

Heads Up: Real News About Drugs and Your Body

Brought to you by Scholastic and the scientists at the National Institute on Drug Abuse, National Institutes of Health, U.S. Department of Health and Human Services

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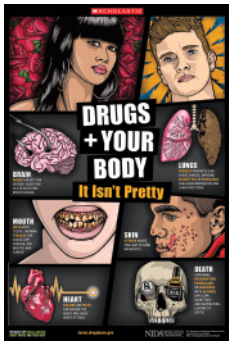


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Drugs + Your Body: It Isn't Pretty

- Poster/Teaching Guide
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DRUGS + YOUR BRAIN

A Threat to Mission Control

Meeet your brain. It's who you are. It's what allows you to think, breathe, move, speak, and feel. It's just three pounds of gray-and-white matter that rests in your skull, and it is your own personal "mission control." Your brain sends and receives chemical and electrical signals as part of a carefully calibrated communication system called the *central nervous system*, which controls your body's functions. Abusing drugs directly affects how your brain functions. This can lead to serious physical and emotional health problems.

More Info:

For additional facts about drug effects on the brain and body, visit scholastic.com/headsup and teens.drugabuse.gov.

Not all drugs of abuse are the same, but they all affect the brain and can lead to serious consequences.

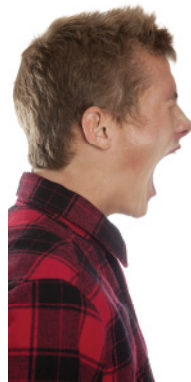
Memory Meltdown

Abuse of **marijuana** can make it hard to remember what you just said or did, and impossible to perform complicated tasks, since it affects the *prefrontal cortex* and the *hippocampus*—brain areas responsible for thinking and memory.



Out of Control

Marijuana and **alcohol** can affect a person's coordination and impair athletic and driving ability because of the effects on brain areas such as the *cerebellum*.



Fear and Rage

Abusing **cocaine**, **methamphetamine**, **steroids**, or **prescription stimulants** can cause anxiety and hostility by affecting many different parts of the brain, including the *amygdala*, which controls emotion and motivation.

Addiction

Abusing drugs can lead to addiction—an inability to stop using even when a person wants to and despite harmful consequences to his or her health and life (such as problems in school, at home, or at work). Drugs act on the *limbic system*, which includes the pleasure center of the brain. Drugs make people feel good, which is why some people keep taking them over and over again. But over time, drugs change the brain's wiring and function. The drugs become less pleasurable and other areas involved in judgment, decision making, learning, memory, and control over behavior are also affected. These brain changes are what turn a voluntary behavior (to try drugs) into the compulsive behavior (not being able to stop) that defines addiction.



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Mission Control

Key areas of the brain and what they control:

1. **CEREBRAL CORTEX** (including the **PREFRONTAL CORTEX**): information processing; thinking; speaking; problem solving; making decisions; sensing the environment
2. **CEREBELLUM**: motor control; coordination; balance; posture
3. **LIBMIC SYSTEM** (including the **VENTRAL STRIATUM, AMYGDALA, and HIPPOCAMPUS**): feeling pleasure; emotions; learning
4. **BRAIN STEM**: basic life functions, such as heart rate, breathing, and sleeping



Death

Abusing **prescription painkillers** like Vicodin® or OxyContin® or **prescription sedatives** like Xanax® or Valium® can slow breathing and heart rate by acting on the *brain stem*, which could lead to coma or death. Combining them with alcohol increases these risks.



DRUGS + YOUR BODY

Drugs can attack your body inside and out—from your teeth and bones to your organs.

The human body is an amazing organism from the brain, where trillions of connections per millisecond keep you functioning, to the heart, which pumps 2,000 gallons of blood from your head to your toes every day. Your body also has a pretty awesome immune system that can recognize and destroy millions of biological invaders to protect your health.

Maintaining a healthy body requires a delicate balance of good food, rest, and exercise. As strong and resilient as our bodies are, alcohol, tobacco, and other drugs are incredibly powerful in their ability to create illness and disease.

▶ More Info:

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Bad Breath and More

Tar and nicotine from **tobacco** are sticky substances that build up on the **teeth** and **tongue**, which can lead to bad breath, gum disease, discolored teeth, and tooth loss. Cigarettes and chewing tobacco also contain cancer-causing chemicals that flood the **mouth** and **throat**, increasing the risk of cancer in the mouth, pharynx, and larynx.



Nose No More

Snorting **cocaine** can destroy cartilage in the **nose**, like the septum—the hard tissue that divides the nose into nostrils. This can lead to nosebleeds and can decrease the ability to smell.



Not a Good Look

Methamphetamine abusers often report feeling like they have insects crawling under their **skin**, which causes them to pick at their skin, creating sores.



Messing With Hormones

Anabolic androgenic **steroids** are artificial forms of the male sex hormone testosterone. Abusing them can affect the **reproductive system**, causing shrunken testicles, infertility, baldness, and the development of breasts in males. In females, abusing them can cause facial hair, male-pattern baldness, changes in the menstrual cycle, and deepening of the voice.



Ready for Cancer?

Cigarette smoking and **nicotine** have been linked to about 90 percent of all cases of **lung** cancer. Smoking cigarettes is associated with increased risk of respiratory diseases, including emphysema, bronchitis, chronic cough, and asthma.

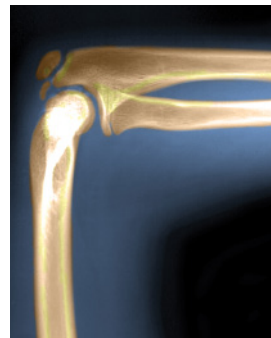


Hot and Dry

Ecstasy and **methamphetamine** users risk **kidney** failure when their body temperatures soar and they become dehydrated, restricting blood flow to the kidneys.

Undersize Me

Steroid use can stop **bones** from growing. Teen abusers may never reach their full adult height.



Poison

Heavy drinking of **alcohol**, even for a few days, can cause fat to build up in the **liver**. This condition is called steatosis (fatty liver) and impairs the liver's ability to remove toxins, digest foods, and make important proteins the body needs.

Flatline

Sniffing common household chemicals like solvents (e.g., butane, propane), aerosols (e.g., spray paints, hair sprays), or gases can cause rapid, irregular heartbeats and lead to fatal **heart** failure within minutes. This is known as “sudden sniffing death.”

SHARING THE PAIN

Each year about 46,000 nonsmokers who have been exposed to someone else's cigarette smoke die from coronary heart disease.

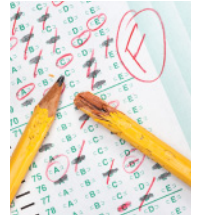


DRUGS + YOUR LIFE

Drugs don't just mess with your brain and body, they mess with your life. Behind every statistic are teens who thought, "It won't happen to me"—but it did. In addition to addiction and other health problems, using drugs can also have real and serious consequences for other aspects of your life. The information to the right is just a glimpse of their impact.

Bad Grades

High school students who use marijuana are **1.5 to 2 times more likely** to have a C average or lower as students who do not use marijuana.¹



Accidental Death

Drivers ages 16–20 are **17 times more likely** to die in a crash when alcohol is involved.³



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Violent Behavior

Teens who have used drugs in the past year are about **2 times more likely** as teens who have not used drugs to be involved in violent behavior.²

Could It Happen to You?

The “times more likely” examples on these pages compare a teen’s chances of experiencing a particular consequence if a teen uses a specific drug versus a teen not using that drug.

Consider the two diagrams to the right. If each banana peel represents a chance to slip, you are three times more likely to slip in the scenario presented in the lower diagram.



1 time



3 times

Sneaker illustration, © minimi/Stockphoto; banana peel, © timophv/Stockphoto.

Blackouts

Drinking large amounts of alcohol in a short period of time (“binge drinking”) causes blood alcohol levels to rise very rapidly. This quickly impairs a person’s balance, motor skills, and decision making, and can also cause a “blackout,” a period of time for which an intoxicated person cannot remember key details about a specific event or the event itself. Intoxicated persons risk losing control of what happens to them before, during, and after a blackout, and can find themselves in dangerous or unwanted situations. Because of how females metabolize alcohol, they may be at greater risk for blacking out.⁴

Think About It:

- What kinds of unwanted situations can people find themselves in if they drink too much?
- What is an example of a consequence from drinking too much that can’t be undone?
- Why do you think the loss of control caused by drinking too much is similar to giving someone else control of your decisions?



EVALUATING STATISTICS

If we could see the future with certainty—like with a crystal ball—we would always make good decisions. In the real world, without crystal balls, we have statistics to help us make smart choices. Valid statistics are calculated from studies measuring the behavior of groups of people (the sample) during a defined period of time. With statistics, we can weigh the likelihood of an event happening to us based on the experiences of others.

Valid statistics are:

- ✓ Published by a reliable source that presents data in a scientific, objective way
- ✓ Collected from a large sample size of people who were chosen randomly and given anonymity to ensure accuracy
- ✓ Consistent over time, demonstrating the study isn’t a fluke

The statistics presented on these pages are from health studies that showed how drugs cause harm. Understanding what valid—that is, trustworthy—statistics mean can help us draw important conclusions and make better decisions about our lives.

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¹ Substance Abuse and Mental Health Services Administration (SAMHSA), 2006; <http://oas.samhsa.gov/2k6/academics/academics.htm> ² SAMHSA, 2006; <http://oas.samhsa.gov/2k6/youthViolence/youthViolence.htm> ³ Centers for Disease Control, 2012; <http://cdc.gov/Vitalsigns/pdf/2012-10-vitalsigns.pdf> ⁴ National Institute on Alcohol Abuse and Alcoholism, 2004; <http://pubs.niaaa.nih.gov/publications/arh27-2/186-196.htm>

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Student Edition

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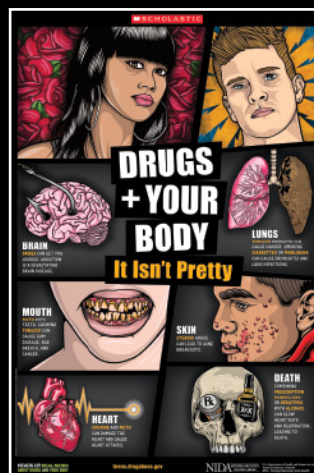
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