

CHAPTER 4



Making Safe, Drug-Free Decisions

Chapter Outline

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Medicines and Drugs

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Tobacco

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Environmental Health

““ Drugs are a waste of time. They destroy your memory and your self-respect and everything that goes along with your self-esteem.””

Kurt Cobain, singer and songwriter

LESSON 1



Medicines and Drugs



Quick Write

Write what you would say in a short email to a younger brother, sister, or cousin explaining the most important reason young people should avoid drug use.



Learn About

- how medicines differ from drugs
- drug misuse and abuse
- help for drug users
- living drug free

"Good medicine always tastes bad."

Ron Hall, author

How Medicines Differ From Drugs

What do you think of when you hear the words *medicine* and *drugs*? Many people use the terms interchangeably. The difference is extremely important, however. **Medicine** is a type of drug we use to treat or prevent disease and other conditions. All medicines are drugs, but not all drugs are medicines. **Drugs** are substances other than food that change the structure or function of the body or mind. You will learn more about drugs later in this lesson.

Medicine Safety

In the United States, the Food and Drug Administration (FDA) is responsible for ensuring that all medicines are safe and effective. When someone discovers or creates a new medicine, it must go through a very long process (sometimes several years) of testing before it can be sold legally. Here are the steps:

1. A potential new medicine is discovered or created.
2. Researchers conduct experiments to help decide how the new medicine might be used to treat an illness. They test the drug on animals to determine whether the medicine has any harmful effects.
3. The FDA reviews the preliminary research on animals and the test results. If approved, the new medicine is studied in humans.
4. If the testing on humans shows the medicine is safe and effective and the FDA agrees that the medicine is safe and effective for its intended use, the FDA approves it.
5. Once approved, the medicine can be made available for physicians to prescribe or for consumers to purchase.

In addition to reviewing and testing new medicines for safety, the FDA decides how the people who need the medicine can obtain it and classifies it into two major categories:

Prescription Medicines

Some medicines are very strong and potentially harmful if taken improperly or by people who do not need them. Only doctors can write prescriptions for them. These **prescription medicines** are *medicines that can be sold only with a written order from a physician*. Figure 4.1 shows the information that must appear on all prescription medicine labels. Only a pharmacist can fill a prescription written by a doctor. A **pharmacist** is *someone trained and licensed to prepare and sell medicines that a doctor prescribes*. A pharmacist will also read the prescription to make sure it is given correctly. *Always* read the instructions before you start taking any kind of medication. Many people do not take prescription medicine properly. There are five common mistakes made by individuals:

- Taking the incorrect dosage
- Taking the medicine at the wrong time
- Forgetting to take a dose (missing prescribed times for taking medicine)
- Failing to take all the medicine
- Failing to ask questions about how to use their medicine

Over-the-Counter (OTC) Medicines

Have you ever been given cough syrup or nasal spray when you were sick? These **over-the counter (OTC) medicines** are *medicines that are safe enough to be taken without a written order from a physician*. However, just like prescription medicines, OTC medicines can cause harm if not used as directed.

OTC medicines are available at pharmacies, supermarkets, and other stores that sell medicine. However, just because a medicine is available without a prescription does not mean

Vocabulary



- medicine
- drugs
- prescription medicines
- pharmacist
- over-the-counter (OTC) medicines
- vaccines
- antibodies
- antibiotics
- analgesics
- side effect
- tolerance
- overdose
- narcotics
- addiction
- stimulants
- attention deficit hyperactivity disorder (ADHD)
- amphetamine
- methamphetamine
- narcolepsy

continued on next page

keys to LEADERSHIP

Never take medicines that are not specifically prescribed for you; this can cause unhealthy side effects and if mixed with other medicines, can be deadly.



Vocabulary

continued

- Parkinson's disease
- schizophrenia
- club drugs
- depressants
- street drug
- coma
- hemp
- THC (tetrahydrocannabinol)
- misdemeanor
- felony
- synthetic
- spice
- hallucinogens
- psychological dependence
- inhalants
- physical dependence
- withdrawal
- detoxification



Talk to a pharmacist before taking over-the-counter (OTC) medicines.

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it can't hurt you. OTC drugs present many of the same problems as prescription drugs. The Food and Drug Administration (FDA) warns against the misuse of these drugs. Always check with an adult before using any OTC or other medicine. Be sure to read and understand the information provided on an OTC medicine label.

Medicine labels provide important information:

- Prescription number
- Date prescription was written
- Date prescription was filled
- Name of patient
- Name of medicine
- Pharmacy's name, address, and phone number
- Name of prescribing doctor
- Warning labels/special instructions
- Number of refills remaining
- Directions from doctor
- Expiration date of the prescription



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FIGURE 4.1

Prescription Medicine Label

Types of Medicines

There are different types of medicines, and each type affects the body in specific ways. The most common uses for medicines include preventing disease, fighting infection, and relieving pain.

Medicines to Prevent Diseases

Some medicines, known as **vaccines**, *prevent a disease from developing*. Traditional vaccines contain dead or weakened germs of the disease you want to prevent. Having these germs in the body causes the immune system to produce **antibodies**, which are *proteins that attack and kill or disable specific germs that cause disease*.

Some vaccines last many years or even a whole lifetime and protect you from diseases such as whooping cough, measles, mumps, rubella, chicken pox, pneumonia, and hepatitis A and B. These vaccines provide long-lasting protection. Other vaccines, such as the flu shot, protect you for only a year or so because new variants of the flu virus appear each year, requiring new vaccines.

Medicines to Fight Infection

Many germs and diseases cannot be prevented with vaccines because they are caused by bacteria rather than viruses. Instead, certain medicines called antibiotics (an·ti·by·AH·tik) fight these illnesses. **Antibiotics** are *medicines that reduce or kill harmful bacteria in the body*. Each type of antibiotic fights only certain types of bacteria. For example, penicillin (pen·uh·SI·luhn) is highly effective in killing the bacteria that cause strep throat and pneumonia.

Medicines to Relieve Pain

Many people take *medicines that help relieve pain*; these are called **analgesics**. When the body feels pain, such as that from a headache or toothache, pain messages travel along the nerves and spinal cord to the brain. The role of pain medicines is to block these pain messages or lessen their effect.

Acetaminophen (found in Tylenol) and ibuprofen (found in Motrin) are two of the most commonly used mild analgesics for treating minor pain or reducing fevers. Occasionally, a serious illness or a chronic disease will cause serious pain. In this case, a doctor may prescribe stronger analgesics such as codeine or morphine. We'll discuss codeine and morphine in greater detail later in the lesson.

Remember, however, that pain relievers and fever reducers do not actually fight the problem; they only ease the symptoms. You may feel better after taking Tylenol, for example, but you still need rest, fluids, and possibly other medicine.



Never mix medicines without asking.

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The FDA has published warnings against overuse of the analgesic Tylenol. Taking more than the recommended dose can lead to serious liver damage. This is one reason why following dosage recommendations is important.

Other Medicines

A variety of medicines are available to treat people with certain health problems or conditions. Specific medicines are used by people with chronic (ongoing) conditions, including heart and blood pressure problems, diabetes, and allergies.

How Medicines Affect the Body

The effects of a medicine in the body depend on the type and amount of medicine taken. The way a medicine is taken will also affect how quickly it begins to work in the body. In addition, medicines will affect each person differently. That is why it is important for medicine to be used only as prescribed or directed, and only by the person who needs the medicine. Figure 4.2 illustrates the four main ways in which medicines can enter the body.

Side Effects

In addition to their intended effects, some medicines also cause one or more side effects. A **side effect** is *any effect of a medicine other than the one intended*. Some side effects, such as kidney failure, can be harmful, but others are minor and may be temporary until the body adjusts to the medicine. Common side effects include headaches, rashes, an upset stomach, and drowsiness. Some people may be allergic to certain medicines and may need to see a doctor about a replacement.

Tolerance

When used over a long period, certain medicines can cause a person to develop a tolerance. For medicine, **tolerance** is *a condition in which a person's body becomes used to the effect of a medicine and needs greater and greater amounts of it in order for it to be effective*. In some cases, the medicine ceases to be effective and the doctor must prescribe a different type of medicine.

The way medicines enter the body depends on their form.



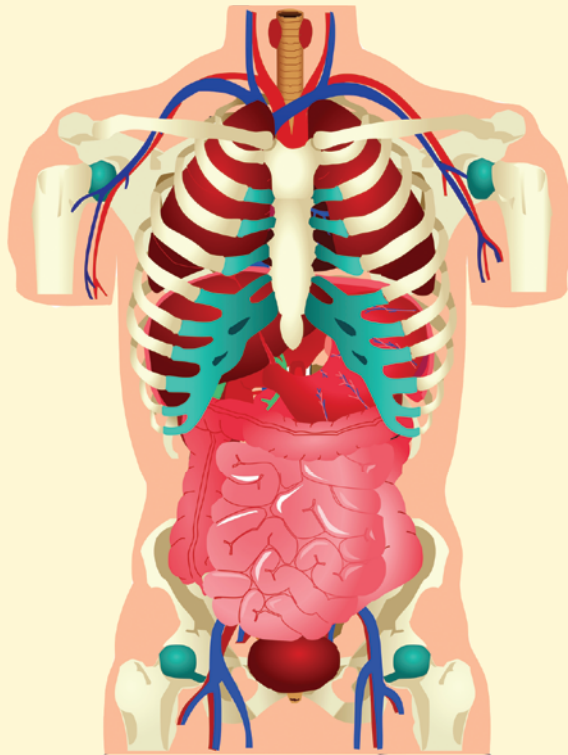
Ingestion

Medicine in the form of pills, tablets, capsules, and liquids is ingested, or swallowed. The medicine moves through the stomach and small intestine and is absorbed into the bloodstream and circulated throughout the body. You can also take cold medicines this way.



Injection

Medicine given through injection goes directly into the blood. Some injections are given in a vein, others under the skin or into a muscle. If you have diabetes, you may need to give yourself daily injections. Vaccines are examples of medicines given through injections.



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Inhalation

When a liquid medicine is changed into a fine mist, it can be inhaled, or breathed in. If you have asthma, you may need an inhaler.



Absorption

Creams and ointments are applied to the skin or scalp and absorbed by the body. Skin patches are applied to the skin and release medicine over time. If you have a rash, for example, you may rub ointment or lotion on the rash to reduce itching.

FIGURE 4.2

How Medicines Enter the Body

(Ingestion) © Vadym Tynenko/Fotolia.com; (Injection) © mipan/Fotolia.com; (Inhalation) © Andrzej Tokarski/Fotolia.com; (Absorption) © blueringmedia/Fotolia.com

Overuse of Medicines

If medicines are overused, they can lose their ability to fight diseases. For example, the use of penicillin became widespread in the 1940s. Penicillin is an antibiotic used to fight infections. Within just a few years, new strains of bacteria had developed. The new bacteria were resistant to penicillin. The more often antibiotics are used, the more likely it is that bacteria will develop a resistance to them. This risk is another reason you should always use medicines wisely and in moderation.

Mixing Medicines

When two or more medicines are taken at the same time, the combined effects may be dangerous. The following reactions are possible:

- Each medicine may have a stronger effect than it would have if taken alone.
- The medicines may combine to produce unexpected effects.
- One medicine may cancel out the expected effects of the other.

Because mixing medicines can produce unpredictable and sometimes even deadly results, people must let their physician know about any medicines they are presently taking when receiving treatment or a prescription for additional medicine. Mixing medicines without a doctor's recommendation or consent can easily cause an overdose of the medicine. An **overdose** is *when you take more than the normal or recommended amount of something, usually a prescribed medicine or illegal drug*.

Medicine Safety in the Home

How much do you know about medicine safety?

Follow these tips to store, use, and dispose of medicines safely:

- Store medicines in a cool, dry place.
- Keep medicines safely sealed in childproof containers, and keep them out of the reach of children.
- Keep certain medicines in the refrigerator. Check the label to see if refrigeration is required.
- Do not share prescription medicines. They could cause serious harm to someone else.
- Do not use nonprescription medicines for more than ten days at a time unless you check with your doctor.
- Before taking two or more medicines at the same time, get your doctor's approval.
- Know what medicines are in your home and what they are used to treat. Keep only those that are currently needed.
- Do not use medicines that have passed their expiration date.
- To safely dispose of outdated or unused liquids or pills, contact your city or county government's household trash and recycling service to see if there is a medicine take-back program in your community and learn about any special rules regarding which medicines can be taken back.

Drug Misuse and Abuse

Remember, medicines are a type of drug intended to help people with certain illnesses and conditions. However, medicines can be harmful if misused. Other types of drugs are not medicines and can be even more dangerous. Drug *misusers* take legal drugs in an improper way, either for a reason not intended or by a person without a prescription. Drug *abusers* take legal or illegal drugs in a way that is harmful to your health.

Drug Misuse

The following are forms of drug misuse:

- Using a drug without following the directions
- Combining medicines without a physician's advice
- Taking more of a drug than the doctor ordered
- Using a drug prescribed for someone else
- Giving your prescription to someone else
- Using a drug for longer than a physician advises
- Using a medicine when you do not need it



Misuse of medicines can lead to serious medical problems.

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Drug Abuse

The following are forms of drug abuse:

- Using any illegal drug
- Taking a substance that was not meant to enter the body
- Using a drug for purposes other than medical treatment
- Faking health problems to obtain or renew a prescription

How Drugs Affect the Brain

The brain is the command center of your body. It controls just about everything you do, even when you are sleeping. When drugs enter the brain, they can interrupt the work and actually change how the brain performs its jobs. These changes are what lead to compulsive drug use and addiction.

Drug abuse affects three primary areas of the brain:

- **The brain stem** is in charge of all of the functions our body needs to stay alive—breathing, circulating blood, and digesting food.
- **The limbic system** links together a bunch of brain structures that control our emotional responses, such as feeling pleasure when we eat chocolate. The good feelings motivate us to repeat the behavior.
- **The cerebral cortex** is the mushroom-like outer part of the brain (the gray matter). In humans, it is so big that it makes up about three-fourths of the entire brain. The front part of the cortex, known as the frontal cortex or forebrain, is the thinking center. It powers our ability to think, plan, solve problems, and make decisions.

Drugs are chemicals. They work in the brain by tapping into its communication system and interfering with the way nerve cells normally send, receive, and process information. Different drugs—because of their chemical structures—work differently. In fact, some drugs can change the brain in ways that last long after the person has stopped taking drugs, maybe even permanently. This is more likely when a drug is taken repeatedly.

There are three categories of illegal drugs that are being used today: narcotics, stimulants, and depressants. All three affect the brain differently and can ultimately lead to addiction and death.

Narcotics

Narcotics are *specific drugs that are obtainable only by prescription and are used to relieve pain*. Doctors may prescribe the narcotics morphine or codeine, for example, to treat extreme pain. Narcotics can be safe when taken under a physician's supervision, but they are so addictive that their sale and use are controlled by law. People with an **addiction** have *a physical or psychological need for a drug*. Pharmacists must keep records of all sales of narcotics.

Morphine

Morphine is a medication used to relieve pain. It reduces the intensity of pain signals reaching the brain and affects those brain areas controlling emotion, which reduces the effects of a painful stimulus such as a burn or broken bone.

Morphine also suppresses the immune system, the body's defense against infections. Because of this effect, doctors weigh the pain-relief benefits against the added risk of infection, particularly for those being treated for severe burns or certain cancers. Morphine abusers, many of whom are already infection-prone due to unclean needles, repeated injections, and poor nutrition and living conditions, are rendered even more vulnerable by these drugs.

Codeine

Codeine is used to relieve mild to moderate pain. It is also used, usually in combination with other medications, to reduce coughing. Combination products that contain codeine should not be used in teens younger than 16 years of age. Codeine will help relieve symptoms but will not treat the cause of symptoms or speed recovery. Codeine belongs to a class of medications called narcotic analgesics. When codeine is used to treat pain, it works by changing the way the brain and nervous system respond to pain. When codeine is used to reduce coughing, it works by decreasing the activity in the part of the brain that causes coughing.

Codeine can slow or stop your breathing. Never use this medicine in larger amounts, or for longer than prescribed. Codeine may also be habit-forming, and should only be used as prescribed.

Stimulants

Stimulants (STIM-you-lunts) are *substances that speed up the body's functions*. Stimulants come in a variety of forms, all of which are very dangerous if abused. Stimulants make the heart beat faster, increase breathing rate, and raise blood pressure. The effects of some stimulants are so mild that people may not even realize they are using a drug. Caffeine, for instance, is a stimulant found in cocoa, coffee, tea, energy drinks, and many soft drinks. It is a legal drug that is not harmful in very small doses; however, it can be harmful and addictive if you take too much of it.

Some stimulants may be prescribed to help people with certain physical or emotional problems. However, stimulant abuse can be very dangerous. High doses of strong stimulants may cause blurred vision, dizziness, anxiety, loss of coordination, or collapse. Stimulants such as amphetamine, *cocaine*, and *crack* (defined below) can also become habit-forming, and you can become addicted quickly. Table 4.1 describes some common stimulants and their harmful effects.

Do Prescription Stimulants Make You Smarter?

A growing number of teenagers and young adults are abusing prescription stimulants to boost their study performance in an effort to improve their grades in school, and there is a widespread belief that these drugs can improve a person's ability to learn.

Prescription stimulants do promote staying awake; however, studies published by the National Institute on Drug Abuse (NIDA) have found that stimulants do not enhance learning or thinking ability when taken by people who do not actually have **Attention Deficit Hyperactivity Disorder (ADHD)**. ADHD is a common childhood disorder that includes symptoms such as not staying focused or paying attention, difficulty controlling behavior, and hyperactivity. Also, research has shown that students who abuse prescription stimulants actually have lower GPAs in high school and college than those who don't.

Amphetamine

Amphetamine (am-FE-tuh-meen) is a drug that stimulates the central nervous system.

Doctors may prescribe amphetamines to treat hyperactivity and ADHD. Amphetamines are highly addictive, however. People who use or abuse amphetamines can develop a dependence on the drugs, needing larger and larger doses to get the desired effect. If you have a prescription for these, do not take more than your assigned dosage.

Methamphetamine (Meth)

Methamphetamine (meth-am-FE-tuh-meen) is a stimulant similar to amphetamine.

Doctors prescribe methamphetamines to treat diseases such as narcolepsy, Parkinson's disease, and obesity. **Narcolepsy** is a condition that causes individuals to suffer frequent, brief, and uncontrollable deep sleep. **Parkinson's disease** is a progressive nervous disorder where the individual shows symptoms of trembling hands, lifeless face, and a slow shuffling walk. Using this drug heavily or over a long time can lead to serious side effects such as aggression, paranoia, kidney problems, brain damage, depression, weakening of the immune system, convulsions, and schizophrenia. **Schizophrenia** is a very serious mental illness in which someone cannot think or behave normally and often experiences delusions.

Table 4.1 Effects of Stimulants

Substance	Other Names	Forms	Methods of Use	Harmful Effects
Amphetamine	Blue or black mollies, speed, footballs, whiz, uppers, louee, goey	Pills, powder, chunky crystals	Swallowed, snorted up the nose	Uneven heartbeat, rise in blood pressure, physical collapse
Methamphetamine	Meth, crank, ice, shabu, crystal	Pills, powder, crystals	Swallowed, snorted up the nose, smoked, injected	Memory loss, damage to heart and nervous system, seizures, death
Cocaine	Coke, C, dust, snow, flake, blow, girl, nose candy	White powder	Snorted up the nose, injected	Damage to nose lining, liver, and heart; heart attack; seizures; stroke; and death
Crack	Crack, freebase rocks, rock, 24-7	Off-white rocks or chunks	Smoked, injected	Damage to lungs if smoked, seizures, heart attack, and death

In recent years, methamphetamine (meth) has appeared in “club drugs.” Club drugs are *dangerous, illegal substances available at dance clubs and all-night parties*. You’ll learn more about club drugs later in the lesson. Meth is a white, bitter powder and easily dissolves in water or alcohol. Sometimes it’s made into a white pill or a shiny, white or clear rock called crystal meth that is smoked in a pipe.

Meth can quickly lead to addiction. It causes medical problems that include:

- Making your body temperature so high that you pass out
- Severe itching
- “Meth mouth”—broken teeth and dry mouth
- Thinking and emotional problems

Cocaine

Cocaine is a powerful, illegal stimulant. Its abuse has become a major health problem in the United States. Some people use cocaine because it makes them feel happy and energetic. This feeling is short-lived, however, and is followed by depression as the drug wears off. Users often take more cocaine to relieve the depression, thus forming an addiction to it. Powdered cocaine is a white powder (which scientists call a hydrochloride salt) made from the leaf of the coca plant. Street dealers generally mix cocaine with other substances like cornstarch, talcum powder, or sugar. Cocaine is a dangerous drug, and an overdose can lead to a heart attack or stroke.

Crack

Crack cocaine is a concentrated form of cocaine that can be smoked. Smoking crack has the same effects on the body as using cocaine, only stronger. Crack reaches the brain within seconds and produces an intense high. The high lasts only for a few minutes, though, and is followed by an equally intense low. Using crack makes you crave even more of the drug to relieve these intense bad feelings. For these reasons, the National Institutes of Health (NIH) lists crack as one of the most addictive and dangerous drugs used in the United States today.

Depressants

Depressants are *substances that slow down the body’s functions and reactions*. These substances, which are often called sedatives, lower blood pressure and slow down heart rate and breathing. Doctors sometimes prescribe depressants for relief of anxiety, tension, nervousness, and sleeplessness. There are three main kinds of depressants:

- **Tranquilizers** (TRAN·kwuh·lie·zerz), when used as prescribed by a physician, can help reduce anxiety and relax muscles.
- **Barbiturates** (bar·BI·chu·ruhts) are powerful sedatives that produce a feeling of relaxation.
- **Hypnotics** (hip·NAH·tikz) are very strong drugs that bring on sleep.

Table 4.2 Effects of Depressants

Substance	Other Names	Forms	Methods of Use	Harmful Effects
Tranquilizer	Valium, Librium, Xanax	Pills or capsules	Swallowed	Anxiety; reduced coordination and attention span. Withdrawal can cause tremors and lead to coma or death.
Barbiturate	Downers, barbs, yellow jackets, reds, goof balls, pink ladies	Pills or capsules	Swallowed	Causes mood changes and excessive sleep. Can lead to coma and death.
Hypnotic	Sonata, Ambien, Ambien CR, ProSom	Pills or capsules	Swallowed	Impaired coordination and judgment. High doses may cause internal bleeding, coma, or death.

Any depressants should be taken only under a doctor's supervision. Even drugs authorized or prescribed by a doctor can, if taken over an extended period, cause dependence and a need for more and more of the drug. Do not deviate from the prescription instructions when taking such drugs. If abused, depressants can have many harmful effects on the body, up to and including death.

Depressants produce effects similar to those produced by alcohol, which itself is a form of depressant. When depressants are combined with alcohol, the effects increase, and the risks multiply. The results can be deadly. Table 4.2 provides more information about depressants and their effects on the body. Lesson 3 of this chapter discusses alcohol use in greater detail.

Street Drugs

Companies that manufacture drugs sold as medicines must follow strict government regulations. These laws ensure that the medicines are pure and consistent in strength, known risks, and side effects. *Any drug that is made or sold illegally* is considered a **street drug**.

Street drugs include illegally made, packaged, or sold legal drugs, such as amphetamines and meth. Street drugs also include illegal drugs, such as heroin, hashish, and marijuana. There are no guarantees that street drugs contain what they claim to contain. People who use them don't know how much of the drug they are actually taking. As a result, they risk being poisoned and dying of accidental overdose.

Heroin Is Addictive and Not Selective in Whom It Kills

Many famous people have died as a result of their heroin addiction. Their age at the time of death is listed beside their name:

Cory Monteith (31)—TV actor from “Glee”

Kurt Cobain (27)—Nirvana lead singer

Jim Morrison (27)—Lead singer of the band The Doors

Janis Joplin (27)—One of the greatest female folk-rock singers of all-time

John Belushi (33)—Saturday Night Live comedian and movie star

Lucy Grealy (39)—Poet

Philip Seymour Hoffman (46)—Award-winning actor

Chris Kelley (34)—Member of rap duo Kris Kross

Bradley Nowell (28)—Lead singer for the band Sublime

Dee Dee Ramone (50)—Founder of band The Ramones

Sid Vicious (21)—Bassist for the punk band The Sex Pistols

Rachel Whiteear (21)—College student

Paula Yates (41)—British television personality and writer

Heroin

Heroin (HAIR-uh-win) is an illegal narcotic that is made from the pain killer morphine, a natural substance in the seedpod of the Asian poppy plant. This section discusses overdose due to heroin. An overdose may result in serious, harmful symptoms or death.

Heroin is a white or brown powder or black, sticky goo. It can be mixed with water and injected with a needle. Heroin can also be smoked or snorted up the nose. All of these ways of taking heroin send it to the brain very quickly. This makes it very addictive.

It is the most commonly abused narcotic. When users do not get the heroin they need, they feel severe pain. Heroin depresses the central nervous system and can lead to coma or death. Other effects include:

- Feeling sick or itchy
- Having trouble breathing
- Going into a **coma**, *a deep state of unconsciousness*
- Increased risk of contracting hepatitis or HIV because drug users often share dirty needles

Marijuana and Hashish

Marijuana is the most commonly used street drug. Marijuana is a dry, shredded green and brown mix of leaves, flowers, stems, and seeds from the hemp plant *Cannabis sativa*.

Hemp is a strong stemmed plant used for making rope; marijuana is made from types of hemp. The main mind-altering chemical in marijuana is **THC (tetrahydrocannabinol)**. THC harms the brain in many ways, as described below.

Although some users mix marijuana with food and eat it, most choose to smoke it. As a result, marijuana smokers experience many of the same lung problems as tobacco smokers. These include persistent coughing, bronchitis symptoms, and frequent colds. Marijuana smoke contains three to five times the amount of tar and other cancer-causing substances found in tobacco smoke.

Research clearly demonstrates that marijuana has the potential to cause problems in daily life or make a person's existing problems worse. In fact, heavy marijuana users generally report lower life satisfaction, poorer mental and physical health, relationship problems, and less academic and career success compared to their peers who came from similar backgrounds. For example, marijuana use is associated with a higher likelihood of dropping out of school. Several studies published by the National Institute on Drug Abuse (NIDA) also associate workers' marijuana smoking with increased absences, tardiness, accidents, workers' compensation claims, and job turnover.

Hashish, which is made from the same plant, is much stronger than marijuana because it contains more THC. The box on the following page lists the effects of marijuana. Hashish consists of the THC-rich material of the cannabis plant, which is collected, dried, and then compressed into a variety of forms, such as balls, cakes, or cookie-like sheets. Pieces are then broken off, placed in pipes, and smoked.

Implications of Possession of Marijuana in States That Have Legalized It

You may have heard that in some places marijuana use is legal. As of 2013, 18 states and the District of Columbia had passed laws allowing the sale and use of marijuana as "medicine" for certain conditions. Among these, Colorado and Washington have made recreational (general, non-medical) use legal for people over 21. These new laws may make it *seem* as if it's safe or "okay" to use marijuana. However, it's not okay! The associated physical and mental health issues have not gone away.

Even though some states are allowing some people to use marijuana, it is not legal for minors (under 21). In addition, *marijuana use is still illegal under federal law*. You could be charged with a misdemeanor for simply having marijuana in your possession—even if you haven't used it! A **misdemeanor** is a crime less serious than a felony that results in a less severe punishment. If you have sold or helped sell it, the crime and the punishment are now considered a felony. A **felony** is a more serious crime than a misdemeanor that violates federal laws and can lead to severe punishments, such as being sentenced to prison.

It is true that the cannabis plant contains some chemicals that can temporarily ease pain, as some medicines do; however, there are more efficient, less harmful ways to get those same effects. And whether or not it is legal in your state, *marijuana is extremely dangerous, especially for young people*.

Remember, the voting adults who live in a state, not the medical or drug researchers, make and vote on the laws. They do not necessarily understand how harmful a substance like marijuana is. The Food and Drug Administration (FDA) has a scientific review process for determining whether a drug is safe, and even after enormous and ongoing research, the FDA has not found marijuana to be safe or effective as medicine.



NIDA research shows that as a young person, you are almost twice as likely as an adult to become addicted to marijuana if you use it.

Marijuana and other illicit drugs are addictive and unsafe especially for use by young people. As stated by officials with the NIDA, drug addiction is a progressive disease and the earlier one starts, the more likely the chances of developing a substance use disorder.

Synthetic Marijuana (Spice)

A recent way illegal drug makers have tried to get around the laws against selling naturally occurring drugs like marijuana is to develop synthetic versions that have similar effects. **Synthetic** means *to be made from artificial materials or substances, not natural ones*. **Spice** is a term for a variety of mixtures of plant material and chemicals that create mind-altering effects like marijuana. Some versions of spice even claim to be “natural” on the label, but this refers to the plant material inside, not the harmful chemical mixed with it. Like marijuana, spice is mainly taken through smoke inhalation. Sometimes it is drunk like a tea. Be careful: some spice products are sold as incense. A friend or acquaintance might light some “incense,” claiming it is harmless and legal, when in fact it could be a synthetic drug or even have marijuana mixed into it.

What Does Marijuana Do to You?

- Weakens your memory, reaction time, and coordination; clouds your judgment
- Lowers your initiative and ambition
- Increases your heart rate and appetite
- Lowers your body temperature
- Damages your heart and lungs
- Interferes with your normal body development by changing hormone levels
- May cause addiction

Common street names for marijuana include pot, grass, weed, joint, and herb.

Easy access and the belief that spice products are “natural” and therefore harmless have contributed to its popularity. The Department of Defense has determined that spice is illegal and punishable.

Research into the effects of spice is very limited right now, but people who use it have reported anxiety, paranoia, and hallucinations as well as rapid heart rate, vomiting, agitation, and confusion.

Spice goes by a number of nicknames, including blaze, fake weed, genie, Yucatan fire, and K2, among others. According to the National Institute on Drug Abuse, spice is also often labeled “not for human consumption” and contains dried, shredded plant material and chemical additives that cause psychoactive (mind-altering) effects.

The Dangers of Hallucinogens

Hallucinogens (huh·LOO·sin·uh·jenz) are *drugs that distort moods, thoughts, and senses*. Hallucinogens can have many harmful effects on the body, up to and including death. Like other types of drugs, they can have both physical and psychological effects on users. Physical effects of hallucinogens include increased heart rate and blood pressure and lack of muscle coordination. Hallucinogens can also cause decreased sensitivity to pain, which can result in serious self-injury.

A psychological effect of taking a hallucinogen is to hallucinate, which is to see things that are not really there. In addition, sometimes these drugs can trigger uncontrolled, violent behavior. Hallucinogens also cause people to lose their sense of direction, distance, and time. These effects often lead to misjudgments that result in serious injuries and death.

PCP

Phencyclidine (fen·SI·kluh·deen), commonly called PCP, is a powerful and dangerous hallucinogen whose effects last a long time. PCP produces strange, destructive behavior, which causes many users to end up in hospital emergency rooms. PCP use often leads to **psychological dependence**, *an addiction in which the mind sends the body a message that it needs more of a drug*. Table 4.3 provides more information about PCP. Among the adverse psychological effects reported are:

- Symptoms that mimic delusions, hallucinations, unorganized thinking, and a sensation of an out-of-body experience, as if floating above your surroundings.
- Mood disturbances: Approximately 50 percent of individuals brought to emergency rooms because of PCP-induced problems reported significant elevations in anxiety.
- People who have abused PCP for long periods have reported memory loss, difficulties with speech and thinking, depression, and weight loss. These symptoms can persist up to one year after stopping PCP abuse.

PCP is addictive—its repeated abuse can lead to craving and compulsive PCP-seeking behavior, despite severe adverse effects.

LSD

LSD is an abbreviation for lysergic (luh·SER·jik) acid diethylamide (dy·e·thuh·LA·myd), another powerful hallucinogen. Use of LSD often produces rapid mood swings and hallucinations. Some users have terrifying thoughts and feelings, such as a fear that they are dying or going crazy. Many LSD users experience flashbacks. During a flashback, the effects of LSD may recur days, months, or years after the drug was taken. The user's sense of time and self is altered. Experiences may seem to "cross over" different senses, giving the user the feeling of hearing colors and seeing sounds. These changes can be frightening and can cause panic. Table 4.3 gives additional information about LSD.

The effects of LSD depend largely on the amount taken. LSD causes dilated or enlarged pupils; can raise body temperature and increase heart rate and blood pressure; and can cause profuse sweating, loss of appetite, sleeplessness, dry mouth, and tremors.

Table 4.3 *Effects of Hallucinogens*

Substance	Other Names	Forms	Methods of Use	Harmful Effects
PCP	Angel dust, supergrass, killer weed, rocket fuel	White powder; tablet, capsule, liquid	Applied to liquid or leafy materials and smoked	Loss of coordination; increase in heart rate, blood pressure, and body temperature; convulsions, heart and lung failure, or broken blood vessels; bizarre or violent behavior; temporary psychosis; false feeling of having super powers
LSD	Acid, blotter, microdot, white lightning	Tablets; squares soaked on paper	Eaten or licked	Increase in blood pressure, heart rate, and body temperature; chills, nausea, tremors, and sleeplessness; unpredictable behavior; flashbacks; false feeling of having super powers
Psilocybin	Magic mushrooms, shrooms	Dried form or mixed with tea	Dried, eaten, or brewed in a tea	Hallucinations, an altered perception of time, an inability to discern fantasy from reality, panic; long-term effects such as flashbacks, risk of psychiatric illness, impaired memory

Psilocybin (Mushrooms)

Mushrooms containing psilocybin (sil·a·sy·bin) are available fresh or dried and are typically taken orally. It can produce muscle relaxation or weakness, uncoordinated muscles, excessive pupil dilation, nausea, vomiting, and drowsiness.

Individuals who abuse psilocybin mushrooms also risk poisoning if one of many existing varieties of poisonous mushrooms is incorrectly identified as a psilocybin mushroom.

How Inhalants Affect the Body

Not all dangerous drugs are illegal street drugs. **Inhalants** are *substances whose fumes are sniffed and inhaled to produce mind-altering sensations*. Household products that come in aerosol spray cans are commonly used as inhalants.

Abusers of inhalants breathe them in through the nose or mouth in a variety of ways (known as “huffing”). They may sniff or snort fumes from a container or dispenser (such as a glue bottle or a marking pen), spray aerosols (such as paint or computer cleaning dusters) directly into their nose or mouth, or place a chemical-soaked rag in their mouth. Abusers may also inhale fumes from a balloon or a plastic or paper bag. Although the high produced by inhalants usually lasts just a few minutes, abusers often try to prolong it by continuing to inhale repeatedly over several hours. These substances are not meant to be taken into the body and can be very dangerous.

When inhalants are breathed in, their harmful fumes go directly to the brain. These fumes commonly cause headache, nausea, vomiting, and loss of coordination. Just one use can result in sudden death. Inhalant use can also lead to **physical dependence**, *a type of addiction in which the body itself (rather than just the mind, as with psychological dependence, defined above) feels a direct need for a drug*. Long-term inhalant use can damage the liver, kidneys, and brain. There is a common link between inhalant use and problems in school, including failing grades, chronic absences, and general lack of interest. Other signs include the following:

- Paint or stains on body or clothing
- Spots or sores around the mouth
- Red or runny eyes or nose
- Chemical breath odor
- Drunk, dazed, or dizzy appearance
- Nausea, loss of appetite
- Anxiety, excitability, irritability

Dangers of Skittle Parties

A Skittle party is a slang term for a party (or just a drug-taking gathering) at which people, typically teens, take a variety of drugs without knowing what they are taking, such as you might grab a handful of Skittle candies without caring what flavors you get. Perhaps someone will even mix Skittle candies in with the drugs to make the drug taking appear more fun. *Don't be deceived; you could die at that party.*



Mixing any type of drug is not safe.

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A Skittle party is just one type of situation where you could find people your age using drugs you never thought you would even come across. You must be on guard against situations that can tempt or lead you to take drugs, even if you were not intending to at first. Pressure from friends can make you feel as though the dangers discussed in this lesson mean little compared to how good you imagine you will feel to be “part of the group.” On the other hand, you may not even realize that others are giving out or taking drugs until you have taken some yourself.

Club Drugs

Club drugs get their name from being associated with nightclubs, concerts, and all-night dance parties occasionally called “raves.” Other terms for drugs associated with these activities are “designer drugs” and “look-alike drugs.” The term “designer drug” often refers to a synthetic version of a natural drug. Look-alike drugs are drugs that resemble and are passed off as another drug.

Some club drugs are colorless, tasteless, and odorless. These properties have led to the dangerous practice of drug “slipping,” which means placing a drug in someone’s food or beverage without that person’s knowledge. Some people have used drug slipping to help them sexually assault or rape someone; therefore, some club drugs are sometimes called “date rape drugs.” Commonly used club drugs include the following:

- **Ecstasy**, also called E, X, and XTC, is a stimulant and a hallucinogen in pill form. It can cause confusion, depression, anxiety, nausea, faintness, chills, or sweating. Ecstasy can cause permanent brain damage.
- **GHB** is a depressant, and its street names include Liquid Ecstasy, Liquid X, Georgia Home Boy, and Grievous Bodily Harm. Available in powder and liquid form, GHB is especially dangerous when taken with alcohol or other drugs. The combination may result in sleep, coma, and death.

- **Rohypnol** is a powerful sedative. It's also called the date rape drug, Roofies, and R-2. Rohypnol is typically a small white tablet, which when dissolved in liquid, has no taste or odor. The drug's short-term effect is a sleepy, relaxed feeling that lasts two to eight hours. The user might also black out and have loss of memory.
- **Ketamine** is an anesthetic used for medical purposes, mostly in treating animals. Misused as a club drug, Ketamine is often sold as a white powder to be snorted, like cocaine, or injected. The drug is also smoked with marijuana or tobacco products. Ketamine causes hallucinations and dreamlike states. It can also cause high blood pressure or death through respiratory failure.

Synthetic drugs and **bath salts** refer to another, newer type of man-made drug aimed at avoiding detection. These bath salts have nothing to do with taking a bath; they are usually in a white or brown powder form and are sometimes disguised as “plant food,” “jewelry cleaner,” or “phone screen cleaner.” They are given several different nicknames, including Ivory Wave, Bloom, Cloud Nine, Lunar Wave, Vanilla Sky, White Lightning, and Scarface.

Bath salts are typically taken orally, inhaled, or injected, with the worst outcomes associated with snorting or needle injection. Bath salts have been linked to an alarming surge in visits to emergency departments and poison control centers across the country. Common reactions reported for people who have needed medical attention after using bath salts include cardiac symptoms (such as racing heart, high blood pressure, and chest pains) and psychiatric symptoms including paranoia, hallucinations, and panic attacks.

Bath salts affect the brain much in the same way that methamphetamines do. Don't let anyone deceive you with talk about “legal drugs”; whether legal or not, these are harmful drugs and can be highly addictive.

Help for Drug Users

Drug addiction is a complex illness characterized by intense and, at times, uncontrollable drug craving, along with compulsive drug-seeking and use that persists even in the face of devastating consequences. While the path to drug addiction begins with the voluntary act of taking drugs, over time a person's ability to choose not to do so becomes compromised, and seeking and consuming the drug becomes compulsive. This behavior results largely from the effects of prolonged drug exposure on brain functioning. Addiction is a brain disease that affects multiple brain circuits, including those involved in reward and motivation, learning and memory, and control over behavior.

Kicking the Habit

Kicking the drug habit once addicted is *much harder* than resisting the pressure to start. The first step is for the drug user to recognize that a problem exists. The next step is to start the recovery process. A person who has become physically or psychologically addicted to a drug will suffer withdrawal during the recovery process. **Withdrawal** includes *the physical and psychological symptoms that occur when someone stops using an addictive substance*.

Withdrawal symptoms vary depending on the drug used but may include vomiting, headaches, chills, and hallucinations. Withdrawal is often a painful process, and medications are usually given to ease the withdrawal symptoms. In addition to ridding one's body of the addictive substance, the recovering drug user must change his or her thinking and the habits that led to the drug use. Although withdrawing from drugs is difficult, the benefits of becoming drug free are well worth the effort.

Getting Help

Drug users can rarely recover alone; they need help. Most communities offer support groups and treatment programs for drug addiction. A support group is a group of people who share a common problem and work together to help one another cope and recover. Common support groups for drug addiction include Narcotics Anonymous and Cocaine Anonymous. Nar-Anon (not the same as Narcotics Anonymous) provides help for those who have been affected by *someone else's* drug use, most commonly family members or close friends. If you are uncertain whether it may be necessary for a friend or family member to get help, consider the following warning signs of addiction that may indicate the need for help:

- Significant changes in weight
- Poor personal hygiene
- Fights with friends and family members
- Promises to get help that are not kept
- Withdrawal from family functions
- Lying about where they have been
- Accusations of petty crimes
- Denial of drug and/or alcohol use

A good drug treatment program uses trained experts who provide education and support and who can help the user through the withdrawal period. Withdrawal often requires **detoxification** (dee-tocks-i-fi-KAY-shuhn), *the physical process of freeing the body of an addictive substance*. "Detox" also involves helping the user overcome psychological dependence on the substance and regain health. A variety of treatment programs are available to help people recover from drug abuse:

- **Detox units** are usually part of a hospital or other treatment center. Addicts remain under a doctor's care while going through detoxification.
- **Inpatient treatment centers** are places where people stay for a month or more to fully concentrate on recovery.
- **Outpatient treatment centers** are places where people get treatment for a few hours each day. Then they return to their homes and regular surroundings.
- **Individual and group counseling** focuses on reducing or stopping illicit drug or alcohol use; it also addresses related areas of impaired functioning—such as employment status, illegal activity, and family/social relations—as well as the content and structure of the patient's recovery program.

Remember: It is much harder to stop once you start than it is to never start.

Reasons to be Drug Free

- You will *not* be breaking the law.
- You will have *better* concentration and memory.
- You will make *wiser* decisions.
- You will be able to *focus* on improving your talents and enjoying your interests.
- You will have more *natural* energy.
- You can reach your *full* growth potential.
- You can be as *healthy* as possible.
- You will *look better* because drugs will ruin your appearance.
- You will have *better* control of your feelings and actions.
- You will *not* regret foolish actions caused by drug-impaired judgment.
- You will *not* waste money on drugs.
- You will have *better* relationships with friends and family members.
- You will *respect yourself* for taking care of your body and mind.
- You will be able to *succeed* in education.
- Your *mental and emotional* development will not be cognitively delayed.



Being drug free allows you to have more success in your life.

Courtesy of Michael Wetzell/US Air Force JROTC

Living Drug Free

You have the responsibility—to yourself, to your loved ones, and to the community you live in—to be the healthiest person you can be. The best way to meet that responsibility is to make wise choices that have a positive effect on your health. One of the most important decisions you can make is to be drug free. One of the best ways to avoid becoming addicted to drugs is through education. The National Family Partnership (NFP) is a national leader in drug prevention and education. NFP has organized the Nationwide Red Ribbon Campaign. The Red Ribbon Campaign mobilizes communities to educate youth and encourage participation in drug prevention activities. The box on the preceding page shows some of the many advantages of avoiding drugs.

Ways to Live Drug Free

Choosing to live drug free will provide lifelong benefits. You will find that there are many exciting ways to spend your time.

If you feel lonely, depressed, or bored:

- Learn a new sport or hobby or join a club.
- Start a regular physical activity routine like running, bicycling, or swimming. You should challenge yourself by setting goals using the SMART system.
- Volunteer to help people in your community.

If you need help solving personal problems:

- Talk to a school counselor or an adult you trust.
- Contact a hot line or support group.
- Seek counsel through your church, temple, or mosque.

If you are tense and anxious:

- Learn relaxation techniques like yoga or tai chi.
- Meditate.
- Get enough rest and physical activity and eat properly.
- Use time management skills to avoid overscheduling your time.



Learning a new hobby is just one drug-free way to feel better about yourself.

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✓ CHECKPOINTS

Lesson 1 Review

Using complete sentences, answer the following questions on a sheet of paper.

1. What are five mistakes people make when taking medicines?
2. What is an antibiotic?
3. Name the four ways medicines enter the body.
4. What is a side effect?
5. List the three possible reactions that can result from taking more than one medicine at the same time.
6. Name five forms of drug *misuse*.
7. What is addiction?
8. What is morphine used for?
9. List four medical problems caused by using meth.
10. What is spice?
11. Define the term hallucinogen.
12. Name two hallucinogens known by their initials.
13. Name four ways you may be able to identify someone who uses inhalants.
14. What are club drugs?
15. Why are some club drugs called date rape drugs?
16. Define the term withdrawal.
17. Name three types of drug treatment programs.
18. What is one of the best ways to prevent drug addiction?
19. List eight reasons why you should stay drug free.

APPLYING YOUR LEARNING

20. You suspect that your best friend has started huffing aerosol paint. List the signs for someone who may be huffing and what you should do to help your friend become drug free.

