

Consciousness and Sleep

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WHAT IS CONSCIOUSNESS?

- **Consciousness:** The subjective experience of perceiving oneself and one's surroundings
- We are conscious of things we can report
- But are animals conscious? Or people who can't speak?
- Examples: prayer, alcohol, sleep, meditation, hypnosis

SLEEP AND SLEEP DISORDERS

- Natural altered state of consciousness
 - o Measure brain activity during sleep with EEG

Five Stages:

- o **Stage 1:** Transition from wakefulness to sleep (5 minutes)
 - Hypnagogic sensations (leg twitch, something coming at your face)
- o **Stage 2:** Brief bursts of brain activity called sleep spindles (20 minutes)
- o **Stage 3 and 4:** Deeper sleep; HR, temperature, and breathing decrease to their lowest points
 - Slow delta waves signify decreased brain activity
- o **REM sleep**

REM

- Rapid Eye Movement (REM)

- Go back from Stages 4 to 3 to 2 and then REM
- One whole cycle takes about 90 minutes
- **“Paradoxical Sleep”**: externally calm, internally active
 - Heart rate and breathing increase but muscles are essentially paralyzed
 - **Lots of brain activity**; vivid dreams (everyone dreams every night-only remember if you woke up during your dream)
- Sleep stages cycle during the night; more REM as night goes on

SLEEP

- Brain still processes information outside of conscious awareness
 - Roll around on bed but not fall off
 - Some noises will still awaken us (**auditory cortex** is active)

FUNCTION OF SLEEP

- But **WHY** do we sleep?
- **Restorative Theory*****
 - Sleep repairs the body after each day
 - Helps consolidate memories and facilitates learning
- **Evolutionary Theory**
 - Conserves energy
 - Reduces risk of death due to night predators

NOT GETTING ENOUGH SLEEP

- REM Rebound
- **Sleep deprivation** affects mood, performance, and attention:
 - Throws off normal sleep cycle and circadian rhythm
 - Impairs immune system
 - Decreases attention and motor responses
 - After several days, hallucinations and paranoia
 - Death in rats after 3 weeks without REM

WHY DO WE DREAM?

- Most scientists do not believe that dreams have special meaning
- **Freud:** dreams reflect unconscious motivations (sexual desires)
- **Activation-synthesis:** we dream because our brains are aroused during REM
- **Neurocognitive theory:** dreaming is just like thinking except we can't control it

APPLICATION

- Alcohol and sleep medication:
 - These reduce amount of REM sleep
 - REM rebound easily develops
- Studying: