

Consciousness: sleep, dreams, hypnosis, and drugs



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Consciousness: Sleep, Dreams, Hypnosis, and Drugs Roberto Diaz was very anxious. He was nearing the end of his freshman semester when he suddenly remembered that he had signed up for another class and had never attended it. He couldn't even remember the name of the course, but exams were coming on fast and he was absolutely sure that he was going to fail that "mystery" class. To make things worse, he'd been searching for this "lost course" for five nights in a row. Each time he woke up...fearful, heart pounding, pillowcase soaked with perspiration. The dream was so real that he had a hard time believing that there really was no "lost course." There are many explanations for a recurring dream like Roberto's. Most likely, he was worried about exams, studying late, and not getting enough deep, restoring sleep. The various states of sleep can affect your nighttime dreams and your daytime ability to focus. This lesson introduces the ideas of waking consciousness and altered states of sleep, including dreaming. It also covers drug use and misuse because they interfere with psychological conditions. This lesson presents the following topics: - What is Consciousness? - Altered States: Sleep - Altered States: Hypnosis - Altered States: Psychoactive Drugs

What is Consciousness? Imagine that you are standing beside the ocean on a windy day. You sense the wind on your face, you hear the waves lapping at the shore, you may be thinking that you are hungry, but you are feeling very peaceful. And even though you are hungry, you might not want to leave. All these sensations, thoughts, and feelings are part of your consciousness [A person's awareness of everything that is going on around him or her at any given moment] at that moment. Waking consciousness [State in which thoughts, feelings, and sensations are clear, organized, and the person feels alert] is the time we spend awake. It is the state of consciousness with which

we are most familiar...the state in which we spend most of our lives. When we experience states of consciousness that are different from the waking state, we are in an altered state of consciousness. Examples of an altered state of consciousness are: - Sleep - Daydreaming - Meditation

Altered States: Sleep You have to sleep. As a college student, you might sometimes try to go without sleep, but doing so catches up with you. No matter how hard you try, your body's biological rhythms ultimately insist that you sleep. These natural cycles of activity, often referred to as biorhythms, include many bodily functions, such as your heartbeat, the regulation of your body temperature, and your sleep-wake cycle. These biological rhythms are individual. Your best friend may require a full 8 hours of sleep, while you may feel fine with only 7 hours, and your brother or sister may need 9 hours. We're all different. The important thing is to know what you need and to make sure that you get the right amount of sleep. Controlled by the hypothalamus, the sleep-wake cycle is a circadian rhythm that causes you to need sleep for some period of time during every 24-hour period. Your

Internal Clock: The SCN The suprachiasmatic nucleus (SCN), located in the hypothalamus of the brain, is the internal clock that tells you when to wake up and when to go to sleep. When daylight fades, melatonin is released and makes you feel sleepy. When the sun comes up, melatonin secretion stops, and you wake up. Although you might be able to go without sleep for a while (such as during final exams), it is impossible to deprive yourself of sleep altogether. Your body will not allow it. In fact, some people—even while trying to go without sleep—experience microsleeps, or brief “sidesteps” of sleep that last only a few seconds. Sleep deprivation, or loss of sleep, can create problems with your concentration and your health. Symptoms include: -

Trembling hands - Inattention - Droopy eyelids - Irritability - Depression

Check Your Understanding Select the most appropriate answer to the

following question: Question 1: Sarah is studying for an upcoming test, but

she is having trouble concentrating on her notes and reading material. Her

hands are shaking, and she yells at her dog to go away and be quiet. Sarah

is suffering from: Answer Options: -Waking consciousness -Sleep deprivation

-Circadian rhythm -Microsleeps The correct answer is: Sleep deprivation

Sleep Theories There are two theories of sleep: - The adaptive theory of

sleep proposes that animals and humans evolved sleep patterns to avoid

predators. For example, lionesses are predators and have no need to sleep

at night to protect themselves. They sleep and hunt on and off during the

day in perfect safety, while the animals that the lionesses prey upon sleep at

night in the safety of dens or other shelter. What types of animals are

examples of the adaptive theory of sleep? - The restorative theory states

that sleep is necessary to the physical health of the body. For example, when

we study the sleep patterns of infants and adults, we find that infants need

far more sleep than older children and adults. Both R. E. M. sleep and N. R. E.

M. sleep decrease dramatically in the first ten years of life, with the greatest

decrease in R. E. M. sleep. Nearly 50% of an infant's sleep is R. E. M.,

compared to only about 20% for a normal, healthy adult. Kinds of Sleep

There are two different kinds of sleep. Rapid eye movement (R. E. M.) sleep

is an active sleep in which the eyes move rapidly under the eyelids and

during which most dreams take place; it occurs four to five times a night.

Non-R. E. M. sleep is a deeper, more restful sleep and is defined as any of

the stages of sleep that do not include R. E. M. There are four stages of Non-

R. E. M. sleep, including: - Stage One: Light sleep, averaging 10 minutes,

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where brain waves, called theta waves, are active and indicate the early stages of sleep - Stage Two: Lasts approximately 20 minutes, marked by brief bursts of brain wave activity known as sleep spindles - Stages Three and Four: Deep sleep, averaging thirty to forty minutes in each stage, where delta waves, or long, slow waves indicate these deepest stages of sleep

8-Hour Sleep Cycle: The four stages of sleep and R. E. M. sleep comprise the sleep cycle, repeated four or five times during a single night's sleep. A normal sleep cycle takes an average of an hour and a half, with Stage Four being longer in the beginning of the night and R. E. M. sleep being longer in the last part of the sleep period, just before awakening.

Sleep Disorders

There are several types of sleep disorders.

- Insomnia: Like everyone else, you might have nights when you just can't get to sleep. You toss and turn, and wake up in the morning feeling like you've never been to bed. To combat insomnia, go to bed only when you're sleepy, don't do anything in bed but sleep, don't try too hard to fall asleep, and don't take sleep-inducing drugs.
- Sleep apnea: Excessively loud snoring can be a sign of sleep apnea, a condition in which a person stops breathing for nearly a half minute or more. A continuous positive air pressure (C. P. A. P.) device can gently force air into nasal passages, preventing sleep apnea.
- Narcolepsy is a genetic disorder in which the person may slip suddenly into a R. E. M. sleep during the day.
- Other common sleep disorders

The symptoms of common sleep disorders include:

- o Somnambulism: Sitting, walking, or performing complex behavior while asleep.
- o Night terrors: Extreme fear, agitation, screaming while asleep.
- o Restless leg syndrome: Uncomfortable sensations in the legs causing movement and loss of sleep.
- o Nocturnal leg cramps: Painful cramps in calf or foot muscles.
- o Hypersomnia: Excessive daytime sleepiness.
- o

Circadian rhythm disorders: Disturbances of the sleep-wake cycle such as jet lag and shift work.

- o Enuresis: Urinating while asleep in bed.

Are You Sleep Deprived? Sleep deprivation is a common and serious problem. It is the main cause for automobile accidents and is linked to higher stress and reduced productivity in the workplace. Other facts about the effects of sleep deprivation include:

- 55% of drowsy-driving fatalities occur in people under the age of 25.
- 56% of adults report a daytime drowsiness problem.
- 30-40% of all heavy-truck accidents can be attributed to driver fatigue.
- In a sample of undergraduates, nurses, and medical students, 80% were dangerously sleep deprived.

Although many of the sleep disorders covered so far can cause sleep deprivation, most people suffer because they don't go to bed at a reasonable time to get 8 hours of sleep. How many hours of sleep do you get each day? Are you sleep deprived? You may be sleep deprived if you:

- Need your alarm clock to wake up
- Find that getting out of bed in the morning is a struggle
- Feel tired, irritable, or stressed for most of the day
- Have trouble concentrating or remembering
- Fall asleep watching TV or in meetings
- Fall asleep within five minutes of going to bed

Check Your

Understanding Select the most appropriate answer to the following question

Question 1: Kaley is an 8-year-old girl who screams when she is asleep. She has also crawled around her room when sleeping and not even known it. The best possible explanation for Kaley's problem is: Answer Options: -

Somnambulism -Night terrors -Sleep walking -Nightmares The correct answer is: Night terrors

Altered States: Hypnosis Hypnosis is a state of consciousness in which a person is especially susceptible [Likely to be receptive] to suggestion. Although hypnotic techniques vary, there are four elements that are always present:

1. Hypnotist tells the person to focus on

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what is being said. 2. The person is told to relax and feel tired. 3. Hypnotist tells the person to “let go” and accept suggestions. 4. The person is told to use vivid imagination. Following are some of the facts related to hypnosis.

Hypnosis can: - Create amnesia for whatever happens during the hypnotic session, at least for a brief time (Brown & Woody, 1996). - Relieve pain by

allowing a person to remove conscious attention from the pain (Holroyd, 1996). - Alter sensory perceptions. (Smell, hearing, vision, time sense, and the ability to see visual illusions can all be affected by hypnosis.) Hypnosis

cannot: - Give people superhuman strength. (People may use their full strength under hypnosis, but it is no more than they had before hypnosis.) -

Reliably enhance memory. (There's an increased risk of false memory retrieval because of the suggestible state hypnosis creates.) - Regress

people back to childhood. (Although people may act like children, they do and say things children would not.) Theories of Hypnosis Many skeptical

people don't believe that hypnosis works. However, there are two theories that attempt to explain why it does work: - Disassociation theory: Ernest

Hilgard believed that hypnosis worked only on the immediate, conscious mind. During the hypnotic session, the part of the mind he called the “

hidden observer” was fully aware of what was going on. - Social cognitive theory: This theory assumes that people under hypnosis are fully aware of

what is going on. They are not really in an altered state, but are merely playing a role and doing what is expected of them. Altered States:

Psychoactive Drugs Psychoactive drugs can place an individual in an altered state because the drugs affect thought processes, perception, and/or

memory. Although most of these drugs are prescribed by a physician for specific, short-term use, there is also the danger of addiction or possible

overdose. Physical dependence is present when the user's body craves the drug and is not able to function normally without it. Signs of physical dependence include: - Drug tolerance: Larger and larger doses of the drug are needed to achieve the same results. - Withdrawal: When deprived of the drug, a drug-dependent user experiences headaches, nausea, cramping, shaking, and elevated blood pressure. The Effects of Drugs Some drugs cause a psychological dependence, meaning that the drug is needed to continue a feeling of emotional or psychological well being. Users think they need the drug. The effects of a drug depend on the drug category it belongs to and the neurotransmitter the drug affects. Major drug categories include: - Stimulants: Drugs that increase nervous system function - Depressants: Drugs that decrease nervous system function - Narcotics: Drugs derived from the opium poppy that suppress the sensation of pain by binding to and stimulating the nervous system - Psychogenics: Drugs that cause hallucinations Stimulants Stimulants, also known as uppers, speed up the nervous system. Types of stimulants include: - Amphetamines: Lab-created drugs used to stay awake or lose weight. Examples include benzedrine, methedrine, and dexedrine. - Cocaine: A natural drug found in coca plant leaves. It produces feelings of euphoria, energy, power, and pleasure. It also deadens pain and suppresses the appetite. It is highly dangerous and addictive. Signs of dependency include compulsive use, loss of control, and disregard for consequences of use. - Smoking: Illnesses related to smoking take the lives of more than 400, 000 Americans every year. Although it is a relatively mild but toxic stimulant, nicotine produces a slight sense of arousal as it raises blood pressure and accelerates the user's heart rate. It also has a relaxing effect and seems to reduce stress. - Caffeine: Almost everyone uses

this stimulant. It is found in coffee, tea, most sodas, chocolate, and many over-the-counter drugs. It helps maintain alertness and can increase the effectiveness of some pain relievers. Depressants Depressants are drugs that slow the central nervous system. Types of depressants include: - Barbiturates: These major tranquilizers are also known as sleeping pills, which have a sleep-inducing effect. They are highly addictive and users quickly develop a tolerance. - Benzodiazepines: These minor tranquilizers are used to lower anxiety and reduce stress. They are used to treat sleep problems, nervousness, and anxiety, and include Valium, Xanax, Halcion, and the date-rape drug, Rohypnol. - Alcohol is the most common depressant. It is associated with health risks to the brain, liver, and heart, as well as with social issues such as loss of job. Signs of alcohol abuse include drinking in the morning, drinking alone, experiencing blackouts or memory loss, and lying about drinking. Narcotics Narcotics suppress the sensation of pain by binding to and stimulating the nervous system's natural receptor sites for endorphins. All narcotics are derived from opium. Known for at least 2, 000 years, opium has pain-relieving and euphoria-inducing properties. Morphine is created by dissolving opium in acid, and then neutralizing the acid with ammonia. Although highly addictive, morphine has medical uses today and is carefully controlled. Heroin was derived from morphine and was thought to be a new wonder drug. Unfortunately, its addictive properties were more powerful than those of opium or morphine, and its use in medicine was discontinued. Psychogenic Drugs Psychogenic drugs include hallucinogens and marijuana. Hallucinogens stimulate the brain into altering its interpretation of sensations. Laboratory-created hallucinogens are generally more potent than naturally occurring ones, and include lysergic acid

diethylamide (LSD), phenyl cyclohexyl piperidine (PCP), and MDMA, commonly known as ecstasy or "X." Mescaline and psilocybin are naturally occurring hallucinogens. Mescaline comes from the peyote cactus and is part of the Native American culture. Psilocybin is contained in certain types of mushrooms. Best known for its ability to produce a feeling of well-being, mild intoxication, and mild hallucinations, marijuana is the best known and most commonly abused psychogenic drug. Also known as pot or weed, marijuana comes from the leaves and flowers of the hemp plant, called cannabis sativa. Marijuana is most commonly smoked, but also can be baked into foods, such as brownies. Check Your Understanding For each question, select the most appropriate answer option. Question 1: Lab-created drugs used to stay awake or lose weight Answer Options: -Psilocybin -Amphetamines -Depressants -Narcotics The correct answer is: Amphetamines Question 2: Drugs derived from the opium poppy Answer Options: -Psilocybin -Amphetamines -Depressants -Narcotics The correct answer is: Narcotics Question 3: A naturally occurring hallucinogen found in mushrooms Answer Options: -Psilocybin -Amphetamines -Depressants -Narcotics The correct answer is: Psilocybin Question 4: Drugs that slow the central nervous system Answer Options: -Psilocybin -Amphetamines -Depressants -Narcotics The correct answer is: Depressants Summary Consciousness is an awareness of everything that is going on at any given moment. Altered states of consciousness occur with shifts in the quality or pattern of mental activity. Sleep is part of the circadian rhythm all humans experience. R. E. M. sleep, which occurs four to five times a night, is associated with dreaming. Non R. E. M. sleep is more restful. Stages 3 and 4 of Non-R. E. M. sleep are the deepest and most restorative. The adaptive and restorative theories explain

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why we sleep. Sleep disorders include sleep apnea, insomnia, narcolepsy, sleep walking, and night terrors. Sleep deprivation (the lack of sleep) can impair your ability to focus and function normally during waking hours. Hypnosis can produce amnesia and reduce pain, but it cannot give increased strength or enhance one's memory. The two theories of hypnosis include Hilgard's theory of the hidden observer (dissociative theory) and the social-cognitive theory of hypnosis. A person can develop a physical or psychological dependence on psychoactive drugs. Drugs are classified as depressants (such as alcohol and barbiturates), stimulants (such as amphetamines, cocaine, and nicotine), narcotics (such as opiates), and psychedelics and hallucinogens (such as LSD, marijuana, and ecstasy).