

## DRUGS AND ALCOHOL ABUSE

There has been a notable rise in drug usage, particularly among the youth, which is a concerning trend due to its potential for harmful effects. Providing adequate education and guidance is crucial to empower young individuals to protect themselves from detrimental behavioral patterns and adopt healthier lifestyles.

### Major Categories of Psychoactive Drugs, their Effects and Clinical Uses

Type of Drug	Examples	Effects	Clinical Uses
Sedatives and tranquilisers (depressants)	Barbiturates Benzodiazepines (e.g., Valium)	Depress brain activity and produce feelings of calmness, relaxation, drowsiness and deep sleep (high doses)	Hypnotic, antianxiety
Opiate narcotics	Opium, morphine, heroin, pethidine, methadone	Suppress brain function, relieve intense pain (physical and mental), produce temporary euphoria	Analgesic
Stimulants	Caffeine (very mild), amphetamines (including dexamphetamine), cocaine and its derivative	Stimulate the nervous system; make a person more wakeful, increase alertness and activity, produce excitement	Attention deficit, Narcolepsy, weight control
Hallucinogens	LSD, mescaline, psilocybin, (charas, hashish, marijuana bhang) Cannabinoids	Alter thoughts, feelings and perceptions; hallucinations	None

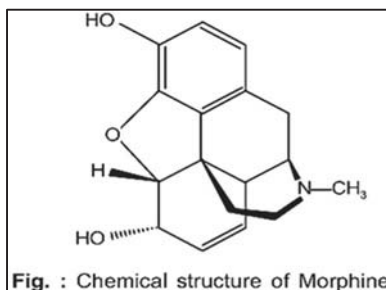
Frequently abused substances include opioids, cannabinoids, and coca alkaloids.

#### (i) Opioids

These substances bind to specific receptors found in both the central nervous system and the gastrointestinal tract, effectively alleviating pain, hence earning them the label of analgesics or painkillers.

Morphine, derived from the latex of the opium poppy plant *Papaver somniferous*, stands out as an exceptionally potent sedative and pain-relieving agent, often administered to surgical patients for pain management.

Heroin, a derivative of morphine achieved through acetylation (forming diacetyl morphine), commonly known as smack, exists as a white, odorless, bitter crystalline compound. Typically consumed through snorting or injection, heroin acts as a depressant, significantly decelerating bodily functions.



**(ii) Cannabinoids**

Cannabinoids encompass a group of chemical compounds that interact with cannabinoid receptors primarily located in the brain.

Natural cannabinoids are sourced from the flowering parts of the *Cannabis sativa* plant. Various combinations of the plant's flower tops, leaves, and resin are utilized to create products like marijuana, hashish, charas, and ganja.

These substances are typically consumed through inhalation or oral ingestion and are renowned for their impact on the cardiovascular system.

In contemporary times, cannabinoids have also become subject to abuse among certain athletes.

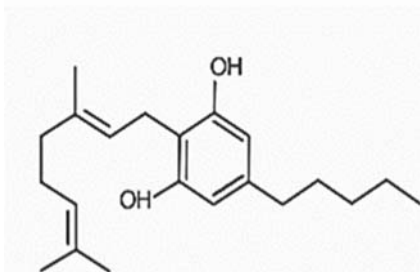


Fig. Skeletal structure of cannabinoid molecule



Fig.: Leaves of *Cannabis sativa*

**(iii) Cocaine**

Derived from the coca plant, *Erythroxylum coca*, native to South America, coca alkaloid or cocaine is a potent stimulant.

Commonly referred to as coke or crack, cocaine is typically administered through nasal insufflation (snorting). It disrupts the transportation of the neurotransmitter dopamine within the brain.

Exerting a powerful stimulating effect on the central nervous system, cocaine induces sensations of euphoria (a feeling of well-being) and heightened energy levels. However, excessive consumption of cocaine can lead to hallucinations.

- (iv)** Misuse of the seeds of *Datura* and the aerial parts of *Atropa belladonna* is driven by their hallucinogenic properties.



Fig. : Flowering branch of *Datura*

**(v) Tobacco Smoking and its Impact on Health**

- Cancer: Approximately 90% of lung cancer cases are linked to smoking, while mouth cancer can result from the chewing of tobacco.
- Regular tobacco use weakens immunity.
- Tobacco consumption is correlated with increased male infertility.
- Elevated adrenaline release due to tobacco usage can raise blood pressure and heart rate, potentially leading to cardiovascular diseases.
- Nicotine alkaloid, found in tobacco, can impede fetal growth and development in pregnant women.

- Carbon monoxide in tobacco smoke combines with hemoglobin in the blood, forming carboxyhemoglobin, which significantly diminishes the blood's oxygen-carrying capacity.
  - Premature wrinkling of the skin may occur as a result of smoking.
  - Smoking is associated with an increased risk of pulmonary tuberculosis.
  - Inflammation of lung alveoli caused by smoking reduces the surface area available for gas exchange and can lead to emphysema.
  - Smoking induces irritation and inflammation of the mucosa lining the throat and bronchi, resulting in coughing and bronchitis.
  - Increased gastric juice secretion caused by smoking can lead to gastric and duodenal ulcers.
- Moreover, the misuse of drugs often occurs concurrently with alcohol or other common medications such as aspirin or insulin. Such combinations can intensify sedation, diminish the effectiveness of medication, or lead to complications such as hypertension

### **Adolescence and Substance Abuse**

- Adolescence denotes both a chronological period and a developmental phase during which a child progresses towards maturity in terms of attitudes and beliefs, essential for effective social integration. This period, typically spanning from 12 to 18 years of age, is recognized as adolescence.
- Essentially serving as a bridge between childhood and adulthood, adolescence is marked by numerous biological and behavioral transformations. It represents a particularly vulnerable phase in an individual's mental and psychological development, characterized by curiosity, the pursuit of adventure and excitement, and a propensity for experimentation. These factors often drive young individuals towards the use of drugs and alcohol.
- Natural curiosity prompts adolescents to explore and experiment, further complicated by perceived benefits associated with alcohol or drug consumption. Initially, the initiation into drug or alcohol use may stem from curiosity or a desire for experimentation, but over time, individuals may turn to these substances as a means of escaping personal challenges or problems.
- Contemporary stressors, such as academic pressures or examination-related anxiety, have increasingly played a significant role in encouraging young individuals to resort to alcohol and drugs.
- There exists a prevalent perception among youth that smoking, drug use, or alcohol consumption is considered 'cool' or indicative of progressiveness. This perception is often reinforced by media outlets such as television, movies, newspapers, and the internet, contributing to the normalization of substance use.
- Additionally, unstable or unsupportive family structures and peer pressure have been identified as additional factors associated with adolescent substance abuse.

### **Addiction and Dependency**

Medications are typically prescribed to aid patients in managing illnesses. However, when these medications are used for purposes other than their intended clinical use, it is termed drug abuse or addiction. Addiction refers to a habitual, physiological, and psychological reliance on a substance or behavior that surpasses voluntary control. An individual who is habituated to a substance or drug is referred to as an addict. Continued drug use leads to an increase in the tolerance level of receptors in the body. As a result, these receptors only respond to higher doses of drugs or alcohol, leading to escalated consumption. Therefore, addiction entails a psychological attachment to specific effects such as euphoria and a temporary sense of well-being associated with drugs and alcohol.

In the absence of guidance or counseling, individuals may become addicted and dependent on drug use. The World Health Organization (1964) introduced the term "drug dependence" to replace "drug addiction." Dependence refers to the tendency of a drug addict's body to exhibit characteristic and unpleasant withdrawal symptoms if regular drug/alcohol doses are discontinued. These symptoms include anxiety, tremors, nausea, and sweating, which may alleviate upon resuming drug use.

In severe cases, withdrawal symptoms can be debilitating and even life-threatening, necessitating medical supervision.

### **Effects of Drug and Alcohol Abuse**

- (i) **Behavioral and Psychological Changes:** Common indicators of drug and alcohol abuse among young individuals include a decline in academic performance, unexplained absences from school or college, loss of interest, withdrawal, social isolation, depression, fatigue, aggression, and deteriorating relationships with family and friends.
- (ii) **Social Issues:** In cases where individuals abusing drugs or alcohol struggle to obtain money to finance their habit, they may resort to theft. The adverse consequences of substance abuse extend beyond the addicts themselves, causing mental and financial distress to their entire circle of family and friends.
- (iii) **Risks of AIDS and Hepatitis:** Individuals who administer drugs intravenously, directly injecting substances into their veins using needles or syringes, are at a significantly higher risk of contracting serious infections such as AIDS and hepatitis B. These diseases are transmitted through the sharing of infected needles and syringes.
- (iv) **Misuse of Drugs by Athletes:** Certain sportspeople misuse drugs such as narcotics, analgesics, anabolic steroids, diuretics, and certain hormones to enhance their performance. These substances are utilized because they stimulate muscle strength and bulk, as well as promote aggressiveness, thereby purportedly improving athletic performance.

The adverse effects of anabolic steroid use in females encompass masculinization (acquisition of male-like features), heightened aggressiveness, mood swings, depression, irregular menstrual cycles, excessive facial and body hair growth, enlargement of the clitoris, and deepening of the voice. In males, these effects include acne, increased aggressiveness, mood swings, depression, testicular shrinkage, reduced sperm production, potential kidney and liver dysfunction, breast enlargement, premature baldness, and prostate gland enlargement. In adolescent males or females, premature closure of the growth centers in the long bones may lead to stunted growth.

Additionally, the consumption of drugs and alcohol during pregnancy detrimentally affects the fetus. Chronic drug and alcohol use also result in damage to the nervous system and liver, leading to conditions such as cirrhosis.

### **Prevention and Control**

The adage "Prevention is better than cure" holds particularly true for issues like tobacco, drug, and alcohol abuse, which are prevalent among young adolescents. Therefore, proactive measures should be implemented in a timely manner. In this regard, parents and teachers bear a special responsibility. The following strategies can be particularly effective in preventing and controlling alcohol and drug abuse among adolescents:

- (i) **Avoiding Pressure:** Recognizing that each child has their own unique capabilities and personality, undue pressure should not be exerted on them to excel beyond their capacities, whether in academics, sports, or other areas.
- (ii) **Education and Counseling:** Education and counseling play pivotal roles in equipping individuals to navigate life's challenges, stresses, disappointments, and failures. These experiences should

be viewed as integral parts of life. Channeling a child's energy into positive activities such as sports, music, reading, yoga, and other extracurricular pursuits can be beneficial.

- (iii) Seeking Support from Parents and Peers: Encouraging adolescents to seek help and guidance from their parents and peers when faced with problems is essential. Seeking assistance from trusted friends allows young individuals to express their feelings of anxiety and inner thoughts.
- (iv) Recognizing Warning Signs: Friends should be vigilant for signs of drug or alcohol use among their peers. If such behavior is observed, it should be promptly brought to the attention of parents or teachers to facilitate proper diagnosis and intervention. This proactive approach enables timely remedial steps or treatment to be implemented.
- (v) Seeking Professional and Medical Assistance: Highly qualified psychologists, psychiatrists, and addiction specialists, as well as de-addiction and rehabilitation programs, can provide valuable support to individuals struggling with drug or alcohol abuse. With the appropriate professional help and a strong determination, affected individuals can be successfully treated, leading to a return to normal and healthy living.