

MODULE 25 PSYCHOACTIVE DRUGS

TOLERANCE AND ADDICTION

- Some of us develop a self-harming **SUBSTANCE USE DISORDER**, or a continued substance craving and use despite significant life disruption and/or physical risk. In such cases, the substances being used are **PSYCHOACTIVE DRUGS**, chemicals that change perceptions and moods. A drug's overall effect depends not only on its biological effects but also on the psychology of the user's expectations, which vary with social and cultural contexts.
- **TOLERANCE** is why some individuals get buzzed on alcohol the first drink compared to others who take a couple. With continued use of alcohol and some other drugs (marijuana is an exception), the user's brain chemistry adapts to offset the drug effect (neuroadaptation).
- **ADDICTION** is the compulsive craving of drugs or certain behaviors (such as gambling) despite known adverse consequences. **WITHDRAWAL** is the discomfort and distress that follow discontinuing an addictive drug or behavior. Even social network has become a "drug" releasing the same neurotransmitter, dopamine.

TYPES OF PSYCHOACTIVE DRUGS

- The three major categories of psychoactive drugs are depressants, stimulants, and hallucinogens.
- **DEPRESSANTS** are drugs such as alcohol, barbiturates (tranquilizers), and opiates that calm neural activity and slow body functions.
- Alcohol acts like a disinhibitor, they slow brain activity that controls judgment and inhibitions. The urges you would feel if sober are the ones you will more likely act upon when intoxicated.
- Low doses of alcohol relax the drinker by slowing sympathetic nervous system activity. Larger doses cause reactions to slow, speech to slur, and skilled performance to deteriorate.
- Alcohol can also be life threatening when heavy drinking follows an earlier period of moderate drinking, which depresses the vomiting response. People may poison themselves with an overdose that their bodies would normally throw up.
- Alcohol can disrupt memory formation, and heavy drinking can have long-term effects on the brain and cognition. The prolonged and excessive drinking that characterizes **ALCOHOL USE DISORDER** can shrink the brain. Girls and young women (who have less of a stomach enzyme that digests alcohol) can become addicted to alcohol more quickly than boys and young men do, and they are at risk for lung, brain, and liver damage at lower consumption levels.
- Alcohol also produces a sort of "myopia" by focusing attention on an arousing situation and distracting attention from normal inhibitions and future consequences.

- Researchers gave Rutgers University men either an alcoholic or a nonalcoholic drink. In each group, half the participants thought they were drinking alcohol and half thought they were not. After watching an erotic movie clip, the men who thought they had consumed alcohol were more likely to report having strong sexual fantasies and feeling guilt free. Alcohol's effect lies partly in that powerful sex organ, the mind.

BARBITURATES AND OPIATES

- **BARBITURATES** are drugs that depress central nervous system activity, reducing anxiety but impairing memory and judgment.
- **OPIATES** are opium and its derivatives, such as morphine and heroin; they depress neural activity, temporarily lessening pain and anxiety. User's pupils constrict, breathing slows, and lethargy sets in as blissful pleasure replaces pain and anxiety. When repeatedly flooded with an artificial opiate, the brain eventually stops producing endorphins, its own opiates.

STIMULANTS

- A **STIMULANT** excites neural activity and speeds up body functions. Stimulants include caffeine, nicotine, the AMPHETAMINES, cocaine, methamphetamine, and ecstasy. People use stimulants to feel alert, lose weight, or boost mood or athletic performance.

NICOTINE

- **NICOTINE** is a stimulating and highly addictive psychoactive drug in tobacco. Smokers develop tolerance, and quitting causes nicotine-withdrawal symptoms, including craving, insomnia, anxiety, irritability, and distractibility.
- Smoking correlates with higher rates of depression, chronic disabilities, and divorce. Healthy living seems to add both years to life and life to years.

COCAINE

- **COCAINE** is a powerful and addictive stimulant, derived from the coca plant, producing temporarily increased alertness and euphoria.

METHAMPHETAMINE

- **METHAMPHETAMINE** is chemically related to its parent drug, amphetamine but has even greater effects. This triggers the release of the neurotransmitter dopamine, which

stimulates brain cells that enhance energy and mood, leading to 8 hours or so of heightened energy and euphoria.

ECSTASY

- **ECSTASY** is a street name for MDMA and is both a stimulant and a mild hallucinogen. Produces euphoria and social intimacy, but with short-term health risks and longer-term harm to serotonin-producing neurons and to mood and cognition. The “night club” drug.

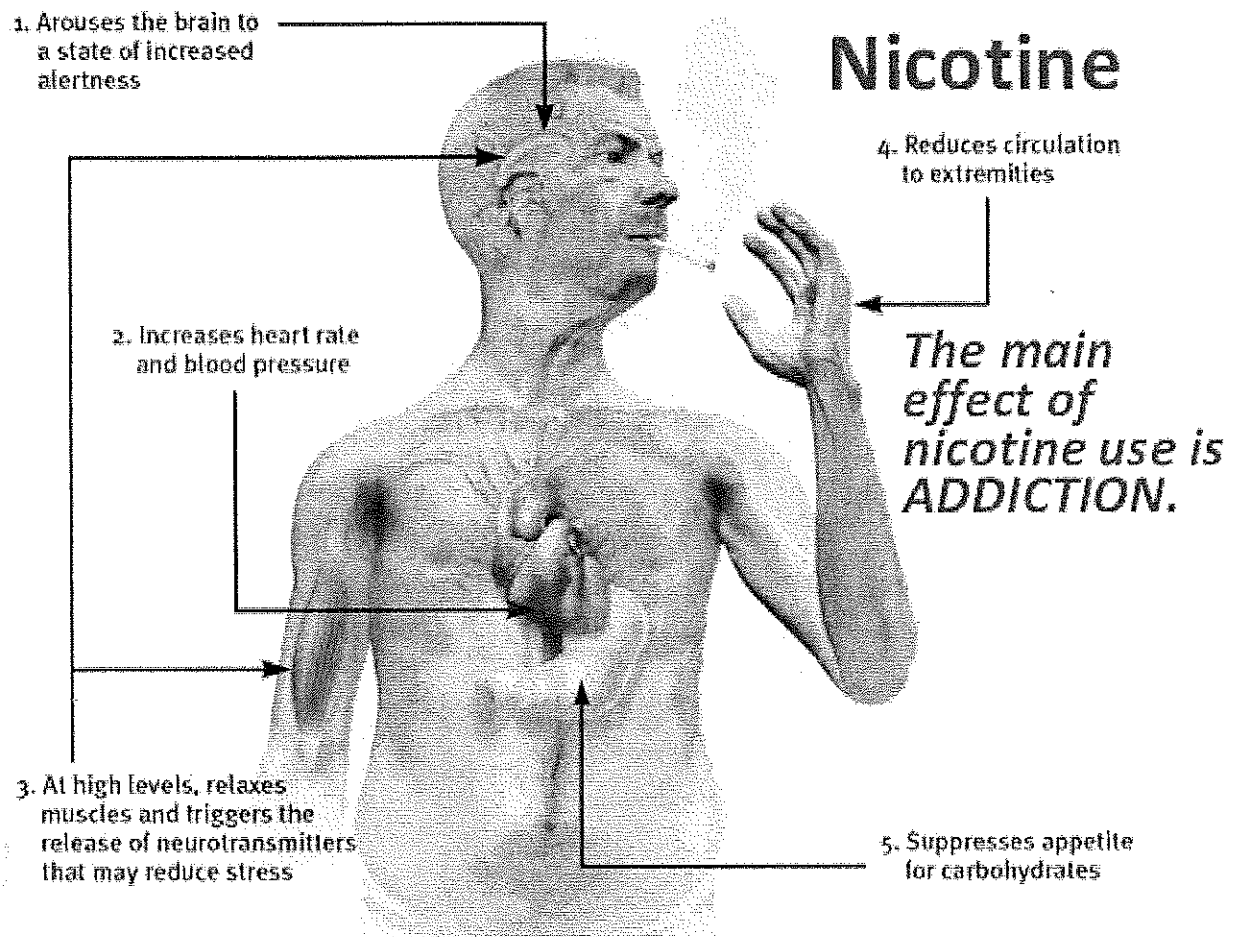
HALLUCINOGENS

- **HALLUCINOGENS** distort perceptions and evoke sensory images in the absence of sensory input. LSD.
- **LSD** (lysergic acid diethylamide) is a powerful hallucinogenic drug; also known as acid. These sensations are strikingly similar to the **NEAR-DEATH EXPERIENCE**, an altered state of consciousness reported by about 15 percent of patients revived from cardiac arrest.

MARIJUANA

- **THC** is the major active ingredient in marijuana; triggers a variety of effects, including mild hallucinations. Synthetic marijuana mimics THC. Impairs motor coordination, perceptual skills, and reaction time necessary for safely operating an automobile or other machine.
- Marijuana lingers unlike alcohol for over a week or so. Marijuana also disrupts memory formation and interferes with immediate recall of information learned only a few minutes before. Marijuana smoke, like cigarette smoke, is toxic and can cause cancer, lung damage, and pregnancy complications.

Drug	Type	Pleasurable Effects	Adverse Effects
Alcohol	Depressant	Initial high followed by relaxation and disinhibition	Depression, memory loss, organ damage, impaired reactions
Heroin	Depressant	Rush of euphoria, relief from pain	Depressed physiology, agonizing withdrawal
Caffeine	Stimulant	Increased alertness and wakefulness	Anxiety, restlessness, and insomnia in high doses; uncomfortable withdrawal
Methamphetamine	Stimulant	Euphoria, alertness, energy	Irritability, insomnia, hypertension, seizures
Cocaine	Stimulant	Rush of euphoria, confidence, energy	Cardiovascular stress, suspiciousness, depressive crash
Nicotine	Stimulant	Arousal and relaxation, sense of well-being	Heart disease, cancer
Ecstasy (MDMA)	Stimulant; mild hallucinogen	Emotional elevation, disinhibition	Dehydration, overheating, depressed mood, impaired cognitive and immune functioning
Marijuana	Mild hallucinogen	Enhanced sensation, relief of pain, distortion of time, relaxation	Impaired learning and memory, increased risk of psychological disorders, lung damage from smoke



BE ABLE TO ANSWER: Why do tobacco companies try so hard to get customers hooked as teens?

PRACTICE FRQ: Name and compare the effects of the two hallucinogens discussed in the text.