

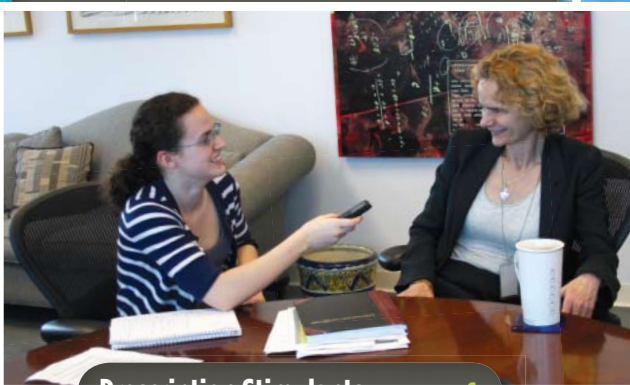
# Heads Up: Real News About Drugs and Your Body

Brought to you by Scholastic and the scientists at the National Institute on Drug Abuse, *Heads Up* gives you the facts about the real effects of drugs on the teen brain and body.

Check out the articles and features inside to get the latest news so you can make informed choices about your health and your future.

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For more real news about drugs and your body, visit [www.scholastic.com/headsup](http://www.scholastic.com/headsup) and <http://teens.drugabuse.gov>.  
To order additional copies of this *Heads Up* Student Edition at no charge, call 1-877-643-2644 and refer to  
NIH Pub No.: 11-7649 or visit [www.nida.nih.gov/scholastic.html](http://www.nida.nih.gov/scholastic.html).

# STRAIGHT TALK ON PRESCRIPTION DRUGS



Reporter  
Marie French

A teen reporter interviews the director of the nation's leading research agency on drug abuse and addiction

Overall teen drug use is declining, but prescription-drug abuse remains high. This is mainly because teens do not see the dangers, says one of the nation's top scientists.

"Teenagers believe that if a doctor gives a drug to you, it cannot be so terrible," says Dr. Nora D. Volkow, director of the National Institute on Drug Abuse in Bethesda, Md. "They think prescribed drugs are safer than illegal drugs. They are not."

In a sit-down interview with teen reporter Marie French, Dr. Volkow explains why prescription-drug abuse can be just as dangerous as illegal drugs in terms of health risks and addiction.

What's the worst that can happen?

"Death," says Dr. Volkow.

**What are the effects of prescription-drug abuse—either one-time or long-term use?**

**DR. VOLKOW:** There isn't much research on one-time use, so it's hard to say overall what the negative effects may be, except, of course, that you may overdose. Another risk is that you may love the way it makes you feel, and that starts to change your brain. The brain is wired to learn very rapidly about things that

you like, that give you pleasure. So if, for example, you take a prescription painkiller and you like it, you might take it again in the future. And if you keep taking it, you could become addicted, which is why I say, Why risk it?—unless it's something a physician prescribes for you to treat a problem. **Do you really want to reach a point where you are doing something only because you cannot stop, as if you've lost control of your own brain?** It's just not worth it.

**What's the likelihood of someone becoming addicted to prescription drugs?**

**DR. VOLKOW:** Your likelihood of becoming addicted is dependent on a number of factors—the drug itself, how you take it, your genes, and your age. If you abuse a pain medication like OxyContin®, **the risk of becoming addicted can be equivalent to that of heroin**—especially if you snort or inject the drug. Actually, if a teen starts with a prescribed painkiller and gets hooked, he or she may shift to heroin because it is cheaper.



**What long-term health effects do addicted teens face?**

**DR. VOLKOW:** When you become addicted, there are many negative health and social effects. With smoking, there is damage to your heart and lungs, and it puts you at risk for a variety of cancers. When

you are an alcoholic, you increase your risk of getting into an accident or damaging your liver and your brain. Even if you are not addicted, when you are high or drunk, you become uninhibited and could do things you wouldn't ordinarily do—like drive drunk or drugged.

**When you become addicted to drugs, they rule your behavior. The things that are normally important to you become unimportant.** You may get into fights with your family, even steal from them. **If you have ever loved someone**

Photo: Janet French.

who is addicted, then you know it's pretty horrible.

**I've heard of people taking stimulants, like Adderall® or Ritalin®, when they have a test—like the SATs. Why shouldn't they?**

**DR. VOLKOW:** There are many reasons why you shouldn't do it. One is that there is not really good scientific evidence that stimulants will even improve your performance—unless you are being treated for ADHD. So some students may take these drugs to help them stay awake at night to study, but coffee does the

medication is in your medicine cabinet, it could become a temptation for abuse. It is for this very reason that we are working to raise awareness of this concern among medical students, physicians, and dentists—as well as parents, many of whom don't realize they are leaving something potentially dangerous around for their kids to abuse.

**“People who are addicted end up taking drugs—not to feel high and good—but instead to feel less bad.”**

—Dr. Nora D. Volkow

a drug—especially when you keep taking it—and its effects eventually wear off, you become much less sensitive to normal pleasures, like social interactions, going to a movie, chocolate. Now, that tends to recover, especially if you are just taking drugs occasionally. But if you continue, then the capacity of the brain to recover becomes diminished. When you're addicted, you will feel less pleasure in general. People who are addicted end up taking drugs—not to feel high and good—but instead to feel less bad. They feel awful when they are not taking the drug.



same thing. **The disadvantage of stimulants over coffee is that, for people who are vulnerable, they may become psychotic and paranoid.** That's not the best way to go into an exam.

**More than 50 percent of teens have reported getting the prescription drugs they abuse from their friends or from their home medicine cabinets. Does that show a need for physicians to be more aware when they're prescribing drugs?**

**DR. VOLKOW:** Absolutely. You are touching on the responsibility of physicians and parents. **Anyone prescribing an addictive medication should consider the risks and determine what's most helpful for each patient.**

For example, you might just need two or three days of a prescription or maybe just an over-the-counter pain reliever will do. Once a prescription

**What would you say to teenagers to stop them from abusing prescription drugs?**

**DR. VOLKOW:** Well, I think kids start abusing them because they want to get high or feel good at a party. Or they want to use them to help them study, lose weight, or for pain relief. We've already discussed some of the reasons not to use stimulants to study or painkillers without a prescription. But as far as getting high—my advice is that there are many things that can make you feel very good that don't require drugs. Sports, for example, or dancing, or going out with friends. It's whatever you like. You really don't need drugs. You don't. **When you take drugs, your brain resets itself.** So what that means is that when you take

## Resources

<http://teens.drugabuse.gov>

NIDA's teen site containing information, videos, games, and real stories about drug abuse (including prescription drugs) and its consequences.

<http://teens.drugabuse.gov/blog>

NIDA's teen blog features the latest news from NIDA, as well as answers to teen questions about drugs and drug abuse.

<http://findtreatment.samhsa.gov>

A searchable directory of drug treatment centers sponsored by the Substance Abuse and Mental Health Services Administration (SAMHSA) for those seeking treatment. You can also reach the referral hotline at **1-800-662-HELP.**

# PRESCRIPTION PAIN MEDICATIONS

JUST BECAUSE A DOCTOR PRESCRIBES THEM DOESN'T MEAN THEY ARE SAFE TO ABUSE

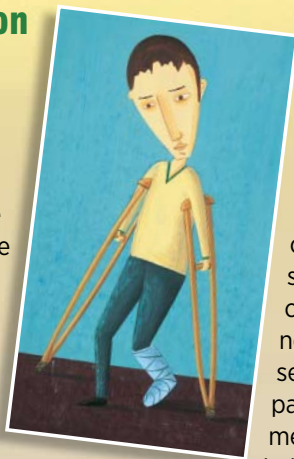


## PROPER USE

### What Are Prescription Painkillers?

Prescription painkillers are strong pain relievers that include the *opioid* class of drugs, including hydrocodone (e.g., Vicodin®) and oxycodone (e.g., OxyContin®). Opioids work by mimicking the body's natural pain-relieving chemicals, but they are more powerful and longer lasting.

When the body senses pain following an injury or surgery, specialized nerve cells relay “pain” messages to the spinal cord and brain. In response to these messages, natural pain-relieving chemicals—endorphins and enkephalins—are released and attach themselves to the body's opioid receptors, where they have several functions. In the spinal cord, they decrease pain-related signals being transmitted to the brain. In the brain, they act in a number of areas, including those that interpret pain-



related information and are involved in emotional responses. This reduces the sensation of pain and any associated feelings of suffering. Although our natural opioid system can relieve certain types of pain, it's not equipped to handle severe and prolonged pain. That's when opioid medications can be helpful.

### Why Do Opioids Require a Prescription?

Opioids require a prescription because they are powerful medications. Although they are used safely each year by millions of Americans who are in pain, if not taken properly, opioids can result in severe health complications, or even death.

Before writing a prescription for opioids, your doctor must evaluate several factors, including your level of pain (or expected pain after surgery), weight, other medical conditions, any other medications you are taking, and your current or past drug-use history. The doctor will then decide:

- whether an opioid pain reliever is necessary;
- if a prescription opioid will safely and effectively treat your pain; and
- the correct dosage and how long you should take it.

Your doctor will instruct you on how to safely take the medication, including which medications or over-the-counter drugs to avoid and the warning signs to watch for in case you have a bad reaction.

By following your doctor's instructions carefully, you'll be less likely to suffer serious side effects as a result of taking the drug.

**Y**ou know that abusing drugs like cocaine and heroin can lead to addiction and other serious health consequences. But did you know that abusing prescription painkillers—taking someone else’s prescription, or even taking your own in ways other than as prescribed—can be just as dangerous?

The fact is, it can. But with nearly 1 in 10 high school seniors reporting nonmedical use of

Vicodin® in the past year, some teens haven’t gotten the message.<sup>1</sup> Why are these teens risking their health and maybe even their lives? They may think prescription drugs are *safer* to abuse than illegal “street” drugs—after all, the thinking goes, doctors prescribe them, so they must be safe. But that’s not the whole story. Read on to find out the facts.

<sup>1</sup> “Monitoring the Future Survey, Overview of Findings 2009,” National Institute on Drug Abuse, <http://drugabuse.gov/newsroom/09/MTF09overview.html>.

# ABUSE

## Why Is Abusing Prescription Opioids Dangerous?

**A**busing prescription opioids can put your health and life at serious risk. Opioids can make you drowsy, nauseous, constipated, and confused. They can also depress your breathing and lead to addiction or overdose.

- **Overdose:** Abuse of opioids, alone or in combination with alcohol or other drugs, can slow or even stop your breathing and result in a loss of consciousness, a coma, or worse. In fact, the number of accidental fatal poisonings involving prescription pain relievers has more than tripled since 1999.
- **Physical Dependence:** Long-term use of opioids can make the body dependent, and when you stop taking them, you could experience withdrawal symptoms, like muscle

You are abusing opioids if . . .	Risks
they were prescribed to you, but you take more (higher doses or more often) than you were directed.	If the pain medication isn’t relieving your pain, why not go back to the doctor? Your condition may be getting worse and a different remedy might be needed. By taking more medication, you could be masking important symptoms.
you got them from a friend to help relieve your pain.	Pain medications come in different varieties and doses. Some are made for people who have chronic pain and need high doses to relieve their pain. Their bodies have adapted to the repeated opioid exposure, but yours has not. Taking one of their pills could have serious repercussions for you.
you take them to get high.	Whether or not they were prescribed to you, if you are taking opioids to get high, you are setting yourself up to become addicted. The risks increase when you take them in combination with other drugs (like alcohol or marijuana or other prescription medications) or by methods other than those prescribed.

and bone pain, diarrhea, vomiting, or cold flashes. If you are under a doctor’s care, he or she can help you avoid or manage these symptoms.

- **Addiction:** Opioid receptors are found in the parts of the brain involved in emotional responses, including pleasure. In fact, heroin is an illegal opioid drug that acts on the same receptor system as prescription opioids. However, the dose and the way a drug is taken can affect how a person responds to it. People who abuse opioids often take them in doses or by methods (crushed, snorted, or

injected) other than prescribed. This can lead to high doses reaching the brain rapidly, increasing the risk of overdose and addiction.

### Important Resources

- **For information on drugs:** <http://teens.drugabuse.gov> or [www.scholastic.com/headsup](http://www.scholastic.com/headsup)
- **For help with a crisis:** 1-800-273-TALK
- **To find a treatment center:** 1-800-662-HELP or <http://findtreatment.samhsa.gov>

Images: dark sky with lightning streaks, © Chee Ming Wong/Stockphoto; fork in road, © Ron Chapple/Faxi Images.

# PRESCRIPTION STIMULANTS

WHEN USED AS PRESCRIBED, PRESCRIPTION STIMULANTS ARE SAFE DRUGS THAT HELP MILLIONS OF TEENS. BUT ABUSING THEM IS DANGEROUS AND CAN BE ADDICTIVE.

**T**he most recent *Monitoring the Future* survey shows a disturbing fact: Prescription stimulants such as Adderall® and Ritalin® are two of the drugs most frequently abused by high school seniors, with 6.5 percent reporting nonmedical use of Adderall® in the past year.<sup>1</sup> Doctors prescribe stimulants to treat attention deficit hyperactivity disorder (ADHD), narcolepsy (a sleep disorder), and, occasionally, depression.

When taken as prescribed, these medications help a lot of people.

Unfortunately, they are too often abused by being taken in doses and/or in ways other than intended, or by being used by someone for whom they were not prescribed. Prescription stimulants are powerful drugs, and when they are abused there can be serious health consequences, including addiction. Read on to get the facts about prescription stimulants and why abusing them is dangerous.

<sup>1</sup> "Monitoring the Future survey, Overview of Findings 2010," National Institute on Drug Abuse, <http://drugabuse.gov/newsroom/10/mtf10overview.html>.

## What Are Prescription Stimulants?

**P**rescription stimulants include medications such as methylphenidate (Ritalin® and Concerta®) and amphetamines (Dexedrine® and Adderall®). These medications, which are in the same class of drugs as cocaine and methamphetamine ("meth"), increase alertness, energy, and attention. Like all stimulant drugs, prescription stimulants increase levels of dopamine in the brain. Dopamine is a neurotransmitter associated with pleasure, movement, and attention.

## How Do Prescription Stimulants Treat ADHD?

**P**eople with ADHD have problems maintaining attention (e.g., fidgeting or trouble concentrating), and may be more hyperactive and impulsive than others of the same age. For teens, this can result in difficulty with completing schoolwork or other tasks. Doctors prescribe stimulants such as Concerta® and Adderall®, sometimes in combination with counseling, to treat these symptoms. These stimulants can have a calming effect on people with ADHD that helps them focus, dramatically



improving their ability to stay organized and complete tasks.

When prescribed, stimulant medications are usually started at a low dose and gradually increased until symptoms subside, or until side effects become problematic. When taken as directed, prescription stimulants produce slow, steady increases of dopamine in the brain. Scientists think that these gradual increases may help to correct abnormal dopamine signaling that may occur in the brains of people with ADHD.

## Why Do They Require a Prescription?

**P**rescription stimulants are strong medications, and their proper use needs a doctor's supervision. The first step is an accurate diagnosis of a physical or mental disorder, such as ADHD, by a qualified doctor. Then, if appropriate, stimulants may be prescribed. A doctor should monitor both the positive and possibly negative effects of the medication to make sure it's treating symptoms as intended.



Brain scan images from: Arch Gen Psychiatry 1995;52(6):456-463. Copyright © 2011 American Medical Association. All rights reserved.

## Why Are Prescription Stimulants Abused?

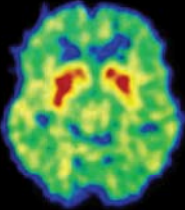
Many teens report abusing prescription stimulants to get high because they mistakenly believe that prescription drugs are a “safer” alternative to illicit drugs. Teens also report abusing prescription stimulants to try to lose weight or increase wakefulness and attention. Some even abuse them to get better grades. Research, however, shows that stimulant abuse is actually linked to poorer academic performance. Why? Because people who abuse stimulants often take other drugs and engage in behavior that puts their academic performance at risk (e.g., skipping classes).

## Is Abusing Prescription Stimulants Dangerous?

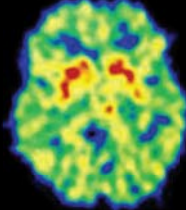
Yes. In fact, taking prescription stimulants in high doses, or by injection, smoking, or snorting, can affect the brain in ways similar to cocaine or other drugs of abuse (see above right). Prescription stimulant abuse can result in abnormally

### Prescription Stimulants and Cocaine Act on the Same Parts of the Brain

The two brain scans below show how cocaine and methylphenidate (Ritalin®) both act on the same dopamine sites in the brain. Dopamine is a brain chemical associated with attention and pleasure.



**Cocaine**



**Methylphenidate**

*Note: In this study, both drugs were given intravenously to demonstrate that they affect similar mechanisms in the brain. However, when taken orally, methylphenidate causes a much slower increase in dopamine levels, and does not create the same euphoria experienced with cocaine.*

You are abusing prescription stimulants if . . .	Risks
. . . you take them to cram for a test.	Stimulants can help you stay awake, but they can also make you feel jittery, anxious, irritable, and even paranoid. Stimulants may improve certain skills (e.g., focused attention) at the expense of others (e.g., creative thinking). There is no evidence that stimulants improve academic performance in someone who does not have ADHD.
. . . you take them to try to lose weight.	Abusing stimulants can decrease appetite, which can lead to weight loss and malnutrition. Plus, when a person stops taking the stimulants, he or she usually gains the weight back, and sometimes puts on a few more pounds. Thus, stimulants do not provide a long-term weight-loss solution, and chronic use increases the risk of addiction and other health consequences.
. . . you take them to get high.	To get high on stimulants, people may take them in higher doses than prescribed or by routes other than oral (e.g., snorted, smoked, or injected). This practice increases the risk of serious health consequences. High doses can cause blood vessels to narrow, forcing the heart to work harder, and possibly lose its normal rhythm. This could lead to a heart attack or a stroke.

high levels of dopamine, producing euphoria, an intense feeling of happiness. This increases the risk for abusing again, and ultimately for becoming addicted.

Abusing prescription stimulants can also result in increased blood pressure, heart rate, and body temperature, as well as nausea, headaches, anxiety, psychosis, seizures, stroke, and heart failure. Individuals who chronically abuse prescription stimulants may experience withdrawal symptoms when they stop using them. These

symptoms can include fatigue, depression, and disturbed sleep patterns. Although not life threatening, these symptoms often prompt a return to drug use.

### Important Resources

- For more information on drugs, go to <http://teens.drugabuse.gov> or [www.scholastic.com/headsup](http://www.scholastic.com/headsup).
- For immediate help with a crisis, call 1-800-273-TALK.
- To locate a treatment center, call 1-800-662-HELP or visit <http://findtreatment.samhsa.gov>.

# WEB HUNT:

## Myths vs. Facts: Prescription Drugs



There's a lot of information out there about prescription drugs, and it can be tough to distinguish myths from facts. When it comes to drugs and drug abuse, it's important to get the facts from reliable sources. In the Web Hunt below, discover facts about prescription drugs from the scientists at the National Institute on Drug Abuse (NIDA), the leading supporter of research on drug abuse and addiction in the United States. This handy sheet will help you keep track of the facts you learn about prescription drugs and prescription-drug abuse.

1. Some teens mistakenly believe that abusing prescription drugs is a “safer” alternative to abusing illegal drugs. Why is this myth untrue?

<http://headsup.scholastic.com/articles/qanda-on-prescription-drugs/>

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2. Before writing a prescription for medication, what factors does a doctor evaluate?

<http://headsup.scholastic.com/articles/qanda-on-prescription-drugs/>

<http://headsup.scholastic.com/articles/prescription-pain-medications/>

<http://headsup.scholastic.com/articles/prescription-stimulants/>

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Composite image: magnifying glass, © DNY59/Stockphoto; question mark, © Kulev/Stockphoto; prescription bottles, © Steven Poe/Workbook Stock/Getty Images.



- 3.** Give three examples of how prescription drugs can be abused.

<http://headsup.scholastic.com/articles/qanda-on-prescription-drugs/>

<http://headsup.scholastic.com/articles/prescription-pain-medications/>

<http://headsup.scholastic.com/articles/prescription-stimulants/>

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- 4.** Abusing prescription drugs can lead to changes in your brain. In what ways does this happen and how does it put you at risk for addiction?

<http://headsup.scholastic.com/articles/straight-talk-on-prescription-drugs/>

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- 5.** What factors play a role in whether someone becomes addicted to prescription drugs?

<http://headsup.scholastic.com/articles/straight-talk-on-prescription-drugs/>

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- 6.** What type of drugs are opioids and what do they treat?

<http://headsup.scholastic.com/articles/prescription-pain-medications/>

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- 7.** The number of accidental fatal poisonings involving prescription pain relievers has more than tripled since 1999. In addition to overdose, what are some of the other health risks of abusing prescription painkillers?

<http://headsup.scholastic.com/articles/prescription-pain-medications/>

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- 8.** Besides negative health effects, what other adverse effects can result from prescription drug abuse and addiction?

<http://headsup.scholastic.com/articles/straight-talk-on-prescription-drugs/>

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- 9.** What type of drugs are stimulants and how do they affect the brain and body?

<http://headsup.scholastic.com/articles/prescription-stimulants/>

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- 10.** Millions of kids (and adults) safely take prescription stimulants to effectively treat disorders such as ADHD. How do prescription stimulants treat ADHD?

<http://headsup.scholastic.com/articles/prescription-stimulants/>

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- 11.** What are the dangers of abusing prescription stimulants to help cram for a test or to try to lose weight?

<http://headsup.scholastic.com/articles/prescription-stimulants/>

<http://headsup.scholastic.com/articles/straight-talk-on-prescription-drugs/>

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- 12.** Why can abusing prescription stimulants have effects on the body that are similar to the effects of abusing cocaine?

<http://headsup.scholastic.com/articles/prescription-stimulants/>

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## Bonus Questions:

1. What are some of the treatments for addiction to prescription pain medications and to prescription stimulants?

<http://teens.drugabuse.gov/peerx/the-facts/opioids#opioids6>

<http://teens.drugabuse.gov/peerx/the-facts/stimulants#stimulants6>

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2. How can you protect yourself from addiction or other potential negative health effects of abusing prescription drugs?

[http://teens.drugabuse.gov/facts/facts\\_rx2.php#protect\\_myself](http://teens.drugabuse.gov/facts/facts_rx2.php#protect_myself)

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## Resources

Find more facts about prescription drugs at these NIDA sites:

### PEERx: Rx Abuse IS Drug Abuse

<http://teens.drugabuse.gov/peerx/>

Resources and activities to give teens the facts about prescription-drug abuse so they can make smart decisions

### NIDA for Teens

<http://teens.drugabuse.gov>

Facts about drugs and drug abuse, along with games and real-life stories

### Heads Up: Real News About Drugs and Your Body

[www.scholastic.com/headsup](http://www.scholastic.com/headsup)

Developed with NIDA and Scholastic, this series provides the latest scientific news about drugs, drug addiction, and your health.

## **Compilation 2010–11**

### **Student Editions**

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