

## Heroin

Heroin is an addictive drug, and its use is a serious problem in America.

Heroin is processed from morphine, a naturally occurring substance extracted from the seedpod of the Asian poppy plant. Heroin usually appears as a white or brown powder. Street names for heroin include "smack," "H," "skag," and "junk." Other names may refer to types of heroin produced in a specific geographical area, such as "Mexican black tar."

### **Health Hazards** ———

Heroin abuse is associated with serious health conditions, including fatal overdose, spontaneous abortion, collapsed veins, and, particularly in users who inject the drug, infectious diseases, including HIV/AIDS and hepatitis.

The short-term effects of heroin abuse appear soon after a single dose and disappear in a few hours. After an injection of heroin, the user reports feeling a surge of euphoria ("rush") accompanied by a warm flushing of the skin, a dry mouth, and heavy extremities. Following this initial euphoria, the user goes "on the nod," an alternately wakeful and drowsy state. Mental functioning becomes clouded due to the depression

of the central nervous system. Long-term effects of heroin appear after repeated use for some period of time. Chronic users may develop collapsed veins, infection of the heart lining and valves, abscesses, cellulitis, and liver disease. Pulmonary complications, including various types of pneumonia, may result from the poor health condition of the abuser, as well as from heroin's depressing effects on respiration.

Heroin abuse during pregnancy and its many associated environmental factors (e.g., lack of prenatal care) have been associated with adverse consequences including low birth weight, an important risk factor for later developmental delay.

In addition to the effects of the drug itself, street heroin may have additives that do not readily dissolve and result in clogging the blood vessels that lead to the lungs, liver, kidneys, or brain. This can cause infection or even death of small patches of cells in vital organs.

The Drug Abuse Warning Network\* reports that eight percent of drug-related emergency department (ED) visits in the third and fourth quarters of 2003 involved heroin abuse. Unspecified opiates—which could include heroin—were involved in an additional 4 percent of drug-related visits.

## **Tolerance, Addiction, and Withdrawal**

With regular heroin use, tolerance develops. This means the abuser must use more heroin to achieve the same intensity of effect. As higher doses are used over time, physical dependence and addiction develop. With physical dependence, the body has adapted to the presence of the drug and withdrawal symptoms may occur if use is reduced or stopped.

Withdrawal, which in regular abusers may occur as early as a few hours after the last administration, produces drug craving, restlessness, muscle and bone pain, insomnia, diarrhea and vomiting, cold flashes with goose bumps ("cold turkey"), kicking movements ("kicking the habit"), and other symptoms. Major withdrawal symptoms peak between 48 and 72 hours after the last dose and subside after about a week. Sudden withdrawal by heavily dependent users who are in poor health is occasionally fatal, although heroin withdrawal is considered less dangerous than alcohol or barbiturate withdrawal.

## **Treatment** \_\_\_\_\_

There is a broad range of treatment options for heroin addiction, including medications as well as behavioral therapies. Science has taught us that when medication treatment is integrated with

other supportive services, patients are often able to stop heroin (or other opiate) use and return to more stable and productive lives.

In November 1997, the National Institutes of Health (NIH) convened a Consensus Panel on Effective Medical Treatment of Heroin Addiction. The panel of national experts concluded that opiate drug addictions are diseases of the brain and medical disorders that indeed can be treated effectively. The panel strongly recommended (1) broader access to methadone maintenance treatment programs for people who are addicted to heroin or other opiate drugs; and (2) the Federal and State regulations and other barriers impeding this access be eliminated. This panel also stressed the importance of providing substance abuse counseling, psychosocial therapies, and other supportive services to enhance retention and successful outcomes in methadone maintenance treatment programs. The panel's full consensus statement is available by visiting the NIH Consensus Development Program Web site at [consensus.nih.gov](http://consensus.nih.gov).

*Methadone*, a synthetic opiate medication that blocks the effects of heroin for about 24 hours, has a proven record of success when prescribed at a high enough dosage level for people addicted to heroin. Other approved medications are *naloxone*, which is used to treat cases of overdose, and *naltrexone*,

both of which block the effects of morphine, heroin, and other opiates.

*Buprenorphine* is the most recent addition to the array of medications available for treating addiction to heroin and other opiates. This medication is different from methadone in that it offers less risk of addiction and can be dispensed in the privacy of a doctor's office. Several other medications for use in heroin treatment programs are also under study.

For the pregnant heroin abuser, methadone maintenance combined with prenatal care and a comprehensive drug treatment program can improve many of the detrimental maternal and neonatal outcomes associated with untreated heroin abuse. There is preliminary evidence that buprenorphine also is safe and effective in treating heroin dependence during pregnancy, although infants exposed to methadone or buprenorphine during pregnancy typically require treatment for withdrawal symptoms. For women who do not want or are not able to receive pharmacotherapy for their heroin addiction, detoxification from opiates during pregnancy can be accomplished with relative safety, although the likelihood of relapse to heroin use should be considered.

There are many effective behavioral treatments available for heroin addiction. These can include residential and outpatient approaches. Several new

behavioral therapies are showing particular promise for heroin addiction.

*Contingency management* therapy uses a voucher-based system, where patients earn "points" based on negative drug tests, which they can exchange for items that encourage healthful living. *Cognitive-behavioral* interventions are designed to help modify the patient's thinking, expectancies, and behaviors and to increase skills in coping with various life stressors.

## **Extent of Use** \_\_\_\_\_

### **Monitoring the Future (MTF) Survey\*\***

According to the 2005 MTF, rates of heroin use were stable among all three grades measured.

<b>Heroin Use by Students, 2005: Monitoring the Future Survey</b>			
	8th-Graders	10th-Graders	12th-Graders
Lifetime***	1.5%	1.5%	1.5%
Annual	0.8	0.9	0.8
30-day	0.5	0.5	0.5

### **Community Epidemiology Work Group (CEWG) §**

Heroin indicators, as measured by the Community Epidemiology Work Group (CEWG), remained high in Baltimore, Newark, Boston, Chicago, New York City, Philadelphia, San Francisco, Seattle, and Washington, DC. Baltimore

and Newark ranked highest of all CEWG areas in the percentage of heroin items analyzed by forensic labs in 2004; heroin was identified in 34 percent of items analyzed in Newark, and in 26 percent of items analyzed in Baltimore. Eighty-two percent of drug treatment admissions (excluding alcohol) in 2004 were attributable to primary heroin abuse in Newark, followed by 74 percent in the Boston area, and 60 percent in Baltimore.

### **National Survey on Drug Use and Health (NSDUH) <sup>§§</sup>**

The 2004 NSDUH reports a significant decrease in lifetime heroin use among Americans age 12 or older, most notable in those 26 or older. An increase in past-month use of heroin was reported, however, among persons age 21 to 25.

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\* These data are from the annual Drug Abuse Warning Network, funded by the Substance Abuse and Mental Health Services Administration, DHHS. The survey provides information about emergency department visits that are induced by or related to the use of an illicit drug or the nonmedical use of a legal drug. The latest data are available at 800-729-6686 or online at [www.samhsa.gov](http://www.samhsa.gov).

\*\* These data are from the 2005 Monitoring the Future Survey, funded by the National Institute on Drug Abuse, National Institutes of Health, DHHS, and conducted annually by the University of Michigan's Institute for Social Research. The survey has tracked 12th-graders' illicit drug use and related attitudes since 1975; in 1991, 8th- and 10th-graders were added to the study. The latest data are online at [www.drugabuse.gov](http://www.drugabuse.gov).

\*\*\* "Lifetime" refers to use at least once during a respondent's lifetime. "Annual" refers to use at least once during the year preceding an individual's response to the survey. "30-day" refers to use at least once during the 30 days preceding an individual's response to the survey.

§ CEWG is a NIDA-sponsored network of researchers from 21 major U.S. metropolitan areas and selected foreign countries who meet semiannually to discuss the current epidemiology of drug abuse. CEWG's most recent reports are available at [www.drugabuse.gov/about/organization/cewg/pubs.html](http://www.drugabuse.gov/about/organization/cewg/pubs.html).

§§ NSDUH (formerly known as the National Household Survey on Drug Abuse) is an annual survey of Americans age 12 and older conducted by the Substance Abuse and Mental Health Services Administration. Copies of the latest survey are available at [www.samhsa.gov](http://www.samhsa.gov) and from the National Clearinghouse for Alcohol and Drug Information at 800-729-6686.

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