




What is Consciousness?

Module 6
Consciousness and the Two-Track Mind: Dual processing, Sleep and Dreams

Class Objectives

- What is consciousness?
- What are the stages of sleep?
- How does sleep deprivation effect us?

Stop and think! How would YOU define consciousness?



Consciousness is a state of awareness and responsiveness to:

- _____
- Your own mental processes and inner awareness

Consciousness is a spectrum that ranges from low to high levels of awareness.



LOW

Awake



HIGH



Much of our everyday thinking, feeling, and acting operates outside our conscious awareness.



Dual Processing

- Perception, memory, thinking, language, and attitudes _____
 - The conscious (deliberate)
 - The unconscious (automatic)
- Through *dual processing*, we are

- Through _____, your conscious awareness focuses on only a very limited aspect of all that you experience.
- Our five senses take in 11,000,000 bits of information per second...we consciously process about 40!
- *The Cocktail Party Effect* is your ability to _____

Inattentional Blindness




- *Inattentional blindness* refers to the inability to see an object or a person in our midst.
 - Simons & Chabris (1999) showed that half of the observers failed to see the



Ahhh...Sleep

Allowed to sleep unhindered, most adults will sleep at least 9 hours a night.



Did you know?

- We spend about 1/3 of our lives asleep. If you live to be 75 years old you will have slept about 25 years!
- An average 20 year old student has spent about 6 years asleep!

- Teens need at least _____ hours of sleep each night, compared to an average of seven to nine hours each night for most adults.
- Their internal biological clocks also keep them awake later in the evening and keep them _____



Studies have found a relationship between the quantity and quality of one's sleep and many health problems. More and more scientific studies are showing correlations




People who sleep 7 to 8 hours a night tend to outlive those who are chronically sleep-deprived.




While sleep patterns change as we age, the



At our deepest level of sleep our brain waves actually resemble our



Do we sleep more if we are physically active?





_____ bedridden
people sleep as much as
people on their feet all day.

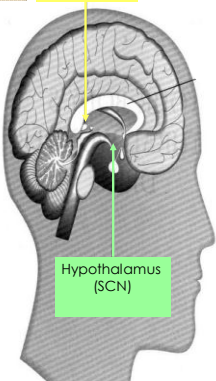
Biological Clock

- Humans and other animals have an internal biological clock called the _____
- These patterns vary over approximately _____

- Responsible for body functions including:
 - _____
 - Sleep and wakefulness
 - Blood pressure
 - _____



Pineal Gland



Hypothalamus (SCN)

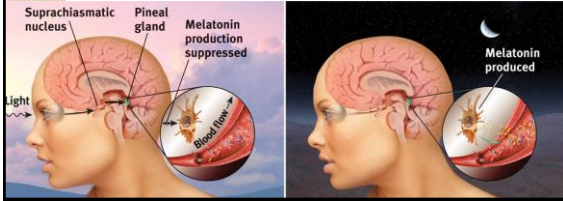
The Brain's Control of Circadian Rhythms

- Generated by the suprachiasmatic nucleus (SCN)
 - Regulates the pineal gland's _____

 - Increases in **melatonin**

The Brain's Control of Circadian Rhythms

- Light triggers the suprachiasmatic nucleus to decrease (morning) melatonin from the pineal gland and increase (evening) it at nightfall.



Isn't sleep all the same?

- No, the use of the EEG shows variations in brain waves which determine different stages of sleep.
- _____
 - _____
- During an 8 hour period, people typically progress through all 5 full cycles,
 - Each cycle lasts about _____

Non REM Sleep

- **NREM** (_____) sleep involves increasing _____
 - Slower EEG activity occurs
 - The heart rate and respiration are slower during NREM
- People become more difficult to awaken as they progress through the four stages of NREM sleep.

REM Sleep

- Rapid eye movement (REM) is also known as _____
- REM is difficult to distinguish from being awake on the basis of physiological measures
 - _____

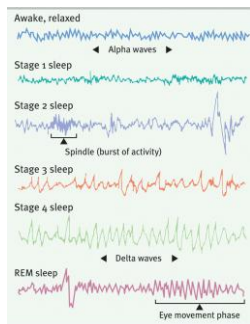


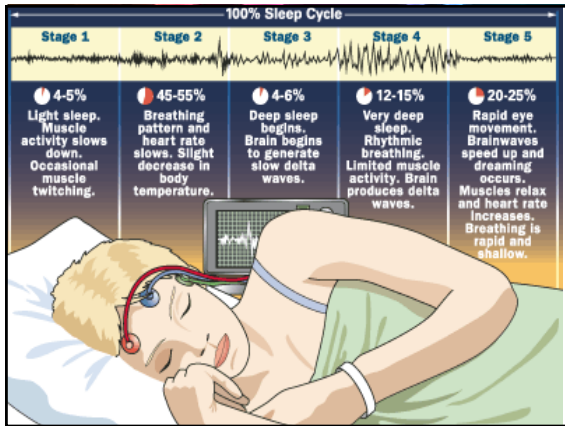
REM dreams

- REM dreams tend to be longer, more vivid, and involve more detail and movement.
 - _____
- Paralysis of muscles occurs so _____



Brain activity changes with each stage of Sleep





Researchers have established what happens during sleep, but not why we sleep.

One theory is that we sleep because we are tired. In other words, _____

A variety of theories have been proposed for the need for sleep.

Animal	Hours of sleep per 24-hour period
Bat	19.9
Armadillo	18.5
Cat	14.5
Fox	9.8
Rhesus monkey	9.5
Rabbit	8.5
Human	8.0
Cow	3.9
Sheep	3.8
Horse	2.9

- First, from an evolutionary perspective, sleep may have developed because animals _____
- Sleeping when it is dark keeps us from getting hurt or becoming a meal!

Function of REM Sleep


- Memory storage- _____
- Brain areas that are active during the learning of the task become active again during sleep
- Performance on tasks usually improves if you test someone a day after they've learned the task
 - As long as they get at least 6 hours of sleep

Sleep Deprivation

- The longer people go without sleep – the _____
- A fatigued, sleep deprived person may experience:
 - _____
 - Tendency to make mistakes
 - Irritability
 - A depressed immune system
 - Greater vulnerability to accidents
- _____

Sleep Deprivation

- Research on total sleep deprivation with humans is not possible
- However, rats totally deprived of sleep die
 - lose inability to regulate body temperature
 - lose weight



What's Next...?
Sleep Disorders
