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## MODULE 10

# Drugs and Consciousness

### Module Preview

Psychoactive drugs also alter consciousness. Depressants act by depressing neural functioning. Although their effects are pleasurable, they impair memory and self-awareness and may have other physical consequences. Stimulants act at the synapses by influencing the brain's neurotransmitters. Their effects depend on dosage and the user's personality and expectations. Hallucinogens can distort judgment of time and can alter sensations and perceptions.

A number of those who survive a brush with death later recall visionary experiences. Some scientists point out that such near-death experiences closely parallel reports of hallucinations and may be a product of a brain under stress. Others reject this analysis.

Drug use may be attributed not only to biological sources but also to psychological and social-cultural sources. For example, peer influence is an important factor in whether a teen will use drugs.

### Module Guide

#### Dependence and Addiction

- ▶ Exercises: The Internet Addiction Test
- ▶ Exercise/Project: Signs of Drug Abuse
- ▶ Lectures: Incentive-Sensitization Theory; Overcoming Addictions
- ▶ Video: Module 30 of *The Mind* series, 2nd ed.: *Treating Drug Addiction: A Behavioral Approach*

- 10-1. *Discuss the nature of drug dependence and addiction, and identify three common misconceptions about addiction.*

**Psychoactive drugs** are chemicals that change perceptions and moods. Continued use of a psychoactive drug produces **tolerance**, and cessation of use may produce the undesirable side effects of **withdrawal**. The pain of withdrawal and intense craving for a dose indicates a **physical dependence**. People can also develop **psychological dependence**, particularly for drugs used to relieve stress. An **addiction** is a compulsive craving for a substance despite adverse consequences. It is often marked by physical symptoms such as aches, nausea, and distress following sudden withdrawal.

Many drug researchers believe the following three myths about addiction are false: (1) Medical drugs, for example, those used to control pain, are powerfully addictive; (2) addictions cannot be overcome voluntarily but only through treatment; and (3) we can extend the concept of addiction

to cover a whole spectrum of repetitive, pleasure-seeking behaviors, such as overeating, exercise, gambling, sex, and surfing the Internet.

- ▶ PsychSim 5: Your Mind on Drugs
- ▶ Exercise/Project: Drug Awareness
- ▶ Video: Program 12 of *Moving Images: Exploring Psychology Through Film: Psychoactive Drugs: Altering Brain Chemistry*

Psychoactive drugs operate at the brain's synapses by stimulating, inhibiting, or mimicking the activity of neurotransmitters, the brain's chemical messengers. Our culturally influenced expectations also play a role in the effects of drugs.

## Psychoactive Drugs

- ▶ Exercise: Alcohol Expectancies
- ▶ Lectures: Alcohol Consumption Among Students
- ▶ Videos: Modules 22 and 29 of *The Mind* series, 2nd ed.: *Depressants and Their Addictive Effect on the Brain* and *Alcohol Addiction: Hereditary Factors*

- 10-2. *Explain how depressants affect nervous system activity and behavior, and summarize the findings on alcohol use and abuse.*

**Depressants** such as alcohol, the **barbiturates**, and the **opiates** act by reducing neural activity and slowing body functions. Each offers its own pleasures, but at the cost of impaired memory and self-awareness or other physical consequences. Alcohol is a disinhibitor and thus increases the likelihood that we will act on both helpful and harmful impulses. It also impairs judgment, reduces self-awareness, and disrupts memory processes by suppressing REM sleep. Research indicates that when people believe that alcohol affects social behavior in specific ways, and believe that they have been drinking alcohol, they will behave accordingly. Studies find drinking and risky sex to be highly correlated. **Barbiturates**, or *tranquilizers*, mimic the effects of alcohol. In combination with alcohol, they can be lethal. The **opiates** also depress neural functioning and can cause the brain to stop producing its own opiates, the *endorphins*.

- ▶ Lecture: Caffeine—Is It Harmful?
- ▶ Instructor Video Tool Kit: *The Nature and Abuse of Ecstasy (MDMA)*
- ▶ ActivePsych: *Digital Media Archive*, 2nd ed.: *The Brain's Reward Center*

- 10-3. *Identify the major stimulants, and explain how they affect neural activity and behavior.*

**Stimulants**, such as caffeine, nicotine, and the **amphetamines** and the even more powerful cocaine, Ecstasy, and **methamphetamines**, excite neural activity and arouse body functions. As with nearly all psychoactive drugs, they act at the synapses by influencing the brain's neurotransmitters, and their effects depend on dosage and the user's personality and expectations. Methamphetamine is highly addictive; over time, it appears to reduce baseline dopamine levels. Nicotine triggers the release of epinephrine and norepinephrine, which in turn diminish appetite and boost alertness and mental efficiency. Cocaine produces a euphoric rush that lasts 15 to 30 minutes and depletes the brain's supply of the neurotransmitters dopamine, serotonin, and norepinephrine. A crash of agitated depression follows as the drug's effects wear off. Regular users become addicted and may experience emotional disturbance, suspiciousness, convulsions, cardiac arrest, or respiratory failure. **Ecstasy (MDMA)** is both a stimulant and a mild hallucinogen. By releasing serotonin and blocking its reuptake, it produces euphoria and feelings of intimacy. Its repeated use may suppress the immune system, destroy serotonin-producing neurons, and permanently damage mood.

- ▶ Lectures: The LSD Experience; Is Marijuana Good Medicine?
- ▶ Instructor Video Tool Kit: *The Medical Use of Marijuana*

- 10-4. *Describe the physiological and psychological effects of hallucinogens, and summarize the effects of LSD and marijuana.*

**Hallucinogens** distort perceptions and evoke sensory images in the absence of sensory input. LSD and other powerful hallucinogens are chemically similar to (and therefore block the actions of) a subtype of the neurotransmitter serotonin. Common components of the LSD experience are hallucinations and emotions ranging from euphoria to panic. A person's current mood and expectations affect the drug's effects. Marijuana's main active ingredient, **THC**, produces a variety of effects, including disinhibition, a euphoric high, feelings of relaxation, relief from pain, and intense sensitivity to colors, sounds, tastes, and smells. It may also increase anxiety or depression, impair motor coordination and reaction time, and disrupt memory formation. Because THC lingers in the body for a month or more, regular users may achieve a high with smaller amounts of the drug than do occasional users.

► Lecture: Near-Death Experiences

- 10-5. *(Close-up) Describe the near-death experience, and discuss the debate over whether it is an altered state of consciousness.*

A number of those who have survived a brush with death later recall **near-death experiences**. These experiences are marked by out-of-body sensations, visions of tunnels and bright lights, and intense feelings of joy, love, and peace. Some scientists note that such experiences closely parallel reports of the hallucinations produced by drugs, loss of oxygen, or extreme sensory deprivation. Near-death investigators counterargue that people who have experienced hallucinations and the near-death phenomenon typically deny their similarity. Moreover, those who have experienced a near-death experiences often become kinder, more spiritual, and more believing in life after death.

## Influences on Drug Use

► Lectures: Factors in Drug Use; The Amethyst Initiative—Should the Drinking Age Be Lowered?; Treating Alcohol Dependence

► Project: Debates on Drugs and Society

- 10-6. *Discuss the biological, psychological, and social-cultural factors that contribute to drug use.*

Drug use among U.S. high school seniors declined from 1978 to 1992, then rose, but has recently been tapering off. Various studies indicate that some people are biologically more likely to become dependent on drugs. For example, researchers have identified genes that are more common among people and animals predisposed to alcohol dependence. These genes may produce deficiencies in the brain's natural dopamine reward system. One psychological factor that contributes to drug use is the feeling that one's life is meaningless and directionless. Studies reveal that heavy drug users often have experienced significant stress or failure and are depressed. Drug use can also have social roots, evident in differing rates of drug use across cultural and ethnic groups. In the United States, drug addiction rates are very low among the Amish, Mennonites, Mormons, and Orthodox Jews. Peer pressure may lead people, especially teenagers, to experiment with—and become dependent on—drugs. Possible avenues for treatment and prevention involve education, boosting people's self-esteem and purpose in life, and inoculation against peer pressure.

