National Institute on Drug Abuse
National Institutes of Health

# Opioid Facts for Teens

# Letter to Teens

You have probably heard a lot about the "opioid overdose crisis" in the news lately. But what are opioids? And why are they such a problem?

You might not realize this, but if you have had a sports injury, dental work, or surgery, it is possible your doctor gave you a pain reliever that was actually an opioid medication. While opioids can be very effective at treating pain, they can be very addictive and should only be used under a doctor's careful watch.

In addition to opioids given to you by a doctor, there is another kind of opioid you have probably heard about called heroin. Heroin is a very dangerous drug that is usually used by injecting it directly into a vein with a needle. The chemical makeup of heroin is the same as that of pain relievers and both can be very addictive and cause deadly opioid overdoses. In fact, 2.14 million people ages 12 and older had an opioid use disorder in 2016, including 153,000 12- to 17-year-olds.[1]

Our goal is to give you the facts so you can make smart choices and be your best self. We hope that you will use this booklet to share information about opioids with your friends, parents, teachers, and others.

**Nora D. Volkow, M.D.**
Director
National Institute on Drug Abuse

*To help you make informed choices, this booklet contains some brief summaries about what research is telling us. These topics represent the most popular questions and comments we get from teens. Share them with your friends to help them separate fact from myth.*

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[1] Center for Behavioral Health Statistics and Quality. *Results from the 2016 National Survey on Drug Use and Health: Detailed Tables*. Rockville (MD): SAMHSA; 2017. https://www.samhsa.gov/data/sites/default/files/NSDUH-DetTabs-2016/NSDUH-DetTabs-2016.pdf. Accessed September 14, 2017.

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# I. Some Things to **Think About**

## Opioid Overdose Deaths

**The increase in opioid overdose deaths has resulted in a national crisis.** After marijuana, prescription drugs are the most commonly misused drugs in the country. Every day, 115 Americans die from an opioid overdose.[2] In 2016, the number of opioid overdose deaths, including prescription medicines and heroin, was 5 times higher than it was in 1999.[3] This caused the government to declare a public health emergency. People in every community in every state have been affected by this crisis.

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[2] Centers for Disease Control and Prevention. *Wide-Ranging Online Data for Epidemiologic Research (WONDER).* Atlanta, GA: National Center for Health Statistics; 2017. http://wonder.cdc.gov.

[3] Centers for Disease Control and Prevention. Understanding the Epidemic. https://www.cdc.gov/drugoverdose/epidemic/index.html. Accessed June 4, 2018.

## Brain Damage

**Opioid misuse can cause brain damage.** When opioids are taken as prescribed by a medical professional, they are relatively safe and can reduce pain effectively. However, opioid misuse can cause harmful medical effects like slowed breathing. Slowed breathing can lead to short- and long-term health effects, including coma, brain damage, and death. Studies have shown that repeated opioid misuse can affect decision-making, behavior control, and responses to stressful situations. It is unknown if the damage can be reversed.

## Daily Life

**Opioid use can affect every area of your life.** Using drugs, especially early in life, can lead to poor grades, worse performance in sports, and bad relationships with friends and family. Opioids also alter judgment which can cause you to do risky things you wouldn't ordinarily do, like having unprotected sex or getting into a car crash because you drove while under the influence of opioids.[4–6]

## Addiction

**Opioid misuse can cause addiction.** Opioids are among the most addictive drugs. When addiction occurs, the body feels a strong need for the opioids. This is like when you are really hungry because you haven't eaten in a long time. This strong desire, together with a loss of control over the urges to take the drug, is why some people continue to use opioids despite negative consequences.

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[4] Dahl RE. Adolescent brain development: a period of vulnerabilities and opportunities. Keynote address. *Ann N Y Acad Sci*. 2004;1021:1-22. doi:10.1196/annals.1308.001.

[5] Kessler RC, Berglund P, Demler O, Jin R, Merikangas KR, Walters EE. Lifetime prevalence and age-of-onset distributions of DSM-IV disorders in the National Comorbidity Survey Replication. *Arch Gen Psychiatry*. 2005;62(6):593-602. doi:10.1001/archpsyc.62.6.593.

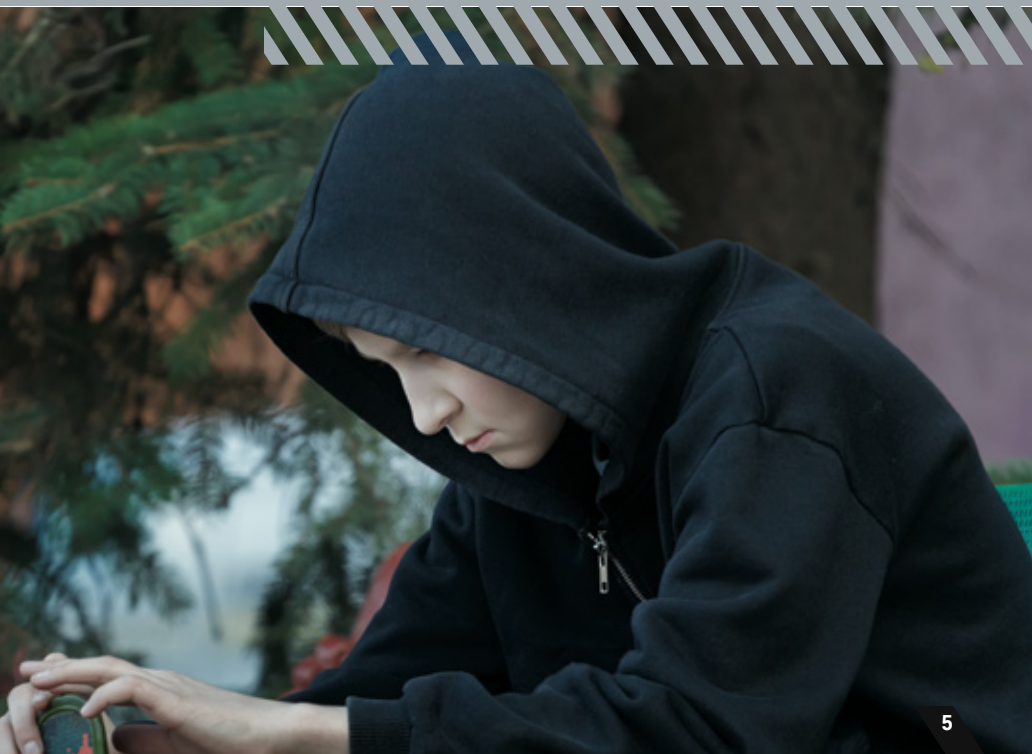
[6] Thornberry TP, Krohn MD, eds. Taking Stock of Delinquency–*An Overview of Findings*. New York, NY: Springer Science & Business Media; 2006. //www.springer.com/us/book/9780306473647. Accessed November 7, 2017.

# II. FAQs About Opioids

"I'm addicted to pills. Just got woken up 5 hours into my sleep by withdrawals. Couldn't go back to sleep due to the crazy hot flashes, sweating, then freezing, goosebumps, restlessness, the need to change position every few minutes after getting comfortable, nausea. Everything hurts."

– Comment submitted to NIDA's blog for teens

You may have heard people talking about opioids and not even realized it. Oxy, Percs, and Vikes are all slang terms for opioid pills.



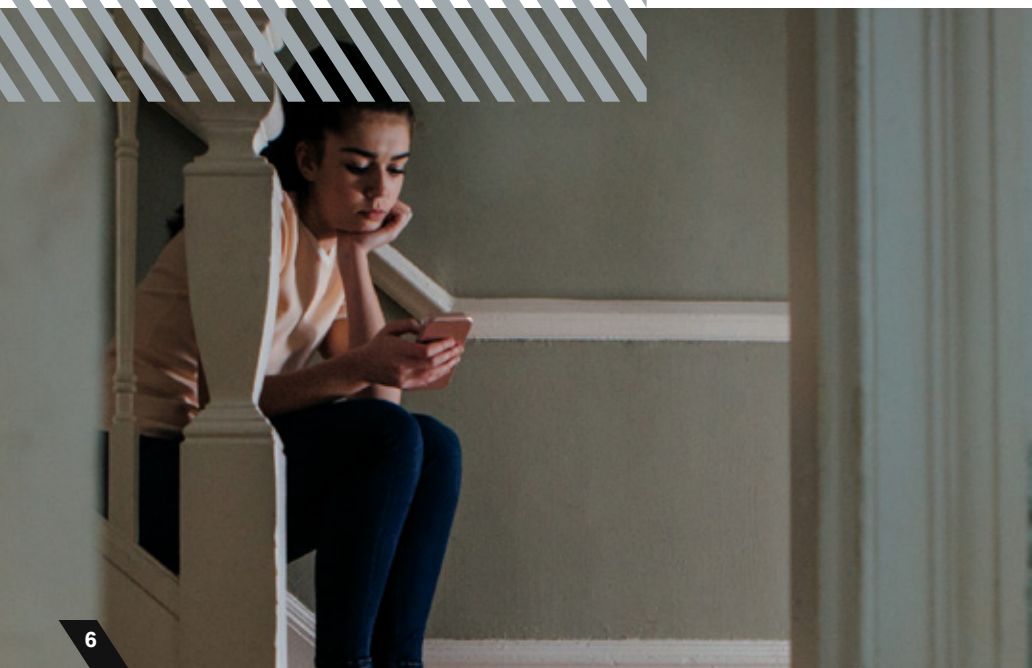
## What are opioids?

Opioids are naturally found in the opium poppy plant. Some opioid medications are made from this plant while others are made by scientists in labs.

Opioids have been used for hundreds of years to treat pain, cough, and diarrhea.

## What are the most commonly used opioids?

The most commonly used prescription opioids are oxycodone (OxyContin®), hydrocodone (Vicodin®), codeine, and morphine. Heroin is an opioid, but it is not a medication. Fentanyl is a powerful prescription pain reliever, but it is sometimes added to heroin by drug dealers, causing doses so strong that people are dying from overdoses.



Only 1 in 100 young adults between the ages of 12 and 17 currently misuse prescription opioids.[1]

[1] Center for Behavioral Health Statistics and Quality. *Results from the 2016 National Survey on Drug Use and Health: Detailed Tables*. Rockville (MD): SAMHSA; 2017. https://www.samhsa.gov/data/sites/default/files/NSDUH-DetTabs-2016/NSDUH-DetTabs-2016.pdf. Accessed September 14, 2017.

# 57% of 12- to 17-year-olds who misused prescription opioids got them from a friend or relative.[1]

## How do opioids work?

Your brain is full of molecules called receptors that receive signals from other parts of the body. Opioids attach to receptors on nerve cells in the brain, spinal cord, and other organs. This allows them to block pain messages sent from the body to the brain, which is why they are prescribed for serious injuries or illnesses.

When the opioids attach to the receptors, they also cause a large amount of dopamine to be released in the pleasure centers of the brain. Dopamine is the chemical responsible for making us feel reward and motivates our actions. The dopamine release caused by the opioids sends a rush of extreme pleasure and well-being throughout the body.

## What are the health effects of opioids on the brain and body?

In the short term, the release of dopamine into your body can make some people feel really relaxed and happy. But it can also cause more harmful effects, like extreme sleepiness, confusion, nausea, vomiting, and constipation. Over time, opioids can lead to insomnia, muscle pain, heart infections, pneumonia, and addiction.

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[1] Center for Behavioral Health Statistics and Quality. *Results from the 2016 National Survey on Drug Use and Health: Detailed Tables.* Rockville (MD): SAMHSA; 2017. https://www.samhsa.gov/data/sites/default/files/NSDUH-DetTabs-2016/NSDUH-DetTabs-2016.pdf. Accessed September 14, 2017.

## What is prescription opioid misuse?

- Taking your prescription in ways other than instructed, like taking more than your prescribed dose or taking it more often
- Getting and using prescription pills from a friend or family member, even if it's for a real medical condition
- Taking prescription drugs to get high
- Mixing prescription opioids with alcohol or other drugs

## I have an opioid prescription from my doctor; so, they can't be that bad, can they?

Prescription opioids are used to treat severe pain. People who have major surgeries including dental work, serious sports injuries, or cancer are sometimes prescribed these pills to manage their pain.

When taken as prescribed, opioids are relatively safe and can reduce pain in the short term. But if a person misuses the drug and doesn't take them as prescribed, opioids can have dangerous consequences.

Some people who get addicted to opioid pain relievers switch to heroin because it's cheaper and easier to get.

## Is it safe to take my friend's prescription opioids if I get hurt playing soccer?

Taking someone else's prescription medicine, even if you are in real pain, can be dangerous. Before prescribing opioids, doctors consider a lot of different factors, including the patient's weight, other medical conditions, and potential interactions with other medications they might be taking. Without talking to a doctor, you won't know how the opioids will affect you or what dose you should take. You should never share prescription opioids and only use them when prescribed to you by a doctor.

## What is heroin?

Heroin is made from morphine, a natural substance taken from the seed pod of opium poppy plants in Southeast and Southwest Asia, Mexico, and Colombia. Heroin can be injected, sniffed, snorted, or smoked.

Common names for heroin include Big H, Horse, Hell Dust, and Smack.

## What is the connection between opioids and heroin?

Heroin is a type of opioid. Prescription pain relievers and heroin are chemically similar and can produce similar effects.

In some communities, heroin is cheaper and easier to get than prescription opioids. Because of this, people who are addicted to prescription opioids sometimes switch to using heroin instead. Four out of five new heroin users report misusing prescription opioids before trying heroin.[8] You can overdose on both.

However, only a small fraction of people who misuse pain relievers switch to heroin. Less than 4 percent of people who had misused prescription pain medicines started using heroin within 5 years.[8] Preventing opioid misuse and ensuring people with opioid addictions get the treatment they need will also reduce the number of people using and addicted to heroin.

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[8] Muhuri PK, Gfroerer JC, Davies MC. *Associations of Nonmedical Pain Reliever Use and Initiation of Heroin Use in the United States*. Rockville, MD: Substance Abuse and Mental Health Services Administration; 2013. http://archive.samhsa.gov/data/2k13/DataReview/DR006/nonmedical-pain-reliever-use-2013.pdf.

## How many people use heroin?

Heroin use has been increasing in recent years. The number of people using heroin in the past year has more than doubled in the past 15 years, to nearly one million in 2016, including 13,000 12- to 17-year-olds.[1]

## What are the effects of heroin on the brain and body?

Just like other opioids, heroin binds to the opioid receptors in the brain and body that send a rush of dopamine and extreme happiness through your body. Other short-term effects include dry mouth, nausea and vomiting, severe itching, and clouded thinking. If the dose is too strong, it can cause you to stop breathing, resulting in death.

Long-term effects include insomnia, heart infections, liver and kidney disease, collapsed veins in people who inject heroin, depression, and addiction.

People who inject drugs are at an increased risk of getting HIV or hepatitis C. Both of these diseases are transmitted through blood and other bodily fluids. When people share needles or other drug equipment, they can come in contact with these fluids. HIV, and less often hepatitis C, are also spread through unprotected sex, which drug use makes more likely.

**20% of 12th graders said they could easily get heroin if they wanted to.[7]**

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[1] Center for Behavioral Health Statistics and Quality. *Results from the 2016 National Survey on Drug Use and Health: Detailed Tables*. Rockville (MD): SAMHSA; 2017. https://www.samhsa.gov/data/sites/default/files/NSDUH-DetTabs-2016/NSDUH-DetTabs-2016.pdf. Accessed September 14, 2017.

[7] Johnston L, O'Malley P, Miech R, Bachman J, Schulenberg J. *Monitoring the Future National Survey Results on Drug Use, 1975-2016: Overview, Key Findings on Adolescent Drug Use*. Ann Arbor: Institute for Social Research, The University of Michigan; 2017.

## Do opioids show up on drug tests?

Just like other drugs, opioids can show up on a drug test within hours of being taken. Opioids, including heroin, can show up on a drug test for days, and in some cases weeks, after being taken.[9,10] How long they stay in your system depends on how long a person has been taking the drug, the amount of drug they use, or the person's metabolism (how your body handles the drug).

## Is it safe to take opioids if you are pregnant?

Opioid use during pregnancy—even if taken as a doctor instructed—can lead to miscarriage or low birth weight. It can also cause neonatal abstinence syndrome, a medical condition where the baby is born dependent on opioids and has withdrawal symptoms after being born. If a pregnant woman tries to stop taking opioids suddenly without medical help, she can put the baby at risk. It is important for the mother to tell her doctor about all drugs she is taking or planning to take so that the baby has a greater chance of being born healthy. There are treatments that can help.

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[1] Center for Behavioral Health Statistics and Quality. *Results from the 2016 National Survey on Drug Use and Health: Detailed Tables*. Rockville (MD): SAMHSA; 2017. https://www.samhsa.gov/data/sites/default/files/NSDUH-DetTabs-2016/NSDUH-DetTabs-2016.pdf. Accessed September 14, 2017.

[9] Substance Abuse and Mental Health Services Administration. *Critical Drug Testing in Primary Care. Rockville, MD: Substance Abuse and Mental Health Services Administration; 2012*. https://store.samhsa.gov/shin/content/SMA12-4668/SMA12-4668.pdf. Accessed November 7, 2017.

[10] U.S. Food and Drug Administration. Drugs of Abuse Home Use Test. https://www.fda.gov/MedicalDevices/ProductsandMedicalProcedures/InVitroDiagnostics/DrugsofAbuseTests/ucm125722.htm. Accessed March 9, 201

More than 65% of teens think that using heroin even once or twice can result in great harm. That means the rest — about 35% — don't fully understand the risks.[1]

## I have heard about something called fentanyl. What is that?

Fentanyl is an opioid drug that is 50 times more powerful than heroin. Medically, it is used to treat extreme pain and for surgeries. But now it's being made illegally and is sometimes mixed with other drugs, leading to overdose.

## Are opioids addictive?

Yes. Over time, opioid use can change the brain, leading to addiction. Addiction means a person continues to use a drug despite negative consequences, and actively tries to get more and more of the drug. Many people get addicted to opioids, leading to deadly overdoses—taking enough to make you stop breathing.

However, many people who take prescription opioids for pain become dependent, not addicted. Dependence means your body has gotten used to the drug, and it will hurt and feel uncomfortable if you suddenly stop. Patients using prescription opioids should ask their doctors how to safely stop using them.

A person can be dependent on a drug without being addicted. But sometimes dependence can lead to addiction, if you don't make an effort to stop taking them.

## Can opioid addiction be treated?

Quitting opioids can be hard, but it is possible. There are three FDA-approved medicines to treat opioid addiction. Medicines like buprenorphine and methadone bind to the same receptors in the brain as prescription opioids to reduce cravings. Naltrexone is another medication that treats opioid addiction by preventing opioids from having an effect on the brain. Additionally, a medicine named lofexidine was recently approved to help lessen withdrawal symptoms for people who are trying to stop using opioids.

Counseling and therapy are also important to help people stop using opioids, rebuild relationships with friends and family, and build healthy life skills. A combination of behavioral therapy and medication has proven to be very effective in treating opioid addiction.

Doctors develop treatment plans to fit the unique needs of the patient.

## Do opioids produce withdrawal symptoms when someone tries to quit using them?

Yes. The brain gets so used to the opioids that when someone stops taking them, they can go into withdrawal. Withdrawal symptoms include sweating, shaking, vomiting, sleep problems, and diarrhea. The symptoms can be so severe that it can be hard for someone to stop using opioids, even if they want to. This is why it can take several tries to stop drug use.

## Can you overdose on opioids?

Yes, you can. In fact, overdose deaths have almost tripled in the last 15 years and the majority of these deaths involve opioids.[11] One of the ways opioids work to relax your body is by slowing down your breathing. When misused, opioids can slow your breathing too much. This can cause you to stop breathing entirely and lead to an overdose. For some people, just one dose is enough to make them stop breathing.

## Can you stop an opioid overdose?

Yes, if you act quickly. If you think a friend or family member has overdosed on opioids, call 911 so they can receive immediate medical attention. When paramedics arrive, they will likely give the person naloxone. Naloxone works to quickly block the effects of opioids. It is available as an injectable solution, an auto-injector, and a nasal spray.

Some states require a doctor to prescribe naloxone, but other states allow pharmacies to sell naloxone without a personal prescription. This lets friends and family members use it to save someone who is overdosing. But naloxone doesn't take the place of medical care, and after using it, the person who overdosed should immediately get medical help.

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[11] Rudd RA. Increases in drug and opioid-involved overdose deaths — United States, 2010–2015. *MMWR Morb Mortal Wkly Rep.* 2016;65. doi:10.15585/mmwr.mm655051e1

## What can teenagers do to protect themselves?

Take charge of your own health. The best thing teenagers can do is to turn away from peer pressure to use opioids "for fun" and to only take opioids as prescribed by your doctor. Even then, opioids should be taken for as short a time as possible. If your doctor or dentist prescribes opioids for a painful condition, ask them how quickly you can stop taking them or if there are other medications to use instead.

## Ongoing Research to Find Solutions

Researchers funded by the National Institutes of Health are exploring better ways to prevent and treat opioid misuse. They are looking at how opioids work on brain pathways, trying to figure out how to develop safer medicines. Ideally, they can develop a pain reliever as strong as an opioid that does not have the risk of addiction.

Researchers are also trying to find other ways to treat pain, like exercise techniques, massage therapy, and methods to stimulate key brain pathways without taking a medicine.

Scientists have also developed better ways to deliver medicines to the body. For example, there is now a device that sprays a medicine into the nose to block an overdose. New injection products and body implants can now be inserted into someone's arm to deliver medication more slowly to treat opioid addiction for months, instead of having to take a pill daily or every other day.

Follow NIDA's Teen Web site to learn more about new scientific discoveries, **teens.drugabuse.gov.**

## What is being done to stop the overdose crisis?

Opioid misuse has become a nationwide public health crisis. Luckily, federal, state, and local governments, advocacy organizations, and health professionals are working together to tackle the crisis from every angle. A holistic public health approach is being undertaken to:

- Improve access to treatment and recovery services
- Promote the use of overdose-reversing drugs
- Strengthen our understanding of the crisis through better public health monitoring
- Develop safe, effective medications strategies for pain management
- Improve medications to treat people who are addicted to opioids
- Advance better pain management practices

# III. Other Useful **Resources**

## Here are some helpful places to go for more information:

**The National Institute on Drug Abuse (NIDA)**

The NIDA website, **drugabuse.gov,** has information on a variety of drugs and related topics. NIDA's teen site, **teens.drugabuse.gov,** has free downloads, entertaining and informative videos and games, and a blog for teens, where you can leave us a comment or two. Get the scoop on how different drugs affect the brain and body, and read real stories from teens who have struggled with drug use and addiction.

**The National Institute on Alcohol Abuse and Alcoholism (NIAAA)**

The NIAAA website, **niaaa.nih.gov,** contains the latest research, news, and other resources related to alcohol. NIAAA even has a site especially for young teens called "the cool spot," **thecoolspot.gov,** with quizzes and other interactive resources that give you information on alcohol and resisting peer pressure.

**The National Institute of Mental Health (NIMH)**

To learn more about mental health conditions like depression or schizophrenia, visit the NIMH website, **nimh.nih.gov,** and read the Director's Blog on various topics, including suicide prevention, bipolar and borderline personality disorders, coping with traumatic events, and more.

**Centers for Disease Control and Prevention (CDC)**

CDC's *Rx Awareness* campaign uses real stories of the consequences of prescription opioids to educate the public about the harms associated with misuse. Visit **cdc.gov/rxawareness** to learn more about the campaign and how to get involved.

**Substance Abuse and Mental Health Services Administration (SAMHSA)**

You can find treatment programs through **findtreatment.samhsa.gov** provided by the SAMHSA. Also, you can call the SAMHSA Treatment Referral hotline at **1-800-662-HELP.** Treatment can help you, a friend, or someone you love get back to the person you or they once were.

U.S. DEPARTMENT OF HEALTH
AND HUMAN SERVICES

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