

Review Session 6 (February 4): Chapter 4

“Chapter 4: Consciousness”

- Define consciousness. What sort of experiences does it refer to?
- Provide an overview of the various types of sleep phenomena, including explanations for dreams (i.e. why do we dream), sleep disorders, stages of sleep, etc.
- List various functions of sleep:
 - *Health maintenance* (e.g. tissue repair, growth, immunity)
 - *learning & memory* (i.e. encoding in the brain; Note: this will be discussed in greater depth later in the course.)
 - *mental acuity* (e.g. alertness)
 - *mood elevation*
- What is a sleep debt, and what effects does it have on one’s overall health?
- Define microsleap.
- What factors contribute to our sleep requirements, as humans?
 - Recall the following:
 - Age (infants sleep on average some 16 hours per day; the elderly typically require more time to fall asleep)
 - Stress (daily concerns leave us lying awake at night)
 - Habits/responsibilities (Consider the concept of shift work, and the demands this places on one’s sleep schedule.)
 - Genetic predisposition (twin studies demonstrate what we can expect regarding sleep requirements**)
 - Circadian rhythms (biologically programmed cycles of wakefulness/sleep; the cycle is affected by a multitude of factors, for better or for worse)
- Circadian rhythms refer to one’s biological clock. Concerning the sleep/wake cycle, they are regulated by the _____ in the hypothalamus. This structure is sensitive to _____, and it releases _____ in response to darkness, which facilitates sleep. (See Figure 4.2 on page 139 for explanation.)
- What can disrupt one’s sleep/wake cycle? List three possibilities mentioned in class: 1) _____; 2) _____; 3) _____.
- Stages of sleep:
 - IT IS IMPORTANT TO NOTE IN WHICH STAGE certain waves appear. Alpha waves characterize wakefulness.
 - Stage 1: (theta waves); You’ve fallen asleep. You can be roused easily.
 - Stage 2: (theta waves & **sleep spindles**); The sleep spindles are short bursts of electrical activity. This stage of sleep is slower than the last. Heart rate, blood pressure, etc. continue to decrease.

- Stage 3: (theta waves & delta waves); When you see “delta,” think “slow-wave” sleep. Vital signs continue to decrease.
 - Stage 4: (delta waves *exclusively*); This is what we call “deep sleep.” It is very difficult to rouse someone from this stage, and if you manage it, they are oftentimes disoriented. The body is completely relaxed in this stage.
 - The above stages are NON-REM sleep. There is no rapid eye movement, and it is highly doubtful that much dreaming will be recalled.
 - Stage 5: REM sleep (rapid-eye-movement sleep); This stage is highly active. Blood pressure rises, muscles are relaxed (essentially paralyzed) and dreaming is most vibrant and most memorable. This stage is comparable to wakefulness, but the waves involved are beta, not alpha.
- Theories concerning dreams and their potential functions:
- Freudian: dreaming serves to simulate innate sexual conflicts and their possible resolution; two components: 1) _____ content (what is recalled→the facts) and 2) _____ content (interpretations of those facts→symbolism).
 - Continuity theory: mind continues to grapple with daily problem-solving, whilst you’re asleep.
 - Memory theory: dreams serve to consolidate memories.
 - TST (threat-simulation theory): dreams simulate potential real-life threats, so that we can essentially rehearse life beforehand (as such, this theory posits a very biologically adaptive perspective of dreams).
 - Activation-synthesis theory: brain makes sense of images and stored memories that all interweave during active REM sleep; we call this synthesis dreams.
- Sleep Disorders:
- Define insomnia. What are some common treatment suggestions? List 3.
 - _____
 - _____
 - _____
 - Define narcolepsy. Recall that this disorder sometimes involves muscle paralysis.
 - Define sleep apnea. What are some common symptoms experienced by those with the disorder? What machine is used to treat some cases?
 - True or false: Surgery is sometimes used to treat sleep apnea.
 - True or false: Obesity can increase one’s chances of developing sleep apnea.
 - SIDS (sudden infant death syndrome): Discuss the proper way of placing an infant to bed.
 - Sleep walking:
 - What is the incidence of sleep walking in the general population (i.e. the percentage of those who suffer from it)?

- True or false: sleep walking occurs during REM sleep.
 - Distinguish between night terrors and nightmares.
 - Recall that everyone experiences nightmares, and they are rather brief. Night terrors typically plague children and are much more severe.
 - Define enuresis.
- Psychoactive Drugs:
 - Distinguish among the terms *tolerance*, *dependence*, and *withdrawal*.
 - How do drugs elicit their effects on the brain? (Recall the concept of “lock and key in neurotransmitter binding.)
 - Recall that numerous factors influence the use/abuse of drugs: family, culture, stress, etc.
 - List the 4 broad categories of psychoactive drugs: 1) _____; 2) _____; 3) _____; 4) _____.

Drug Category	Drug Type	Main Effect	Medicinal Uses
Depressants	Alcohol	Relaxation; lowered inhibitions	Antiseptic
	Barbiturates (barbs)	Anxiety-reducing	Anesthetic
	Sedatives*	Calming; anxiety-reducing	<i>The main effect and medicinal use are one in the same.</i>
Stimulants	Caffeine	Alertness; insomnia	Treatment for migraines.
	Nicotine	Alertness; loss of appetite	Treatment for nicotine dependence.
	MDMA (ecstasy)	Emotional extremes; paranoia; muscle tension	None
	Amphetamines (including meth)	Increased alertness and energy	Treat ADHD, obesity, narcolepsy.
	Cocaine (crack)	Increased energy; mood swings	Local anesthetic
Opiates	Opium	Relief from withdrawal; constipation	Pain relief
	Heroin (smack)	Euphoria; pain control	None
	Morphine	Euphoria; pain control	Pain relief
	Codeine	Euphoria; loss of appetite	Pain relief
Hallucinogens	Marijuana (weed)	Relaxation; no motivation; altered perceptions	Nausea from chemo; treats glaucoma
	PCP (Angel dust)	Euphoria; hostility	Veterinary anesthetic
	LSD (acid)	Panic reactions; altered perceptions; flashback effects	None

Barbs and alcohol actually produce sedative effects (in fact, all depressants do). This is an effect, more so than a type of drug, but of course there are drugs whose effects are primarily sedative that they are called SEDATIVES (e.g. tranquilizers).

NOTE: LEARN THE BASICS OF THIS TABLE. There is no need to have it memorized in full.