Consciousness

What Is Consciousness?

- people's awareness of everything that is going on around them at any given moment (thoughts, sensations, and feelings); much of the day is spent in waking consciousness where these are clear and organized
- altered states of consciousness occur when there is a shift in the quality or pattern of mental activity as compared to waking consciousness; alertness, thought content, and focus can vary greatly

- hypothalamus contains the suprachiasmatic nucleus (SCN)
  - SCN is sensitive to light—influences pineal gland's secretion of melatonin (↑ melatonin = ↑ sleepiness)
  - light through eyes relayed to SCN; SCN signals pineal gland to stop producing melatonin (↓ melatonin = ↑ alertness / ↓ sleepiness)
  - SCN also influences body temperature (↓ temperature = ↑ sleepiness)

Altered States—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)

- people can live without sleep for a while, can't live without it altogether
  - **sleep deprivation** can lead to serious changes in body and mental functioning
  - **amount of sleep needed** ranges from 4–10 hours; most people need 7–9 hours every 24 hours
  - **adaptive theory of sleep** suggests sleep is a product of evolution; sleep has evolved to avoid the active time of predators
  - **restorative theory of sleep** suggests sleep is vital to the physical health of the body; body growth and repair occur during the deepest stages of sleep

- 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 (beta, alpha, theta, delta 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 slow
  - **non-REM Stages 3 and 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

Dreams

- **Why do we dream?**
  - **Freud's interpretation:** wish fulfillment—conflicts, events, and desires represented in symbolic form in dreams
    - **manifest content:** actual dream itself
    - **latent content:** hidden or symbolic meaning of dream
  - **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 the synthesis of dreams
- **What do people dream about?** typically about events that occur in everyday life; most in color; content influenced by gender and culture

Consciousness

Altered States: Hypnosis

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

- can be assessed by scale of hypnotic susceptibility
- induction typically involves relaxed focus and "permission to let go"; person being hypnotized is in control and cannot be hypnotized against his or her will
- can be used in therapy—helps people deal with pain, anxiety, or cravings (e.g., food, drug)
- **theories**
  - **dissociation:** one part of the mind is aware of actions/activities taking place, while the "hypnotized" part is not
  - **social-cognitive theory** suggests that people assume roles based on expectations for a given situation

Why do some people continue to use or become addicted to psychoactive drugs?

- **physical dependence:** user's body needs a drug to function; drug tolerance and withdrawal are warning signs/symptoms
- **psychological dependence:** user believes drug is needed to function

Altered States: Psychoactive Drugs

(drugs that alter thinking, perception, or memory)

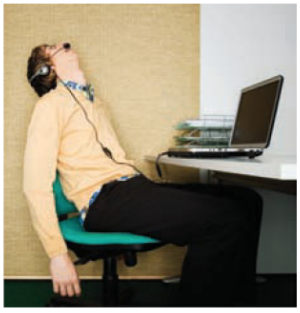
types

- **stimulants**
  increase functioning of nervous system
  - **amphetamines**
  - **cocaine**
  - **nicotine**
  - **caffeine**
- **depressants**
  have sedative effect
  - **barbiturates**
    major tranquilizers
  - **benzodiazepines**
    minor tranquilizers—Valium, Xanax, Halcion, Ativan, Librium, Rohypnol
  - **alcohol**
  - **narcotics**
    euphoria-producing and pain-relieving drugs derived from opium
    - **morphine**
    - **heroin**
    - **methadone**
      does not produce euphoria; used to treat heroin addiction
- **hallucinogens**
  alter brain's interpretation of sensations
  - **manufactured**
    - **LSD**
    - **PCP**
    - **MDMA (Ectasy)**
  - **nonmanufactured**
    - **mescaline**
    - **psilocybin**
    - **marijuana**

4 consciousness

sleep, dreams, hypnosis, and drugs

4.2 p. 136



- hypothalamus contains the suprachiasmatic nucleus (SCN)
  - SCN is sensitive to light—influences pineal gland's secretion of melatonin (↑ melatonin = ↑ sleepiness)
  - light through eyes relayed to SCN; SCN signals pineal gland to stop producing melatonin (↓ melatonin = ↑ alertness / ↓ sleepiness)
  - SCN also influences body temperature (↓ temperature = ↑ sleepiness)

Altered States—Sleep

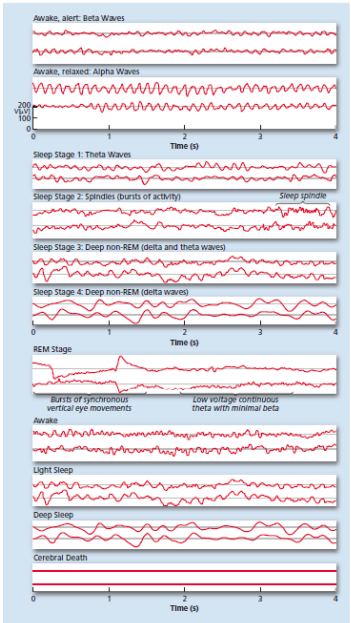
(sleep is one of the body's daily [circadian] biological rhythms; sleep–wake cycle controlled by the brain including the hypothalamus and the neurotransmitter serotonin)

- people can live without sleep for a while, can't live without it altogether
  - **sleep deprivation** can lead to serious changes in body and mental functioning
  - **amount of sleep needed** ranges from 4–10 hours; most people need 7–9 hours every 24 hours
  - **adaptive theory of sleep** suggests sleep is a product of evolution; sleep has evolved to avoid the active time of predators
  - **restorative theory of sleep** suggests sleep is vital to the physical health of the body; body growth and repair occur during the deepest stages of sleep

4.3 4.4 p. 143

Altered States—Sleep: Stages and Disorders

- consist of both REM (rapid eye movement) and non-REM stages
  - non-REM Stage 1
  - non-REM Stage 2
  - non-REM Stages 3 and 4
  - REM sleep



- sleep disorders include a variety of problems that can interfere with sleep
  - insomnia
  - sleep apnea
  - narcolepsy

"On your application it says you have narcolepsy. What is that?"

Table 4.1

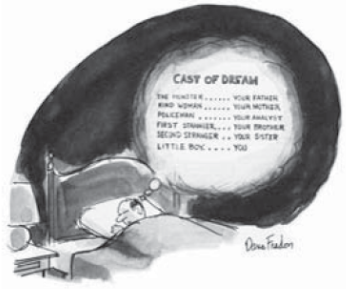
Sleep Disorders

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

4.5 p. 146

Dreams

- Why do we dream?
  - **Freud's interpretation:** wish fulfillment—conflicts, events, and desires represented in symbolic form in dreams
  - **activation-synthesis hypothesis**
- What do people dream about?
  - typically about events that occur in everyday life; most in color; content influenced by gender and culture



4.6 p. 149

Altered States: Hypnosis

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

- can be assessed by scale of hypnotic susceptibility
- induction typically involves relaxed focus and "permission to let go"; person being hypnotized is in control and cannot be hypnotized against his or her will
- can be used in therapy—helps people deal with pain, anxiety, or cravings (e.g., food, drug)
- **theories**
  - **dissociation:** one part of the mind is aware of actions/activities taking place, while the "hypnotized" part is not
  - **social-cognitive theory** suggests that people assume roles based on expectations for a given situation

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 because retrieval 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 act 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).

4.7 4.8 4.9 p. 161

- **Why do some people continue to use or become addicted to psychoactive drugs?**
  - **physical dependence:** user's body needs a drug to function; drug tolerance and withdrawal are warning signs/symptoms
  - **psychological dependence:** user believes drug is needed to function

Altered States: Psychoactive Drugs

(drugs that alter thinking, perception, or memory)

- **types**
  - **stimulants** increase functioning of nervous system
    - **amphetamines**
    - **cocaine**
    - **nicotine**
    - **caffeine**
  - **depressants** have sedative effect
    - **barbiturates** major tranquilizers
    - **benzodiazepines** minor tranquilizers—Valium, Xanax, Halcion, Ativan, Librium, Rohypnol
    - **alcohol**
    - **narcotics** euphoria-producing and pain-relieving drugs derived from opium
      - **morphine**
      - **heroin**
      - **methadone** does not produce euphoria; used to treat heroin addiction
  - **hallucinogens** alter brain's interpretation of sensations
    - **manufactured**
      - **LSD**
      - **PCP**
      - **MDMA (Ectasy)**
    - **nonmanufactured**
      - **mescaline**
      - **psilocybin**
      - **marijuana**