# **Substance Use and Abuse**

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Objectives:

* Address addiction and risk factors for addiction
* Define types of drugs, possible health effects, and treatment options
* Explore the abuse of alcohol, nicotine, e-cigarettes, and prescription drugs and their role in addiction
* Assess personal risk for substance use and abuse

## **Drug Abuse and Addiction**

**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 by changing its structure and how it works. These brain changes can be long-lasting and can lead to the harmful behaviors seen in people who abuse drugs.

Addiction is a lot like other diseases, such as heart disease. Both disrupt the normal, healthy functioning of the underlying organ, have serious harmful consequences, and are preventable and treatable, but if left untreated, can last a lifetime.

**Why do people use drugs?**

In general, people begin taking drugs for a variety of reasons:

* *To feel good*

Most abused drugs produce intense feelings of pleasure. This initial sensation of euphoria is followed by other effects, which differ depending on the type of drug used. For example, with stimulants such as cocaine, the “high” is followed by feelings of power, self-confidence, and increased energy. In contrast, the euphoria caused by opiates, such as heroin, is followed by feelings of relaxation and satisfaction.

* *To feel better*

Some people who suffer from social anxiety, stress-related disorders, and depression begin abusing drugs in an attempt to lessen feelings of distress. Stress can play a major role in initial drug use, continuing drug abuse, or relapse in patients recovering from addiction.

* *To do better*

Some people feel pressure to chemically enhance or improve their cognitive or athletic performance, which can play a role in initial experimentation and continued abuse of drugs, such as prescription stimulants or anabolic/androgenic steroids.

* *To satisfy their curiosity and "because others are doing it"*

In this respect, adolescents are particularly vulnerable because of the strong influence of peer pressure. Teens are more likely than adults to engage in risky or daring behaviors to impress their friends and express their independence from parental and social rules.

**If taking drugs makes people feel good or better, what's the problem?**

When they first use a drug, people may perceive what seem to be positive effects. They may also believe that they can control their use. However, drugs can quickly take over a person’s life. Over time, if drug use continues, other pleasurable activities become less pleasurable and taking the drug becomes necessary for the user just to feel *normal*. They may then compulsively seek and take drugs even though doing so causes tremendous problems for themselves and their loved ones. Some people may start to feel the need to take higher or more frequent doses, even in the early stages of their drug use. These are the telltale signs of an addiction.

Even relatively moderate drug use poses dangers. Consider how a social drinker can become intoxicated, get behind the wheel of a car, and quickly turn a pleasurable activity into a tragedy that affects many lives.

**Is continued drug abuse a voluntary behavior?**

The initial decision to take drugs is typically voluntary. However, with continued use, a person’s ability to exert self-control can become seriously impaired; this impairment in self-control is the hallmark of addiction. Brain imaging studies of people with addiction show physical changes in areas of the brain that are critical to judgment, decision making, 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 addiction.

**Why do some people become addicted to drugs while others do not?**

As with any other disease, vulnerability to addiction differs from person to person, and no single factor determines whether a person will become addicted to drugs. In general, the more **risk factors** a person has, the greater the chance that taking drugs will lead to abuse and addiction. **Protective factors**, on the other hand, reduce a person’s risk of developing addiction. Risk and protective factors may be either environmental, such as conditions at home, at school, and in the neighborhood, or biological, for instance, a person’s genes, his or her stage of development, and even a person’s gender or ethnicity.

| **Risk and Protective Factors for Drug Abuse and Addiction** | |
| --- | --- |
| **Risk Factors** | **Protective Factors** |
| Aggressive behavior in childhood | Good self-control |
| Lack of parental supervision | Parental monitoring and support |
| Poor social skills | Positive relationships |
| Drug experimentation | Academic competence |
| Availability of drugs at school | School anti-drug policies |
| Community poverty | Neighborhood pride |

## **What environmental factors increase the risk of addiction?**

* ***Home and family***

The influence of the home environment, especially during childhood, is a very important factor. Children with parents or older family members who abuse alcohol or drugs or engage in criminal behavior, have an increased risk of developing their own drug problems.

* ***Peers and school***

Friends and acquaintances can have an increasingly strong influence during adolescence. Drug-using peers can sway even those without risk factors to try drugs for the first time. Academic failure or poor social skills can put a child at further risk for using or becoming addicted to drugs.

## **What biological factors increase risk of addiction?**

* *Genetics*

Scientists estimate that genetic factors account for between 40 and 60 percent of a person’s vulnerability to addiction. This includes the effects of environmental factors on the function and expression of a person’s genes. A person’s stage of development and other medical conditions a person may have are also factors. Adolescents and people with mental disorders are at greater risk of drug abuse and addiction than the general population.

* *Dramatic changes in brain development that occur during adolescence*

One of the brain areas still maturing during adolescence is the prefrontal cortex—the part of the brain that enables us to assess situations, make sound decisions, and keep our emotions and desires under control.The fact that this critical part of the adolescent brain is a work in progress puts teenagers at increased risk for making poor decisions, such as trying drugs or continuing to take them. Also, introducing drugs during this period of development may cause brain changes that have profound and long-lasting consequences.

**What other factors increase the risk of addiction?**

* *Early use*

Although taking drugs at any age can lead to addiction, research shows that the earlier a person begins to use drugs, the more likely he or she is to develop serious problems.This increased risk may reflect the harmful effects that drugs can have on the developing brain. It may result from a mix of early social and biological vulnerability factors, including unstable family relationships, exposure to physical or sexual abuse, genetic susceptibility, or mental illness. Still, the fact remains that early use is a strong indicator of problems ahead, including addiction.

* *Method of administration*

Smoking a drug or injecting it into a vein increases its addictive potential.Both smoked and injected drugs enter the brain within seconds, producing a powerful rush of pleasure. However, this intense “high” can fade within a few minutes, taking the abuser down to lower, more normal levels. Scientists believe this starkly felt contrast drives some people to repeated drug usage in an attempt to recapture the fleeting pleasurable state. 1

**Types of Drugs, Possible Health Effects, and Treatment Options**

Click on the link below and review the information on commonly abused drugs. Make sure to explore the material, including possible health effects and treatment options when applicable, for the following substances:

|  |  |
| --- | --- |
| * Alcohol | * Cocaine |
| * GHB | * Heroin |
| * Inhalants | * LSD |
| * Marijuana | * MDMA/Molly |
| * Methamphetamine | * Tobacco |

* [Commonly Abused Drugs](https://www.drugabuse.gov/drugs-abuse/commonly-abused-drugs-charts)

**Alcohol, Nicotine,**

**e-cigarettes, and Prescription Drugs**

Click on the following links to learn more about alcohol and alcohol abuse:

* [Alcohol FAQs](https://www.cdc.gov/alcohol/faqs.htm)
* [College Drinking](https://www.niaaa.nih.gov/publications/brochures-and-fact-sheets/college-drinking)

Click on the following link for information about nicotine dependence and addiction:

* [Nicotine Dependence](https://www.mayoclinic.org/diseases-conditions/nicotine-dependence/symptoms-causes/syc-20351584)
* [Nicotine Addiction](https://www.drugabuse.gov/publications/research-reports/tobacco-nicotine-e-cigarettes/nicotine-addictive)

Click on the link below to learn more about e-cigarettes:

* [E-Cigarettes](https://www.cdc.gov/tobacco/basic_information/e-cigarettes/pdfs/Electronic-Cigarettes-Infographic-p.pdf)

Watch the video linked below to learn about the consequences of teens using e-cigarettes:

* [Teens and E-cigarettes](https://www.drugabuse.gov/videos/teens-using-e-cigarettes-more-likely-to-start-smoking-tobacco)

Watch the video linked below to learn more about prescription drug abuse in teens:

* [Prescription Drug Abuse in Teens](https://www.drugabuse.gov/videos/nida-tv-spotlight-carol-boyd-prescription-drug-abuse-in-youth)

**Assessing Your Personal Risk Factors for Substance Use and Abuse:**

Complete **one** of the following Labs to assess your personal risk factors for substance use and abuse. Choose the Lab most relevant for you. Submit the Lab per your Instructor’s directions.

If you drink alcohol complete the following Lab:

1. [Alcohol Use Lab](http://media.pearsoncmg.com/bc/bc_hopson_health_2/labs/hopson2_lab13_1.pdf)

If you smoke cigarettes, complete the following Lab:

1. [Cigarette Use Lab](http://media.pearsoncmg.com/bc/bc_hopson_health_2/labs/hopson2_lab13_2.pdf)

**Terminology Checklist:**

**Addiction:** Addiction is defined as a chronic, relapsing brain disease that is characterized by compulsive drug seeking and use, despite harmful consequences.

**Cocaine:** A powerfully addictive stimulant drug made from the leaves of the coca plant native to South America.

**GHB:** A depressant approved for use in the treatment of narcolepsy, a disorder that causes daytime "sleep attacks."

**Heroin:** An opioid drug made from morphine, a natural substance extracted from the seed pod of various opium poppy plants.

**Inhalants:** Solvents, aerosols, and gases found in household products such as spray paints, markers, glues, and cleaning fluids; also nitrites (e.g., amyl nitrite), which are prescription medications for chest pain

**LSD:** A hallucinogen manufactured from lysergic acid, which is found in ergot, a fungus that grows on rye and other grains.

**Marijuana:** Marijuana is made from the hemp plant, Cannabis sativa. The main psychoactive (mind-altering) chemical in marijuana is delta-9-tetrahydrocannabinol, or THC.

**MDMA (Ecstasy / Molly):** A synthetic, psychoactive drug that has similarities to both the stimulant amphetamine and the hallucinogen mescaline.

**Methamphetamine:** An extremely addictive stimulant amphetamine drug.2

**Test Your Knowledge:**

1. Scientists estimate that genetic factors account for between 25-50 percent T F

of a person’s vulnerability to addiction.

2. A standard drink of beer in the US measures 12 ounces T F

3. Loss of smell is a long-term possible health effect of using:

a) GHB

b) Heroin

c) LSD

d) Cocaine

4. List three symptoms that people may experience when withdrawing from tobacco and nicotine.

5. List three factors that may influence how a person reacts to alcohol.

**Answers:** 1. F, 2. T, 3. D

4. Any three of the following choices:

* Anxiety
* Irritability
* Headache
* Hunger
* Cravings for cigarettes and other sources of nicotine

5. Any three of the following choices:

* Age
* Sex.
* Race or ethnicity.
* Physical condition (e.g. weight, fitness level).
* Amount of food consumed before drinking.
* How quickly the alcohol was consumed.
* Use of drugs or prescription medicines.
* Family history of alcohol problems

**Source:**

National Institute on Drug Abuse

National Institutes of Health

U.S. Department of Health and Human Services

(<https://www.drugabuse.gov/publications/drugs-brains-behavior-science-addiction/preface>)

(<https://www.drugabuse.gov/drugs-abuse/commonly-abused-drugs-charts>)

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This source can be sited as:

1. NIDA. (2014, July 1). Drugs, Brains, and Behavior: The Science of Addiction.

Retrieved from <https://www.drugabuse.gov/publications/drugs-brains-behavior-science-addiction/preface> on 2017, May 29

2. NIDA. (2018, January). Commonly Abused Drugs Chart. Retrieved from https://www.drugabuse.gov/drugs-abuse/commonly-abused-drugs-charts on 2018, March 22