

Unit V

States of Consciousness

Overview

Unit Five begins with a historical overview of the growing importance of and research on consciousness. Various states of normal and altered consciousness, such as sleeping, dreaming, hypnosis, and drug use, are discussed and illustrated throughout the unit. Detailed information on sleep stages and the characteristics unique to each stage are presented in table form. Major sleep disorders (for example, insomnia and sleep apnea) are illustrated through charts, graphs, and images. The importance of sleep and its impact on learning, memory, and daily functioning is stressed. The unit concludes with a thorough discussion of drugs, their effects, and the processes by which these chemicals impact the central nervous system.

Tip #5

Unplug and Turn Off

Getting enough sleep is crucial to succeeding in school. If you are looking to improve your academic performance, sleep is one of the key factors that you can directly control. In this unit, you'll learn about the suprachiasmatic nucleus (SCN), which gauges the amount of light present and directs melatonin secretions to make you sleepy. It is easier to fall asleep when there is less light present. Exposure to light late in the night, such as your computer, electronic tablet, or TV screen, fools the SCN into thinking it is still daytime, which inhibits the release of melatonin. Shutting down the electronics and lowering lights in the room will help your body prepare you for sleep. Give yourself a break from these light sources about an hour or two before you hope to fall asleep and sleep will come easier to you.

Modules

- 22** Understanding Consciousness and Hypnosis
- 23** Sleep Patterns and Sleep Theories
- 24** Sleep Deprivation, Sleep Disorders, and Dreams
- 25** Psychoactive Drugs

Module 22

Understanding Consciousness and Hypnosis

Before You Read

Module Summary

Module 22 provides a definition and brief historical account of the increasing importance of the study of consciousness in psychology. The various states of consciousness are discussed here and current information on hypnosis is reviewed alongside a discussion of Ernest Hilgard's hypnotism experiments. The parallels between hypnosis and selective attention are illustrated with research studies.

Before beginning the module, take a moment to read each of the following terms and names you will encounter. You may wish to make vocabulary cards for each.

Key Terms

consciousness
hypnosis
posthypnotic suggestion
dissociation

Key Names

William James
Ernest Hilgard

While You Read

Answer the following questions/prompts.

22-1

1. List and elaborate on the historical factors that impacted the view of consciousness in the field of psychology.

22-2

1. What is one defining characteristic of someone who is easily hypnotized?
2. Discuss the evidence refuting some of the commonly held false beliefs about hypnosis.
3. List the ways in which hypnosis is used today in therapy and for pain reduction.

22-3

1. Explain the arguments that state that hypnosis is a social phenomenon.
2. Discuss the Stroop effect and how it supports the argument that hypnosis is a state of divided consciousness.

3. Summarize how Ernest Hilgard's work supports the idea of hypnosis as a divided consciousness.

4. John is a soccer player who sustained a serious injury during the game but was not aware of it and did not feel the pain from the injury until the game was over. Discuss how the idea of selective attention plays a role in his ability to not feel the pain.

After You Read

Module 22 Review

Choose the best answers to the following questions to see if you have mastered the basics..

1. Janice is under hypnosis and has held her arm in a bath of ice water for over 5 minutes. She reports that she can feel the cold, but is not registering the pain. Ernest Hilgard would say this was evidence of
 - a. consciousness.
 - b. a posthypnotic suggestion.
 - c. cognitive appraisal.
 - d. dissociation.
 - e. perceptual illusions.

2. Mason is driving on his usual route home from work and thinking about the trouble he is having with his boss. Despite his distracting thoughts, he manages to get off at the right exit and heads for home. A theorist advocating dual-processing strategies would say this is most likely a result of
 - a. the Stroop effect.
 - b. posthypnotic suggestion.
 - c. divided consciousness.
 - d. the social influence theory.
 - e. postural sway.

3. When one moment in time seems to flow into the next moment in time we experience what William James dubbed
 - a. flow.
 - b. postural sway.
 - c. sensory deprivation.
 - d. meditation.
 - e. stream of consciousness.

4. If Dr. Choi, a psychologist, wanted to help one of his patients reduce his overeating behaviors and get control of his obesity, he might use hypnosis in the therapy session to offer a _____ that would be carried out after his patient was no longer hypnotized.

5. When asked to read the word "BLUE" with letters colored in green many people find they take longer than if the letters were colored in blue. This phenomenon is referred to as the _____.

Module 23

Sleep Patterns and Sleep Theories

Before You Read

Module Summary

Module 23 explains circadian rhythms and how they impact on our sleep and daily functioning. Detailed charts and graphs illustrate the physical aspects and characteristics of each stage of sleep. The importance of REM sleep and its role in processing new learning is discussed, as well as current sleep theories.

Before beginning the module, take a moment to read each of the following terms you will encounter. You may wish to make vocabulary cards for each.

Key Terms

circadian rhythm

REM sleep

alpha waves

sleep

hallucinations

delta waves

NREM sleep

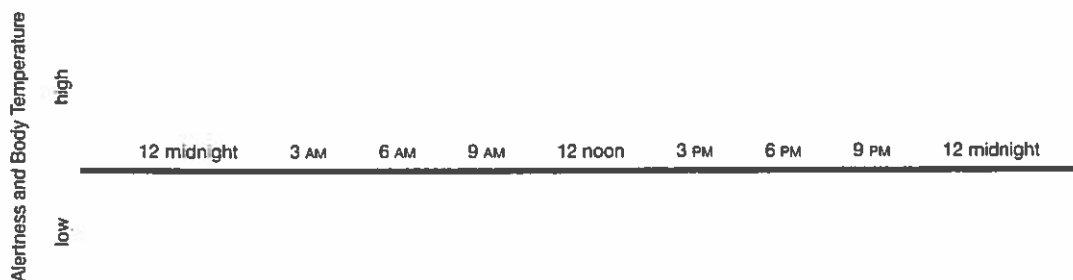
suprachiasmatic nucleus (SCN)

While You Read

Answer the following questions/prompts.

23-1

1. Define circadian rhythm and then use the timeline below to depict the ebb and flow of the typical human circadian rhythm.



2. Explain how age and experience alter our circadian rhythms.

23-2

1. Complete the chart below.

Stage	Wave Name	Wave Characteristics	Characteristics or Common Behaviors of This Stage
Awake But Relaxed			
NREM-1			
NREM-2			
NREM-3			
REM			

2. Interpret the data from Figure 23.4 to describe three differences between the sleep of a young adult and that of older adults.
3. Use Figure 23.4 to describe how the time spent in each respective stage of sleep changes over the course of an 8-hour period of sleep.

23-3

1. Discuss the differences in sleep patterns and the need for sleep among humans.
2. Explain how biology and experience interact in our sleep patterns.
3. Explain the process by which the suprachiasmatic nucleus (SCN) and melatonin work to regulate sleep and wake cycles. Refer to Figure 23.5 for help.
4. How does artificial light from electronics and interior lighting distort the SCN-melatonin process you described above?

23-4

1. Sleep as protection from predators is most likely a view taken by which approach to psychology? Explain why.
2. Sleep as recuperation, repair, and a supporter of growth is most likely a view taken by which approach to psychology? Explain why.
3. Sleep as a memory rebuild and nourishment for creative thinking is most likely a view taken by which approach to psychology? Explain why.
4. Hypothesize the reasons that the animals listed in Figure 23.6 need such varying amounts of sleep.
5. Explain how a regular night's sleep can also dramatically improve your athletic ability.

After You Read

Module 23 Review

Answer the following questions to see if you have mastered the basics.

1. Bob has just dozed off on the couch and is experiencing vivid sensory images. He is most likely
 - a. in NREM-1 sleep.
 - b. in NREM-2 sleep.
 - c. in NREM-3 sleep.
 - d. in REM sleep.
 - e. still awake.

2. Jane is in NREM-3 sleep. As a sleep researcher you would expect to see which of the following?
 - a. sleep spindles
 - b. a hypnagogic jerk
 - c. delta waves
 - d. alpha waves
 - e. momentary bursts of activity in her eyes

3. Justin doesn't understand why he often feels so tired in the early afternoon. As a psychology student learning about sleep, explain why this is normal.

4. Explain why REM sleep is referred to as paradoxical sleep.

5. The structure responsible for directing the pineal gland to increase and decrease its production of melatonin is the
 - a. amygdala.
 - b. adrenal gland.
 - c. suprachiasmatic nucleus.
 - d. basal ganglia.
 - e. cerebellum.

6. Roberto is involved in a sleep study and researchers are recording the electrical activity of his brain as he sleeps. The researchers are likely using which type of brain scanning technology?
 - a. PET scan
 - b. CT scan
 - c. EEG
 - d. MRI
 - e. fMRI

7. As Roberto sleeps, the researchers note that he is currently in NREM-2 sleep. They know this because on the EEG report they noticed
 - a. delta waves.
 - b. alpha waves.
 - c. sleep spindles.
 - d. theta waves.
 - e. beta waves.

8. As 18-year-old Nathan sleeps through the night, he can expect that his
 - a. time spent in REM sleep will decrease.
 - b. time spent in NREM-3 sleep will increase.
 - c. REM stage will occur right after his time in NREM-3 sleep.
 - d. time spent in REM sleep will increase.
 - e. REM stage will occur right before his time in NREM-3 sleep.

9. John is sleeping and is experiencing physiological arousal. His eyes are moving from side to side very quickly and his heart rate has risen sharply. John is currently in which stage of sleep?
 - a. NREM-1
 - b. NREM-3
 - c. NREM-2
 - d. REM
 - e. delta sleep

Module 24

Sleep Deprivation, Sleep Disorders, and Dreams

Before You Read

Module Summary

Module 24 reviews the major sleep disorders and provides numerous examples of the impact of sleep loss on cognition and behavior. The major theories of dreams are presented and critiqued and common content of dreams is discussed.

Before beginning the module, take a moment to read each of the following terms and name you will encounter. You may wish to make vocabulary cards for each.

Key Terms

insomnia	dream
narcolepsy	manifest content
sleep apnea	latent content
night terrors	REM rebound

Key Name

Sigmund Freud

While You Read

Answer the following questions/prompts.

24-1

1. Discuss the behavioral and emotional effects of sleep loss.

2. Describe how sleep deprivation impacts

a. student performance in school:

b. weight:

c. health:

d. job performance:

3. Explain specific research regarding the impact of sleep loss of as little as an hour on the frequency of auto accidents.

4. List and describe the symptoms and prevalence of the following sleep disorders:

a. insomnia:

b. narcolepsy:

c. sleep apnea:

d. night terrors:

c. sleepwalking:

d. sleeptalking:

5. Explain how night terrors differ from nightmares.

24-2

1. Discuss the research that supports the following quote from the text.

"For what one has dwelt on by day, these things are seen in visions of the night."

2. Explain how the brain's dual processing incorporates sensory stimuli into the dream.
3. Explain the current research regarding learning while we sleep.

24-3

1. Discuss how the definitions of manifest and latent content relate to the phrase from your text that in a dream, "a gun might be a disguised representation of a penis."
2. Explain Sigmund Freud's theory of wish fulfillment in dreams.
3. Discuss the function of dreams according to the information-processing perspective.

4. In what way do brain scans confirm the link between REM sleep and memory?
5. Explain the correlation between sleep and learning.
6. How might REM sleep function to develop and preserve neural pathways?
7. Explain the neural activation theory of dreaming.
8. Discuss how the cognitive development function of dreaming contrasts with the neural activation theory of dreaming.

9. Which of the dream theories summarized in Table 24.2 seem most credible to you? Why?
10. How does REM rebound suggest that the causes and functions of REM sleep are deeply biological?

After You Read

Module 24 Review

Choose the best answer to the following questions to see if you have mastered the basics.

1. Your new dorm mate at Sleep Disorders University tells you that he has insomnia. As a result, you can expect that he will
 - a. sleewalk.
 - b. have trouble falling or remaining asleep.
 - c. scream out in his dreams.
 - d. stop breathing in his sleep.
 - e. act out his dreams.
2. Meanwhile, down the hall in your dorm, a young freshman student has repeatedly been found locked outside of his room in the middle of the night with no recollection of how he got there. You suspect that he may have
 - a. sleep apnea.
 - b. a sleeptalking disorder.
 - c. a sleepwalking disorder.
 - d. narcolepsy.
 - e. night terrors.
3. The Resident Assistant at the University is well known for the loudness of his snore which can be heard down the hall. His roommate tells you that the RA wakes up repeatedly during the night but he doesn't recall any of the waking episodes in the morning. The most likely culprit in this case is
 - a. narcolepsy.
 - b. nightmares.
 - c. night terrors.
 - d. sleep apnea.
 - e. insomnia.

4. John, a soccer player at the University, suffers from narcolepsy. You worry about his ability to play because one of the hallmarks of the disorder narcolepsy is that the sufferer
 - a. is prone to sleepwalking as well.
 - b. talks in their sleep.
 - c. cannot remain asleep throughout the night.
 - d. has great difficulty falling asleep.
 - e. may lapse directly into REM sleep, causing him to lose all muscle tension.
5. Your friend lives on the floor above you and shares during a dorm meeting that she suffered from night terrors as a child. Knowing this you can expect that she
 - a. primarily experienced this during her NREM-3 sleep.
 - b. probably sees a therapist to deal with the memories of the disorder.
 - c. suffers also from nightmares.
 - d. is more prone to sleep apnea as well.
 - e. is still experiencing the disorder today.

Use the following scenario to answer questions 6–10.

Justina dreamed last night that she was warding off villains in a life-or-death battle outside a fortified castle. In the dream, she attempted to cross the moat but saw that it was filled with grotesque swamp creatures with warty green skin and she recoiled in fear. Knowing there was only one way to reach safety, she flew over the top of the castle and landed among the weeds in the inner courtyard. She was surprised to run into her seventh period Geometry teacher, Ms. Hargroves, but seeing that her teacher had a spear, compass, and workbook with her, Justina knew they would prevail. Ms. Hargroves told Justina that the key to defeating the villains was to write the theorems from the homework on the castle walls as protection against the invaders. Justina scrambled to write the complicated theorems before the menacing villains closed in. Just when the towering castle walls were about to be sieged, Justina awoke from her dream with a start.

As a therapist who specializes in dreams, how would you interpret Justina's dream using

6. Freud's wish-fulfillment theory:

7. the information-processing theory:

8. the physiological function theory:

9. the neural activation theory:

10. the cognitive development theory:

Module 25

Psychoactive Drugs

Before You Read

Module Summary

Module 25 begins with an overview of the common misconceptions about addiction and a review of tolerance and withdrawal. The bulk of the module deals with each primary category of drugs: depressants (which include opiates), stimulants, and hallucinogens. Specific drugs in each category are highlighted and their effect on the central nervous system and behaviors is discussed.

Before beginning the module, take a moment to read each of the following terms you will encounter. You may wish to make vocabulary cards for each.

Key Terms

substance use disorder

psychoactive drug

tolerance

addiction

withdrawal

depressants

alcohol use disorder

barbiturates

opiates

stimulants

amphetamines

nicotine

methamphetamine

Ecstasy (MDMA)

hallucinogens

LSD

near-death experience

THC

While You Read

Answer the following questions/prompts.

25-1

1. What role do tolerance, addiction, and withdrawal play in substance abuse disorders? Explain how the three are connected.

2. According to the text, in what ways has the concept of addiction been stretched too far? In what ways is the idea of addictive behaviors just beginning to be explored?
3. What are your own opinions on the discussion of addictions?
4. Discuss how drug use can turn to abuse and then to a substance abuse disorder.

25-2

1. Define depressants and give three examples of drugs in this category.
2. List the effects of depressants on the central nervous system.

3. Explain and give examples of how alcohol impacts
 - a. neural processing:

 - b. memory:

 - c. self-awareness and self-control:

4. How do the expectations of drinking alcohol influence behavior? Briefly address how this relates to the placebo effect discussed in Unit I.

5. What are the effects of barbiturates on the central nervous system?

6. List three common opiates and explain their effect on the central nervous system. Explain how these impact the levels of endorphins in the body.

7. How does addiction to pain medication occur biochemically?

25-3

1. Define stimulants and give three examples of drugs in this category.
2. List the effects of stimulants on the central nervous system.
3. Explain the relationship between nicotine use and the release of neurotransmitters in the brain.
4. Discuss the forces and influences teens in particular are subject to when considering whether or not to begin smoking.
5. What are the benefits to quitting smoking?

6. Use Figure 25.4 and the text to explain the effect of cocaine on neural transmission.

7. Discuss the long-term effects of cocaine use on a person's behavior.

8. How is the expectation effect of using cocaine similar to that of using alcohol?

9. Explain the impact of methamphetamine at the neural synapse.

10. Discuss how Ecstasy (MDMA) has both stimulant and hallucinogenic properties.

11. What are the potential long-term effects of using Ecstasy?

25-4

1. Define hallucinogens and give two examples of drugs in this category.
2. What is the primary effect of hallucinogen use?
3. Describe the emotions and visual imagery associated with use of LSD.
4. Relate the visual images experienced under LSD use with those reported by survivors of near-death experiences, temporal lobe seizures, or prolonged periods of isolation. What point is the author trying to make with this discussion?
5. Explain the negative effects of marijuana use on mood and memory.
6. Discuss how the body metabolizes and eliminates marijuana differently from alcohol.
7. In what situations is marijuana use being decriminalized? What is your opinion on the legalization of marijuana for medical use? How about recreational use?

After You Read

Module 25 Review

Answer the following questions to see if you have mastered the basics.

1. Complete the chart below.

Drug	Category	Effect on CNS	Behavioral Impact
Alcohol			
Caffeine			
Methamphetamine			
Nicotine			
LSD			
Heroin			
Barbiturate			
Cocaine			
Marijuana			
Ecstasy			

2. Jonathan has injured himself on the rugby field and is feeling a great deal of pain in his leg. Which of the following drugs would be appropriate for him to take to reduce the pain?
 - a. Caffeine
 - b. Nicotine
 - c. An opiate
 - d. LSD
 - e. A depressant

3. Nita is at a party and is drinking a great deal of alcohol. Which of the following is NOT an expected effect of the increasing alcohol in her bloodstream?
 - a. It will slow her neural processing, slurring her speech.
 - b. It can disrupt memory formation and Nita may not recall portions of the night.
 - c. It can decrease her self-control, making it likely she will act impulsively.
 - d. It can reduce frontal lobe control, causing Nita to say things she normally would filter.
 - e. It will increase her ability to concentrate and judge the situation she is in.

4. Which is a physiological effect of nicotine use?
 - a. Depressing the activity in the brain
 - b. Decreased heart rate and blood pressure
 - c. Increased appetite for carbohydrates
 - d. Reduced circulation to extremities
 - e. Increase in the release of neurotransmitters that cause stress

5. Theresa and Sydney are at a party and using a drug. They seem to have a great deal of energy and are feeling very loving toward all the partygoers. They have been dancing nonstop for hours and are feeling very thirsty. Theresa and Sydney are most likely using
 - a. Ecstasy.
 - b. marijuana.
 - c. heroin.
 - d. a barbiturate.
 - e. a depressant.

✓ Check Yourself

Now that you have mastered the basics, work through the problems below to see if you can *synthesize*, *evaluate*, and *analyze* what you have learned.

You are a psychologist with a thriving drug addiction and sleep disorders practice. A patient has just come to see you complaining of myriad symptoms and seeking your help. Your patient has been fired from his last three jobs because he arrives late to work consistently, falls asleep at his desk, and seems highly agitated around co-workers. In addition, he forgot to turn in several of his assigned projects and reports missing the due dates for others because he simply did not remember the projects had due dates. In your capacity as a psychologist, you review your checklist on drug and sleep disorders and narrow down your possible diagnosis by ruling out the disorders that would not produce these behaviors and highlighting those that would. Fill in your checklists on the next page for this patient, then make and support your diagnosis.

Disorder	Behaviors I Would Expect	Patient Exhibits (✓)
Insomnia		
Narcolepsy		
Sleep apnea		
Night terrors		

Drug Use Category	Behaviors I Would Expect	Patient Exhibits (✓)
Stimulant		
Depressant		
Opiate		
Hallucinogen		

My diagnosis: This patient might be having difficulty with _____.

Support for my diagnosis:



Before You Move On

Use the checklist below to verify your understanding of the unit's main points.

- Can I describe various states of consciousness and their impact on behavior?

- Can I discuss the aspects of sleeping and dreaming?
 - Stages and characteristics of the sleep cycle
 - Theories of sleep and dreaming
 - Symptoms and treatment of sleep disorders

- Can I describe the historic and contemporary uses of hypnosis?

- Can I explain hypnotic phenomena?

- Can I identify the major psychoactive drug categories and classify specific drugs, including their psychological and physiological effects?

- Can I discuss drug addiction, tolerance, and withdrawal?

- Can I identify the major figures in consciousness research?