Drugs
What Is a Drug?

Substance other than food that affects the structure or function of the body through its chemical action.

Alcohol
Caffeine
Aspirin
Nicotine

Psychoactive drugs such as

Cocaine
Hallucinogens
Sedatives
Inhalants
Psychoactive drugs change brain chemistry and alter consciousness, perception, mood, thought (intoxication)

Legal drugs
  Medication prescribed by physicians
  Over-the-counter (OTC) medications
  Herbal remedies

Illicit drugs are unlawful to possess, manufacture, sell, or use
Patterns of Illicit Drug Use

The number of college students who abuse prescription drugs increased dramatically between 1993 and 2005

*Pain relievers* (e.g., Vicodin, Percocet): 343% increase in use

*Stimulants* (e.g., Ritalin, Adderall): 93% increase in use

*Tranquilizers* (e.g., Xanax, Valium): 450% increase in use

*Sedatives* (e.g., Nembutal, Seconal): 225% increase in use
**Drug misuse:** use of prescription drugs for purposes other than those for which they were prescribed or in greater amounts than prescribed, or the use of nonprescription drugs or chemicals for purposes other than those intended by the manufacturer

**Drug abuse:** use of a substance in amounts, situations, or a manner such that it causes problems, or greatly increases the risk of problems, for the user or for others
Addiction is the chronic relapsing brain disease characterized by compulsive drug seeking and use, despite harmful consequences.

Tolerance is reduced sensitivity to the effects of the drug.
Factors Influencing the Effects of Drugs

Characteristics of the drug

Chemical properties of the drug and its actions

Characteristics of the person

Age, Gender, Body weight and mass

Physical condition, Mood, Experience with the drug

Characteristics of the situation

Environmental experience
Effects of Drugs on the Brain

Many addictive drugs act on neurons in the brain:

*Part of the brainstem*

*Basal area of the forebrain*

*Prefrontal cortex*

Neurons in these structures form a pathway referred to as the *pleasure and reward circuit*
Addictive psychoactive drugs activate and cause surge in levels of **dopamine** and associated feelings of pleasure. Some have structures similar to **endorphins**, which block pain when the body undergoes stress.

Dopamine and endorphins are both kinds of neurotransmitters.
Drugs of Abuse
Central Nervous System Stimulants

Drugs that speed up activity in the brain and sympathetic nervous system
Effects similar to the “fight-or-flight” reaction
May stimulate movement, fidgeting, and talking, and produce intense feelings of euphoria and create a sense of well-being

Examples:
- Cocaine, Amphetamines
- Bath salts, Caffeine
Central Nervous System Depressants

Slow down activity in the brain and sympathetic nervous system

Can be deadly if misused, especially when mixed with alcohol

CNS depressants carry a high risk of dependence

Examples:

- Barbiturates and hypnotics
- Anti-anxiety drugs (benzodiazepines)
- GHB (gamma hydroxybutyrate)
Opioids

Natural and synthetic derivatives of opium
Currently prescribed as pain relievers, anesthetics, antidiarrheal agents, and cough suppressants
Produce feelings of pleasure and block the sensation of pain

Examples:
Morphine, Heroin
Synthetic opioids (Vicodin, Demerol, Percocet, Percodan)
Opioids

With low doses opioid users experience:

- **Euphoria**
- **Drowsiness**
- **Constriction of the pupils**
- **Slurred speech**
- **Slowed movement**
- **Impaired coordination, attention, and memory**

At high dosage users can experience depressed respiration, loss of consciousness, coma, and death.

Opioids have a high potential for dependence.
Hallucinogens

Also known as *psychedelics*

Alter perceptions and thinking in characteristic ways

Intensify and distort visual and auditory perceptions and produce hallucinations

Examples:

- LSD (lysergic acid diethylamide)
- PCP (phencyclidine)
Inhalants

Breathable chemical vapors that alter consciousness, producing a state that resembles drunkenness.

Active ingredients are all powerful toxins and carcinogens.

The most significant negative effect for chronic users is widespread and long-lasting brain damage.

Examples:
- Paint thinner, gasoline, glue, and spray-can propellant
Marijuana is the most widely used illicit drug in the United States

Derived from the hemp plant, *Cannabis sativa*
Active ingredient is delta-9-tetrahydrocannabinol (THC)
THE NEGATIVE HEALTH EFFECTS OF MARIJUANA

SHORT-TERM EFFECTS
- Impaired short-term memory
- Altered judgment: increased risk in sexual behavior that cause transmission of STDs
- Impaired motor coordination

LONG-TERM/HEAVY USE
- Symptoms of chronic bronchitis
- Less life satisfaction and achievement
- Poor educational outcome, with increased likelihood of dropping out of school
- Cognitive impairment, with lower IQ among those who were frequent users during teen years
- Increased risk of chronic psychosis disorders (including schizophrenia)

IN HIGH Doses, paranoia and psychosis
- Altered brain development

*Addiction in about 9% of users overall, 17% who begin use in the teen years, and 25-50% who are daily users.*
therapeutic effects

- bronchodilation
- decreased intraocular pressure
- decreased spasticity/ataxia/muscle weakness
- glaucoma
- analgesia
- multiple sclerosis, cerebral palsy, spinal cord injuries
- cancer pain, post-operative pain, phantom limb pain

- bronchial asthma
- prevention of nausea/vomiting caused by anticancer drugs
- antiemetic effect
- appetite stimulation
- therapeutic use

- palliative care for anorexia caused by opioids, antiviral drugs, AIDS-related illnesses or terminal cancer
Approaches to the Drug Problem

Supply reduction strategies:

Interdiction: interception of drugs before they get into the country

Pressure on supplying countries to suppress production and exportation

Prevent domestic production and selling via law enforcement
Strategies on college campuses include *environmental management*

- Send clear messages that drug use not acceptable
- Change climate of drug tolerance on campus
- Engage parents
- Provide alternative activities
- Involve students in planning and prevention

**Implementation of harm-reduction strategies**

- Provide containers for needle and syringe disposal
- Provide condoms
- Make naloxone (Narcan) available in case of opioid overdoses