

## Chapter 5: Consciousness

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### Truth or Fiction?

- We act out our forbidden fantasies in our dreams.
- Many people have insomnia because they try too hard to fall asleep at night.
- It is dangerous to awaken a sleepwalker.

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### Truth or Fiction?

- You can be hypnotized against your will.
- You can teach a rat to raise or lower its heart rate.
- Some people visit cyberspace with virtual bodies.

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**Truth or Fiction?**

- A drink a day is good for you.
- Heroin was once used as a cure for addiction to morphine.
- Many health professionals calm down hyperactive children by giving them a stimulant.

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**Truth or Fiction?**

- Coca-Cola once “added life” to its signature drink through the use of a powerful – but now illegal – stimulant.
- The number of people who die from smoking-related causes is greater than the number lost to motor vehicle accidents, abuse of alcohol and all other drugs, suicide, homicide, and AIDS *combined*.

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**Preview of Chapter Five**

- What is Consciousness?
- Sleep and Dreams
- Altering Consciousness Through Hypnosis, Meditation, and Biofeedback
- Altering Consciousness by Connecting with the Internet
- Altering Consciousness Through Drugs

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## What is Consciousness?

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### Consciousness

- Sensory Awareness
- Selective Attention
- Direct Inner Awareness
- Sense of Self
- Waking State

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### Preconscious, Unconscious, Nonconscious

- Preconscious
  - Not currently in awareness, but readily available
- Unconscious
  - Unavailable to awareness under most circumstances
- Nonconscious
  - Bodily processes that can not be experienced through sensory awareness

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## Sleep and Dreams

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### Biological and Circadian Rhythms

- Circadian rhythm is a cycle that is connected with the 24-hour period of the earth's rotation
  - Cycle of wakefulness and sleep

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### The Stages of Sleep

- Using EEG records, sleep stages are recorded by different brain waves
- Non-rapid-eye-movement (NREM) sleep
  - First four stages of sleep
  - Stage 1 is lightest; Stage 4 is deepest
- Rapid-eye-movement sleep

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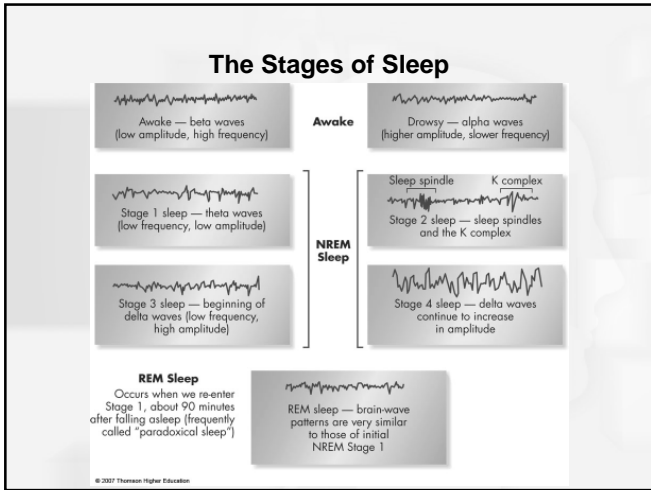
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- ### The Stages of Sleep
- Stage 1
    - Slow down from alpha waves into theta waves
    - Lightest sleep
  - Stage 2
    - Appearance of sleep spindles
  - Stages 3 and 4
    - Delta waves
    - Stage 4 is deepest stage of sleep

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- ### The Stages of Sleep
- Move from stage 4 back through stages 3 and 2
  - REM sleep
    - Rapid eye movements
    - Paradoxical sleep
    - When awakened in REM sleep, 80% report dreams

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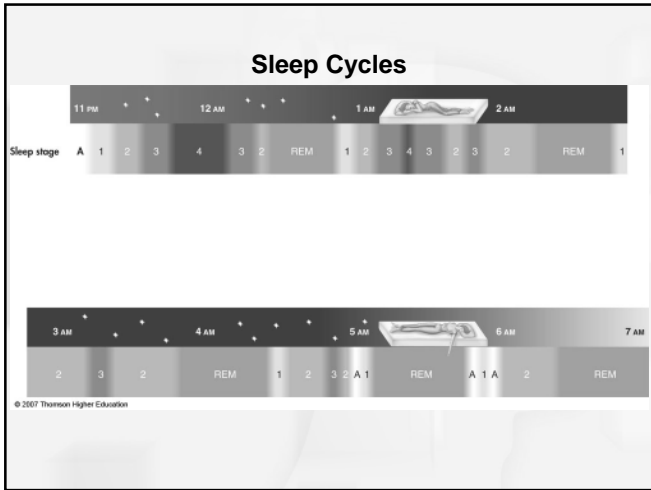
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### Typical Night of Sleep

- Tend to undergo 5 cycles through the stages of sleep
- First stage 4 sleep is usually the longest
- Sleep becomes lighter as the night wears on
- REM sleep becomes longer as night wears on
  - Last REM period may be about 30 minutes

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### Functions of Sleep

- Rejuvenates the body
- Helps us recover from stress
- Helps us consolidate learning and memories
- May promote development of infants' brains

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### Amount of Sleep

- Amount of sleep needed may be partly genetically determined
- Additional sleep is needed when you are under stress
- As you age, you require less sleep

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### Sleep, Learning and Memory

- Individuals deprived of REM sleep
  - Learn more slowly
  - Forget what they have learned sooner
  - Show REM rebound

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### Dreams

- Cognitive activity that occurs while you are sleeping
- Most vivid during REM sleep
- May dream in color or black and white
- Pleasant dream or nightmare

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### What Do We Dream?

- Memories of the day
- Traumatic events
- Expressions of unconscious desires

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### Activation-Synthesis Model of Dreaming

- Acetylcholine and the pons stimulate responses that lead to dreaming
  - Reticular activation system stimulates parts of the cortex involved in memory
  - Cortex then synthesizes sources of stimulation into dreams
- Most likely dream of recent events

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### Sleep Disorders

- Insomnia
- Narcolepsy
  - Sleep paralysis
- Apnea

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### Deep Sleep Disorders

- Occur in stage 3 and 4 sleep
- More common in children
  - Sleep Terrors
  - Bed-Wetting
  - Sleepwalking

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### Altering Consciousness Through Hypnosis, Meditation, and Biofeedback

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### Hypnosis

- Altered state of consciousness in which people are suggestible and behave as though in a trance
- Hypnotic suggestibility
  - People who are easily hypnotized

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### Explaining the Effects of Hypnosis

- Role Theory
- Response Set Theory
- Suggestible people

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### Meditation

- Activity that alters the normal relationship between the self and the environment
- Transcendental Meditation (TM)
  - Concentrate on a mantra
  - Reduces anxiety and blood pressure
- Mindfulness Meditation (MM)
  - Mantra-like techniques

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### Biofeedback

- A system that provides information about a bodily function in order to gain some control over it
- Biofeedback training (BFT)
  - helps combat stress, tension and anxiety
- Electromyograph (EMG)
  - Monitors muscle tension

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## Altering Consciousness by Connecting with the Internet

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### Cyberspace

- Allows an individual to
  - alter one's sensory experience, and
  - go beyond one's spatial boundaries.
- Becomes an extension of one's consciousness
  - Allows one to experience reality from a different perspective

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### “Flow”

- Riveting of attention to the exclusion of others
- Altered state of consciousness
  - Pleasant activity
  - Challenging activities

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### **Internet Addiction**

- Refers to self-defeating behavior pattern
  - Preoccupation with online activity
  - Disrupts functioning in the real world
- May perceive online activity as extremely important to their lives
  - Use it excessively
  - Experience lack of control over going online
  - Neglect studies, work, social lives

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### **Altering Consciousness Through Drugs**

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### **Substance Abuse and Dependence**

- Substance abuse is repeated use of a substance despite the fact that it impairs functioning
- Substance dependence is characterized by loss of control over use of the substance
  - Organize life around getting and using a substance
  - Tolerance
  - Withdrawal symptoms

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**Causes of Substance Abuse and Dependence**

- Experimentation
- Recommendation or observation of others
- Reinforcement of positive effects
- Avoidance of withdrawal effects
- Genetic predisposition toward physiological dependence

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**Alcohol**

- Depressant
  - Slows activity of central nervous system
- Intoxicates
  - Impairs cognitive functioning and coordination
- Men more likely to become alcoholic than women
  - Alcohol has stronger effect on women
- Can lead to physiological dependence

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**Opiates**

- Group of narcotics derived from the opium poppy
  - Morphine, heroin, codeine, Demerol
- Major application is pain relief
- Provides a strong euphoric “rush”
- Can lead to dependence

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### Barbiturates

- Depressants with medical uses
  - Relaxation, pain management, treatment of epilepsy, high blood pressure and insomnia
- Rapidly lead to dependence

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### Amphetamines

- Increase the activity of the nervous system
- Taken in high doses produces euphoric feeling
  - May cause insomnia, restlessness, psychotic symptoms and a “crash” upon withdrawal
- Tolerance develops quickly and users may become dependent
- Ritalin
  - Common treatment for hyperactive children

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### Cocaine

- Stimulant that produces euphoric feelings
- Physical dangers
  - Sudden rises in blood pressure, decreased oxygen supply to the heart, quickened heart rate
- Overdose
  - Can cause restlessness and insomnia, tremors, headaches, nausea, convulsions, hallucinations, delusions, cardiorespiratory collapse

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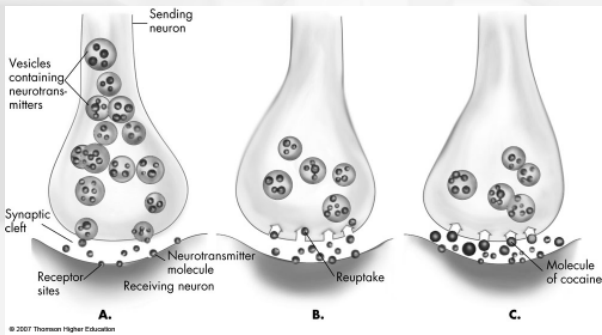
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### How Cocaine Produces Euphoria and Why People “Crash”




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### Nicotine

- Addictive stimulant in tobacco smoke
- Appears to reduce stress
  - Depresses appetite and raises metabolic rate
- Cigarette smoke also contains
  - Hydrocarbons (tars)
  - Carbon monoxide

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### Video Connections: Why is Nicotine So Addictive?

- How reinforcing is nicotine compared to other drugs?
- If people are partly attracted to smoking cigarettes at social gatherings because it gives them something to do with their hands, what kinds of other things might they do instead?

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### Marijuana

- Hallucinogen, active ingredient THC
- May produce relaxation, heightened and distorted perceptions, feelings of empathy and reports of new insights
- Impairs perceptual-motor coordination and impairs short-term memory and slows learning
- Elevates heart rate

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### LSD

- Synthetic hallucinogen
- Produces vivid, colorful hallucinations
- Flashbacks
  - Occur days, weeks, or longer after usage; distorted perceptions that mimic LSD trip”
- Other hallucinogens
  - Mescaline
  - PCP

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