FACTS ABOUT HERION

Heroin is a synthetic opiate drug that is highly addictive. It is made from morphine, a naturally occurring substance extracted from the seed pod of the Asian opium poppy plant. Heroin usually appears as a white or brown powder or as a black sticky substance, known as “black tar heroin.”

How is Heroin Abused?

Heroin can be injected, snorted/sniffed, or smoked—routes of administration that rapidly deliver the drug to the brain. Injecting is the use of a needle to release the drug directly into the bloodstream. Snorting is the process of inhaling heroin powder through the nose, where it is absorbed into the bloodstream through the nasal tissues. Smoking involves inhaling heroin smoke into the lungs. All three methods of administering heroin can lead to addiction and other severe health problems.

How Does Heroin Affect the Brain?

Heroin enters the brain, where it is converted to morphine and binds to receptors known as opioid receptors. These receptors are located in many areas of the brain (and in the body), especially those involved in the perception of pain and in reward. Opioid receptors are also located in the brain stem—important for automatic processes critical for life, such as breathing, blood pressure, and arousal. Heroin overdoses frequently involve a suppression of respiration.

After an intravenous injection of heroin, users report feeling a surge of euphoria (“rush”) accompanied by dry mouth, a warm flushing of the skin, and a heaviness of the extremities. Following this initial euphoria, the user goes “on the nod,” an alternately wakeful and drowsy state. Mental functioning becomes clouded. Users who do not inject the drug may not experience the initial rush, but other effects are the same.

With regular heroin use, tolerance develops. This means the abuser must use more heroin to achieve the same intensity of effect. Eventually, chemical changes in the brain can lead to addiction.

What Other Adverse Effects Does Heroin Have on Health?

Heroin abuse is associated with serious health conditions, including fatal overdose, spontaneous abortion, and—particularly in users who inject the drug—infectious diseases, including HIV/AIDS and hepatitis. Chronic users may develop collapsed veins, infection of the heart lining and valves, abscesses, and liver or kidney disease. Pulmonary complications, including various types of pneumonia, may result from the poor health of the abuser, as well as from heroin’s depressing effects on respiration. In addition to the effects of the drug itself, street heroin often contains toxic contaminants or additives that can clog the blood vessels leading to the lungs, liver, kidneys, or brain, causing permanent damage to vital organs.

Chronic use of heroin leads to physical dependence, a state in which the body has adapted to the presence of the drug. If a dependent user reduces or stops use of the drug abruptly, they may experience severe symptoms of withdrawal. These symptoms, which can begin as early as a few hours after the last drug administration, include restlessness, muscle and bone pain, insomnia, diarrhea and vomiting, cold flashes with goose bumps (“cold turkey”), kicking movements (“kicking the habit”), and other symptoms. Users also experience severe craving for the drug during withdrawal, precipitating continued abuse and/or relapse. Major withdrawal symptoms peak between 48 and 72 hours after the last dose and typically subside after about a week; however, some individuals may show persistent withdrawal symptoms for months. Although heroin withdrawal is considered less dangerous than alcohol or barbiturate withdrawal, sudden withdrawal by heavily dependent users who are in poor health is occasionally fatal.

Heroin abuse during pregnancy, together with related factors like poor nutrition and inadequate prenatal care, has been associated with adverse consequences including low birthweight, an important risk factor for later developmental delay. If the mother is regularly abusing the drug, the infant may be born physically dependent on heroin and could suffer from serious medical complications requiring hospitalization.

What Treatment Options Exist?

A range of treatments exist for heroin addiction, including medications and behavioral therapies. Science has taught us that when medication treatment is integrated with other supportive services, patients are often able to stop using heroin (or other opiates) and return to stable and productive lives.

Treatment often begins with medically assisted detoxification, to help patients withdraw from the drug safely. Medications such as clonidine and, now, buprenorphine can be used to help minimize symptoms of withdrawal. However, detoxification alone is not treatment and has not been shown to be effective in preventing relapse—it is merely the first step.

Medications to help prevent relapse include:

- *Methadone*, which has been used for more than 30 years to treat heroin addiction. It is a synthetic opiate medication that binds to the same receptors as heroin; but when taken orally, as dispensed, it has a gradual onset of action and sustained effects, reducing the desire for other opioid drugs while preventing withdrawal symptoms. Properly prescribed methadone is not intoxicating or sedating, and its effects do not interfere with ordinary daily activities. At the present time, methadone is only available through specialized opiate treatment programs.

- *Buprenorphine* is a more recently approved treatment for heroin addiction (and other opiates). It differs from methadone in having less risk for overdose and withdrawal effects, and importantly, it can be prescribed in the privacy of a doctor's office.

- *Naltrexone* is approved for treating heroin addiction but has not been widely utilized because of compliance issues. It is an opioid receptor blocker, which has been shown to be effective in highly motivated patients. It should only be used in patients who have already been detoxified in order to prevent severe withdrawal symptoms. Naloxone is a shorter acting opioid receptor blocker, used to treat cases of overdose.

For pregnant heroin abusers, 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. Preliminary evidence suggests that buprenorphine also is a safe and effective treatment during pregnancy, although infants exposed to either methadone or buprenorphine prenatally may 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 medical supervision, although potential risks to the fetus and the likelihood of relapse to heroin use should be considered.

There are many effective behavioral treatments available for heroin addiction—usually in combination with medication. These can be delivered in residential or outpatient settings. Examples are: contingency management, which uses a voucher-based system where patients earn "points" based on negative drug tests, which they can exchange for items that encourage healthy living; and cognitive-behavioral therapy, designed to help modify a patient's expectations and behaviors related to drug abuse, and to increase skills in coping with various life stressors.

This information was taken from the Nation Institute on Drug Abuse (NIDA) website. For more information, please visit www.nida.nih.gov