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## Drug dependence

### Definition:

Drug addiction, or dependence, is the compulsive use of a substance, despite its negative or dangerous effects.

However, a physical dependence on a substance (needing the drug to function) is not always part of the definition of addiction. Some drugs (for example, certain blood pressure medications) do not cause addiction but they can cause physical dependence. Other drugs cause addiction without leading to physical dependence. Cocaine is an example.

Tolerance to a drug (needing a higher dose to attain the same effect) is usually part of addiction.

### Alternative Names:

Drug addiction; Addiction - drug; Dependence on drugs

### Causes, incidence, and risk factors:

Drug abuse can lead to drug dependence or addiction. People who use drugs for pain relief may become dependent, although this is rare in those who don't have a history of addiction.

The exact cause of drug abuse and dependence is not known. However, a person's genes, the action of the drug, peer pressure, emotional distress, [anxiety](#), [depression](#), and environmental [stress](#) all can be factors.

Peer pressure can lead to drug use or abuse, but at least half of those who become addicted have depression, attention deficit disorder, [post-traumatic stress disorder](#), or another mental health problem.

Children who grow up in an environment of [illicit drug use](#) may first see their parents using drugs. This may put them at a higher risk for developing an addiction later in life for both environmental and genetic reasons.

Commonly abused substances include:

- **Opiates and narcotics** are powerful painkillers that cause drowsiness (sedation) and feelings of euphoria. These include [heroin](#), opium, codeine, meperidine (Demerol), [hydromorphone](#) (Dilaudid), and oxycodone (Oxycontin).
- **Central nervous system stimulants** include amphetamines, [cocaine](#), dextroamphetamine, methamphetamine, and methylphenidate (Ritalin). Caffeine and nicotine are the most commonly used stimulants. These drugs have a stimulating effect,

and people can start needing higher amounts of these drugs to feel the same effect (tolerance).

- **Central nervous system depressants** include alcohol, barbiturates (amobarbital, pentobarbital, secobarbital), benzodiazepine (Valium, Ativan, Xanax), chloral hydrate, and paraldehyde. These substances produce a sedative and anxiety-reducing effect, which can lead to dependence.
- **Hallucinogens** include LSD, mescaline, psilocybin ("mushrooms"), and phencyclidine (PCP or "angel dust"). They can cause people to see things that aren't there (hallucinations) and can lead to psychological dependence.
- Tetrahydrocannabinol (THC) is the active ingredient found in [marijuana](#) (cannabis) and hashish. Although used for their relaxing properties, THC-derived drugs can also lead to [paranoia](#) and anxiety.

### Symptoms:

#### OPIATES AND NARCOTICS

Symptoms of opiate and narcotic use:

- Needle marks on the skin in some cases (called "tracks")
- Scars from skin [abscesses](#)
- [Rapid heart rate](#)
- Small "pinpoint" pupils
- Relaxed or euphoric state
- [Coma](#), [respiratory](#) depression leading to coma, and death in high doses

Symptoms of opiate and narcotic withdrawal:

- Anxiety and difficulty sleeping
- Sweating
- Goose bumps
- Runny nose
- Stomach cramps or diarrhea
- Enlarged (dilated) pupils
- Nausea and vomiting
- Excessive sweating
- Increase in blood pressure, pulse, and temperature

#### CENTRAL NERVOUS SYSTEM STIMULANTS

Symptoms of cocaine use:

- Exaggerated feeling of well-being (euphoria)
- Dilated pupils
- Fast heart rate
- [Restlessness](#) and hyperactivity

Symptoms of cocaine withdrawal:

- Fatigue and malaise
- Depression

- Very clear and unpleasant dreams

## **CENTRAL NERVOUS SYSTEM DEPRESSANTS**

Symptoms of alcohol use:

- [Slurred speech](#)
- [Lack of coordination](#)
- Decreased [attention span](#)
- Impaired judgment

Symptoms of alcohol withdrawal:

- Anxiety
- Shaking (tremors)
- Seizures
- Increased blood pressure, pulse, and temperature
- Delirium

## **HALLUCINOGENS**

Symptoms of LSD use:

- Anxiety
- Frightening images of things that aren't there (hallucinations)
- Paranoid delusions
- Blurred vision
- Dilated pupils
- Tremors

### **Signs and tests:**

Drug tests (toxicology screens) on blood and urine samples can show many chemicals and drugs in the body. How sensitive the test is depends upon the drug itself, when the drug was taken, and the testing laboratory. Blood tests are more likely to find a drug than urine tests. However, urine drug screens are done more often.

Opiates and narcotics are usually in the urine 12 to 36 hours after the last use, depending on the amount used and how often the drug was used.

CNS stimulants such as cocaine can be found in urine for 1 to 12 days, again depending on how often the drug was used.

CNS depressants such as Valium and Xanax are found up to 7 days after the last day of use, mostly depending on the substance used and how quickly the body removes it (its half-life).

Most hallucinogens also can be found in the urine up to 7 days after the last use. However, evidence of marijuana can be found for up to 28 days after its last use in regular users.

### **Treatment:**

Treatment for drug abuse or dependence begins with recognizing the problem. Though "denial" used to be considered a symptom of addiction, recent research has shown that people who are addicted have far less denial if they are treated with empathy and respect, rather than told what to do or "confronted."

Treatment of drug dependency involves stopping drug use either gradually or abruptly (detoxification), support, and staying drug free (abstinence). People with [acute](#) intoxication or drug overdose may need emergency treatment. Sometimes, the person [loses consciousness](#) and might need to be on a breathing machine (mechanical respirator) temporarily. The treatment depends on the drug being used.

Detoxification is the withdrawal of an abused substance in a controlled environment. Sometimes a drug with a similar action is taken instead, to reduce the side effects and risks of withdrawal. Detoxification can be done on an inpatient or outpatient basis.

If the person also has [depression](#) or another mood disorder, it should be treated. Very often, people start abusing drugs in their effort to self-treat mental illness.

For narcotic dependence, some people are treated with methadone or similar drugs to prevent withdrawal and abuse. The goal is to enable the person to live as normal a life as possible.

### **Support Groups:**

Many support groups are available in the community. They include Narcotics Anonymous (NA), Ala-Teen, and Al-Anon. Most of these groups follow the 12-Step program used in Alcoholics Anonymous (AA). SMART Recovery and LifeRing Recovery are programs that do not use the 12-step approach. You can find support groups in your phone book.

### **Expectations (prognosis):**

Drug abuse and dependence may lead to a fatal drug overdose. Some people start taking the drugs again after they have stopped. Relapses can lead to continued dependence.

### **Complications:**

The complications of drug abuse and dependence include:

- Depression
- Relapse of drug abuse
- Drug overdose
- [Bacterial endocarditis](#), [hepatitis](#), [thrombophlebitis](#), [pulmonary emboli](#), malnutrition, or respiratory infections, caused by drug use through a vein (intravenous)
- Infection with HIV through shared needles
- Unsafe sexual practices, which may result in unwanted pregnancies, sexually transmitted diseases, HIV, or hepatitis.
- Problems with the law
- Increase in various cancer rates, for example, lung and pharynx cancer are linked to nicotine use, mouth and stomach cancer are associated with alcohol abuse and dependence
- Problems with memory and concentration, for example with hallucinogen use, including marijuana (THC)

### **Calling your health care provider:**

Call for an appointment with your health care provider if you are addicted to drugs and would like

to get off of them, or if you have been cut off from your drug supply and are at risk of withdrawal. Most employers also offer referral services for their employees with substance abuse problems.

**Prevention:**

Drug education programs may be helpful though none has proved effective in the long term.

**References:**

Samet JH. Drug abuse and dependence. In: Goldman L, Ausiello D, eds. *Cecil Medicine*. 23rd ed. Philadelphia, Pa: Saunders Elsevier; 2007:chap 32.