
States of Consciousness

I. UNDERSTANDING CONSCIOUSNESS

A. KEY DEFINITIONS

1. Consciousness is the personal awareness of thoughts, sensations, memories, and the external world.
2. William James likened consciousness to an ever-changing "stream" or "river" that nonetheless is perceived as unified and unbroken.

B. LEVELS OF AWARENESS

1. Controlled processes
 - ▶ *Require focused, maximum attention, i.e., writing an SAT or ACT essay*
2. Automatic processes
 - ▶ *Require minimal attention, i.e., walking in the mall while talking on a cell phone*
3. Subconscious
 - ▶ *Below conscious awareness*
 - ▶ *Sleeping and dreaming*
4. No awareness
 - ▶ *Biologically-based lowest level of awareness*
 - ▶ *Being in a coma or under anesthesia*

C. CIRCADIAN RHYTHMS

1. Biological processes that systematically vary over a period of about 24 hours.
2. Researchers have identified more than 100 bodily processes that rhythmically peak and dip each day. For example, our

sleep-wake cycle, blood pressure, secretion of different hormones, and pulse rate all follow circadian rhythms.

3. When all time cues are removed, our sleep-wake cycle averages about 25 hours.
4. Jet lag and rotating work schedules are common examples of activities that disrupt normal circadian rhythms. These disruptions can lead to reduced concentration and increased fatigue.

II. SLEEP PATTERNS

A. STUDYING SLEEP

1. Sleep researchers use an electroencephalograph to detect and record brain-wave changes during the sleep cycle.
2. Electroencephalogram (EEG) recordings show that sleep consists of a repeating pattern of distinct stages.

B. TWO BASIC TYPES OF SLEEP

1. REM or rapid-eye-movement sleep
 - ▶ *Active sleep in which the sleeper's eyes dart back and forth behind closed eyelids*
 - ▶ *Associated with dreaming*
2. NREM or non-rapid-eye-movement sleep
 - ▶ *Quiet sleep*
 - ▶ *Associated with slowing brain activity*
 - ▶ *Divided into four stages*

C. STAGES OF NREM SLEEP

1. Stage 1
 - ▶ *Period of light sleep that typically lasts only a few minutes*
 - ▶ *Characterized by a slowing heart rate and decreasing blood pressure*
2. Stage 2
 - ▶ *Period of true sleep that typically lasts 15 to 20 minutes*

- ▶ *Characterized by the periodic appearance of short bursts of rapid, high-amplitude brain waves known as sleep spindles.*
3. Stages 3 and 4
 - ▶ *Periods of deep sleep that typically last 20 to 40 minutes*
 - ▶ *Characterized by low levels of breathing, blood pressure, and heart rate*

D. REM SLEEP

1. The initial four NREM stages typically last about an hour.
2. After completing Stage 4, the sleeper reverses back through Stages 3 and 2. However, instead of reentering Stage 1, the sleeper enters REM sleep.
3. REM sleep is often referred to as “paradoxical sleep.” A paradox is a phenomenon that is contradictory, but nonetheless true. REM sleep is paradoxical because it is simultaneously characterized by active eye movements and the loss of muscle movement. The suppression of voluntary muscle activity prevents the sleeper from acting out dreams.
4. The amount of REM sleep changes during our life span. Infants spend about 40 percent of their sleep in REM. This figure declines to 20 percent for adults and to 14 percent for people over 70.

E. SLEEP CYCLES

1. In a typical night, a sleeping person experiences five 90-minute cycles of alternating NREM and REM sleep.
2. The first REM episode is short. However, as the night progresses, the REM phases become longer and less time is spent in NREM.



Sleep cycles typically generate one or two very specific multiple-choice questions. Be sure you know that REM sleep is highly correlated with dreams and that sleep spindles occur in Stage 2 sleep.

III. THEORIES OF SLEEP

A. THE RESTORATION THEORY OF SLEEP

1. Proponents of this theory argue that sleep rejuvenates the mind and the body.
2. REM sleep restores mental and brain functions, while NREM sleep restores key physical functions.
3. The restoration theory is supported by studies in which researchers selectively deprive subjects of REM sleep. When subjects are allowed to resume uninterrupted sleep cycles, they experience a REM rebound or dramatic increase in REM sleep. The same rebound phenomenon occurs when subjects are deprived of NREM sleep.

B. THE ADAPTIVE THEORY OF SLEEP

1. Evolutionary psychologists argue that sleep patterns evolved so that both human and non-human animals could conserve energy and avoid predators.
2. Evolutionary psychologists also argue that sleep is a necessary part of circadian cycles.

IV. THEORIES OF DREAMS

A. THE PSYCHOANALYTIC/PSYCHODYNAMIC VIEW

1. In *The Interpretation of Dreams*, Freud boldly declared that dreams are "the royal road to the unconscious." According to Freud, dreams provide insights into unconscious motives by expressing hidden desires and conflicts.
2. According to Freud, dreams contain a story line or manifest content that consists of symbols.
3. The manifest symbols disguise the dream's true meaning. Freud believed that the latent or hidden content provides the dream's real unconscious meaning.
4. Although very provocative, Freud's theory is subjective and lacks scientific support.

B. THE ACTIVATION-SYNTHESIS VIEW

1. Sleep researcher J. Allan Hobson's research findings led him to propose that the dreaming brain is responding to its own internally generated signals.
2. The brain, Hobson argues, synthesizes these spontaneous signals into coherent patterns or dreams.
3. Hobson does not believe that dreams are completely meaningless. Unlike Freud, he believes that a dream's meaning is not derived from decoding hidden symbols, but from analyzing the personal way in which a dream organizes images.

V. SLEEP DISORDERS

A. INSOMNIA

1. The most common sleep disorder
2. Characterized by persistent problems in falling asleep, staying asleep, or awakening too early

B. SLEEP APNEA

1. Common in overweight men over the age of 50
2. Characterized by loud snoring, irregular breathing, and gasping for air

C. SLEEPWALKING

1. Sleepwalking is much more common in children than adults.
2. Characterized by an episode of walking or performing other actions during Stage 3 or Stage 4 of NREM sleep

VI. HYPNOSIS

A. DEFINITION

1. Hypnosis is a trance-like state of heightened suggestibility, deep relaxation, and intense focus.

B. PRACTICAL APPLICATIONS

1. Used to reduce stress and anxiety
2. Used to treat chronic pain
3. Used to manage pain during medical and dental procedures
4. Used in efforts to lose weight and stop smoking

C. LIMITATIONS

1. No one can be hypnotized against his or her will.
2. Hypnosis cannot make people violate their moral values.
3. Hypnosis cannot bestow new talents or make a person stronger.

D. EXPLANATIONS OF HYPNOSIS

1. Dissociation
 - ▶ *Ernest Hilgard conducted an experiment in which hypnotized subjects showed no sign of pain when they submerged their arms in an ice bath. However, when Hilgard asked the subjects to lift their index finger if they felt pain, 70 percent did.*
 - ▶ *Hilgard theorized that hypnosis induces a special state of dissociation, or divided consciousness. Dissociation enables the hypnotized subjects to consciously respond to the hypnotist's suggestion that the cold water is not painful. At the same time, the hypnotized subjects processed a second dissociated stream of mental activity that enabled them to sense the water's temperature.*
2. Social influence theory
 - ▶ *Proponents of the social influence theory argue that there is no such thing as a hypnotic trance. Instead, people are enacting the socially constructed role of hypnotic subject.*
 - ▶ *The social influence theory explains Hilgard's findings by theorizing that his subjects ignored the cold because they were caught up in the role of being a hypnotized subject.*



Given the amount of attention devoted to Freud's psychoanalytic theory of dreams, it is easy to overlook the research of Ernest Hilgard on hypnosis. Don't make this mistake. Be sure that you can identify and briefly explain Hilgard's theory of dissociation.

VII. PSYCHOACTIVE DRUGS**A. KEY TERMS**

1. Psychoactive drugs—chemicals that change conscious awareness, mood, and/or perception.
2. Agonistic drugs—enhance a neurotransmitter's effect
3. Antagonistic drugs—inhibit a neurotransmitter's effect
4. Withdrawal—the painful experience associated with stopping the use of addictive drugs
5. Tolerance—bodily adjustment to higher and higher levels of a drug, which leads to decreased sensitivity.

B. DEPRESSANTS

1. Act on the brain and other parts of the central nervous system by decreasing bodily processes, reducing reaction times, and causing a feeling of well being.
2. Alcohol, barbiturates, and anti-anxiety drugs, such as Valium, are all depressants.
3. Alcohol is the most used and most abused depressant. Note that, regardless of the dose, alcohol is always a depressant.
4. The psychological effects of alcohol are strongly influenced by the user's expectations. As noted by David Myers, "When people believe that alcohol affects social behavior in certain ways, and believe, rightly or wrongly, that they have been drinking alcohol, they will behave accordingly."

C. STIMULANTS

1. Act on the brain and other parts of the central nervous system by producing alertness, excitement, elevated mood, and general responsiveness.
2. Caffeine, nicotine, amphetamine, and cocaine are all stimulants.
3. Each year, over 400,000 Americans die from smoking-related illnesses. Smoking plays a role in causing bronchitis, emphysema, and heart disease.
4. Cocaine is a highly addictive and particularly dangerous stimulant.

D. OPIATES

1. Numb the senses and relieve pain.
2. Morphine, heroine, and codeine are all opiates.
3. Opiates are extremely addictive and withdrawal is excruciatingly painful.

E. HALLUCINOGENS

1. Produce sensory or perceptual distortions called hallucinations.
2. Marijuana and LSD are the best-known hallucinogens.



Psychoactive drugs are a fascinating, timely, and controversial topic. While they are a significant public issue, proactive drugs play a limited role on the AP Psychology exam. Alcohol is the substance most frequently asked about on the AP Psychology exam. Be sure you know that it is a depressant and that its psychological effects are strongly influenced by the user's expectations.