

Chapter 6 Notes – DRUGS

Drug: a natural or synthetic substance that is used to produce physiological or psychological effects in humans or other higher-ordered animals

Drug Dependence:

- Psychological: conditioned use caused by underlying emotional needs
- personal / emotional
 - social
 - to escape from reality & stress
- intensity of dependence (depends on drug)
- low: codeine, marijuana (unless a heavy user)
 - high: alcohol, heroin, amphetamines, barbituates, cocaine

Physical: physiological need for a drug brought about by regular use & characterized by withdrawal sickness when stopped.

- Ex) alcohol, heroin, barbituates
- desire to avoid withdrawal symptoms
 - Ex) body chills, vomiting, stomach cramps, convulsions, insomnia, pain, hallucinations

Societal Aspects of Drug Use:

- directly related to the extent user is preoccupied w/ drug & its influence over their life
- personal health, economic relationships, family obligations, legal factors, & medical factors

Common drugs and their potential for dependence

	Drug	psychological dependence	physical dependence
Narcotics	morphine	high	yes
	heroin	high	yes
	methadone	high	yes
	codeine	low	yes
	oxycontin (oxycodone)	high	yes
	fentanyl	high	yes
Depressants	short acting barbituates	high	yes
	long acting barbituates	low	yes
	alcohol	high	yes
	methaqualone (Quaalude)	high	yes
	meprobamate (Miltown, Equanil)	moderate	yes
	diazepam (Valium)	moderate	yes
	chlordiazepoxide (Librium)	moderate	yes
Stimulants	amphetamines	high	unknown
	cocaine	high	no
	caffeine	low	no
	nicotine	high	yes
Hallucinogens	marijuana	low	no
	LSD	low	no
	phencyclidine (PCP)	high	no

Types of Drugs:

Narcotics: induce sleep, depress the central nervous system, & relieve pain (analgesics)

- Opiates - derived from morphine which comes from opium - gummy milk extracted from unripe pods of Asian poppies
- most common - heroin - soluble in H₂O - easily injected, felt almost instantly, lasts 3-4 hours
- codeine - commonly used as a cough suppressant
1/6 as strong as morphine
- Synthetic Opiates - not derived from opium
 - methadone - used to get people off heroin. People who regularly take methadone cannot get high from heroin or morphine
 - oxycontin - has similar effects to heroin
 - drs write ~7 million prescriptions each year.

pharmacological effects

Low dose - increased sense of well-being, hilarity, dreamy, care-free relaxation, alters perceptions, more vivid senses, feeling of hunger for sweets

Moderate dose - low-dose reactions intensity
high dose - distortion of body image, sensory & mental illusions, fantasies, & hallucinations

Hallucinogens: substance that induces changes in normal thought processes, perceptions, & moods

- marijuana - most widely used illicit drug in the U.S.
 - normally prepared w/ crushed leaves, flowers, stem & seeds
 - hashish - sticky resin secreted from plant (highest concentration of THC)
 - contains tetrahydrocannabinol (THC) - produces psychoactive effects
 - amount of THC varies in each part of plant
 - highest → resin, then flowers & leaves, lowest - stems, roots, & seeds
 - taken by smoking, vaping, cannabidiol oil, or eaten
- other hallucinogens
 - naturally occurring: mescaline & psilocybin
 - synthetic - lysergic acid (LSD) & phencyclidine (PCP)

Depressants: substances that slow down, depress, the function of the central nervous system

- Alcohol: \$40 Billion industry, most widely used & abused drug, inhibits mental processes of memory, judgment, & concentration, slows reaction time
- Barbituates - derivative of barbituric acid, relaxes user, creates feeling of well-being & produces sleep Ex) phenobarbital
- Methaqualone (Quaalude) - powerful sedative & muscle relaxant
- Antipsychotics & Antianxiety - produce relaxing tranquility w/o impairing high-thinking faculties
- Huffing - sniffing volatile solvents (glue, freon, etc.) - can cause death

Barbituates:

- Stimulants: substances that speed up the central nervous system
- Amphetamines - synthetic stimulants that share a similar chemical structure, provide feeling of well-being: increase alertness, decreased fatigue, & loss of appetite.
 - methamphetamine - a version of amphetamine, serious abuse in U.S. smokable form called ice intense feeling of pleasure, euphoria followed by hyperactivity, clarity, & hallucinations. As it wears off, exhaustion (sleep for 1-2 days) then depression
 - Cocaine - extracted from an Andean coca plant, usually sniffed/snorted
 - cocaine profits
 - \$200 to farmer for enough coca leaves to make one pound of cocaine
 - \$1000 for one pound of refined cocaine leaving Colombia
 - \$20,000 retail in U.S.
 - crack - cocaine + baking soda, very potent, only 1% of users are cured
- Club Drugs:
- MDMA (ecstasy) - synthetic, mind-altering drug, originally used as an appetite suppressant, increases heart rate, blood pressure, body temp.
 - GHB & Rohypnol - effects: dizziness, sedation, euphoria, disinhibition, increased libido
 - Ketamine - veterinary anesthetic, causes euphoria, feeling of unreality, hallucinations, impaired motor functions

Anabolic Steroids: synthetic compounds chemically related to testosterone

2 effects on body

androgenic - development of secondary male characteristics
 anabolic - accelerates muscle growth

side effects - liver cancer

females - infertility

males - diminished sex drive

teenagers - stops bone growth

Controlled Substances Act: federal law establishes 5 schedules of classification based on the drug's potential for dependence & medical value
us attorney general has authority to modify the schedule

Schedule I: high potential for abuse, no currently accepted medical value
ex.) heroin, methaqualone, LSD, & marijuana

Schedule II: high potential for abuse, current accepted medical value w/ restrictions

ex.) opium & its derivatives (not in I), cocaine, methadone, PCP, most amphetamines, & barbituates

Schedule III: less potential for abuse, current acceptance for medical value

ex.) any barbituates (not in II), ^{not} phenobarbital & codeine, anabolic steroids

Schedule IV: low potential for abuse & medical use accepted

ex.) propoxyphene, phenobarbital, miltown, Valium, Librium

Schedule V: low potential for abuse, current medical use

ex.) non-narcotic opiates

Table 6-2
Control Mechanisms of the Controlled Substances Act

Schedule	Registration	Record Keeping	Manufacturing Quotas	Distribution Restrictions	Dispensing Limits	Import-Export		Security	Manufacturer/Distributor Enforcement Administration	Criminal Penalties for Individual Trafficking (First Offense)
						Narcotic	Nonnarcotic			
I	Required	Separate	Yes	Order forms	Research use only	Permit	Permit	Vault/safe	Yes	0-20 years/\$1 million
II	Required	Separate	Yes	Order forms	Rx: written; no Refills	Permit	Permit	Vault/safe	Yes	0-20 years/\$1 million
III	Required	Readily retrievable	No, but some drugs limited by schedule II quotas	Records required	Rx: written or oral; with medical authorization refills up to 5 times in 6 months	Permit	Declaration	Secure storage area	Yes, narcotic No, nonnarcotic	0-5 years/\$250,000
IV	Required	Readily retrievable	No, but some drugs limited by schedule II quotas	Records required	Rx: written or oral; with medical authorization refills up to 5 times in 6 months	Permit	Declaration	Secure storage area	Manufacturer only, narcotic No, nonnarcotic	0-3 years/\$250,000
V	Required	Readily retrievable	No, but some drugs limited by schedule II quotas	Records required	Over-the-counter (Rx drugs limited to MD's order) refills up to 5 times	Permit to import; declaration to export	Declaration	Secure storage area	Manufacturer only, narcotic No, nonnarcotic	0-1 year/\$100,000

Source: Drug Enforcement Administration, Washington, D.C.

Collection & Preservation of Drug Evidence:

- ensure evidence is properly packaged & labeled
- supply background information that may relate to drug's identity

Forensic Drug Analysis:

Screening Tests: preliminary test used to reduce the number of possible identities of an unknown substance - usually a color test

place an unknown into vial w/ a chemical reagent & it changes colors to id possible drugs

5 primary color tests

1. Marquis - turns purple in presence of heroin, morphine & most opium derivatives. turns orange-brown when mixed w/ amphetamines
2. Dillie-Koppanyi - turns violet-blue in presence of barbituates
3. Duquenois-Levine - turns purple in the presence of marijuana
4. Van Urk - turns blue-purple in presence of LSD
5. Scott test - turns blue in the presence of cocaine

Confirmation Tests: single test that specifically identifies a substance

1. microcrystalline tests - id's a specific drug based on the color & shape of crystals form when drug reacts w/ specific reagents (very fast)
2. thin-layer chromatography - rapid & sensitive analysis
3. gas chromatography - separates mixtures, used in conjunction w/ mass spectrometry - to isolate individual drugs. (very fast & sensitive)

Id of marijuana - microscope to look @ leaf fragments

- observe short hairs shaped like bear claws on upper side of leaf & longer hairs on opposite side
- for hashish or hashish oil - thin-layer chromatography in conjunction w/ Duquenois-Levine color test.