North Africa	38	7
South Asia	20	1
Sub-Saharan Africa	28	8



Thinking Critically

- Hypothesize why smoking rates among men are higher in East Asia, the Pacific, Europe, and Central Asia than in other areas.
- What steps can governments take to decrease smoking rates in their respective countries? Which strategies would you support? Which would you oppose?



Figure 9.12

Leading health agencies oppose the use of e-cigarettes as a form of smoking cessation.

response substitution
a technique in which people train themselves to respond to stress with healthy methods of coping and relaxation, rather than smoking

Prevention

Because most adult smokers picked up the habit as teenagers, experts believe the best way to reduce the smoking rate is to prevent smoking. Government-based regulations, awareness of physical and social consequences, and personal skills for refusing tobacco are among the prevention strategies used today.

Government-Based Strategies

Smoking costs society an estimated \$289 billion a year in healthcare costs. Given the serious threat to public health associated with the use of tobacco products, governments have often focused on preventing nicotine use and helping tobacco users quit. These strategies may involve state and federal laws that regulate the sale, use, cost, and advertisement of tobacco products.

Banning the Sale of Tobacco Products. The sale of tobacco is prohibited to anyone younger than 18 years of age. As of 2010, the United States also banned the sale of cigarettes in vending machines, except in establishments where people younger than 18 years of age are not allowed. Government programs have also banned the sale of all candy- and fruit-flavored cigarettes.

Banning Smoking in Public Places. Some of the most effective government regulations to prevent smoking are laws that ban smoking in public places (Figure 9.13). These bans help smokers quit in several ways. First, they make it more difficult for people to find places to smoke. The bans reduce the number of places that serve as triggers in a smoker's environment. Smoking bans also help reduce exposure to secondhand smoke, which means fewer heart attacks, less coughing, and improved breathing.

Increasing Taxes on Cigarettes. Cigarettes are expensive. When people continue to smoke, they have a lot less money to buy other things they want and need. Raising federal, state, and municipal taxes on tobacco products can cause people to quit smoking and even discourage them from starting to smoke (Figure 9.14). Higher prices for cigarettes and smokeless tobacco increase the negative consequences of smoking because smokers must cut back on other expenses to continue funding their addiction. Increasing the cost of cigarettes is an especially effective way to decrease smoking in teenagers, who generally do not have much income.

Requiring Warning Labels on Packaging. Another approach to prevent smoking and encourage quitting is to increase people's awareness of the health risk of cigarettes. All cigarette packs and advertisements must have warning labels stating the risks associated with smoking.

Mass Media Antismoking Campaigns

Antismoking campaigns in mass media have also been shown to help prevent smoking. Successful antismoking campaigns emphasize long-term

health effects, smelly breath and clothes, strategies for refusing tobacco offers, and the fact that most teenagers do not smoke. Teenagers who regularly see these advertisements and campaigns are less likely to smoke.

Social Costs of Smoking

Awareness of the social cost of smoking is another strategy used to prevent tobacco use. Surveys have found that many nonsmoking teenagers view smoking as "gross." Teenagers who smoke may be viewed as unappealing by their peers, including potential dating partners. Smokers may also have to leave a social situation to have a cigarette, leading them to feel left out.

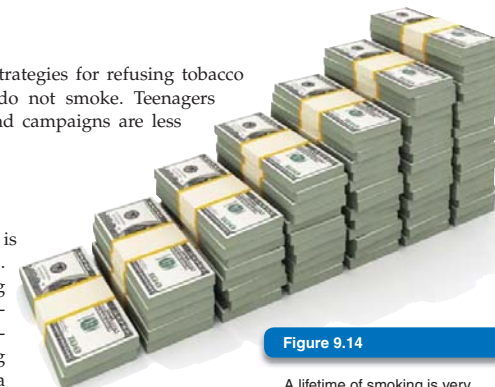


Figure 9.14

A lifetime of smoking is very expensive.

Research in Action

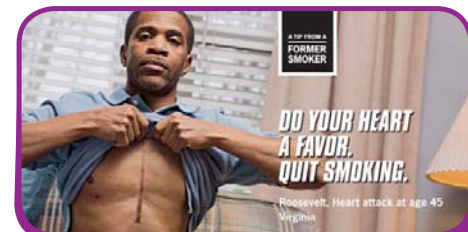
Antismoking Ads Can Work

The tobacco industry spends billions of dollars each year on advertisements that try to convince people to use tobacco products. Advertisements, however, can also be used to convince people not to use those products.

In one study, researchers showed a movie containing scenes of smoking to a group of ninth graders who reported being nonsmokers. Before the movie was shown, half the students watched an antismoking advertisement and the other half did not.

Students who did not see the antismoking advertisement responded more positively when they saw characters smoking than the other group of students. They also reported having more positive attitudes toward smokers and were more likely to smoke in the future.

None of these effects, however, were seen in students who saw the antismoking advertisement before the movie.



These students had more negative attitudes toward the movie characters who smoked and toward smoking in general.

Thinking Critically

1. What do the results of this study indicate about the influence of antismoking campaigns?
2. Based on the results of this study, do you think there should be a law that requires antismoking advertisements to be included in the previews of all movies showing smoking scenes? Why or why not?

Figure 9.13

Smoking bans encourage people not to smoke and protect people from secondhand smoke. *Are there any places in your community where smoking is still allowed?*

SKILLS FOR HEALTH AND WELLNESS

Quitting Smoking

If you or someone you know wants to quit smoking, the following strategies can help.

- Set a “quit date” within the next month and circle that date on the calendar. Make a strong commitment to actually stop smoking on that date.
- Tell friends and family members about your quit date and ask them to support your efforts. Ask people who smoke not to smoke around you.
- Get rid of cigarettes and smoking accessories in your environment.
- Develop strategies for coping with nicotine cravings.
- Develop strategies for refusing cigarette offers from other people.
- Remind yourself of the benefits of quitting, including a longer life, more spending money, and increased stamina.
- Reward yourself for quitting. Buy something with the money you saved by not smoking.
- If you slip up and have a cigarette, quickly renew your focus on the goal of quitting. Do not let one lapse lead to a return of the old behavior.

Skills for Resisting Tobacco

Resisting peer pressure to begin smoking can be challenging. Three sets of skills—refusal, literacy, and critical thinking skills—can help you prepare for and respond to situations that may involve tobacco use.

Refusal Skills. If you don’t want to smoke or want to quit smoking, spend time with people who do not smoke. Make sure the people around you know you don’t want to use tobacco or be around their secondhand smoke. Firmly explain the reasons behind your decision. Stick to your decision and refuse to give in (Figure 9.15).

Figure 9.15

While resisting peer pressure may be difficult, you can improve if you practice your refusal skills. *Imagine that your best friend is offering you a cigarette. How would you turn down the offer?*



Before you find yourself in situations in which you are offered tobacco, imagine these situations and how you might respond. Play out each situation in your mind and practice responses.

For example, suppose that when you hang out with a certain group of friends, several of them offer you cigarettes. Your response may be, “No thanks, I want to keep my lungs in peak condition for track and field.” You may also say, “I don’t want my hair, clothes, and breath to smell like cigarettes,” or “I like my lungs. I don’t want to damage them.” Practice your responses. Your true friends will support your decision not to smoke.

Literacy and Critical Thinking Skills. Since they are not allowed to advertise on television, radio, or billboards, tobacco companies use sneaky strategies to convince teenagers to use their products. Because an estimated 480,000 Americans die every year from diseases caused by tobacco, the tobacco industry must somehow convince people to continue buying their products. Media literacy will help you recognize the tobacco industry’s sneaky practices, and avoid being tricked by them.

Tobacco companies have changed the types of products they sell to increase their appeal to teenagers. Some tobacco products look like mints, toothpicks, breath strips, and flavored candy. These products also have names that make them appear more like a sugary snack than an addictive tobacco product. To advertise these products, some tobacco companies may try to mimic popular social media trends to appeal to a younger audience.

Use critical thinking skills to analyze tobacco products and messages from tobacco companies. People who understand the manipulative nature of tobacco advertisements are better able to resist them. Analyze advertisements by reminding yourself of the serious physical, social, and financial costs of tobacco use.

Lesson 9.3 Review

Know and Understand



1. What health benefits do smokers experience after just a few days of quitting?
2. List the three main strategies for quitting tobacco use and briefly explain each strategy.
3. Identify four government-based strategies used to discourage tobacco use.
4. Briefly describe the social costs of smoking.
5. Describe three sets of skills you can use to resist tobacco and give an example of each.

Analyze and Apply

6. Compare the two types of self-management strategies and give an example of each.

7. Explain how the banning of smoking in public areas has affected both smokers and nonsmokers.
8. Compare and contrast the positive and negative effects that the media has on tobacco use.

Real World Health

A Pack a Day Visit a local grocery or convenience store and determine the average price of a pack of cigarettes. Assuming that someone smokes a pack a day, list the cost of cigarettes for one week, one month, one year, and five years. Write a paragraph on the monetary costs of smoking and what else someone might do with that money over the short- and long-term.

Chapter 9 Review and Assessment

Lesson 9.1



The Health Effects of Tobacco

Key Terms

asthma	emphysema
carbon monoxide	leukoplakia
carcinogens	nicotine
chronic bronchitis	secondhand smoke
chronic obstructive pulmonary disease (COPD)	smokeless tobacco
	tar
	tobacco

Key Points

- Nicotine is the addictive substance that makes tobacco products difficult to quit using.
- Tobacco use impacts the cardiovascular system by increasing the speed and pressure of blood flow, which makes the heart work harder to pump blood and damages the blood vessels.
- Tobacco use and smoke can lead to increased risk factors for respiratory diseases and illnesses.
- Smokeless tobacco is just as addictive as cigarettes.
- Secondhand smoke causes long-term illnesses and diseases and is particularly harmful for pregnant women, infants, and children.

Check Your Understanding

- The addictive, toxic substance present in all tobacco products is called _____.
 - nicotine
 - tar
 - adrenaline
 - carbon monoxide
- A _____ is a cancer-causing agent.
 - carcinogen
 - stimulant
 - blood clot
 - leukoplakia
- Which of the following is *not* a form of smokeless tobacco?
 - chewing tobacco
 - snuff
 - hookah
 - dissolvable tobacco

- The condition characterized by thickened, white, leathery-looking spots on the inside of the mouth is called _____.
 - chronic bronchitis
 - emphysema
 - gum disease
 - leukoplakia
- True or false?* Exposure to secondhand smoke does not have major health consequences.
- Critical Thinking.** If you had a close friend or family member who smoked, how might you advise him or her to quit smoking?

Lesson 9.2



Why People Use Tobacco

Key Terms

addiction	substance abuse
dependence	tolerance
peer pressure	withdrawal

Key Points

- The four stages of substance abuse are experimentation, regular use, tolerance, and dependence and addiction.
- People who are addicted to a substance have both a physical and psychological dependence on that substance.
- Identity exploration is one factor that leads people to begin using tobacco.
- Attitudes of friends and family toward tobacco use strongly influence an individual's attitudes toward tobacco use.
- Tobacco use in the media may encourage tobacco use among adolescents.

Check Your Understanding

- Smoking a cigarette "just to try it" is an example of behavior in the first stage of substance abuse, called _____.
 - dependence
 - tolerance
 - regular use
 - experimentation

- A _____ occurs when a smoker needs to consume larger amounts of nicotine to experience the same effects that nicotine provided in the past.
 - dependence
 - tolerance
 - withdrawal symptom
 - stimulant
- True or false?* Identity exploration, or trying out a new identity, is one reason why some people begin to smoke.
- The influence of peers on an individual is called _____.
 - peer
 - media
 - economical
 - authoritative
- Critical Thinking.** Many of the people who began smoking decades ago were unaware of the addictive power and the negative health consequences of tobacco use. Most people today know about these dangers, yet some still choose to smoke. Why might a person choose to smoke today?

- Refusal skills, literacy skills, and critical thinking skills are necessary skill sets for refusing tobacco offers from peers and the media.

Check Your Understanding

- True or false?* A laryngectomy is a surgical procedure in which the larynx is removed, requiring the person to breathe through an opening in his or her neck.
- Which of the following treatment options involves lessening withdrawal symptoms and cravings by gradually reducing nicotine intake in the body?
 - nicotine replacement
 - stimulus control
 - response substitution
 - surgery
- A technique that involves trying to avoid tempting situations and manage feelings that lead to nicotine use is called _____.
 - nicotine replacement
 - stimulus control
 - response substitution
 - refusal skills
- Choosing to play basketball with friends instead of smoking a cigarette when experiencing a nicotine craving is an example of _____.
 - nicotine replacement
 - stimulus control
 - response substitution
 - time management
- True or false?* The US government requires all cigarette packs to have warning labels stating the health risks associated with smoking.
- Having your clothes smell like cigarette smoke is an example of a _____ cost of smoking.
 - financial
 - physical
 - mental
 - social
- Critical Thinking.** Marc is hanging out with a group of friends who begin to smoke cigarettes. They pressure Marc to try one, but he is not interested in smoking. What skills can Marc use to respond to this situation?

Lesson 9.3



Treating and Preventing Nicotine Addiction

Key Terms

laryngectomy	response substitution
nicotine replacement	stimulus control

Key Points

- Quitting tobacco use is challenging because of nicotine dependence.
- Treatment options for quitting tobacco include using nicotine replacement, taking medicines prescribed by a doctor, and developing self-management techniques.
- Government-based strategies, mass media antismoking campaigns, awareness of the social costs of smoking, and using skills for resisting tobacco are prevention strategies for tobacco use.

Chapter 9 Skill Development

Health and Wellness Skills

19. **Access Information.** Tobacco smoke and smokeless tobacco contain many harmful chemicals. Using the Internet and other resources, identify about a dozen of these chemicals, and research each one. Then list other products that contain each chemical and explain how these chemicals can harm the body.
20. **Communicate with Others.** Imagine you have a family member who smokes. Write an essay or a role-play scenario about how you would persuade this person to stop smoking. Be sure to include a specific strategy for quitting.
21. **Advocate for Health.** A public service announcement, or *PSA*, is a message broadcasted to the public through some form of mass media. A *PSA* attempts to raise awareness about a social or community issue. Research some popular *PSAs* and then create your own *PSA* with an anti-tobacco theme.
22. **Analyze Influences.** Write a letter to one of your state-elected officials outlining the influences of tobacco on teenagers, and advocating for anti-tobacco laws.
23. **Comprehend Concepts.** The top four leading causes of death in adults can be linked to the use of tobacco. If tobacco products were made illegal, how would this affect the leading causes of death? What other positive or negative effects might be caused by making tobacco use illegal? Write an editorial for the school or local paper on this topic.

Hands-On Activity

Smoking and Your Body

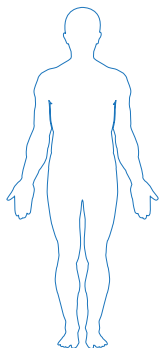
While smoking can have a negative effect on your entire body, it can specifically affect your respiratory, cardiovascular, immune, musculoskeletal, and digestive systems. This activity will illustrate how smoking can affect each of these body systems.

Materials Needed

- large crafting paper
- markers
- pens or pencils
- research resources

Steps for this Activity

1. Choose several of your classmates to work with and choose one of the five body systems listed above to research. Your teacher may assign a body system to your group.
2. Research the parts and pathways of your chosen body system, and how smoking affects this body system. Your school librarian can help you find research resources, which might include books, journals, magazines, or the Internet. When completing Internet research, use credible websites that will give medically accurate information. Your school may have access to credible Internet sites specifically designed for this type of research.
3. Have a group member lie down on a long, wide piece of crafting paper, and then trace the outline of his or her body.
4. Inside the body outline, draw and label the parts and pathways of your group's body system.
5. Outside the body outline, list how cigarettes affect this body system.
6. Hang your group's body poster in the hallway of your school to show other students the dangers of smoking. Obtain permission, if needed.



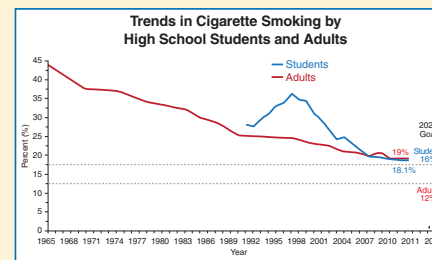
Chapter 9 Skill Development

Core Skills

Math Practice



The graph below shows the trend in smoking rates for adults over a period of almost 50 years. The graph also shows the trend for a 20-year period. Analyze the graph and answer the following questions.



24. What has been the general trend of smoking among adults?
 - A. The smoking rate has increased.
 - B. The smoking rate has decreased.
 - C. There is no trend.
 - D. The smoking rate has increased, decreased, and increased again.
25. What has been the general trend of smoking among high school students?
 - A. The smoking rate has increased.
 - B. The smoking rate has decreased.
 - C. There is no trend.
 - D. The smoking rate has increased and then decreased.
26. Compare the smoking rate for high school students when data was last collected to the high school student goal (percentage) projected for 2020. What is the difference in percentage between these smoking rates?
 - A. 3%
 - B. 2%
 - C. 1.9%
 - D. 1%

Reading and Writing Practice



Read the passage below and then answer the questions.

Addiction to nicotine can happen quickly. Researchers found that 25% of teenage smokers reported feeling addicted within 30 days of having their first cigarette. One in ten of the teenagers reported feeling addicted within only two days of smoking their first cigarette. Nicotine is the chemical in tobacco that causes people to become addicted to tobacco products. Nicotine dependence is one of the most common and powerful types of chemical dependence.

27. What is the author's main idea in this passage?
 - A. Studies conducted about nicotine's addictive effects are inconclusive.
 - B. Teenagers smoke because they don't think they will become addicted.
 - C. One in ten teenagers smoke cigarettes.
 - D. Addiction to nicotine can happen quickly.
28. According to the study mentioned, what percentage of teenage smokers reported feeling addicted within 30 days of having their first cigarette?
 - A. 30%
 - B. 25%
 - C. 10%
 - D. 1%
29. According to the study, what percentage of teenagers reported feeling addicted within only two days of smoking their first cigarette?
 - A. 30%
 - B. 25%
 - C. 10%
 - D. 1%
30. What portion of adults started smoking at age 30?
 - A. The study does not say.
 - B. The majority of adults.
 - C. Almost no adults.
 - D. 30% of adults.
31. Write a few sentences in response to the last sentence of the passage. What evidence can you cite from the chapter to support this claim?