

# Drug Dependence: Drug Addiction, Drug Abuse, Drug Tolerance and Dependence

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**Abstract:** *Dependence means that when a person stops using a drug, their body goes through "withdrawal": a group of physical and mental symptoms that can range from mild (if the drug is caffeine) to life-threatening (such as alcohol or opioids, including heroin and prescription pain relievers). Substance dependence, also known as drug dependence, is an adaptive state that develops from repeated drug administration, and which results in withdrawal in cessation of drug use. A drug addiction a distinct concept from substance dependence, is defined as compulsive; out-of-control drug use, despite negative consequences.*

**Keywords:** Drug Dependence

## I. INTRODUCTION

Drug addiction is a problem of severe concern. Many attempts involving social awareness programmes could not achieve the expected decrease in the addiction cases. Drug addiction can start with experimental use of a recreational drug in social situations, and, for some people, the drug use becomes more frequent. For others, particularly with opioids, drug addiction begins with exposure to prescribed medications, or receiving medications from a friend or relative who has been prescribed the medication.

The risk of addiction and how fast you become addicted varies by drug. Some drugs, such as opioid painkillers, have a higher risk and cause addiction more quickly than others.

As time passes, you may need larger doses of the drug to get high. Soon you may need the drug just to feel good. As your drug use increases, you may find that it's increasingly difficult to go without the drug. Attempts to stop drug use may cause intense cravings and make you feel physically ill (withdrawal symptoms).

You may need help from your doctor, family, friends, support groups or an organized treatment program to overcome your drug addiction and stay drug-free.

## II. TERMINOLOGIES

- **CROSS TOLERANCE** — When a person develops a tolerance against a particular drug, he also exercises tolerance against other drug belonging to the same pharmacological class of the previous agent.
- **TACHYPHYLAXIS** — In simple terms, tachyphylaxis implies a case of rapidly developed tolerance. During chronic exposure to certain agents the cell environment tends to adopt the drug, comparatively more rapidly. Such rapid adaptation may be seen in both an isolated organ preparation and less frequently in the whole animal.
- **SENSITIZATION**— The term describes a situation just opposite to that of tolerance. Here a chronic administration of the drug causes a gradual increase in the intensity of the drug action until a maximum response is attained.
- **IMPORTANT TERMS:**—
- **ADDICTION** —A chronic, relapsing disorder characterized by compulsive (or difficult to control) drug seeking and use despite harmful consequences, as well as long-lasting changes in the brain.
- **DRUG CRAVING** — : A powerful, often overwhelming desire to use drugs.
- **DEPENDENCE** — A condition that can occur with the regular use of illicit or some prescription drugs, even if taken as prescribed. Dependence is characterized by withdrawal symptoms when drug use is stopped.

- DRUG ABUSE — An older diagnostic term that defined use that is unsafe, use that leads a person to fail to fulfill responsibilities or gets them in legal trouble, or use that continues despite causing persistent interpersonal problems.
- HALLUCINATIONS — Sensations, sounds and/or images that seem real though they are not.
- DRUG MISUSE — Excessive use of psychoactive drugs, such as alcohol, pain medications or illegal drugs. It can lead to physical, social or emotional harm.
- DRUG TOLERANCE — condition in which higher doses of a drug are required to achieve the desired effect.

### III. CLASSIFICATION

The various drugs which after chronic administration produce a state of physical dependence is classified into 8 classes;

1. OPIOIDS – The term opioids refers to all natural as well as synthetic narcotic analgesics having morphine like activity. They are used by people with chronic headaches and backaches, by patients recovering from surgery or experiencing severe pain associated with cancer, and by adults and children who have gotten hurt playing sports or who have been seriously injured in falls, auto accidents or other incidents.
2. GENERAL CNS DEPRESSANTS – CNS depressants slow normal brain function. In higher doses, some CNS depressants can become general anesthetics. Tranquilizers and sedatives are examples of CNS depressants. They mainly include; barbiturates, benzodiazepines, alcohol, meprobamate, glutethimide, methaqualone, and related other drugs.
3. AMPHETAMINES AND OTHER SYMPATHOMIMETIC AGENTS – Originally amphetamine was introduced as antidepressant agent but later it was used in the treatment of obesity and narcolepsy. Other amphetamine type drugs include methamphetamine, phenmetrazine, methylphenidate, dexamphetamine, diethylpropion, glutethimide, and methylphenylpiperidine.
4. NICOTINE – Nicotine is a chemical that contains nitrogen, which is made by several types of plants, including the tobacco plant. It is also produced synthetically.
5. CAFFEINE – Caffeine has a stimulant effect mainly due to an increase in c-AMP in central nervous system.
6. HALLUCINOGENS – Hallucinogens are a diverse group of drugs that alter a person's awareness of their surroundings as well as their own thoughts and feelings. Common classic hallucinogens include the following:
  - LSD (*D-lysergic acid diethylamide*)
  - Psilocybin (*4-phosphoryloxy-N,N-dimethyltryptamine*)
  - Peyote (mescaline)
  - DMT (*N,N-dimethyltryptamine*)
  - 251-NBOMe
  - PCP (*Phencyclidine*)
  - Ketamine
  - Dextromethorphan (DXM)
  - Salvia (*Salvia divinorum*)
7. ARYLCYCLOHEXYLAMINE – Phencyclidine or phenylcyclohexylpiperidine, also known as angel dust among other names, is a drug used for its mind-altering effects. PCP may cause hallucinations, distorted perceptions of sounds, and violent behavior. As a recreational drug, it is typically smoked, but may be taken by mouth, snorted, or injected.
8. INHALANTS – Inhalants are chemicals found in certain household and workplace products that produce chemical vapors. These vapors can be inhaled to induce mind-altering effects. Inhaled substances are rapidly absorbed into the brain to produce a quick high. Chronic abuse of inhalants can result in irreversible side effects, such as coma and even death.

### IV. CONCLUSION

Drug use and addiction cause a lot of disease and disability in the world. Recent advances in neuroscience may help improve policies to reduce the harm that the use of tobacco, alcohol and other psychoactive drugs impose on society.