

7

States of Consciousness

CHAPTER OVERVIEW

Consciousness—our awareness of ourselves and our environment—can be experienced in various states. Chapter 7 examines not only normal consciousness, but also sleep and dreaming, hypnotic states, drug-altered states, and near-death experiences.

Most of the terminology in this chapter is introduced in the sections on Sleep and Dreams and on Drugs and Consciousness. Among the issues discussed are why we sleep and dream, whether hypnosis is a unique state of consciousness, and possible psychological and social-cultural roots of drug use.

NOTE: Answer guidelines for all Chapter 7 questions begin on page 192.

CHAPTER REVIEW

First, skim each section, noting headings and boldface items. After you have read the section, review each objective by answering the fill-in and essay-type questions that follow it. As you proceed, evaluate your performance by consulting the answers beginning on page 192. Do not continue with the next section until you understand each answer. If you need to, review or reread the section in the textbook before continuing.

Consciousness and Information Processing

(pp. 271–273)

David Myers at times uses idioms that are unfamiliar to some readers. If you do not know the meaning of any of the following words, phrases, or expressions in the context in which they appear in the text, refer to page 200 for an explanation (note that one item appears in the chapter introduction): *a fundamental yet slippery concept; Psychology had nearly lost consciousness;*

consciousness is but the tip of the information-processing iceberg; to lag behind the brain events that evoke it; Running on automatic pilot.

Objective 1: Discuss the history of psychology's study of consciousness, and contrast conscious and unconscious information processing.

1. The study of _____ was central in the early years of psychology and in recent decades, but for quite some time it was displaced by the study of observable _____.
2. Advances in neuroscience made it possible to relate _____ to various mental states; as a result, _____ began to reenter psychology.

Define consciousness in a sentence.

3. Asked to press a button when they feel a tap, people respond _____ (before/after) they become conscious they have responded. In comparison with unconscious processing, conscious processing has a(n) _____ (limited/unlimited) capacity, is relatively _____ (fast/slow), and processes pieces of information _____ (simultaneously/serially).

4. Novel tasks _____ (require/ do not require) conscious attention.

Sleep and Dreams (pp. 274–290)

If you do not know the meaning of any of the following words, phrases, or expressions in the context in which they appear in the text, refer to pages 200–202 for an explanation: *move in concert; body depressed; we may fret over concerns; Does a lovers' spat signal a split?; Pulling an all-nighter; jet lag; the machine went wild . . . deep zigzags; in deep slumber; you ascend from your initial sleep dive; As the night wears on; drowsy; sleep patterns that thwart . . .; Many fill this need by using their first class for an early siesta and after-lunch study hall for a slumber party; "spring forward" . . . "fall backward"; riddle of sleep; next-day blahs; "snoozing is second only to boozing"; a dream provides a psychic safety valve; it is time to wake up; buzz.*

Objective 2: Distinguish four types of biological rhythms, and give an example of each.

1. Our bodies' internal "clocks" control several _____ .
Among these are _____ , which may give rise to seasonal variations in _____ .
2. Some people, especially those in far northern regions, may experience a depressed winter mood called a _____ .
_____ . We may also experience cycles lasting _____ days, such as the female _____ ;
_____ -hour cycles of varying _____ ;
and _____ -minute cycles, such as the various stages of sleep.

Objective 3: Describe the cycle of our circadian rhythm, and identify some events that can disrupt this biological clock.

3. The sleep-waking cycle follows a 24-hour clock called the _____ .

4. When people are at their daily peak in circadian arousal, _____ is sharpest and _____ is most accurate. In contrast to university students, who often are at their peak in the _____ (morning/evening), older adults tend to peak in the _____ .
5. We may experience _____ if our circadian rhythm is interrupted by travel across time zones. Our circadian rhythm also may be interrupted by _____ changes, such as the one that occurs in the spring in many areas, and by work _____ .
6. Resetting of a disrupted biological clock is facilitated by exposure to _____ , which triggers proteins in the _____ of the eyes to signal the brain's _____ gland to increase or decrease its production of _____ . The cluster of cells called the _____ controls the circadian clock. The longer we remain awake, the more our brains accumulate _____ , which tends to _____ certain neurons and make us sleepy. We can also reset our biological clocks by adjusting our _____ .

Objective 4: List the stages of the sleep cycle, and explain how they differ.

7. The sleep cycle consists of _____ distinct stages.
8. The rhythm of sleep cycles was discovered when Aserinsky noticed that, at periodic intervals during the night, the _____ of a sleeping child moved rapidly. This stage of sleep, during which _____ occur, is called _____ .
9. The relatively slow brain waves of the awake but relaxed state are known as _____ waves.

10. During Stage 1 sleep, people often experience _____ sensations similar to _____. These sensations may later be incorporated into _____.
11. The bursts of brain-wave activity that occur during Stage 2 sleep are called _____.
12. Large, slow brain waves are called _____ waves. First in Stage _____, and increasingly during Stage _____ sleep, which are therefore called _____ sleep. A person in the latter stage of sleep generally will be _____ (easy/difficult) to awaken. It is during this stage that people may engage in sleep _____.

Describe the bodily changes that accompany REM sleep.

13. During REM sleep, the motor cortex is _____ (active/relaxed), while the muscles are _____ (active/relaxed). For this reason, REM is often referred to as _____ sleep.
14. The rapid eye movements generally signal the beginning of a _____. PET scans reveal heightened activity in the _____ and _____ areas of the brain during REM sleep.
15. The sleep cycle repeats itself about every _____ minutes. As the night progresses, Stage 4 sleep becomes _____ (longer/briefer) and REM periods become _____ (longer/briefer). Approximately _____ percent of a night's sleep is spent in REM sleep.

Objective 5: Explain why sleep patterns and duration vary from person to person.

16. Newborns spend nearly _____ (how much?) of their day asleep, while adults spend no more than _____.
17. Sleep patterns are influenced by _____, as indicated by the fact that sleep patterns among _____ (identical/fraternal) twins are very similar. Sleep is also influenced by _____.
18. Allowed to sleep unhindered, most people will sleep 9 hours a night. People who sleep less than that for several nights in a row often show signs of _____.

Objective 6: Discuss several risks associated with sleep deprivation.

19. Teenagers typically need _____ hours of sleep but now average nearly _____ hours less sleep than teenagers of 80 years ago. To psychologist William _____, this indicates that the vast majority of students are dangerously sleep-deprived. One indication of the hazards of this state is that the rate of _____ tends to increase immediately after the spring time change in Canada and the United States. Another is that sleep deprivation may suppress the functioning of the body's _____ system and alter metabolic and hormonal functioning in ways that mimic _____ and are conducive to _____, _____, and _____.

Describe the effects of sleep deprivation.

Objective 7: Identify four theories of why we sleep.

20. Two possible reasons for sleep are to _____ us and to help restore body tissues, especially those of the _____. Animals with high waking _____ produce an abundance of chemical _____ that are toxic to _____. Sleep also facilitates our _____ of the day's experiences and stimulates _____ thinking.
21. During sleep a growth hormone is released by the _____ gland. Adults spend _____ (more/less) time in deep sleep than children and so release _____ (more/less) growth hormone.

Objective 8: Identify the major sleep disorders.

22. A persistent difficulty in falling or staying asleep is characteristic of _____. Sleeping pills and alcohol may make the problem worse since they tend to _____ (increase/reduce) REM sleep.
23. The sleep disorder in which a person experiences uncontrollable sleep attacks is _____. People with this disorder may collapse directly into _____ sleep and experience a loss of _____. The brains of people with this disorder lack a neural center in the _____ that produces the neurotransmitter _____.
24. Individuals suffering from _____ stop breathing while sleeping. This disorder is especially prevalent among _____.
25. The sleep disorder characterized by extreme fright and rapid heartbeat and breathing is called _____. Unlike nightmares, these episodes usually happen early in the night, during Stage _____ sleep. The same is true of episodes of _____ and _____.

problems that _____ (run/do not run) in families. These sleep episodes are most likely to be experienced by _____ (young children/adolescents/older adults), in whom this stage tends to be the _____ and _____.

Objective 9: Describe the most common content of dreams.

26. Dreams experienced during _____ sleep are vivid, emotional, and bizarre. During _____ dreams, the dreamer may be sufficiently aware to wonder whether he or she is, in fact, dreaming.
27. For both men and women, 8 in 10 dreams are marked by _____ (positive/negative) emotions, such as fears of being _____.
28. Although females tend to dream equally often about males and females, males tend to dream more about _____. This gender difference _____ (is/is not) found in cultures worldwide.

Objective 10: Compare the major perspectives on why we dream.

29. Freud referred to the actual content of a dream as its _____ content. Freud believed that this is a censored, symbolic version of the true meaning, or _____, of the dream.
30. According to Freud, most of the dreams of adults reflect _____ wishes and are the key to understanding inner _____.
31. Freud's theory has given way to the theory that dreams serve an _____-processing function. Support for this theory is provided by the fact that REM sleep facilitates _____.
32. Other theories propose that dreaming serves some _____ function, for example, that REM sleep provides the brain with needed _____. Such an explanation is _____.

supported by the fact that _____ (infants/adults) spend the most time in REM sleep.

33. Still other theories propose that dreams are elicited by random bursts of _____ activity originating in lower regions of the brain, such as the _____. According to the _____ theory, dreams are the brain's attempt to make sense of this activity. The bursts are believed to be given their emotional tone by the brain's _____ system. PET scans of sleeping people reveal increased activity in the brain's _____ system, especially the _____. Other theorists see dreams as a natural part of brain _____ and _____ development.
34. Researchers agree that we _____ (need/do not need) REM sleep. After being deprived of REM sleep, a person spends more time in REM sleep; this is the _____ effect.
35. REM sleep _____ (does/does not) occur in other mammals. Animals such as fish, whose behavior is less influenced by learning, _____ (do/do not) dream. This finding supports the _____ theory of dreaming.

Hypnosis (pp. 290–296)

If you do not know the meaning of any of the following words, phrases, or expressions in the context in which they appear in the text, refer to page 202 for an explanation: *or mesmerism, as it was then called; psychological truth serum . . . considerable mischief; might the two views . . . be bridged?*

Objective 11: Define *hypnosis*, and note some similarities between the behavior of hypnotized people and that of motivated un hypnotized people.

1. Hypnosis is a _____ in which a hypnotist suggests that a subject will experience certain feelings or thoughts, for example. Its discovery is

attributed to _____, who claimed to have discovered an "_____."

2. The weight of research evidence suggests that hypnosis _____ (does/does not) allow a person to perform feats that are impossible in the normal waking state. The strength, stamina, learning, and perceptual abilities of hypnotized people _____ (are/are not) like those of motivated un hypnotized people.

Objective 12: Discuss the characteristics of people who are susceptible to hypnosis, and evaluate claims that hypnosis can influence people's memory, will, health, and perception of pain.

3. Most people are _____ (somewhat/not at all) hypnotically suggestible.

Describe people who are the most susceptible to hypnosis.

4. If people are led to expect that they are hypnotizable, their responsiveness under hypnosis _____ (will/will not) increase.
5. The hypnotic demonstration in which a subject supposedly relives earlier experiences is referred to as _____. Research studies show that the subjects in such demonstrations have memories that are _____ (more/no more) accurate than the memories of fully conscious persons.
6. An _____ person in a legitimate _____ can induce people—hypnotized or not—to perform some unlikely acts.
7. Hypnotherapists have helped some people alleviate headaches, asthma, and stress-related skin disorders through the use of _____ suggestions.
8. For _____ such as smoking and drug use, a subject's hypnotic responsiveness

_____ (does/does not) make a difference in the effectiveness of hypnosis.

9. One statistical digest showed that hypnosis _____ (is/is not) especially helpful for the treatment of obesity.
10. Hypnosis _____ (can/cannot) relieve pain. One theory of hypnotic pain relief is that hypnosis separates, or _____, the sensory and emotional aspects of pain. Another is that hypnotic pain relief is due to selective _____, that is, to the person's focusing on stimuli other than pain.
11. PET scans show that hypnosis reduces brain activity in a region involved in _____ to painful stimuli, but not in the _____ cortex that receives the raw _____ input.

Objective 13: Give arguments for and against hypnosis as an altered state of consciousness.

12. Skeptics believe that hypnosis may reflect the workings of _____. These findings provide support for the _____ theory of hypnosis.

Summarize the argument that hypnosis is not an altered state of consciousness.

13. Hilgard has advanced the idea that during hypnosis there is a _____, or split, between different levels of consciousness.
14. The existence of a separate consciousness, which is aware of what takes place during hypnosis, is expressed in the concept of the _____.

Although this theory has provoked controversy, there is little doubt that _____ influences do play an important role in hypnosis.

Discuss the current view of hypnosis as a blend of the two views.

Drugs and Consciousness (pp. 296–304)

If you do not know the meaning of any of the following words, phrases, or expressions in the context in which they appear in the text, refer to pages 202–203 for an explanation: *tipsy on one can of beer*; *kicked the habit*; *tipsy restaurant patrons leave extravagant tips*; *a staggering problem*; *quicker pick-her-upper*; *one pays a long-term price . . . gnawing craving for another fix*; *crack*; *“acid trip”*; *marijuana may spell relief*.

Objective 14: Define *psychoactive drug*.

1. Drugs that alter moods and perceptions are called _____ drugs.

Objective 15: Discuss the nature of drug dependence, and identify three common misconceptions about addiction.

2. Drug users who require increasing doses to experience a drug's effects have developed _____ for the drug. The user's brain counteracts the disruption to its normal functioning; thus, the user experiences _____.
3. After ceasing to use a drug, a person who experiences _____ symptoms has developed a physical _____. Regular use of a drug to relieve stress is an example of a _____ dependence. A person who has a compulsive craving for a substance despite adverse consequences is _____ to that substance.

Briefly state three common misconceptions about addiction.

Objective 16: Name the main categories of psychoactive drugs, and list three ways these substances can interfere with neurotransmission in the brain.

4. The three broad categories of drugs discussed in the text include _____, which tend to slow body functions; _____, which speed body functions; and _____, which alter perception. These drugs all work by mimicking, stimulating, or inhibiting the activity of the brain's _____. Psychologically, our _____ also play a role.

Objective 17: Explain how depressants affect nervous system activity and behavior, and summarize the findings on alcohol use and abuse.

5. Depressants _____ nervous system activity and _____ body function. Low doses of alcohol, which is classified as a _____, slow the activity of the _____ nervous system.
6. Alcohol may make a person more _____, more _____, or more _____ daring. Alcohol affects memory by interfering with the process of transferring experiences into _____ memory. Also, blackouts after drinking result from alcohol's suppression of _____.
7. Excessive use of alcohol can also affect cognition by _____ the brain, especially in _____ (men/women). Alcohol also reduces _____ and focuses one's attention on the _____ and away from _____.

Describe how a person's expectations can influence the behavioral effects of alcohol.

8. Tranquilizers, which are also known as _____, have effects similar to those of alcohol.
9. Opium, morphine, and heroin all _____ (excite/depress) neural functioning. Together, these drugs are called the _____. When they are present, the brain eventually stops producing _____.

Objective 18: Identify the major stimulants, and explain how they affect neural activity and behavior.

10. The most widely used stimulants are _____, _____, the _____, _____, _____, and _____. Stimulants _____ (are/are not) addictive.
11. Cocaine and crack deplete the brain's supply of the neurotransmitters _____, _____, and _____, and result in depression as the drugs' effects wear off. They do this by blocking the _____ of the neurotransmitters, which remain in the nerve cells' _____.
12. Cocaine's psychological effects depend not only on dosage and form but also on _____, _____, and the _____.
13. The drug _____, or MDMA, is both a _____ and a _____. This drug triggers the release of the neurotransmitters _____ and _____ and blocks the reabsorption of _____. Among the adverse effects of this drug are disruption of the body's _____ clock, suppression of the _____, and impaired _____ and other _____ functions.

Objective 19: Describe the physiological and psychological effects of hallucinogens, and summarize the effects of LSD and marijuana.

14. Hallucinogens are also referred to as _____. Two common synthetic hallucinogens are _____ and LSD, which is chemically similar to a subtype of the neurotransmitter _____. LSD works by _____ the actions of this neurotransmitter.

15. The active ingredient in marijuana is abbreviated _____. Marijuana is being used therapeutically with those who suffer from _____. However, these medical uses are complicated by marijuana's toxicity, which can cause _____.

Describe some of the physical and psychological effects of marijuana.

16. The negative aftereffects of drug use may be explained in part by the principle that emotions trigger _____.

Objective 20: Discuss the biological, psychological, and social-cultural factors that contribute to drug use.

17. Drug use by North American youth _____ (increased/declined) during the 1970s, then declined until the early 1990s due to increased _____ and efforts by the media to deglamorize drug use.

18. In the twenty-first century, attitudes toward alcohol _____ (have/have not) changed, with _____ (more/fewer) people abstaining from drinking.

19. Adopted individuals are more susceptible to

alcoholism if they had a(n) _____ (adoptive/biological) parent with a history of alcoholism. Boys who at age 6 are _____ (more/less) excitable are more likely as teens to smoke, drink, and use other drugs. Genes that are more common among people predisposed to alcoholism may cause deficiencies in the brain's _____ system.

Identify some of the psychological and social-cultural roots of drug use.

20. Among teenagers, drug use _____ (varies/is about the same) across _____ and _____ groups.

21. African-American high school seniors report the _____ (highest/lowest) rates of drug use. A major social influence on drug use is the _____ culture.

22. State three possible channels of influence for drug prevention and treatment programs.

a. _____

b. _____

c. _____

Near-Death Experiences (pp. 309–310)

If you do not know the meaning of any of the following words in the context in which they appear in the text, refer to page 203 for an explanation: *taking the bull by the horns*; *monists generally believe that death is real and that without bodies we truly are nobodies*.

Objective 21: Describe the near-death experience and the controversy over whether it provides evidence for a mind-body dualism.

1. The reports of people who have had near-death experiences are very similar to the _____ reported by drug users. These

experiences may be the result of a deficient supply of _____ or other insults to the brain.

2. That the mind and body are distinct entities is the position of the theorists known as _____. In contrast, the _____ believe that the mind and body are one.

PROGRESS TEST 1

Multiple-Choice Questions

Circle your answers to the following questions and check them with the answers beginning on page 194. If your answer is incorrect, read the explanation for why it is incorrect and then consult the appropriate pages of the text (in parentheses following the correct answer).

- As defined by the text, consciousness includes which of the following?
 - focused attention
 - sleeping
 - hypnosis
 - all of the above
- The cluster of brain cells that control the circadian rhythm is the:
 - amygdala.
 - suprachiasmatic nucleus.
 - adenosine.
 - pineal.
- When our _____ is disrupted, we experience jet lag.
 - Stage 1 sleep
 - REM sleep
 - circadian rhythm
 - Stage 4 sleep
- Sleep spindles predominate during which stage of sleep?
 - Stage 2
 - Stage 3
 - Stage 4
 - REM sleep
- During which stage of sleep does the body experience increased heart rate, rapid breathing, and genital arousal?
 - Stage 2
 - Stage 3
 - Stage 4
 - REM sleep
- The sleep cycle is approximately _____ minutes.
 - 30
 - 50
 - 75
 - 90
- The effects of chronic sleep deprivation include:
 - suppression of the immune system.
 - altered metabolic and hormonal functioning.
 - impaired creativity.
 - all of the above.
- One effect of sleeping pills is to:
 - decrease REM sleep.
 - increase REM sleep.
 - decrease Stage 2 sleep.
 - increase Stage 2 sleep.
- Cocaine and crack produce a euphoric rush by:
 - blocking the actions of serotonin.
 - depressing neural activity in the brain.
 - blocking the reuptake of dopamine in brain cells.
 - stimulating the brain's production of endorphins.
- Which of the following is classified as a depressant?
 - methamphetamine
 - LSD
 - marijuana
 - alcohol
- The modern discovery of hypnosis is generally attributed to:
 - Freud.
 - Mesmer.
 - Spanos.
 - Hilgard.
- Which of the following statements concerning hypnosis is true?
 - People will do anything under hypnosis.
 - Hypnosis is the same as sleeping.
 - Hypnosis is in part an extension of the division between conscious awareness and automatic behavior.
 - Hypnosis improves memory recall.
- People who heard unusual phrases prior to sleep were awakened each time they began REM sleep. The fact that they remembered less the next morning provides support for the _____ theory of dreaming.
 - manifest content
 - physiological
 - information-processing
 - activation-synthesis
- According to Freud, dreams are:
 - a symbolic fulfillment of erotic wishes.
 - the result of random neural activity in the brainstem.
 - the brain's mechanism for self-stimulation.
 - the disguised expressions of inner conflicts.

15. Psychoactive drugs affect behavior and perception through:
 - a. the power of suggestion.
 - b. the placebo effect.
 - c. alteration of neural activity in the brain.
 - d. psychological, not physiological, influences.
16. All of the following are common misconceptions about addiction, *except* the statement that
 - a. to overcome an addiction a person almost always needs professional therapy.
 - b. psychoactive and medicinal drugs very quickly lead to addiction.
 - c. biological factors place some individuals at increased risk for addiction.
 - d. many other repetitive, pleasure-seeking behaviors fit the drug-addiction-as-disease-needing-treatment model.
17. At its beginning, psychology focused on the study of:
 - a. observable behavior.
 - b. consciousness.
 - c. abnormal behavior.
 - d. all of the above.
18. Which of the following is *not* a theory of dreaming mentioned in the text?
 - a. Dreams facilitate information processing.
 - b. Dreaming stimulates the developing brain.
 - c. Dreams result from random neural activity originating in the brainstem.
 - d. Dreaming is an attempt to escape from social stimulation.
19. The sleep-waking cycles of young people who stay up too late typically are _____ hours in duration.

a. 23	c. 25
b. 24	d. 26
20. The lowest rates of drug use among high school seniors is reported by:
 - a. white males.
 - b. white females.
 - c. black males.
 - d. Latinos.

Matching Items

Match each term with its appropriate definition or description.

Definitions or Descriptions

- _____ 1. surface meaning of dreams
- _____ 2. deeper meaning of dreams
- _____ 3. stage(s) of sleep associated with delta waves
- _____ 4. stage(s) of sleep associated with muscular relaxation
- _____ 5. sleep disorder in which breathing stops
- _____ 6. sleep disorder occurring in Stage 4 sleep
- _____ 7. depressant
- _____ 8. hallucinogen
- _____ 9. stimulant
- _____ 10. twilight stage of sleep associated with imagery resembling hallucinations
- _____ 11. disorder in which sleep attacks occur

Terms

- a. marijuana
- b. alcohol
- c. Stage 1 sleep
- d. night terrors
- e. manifest content
- f. cocaine
- g. narcolepsy
- h. sleep apnea
- i. Stages 3 and 4 sleep
- j. REM sleep
- k. latent content