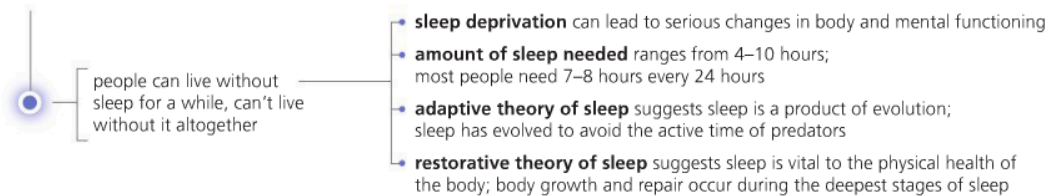


Altered States—Sleep: The Necessity of Sleep

(sleep is one of the body's daily (circadian) biological rhythms; sleep–wake cycle controlled by the brain including the hypothalamus and the neurotransmitter serotonin)



PRACTICE QUIZ: HOW MUCH DO YOU REMEMBER?

Table 4.1 Common Sleep Disorders

NAME OF DISORDER	PRIMARY SYMPTOMS
Somnambulism	Sitting, walking, or performing complex behavior while asleep
Night terrors	Extreme fear, agitation, screaming while asleep
Restless leg syndrome	Uncomfortable sensations in legs causing movement and loss of sleep
Nocturnal leg cramps	Painful cramps in calf or foot muscles
Hypersomnia	Excessive daytime sleepiness
Circadian rhythm disorders	Disturbances of the sleep–wake cycle such as jet lag and shift work
Enuresis	Urinating while asleep in bed

4.3-4

consist of both REM (rapid eye movement) and non-REM stages; REM is relatively active whereas non-REM is much deeper and restful; stages defined by level of brain activity as measured by the EEG (delta, theta, alpha, beta waves); sleep cycle is made up of various stages repeated 4-5 times a night

- **non-REM Stage 1:** while awake, primarily beta activity, more alpha as one relaxes, onset of sleep in Stage 1 is associated with alpha being replaced by theta
- **non-REM Stage 2:** EEG sleep spindles appear; theta activity is predominant; body temperature continues to drop, heart rate and breathing slows
- **non-REM Stages 3 & 4:** delta activity makes up 20-50% of EEG activity in Stage 3; over 50% indicates Stage 4; body is at lowest level of functioning and people are hard to awaken; sleep disorders such as sleepwalking and night terrors occur in Stage 4
- **REM sleep:** dreaming occurs; eyes move rapidly under the eyelids and EEG indicates presence of beta, but body is typically still due to sleep paralysis; REM behavior disorder occurs when body is not still or acts out dreams, usually seen in men over age 60

Altered States—Sleep: Stages and Disorders

sleep disorders include a variety of problems that can interfere with sleep

- **insomnia** is the inability to get to sleep, stay asleep, or get good quality sleep
- **sleep apnea** consists of loud snoring and stopped breathing
- **narcolepsy** consists of sudden onset of REM sleep during otherwise waking hours

4.5

Why do we dream?

- **Freud's interpretation:** wish fulfillment—conflicts, events, and desires represented in symbolic form in dreams
- **activation-synthesis hypothesis**
 - dreams are product of random signals (activation), with brain forming explanation of signals based on memories and other information (synthesis)
 - activation-information-mode model (AIM) suggests that information access during waking hours can influence on synthesis of dreams
- **manifest content:** actual dream itself
- **latent content:** hidden or symbolic meaning of dream

Dreams

What do people dream about? — typically about events that occur in everyday life; most in color; content influenced by gender and culture

Table 4.2 Sample Items from the Stanford Hypnotic Susceptibility Scale: Form A (SHSS:A)

1. Postural sway	5. Finger lock	9. Hallucination (fly)
2. Eye closure	6. Arm rigidity (left arm)	10. Eye catalepsy
3. Hand lowering (left)	7. Hands moving together	11. Posthypnotic (changes chairs)
4. Immobilization (right arm)	8. Verbal inhibition (name)	12. Amnesia

Source: Hilgard, E. (1965). *Hypnotic Susceptibility*. New York: Harcourt, Brace & World.

Table 4.3 Facts about Hypnosis

HYPNOSIS CAN:	HYPNOSIS CANNOT:
Create amnesia for whatever happens during the hypnotic session, at least for a brief time (Bowers & Woody, 1996).	Give people superhuman strength. (People may use their full strength under hypnosis, but it is no more than they had before hypnosis.)
Relieve pain by allowing a person to remove conscious attention from the pain (Holroyd, 1996).	Reliably enhance memory. (There's an increased risk of false memory retrieval because of the suggestible state hypnosis creates.)
Alter sensory perceptions. (Smell, hearing, vision, time sense, and the ability to see visual illusions can all be affected by hypnosis.)	Regress people back to childhood. (Although people may <i>act</i> like children, they do and say things children would not.)
Help people relax in situations that normally would cause them stress, such as flying on an airplane (Muhlberger et al., 2001).	Regress people to some "past life." There is no scientific evidence for past life regression (Lilienfeld et al., 2004).

4.6

Altered States: Hypnosis

(state of consciousness during which person is more susceptible to suggestion)

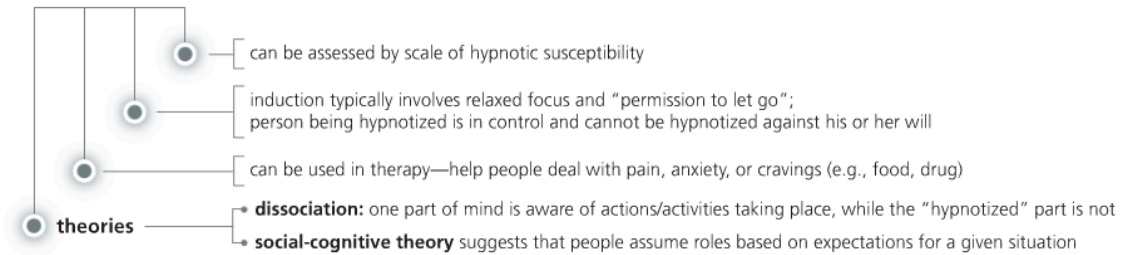


Table 4.6 How Drugs Affect Consciousness

DRUG CLASSIFICATION	COMMON NAME	MAIN EFFECT	ADVERSE EFFECTS
Depressants			
Alcohol	Beer, wine, spirits	Relaxation	Alcoholism, health problems, depression, increased risk of accidents, death
Barbiturates (tranquilizers)	Nembutal, Seconal		Addiction, brain damage, death
Stimulants			
Amphetamines	Methamphetamine, speed, Ritalin, Dexedrine	Stimulation, excitement	Risk of addiction, stroke, fatal heart problems, psychosis
Cocaine	Cocaine, crack		Risk of addiction, stroke, fatal heart problems, psychosis
Nicotine	Tobacco		Addiction, cancer
Caffeine	Coffee, tea		Caffeinism, high blood pressure
Narcotics			
Opiates	Morphine, heroin	Euphoria	Addiction, death
Psychedelics and Hallucinogens			
	Marijuana, hashish, LSD, Ecstasy	Distorted consciousness, altered perception	Possible permanent memory problems, bad "trips," suicide, overdose, and death

4.7–9

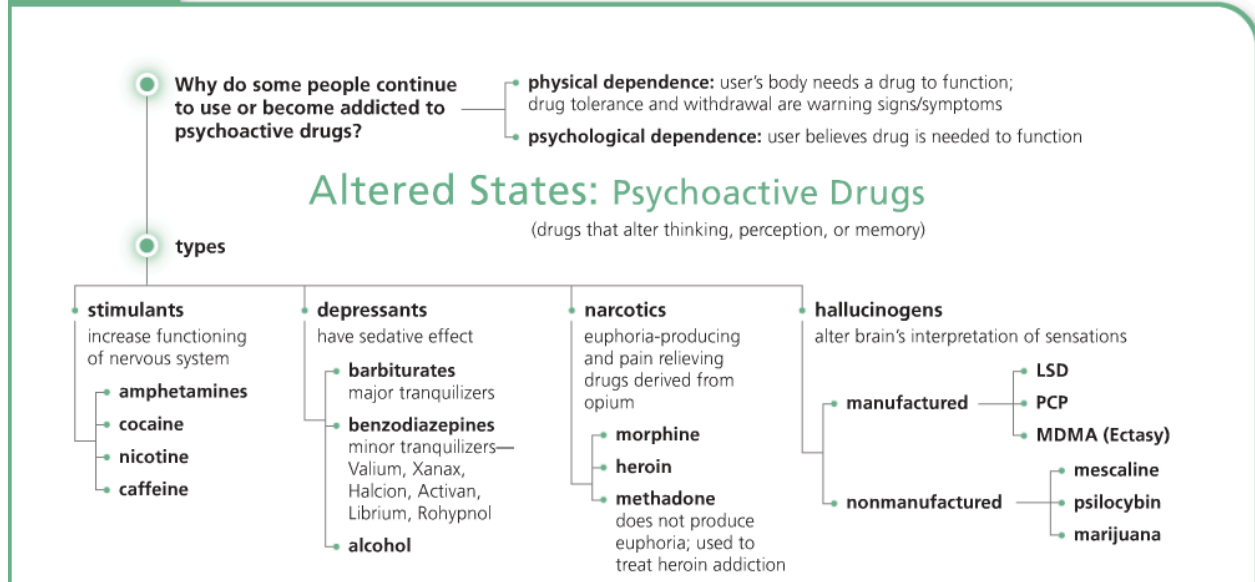


Table 3.4

Summary Table of the Senses

Sense	Stimulus	Sense Organ	Sensory Receptor Cells
Hearing (audition)	Sound waves	Ear	Hair cells in cochlea
Vision	Light waves	Eye	Rods and cones in retina
Color vision	Different wavelengths of light	Eye	Cones in retina
Smell (olfaction)	Airborne odor molecules	Nose	Hairlike receptor cells at top of nasal cavity
Taste (gustation)	Chemicals dissolved in saliva	Mouth	Taste buds
Touch	Pressure	Skin	Pacinian corpuscle
Temperature	Warmth, cold	Skin	Warm and cold "spots" on skin
Pain	Tissue injury or damage; varied	Skin, organs, and other body sites	No single specific receptor; pattern of messages from many kinds of receptors
Movement (kinesthetic sense)	Movement of the body	None; muscle and joint tissue	Proprioceptors in muscle and joint tissue
Balance (vestibular sense)	Changes in position, gravity	Semicircular canals and vestibular sacs	Hairlike receptor cells in semicircular canals and vestibular sacs