



the NATIONAL INSTITUTE on DRUG ABUSE

# MEDIA GUIDE

how to find what you need  
to know about drug abuse  
and addiction

[www.drugabuse.gov](http://www.drugabuse.gov)

U.S. Department of  
Health and Human Services  
National Institutes of Health

**NIDA**  
NATIONAL INSTITUTE  
ON DRUG ABUSE

# quick reference/drugs & health

REPORTER'S QUICK REFERENCE GUIDE—WHO TO CALL FOR WHAT

## What

## Who

### National Institutes of Health

(within the U.S. Department of Health and Human Services [DHHS])

*Science of drug and nicotine addiction, prescription drug abuse, prevention and treatment, drug abuse and HIV/AIDS, and Monitoring the Future Survey (8th, 10th, and 12th graders)*

*Science of alcohol use, addiction, and abuse; drunk driving; and fetal alcohol syndrome*

*Science of mental health prevention and treatment*

#### National Institute on Drug Abuse (NIDA)

Press Office: 301-443-6245

E-mail: [media@nida.nih.gov](mailto:media@nida.nih.gov)

Web: <http://www.nida.nih.gov/NIDANews.html>

#### National Institute on Alcohol Abuse and Alcoholism (NIAAA)

Press Office: 301-443-3860

Web: <http://www.niaaa.nih.gov>

#### National Institute of Mental Health (NIMH)

Press Office: 301-443-4536

Web: <http://www.nimh.nih.gov>

### Other Relevant Agencies Within the DHHS

*National Survey on Drug Use and Health, Treatment Facility Locator, and Treatment Block Grants*

*Safety and efficacy of medications*

*Smoking prevention and cessation; and HIV/AIDS*

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

Press Office: 240-276-2130

Web: <http://www.samhsa.gov>

#### Food and Drug Administration (FDA)

Press Office: 301-827-6250

Web: <http://www.fda.gov>

#### Centers for Disease Control and Prevention (CDC), Office on Smoking and Health

Press Office: 202-395-6618

Web: <http://www.cdc.gov/media/>

<http://www.cdc.gov/tobacco/>

### Relevant Offices Outside DHHS

#### Office of National Drug Control Policy (ONDCP)

Executive Office of the President

Press Office: 202-395-6618

Web: <http://www.whitehousedrugpolicy.gov>

#### Bureau of Justice Statistics

Press Office: 202-514-2007

Web: <http://www.ojp.usdoj.gov/bjs/drugs.htm>

#### Drug Enforcement Administration (DEA), within the U.S. Department of Justice

Press Office: 202-307-7977

Web: <http://www.dea.gov>

*(More details on page 41.)*

the NATIONAL INSTITUTE on DRUG ABUSE

## MEDIA GUIDE

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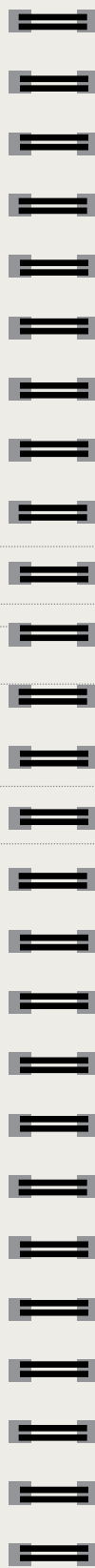
# DEAR JOURNALIST



We thank you for your interest in the vitally important issues of drug abuse and addiction.

Today, thanks to science, our views and responses to addiction have changed dramatically. After 30 years of research, as well as the development of exciting new imaging technologies, we now know that drug addiction is a disease of the brain that affects behavior—a disease that can respond to treatment.

As the Director of the National Institute on Drug Abuse (NIDA), I am pleased to offer this guide to the important findings that are emerging as a result of research on addiction and its treatment. NIDA, part of the National Institutes of Health under the U.S. Department of Health and Human Services, supports most of the world's research on drug abuse and addiction, including basic and behavioral science research that addresses fundamental and essential questions relevant to drug abuse, ranging from its causes and consequences to its treatment and prevention.



## FIGURES

## RESEARCH

## FACTS

The purpose of this guide is to give journalists fast and user-friendly access to the latest scientific information. In more than three decades as a researcher, I have seen the impact that science and health journalists have had in bringing scientific research to the public. It is through information that Americans gain hope and understanding.

I have come to know many of you over the years and remain committed to releasing scientific information as quickly as possible for rapid dissemination to the public. Please keep this guide nearby as a useful tool and let us know how NIDA's public liaison staff can help you reach your information and deadline needs.

Nora D. Volkow, M.D.

**Director**  
**National Institute on Drug Abuse**

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# the science of drug abuse and addiction: the basics

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## NIDA's Public Information and Liaison Branch: NIDA's Link to the Media

We are committed to bringing timely, factual information on addiction and treatment to the press and public. NIDA's Public Information and Liaison Branch (PILB) is part of NIDA's Office of Science Policy and Communications. Linking scientists, the scientific community, and the media, PILB supports the rapid dissemination of research information to inform policy and to improve practice. NIDA's goal is to ensure that science—not ideology or anecdote—forms the foundation of public information on drug abuse and addiction.

Visit us online at [www.drugabuse.gov](http://www.drugabuse.gov) or call the NIDA Press Office at **301-443-6245** for information and access to experts, research, news, and information.

This guide was developed by PILB as part of the Institute's mission to close the gap between the public's impressions about drug abuse and the knowledge gained from scientific research on addiction and substance abuse.

## THE SCIENCE OF DRUG ABUSE AND ADDICTION: THE BASICS

### What is drug addiction?

Addiction is defined as a chronic, relapsing brain disease that is characterized by compulsive drug seeking and use, despite harmful consequences. It is considered a brain disease because drugs change the brain; they change its structure and how it works. These brain changes can be long lasting and can lead to many harmful, often self-destructive, behaviors.

### Why study drug abuse and addiction?

Abuse of and addiction to alcohol, nicotine, and illegal substances cost Americans upwards of half a trillion dollars a year (the combined medical, economic, criminal, and social impact). Every year, the abuse of illicit drugs and alcohol contributes to the death of more than 100,000 Americans, while tobacco is linked to an estimated 440,000 deaths per year.

### How are drug disorders categorized?

The *Diagnostic and Statistical Manual of Mental Disorders (DSM)* is a diagnostic manual used by clinicians, that contains descriptions and symptoms of all mental disorders classified by the American Psychiatric Association. The DSM uses the term “substance use disorders” to characterize illnesses associated with drug use. There are two broad categories: substance abuse and substance dependence. Both are associated with a maladaptive pattern of substance use that leads to clinically significant impairment. Drug abuse includes such symptoms as:

- failure to fulfill major role obligations;
- legal problems;
- use in situations that are physically hazardous; and
- continued use despite persistent social or interpersonal problems.

The term dependence includes such symptoms as:

- drug taking in larger amounts than intended;
- inability to cut down on drug use;
- a great deal of time spent in activities necessary to obtain the drug; and
- continued use despite knowledge of health or social problems caused by the drug.

Dependence may or may not include “physical dependence,” defined by withdrawal symptoms when drug use is abruptly ceased, and tolerance, the need for more drug to achieve a desired effect. The DSM term “dependence” is what NIDA refers to as “addiction.”

### What is the difference between “physical dependence,” dependence, and addiction?

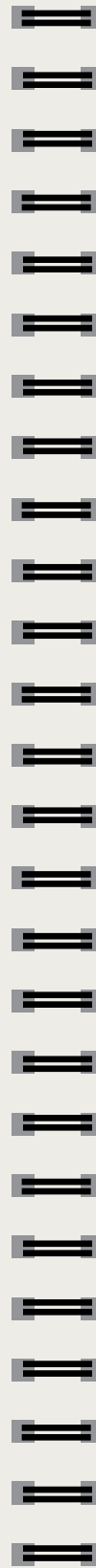
Physical dependence is *not* equivalent to dependence or addiction and may occur with the chronic use of any substance, legal or illegal, even when taken as prescribed. It occurs because the body naturally adapts to chronic exposure to a substance (e.g., caffeine or a prescription drug), and when that substance is taken away, symptoms can emerge while the body readjusts to the loss of the substance. Physical dependence can lead to craving for the drug to relieve the withdrawal symptoms. Drug dependence and addiction refer to drug or substance use disorders, which may include physical dependence but must also meet additional criteria.

### How does NIDA use the terms drug abuse and addiction?

NIDA defines any illicit use of a substance as drug abuse; this includes the nonmedical use of prescription drugs. NIDA defines addiction as a chronic, relapsing disease characterized by compulsive drug seeking and use despite harmful consequences as well as neurochemical and molecular changes in the brain. NIDA’s use of the term addiction corresponds roughly to the DSM definition of dependence. The DSM does not use the term addiction.

### How do drugs work in the brain to produce pleasure?

Nearly all drugs of abuse directly or indirectly target the brain’s reward system by flooding the circuit with dopamine. Dopamine is a neurotransmitter present in regions of the brain that regulate movement, emotion, cognition, motivation, and feelings of pleasure. The overstimulation of this system, which rewards our natural behaviors, produces the euphoric effects sought by people who abuse drugs and teaches them to repeat the behavior.



### Is drug abuse a voluntary behavior?

The initial decision to take drugs is mostly voluntary. However, when addiction takes over, a person’s ability to exert self-control can become seriously impaired. Brain-imaging studies from drug-addicted individuals show physical changes in areas of the brain that are critical for judgment, decisionmaking, learning and memory, and behavior control. Scientists believe that these changes alter the way the brain works and may help explain the compulsive and destructive behaviors of an addicted person.

### Can addiction be treated successfully?

Yes. Addiction is a treatable, chronic disease that can be managed successfully. Research shows that combining behavioral therapy with medications, where available, is the best way to ensure success for most patients. Treatment approaches must be tailored to address each patient’s drug abuse patterns and drug-related medical, psychiatric, and social problems.

### Does relapse to drug abuse mean treatment has failed?

No. The chronic nature of the disease means that relapsing to drug abuse is not only possible but also likely. Relapse rates are similar to those for other well-characterized chronic medical illnesses, such as diabetes, hypertension, and asthma, which also have both physiological and behavioral components. Treatment of chronic diseases involves changing deeply imbedded behaviors. For the addicted patient, lapses back to drug abuse indicate that treatment needs to be reinstated or adjusted or that alternate treatment is needed.

### How many people die from drug use?

The CDC reports that there were over 16,000 unintentional drug poisoning deaths in the United States in 2002.

## Comparison of Relapse Rates Between Drug Addiction and Other Chronic Illnesses

### Percentage of Patients Who Relapse

#### TYPE I DIABETES

30 to 50%

#### DRUG ADDICTION

40 to 60%

#### HYPERTENSION

50 to 70%

#### ASTHMA

50 to 70%

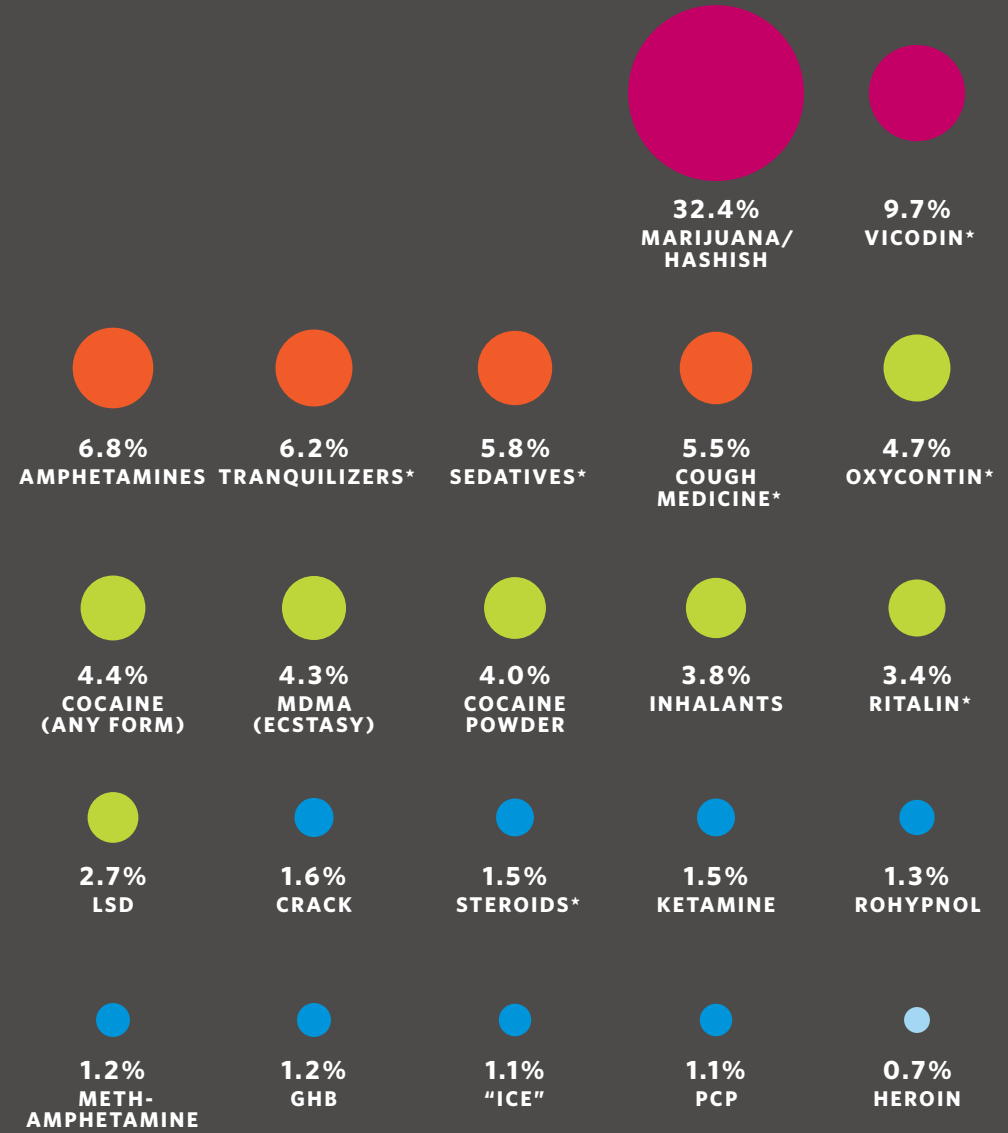
*Relapse rates for drug-addicted patients are compared with those suffering from diabetes, hypertension, and asthma. Relapse is common and similar across these illnesses (as is adherence to medication). Thus, drug addiction should be treated like any other chronic illness, with relapse serving as a trigger for renewed intervention.*

Source: McLellan et al., JAMA, 284:1689-1695, 2000.

## 2008 MONITORING THE FUTURE STUDY

Findings from recent Monitoring the Future (MTF) surveys indicate that prescription drugs, as well as over the counter cough syrup, are among the most abused drugs by these age groups. On the facing page is a graphic that indicated drug use among 12th graders:

## Prevalence of Past-Year Drug Use Among 12<sup>th</sup> Graders



\* nonmedical use



## COMMONLY ABUSED DRUGS

### Cocaine

**Cocaine** is a short-acting stimulant, which can lead abusers to “binge” (to take the drug many times in a single session). Cocaine abuse can lead to severe medical consequences related to the heart and the respiratory, nervous, and digestive systems.

	8th Graders	10th Graders	12th Graders
Lifetime	3.0	4.5	7.2
Past Year	1.8	3.0	4.4
Past Month	0.8	1.2	1.9

Monitoring the Future is updated annually. For the latest Monitoring the Future statistics on cocaine please visit [www.nida.nih.gov/Infofacts/HSYouthtrends.html](http://www.nida.nih.gov/Infofacts/HSYouthtrends.html).

For more information about cocaine use and its health consequences, go to [www.nida.nih.gov/drugpages/cocaine.html](http://www.nida.nih.gov/drugpages/cocaine.html).

### Marijuana

**Marijuana** is the most commonly abused illicit substance. This drug impairs short-term memory and learning, the ability to focus, and coordination. It also increases heart rate, can harm the lungs, and may increase the risk of psychosis in vulnerable individuals.

	8th Graders	10th Graders	12th Graders
Lifetime	14.6	29.9	42.6
Past Year	10.9	23.9	32.4
Past Month	5.8	13.8	19.4

Monitoring the Future is updated annually. For the latest Monitoring the Future statistics on marijuana please visit [www.nida.nih.gov/Infofacts/HSYouthtrends.html](http://www.nida.nih.gov/Infofacts/HSYouthtrends.html).

For more information about marijuana use and its health consequences, go to [www.nida.nih.gov/drugpages/marijuana.html](http://www.nida.nih.gov/drugpages/marijuana.html).

### Cigarettes and Other Nicotine Products\*

**Nicotine** is an addictive stimulant found in cigarettes and other forms of tobacco. Tobacco smoke increases a user’s risk of cancer, emphysema, bronchial disorders, and cardiovascular disease. The mortality rate associated with tobacco addiction is staggering. Tobacco use killed approximately 100 million people during the 20th century and, if current smoking trends continue, the cumulative death toll for this century is projected to reach 1 billion.

	8th Graders	10th Graders	12th Graders
Lifetime	20.5	31.7	44.7
Past Month	6.8	12.3	20.4
Daily	3.1	5.9	11.4

Monitoring the Future is updated annually. For the latest Monitoring the Future statistics on nicotine please visit [www.nida.nih.gov/Infofacts/HSYouthtrends.html](http://www.nida.nih.gov/Infofacts/HSYouthtrends.html).

For more information about nicotine use and its health consequences, go to [www.nida.nih.gov/drugpages/nicotine.html](http://www.nida.nih.gov/drugpages/nicotine.html).

\* 2008 Monitoring the Future data for past-year use is unavailable.

### Heroin

**Heroin** is a powerful opiate drug that produces euphoria and feelings of relaxation. It slows respiration and can increase the risk of serious infectious diseases, especially when taken intravenously. Other opioid drugs include morphine, OxyContin, Vicodin, and Percodan, which have legitimate medical uses; however, their nonmedical use or abuse can result in the same harmful consequences as heroin abuse.

	8th Graders	10th Graders	12th Graders
Lifetime	1.4	1.2	1.3
Past Year	0.9	0.8	0.7
Past Month	0.4	0.4	0.4

Monitoring the Future is updated annually. For the latest Monitoring the Future statistics on heroin please visit [www.nida.nih.gov/Infofacts/HSYouthtrends.html](http://www.nida.nih.gov/Infofacts/HSYouthtrends.html).

For more information about heroin use and its health consequences, go to [www.nida.nih.gov/drugpages/heroin.html](http://www.nida.nih.gov/drugpages/heroin.html).

## COMMONLY ABUSED DRUGS (continued)

### Prescription Medications and Over-the-Counter Medications

**Prescription medications and some over-the-counter medications** are increasingly being abused (used for nonmedical purposes). This practice can not only be addictive, but in some cases lethal. Among the most disturbing aspects of this emerging trend is its prevalence among teenagers and young adults, as well as the common misperception that because physicians prescribe these medications, they are safe even when used not as prescribed. Commonly abused classes of prescription drugs include opioid painkillers, stimulants, and sedatives.

Commonly abused prescription drugs include:

- **Opioids** are usually prescribed for pain relief. Common opioids include hydrocodone (e.g., Vicodin), oxycodone (e.g., OxyContin), morphine, fentanyl, and codeine.
- **Stimulants:** Methylphenidate (Ritalin®, Concerta®, Focalin®, and Metadate®) and amphetamines (Adderall®, Dexedrine®) are stimulants commonly prescribed for attention-deficit hyperactivity disorder.

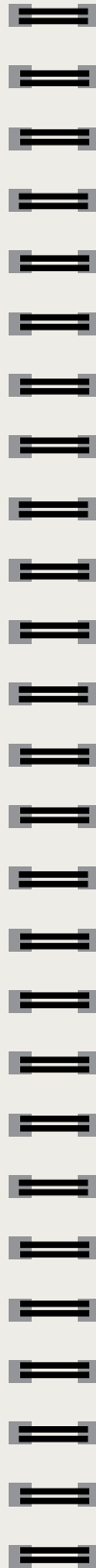
- **Depressants** are usually prescribed to promote sleep or to reduce anxiety. They include barbiturates (e.g., phenobarbital) and benzodiazepines (e.g., Valium® and Xanax®). Other sleep medications that are well advertised, such as Ambien®, Sonata®, and Lunesta®, have a slightly different mechanism of action than the benzodiazepines and may have less potential for addiction.

### Amphetamines

**Amphetamines**, including methamphetamine, are powerful stimulants that can produce feelings of euphoria and alertness. Methamphetamine's effects are particularly long lasting and harmful to the brain. Amphetamines can cause high body temperature and can lead to serious heart problems and seizures.

Monitoring the Future is updated annually. For the latest Monitoring the Future statistics on methamphetamines please visit [www.nida.nih.gov/Infofacts/HSYouthtrends.html](http://www.nida.nih.gov/Infofacts/HSYouthtrends.html).

For more information about methamphetamine use and its health consequences, go to [www.nida.nih.gov/drugpages/methamphetamine.html](http://www.nida.nih.gov/drugpages/methamphetamine.html).



	8th Graders	10th Graders	12th Graders
<b>Opiate Painkillers</b>			
<b>OxyContin</b>			
Past Year	2.1	3.6	4.7
<b>Vicodin</b>			
Past Year	2.9	6.7	9.7
<b>Sedatives (Barbiturates)<sup>1</sup></b>			
Lifetime	---	---	8.5
Past Year	---	---	5.8
Past Month	---	---	2.8
<b>Tranquilizers<sup>2</sup></b>			
Lifetime	3.9	6.8	8.9
Past Year	2.4	4.6	6.2
Past Month	1.2	1.9	2.6
<b>Ritalin</b>			
Past Year	1.6	2.9	3.4
<b>Cough or Cold Medicines<sup>3</sup></b>			
Past Year	3.6	5.3	5.5
<b>Methamphetamine</b>			
Lifetime	2.3	2.4	2.8
Past Year	1.2	1.5	1.2
Past Month	0.7	0.7	0.6
<b>Amphetamines</b>			
Lifetime	6.8	9.0	10.5
Past Year	4.5	6.4	6.8
Past Month	2.2	2.8	2.9

<sup>1</sup> Also known as "downers" and "sleeping aids."

<sup>2</sup> The most commonly reported drugs in this category are Valium and Xanax.

<sup>3</sup> Used with the intent to get high.

## COMMONLY ABUSED DRUGS (continued)

### Anabolic Steroids

**Steroids**, which can also be prescribed for certain medical conditions, are abused to increase muscle mass and to improve athletic performance or physical appearance. Serious consequences of abuse can include heart disease, liver problems, stroke, infectious diseases, depression, and suicide. Less serious side effects include severe acne.

	8th Graders	10th Graders	12th Graders
Lifetime	1.4	1.4	2.2
Past Year	0.9	0.9	1.5
Past Month	0.5	0.5	1.0

Monitoring the Future is updated annually. For the latest Monitoring the Future statistics on anabolic steroids please visit [www.nida.nih.gov/Infofacts/HSYouthtrends.html](http://www.nida.nih.gov/Infofacts/HSYouthtrends.html).

For more information about anabolic steroid use and its health consequences, go to [www.nida.nih.gov/drugpages/steroids.html](http://www.nida.nih.gov/drugpages/steroids.html).

### Inhalants

**Inhalants** are volatile substances found in many household products, such as oven cleaners, gasoline, spray paints, and other aerosols, that induce mind-altering effects. Inhalants are extremely toxic and can damage the heart, kidneys, lungs, and brain. Even a healthy person can suffer heart failure and death within minutes of a single session of the prolonged sniffing of an inhalant.

	8th Graders	10th Graders	12th Graders
Lifetime	15.7	12.8	9.9
Past Year	8.9	5.9	3.8
Past Month	4.1	2.1	1.4

Monitoring the Future is updated annually. For the latest Monitoring the Future statistics on inhalants please visit [www.nida.nih.gov/Infofacts/HSYouthtrends.html](http://www.nida.nih.gov/Infofacts/HSYouthtrends.html).

For more information about inhalant use and its health consequences, go to [www.nida.nih.gov/drugpages/inhalants.html](http://www.nida.nih.gov/drugpages/inhalants.html).

### Alcohol

**Alcohol** consumption can damage the brain and most body organs. Areas of the brain that are especially vulnerable to alcohol-related damage are the cerebral cortex (largely responsible for our higher brain functions, including problemsolving and decisionmaking), the hippocampus (important for memory and learning), and the cerebellum (important for movement coordination).

	8th Graders	10th Graders	12th Graders
Lifetime	38.9	58.3	71.9
Past Year	32.1	52.5	65.5
Past Month	15.9	28.8	43.1

Monitoring the Future is updated annually. For the latest Monitoring the Future statistics on alcohol please visit [www.nida.nih.gov/Infofacts/HSYouthtrends.html](http://www.nida.nih.gov/Infofacts/HSYouthtrends.html).

For more information about alcohol use and its health consequences, visit the National Institute on Alcohol Abuse and Alcoholism Web site at [www.niaaa.nih.gov](http://www.niaaa.nih.gov).

### Club Drugs and Hallucinogens

**Ecstasy (MDMA)** produces both stimulant and mind-altering effects. It can increase body temperature, heart rate, blood pressure, and heart-wall stress. Ecstasy may also be toxic to nerve cells.

	8th Graders	10th Graders	12th Graders
Lifetime	2.4	4.3	6.2
Past Year	1.7	2.9	4.3
Past Month	0.8	1.1	1.8

**LSD** is one of the most potent hallucinogenic, or perception-altering, drugs. Its effects are unpredictable, and abusers may see vivid colors and images, hear sounds, and feel sensations that seem real but do not exist. Abusers also may have traumatic experiences and emotions that can last for many hours. Some short-term effects can include increased body temperature, heart rate, and blood pressure; sweating; loss of appetite; sleeplessness; dry mouth; and tremors.

	8th Graders	10th Graders	12th Graders
Lifetime	1.9	2.6	4.0
Past Year	1.3	1.8	2.7
Past Month	0.5	0.7	1.1

## COMMONLY ABUSED DRUGS (continued)

### Club Drugs and Hallucinogens (continued)

**Rohypnol** and **GHB** are predominantly central nervous system depressants. Because they are often colorless, tasteless, and odorless, they can be easily added to beverages and ingested unknowingly. Thus, these drugs have come to be known as “date rape” drugs.

Monitoring the Future is updated annually. For the latest Monitoring the Future statistics on club drugs, please visit [www.nida.nih.gov/Infofacts/HSYouthtrends.html](http://www.nida.nih.gov/Infofacts/HSYouthtrends.html).

For more information about these and other club drugs go to [www.nida.nih.gov/drugpages/clubdrugs.html](http://www.nida.nih.gov/drugpages/clubdrugs.html).

	8th Graders	10th Graders	12th Graders
<b>Rohypnol</b>			
Lifetime	0.7	0.9	---
Past Year	0.5	0.4	1.3
Past Month	0.1	0.2	---
<b>GHB</b>			
Past Year	1.1	0.5	1.2
<b>Ketamine</b>			
Past Year	1.2	1.0	1.5

# resources

## WHERE TO FIND NATIONWIDE TRENDS AND STATISTICS

Major sources of data on the extent of drug use in the United States include the following:

### Monitoring the Future (MTF)

The MTF study measures drug, alcohol, and cigarette use and related attitudes among adolescent students nationwide. Survey participants report their drug use behaviors across three time periods: lifetime, past year, and past month. The annual survey is funded by NIDA and is conducted by the University of Michigan. Results from the survey are released late each fall. For the latest survey results, go to: [www.drugabuse.gov/DrugPages/MTF.html](http://www.drugabuse.gov/DrugPages/MTF.html).

### Community Epidemiology Work Group (CEWG)

CEWG provides current descriptive and analytical information regarding the nature and patterns of drug abuse, emerging trends of drug use, characteristics of vulnerable populations, and the social and health consequences. CEWG is a NIDA-sponsored network of researchers from 20+ major U.S. metropolitan areas and selected foreign countries who meet semiannually to discuss the current epidemiology of drug abuse ([www.nida.nih.gov/about/organization/CEWG/CEWGHome.html](http://www.nida.nih.gov/about/organization/CEWG/CEWGHome.html)).

### National Survey on Drug Use and Health (NSDUH)

The Substance Abuse and Mental Health Services Administration's (SAMHSA) NSDUH (formerly called the National Household Survey on Drug Abuse) is the primary source of information on the prevalence, patterns, and consequences of alcohol, tobacco, and illegal drug use and abuse in the general U.S. civilian noninstitutionalized population, ages 12 and older. Survey information can be found at: [www.oas.samhsa.gov/nsduh.htm](http://www.oas.samhsa.gov/nsduh.htm).

### Drug Abuse Warning Network (DAWN)

The DAWN report, also prepared by SAMHSA, provides information about the impact of drug use on hospital emergency departments in the United States. It reports the number of visits to the emergency department that were related directly to the use of an illegal drug or the nonmedical use of a legal drug. DAWN is not a measure of the prevalence of use but instead offers information complementary to the prevalence data found in the NSDUH ([www.samhsa.gov/oas/dawn](http://www.samhsa.gov/oas/dawn)).

## Treatment Episode Data Set (TEDS)

The TEDS system includes records for approximately 1.5 million substance abuse treatment admissions annually. While TEDS does not represent all substance abuse treatment activities, it comprises a significant proportion of all admissions to substance abuse treatment programs and includes those

admissions that rely on public funds. Data are reported by sex, age, and race/ethnicity for each of 15 substance abuse categories. TEDS is maintained by the Office of Applied Studies, SAMHSA ([www.dasis.samhsa.gov/webt/information.htm](http://www.dasis.samhsa.gov/webt/information.htm)).

## NIDA RESOURCES

A wealth of material regarding various aspects of drug abuse and addiction is available, free of charge, from NIDA. Most of the following materials are available on the NIDA Web site. In addition to these publications, many reports—such as the Director’s report to NIDA’s National Advisory Council on Drug Abuse—are available online. The following materials are among those available from NIDA.

**Please visit [www.drugabuse.gov](http://www.drugabuse.gov) to view NIDA’s publications.**



Please visit the NIDA Image Bank to view and download NIDA images.

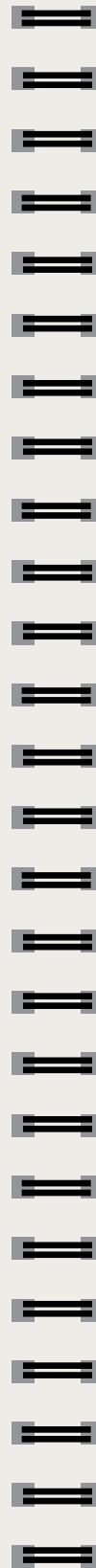
<http://media.nih.gov/imagebank/index.aspx>

### NIDA InfoFacts

NIDA *InfoFacts* is an online series of fact sheets on specific drugs, trends in use, and prevention and treatment issues. The fact sheets are available in English and Spanish. They are written for use by the general public ([www.nida.nih.gov/Infofacts/index.html](http://www.nida.nih.gov/Infofacts/index.html)).

### NIDA Research Reports

This series of reports simplifies research findings for the educated lay public, legislators, educational groups, and practitioners. The series reports on research findings of national interest, such as prescription drug abuse, tobacco addiction, and HIV/AIDS. Research Reports are also available in Spanish ([www.nida.nih.gov/ResearchReports/ResearchIndex.html](http://www.nida.nih.gov/ResearchReports/ResearchIndex.html)).



### NIDA Notes

*NIDA Notes*, published bimonthly, is the Institute’s major vehicle for relaying research findings to the field in a timely manner. It covers the areas of treatment and prevention research, epidemiology, neuroscience, behavioral research, health services research, and HIV/AIDS. The publication reports on advances in the drug abuse field; identifies NIDA research priorities and opportunities; promotes an exchange of information; and seeks to improve communication among clinicians, researchers, administrators, and policymakers ([www.nida.nih.gov/NIDA\\_Notes/NNindex.html](http://www.nida.nih.gov/NIDA_Notes/NNindex.html)).

### Addiction Science & Clinical Practice

The Institutes Journal, *Addiction Science & Clinical Practice*, published biannually, promotes dialogue between scientists and addiction treatment professionals, with the aim of improving drug abuse treatment and research. The journal’s exchange of information, observations, and insights helps clinicians make the most of their programs and achieve better treatment outcomes while providing researchers with tools to construct new hypotheses and to design studies highly relevant to the needs of providers and patients ([www.nida.nih.gov/Perspectives/index.html](http://www.nida.nih.gov/Perspectives/index.html)).

### NIDA Web Site

Through its online presence, NIDA strives to communicate its research findings to the wide-ranging audiences it serves, which include students, parents, teachers, researchers, scientists, prevention and treatment practitioners, health care professionals, policymakers, constituent groups, children and adolescents, underserved populations, and the general public.

Most of NIDA’s publications are available on NIDA’s Web site: [www.drugabuse.gov](http://www.drugabuse.gov).

#### Special features include:

- “What’s New,” a link to the latest NIDA materials available online
- NIDA news releases
- Upcoming NIDA-sponsored meetings and conferences
- International activities related to research on drug abuse and addiction
- NIDA organizational units and funding information
- NIDA materials available in Spanish
- Public service announcements

#### Other NIDA sites:

- [www.teens.drugabuse.gov](http://www.teens.drugabuse.gov)
- [www.backtoschool.drugabuse.gov](http://www.backtoschool.drugabuse.gov)
- [www.hiv.drugabuse.gov](http://www.hiv.drugabuse.gov)
- [www.steroidabuse.gov](http://www.steroidabuse.gov)
- [www.inhalants.drugabuse.gov](http://www.inhalants.drugabuse.gov)

## OTHER GOVERNMENT WEB SITES FOR HEALTH AND SCIENCE INFORMATION

### NIH ([www.nih.gov](http://www.nih.gov))

NIH is the steward of medical and behavioral research for the Nation. Its mission is science in pursuit of fundamental knowledge about the nature and behavior of living systems and the application of that knowledge to extend healthy life and to reduce the burdens of illness and disability. NIH is part of the U.S. Department of Health and Human Services (DHHS).

### NLM ([www.nlm.nih.gov](http://www.nlm.nih.gov))

NLM is the world's largest library dealing with a single scientific/professional topic. It cares for more than 4.5 million holdings (including books, journals, reports, manuscripts, and audiovisual items) and sponsors MedlinePlus, a source of up-to-date, quality health care information from NLM and NIH.

### Healthfinder ([www.healthfinder.gov](http://www.healthfinder.gov))

Healthfinder is a gateway consumer health information Web site from DHHS.

### NWHIC ([www.4women.gov](http://www.4women.gov))

NWHIC is a national clearinghouse for women's health information, sponsored by the Office on Women's Health within DHHS. NWHIC is the only Federal, commercial-free, combined women's health Web site and toll-free phone information center.

# about NIDA

## NIDA'S HISTORY AND BACKGROUND

### Research Accomplishments

**Contributing to a steady decline in drug use among teens.** Since the peak years of the mid-1990s, drug abuse has declined substantially and continues to do so. In fact, according to NIDA's 2008 Monitoring the Future Survey of 8th-, 10th-, and 12th-grade students nationwide, illicit drug use among youth continued to decline from 2001, with a 25-percent reduction in overall drug use over the past 7 years. This reduction equates to approximately 900,000 fewer young people using drugs today compared with 2001.

**Identifying the molecular sites and systems in the brain where every major drug of abuse has its effect.** Such discoveries have led to the development and approval of nicotine replacement therapies for cigarette smoking cessation and new medications like buprenorphine, now prescribed by physicians in office settings, for opiate addiction.

**Discovering a new communications network that opens the way to novel medical therapies.** NIDA-supported research was pivotal to the discovery of a cannabinoid system distributed throughout the brain and body and composed of the body's own compounds that are chemically related to marijuana's active ingredient. This network promises new and novel interventions for a range of diseases and conditions, including addiction, obesity, pain, osteoporosis, multiple sclerosis, and anxiety disorders.

**Demonstrating that addiction is a treatable disease.** Medications and behavioral therapies can provide long-lasting benefits for people trying to overcome addiction, especially when used together. Addiction treatment promotes continued abstinence, which can reverse some of the detrimental brain changes caused by addiction, as shown in pioneering imaging studies. Successful drug abuse treatment also reduces crime and other societal costs, including health costs, now in the billions.



### Optimizing research findings to create individually tailored treatments.

Researchers are taking advantage of ongoing discoveries from the Human Genome Project, identifying genetic markers of complex disorders such as addiction. Now, gene variants are being discovered that can predict who will respond to a medication and who will not. These breakthroughs herald a new era of individualized therapies that will optimize outcomes, promote cost-efficiency, and relieve suffering.

### Decreasing the spread of HIV.

Through the development of treatments for injection drug use (IDU), NIDA has contributed to the decline in IDU-associated HIV infections. Innovative community-based research shows that drug abuse treatment reduces risk behaviors leading to HIV transmission; thus, drug abuse treatment is HIV/AIDS prevention.

**Changing the course of drug abuse treatment in this country.** NIDA engages in myriad efforts to “translate” the results of basic and clinical research for real-world use. Our goal is to get research-based treatments into the hands of providers in community treatment centers, the criminal justice system, and physicians’ offices. To that end, NIDA has established collaborative networks of researchers and practitioners, Federal agencies, and State substance abuse directors to integrate research findings into drug abuse treatment settings nationwide.

## Decade of NIDA Outreach and Education Activities

**1985:** NIDA publishes the first issue of its bimonthly newsletter, *NIDA Notes*, now disseminating research findings to 100,000 professionals worldwide.

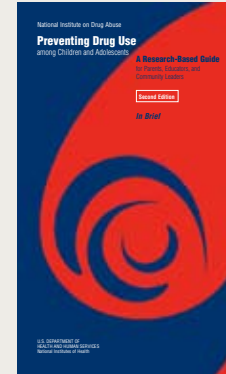
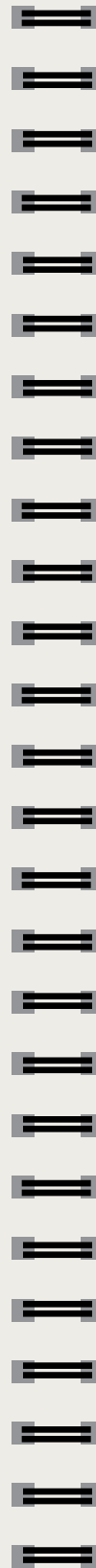


**1990:** NIDA launches *Get High, Get Stupid, Get AIDS*, a public awareness campaign directed at young adults emphasizing how drug abuse can impair judgment and can lead to risky sexual behavior.

**1992:** NIDA publishes *If You Change Your Mind*, a video documentary produced by middle school students about drug abuse. The package came with a student magazine and teacher’s guide.



**1995:** NIDA publishes *Marijuana: Facts for Teens* and *Marijuana: Facts Parents Need to Know*, two of NIDA’s most popular publications. (Updated versions are still available.)



**1997:** NIDA releases *Preventing Drug Use Among Children and Adolescents: A Research-Based Guide*, which described the most successful concepts for preventing

drug abuse among young people. The prevention principles were updated in 2003.

**1997:** NIDA launches the annual PRISM awards for the accurate depiction of drugs, alcohol, and tobacco in feature films and television productions. The PRISM Awards were created as a high profile, 10-year program.



**1997:** NIDA releases the *Mind Over Matter* series for grades 5 through 9. The series, complete with a teacher’s guide, highlights the effects of drugs on the brain and encourages the study of science. This popular series is still in use and was translated into Spanish in 2006.

**1999:** NIDA releases *Principles of Drug Addiction Treatment: A Research-Based Guide*, developed for use in local communities. The guide describes the most successful concepts for treating people with drug abuse and addiction problems. The *Principles* were updated in early 2009.

**1999:** NIDA launches the *NIDA Goes to School* initiative to provide middle school students with accurate information on how drugs affect the brain. More than 18,000 middle schools across the country received materials during the launch year. In following years the project was renamed *NIDA Goes Back to School*.

**2000:** NIDA launches “Blending Clinical Practice and Research: Forging Partnerships to Enhance Drug Addiction Treatment Research.” In 2003, the Blending Initiative evolved into a partnership with the Substance Abuse and Mental Health Services Administration to accelerate the dissemination of research-based treatment findings into community-based practice. By 2008, the Blending Initiative had produced six products, including materials on buprenorphine treatment, motivational interviewing, and the Addiction Severity Index for treatment planning.

**2000:** NIDA launches its *Bright and Choices* public service announcements as part of its campaign to increase knowledge that addiction is a brain disease.



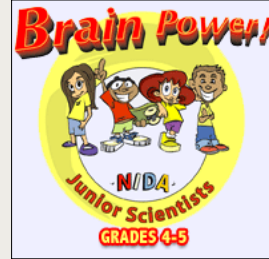
**2000:** NIDA distributes its Clinical Toolbox, a collection of science-based materials on drug addiction and its treatment, to the nearly 12,000 drug

treatment programs nationwide.

**2002:** The Institute launches its first peer-reviewed journal, *Science & Practice Perspectives*, to encourage more collaboration between researchers and practitioners. The journal's name was changed to *Addiction Science & Clinical Practice* in 2008.

**2002:** NIDA releases the new elementary school curriculum *Brain Power! The NIDA Junior Scientist*

*Program*, for use in 2nd- and 3rd-grade classrooms. Curricula for grades K-1 and 4-5 were developed by 2007.



**2002:** NIDA teams with Scholastic, a leading provider of educational materials for children and teachers, to bring ongoing science-based information about drug abuse to millions of U.S. schoolchildren.

**2002:** NIDA releases *Principles of HIV Prevention in Drug-Using Populations: A Research-Based Guide*, to help communities prevent the spread of HIV.

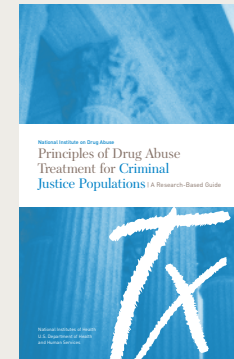
**2002:** NIDA launches its *Game Plan* public awareness campaign to remind young people about the dangers of using steroids to enhance performance.

**2003:** NIDA launches its interactive Web site, "NIDA for Teens: The Science Behind Drug Abuse."



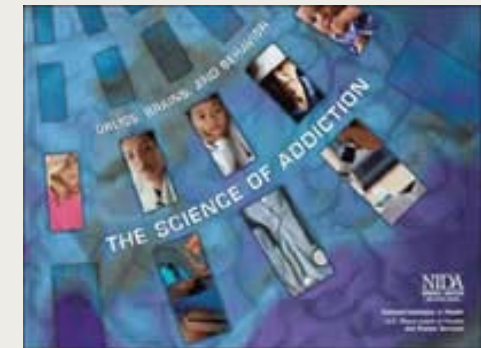
**2005:** NIDA launches the *Drug Abuse and HIV: Learn the Link* campaign to educate young people about the connection between substance abuse and HIV infection. The Spanish-language version launches in 2007.

**2006:** NIDA launches *Principles of Drug Abuse Treatment for Criminal Justice Populations: A Research-Based Guide*, summarizing proven components for successfully treating drug abusers who have entered the criminal justice system.



**2007:** NIDA holds its first annual DRUG FACTS CHAT DAY, an online opportunity for students from around the country to ask questions about drugs and to have them answered by top NIDA scientists. High school students in schools from 49 States, the District of Columbia, Puerto Rico, the U.S. Virgin Islands, and Guam submitted more than 36,000 questions on a wide range of drug abuse-related topics.

**2007:** NIDA releases its first plain-language booklet explaining the science behind addiction. *Drugs, Brains, and Behavior—The Science of Addiction* discusses the reasons that people take drugs, why some people become addicted while others do not, how drugs work in the brain, and how addiction can be prevented and treated. The booklet is designed to educate the public and to reduce the stigma surrounding drug addiction.

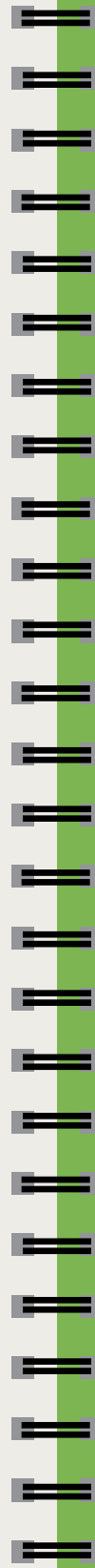


**2007:** NIDA joins with HBO, the Robert Wood Johnson Foundation, and the National Institute on Alcohol Abuse and Alcoholism to produce the Emmy Award-winning documentary *Addiction*. The film explores drug and alcohol abuse through the eyes of those who suffer from this devastating disease, with the added perspective of scientific and clinical experts working to better understand and treat it.

**2008:** NIDA launches the *Addiction Science Awards*, the first NIH awards given at the Intel International Science and Engineering Fair, the world's largest high school science fair.



**2008:** NIDA launches *DrugPubs* (877-NIDA-NIH), its own online and telephone-based service for the public seeking NIDA materials on drug abuse and addiction. The *DrugPubs* e-mail address is [drugpubs@nida.nih.gov](mailto:drugpubs@nida.nih.gov).



## glossary

## COMMONLY USED TERMS IN ADDICTION SCIENCE

### A

**Addiction:** A chronic, relapsing disease characterized by compulsive drug-seeking and abuse and by long-lasting changes in the brain.

**Amphetamine:** A stimulant drug with effects that are similar to cocaine.

**Amyl nitrite:** A yellowish oily volatile liquid used in certain diagnostic procedures. Illegally diverted ampules of amyl nitrite are called “poppers” or “snappers” on the street. By inhaling its vapors, abusers seek to enhance a sexual experience.

**Anabolic/androgenic steroids:** Male hormones, principally testosterone, that are partially responsible for the tremendous developmental changes that occur during puberty and adolescence. Male hormones have androgenic and anabolic effects.

**Anabolic effects:** Accelerated growth of muscle, bone, and red blood cells; decrease in body fat; and enhanced neural conduction.

**Analgesics:** A group of medications that reduce pain.

**Androgenic effects:** Changes in primary and secondary sexual characteristics.

**Anesthetic:** An agent that causes

insensitivity to pain and is used for surgeries and other medical procedures.

**Axon:** The fiber-like extension of a neuron by which the cell carries information from the cell body to the axon terminal.

**Axon terminal:** The structure at the end of an axon that produces and releases chemicals (neurotransmitters) to transmit the neuron’s message across the synapse.

### B

**Barbiturate:** A type of central nervous system (CNS) depressant often prescribed to promote sleep.

**Behavioral treatments:** A set of treatments that focus on modifying thinking, motivation, coping mechanisms, and/or choices made by individuals.

**Benzene:** Used as an inhalant—a volatile liquid solvent found in gasoline.

**Benzodiazepine:** A type of CNS depressant often prescribed to relieve anxiety. Valium and Xanax are among the most widely prescribed medications.

**Bind:** The attaching of a neurotransmitter or other chemical to a receptor. The neurotransmitter is said to “bind” to the receptor.

**Brainstem:** The lower portion of the brain through which the forebrain sends

information to, and receives information from, the spinal cord and peripheral nerves. Major functions located in the brainstem include those necessary for survival, e.g., breathing, heart rate, blood pressure, and arousal.

**Buprenorphine:** Medication approved by the Food and Drug Administration in October 2002 for the treatment of opioid addiction.

**Butane:** An inhalant—a volatile substance found in lighter fluid.

**Butyl nitrite:** An illegal substance that is often packaged and sold in small bottles, also referred to as “poppers.” Like other organic nitrites, it is used primarily as a sexual enhancer.

## C

**Cannabinoid receptor:** The receptor in the brain that recognizes and binds endogenous cannabinoids like anandamide and the related—but exogenous—molecule Delta-9-tetrahydrocannabinol (THC), the active ingredient in marijuana.

**Cannabinoids:** Chemicals produced naturally that bind to cannabinoid receptors. They are involved in a variety of mental and physical processes, including pain regulation, food intake, and reward.

**Cannabis:** The botanical name for the plant that produces marijuana.

**Carcinogen:** A substance that may cause cancer.

**Cardiovascular system:** The heart and blood vessels.

**Cell body (or soma):** The central structure of a cell (e.g., neuron) that contains the cell nucleus. The cell body contains both the genetic information and the molecular machinery that translates the information into proteins that determine the function and regulate the activity of the cell.

**Central nervous system:** The brain and spinal cord.

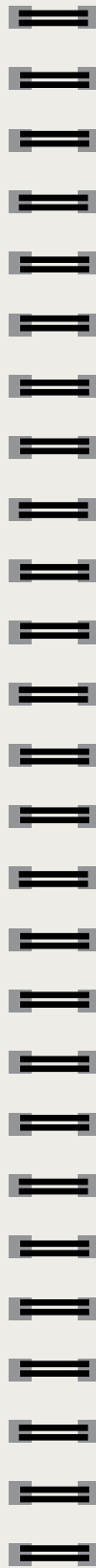
**Cerebellum:** A portion of the brain that helps regulate posture, balance, and coordination.

**Cerebral cortex:** Region of the brain responsible for higher cognitive functions, including language, reasoning, decisionmaking, and judgment.

**Cerebral hemispheres:** The two specialized halves of the brain. In right-handed people, the left hemisphere is specialized for speech, writing, language, and calculation; the right hemisphere is specialized for spatial abilities, face recognition in vision, and some aspects of music perception and production.

**Cerebrum:** The upper part of the brain consisting of the left and right hemispheres.

**CNS depressants:** A class of drugs that slow CNS function (also called sedatives and tranquilizers), some of which are used to treat anxiety and sleep disorders (includes barbiturates and benzodiazepines).



**Coca:** The plant, *Erythroxylon*, from which cocaine is derived. Also refers to the leaves of this plant.

**Cocaethylene:** A substance produced when coingested cocaine and alcohol are combined in the body (chemically similar to cocaine).

**Cocaine:** A highly addictive stimulant drug derived from the coca plant that produces profound feelings of pleasure.

**Comorbidity:** When two disorders or illnesses occur in the same person, they are called comorbid. Drug abuse and other mental illnesses are often comorbid.

**Co-occurring disorders:** When two disorders or illnesses occur simultaneously in the same person they are co-occurring comorbid disorders.

**Crack:** Slang term for a smokeable form of cocaine.

**Craving:** A powerful, often overwhelming desire for drugs.

**Cyclohexyl nitrite:** An inhalant. Like other nitrites, it acts primarily to dilate blood vessels and to relax muscles and is used mainly as a sexual enhancer. It is usually sold in small bottles, often mislabeled as “video head cleaner,” “room odorizer,” “leather cleaner,” or “liquid aroma.”

## D

**Dendrite:** The specialized branches that extend from a neuron’s cell body and function to receive messages from other neurons.

**Dependence:** Physical dependence is a physiological state that can occur with regular illicit or prescription drug use and results in withdrawal symptoms when drug use is abruptly discontinued. Dependence is also the term used for addiction in the *Diagnostic and Statistical Manual of Mental Disorders*.

**Depressants:** Drugs that relieve anxiety and produce sleep. Depressants include barbiturates, benzodiazepines, and alcohol.

**Detoxification:** A process that enables the body to rid itself of a drug. Medically assisted detoxification may be needed to help manage an individual’s withdrawal symptoms. Detoxification alone is not treatment but is often the first step in a drug treatment program.

**Dopamine:** A brain chemical, classified as a neurotransmitter, found in regions of the brain that regulate movement, emotion, motivation, and pleasure.

**Drug:** A chemical compound or substance that can alter the structure and function of the body. Psychoactive drugs affect the function of the brain.

**Drug abuse:** The use of illegal drugs or the inappropriate use of legal drugs. The repeated use of drugs to produce pleasure, alleviate stress, and/or alter or avoid reality.

**Drugged driving:** Driving a vehicle while impaired due to the lingering, intoxicating effects of recent drug abuse.

## E

**Ecstasy (MDMA):**

3,4-methylenedioxymethamphetamine (MDMA) is a mood- and perception-altering drug that is chemically similar to hallucinogens and stimulants.

**Endogenous:** Something produced by the brain or other parts of the body.

**Ether:** A volatile liquid with a characteristic odor. Was used as a medical anesthetic, but ether's highly flammable properties limit its current usage.

## F

**Fluorinated hydrocarbons:** Gases or liquids commonly found in refrigerants, fire extinguishers, solvents, and anesthetics. Freon is one class of fluorinated hydrocarbons.

**Forebrain:** The largest division of the brain, which includes the cerebral cortex and basal ganglia. It is credited with the highest cognitive functions.

**Frontal lobe:** One of the four divisions of each cerebral hemisphere. The frontal lobe is important for decisionmaking, planning, and judgment.

## G

**Generational forgetting:** Term to describe when the knowledge of adverse consequences experienced by a particular generation or population is lost by a subsequent generation.

## H

**Hallucinations:** Perceptions of something (such as an image or a sound) that does not exist in the real world. Hallucinations usually arise from a disorder of the nervous system or as an effect of a hallucinogenic drug, such as LSD.

**Hallucinogens:** A diverse group of drugs that alter perceptions, thoughts, and feelings. Hallucinogenic drugs include LSD, mescaline, and psilocybin (magic mushrooms).

**Halothane:** An inhalant—a medical anesthetic gas.

**Heroin:** A synthetic opioid related to morphine (diacetyl morphine). It is more potent than morphine and is highly addictive.

**Hexane:** A hydrocarbon volatile liquid found in glue or gasoline.

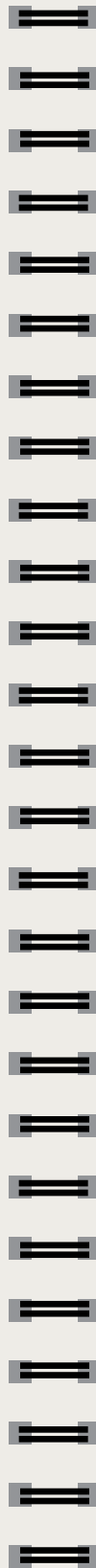
**Hippocampus:** An area of the brain crucial for learning and memory.

**Hypothalamus:** A part of the brain that controls many bodily functions, including feeding, drinking, thermoregulation, and the release of many hormones.

## I

**Ingestion:** The act of taking food or other substances into the body through the mouth.

**Inhalant:** Any drug administered by breathing in its vapors. Inhalants are commonly organic solvents, such as glue and paint thinner, or anesthetic gases, such as nitrous oxide.



**Inhalation:** The act of administering a drug or combination of drugs by nasal or oral respiration, as well as the act of drawing air or other substances into the lungs. Nicotine in tobacco smoke enters the body by inhalation.

**Injection:** A method of administering a substance, such as a drug, into the skin, subcutaneous tissue, muscle, blood vessels, or body cavities, usually by means of a needle.

**Intravenous drug use:** The act of administering drugs directly into blood vessels using a hypodermic needle and syringe.

## L

**Limbic system:** A set of subcortical brain structures that are involved with feelings, emotions, and motivations. It is also important for learning and memory.

**LSD (lysergic acid diethylamide):** A hallucinogenic drug that acts on the serotonin receptor.

## M

**Marijuana:** A drug, usually smoked but sometimes ingested, that is made from the leaves of the cannabis plant. The main psychoactive ingredient is Delta-9-tetrahydrocannabinol (THC).

**Medication:** A drug that is used to treat an illness or disease according to established medical guidelines. If the medication contains one or more controlled substances, it must be prescribed by a licensed physician.

**Methadone:** A long-acting synthetic opioid medication that is effective in treating opioid addiction and pain.

**Methamphetamine:** An abusable, potent stimulant drug that is part of the larger class of amphetamines.

**Methylphenidate (Ritalin/Concerta):** Methylphenidate is a CNS stimulant. It has effects similar to, but more potent than, caffeine and less potent than amphetamines. It has a notably calming and “focusing” effect on patients with attention-deficit hyperactivity disorder, particularly children.

**Myelin:** Fatty material that surrounds and insulates axons of most neurons to ensure a high level of electrochemical conductance.

## N

**Neuron (nerve cell):** A unique type of cell found in the brain and throughout the body that specializes in the transmission and processing of information.

**Neurotransmission:** The process that occurs when a neuron releases neurotransmitters into the synapse to communicate with other neurons.

**Neurotransmitter:** A chemical produced by neurons to carry messages to adjacent neurons.

**Nicotine:** The addictive drug in tobacco. Nicotine activates a specific type of acetylcholine receptor.

**Nitrites:** A special class of inhalants that act primarily to dilate blood vessels and to relax the muscles. Whereas other inhalants alter mood through their effects on brain physiology, nitrites are used primarily as sexual enhancers. (See also amyl nitrite and butyl nitrite.)

**Nitrous oxide:** An inhalant. A medical anesthetic gas, often used in dentistry, that is also called “laughing gas” and is found in whipped cream dispensers.

**Noradrenaline:** A neurotransmitter that is made in the brain and influences, among other things, the function of the heart.

**Nucleus:** A cluster or group of nerve cells that is dedicated to performing a distinct function(s). Nuclei are found throughout the brain but are called cortical fields in the cerebral cortex. (See “cell body” above for definition within a cell.)

**Nucleus accumbens:** A part of the brain reward system, located in the limbic system, that processes information related to motivation and reward. Nearly all drugs of abuse act directly or indirectly on the nucleus accumbens to reinforce drug taking.

## O

**Occipital lobe:** The portion of the cerebral cortex located at the back of the head that includes the visual cortex.

**Opiates (or opioids):** Controlled substances most often prescribed for the management of pain. They are natural or synthetic chemicals based on opium’s active component “morphine”

that work by mimicking the actions of pain-relieving chemicals produced in the body, such as enkephalin and endorphin, which are also referred to as endogenous opioids.

## P

**Parietal lobe:** One of the four subdivisions of the cerebral cortex, it is involved with sensory processes, attention, and language.

**Polyneuropathy:** A neurological disorder that occurs when many peripheral nerves throughout the body undergo permanent change or malfunction simultaneously.

**Prescription drug abuse:** The intentional misuse of a medication outside of the normally accepted standards of its use.

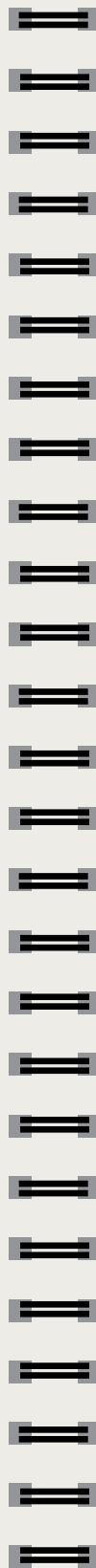
**Prescription drug misuse:** Unintentional use of medication in a manner other than that prescribed.

**Psychedelic drug:** A drug that distorts perception, thought, and feeling. This term is typically used to refer to drugs with hallucinogenic actions like those of LSD.

**Psychoactive:** Having a specific effect on the brain.

**Psychoactive drug:** A drug that changes the way the brain works.

**Psychotherapeutics:** Drugs that have an effect on the function of the brain, some of which are used to treat psychiatric disorders. They include antidepressants, mood stabilizers, CNS depressants, stimulants, and opioids.



## R

**Receptor:** A large molecule that recognizes specific chemicals (normally neurotransmitters, hormones, and similar endogenous substances) and transmits the message carried by the chemical into the cell on which the receptor resides.

**Relapse:** In drug abuse, relapse is the resumption of drug use after an attempt to stop taking drugs. Relapse is a common occurrence in many chronic disorders, including addiction, that require frequent behavioral and/or pharmacologic adjustments to be treated effectively.

**Reuptake:** The process by which neurotransmitters are removed from the synaptic space by being “pumped” through transporters back into the axon terminals that first released them.

**Reuptake pump (transporter):** The large molecule that actually transports neurotransmitter molecules back into the axon terminals that released them.

**Reward:** The process that reinforces behavior or increases its likelihood of recurrence. It is mediated at least in part by the release of dopamine into the nucleus accumbens. Human subjects report that reward is associated with feelings of pleasure.

**Reward system (or brain reward system):** A brain circuit that, when activated, reinforces behaviors. The circuit includes the dopamine-containing neurons of the ventral

tegmental area, the nucleus accumbens, and part of the prefrontal cortex.

**Route of administration:** The way a drug is put into the body. Drugs can enter the body by eating, drinking, inhaling, injecting, snorting, smoking, or absorption through mucous membranes.

**Rush:** A surge of pleasure (euphoria) that rapidly follows the administration of some drugs.

## S

**Sedatives:** Drugs that promote sleep, suppress anxiety, and relax muscles; the National Survey on Drug Use and Health (NSDUH) classification includes benzodiazepines, barbiturates, and other types of CNS depressants.

**Serotonin:** A neurotransmitter that regulates many functions, including mood, appetite, and sensory perception.

**Stimulants:** A class of drugs that elevates mood, increases feelings of well-being, and increases energy and alertness. These drugs produce euphoria and are powerfully rewarding. Stimulants include cocaine, amphetamine, methamphetamine, and methylphenidate.

**Sudden sniffing death:** A type of death that can occur when inhaled fumes fill up the cells in the lungs with poisonous chemicals, leaving no room for the oxygen needed to breathe. This lack of oxygen can lead to suffocation, respiratory failure, and death.

**Synapse:** The site where presynaptic and postsynaptic cells communicate with each other.

**Synaptic space (or synaptic cleft):** The intercellular space between the presynaptic and postsynaptic neurons where neurotransmitters are released.

## T

**Temporal lobe:** The lobe of the cerebral cortex at the side of the head that integrates visual and auditory perceptions.

**Tetrahydrocannabinol:** See “THC.”

**Thalamus:** Located deep within the brain, the thalamus is the key relay station for sensory information flowing to the cortex, selecting important messages out of the background noise produced by the many signals entering the brain.

**THC:** Delta-9-tetrahydrocannabinol; the main active ingredient in marijuana, which acts on the brain to produce marijuana’s psychoactive effects.

**Tobacco:** A plant widely cultivated for its leaves, which are used primarily for smoking; the tabacum species is the major source of tobacco products.

**Tolerance:** A condition in which higher doses of a drug are required to produce the same effect achieved during initial use, which often leads to physical dependence.

**Toluene:** A light colorless liquid solvent found in many commonly abused inhalants, including model

airplane glue, paint sprays, and paint and nail polish removers.

**Tranquilizers:** Drugs prescribed to promote sleep or to reduce anxiety; the NSDUH classification includes benzodiazepines, barbiturates, and other types of CNS depressants.

**Transporter:** A large protein on the cell membrane of the axon terminals. It removes neurotransmitter molecules from the synapse and transports them back into the axon terminal that released them.

**Trichloroethylene:** A liquid used as a solvent and, in medicine, as an anesthetic and analgesic. It is found in cleaning fluid and correction fluid.

## V

**Ventral tegmental area:** The group of dopamine-containing neurons that make up a key part of the brain reward system. These neurons extend axons into the nucleus accumbens and beyond to the prefrontal cortex.

**Vesicle:** A membranous sac within an axon terminal that stores neurotransmitters and releases them when needed.

## W

**Withdrawal:** Symptoms that occur after chronic use of a drug has been abruptly reduced or stopped. Symptom severity depends on the type of drug, the dosage, and how long and how frequently it has been taken.





## WHO TO CALL FOR WHAT

### National Institutes of Health

within the U.S. Department of Health and Human Services (DHHS)

#### FOR MORE INFORMATION ON THESE SUBJECTS:

*Science of drug abuse and addiction; nicotine addiction; substance abuse prevention and treatment; illicit drugs and their medical consequences; prescription drug abuse; the link between drug abuse and HIV/AIDS; and the annual Monitoring the Future Survey (8th, 10th, and 12th graders)*

*Science of alcohol use, addiction, and abuse; drunk driving; and fetal alcohol syndrome*

#### CONTACT:

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

NIDA's mission is to lead the Nation in bringing the power of science to bear on drug abuse and addiction.

This charge has two critical components. The first is the strategic support and conduct of research across a broad range of disciplines. The second is ensuring the rapid and effective dissemination and use of the results of that research to significantly improve prevention, treatment, and policy as they relate to drug abuse and addiction. NIDA works with a variety of government and private-sector institutions to further scientific knowledge about drug abuse and addiction.

NIDA Press Office: 301-443-6245

E-mail: [media@nida.nih.gov](mailto:media@nida.nih.gov)

Web: <http://www.nida.nih.gov/NIDANews.html>

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

NIAAA is the primary National Institutes of Health (NIH) Institute conducting and supporting research on the causes, consequences, prevention, and treatment of alcohol abuse, alcoholism, and other alcohol-related problems. NIDA and NIAAA often collaborate on research and communications projects regarding the concurrent use of alcohol and other drugs; however, NIAAA is NIH's primary source for information on alcohol-related issues.

NIAAA Press Office: 301-443-3860

Web: <http://www.niaaa.nih.gov>

**Science of mental health prevention and treatment****National Institute of Mental Health (NIMH)**

NIMH is the primary NIH Institute conducting research on mental disorders. NIMH and NIDA often collaborate on research, as comorbidity is common (about 6 in 10 people with substance abuse problems also have co-occurring mental illnesses); however, NIMH is NIH's primary source for information on mental health research.

NIMH Press Office: 301-443-4536  
E-mail: [NIMHpress@mail.nih.gov](mailto:NIMHpress@mail.nih.gov)  
Web: <http://www.nimh.nih.gov>

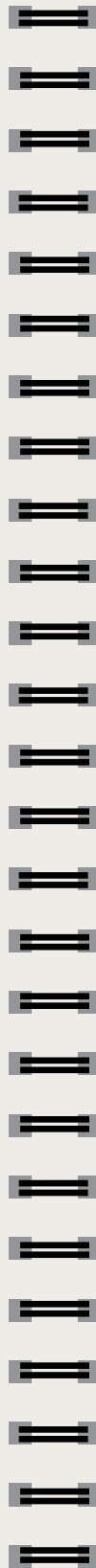
**Other Relevant Agencies Within DHHS****FOR MORE INFORMATION ON THESE SUBJECTS:**

***National Survey on Drug Use and Health, Treatment Facility Locator, and Treatment Block Grants***

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

SAMHSA conducts the National Survey on Drug Use and Health that is published every autumn. SAMHSA's Center for Substance Abuse Prevention provides national leadership in the development of substance abuse programs and services through prevention and treatment block grants. SAMHSA's Center for Substance Abuse Treatment provides a nationwide treatment facility locator (including a national toll-free referral number) and maintains a list of methadone treatment centers by State as well as information on physicians authorized to prescribe buprenorphine. SAMHSA and NIDA work closely together to integrate the latest on addiction science into community-based programs.

SAMHSA Press Office: 240-276-2130  
Web: <http://www.samhsa.gov>

**Safety and efficacy of medications****Smoking prevention and cessation and HIV/AIDS****Food and Drug Administration (FDA)**

FDA assures the safety and efficacy of medical drugs and produces education programs that advise consumers on how to take medicines safely. FDA and NIDA share information on scientific and communications programs related to safe medicines.

FDA Press Office: 301-827-6250  
Web: <http://www.fda.gov>

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

CDC's Office on Smoking and Health works on a range of issues related to tobacco use, including promoting youth prevention and helping current smokers quit. In addition, CDC's National Center for Health Statistics is an excellent source for national health statistics, including data about substance abuse.

CDC Press Office: 202-395-6618  
Web: <http://www.cdc.gov/media/>  
<http://www.cdc.gov/tobacco/>

**Relevant Offices Outside DHHS****Office of National Drug Control Policy (ONDCP)**

ONDCP is a component of the Executive Office of the President. ONDCP shares information and collaborates with NIDA on a variety of addiction science issues; however, ONDCP is the chief office setting the policies, priorities, and objectives for the Nation's drug control program.

ONDCP Press Office: 202-395-6618  
Web: [www.whitehousedrugpolicy.gov](http://www.whitehousedrugpolicy.gov)

**Drug Enforcement Administration (DEA)  
within the U.S. Department of Justice**

The DEA enforces the controlled substances laws and regulations of the United States. Although the DEA shares information with NIDA on drug supply issues, questions concerning investigations into drug trafficking, the diversion of pharmaceuticals, or drug-related criminal activity should be referred to the DEA press office.

DEA Press Office: 202-307-7977  
Web: <http://www.dea.gov>

**Bureau of Justice Statistics (BJS)**

BJS is an invaluable resource for data related to drug abuse and crime. BJS shares its data with NIDA as part of NIDA's ongoing initiative to provide effective drug treatment within the criminal justice system.

BJS Press Office: 202-514-2007  
Web: <http://www.ojp.usdoj.gov/bjs/drugs.htm>

When your story  
is the science of addiction,  
NIDA is your source.

**NIDA Press Office**  
301-443-6245  
[media@nida.nih.gov](mailto:media@nida.nih.gov)

**NIDA News Releases**  
[www.nida.nih.gov/NIDAnews.html](http://www.nida.nih.gov/NIDAnews.html)