

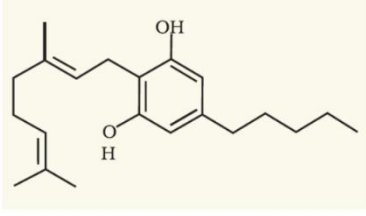

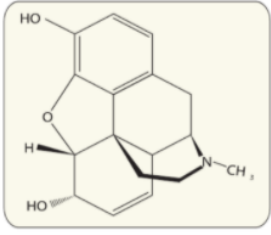
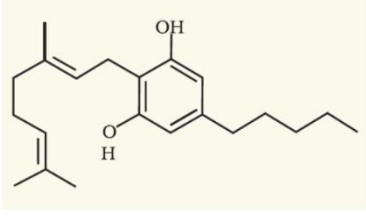

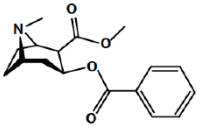
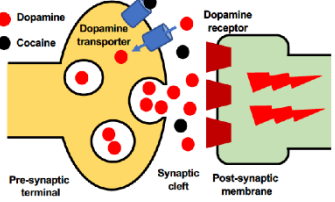


## Drugs and Alcohol Abuse

Commonly abused drugs include opioids, cannabinoids and coca alkaloids obtained from flowering plants and a few from fungi.

Drugs have following effects

Psychotropic	Psychedelic (mind altering)
<p>Mood Altering Effect</p> <ul style="list-style-type: none"> <li>• Tranquilizers</li> <li>• Stimulants</li> <li>• <b>Opioids</b></li> </ul>	<p>Hallucinogenic Effect</p> <ul style="list-style-type: none"> <li>• <b>Cannabinoids</b></li> <li>• <b>Datura</b> (analgesic, anti-inflammatory, treatment of stomach, intestinal pain &amp; infections of animals with parasitic worms)</li> <li>• <b>Atropa Belladonna</b> (pain reliever, muscle relaxer, and anti-inflammatory)</li> <li>• <b>LSD</b> (Lysergic Acid Diethylamide)- obtain from ergot of fruiting body fungus- claviceps / purpurea most dangerous hallucinogenic.</li> </ul> 

Opioids	Cannabinoids	Coca Alkaloid or Cocaine
<p>Obtain from <b>Opium</b> <b>Poppy plant</b> <b>(Papaversomniferum).</b></p> <ul style="list-style-type: none"> <li>➤ Narcotic</li> <li>➤ Sedative</li> <li>➤ Depressant</li> <li>➤ <b>Analgesic</b></li> <li>➤ Euphoriant</li> </ul> 	<p>Obtain from inflorescence of <b>Hemp plant (Cannabis Sativa)</b></p>  <p>Skeletal structure of cannabinoid molecule</p> 	<p>Obtained from coca plant <b>Erythroxylum coca</b>, native to South America. Commonly called <b>coke or crack</b>.</p> <ul style="list-style-type: none"> <li>➤ Stimulant</li> <li>➤ <b>Euphoriant</b></li> <li>➤ Hallucinogenic (in Excess amount)</li> </ul>
<p>Binds to receptors present in our <b>central nervous system and gastrointestinal tract (Gut).</b></p> <p><b>Natural Derivative</b></p> <p><b>Morphine:</b> Sedative (reduce irritability or excitement), Analgesic (Pain killer) Used in surgery</p>  <p><b>Codeine:</b> Methyl Morphine Used in cough Syrups</p>	<p>Binds to receptor in <b>brain</b>.</p>  <p>Skeletal structure of cannabinoid molecule</p> 	<ul style="list-style-type: none"> <li>• It interferes with the transport of the <b>neuro-transmitter dopamine</b>.</li> <li>• Stimulating action on <b>central nervous system</b></li> </ul>  <p>Cocaine</p>  <p>Pre-synaptic terminal    Synaptic cleft    Post-synaptic membrane</p>
<p><b>Synthetic Derivative</b></p> <p><b>Heroin (smack)- diacetylmorphine.</b></p> <ul style="list-style-type: none"> <li>• Is depressant and slows down body functions.</li> <li>• White, odourless, bitter crystalline compound.</li> <li>• <b>Brown Sugar</b> by product.</li> <li>• Extracted from the latex of poppy plant.</li> <li>• Generally snorted and injected.</li> </ul>	<p><b>Marijuana</b> –Dried female flower <b>Hashish</b>- Resin <b>Charas</b>- Top inflorescence <b>Bhang</b>- Fresh Leaves <b>Ganja</b>- Flower or Fruit (excluding seed) Taken by inhalation and oral ingestion. Effects on <b>cardiovascular system</b>.</p>	<ul style="list-style-type: none"> <li>• Usually snorted.</li> <li>• Producing a sense of <b>Euphoria and increased energy (stimulants)</b>.</li> <li>• Abused by <b>Sports person</b></li> </ul>

- **Tranquilizers:** Reduce tension, anxiety, bring calmness without inducing sleep. They are anaesthetic, depressant, sleeping drugs.
  - a) **Barbiturates** -Synthetic drugs used as sleeping pills to reduce anxiety & induce sleep. They are non addictive by lethal if taken with alcohol. Its higher dose frequently used in suicides.
  - b) **Benzodiazepines (Valium)**- Synthetic drugs that slow down brain activity and nervous system by increasing GABA (relaxing neurotransmitter). They're most often used for treating anxiety and related mental health conditions (**Schizophrenia**), Insomnia, as well as brain-related conditions like seizures (uncontrolled neuron activity causes temporary muscle stiffness/twitching).
- **Stimulant:** Provide energy & keep awake.
  - a) **Amphetamines (Superman drug)** - Synthetic drug stimulant like cocaine, **Anti-sleeping**- often used by truck drivers & night workers to keep themselves awake. Its ill effect : Blurred vision, impair judgement, & higher doses caused hallucination.
  - b) **Caffeine**- Mild stimulant found in leaves of tea, seed of coffee, cocoa plant. Increase alertness, thought.
- Frequent use of hallucinogenic drugs causes impairs one's physical, physiological or psychological function.

**Drugs like Barbiturates, amphetamines, benzodiazepines & other drugs used as medicine to help patients cope with mental illness like depression, insomnia and abused.**

#### **Tobacco:**

- Addictive nature.
- Used by humans more than 400 years.
- Smoked Chewed or Snuff
- Contains Nicotine & alkaloid.
- Nicotine Stimulate Adrenal Gland to release adrenaline & nor adrenaline that increases BP, heart rate & blood glucose level.
- Causes- Cancer of Lung, Urinary Bladder, Mouth, throat, bronchitis, emphysema (lung disease- damage alveoli), Coronary artery disease etc
- Smoking – Increase Carbon Monoxide in Blood cause deficiency of O<sub>2</sub>.

#### **Adolescence and Drug abuse**

- Adolescence is the period (12 – 18 years) during which the child becomes matured.
- Several Biological, Behavioural changes.
- Vulnerable phase of mental & psychological development.
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#### **Causes of drug/ alcohol/smoking abuse –**

- Curiosity
- Trying to become cool among peers
- Adventure
- Excitement
- Experimentation
- Escaping from problems.
- Stress or pressure to excel in examination
- TV, Movies, newspapers & internet promotion.
- Unstable or unsupportive family structure or peer pressure.

#### **Addiction & Dependency**

- Small dose can be addiction due to Euphoria or temporary feeling of wellness.
- Repeated use can increase tolerance level – Receptor respond only to Higher Doses.
- Dependence is the tendency of the body to manifest a characteristic and unpleasant **withdrawal syndrome** if regular dose of drug/alcohol is abruptly discontinued that includes **anxiety, shakiness, nausea and sweating.**
- In some cases withdrawal symptoms can be life threatening

## Effects of drug/alcohol abuse –

- Reckless (careless) behaviour
- Violence & Vandalism (property destruction)
- Drop in academic performance, Unexplained absence from School/college.
- Lack of interest in personal hygiene.
- Depression, isolation, aggressiveness, fatigue, rebellious behaviour etc.
- Deteriorating relationship with family and friends.
- Loss of interest in hobbies, change in sleeping pattern or eating habits, fluctuation in weight etc.
- Excessive dose could lead to coma or death due to respiratory or heart failure or cerebral haemorrhage.
- Stealing, Mental and Financial distress to family & friends.
- Drugs taken Intravenously can cause infectious disease like AIDs, Hepatitis B.
- Excessive Alcohol causes damage to nervous system & Liver -**Cirrhosis**.
- Drug or Alcohol during pregnancy causes adverse effect to foetus. Foetal Alcohol Syndrome ( low nasal bridge, flat face, thin upper lip etc)

Misuse of drugs by sports persons like narcotic analgesic, anabolic steroids, diuretic (reduce fluid), & certain hormones to increase muscle strength, bulk, promote aggressiveness and performance.

Side effect of Anabolic:

In Females	In Males
<ul style="list-style-type: none"><li>➤ Masculinities</li><li>➤ Increase Aggressiveness</li><li>➤ Mood swing</li><li>➤ Depression</li><li>➤ Abnormal Menstrual Cycle</li><li>➤ Excessive hair growth on face &amp; body</li><li>➤ Enlargement of Clitoris</li><li>➤ Deepening of Voice</li><li>➤ Severe Body &amp; Facial Acne</li><li>➤ Stunted Growth- premature closer of growth centre of long bones</li></ul>	<ul style="list-style-type: none"><li>➤ Severe Body &amp; Facial Acne</li><li>➤ Increase Aggressiveness</li><li>➤ Mood swing</li><li>➤ Depression</li><li>➤ Reduction of size of testis</li><li>➤ Loss of sexual derive</li><li>➤ Decrease sperm production (Necrospemia)</li><li>➤ Kidney &amp; liver disfunction</li><li>➤ Premature Baldness</li><li>➤ Gynecomastia (Male breast enlargement)</li><li>➤ Enlargement of Prostate Gland</li><li>➤ Stunted Growth- premature closer of growth centre of long bones</li></ul>

## Prevention & Control

- **Avoid undue peer pressure-** unduly performance beyond threshold limits (of studies, sports etc)
- **Education & counselling-** Accept disappointments & failure as a part of life.
- **Seeking helps from parents and peers**
- **Looking for danger signs-** Parents, teachers & friends to look for unusual signs
- **Seeking professional and medical help-** Psychologist, Psychiatrist or Rehabilitation centre

**Que: What is the difference between 1<sup>st</sup>, 2<sup>nd</sup> & 3<sup>rd</sup> generation vaccination?**

**Ans:** Vaccination are based on memory of lymphocytes cells.

**1st Generation Vaccines :** Developed in the late 18th and early 19th centuries. They were based on live weakened or killed pathogens that were used to stimulate the immune system. Ex: Smallpox vaccine, BCG, and OPV.

1<sup>st</sup> Generation Vaccine had some limitations like live vaccines could cause severe side effects in some individuals, and killed vaccines did not provide long-lasting immunity.

**2nd Generation Vaccines:** Developed in the 20th century. They were based on purified subunits of the pathogens or recombinant proteins that could stimulate the immune system. Ex: Hepatitis B vaccine, DPT vaccine.

Safe and more effective & could provide long-lasting immunity and with fewer side effects. However, they required more sophisticated manufacturing processes and were more expensive to produce.

**3rd Generation Vaccines:** They are still under development & are based on new technologies. These vaccines use genetic material to stimulate the immune system. It include mRNA vaccines and DNA vaccines. Ex: Hepatitis-B Vaccine. They have the potential to provide long-lasting immunity with fewer side effects.