

# States of Consciousness

## Sleep, Dreams, Hypnosis

# Circadian Rhythm

- From the Latin meaning about a day
- Waxing and waning of consciousness/alertness
- Actually closer to 25 hour cycle in healthy young adults
- Class Survey – How many of you are morning people? Afternoon people? Night owls?

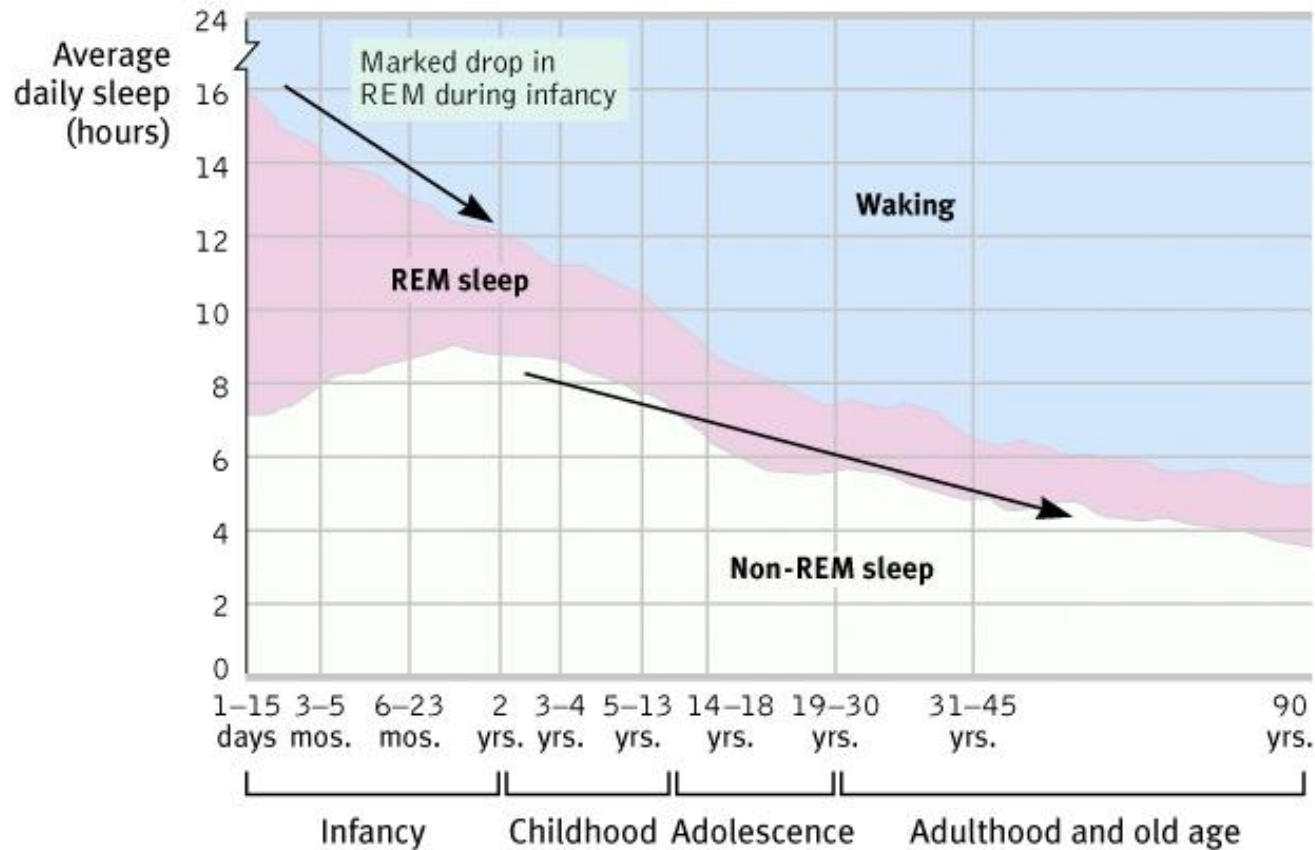
# Class Sleep Survey

How many hours sleep do you need (not how many you actually get) to wake up and feel refreshed?

How many are we supposed to get?

# Sleep Chart

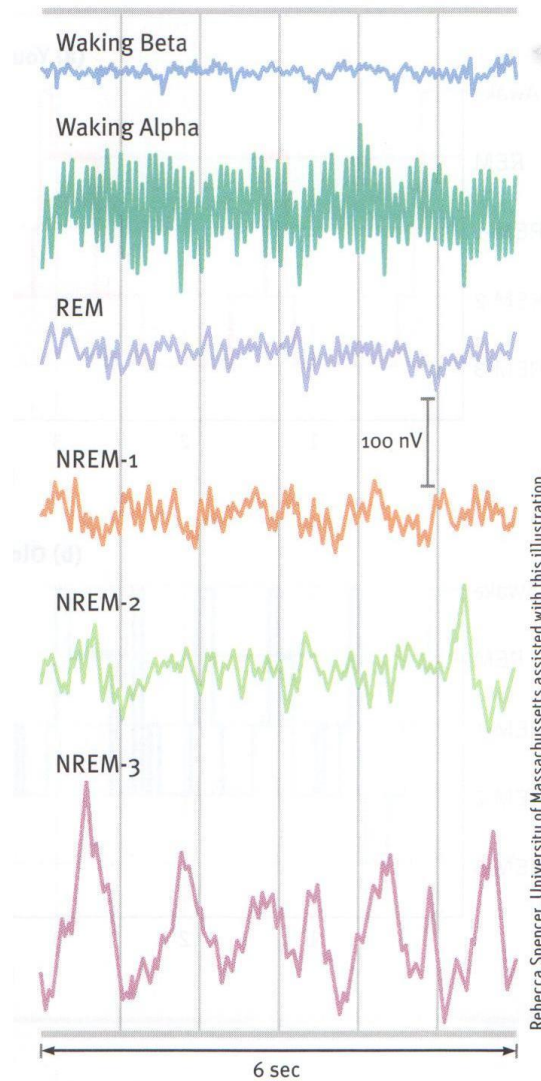
## Average Number Hours by Age



# Theories Why We Sleep

- Sleep helps to reduce stimulation
- Strengthens memory, increases concentration, boosts mood, feeds creative thinking, moderates hunger & obesity, fortifies the immune system, lessens the risk of accidents
- Serves as a restorative process (especially NREM) – Helps restore & repair brain tissue, gives resting neurons time to repair themselves, pituitary gland releases growth hormone during sleep

# Differences between REM & NREM



Rebecca Spencer, University of Massachusetts assisted with this illustration.

# NREM Sleep

- More prevalent when we are physically tired. Need > NREM when depressed.
- NE, 5-HT, DA are produced during NREM
- NREM dreams are thought-like, often involve conversation
- Stage N3 (Slow wave sleep, sleep talking, sleep walking, sleep terrors in children)

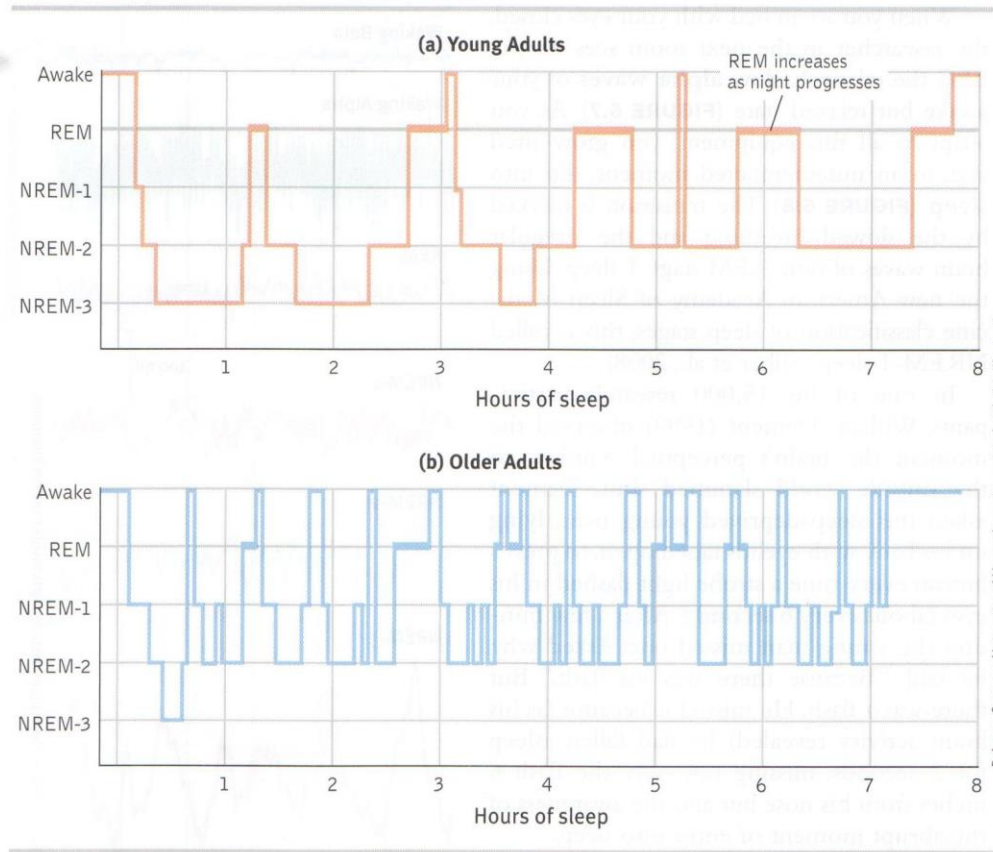
# REM Sleep (Paradoxical Sleep)

- Rapid eye movement, increased rate of respiration and heart-rate, EEG resembles wakefulness, erection in males, vaginal lubrication in females
- NE, 5-HT, DA production is depressed during REM
- Dreams are story-like and full of action





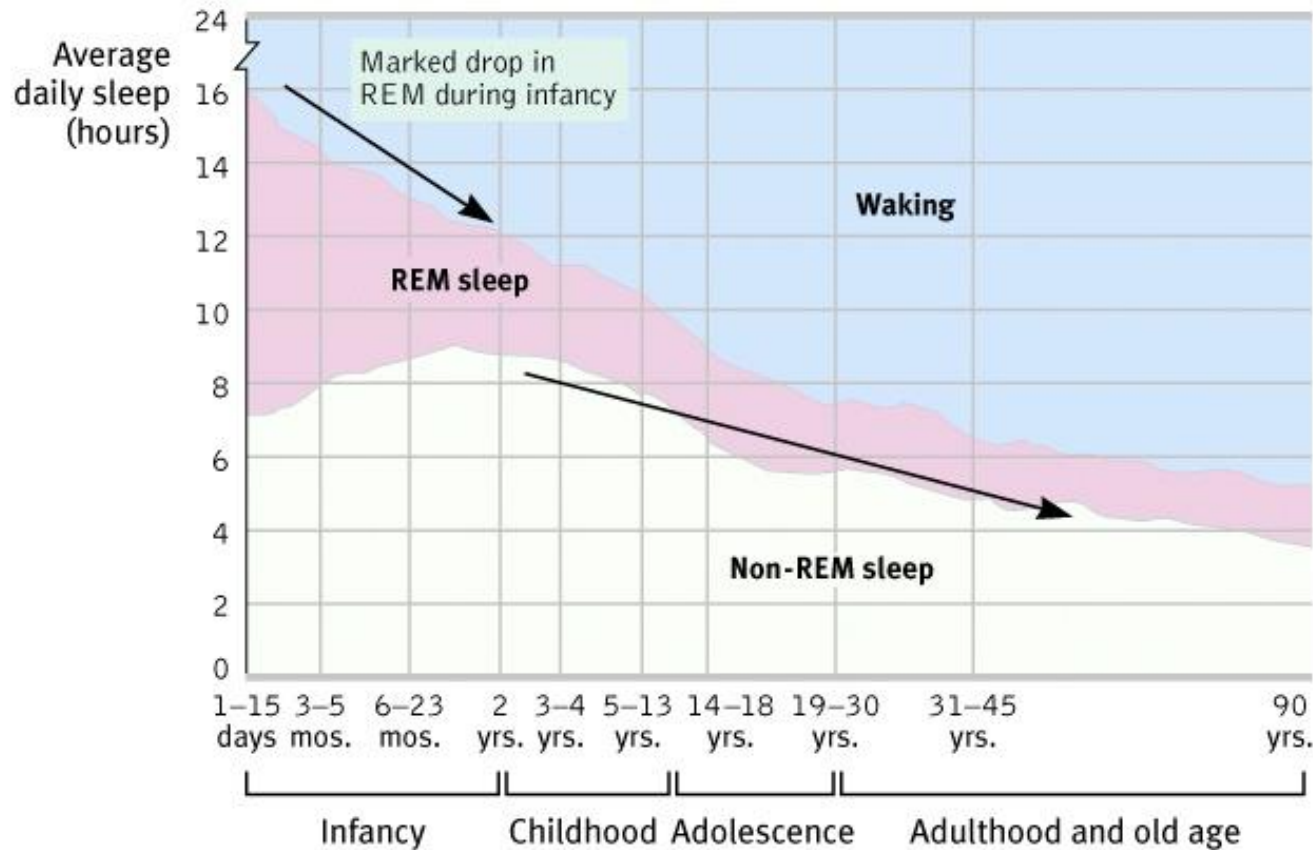
# Stages of Sleep



Rebecca Spencer, University of Massachusetts assisted with this illustration.

# Sleep Chart

## Number Hours Spent in REM vs. NREM



# Why Do We Dream?

- Throughout history, people have been fascinated with dreaming.
- Historically there was a tendency to presume that dreams mean something.
- Some of the earliest recorded incidents of dream interpretation are mentioned in the Old Testament.

# Story of King Nebuchadnezzar

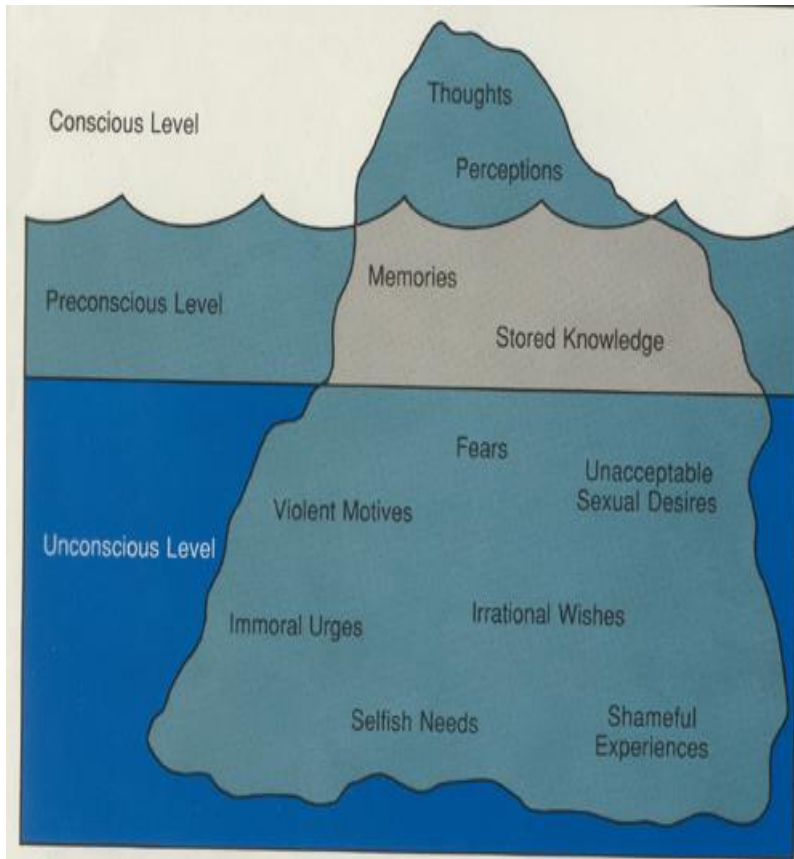
Recorded in Book of Daniel, 604 B.C.



King Nebuchadnezzar orders the execution of all his advisors since they are unable to tell him his dream before their interpretation.



# Freud's Concept of the Personality



- Considered dreams to be a highway into the unconscious
- Content of dreams is symbolic of wish fulfillment, often sexual

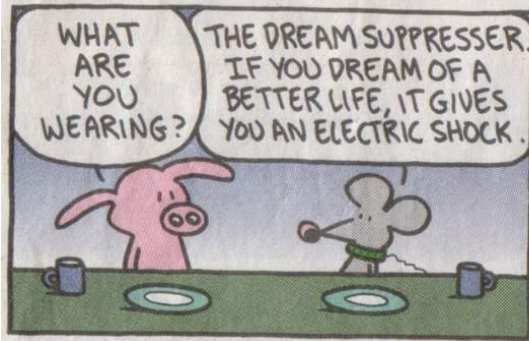
# Laugh Parade



**"In your case, I don't think dreaming about luggage symbolizes travel."**

# Pearls Before Swine

By Stephan Pastis



So Much For Wish Fulfillment



# Modern Dream Theories

- Filing (information processing)
- Physiological function
- Activation synthesis
- Cognitive development

# Comparison of Dream Theories

TABLE 3.1 Dream Theories

Theory	Explanation	Critical Considerations
Freud's wish-fulfillment	Dreams provide a "psychic safety valve"—expressing otherwise unacceptable feelings; contain manifest (remembered) content and a deeper layer of latent content—a hidden meaning.	Lacks any scientific support; dreams may be interpreted in many different ways.
Information-processing	Dreams help us sort out the day's events and consolidate our memories.	But why do we sometimes dream about things we have not experienced?
Physiological function	Regular brain stimulation from REM sleep may help develop and preserve neural pathways.	This may be true, but it does not explain why we experience <i>meaningful</i> dreams.
Activation-synthesis	REM sleep triggers neural activity that evokes random visual memories, which our sleeping brain weaves into stories.	The individual's brain is weaving the stories, which still tells us something about the dreamer.
Cognitive development	Dream content reflects dreamers' cognitive development—their knowledge and understanding.	Does not address the neuroscience of dreams.

# Research to Test the Theories

## Which Theory Has The Most Support?

Fall 2006 Dream Research

- Filing (information processing)
- Activation synthesis
- Psychoanalytic

# Findings of Previous Studies of Dreams of College Students (1950 & 1980)

- They occurred in familiar settings
- Dreamers were usually in company of someone they knew
- Aggressive encounters were slightly more common than friendly ones
- Misfortune and failure occurred more often than success
- Apprehension was the most common emotion
- Sexual content was reported in only 12% of the dreams of males and 4% of females

# Dreams of Blind People

- Although most people's dreams are primarily visual, blind people's dreams contain a much more diverse array of sensory information.
- In one study of blind subjects versus sighted controls, 70% of blind subjects experienced a touch sensation, versus 45% of sighted controls. 86% of blind subjects reported hearing in at least one dream compared to 64% of controls. 18% of the blind subjects tasted, compared to 7% of controls. 28% smelled compared to 15% of controls.

# Dreams of Blind People

- In consideration of only subjects who were congenitally blind, 93% heard, 26% tasted, 40% smelled, & 67% reported touch sensation in dreams.
- Emotional & thematic content is not all that different between blind & sighted persons. They report the same number of successes, failures, & social interactions, and experience the same frequency & intensity of emotion, & almost equal levels of bizarreness.

# Dreams of Blind People

- Congenitally blind people report far more nightmares (25%) than do sighted individuals (6%) or individuals who become blind during their lives (7%). Nightmares of congenitally blind subjects reflected threats they face in their waking lives (i.e., being run over by a car, getting lost, falling in holes at construction sites).

# Discovering Psychology on YouTube

- [Discovering Psychology: The Mind Awake & Asleep](#) (10:33-25:06)
- [The Power of Naps](#)



# Sleep Disorders

- Sleep terror disorder
  - Common during early childhood
  - Occurs during Stage 3 NREM sleep
  - No need to treat
- Narcolepsy
  - Individual falls asleep in midst of activity
  - Goes straight from wakefulness to REM
  - Treated with stimulants like Provigil
- Sleep Apnea
  - Individual stops breathing
  - Snoring
  - Treatment includes:
    - Refraining from sleeping in supine position (do not sleep on back)
    - Use of CPAP machine (Continuous Positive Airway Pressure)
    - CPAP PRO

# Insomnia

How long does it take you to fall asleep?

- Sleep Onset
  - We may all occasionally have trouble falling asleep
  - Regularly takes more than 10-15 minutes to fall asleep
- Early Morning Awakening
  - Falls asleep easily but then wakes up after a few hours and cannot get back to sleep

**MANY INSOMNIACS SUFFER FROM  
BOTH CONDITIONS**

# You May Be Getting More Sleep Than You Think

- People tend to misjudge how long it takes them to fall asleep & how often they wake up during the night.
- 30% of American adults have symptoms of insomnia. Women are about 50% more likely to have insomnia than men. Risk increases with age.
- 10% of the population has chronic insomnia.
- Half of people with insomnia, when studied in a sleep lab, actually get 6 hours of sleep a night.
- By contrast, people who don't sleep much overestimate how much they sleep. In the sleep lab at Penn State, most people estimated they sleep between 7 to 8 hours. When studied in the lab, they typically slept 6 hours.

# Treating Insomnia

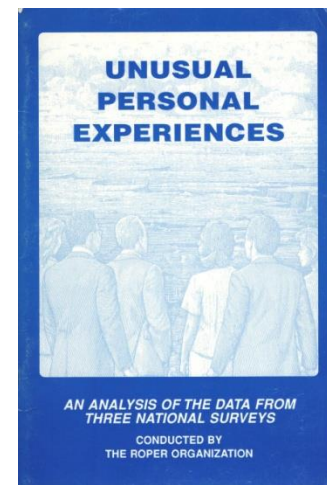
- Over-the-counter medications
  - Mostly antihistamines
- Sedating Rx medications
  - Minor tranquilizers (highly addictive; e.g. Ativan, Valium, Xanax)
  - Hypnotics (can be habit forming; e.g., Halcion, Lunesta, Ambien)
  - Tricyclic antidepressants (designed to depress REM, very sedating; e.g., doxepin, amitriptylene)

# Behavior Therapy of Insomnia

1. Only use bed for sleeping
  - Do not turn bed into activity center
2. Only go to bed when sleepy
  - If unable to fall asleep within about 10 minutes, get up and go into another room
  - When drowsy, drag self to bed
  - **Important to establish bed as a cue for sleeping**
3. Always get up at the same time every day, including weekends
4. Do not nap during the day time (except power naps)

# Hypnosis

- [The Eyes Have It](#) (Donald Duck Hypnotizes Pluto)
- Most useful in pain control
- Controversial use is recovery of lost memories from the unconscious
- [Discovering Psychology: The Mind Divided](#) (6:55-19:00)
- Unusual Personal Experiences, Alien Abduction, [John Mack, M.D.](#)



# Near Death Experiences

- [Life After Life, Raymond Moody, M.D.](#)
- [The Case of Dr. Eben Alexander: A True Story](#)
- [NPR Episode](#)