

Chapter 15

Alcohol

Section 1

Alcohol Is a Drug

- **MediaWise** Sports and Alcohol

Building Health Skills

- **Communicating** Developing Refusal Skills

Section 2

Alcohol's Effects on the Body

Section 3

Long-Term Risks of Alcohol

Section 4

Choosing Not to Drink

**SOMETIMES IT TAKES
A FAMILY OF FOUR
TO STOP A
DRUNK DRIVER.**

Go  online
PHSchool.com



Discovery
EDUCATION

TEENS Talk

CLASSROOM VIDEO #15

Drinking Dangers

Preview Activity

What's Your Take on Drinking?

Complete this activity before you watch the video.

1. Ask five students your age to complete each sentence with the first thought that comes into mind.
 - a. Alcohol is ? .
 - b. Teens who refuse alcohol are ? .
 - c. Teens who get drunk are ? .
 - d. Driving after drinking alcohol is ? .
2. In a paragraph, describe what your survey revealed about teens' attitudes towards alcohol. **WRITING**



MADD

Section 1

Alcohol Is a Drug

Objectives

- ▶ **Describe** how alcohol acts as a depressant in the body.
- ▶ **Identify** three major factors that influence underage drinking.

Vocabulary

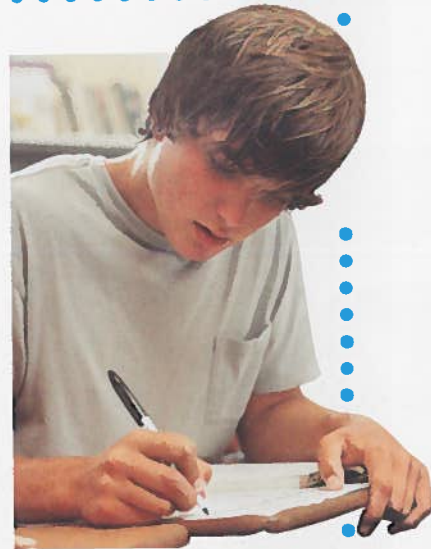
- drug
- depressant
- fermentation
- zero-tolerance policy

Warm-Up

Quick Quiz See how many of these questions you can answer “yes” to.

- 1 Do you observe the law that prohibits people under age 21 from purchasing or possessing alcohol?
- 2 Do you avoid riding with drivers who have been drinking?
- 3 Do you say *no* to friends who pressure you to drink?
- 4 Do you know how to seek help for an alcohol problem?

WRITING What other things can you do to avoid the risks associated with drinking alcohol?



Facts About Alcohol

You may not think of alcohol as a drug, but it is. A **drug** is a chemical substance that is taken to cause changes in a person’s body or behavior.

Alcohol Is a Depressant Alcohol acts as a powerful depressant. A **depressant** (dih PRES unt) is a drug that slows brain and body reactions. In slowing the body’s normal reactions, alcohol may cause confusion, decreased alertness, poor coordination, blurred vision, and drowsiness.

The depressant effects of alcohol are very strong. If a person drinks large amounts of alcohol, vital functions such as heartbeat and breathing can be seriously affected. Death can result.

Alcohol Production The alcohol in beverages such as beer, wine, and liquor is produced by the process of fermentation. During **fermentation**, microorganisms called yeast feed on the sugars in foods such as malted grains, grapes, or berries. In the process, carbon dioxide and alcohol are produced.

How Much Alcohol Is in a Drink?



This 12-oz beer contains
4% alcohol
or 0.5 oz.



This 1.25-oz shot of
liquor contains
40% alcohol,
or 0.5 oz.



This 5 oz-glass
of wine contains
10% alcohol,
or 0.5 oz.

To Calculate Alcohol Content

Multiply drink volume by percent alcohol.

$$\text{Example: } 5 \text{ oz wine} \times 0.10 \\ = 0.5 \text{ oz}$$

FIGURE 1 All of these drinks contain the same amount of alcohol—0.5 oz.

Calculating How much alcohol is in an 18-oz beer? **MATH**

Alcohol Content Not all alcoholic beverages contain the same amount of alcohol. The alcohol content of alcoholic beverages typically ranges from 4 percent to 50 percent.

Beverages with a greater percentage of alcohol, such as whiskey, gin, and rum, list their proof on the label. To calculate alcohol content from proof, divide by two. Thus 100-proof vodka is 50 percent alcohol.

Teens and Alcohol

For teens and others under the age of 21, using alcohol is illegal. In addition, many schools have adopted a **zero-tolerance policy**. Under such a policy, students face stiff consequences—including suspension—starting with the first time they are caught with alcohol or other drugs. Even so, alcohol is the most widely abused drug among high school students.

What influences teens' decisions about drinking? **The attitudes of peers, family, and the media strongly influence underage drinking.** Teens who refuse alcohol avoid the serious health and legal risks of this dangerous drug.

Influence of Peers Some teens say they drink to fit in, or just to do what their classmates seem to be doing. Teens often mistakenly believe that everyone is drinking. In fact, millions of teens never use alcohol.

Teens who choose friends who avoid alcohol will have an easier time refusing it themselves. Some teens refuse because they have a friend with an alcohol problem and don't want to turn out that way. Some teens refuse because they know a friend or family member who was killed because of drinking.

**Connect to
YOUR LIFE**

How can you and your friends help each other avoid alcohol?

Go Online
HEALTH
LINKS_{SM}

For: Updates on drunk driving
Visit: www.SciLinks.org/health
Web Code: ctn-5151

MEDIA Wise

Sports and Alcohol

Think back to the last time you watched a sports event on TV. What kinds of products were advertised during the commercials? Chances are, some of the ads were for beer. Besides being aired during sports events, how do the ads try to connect sports and alcohol in people's minds?



Does the ad have a competitive or a sports-related theme?

Yes

No

Does the beer have a "mascot," as many sports teams do?

Yes

No

Is beer shown to improve athletic performance or increase enjoyment of sports?

Yes

No

Does the ad make other connections to sports?

Yes

No

A "Yes" answer to one or more questions indicates a link connecting an alcohol ad to sports.

Activity Watch two beer commercials that air during sporting events. Use the checklist above to evaluate whether the ads make a connection between sports and alcohol. Then explain how the connection to sports is misleading. **WRITING**

Influence of Family Teens report that parents and other family members are important influences on their decisions about alcohol. A majority of teens want their parents' guidance in making decisions about alcohol use. Although your parents may seem tough on you, their rules and advice can help you steer clear of alcohol and other drugs.

Influence of the Media Alcohol's wide availability makes it relatively easy to obtain. Alcohol use is also seen as generally acceptable in people who are over 21—even though it can be dangerous at any age.

Companies that sell alcohol bombard the public with advertisements for beer, wine, liquor, and other beverages. Television commercials and magazine ads often show drinkers in beautiful outdoor settings, at fun-filled parties, or enjoying sports. Although the ads never show underage drinking, the scenarios tend to appeal to teens as much as to adults.

Usually the message accompanying an alcohol ad says nothing about the product. Unlike ads for some drugs, alcohol ads are not required to list negative side effects. Instead, the ads promote a one-sided image of drinkers as athletic, healthy, and successful. The ads give the false impression that drinking will make you more popular and attractive.

Risks of Underage Drinking Teen alcohol use can have very serious consequences. In fact, alcohol is a huge factor in injury deaths, the leading cause of death among teens. Teens who use alcohol increase their risk of the following:

- ▶ Being injured or killed in a motor vehicle crash
- ▶ Committing or being the victim of sexual assault or other violence
- ▶ Long-term brain damage
- ▶ Problems with alcohol later in life
- ▶ Suspension from school, sports teams, or other school activities



FIGURE 2 Each year, crashes and other injuries related to underage drinking kill about 5,000 youth in the United States.

Legal Risks Laws prohibiting minors—people under the age of 21—from buying or possessing alcohol are enforced with heavy fines and lawful seizure of property. For example, law-enforcement officers in some states can seize a car in which a minor is in possession of alcohol. Selling alcohol to someone under the age of 21 is a criminal offense for the seller. In many states, it is against the law to serve alcohol to people under the legal drinking age, even at a private party.

People found to be driving under the influence of alcohol may have their driver's licenses taken away or face other stiff penalties. In some states, those found guilty repeatedly can be sent to prison. You will learn more about driving laws in the next section.

Section 1 Review

Key Ideas and Vocabulary

1. What is a depressant?
2. List at least three of the depressant effects alcohol may cause.
3. Describe how fermentation produces alcohol.
4. What are three major factors that influence underage drinking?

Critical Thinking

5. **Making Judgments** Some people argue that alcohol should not be considered a drug. After all, it is legal for adults to use alcohol. What do you think? **WRITING**

Health at School

School Policy on Alcohol Find out your school's policy on alcohol. Make a poster that informs your peers of the rules and the consequences. **WRITING**

6. **Predicting** What legal consequences could you face by possessing alcohol as a minor?
7. **Relating Cause and Effect** Students who use alcohol regularly are more likely than nondrinkers to get lower grades, drop out of school, and use other drugs. Offer some reasons why you think this is so. **WRITING**

Developing Refusal Skills

Erica's friends are pressuring her to drink alcohol with them. Though Erica does not use drugs of any kind, she worries about what her friends will think if she refuses. Perhaps you have felt this way about saying no to your friends. Maybe you worried that if you refused, your friends would be disappointed or not want to hang out with you. You might even have decided to go along with your friends just to avoid the discomfort of saying no.

Refusing your friends is never easy. Nevertheless, being true to yourself and honest with friends are two important values. To refuse an offer convincingly, you may need to do more than say *no*. These guidelines can help you learn to say *no* in a way that tells others you mean it.

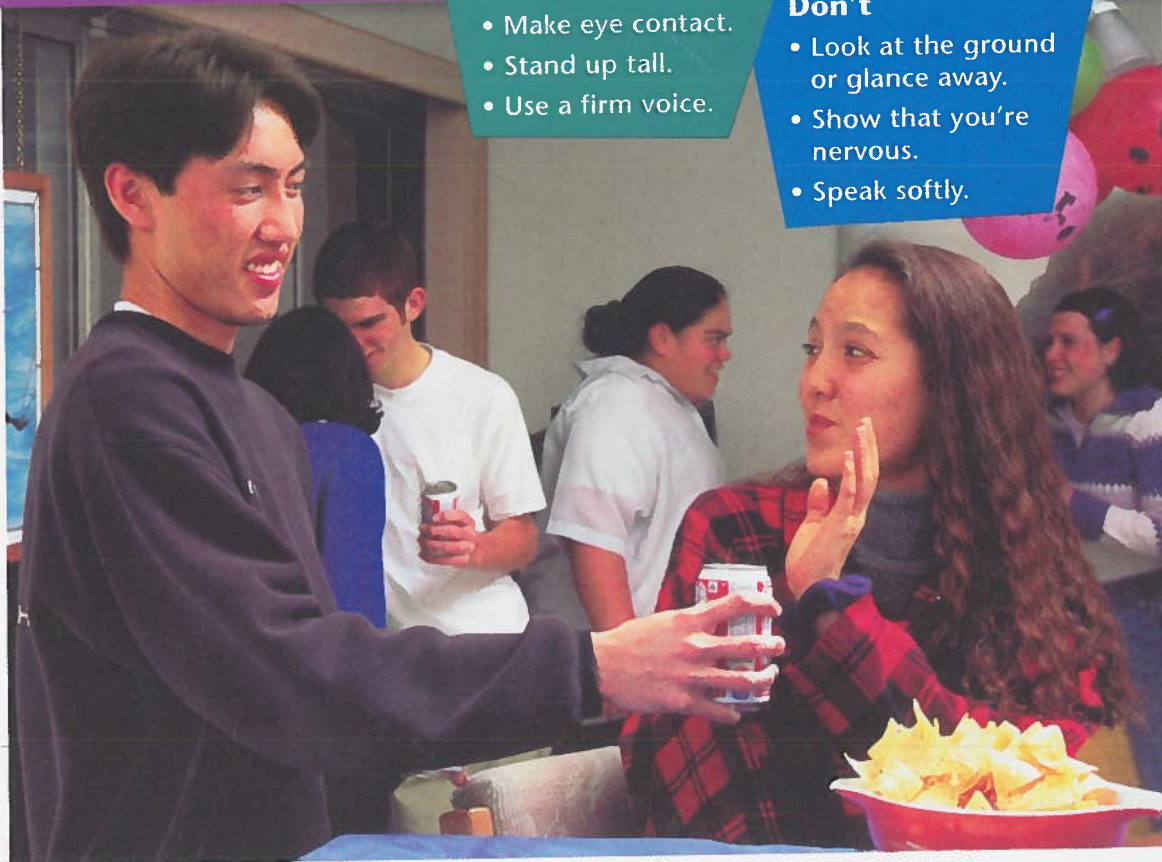
When You Refuse...

Do

- Make eye contact.
- Stand up tall.
- Use a firm voice.

Don't

- Look at the ground or glance away.
- Show that you're nervous.
- Speak softly.



1 Give a reason for your refusal.

When you say no, also state reasons for your refusal. Be honest—honest answers are more easily accepted by others. Some reasons might be:

"I want to keep a clear head."

"I could get suspended from the team."

"I'd rather have a soft drink."

2 Use body language to reinforce what you say.

Your body language can either strengthen or weaken your message.

3 Show your concern for others.

Express your concern for those trying to persuade you. In the case of friends who have decided to drink, you might say things like:

"I'd be really sad if anything happened to you."

"Your parents would ground you for months if they ever found out."

4 Provide alternatives.

Try to persuade your friends to do something safer or more comfortable. Here are some suggestions:

"I'm bored. Let's hang out at the Teen Center."

"This isn't fun. Let's go to a movie."

5 Take a definite action.

If your friends still try to persuade you after you have made your feelings clear, it is best not to continue repeating the point. Instead, take a definite action that removes you from the situation. This will make it clear that you cannot be persuaded to change your mind.

If All Else Fails...

Get up and leave the party.

Call other friends and do something else.

Always call for help rather than ride with someone who has been drinking.



Practice the Skill

1. Suppose that a friend asks you to sit close by during a test and share your answers.
 - a. How would your friend's request make you feel? Why?
 - b. If you were to refuse, what honest reason could you give? How would you express yourself?
 - c. What are some possible consequences of saying no? What are some possible consequences of saying yes?
2. Think of two situations in which you said no to people who tried to convince you to do something you did not want to do.
 - a. Describe each situation. List the things that allowed you to refuse in each case.
 - b. In which situation was it more difficult to say no? Why?
 - c. Did you use any of the steps presented in this skill when you refused? If so, describe the steps and how effective they were.

Section 2

Alcohol's Effects on the Body

Objectives

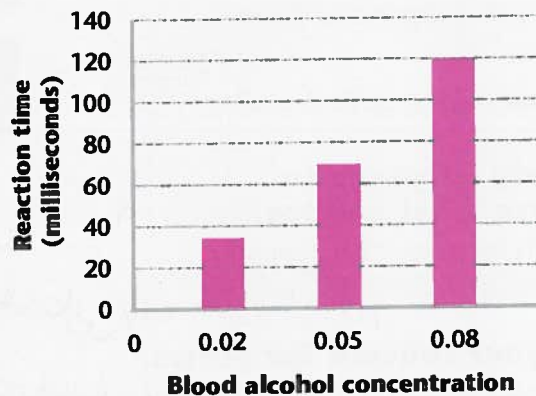
- ▶ **Summarize** the effects of intoxication on the body systems.
- ▶ **List** four factors that affect blood alcohol concentration.
- ▶ **Identify** three ways that intoxication may lead to death.

Vocabulary

- intoxication
- blackout
- blood alcohol concentration (BAC)
- hangover
- driving while intoxicated (DWI)
- overdose
- binge drinking

Warm-Up

Health Stats What trend does this graph reveal?



WRITING How is reaction time—the time it takes people to respond to a situation—affected by alcohol? Explain how a longer reaction time affects a person's safety on the road.

Physical and Behavioral Effects

When a person drinks alcohol, the alcohol follows the same pathway through the digestive system as food. But unlike food, alcohol does not have to be digested in the stomach before it is absorbed into the blood. Thus, alcohol gets into a person's bloodstream within minutes of being consumed. Once in the blood, alcohol circulates throughout the body, where it has widespread effects.

Effects on Body Systems When people drink alcohol faster than the body can break it down into harmless compounds they become intoxicated. **Intoxication** is the state in which a person's mental and physical abilities are impaired by alcohol or another substance. **Many negative effects on a drinker's body and behavior accompany intoxication by alcohol.** Some of these effects are shown in Figure 3.

Connect to YOUR LIFE

Think of a movie or book in which a character became intoxicated. Describe the effects.

Effects of Intoxication

FIGURE 3 Intoxication has many effects on a drinker's body and behavior.

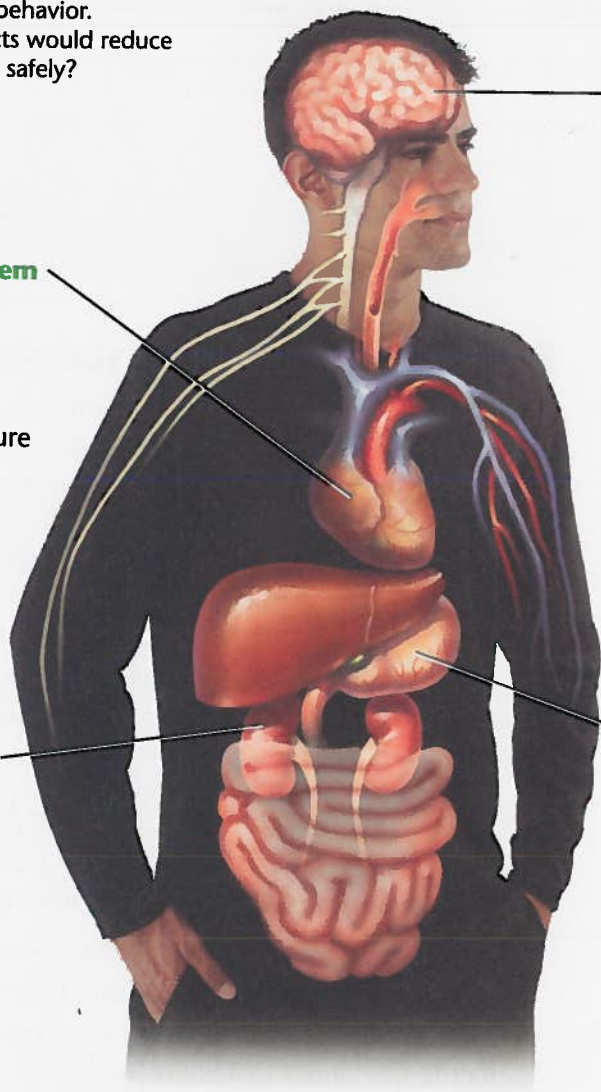
Predicting Which effects would reduce a person's ability to drive safely?

Cardiovascular System

- Heart rate and blood pressure increase.
- More blood flows to the skin's surface.
- Core body temperature decreases.

Excretory System

- Kidneys increase urine production.
- Drinker loses more water from body than usual.



Nervous System

- Brain activity slows down.
- Coordination becomes impaired.
- Sensations and perception become less clear.
- Reflexes become sluggish.

Digestive System

- Too much alcohol in the stomach may cause vomiting.

Effects on Behavior As intoxication takes effect, drinkers begin to lose judgment and self-control. At the same time, alcohol decreases drinkers' natural fears. When these two effects are combined, drinkers may behave in ways they normally would never consider. For example, a person under the influence of alcohol may express anger in violent or destructive ways. Shy people may behave in outgoing ways, and serious people may act foolishly.

A person who drinks a lot of alcohol may suffer a blackout. A **blackout** is a period of time that the drinker cannot recall. Other people may recall seeing the drinker talking, walking, and seemingly in control. The following day, however, the drinker may have no memory of some events from the day before. The drinker may harm others or be harmed during a blackout. Blackouts can happen to first-time drinkers as well as to experienced drinkers.

When Blood Alcohol Concentration Is . . .

0.02–0.03

- Reflexes and alertness decline.

0.04–0.06

- Judgment and self-control are impaired.
- Reaction time slows.

0.07–0.09

- Muscle coordination decreases.

0.12–0.15

- Vomiting usually occurs.
- Emotions become exaggerated, unstable, or violent.



FIGURE 4 As blood alcohol concentration increases, physical and behavioral effects get more and more severe.

Blood Alcohol Concentration

Two people who drink the same amount of alcohol may not be equally affected. Why? The effects of alcohol depend on how much is actually circulating in a person's bloodstream. This amount is termed the **blood alcohol concentration (BAC)**. BAC is the amount of alcohol in a person's blood, expressed as a percentage. For example, a BAC of 0.1 percent means that one-tenth of 1 percent of the fluid in the blood is alcohol.

The higher a person's blood alcohol concentration, the more severe the physical and behavioral effects. Blood alcohol concentration is a more reliable measure of intoxication than the number of drinks consumed.

Factors Affecting BAC A variety of factors affect a drinker's BAC. You can see the effects of some of these factors in Figure 5. **The rate of alcohol consumption, the gender and size of the drinker, and how much food is in the stomach all affect BAC.**

- ▶ **Rate of Consumption** A person's liver chemically breaks down, or metabolizes, alcohol at a fairly constant rate. That rate is about one half to one ounce of alcohol per hour—the approximate amount of alcohol in one can of beer, one shot of liquor, or one glass of wine. Therefore, people who have a few drinks in one hour have a higher BAC than people who drink the same amount over several hours.
- ▶ **Gender** At the same rate and amount of alcohol consumption, males generally will have a lower BAC than females. This is because, for males, a larger portion of the alcohol gets metabolized in the stomach before it enters the bloodstream. In addition, the liver is more efficient at metabolizing alcohol in males.
- ▶ **Body Size** In general, smaller people—by weight and height—feel the effects of alcohol more than larger people. They will have a higher BAC after a similar number of drinks.
- ▶ **Amount of Food in the Stomach** Drinking on an empty stomach increases the rate of alcohol absorption into the bloodstream. A higher BAC will result.

Go Online
PHSchool.com

For: More on blood alcohol concentration
Visit: PHSchool.com
Web Code: ctd-5152

0.20

- Confusion, dizziness, and disorientation occur.
- Vision and speech are impaired.
- Blackouts are typical.

0.30

- Ability to stand or walk is lost.
- Loss of consciousness may occur.

0.40

- Loss of consciousness usually occurs.
- Death may occur.

0.50 and higher

- Death usually occurs.



After Drinking Ends Once a person stops drinking, BAC begins to decrease. The intoxicating effects of alcohol slowly diminish, and the person's reflexes and coordination return to normal. Many people refer to this process as "becoming sober" or "sobering up."

You may have heard that cold showers, exercise, fresh air, or coffee will help a person sober up more quickly. But this is not true. Nothing can speed the liver's ability to break down alcohol. Fresh air may keep a person awake, but it does not eliminate the intoxicating effects of alcohol.

Hangovers Drinking heavily usually causes a person to wake up the next day with a hangover. **Hangover** is a term used to describe the after-effects of drinking too much alcohol. Symptoms of a hangover include nausea, upset stomach, headache, and a sensitivity to noise. It is not clear why some drinkers get a hangover and others do not. The only way a person can be sure to prevent one is to avoid alcohol altogether.

**Connect to
YOUR LIFE**

Your friend says he'll drive you home after he "sobers up" with a cup of coffee. What do you say?

FIGURE 5 Several factors besides number of drinks affect blood alcohol concentration. **Predicting** Predict the BAC of a 110-pound woman after she consumes three drinks in one hour.

Estimating Blood Alcohol Concentration

Number of Drinks* (per hour)	Males			Females		
	100–120 lb	120–140 lb	140–160 lb	100–120 lb	120–140 lb	140–160 lb
1	0.04	0.03	0.02	0.05	0.04	0.03
3	0.10	0.08	0.07	0.13	0.11	0.07
5	0.18	0.15	0.12	0.21	0.18	0.15
7	0.24	0.20	0.17	0.30	0.25	0.22

*One drink is 1.25 oz of 80-proof liquor, 5 oz of wine, or 12 oz of beer.

Over one third of teen deaths in motor vehicle crashes are alcohol related.

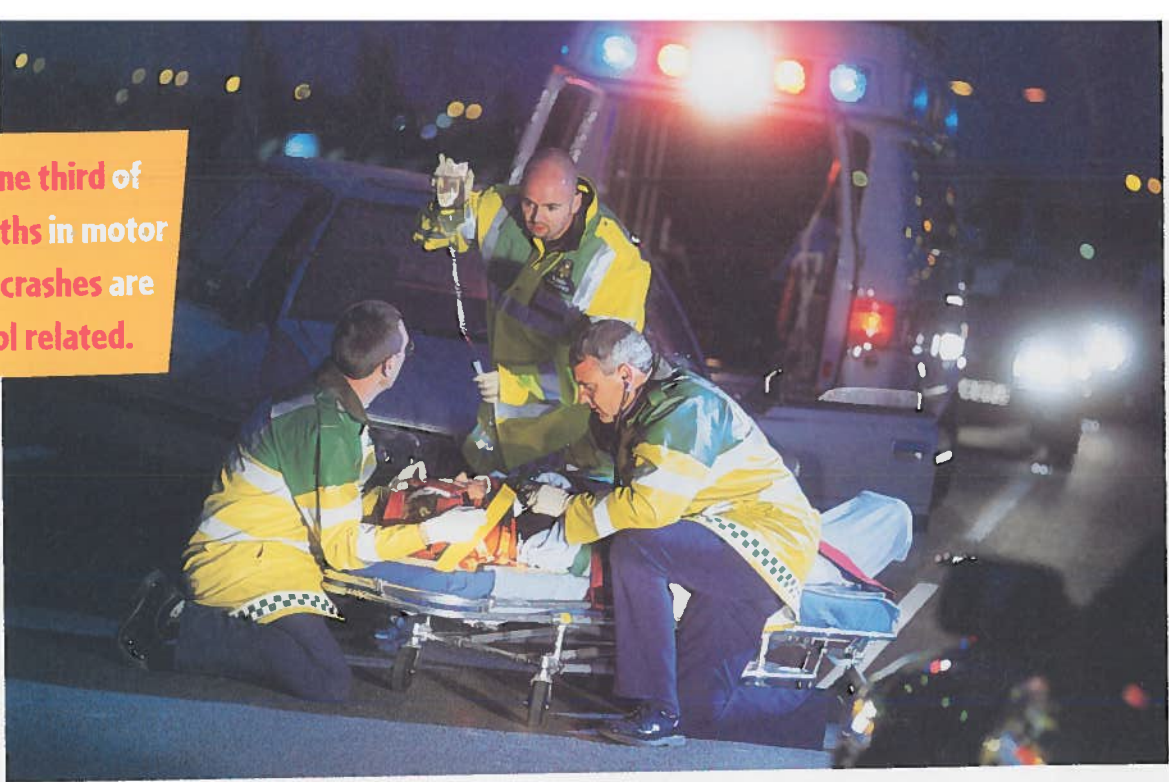


FIGURE 6 Alcohol has a dramatic effect on fatality risk in motor vehicle crashes.

Life-Threatening Effects

The short-term effects of intoxication can put a drinker at serious risk. **Intoxication increases the risk of death from motor vehicle crashes, alcohol overdose, and interactions of alcohol with other drugs.**

Motor Vehicle Crashes Alcohol is involved in about 40 percent of fatal motor vehicle crashes. Driving can be impaired by any amount of drinking, even if it falls below legal limits.

Alcohol especially impairs the driving skills of underage drinkers. Because of their relative lack of driving experience, underage drivers are already more likely to crash, even without the influence of alcohol. The effects of alcohol and driving inexperience together are a particularly dangerous combination.

- ▶ **Driving Under the Influence** A driver over age 21 caught driving with a BAC that exceeds the legal limit of 0.08 is charged with **driving while intoxicated (DWI)**. Law enforcement officers often measure BAC with a breath alcohol testing device. The device measures the alcohol level in the breath from the lungs, from which BAC is accurately estimated. Or a blood sample may be drawn and tested directly. People whose BAC is above the legal limit can have their driver's license taken away and can be prosecuted. They may have to pay stiff fines or serve jail time.
- ▶ **Zero Tolerance Laws** For drivers under the age 21, the law is different. The purchase and possession of alcohol by minors is already illegal. Therefore, there is no acceptable BAC for underage drivers. Laws vary a little from state to state, but in all cases, it is illegal for minors to drive after consuming any amount of alcohol. The penalties for underage drivers may be more strict than those for other drivers.

Overdose Taking an excessive amount of a drug that leads to coma or death is called an **overdose**. Alcohol overdose, also called alcohol poisoning, can cause the heart and breathing to stop. Many drinkers assume that they will pass out before drinking a fatal amount. This is not necessarily true. Alcohol continues to be absorbed into the blood for 30 to 90 minutes after a person's last drink. The drinker's BAC can increase even if the drinker becomes unconscious.

A person need not be a regular drinker or an alcoholic to die from an overdose. Even someone drinking for the first time can overdose and die from binge drinking. **Binge drinking** is the consumption of excessive amounts of alcohol at one sitting. Binge drinking is a particular problem among underage drinkers, who may consume many drinks on a bet or dare, or during a "drinking game." Binge drinking also affects teens more severely than older drinkers—teens enter comas at lower blood alcohol concentrations than adults.

Interactions With Other Drugs Sometimes, two drugs can interact to produce effects that are greater than either drug would produce by itself. Recall that alcohol is a depressant drug. When a person drinks alcohol and takes another depressant, such as sleeping pills, the combination can cause drastic changes in the body. Together, the two depressants' effects are more than doubled and can dangerously slow breathing and heart rates. In extreme cases, combining alcohol and other depressants leads to coma or death.

Warning Signs of Alcohol Poisoning

- Cold, clammy, pale, or bluish skin
- Slow or irregular respiration
- Vomiting while "sleeping"
- Cannot be wakened (unconscious)



FIGURE 7 If someone you know shows any of these warning signs, contact emergency medical services.

Section 2 Review

Key Ideas and Vocabulary

1. What is intoxication?
2. Describe the effects of intoxication on four body systems.
3. List four factors that affect blood alcohol concentration.
4. What are three ways that intoxication can lead to death?
5. For drivers over age 21, how is **driving while intoxicated (DWI)** defined?
6. What is an **overdose**? How could **binge drinking** cause an alcohol overdose?

Health and Community

BAC and Driving Laws Since state governments lowered the legal limit for adult drivers from a BAC of 0.10 to 0.08, thousands of lives have been saved. Is 0.08 low enough? Take a poll of teens and adults in your community. Summarize your findings in a letter to a local politician. **WRITING**

Critical Thinking

7. **Relating Cause and Effect** Teens who use alcohol are more likely to get into fights than those who don't. Relate this fact to the effects of intoxication on the nervous system. **WRITING**
8. **Comparing and Contrasting** How do drinking-and-driving laws differ for teens and adults?

Section 3

Long-Term Risks of Alcohol

Objectives

- ▶ **Identify** five serious physical effects of long-term alcohol abuse.
- ▶ **Describe** the three stages of alcoholism.
- ▶ **List** in order three steps taken during recovery from alcoholism.

Vocabulary

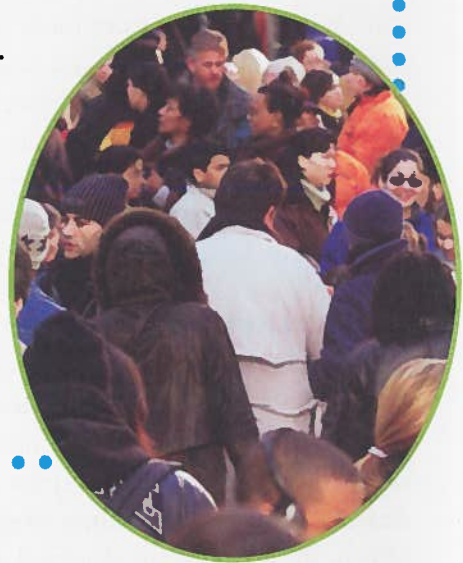
- fetal alcohol syndrome
- cirrhosis
- alcoholism
- tolerance
- dependence
- addiction
- reverse tolerance
- detoxification
- withdrawal
- rehabilitation

Warm-Up

• **Myth** Alcoholics sleep on park benches and wear shabby clothes.

• **Fact** Alcoholics come from all cultures, backgrounds, and levels of education.

• **WRITING** In what ways does the media contribute to this myth about alcoholics? How else does the media shape people's perception of alcoholics?



Damage to the Body

Adults over age 21 who use alcohol responsibly usually are not at risk of developing long-term health problems related to alcohol. But heavy drinking can cause serious damage to the body over time. **Long-term alcohol abuse may harm the brain, liver, heart, and digestive system. Furthermore, drinking any amount of alcohol during pregnancy may permanently harm the developing baby.**

Brain Damage Long-term alcohol abuse destroys nerve cells in the brain. Destroyed nerve cells usually cannot grow again. The loss of many nerve cells causes permanent changes that impair memory, the ability to concentrate, and the ability to make sound judgments. These losses interfere with normal everyday functions.

Effects on the brain can be especially damaging for underage drinkers. When teens drink, they expose the brain to alcohol during a critical time in its development. Teenage drinkers may suffer long-term learning and memory problems.

Connect to YOUR LIFE

Why are teens especially vulnerable to brain damage caused by alcohol?



FIGURE 8 Drinking any amount of alcohol during pregnancy may cause fetal alcohol syndrome. This boy, shown with his adoptive parents, has severe symptoms.

Fetal Alcohol Syndrome Pregnant women who drink put the health of their future children at risk. **Fetal alcohol syndrome** is a group of birth defects caused by the effects of alcohol on an unborn child.

Babies born with this syndrome may suffer from heart defects, malformed faces, delayed growth, poor motor development, and mental retardation. Some show only brain and behavioral problems, without the other physical effects.

Tragically, drinking during pregnancy is the leading preventable cause of mental retardation in the United States. Even small amounts of alcohol consumed during pregnancy can cause brain damage. Any woman who is planning to become pregnant, or who is already pregnant or breast-feeding, should not drink any alcohol.

Liver Damage Alcohol interferes with the liver's ability to metabolize, or break down, fats. As a result of heavy drinking, the liver begins to fill with fat, which blocks the flow of blood in the liver. The fat-filled liver cells die, leaving behind useless scar tissue. This disease, called **cirrhosis** (sih ROH sis), may lead to liver failure and death.

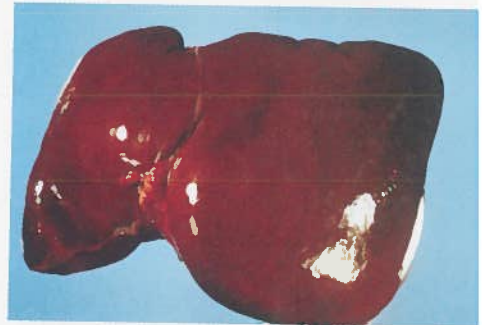
Heavy drinkers also may suffer from alcoholic hepatitis, an inflammation of the liver caused by the toxic effects of alcohol. It too can cause the drinker to die.

Heart Disease Excessive drinking contributes to heart disease, the leading cause of death in the United States. Over time, alcohol causes increased blood pressure and heart rate, irregular heartbeat, and a buildup of fatty deposits in the heart muscle.

Digestive Problems Ongoing drinking also irritates the tissues that line the digestive system, causing inflammation. Repeated irritation increases the risk of

- ▶ cancers of the mouth, tongue, esophagus, and stomach.
- ▶ recurring diarrhea.
- ▶ chronic indigestion, heartburn, or ulcers.

▼ **Healthy liver**



▼ **Liver damaged by cirrhosis**



FIGURE 9 A healthy liver contains smooth tissue. The liver of a heavy drinker contains useless scar tissue.

Alcoholism

People who can no longer control their use of alcohol suffer from the disease known as **alcoholism**. Physically, an alcoholic's body requires alcohol to function. Psychologically, alcoholics consider drinking a regular, essential part of coping with daily life.

Changes to the Brain With repeated use of alcohol, its effects in the brain become reduced—the body has developed **tolerance** to alcohol. Tolerance causes a drinker's body to need increasingly larger amounts of alcohol to achieve the original effect.

With increasing tolerance, the body will eventually develop **dependence**—the brain develops a chemical need for alcohol and cannot function normally without it. Finally, **addiction** results—the drinker no longer has control over his or her drinking. Alcohol addiction is characterized by a craving, or strong emotional need, to use alcohol.

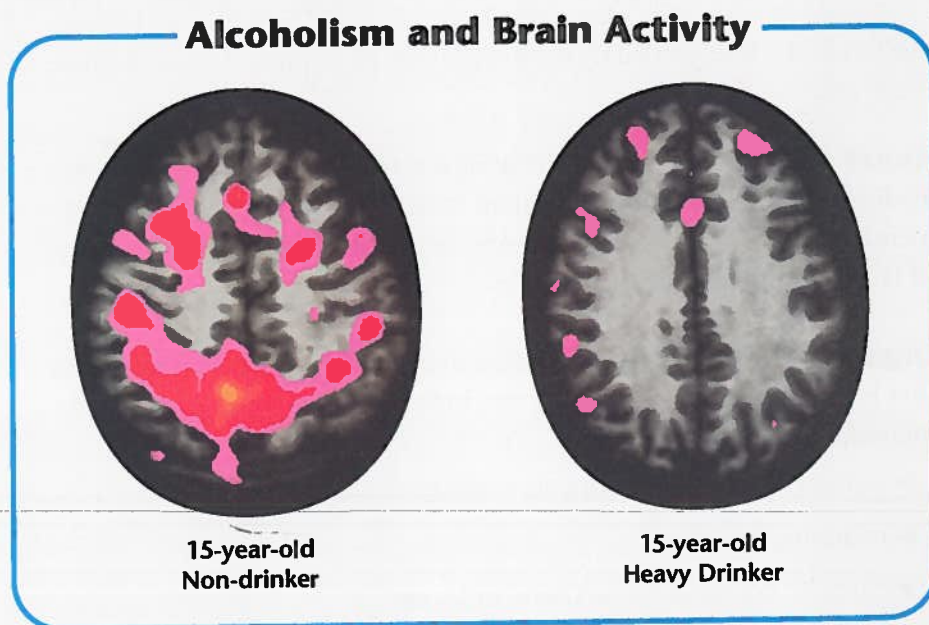
Because alcoholics can no longer control their alcohol use, they must receive help to recover from this disease. Scientists have found that during addiction, the structure and the chemistry of the brain changes—addiction is a disease of the brain.

Who Is at Risk? Anyone who drinks is at risk of becoming an alcoholic. However, some people seem to be at higher risk than others. For example, alcoholism is four to five times more common among the children of alcoholics than in the general population. The reason for this is likely a combination of the influence of genetics and the environment in which a person grows up.

Attitudes towards drinking and the availability of alcohol in the home play a strong role in determining whether or not a person will develop a drinking problem. Underage drinking also increases a person's risk of becoming an alcoholic.

FIGURE 10 Teenage drinking affects the brain dramatically in the short term. Shown here (in red) is brain activity in two teens asked to perform the same task.

Interpreting Photos Which brain has more activity?



The Stages of Alcoholism Alcoholics progress through several stages as their dependence strengthens. What begins as **problem drinking** becomes **absolute dependence**, and finally, **late-stage alcoholism**. Each stage may last weeks, months, or years. Teenage alcoholics tend to go through the stages faster than adult alcoholics.

Stage 1: Problem Drinking Even a “social drinker”—someone who occasionally drinks small amounts with meals, at parties, or on special occasions—can become an alcoholic. If social drinkers start to use alcohol to try to relieve stress or escape from problems at home, school, or work, their drinking habit may quickly become a problem. Some warning signs of problem drinking are listed in Figure 11.

Stage 2: Absolute Dependence At this stage, the drinker becomes totally dependent on the drug. Alcohol dominates the drinker’s life. He or she usually cannot stop after one drink, and feels a constant need to drink.

Some alcoholics are able to hide their problem and appear to be fine. Others show signs of excessive alcohol consumption. Signs of alcoholism may include frequent absences from work or school and strained relationships.

Stage 3: Late Stage of Alcoholism During this stage, alcoholics rapidly lose their mental, emotional, and physical health. Because their entire lives revolve around drinking, they become isolated from society. Late-stage alcoholics also experience **reverse tolerance** for alcohol, a condition in which less and less alcohol causes intoxication.

Serious health problems, including malnutrition, liver and brain damage, cancer, lung disease, and heart disease, are common among alcoholics. Without medical and psychological help, an alcoholic may die.

Connect to YOUR LIFE How can you reduce your risk of alcoholism? Explain.

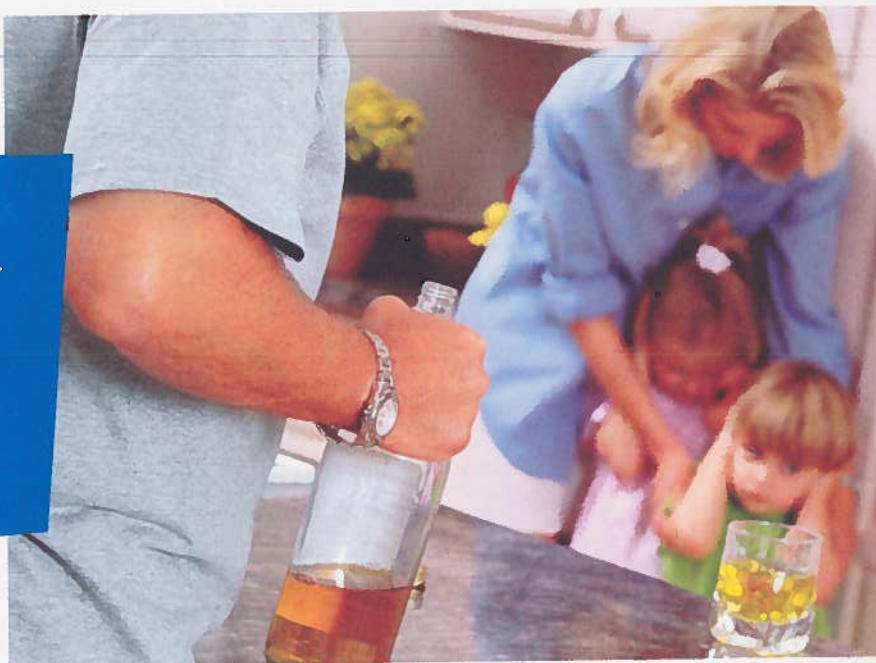
A Problem Drinker's Self-Test		Yes	No
Do you drink to avoid facing problems or when you are angry?		<input type="checkbox"/>	<input type="checkbox"/>
Do you prefer to drink by yourself rather than with others?		<input type="checkbox"/>	<input type="checkbox"/>
Do you try to stop drinking, but fail?		<input type="checkbox"/>	<input type="checkbox"/>
Do you lie to others about how often or how much you drink?		<input type="checkbox"/>	<input type="checkbox"/>
Do you ever forget whole blocks of time when you are drinking?		<input type="checkbox"/>	<input type="checkbox"/>
Do you get drunk even when you do not intend to do so?		<input type="checkbox"/>	<input type="checkbox"/>
Are your school grades dropping because of your drinking?		<input type="checkbox"/>	<input type="checkbox"/>
Do you drink in the morning?		<input type="checkbox"/>	<input type="checkbox"/>
Do you ever get into trouble when you drink?		<input type="checkbox"/>	<input type="checkbox"/>
Is it important to you to show others that you can drink alcohol?		<input type="checkbox"/>	<input type="checkbox"/>

FIGURE 11 One or two “yes” answers to these questions may indicate a drinking problem.

FIGURE 12 Alcoholism has many negative effects on families.

Effects of Alcoholism on the Family

- Unpredictable behavior
- Embarrassment
- Violence
- Neglect
- Money problems
- Legal problems
- Divorce



Effects on Others Alcohol abuse and alcoholism affect many people other than the drinker. Consider some of the financial and emotional costs to society and individual families.

- ▶ Alcohol-related crimes, medical expenses, injuries, lost productivity on the job, and treatment programs cost the United States between 100 and 200 billion dollars annually.
- ▶ Alcohol is involved in approximately 150,000 deaths per year. Most of these deaths are due to violence committed under the influence of alcohol and to motor vehicle crashes involving drunk drivers.
- ▶ About one in every eight Americans grows up in an alcoholic family. Spouses and children of alcoholics live in homes filled with stress arising from uncertainty and embarrassment.
- ▶ In some cases, alcoholics verbally or physically abuse family members. Family life centers around the drinking member as the needs of other family members are ignored.

Treating Alcoholism

With appropriate treatment, the progress of alcoholism can be stopped. Alcoholics can lead productive, happy lives if they stop drinking completely. **There are three stages in an alcoholic's recovery: acknowledging the problem, detoxification, and rehabilitation.**

Acknowledging the Problem In the first step of recovery, alcoholics must acknowledge their problem and ask for help. For some alcoholics, the shock of losing a job, being arrested, or being separated from their families motivates them to enter a treatment program.

Go Online
HEALTH
LINKS.

For: Updates on alcoholism
Visit: www.SciLinks.org/health
Web Code: ctn-5153

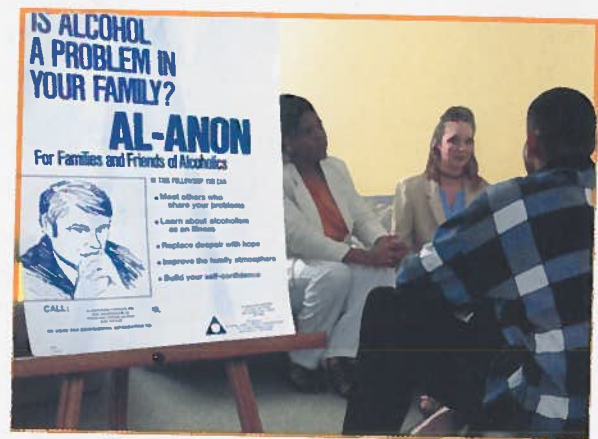
Detoxification The next step in recovery is **detoxification**, which involves removing all alcohol from a person's body. The alcoholic will suffer from **withdrawal**, a group of symptoms that occur when a dependent person stops taking a drug. Withdrawal symptoms last from three to seven days. They include shakiness, sleep problems, irritability, rapid heartbeat, and sweating. The drinker also may see, smell, or feel imaginary objects. Severe withdrawal symptoms can be extremely dangerous, requiring medical care or a hospital stay.

Rehabilitation After detoxification, the recovering alcoholic begins **rehabilitation**—the process of learning to cope with everyday living without alcohol. During rehabilitation, alcoholics receive counseling to help them understand their disease and behavior. In some cases, the recovering alcoholic takes medications that may help prevent a return to alcohol use.

Support Groups Community, religious, and health organizations often sponsor support groups for alcoholics. In one of the most successful groups, Alcoholics Anonymous (AA), recovering alcoholics offer encouragement and support to help other alcoholics stop drinking.

Two other groups, Al-Anon and Alateen, are designed to help friends and family members of alcoholics. Al-Anon helps adult friends and family members learn how they can help in the alcoholic's recovery process. Alateen provides help for teenagers living with alcoholics. You can find the phone numbers for local AA, Al-Anon, and Alateen groups on the Internet or in a telephone book.

FIGURE 13 Al-Anon members use understanding and education in their efforts to help alcoholics cope.



Section 3 Review

Key Ideas and Vocabulary

1. What are five long-term physical effects of alcohol abuse?
2. What is **cirrhosis**? Explain how the disease can be fatal.
3. What is **tolerance** to alcohol? How does it relate to **dependence**?
4. Describe each stage of alcoholism. What happens during absolute dependence?
5. List in order three steps alcoholics must take to recover from their alcohol dependence.

Health at School

Support for Teens What kinds of school programs do you think would help teenagers who have drinking problems? What elements would the program need to be effective? Prepare an oral report to present to school officials. **WRITING**

Critical Thinking

6. **Evaluating** "Alcoholism only affects the alcoholic." Do you agree or disagree with this statement? Explain your answer.
7. **Comparing and Contrasting** How are the goals of Alcoholics Anonymous, Al-Anon, and Alateen similar? How are they different?

Section 4

Choosing Not to Drink

Objectives

- ▶ **Evaluate** how refusal skills help you stick to your decision not to drink.
- ▶ **Identify** two benefits of avoiding situations where alcohol is present.

Vocabulary

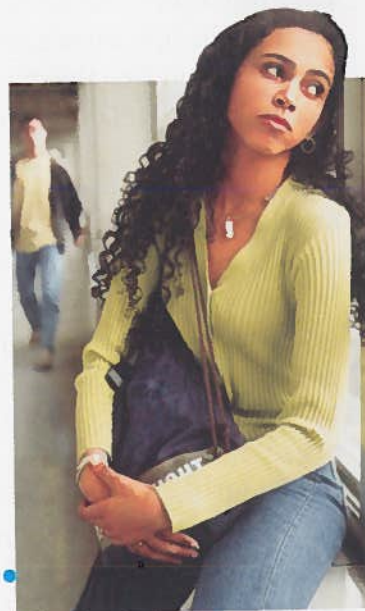
- refusal skills

Warm-Up

Dear Advice Line,

I was at a friend's house and we were bored. My friend got some liquor and offered me a drink. I said I couldn't because I had a game that night. The real reason is that I've decided not to drink at all. Was it wrong to give an excuse? What if she asks me again when I don't have a game?

WRITING Write a response to this teen. Offer advice on how to handle future situations.

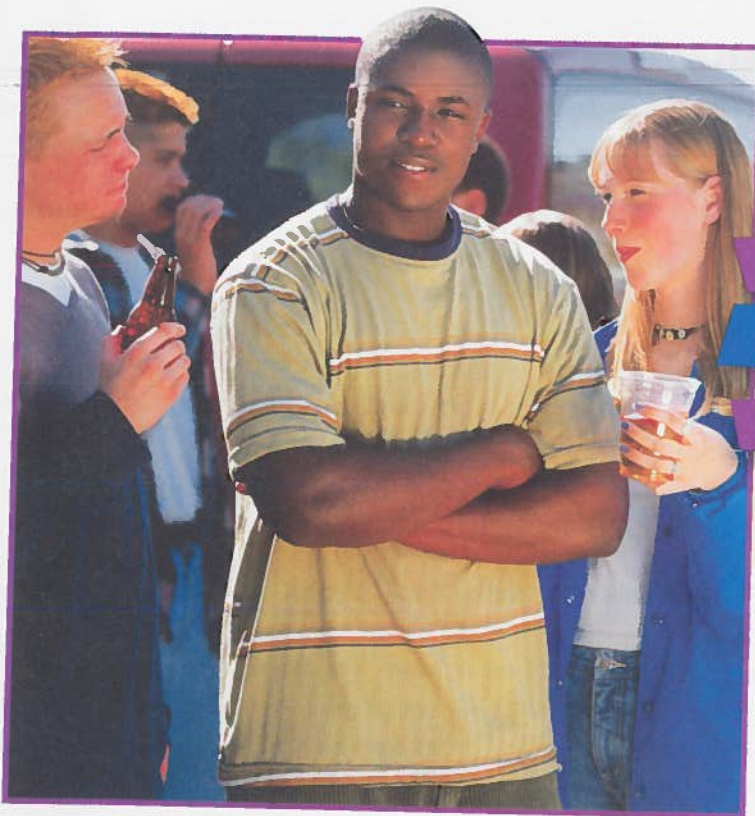


Abstaining from Alcohol

You know that underage drinking is illegal and could risk your health and future plans. The best decision you can make is to abstain from alcohol, meaning not to drink at all. Once you turn 21, drinking will no longer be illegal, but the risks will remain. Many adults abstain from, or choose not to drink, alcohol.

At different times in your life—now or years from now—you will likely find yourself in situations where you are pressured to drink when you don't want to. How will you stick to your decision? **Sticking to your decision not to drink means being able to say no with confidence in situations where other people are drinking.**

The skills needed to say *no* are sometimes referred to as **refusal skills**. Refusal skills are especially important when others are pressuring you to do something against your will. You will feel better about yourself by sticking to your beliefs.



What to Say When Offered a Drink

"No thanks, I don't drink."

"I'm not old enough to drink."

"I want to stay in control."

FIGURE 14 There's more than one way to refuse a drink.

Prepare for Pressure To prepare yourself for the pressure you may face, ask yourself the following questions:

- ▶ What are my reasons for not drinking alcohol at this time in my life?
- ▶ How can I come across as confident in my decision?
- ▶ In what situations will I most likely encounter pressure to drink?
- ▶ Why are my friends pressuring me to drink?
- ▶ Are there other friends who can help me stick to my decision?

You may want to practice saying *no* in role-playing situations with friends or classmates. That way you can develop the refusal skills you will need in actual social situations.

Stick to Your Decision You may find that some people will not accept your decision not to drink. Many people who drink want to see others around them drink so that they can feel accepted.

Remember that you never need to apologize for not drinking. Most people will respect your decision, especially if you are clear in your response. Refer to the Building Health Skills on pages 378–379 for other tips for developing your refusal skills.

Connect to YOUR LIFE

How would you say no to alcohol if it were offered to you?

Go  Online
PHSchool.com

For: More on alcohol-free celebrations

Visit: PHSchool.com

Web Code: ctd-5154



A Safe Ride Home

- Find a sober driver.
- Call a parent or another adult.
- Take a taxi or bus.

FIGURE 15 Don't risk your life with a driver who has been drinking, even if they don't seem drunk.

Avoiding High-Pressure Situations

Besides using refusal skills, teens who choose not to drink also do something else that's smart: they stay away from situations where alcohol is present. **Avoiding situations in which alcohol is present will help you stay alcohol free. It will also help you avoid related risks, like being injured by someone who has been drinking.**

Alternatives to Parties Teenagers who abstain from alcohol are likely to participate in healthy activities. Think about the kinds of activities that interest you. You may be interested in sports, hobbies, playing an instrument, helping an organization raise money, or organizing a school activity. Try taking up a new activity or spending more time with a current activity as an alternative to parties.

Refusing Rides From Drinkers Even if you don't drink alcohol, you may have to deal with people who have had too much to drink. Remember that intoxicated people must not be allowed to drive. The driver may be a friend, a relative, or the parent of a child for whom you babysit. You should *never* get into a car with anyone who has been drinking. Don't worry about being rude—your life is more important than the driver's feelings. You should also do everything you can to prevent that person from driving.

If you find yourself dependent on a drinker for a ride home, ask someone for help. Some teens have an understanding with a parent or other adult that they can call for a ride home, no questions asked. Do not risk riding with an intoxicated driver.

Section 4 Review

Key Ideas and Vocabulary

1. What are refusal skills?
2. How can you stick to a decision not to drink?
3. What are two benefits of staying away from situations where alcohol is present?

Critical Thinking

4. **Applying Concepts** What reasons would you give for postponing drinking until you are of legal age?
5. **Evaluating** Make a list of pros and cons of going to a party where alcohol may be served. Then evaluate the list and decide what you would do.

Health at Home

Reminder Card Cut an index card to fit in your wallet. On it, list three ways that you would feel comfortable saying *no* if you were offered alcohol. Also list the names and phone numbers of three friends and family members you could contact if you needed a ride home. Carry the card with you so it's always handy.

6. **Making Judgments** The father of a child you've been baby-sitting is intoxicated when he returns. He offers you a ride back to your house. What would you do? **WRITING**

Drinking Dangers List three things that you learned from the video about refusing alcohol.

Section 1 Alcohol is a Drug

Key Ideas

- ✓ In slowing the body's normal reactions, alcohol may cause confusion, decreased alertness, poor coordination, blurred vision, and drowsiness.
- ✓ The attitudes of peers, family, and the media strongly influence underage drinking.

Vocabulary

- drug (374)
- depressant (374)
- fermentation (374)
- zero-tolerance policy (375)



Section 2 Alcohol's Effects on the Body

Key Ideas

- ✓ Many negative effects on a drinker's body and behavior accompany intoxication by alcohol.
- ✓ The rate of alcohol consumption, the gender and size of the drinker, and how much food is in the stomach all affect blood alcohol concentration.

- ✓ Intoxication increases the risk of death from motor vehicle crashes, alcohol overdose, and the interactions of alcohol with other drugs.

Vocabulary

- intoxication (380)
- blackout (381)
- blood alcohol concentration (BAC) (382)
- hangover (383)
- driving while intoxicated (DWI) (384)
- overdose (385)
- binge drinking (385)

Section 3 Long-Term Risks of Alcohol

Key Ideas

- ✓ Long-term alcohol abuse may harm the brain, liver, heart, and digestive system. Furthermore, drinking any amount of alcohol during pregnancy may permanently harm the developing baby.
- ✓ As alcoholism progresses, what begins as problem drinking becomes absolute dependence, and finally, late-stage alcoholism.

- ✓ There are three stages in an alcoholic's recovery: acknowledging the problem, detoxification, and rehabilitation.

Vocabulary

- fetal alcohol syndrome (387)
- cirrhosis (387)
- alcoholism (388)
- tolerance (388)
- dependence (388)
- addiction (388)
- reverse tolerance (389)
- detoxification (391)
- withdrawal (391)
- rehabilitation (391)

Section 4 Choosing Not to Drink

Key Ideas

- ✓ Sticking to your decision not to drink means being able to say no with confidence in situations where other people are drinking.

- ✓ Avoiding situations in which alcohol is present will help you stay alcohol free.

Vocabulary

- refusal skills (392)

Reviewing Key Ideas

Section 1

- Alcohol is classified as a depressant drug because it
 - slows brain and body reactions.
 - reduces blood flow to skin.
 - causes liver failure.
 - increases heart rate.
- The percentage of alcohol in 80-proof liquor is
 - 4 percent.
 - 8 percent.
 - 40 percent.
 - 80 percent.
- Identify three ways that teens who drink put themselves at risks for physical harm.
- Critical Thinking** How do peers influence teens' decision whether to drink?

Section 2

- Blood alcohol concentration measures
 - the number of drinks consumed in one hour.
 - the rate at which a person drinks alcohol.
 - a person's risk of a car crash.
 - the amount of alcohol in a person's blood.
- Which organ breaks down alcohol?
- How can alcohol's interaction with other drugs be fatal?
- Critical Thinking** Why is blood alcohol concentration a more reliable indicator of intoxication than number of drinks consumed?

Section 3

- A condition in which less and less alcohol causes intoxication is called
 - tolerance.
 - reverse tolerance.
 - dependence.
 - problem drinking.
- What are the physical and psychological signs of alcohol addiction?
- What are some signs that a person may be a problem drinker?
- During detoxification, why might an alcoholic need to be in a hospital?
- Critical Thinking** Doctors recommend that former alcoholics should avoid drinking even one drink. Why do you think so?

Section 4

- The skills you need to say no to alcohol are called
 - denial skills.
 - problem-solving skills.
 - tolerance skills.
 - refusal skills.
- List three reasons why teens should abstain from alcohol. Then, turn each reason into a way to say *no* to alcohol.
- Critical Thinking** What activities do you enjoy that take place in alcohol-free settings?



Building Health Skills

- Making Decisions** Your 18-year-old sister has a date with her boyfriend. He is driving. When he arrives you smell alcohol on his breath. What do you do?
- Accessing Information** What are the laws that regulate alcohol purchases in your community? Do you think they are effective at preventing underage drinking? What more could be done? Explain. **WRITING**
- Advocacy** What advice would you give someone who has an alcoholic parent? Be specific.
- Communicating** Three members of the football team were suspended from playing for the rest of the season because they were caught drinking at a private party. Write a letter to the editor of the school newspaper giving your opinion about the situation. **WRITING**
- Setting Goals** Develop a list of strategies you can use to refuse alcohol. Review your list over the course of the school year. Refine your strategies as necessary to make them more effective.

Health and Community

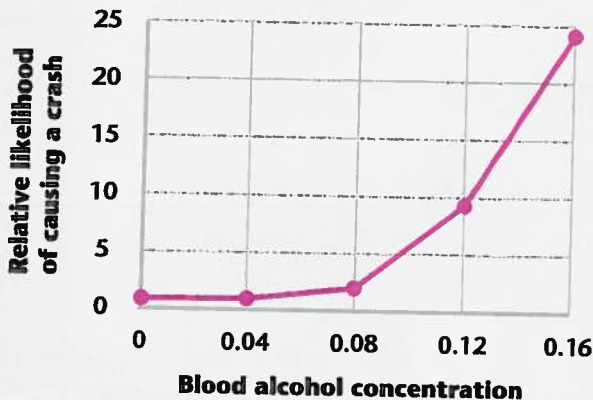
Public Service Announcement Work with a group of your classmates. Design a public service announcement (PSA) to educate the public about the dangers of binge drinking. **WRITING**



Standardized Test Prep

Math Practice

The graph shows the effect of a driver's blood alcohol concentration on motor vehicle crashes. Use the graph to answer Questions 22–24.



22. About how much higher is crash likelihood at a BAC of 0.08 compared with a BAC of zero?
- A About the same
 - B 2 times
 - C 5 times
 - D 10 times
23. By about what percentage does crash risk increase between a BAC of 0.08 and a BAC of 0.1?
- F 25%
 - G 50%
 - H 100%
 - J 400%
24. What mathematical term best describes the relationship between BAC and crash risk?
- A inverse correlation
 - B exponential
 - C linear
 - D constant

Test-Taking Tip

Read *all* of the answers to a question before you make your choice. An answer that seems correct at first might not be the best answer when you weigh it against all the other choices.

Reading and Writing Practice

Read the poem below. Then answer Questions 25–28.

My Papa's Waltz

by Theodore Roethke

The whiskey on your breath
Could make a small boy dizzy;
But I hung on like death:
Such waltzing was not easy.

We romped until the pans
Slid from the kitchen shelf;
My mother's countenance
Could not unfrown itself.

The hand that held my wrist
Was battered on one knuckle;
At every step you missed
My right ear scraped a buckle.

You beat time on my head
With a palm caked hard by dirt,
Then waltzed me off to bed
Still clinging to your shirt.

25. From the context of the poem, what's the best definition of *countenance*?
- A a waltz step
 - B anger
 - C dizziness
 - D facial expression
26. Which two words make a soft, or inexact, rhyme?
- F head, bed
 - G wrist, missed
 - H dizzy, easy
 - J dirt, shirt
27. Which of the following verbs contributes most to the poem's violent feeling?
- A waltzed
 - B scraped
 - C romped
 - D battered

Constructed Response

28. What does the poem suggest are the boy's feelings about his father's alcoholism? Explain.