

DRUGS AS AN EXPLANATION OF BEHAVIOURAL CHANGE

1. **Drug** is a chemical substance which is foreign to the body and has an effect on living cells.
Drugs operate on physical system, yet the behavioral changes are primarily mental (perception, memory, etc.).
Not all drugs have discernible effects on behaviour, e.g. penicillin reduces infections, but does not affect directly how we act.
Some drugs affect only certain clinical groups, while some other drugs affect sensory capacities in way that are not directly expressed in behaviour.
2. The study of psychoactive (mind-affecting) drugs has given rise to the field of **psychopharmacology**.
Methods used by psychopharmacology are: experimental use of animals to assess toxicity, strength, and basis effects; followed by assessment on humans.
3. **How drugs operate in the body:**
Essentially, all psychoactive drugs operate by affecting communication between neurons. Communication across the synapse is dependent on neurotransmitters. By blocking the receptor site, a chemical may prevent the proper neurotransmitter from reaching its target receptor. Alternatively, chemicals can attack neurotransmitters in the synapse, destroying the mbefore they can reach the receptors.
4. **How drugs alter behaviour:**
Reaction to psychoactive drugs involves
 - ◆ drug's chemical properties,
 - ◆ person's condition (body weight, initial state of arousal, tolerance, gender, and culture – e.g. women and Asian cultures can drink less alcohol);
 - ◆ environmental setting (party-home);
 - ◆ mental set (expectations, reasons for taking it, etc. – e.g. “**think-drink**” effect: men behaved more aggressively when misinformed they had drunk alcohol).

Psychoactive drugs are divided into categories, according to the general nature of their effect on behaviour.

Stimulants, e.g. amphetamines, caffeine, nicotine, cocaine,

- ◆ They act on both the CNS (increase the activity of dopamine-using neurons) and the ANS;
- ◆ Caffeine is found in coffee, tea, cola, chocolate;
- ◆ Amphetamine reduces hunger – “diet pill”, also: giving up smoking syndrome;
- ◆ They tend to decrease fatigue, increase physical activity and alertness, diminish hunger and produce a temporary elevation of mood.
- ◆ For unclear reasons, amphetamines calm down hyperactive children;
- ◆ With prolonged use, the nervous system tends to adapt to the presence of the stimulants, which can result in tolerance and, in extreme cases, to addiction, determined by the occurrence of symptoms of physical withdrawal;

Depressants, e.g. alcohol, barbiturates and tranquillizers

- ◆ They reduce CNS activity, general anaesthetic, they seem to enhance the effects of GABA, which is probably the most significant inhibitory neurotransmitter in the brain,
- ◆ Alcohol diminishes the effectiveness of dopamine, and thereby an impairment of motor abilities and attention,
- ◆ Often prescribed in small doses to reduce anxiety and in relatively high doses to combat insomnia,
- ◆ In large doses, they can cause coma or even death,
- ◆ Abuse of alcohol may well be endemic in our culture – but is alcoholism based more on physical malfunction or learning drinking patterns?

Anti-depressants, e.g. Prozac,

- ◆ Used to treat severe clinical depression, characterized by low mood state, fatigue and feelings of hopelessness,
- ◆ e.g. SSRIs (selective serotonin reuptake inhibitors) – enhance the effects of serotonin – e.g. Prozac,

Hallucinogens – psychedelics, e.g. LSD, marijuana, hashish;

- ◆ Hashish is a stronger form of marijuana (the latter being produced from cannabis plant, and the former from its resin);
- ◆ they induce alternations of consciousness,
- ◆ some clinicians argue that they mimic the effects produced by psychosis,
- ◆ LSD interferes with serotonin (normally, serotonin blocks us from dreaming when we are awake, and so inhibition of serotonin evokes dreams);

Narcotics, e.g. opium and its natural derivatives: morphine, heroin, codein; opioids (synthetic opium);

- ◆ They are usually injected intravenously, smoked or inhaled;
- ◆ They produce numbness and stupor, relieve pain, cause euphoria, impairment of concentration, mental fuzziness and cloudiness;
- ◆ Narcotics users easily develop tolerance;
- ◆ Molecular composition of opiates resembles that of endorphins (endogenous morphine, the body's natural painkilling neurotransmitters);