

Sleep And Dreams



PSYCH 1101: DAY 13

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“O sleep, O gentle sleep, Nature's soft nurse, how
have I frightened thee, that thou no more will weigh
my eyelids down, and steep my senses in
forgetfulness?”

-Henry Iv

“Sleep is a criminal waste of time, inherited from our cave days.”

-Thomas Edison

What is sleep?

Why do we do it?

How much do we do it?

How much *should* we do it?

What are dreams?

How Much Do We Sleep?

- On average, we spend about 36% of our lives sleeping
- If you live to be 90, that means you spend about 32 years sleeping
- Most people dream every night

Circadian Rhythms

- Rhythmic cycles corresponding to roughly 24-hour period
- Circadian rhythms are *endogenous*
- *Circa* (“about”) *dies* (“day”)
- (“about” is right: humans tend to have cycles that are slightly longer than 24-hours)
 - People sequestered without clocks or windows go to bed a bit later and wake up a bit later each day.
 - earlier estimates were that we were on 25-hour cycles, but this was confounded by letting participants regulate the lights in their sequestered room.



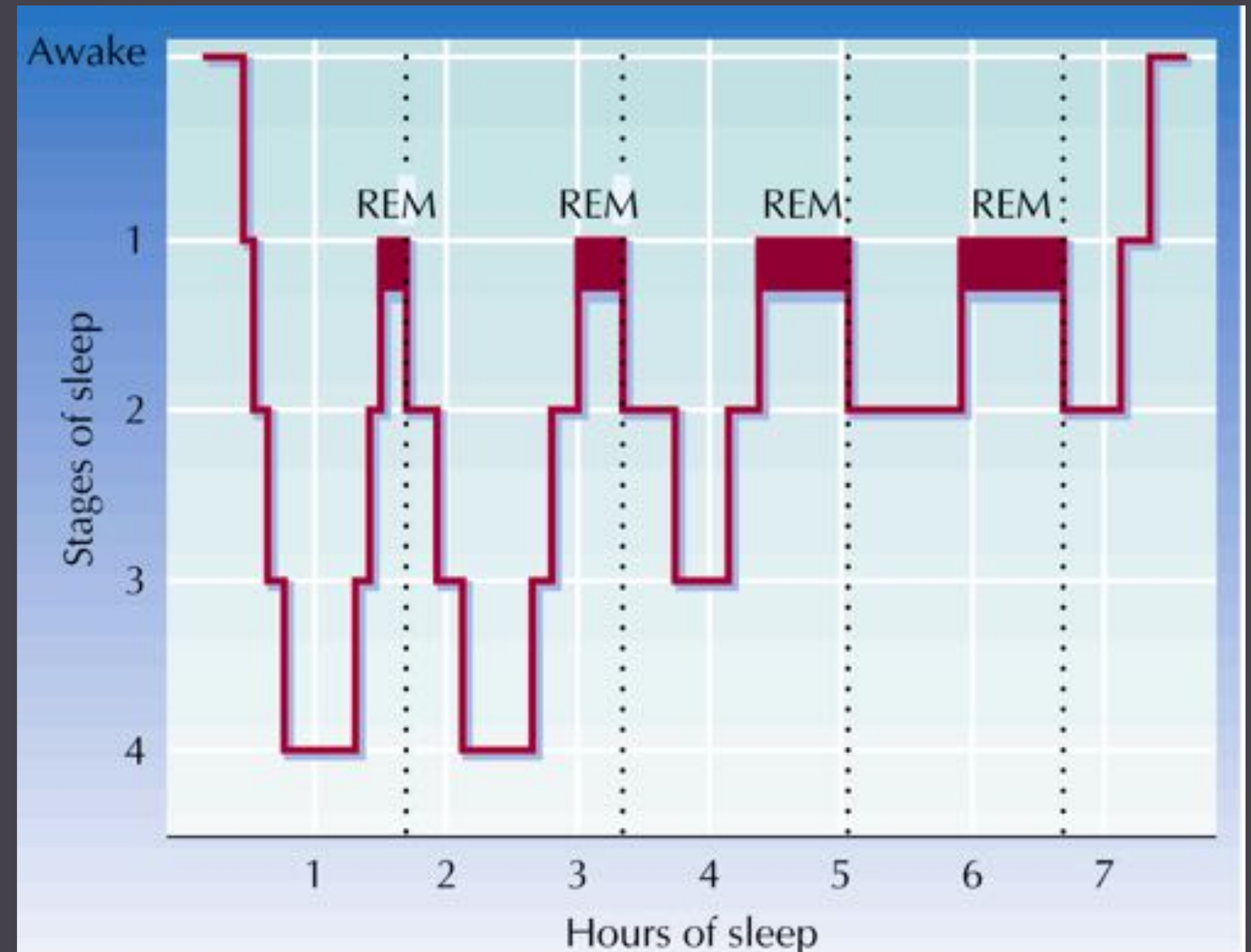
Electroencephalogram (EEG)

- Electrodes placed on the scalp provide a gross record of the electrical activity of the brain
- EEG recordings are a rough index of psychological states



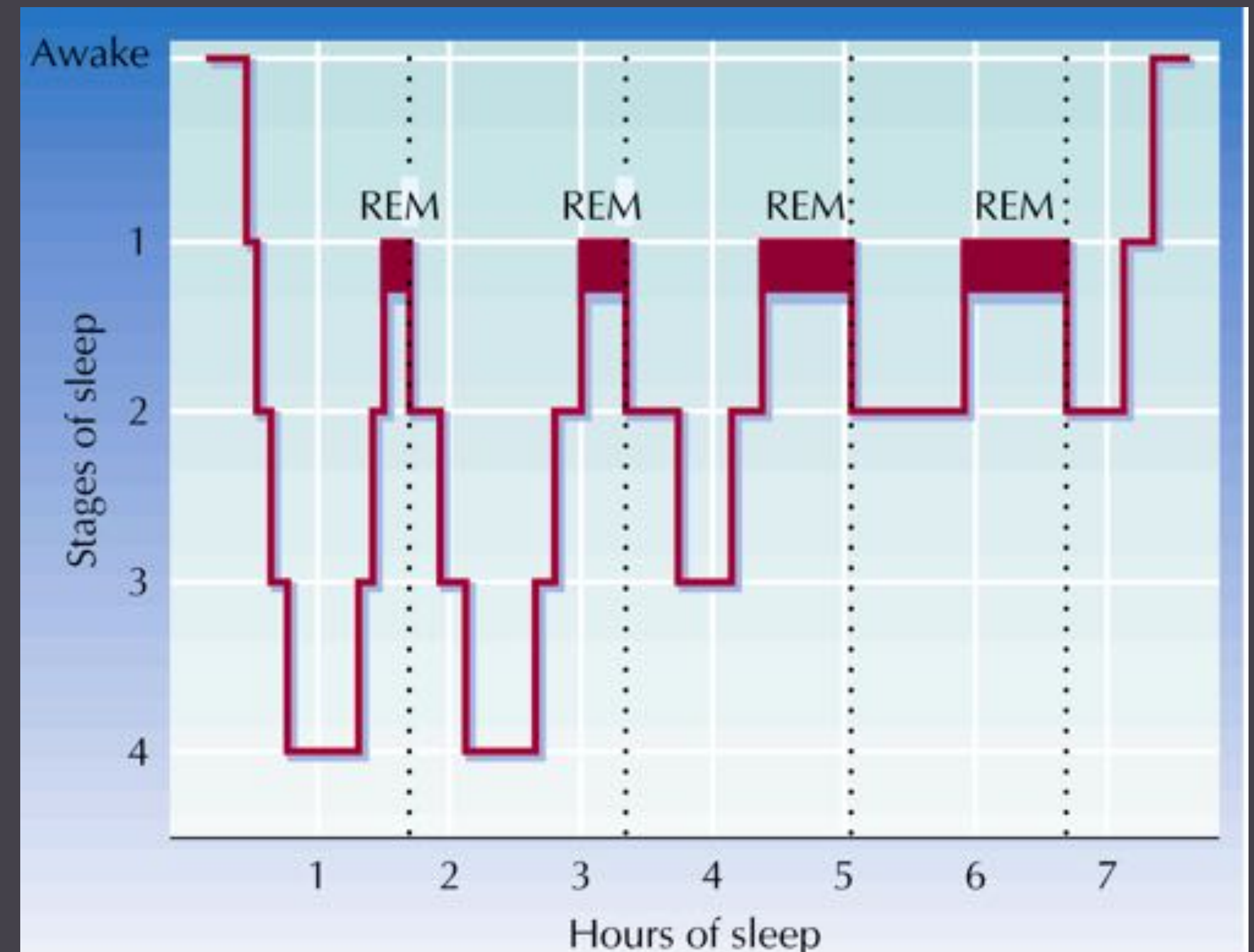
Stages Of Sleep

- Stage 1
 - Brief transition stage when first falling asleep (hypnagogia)
- Stages 2 through 3/4 (slow-wave sleep)
 - Successively deeper stages of sleep
 - Characterized by an increasing percentage of slow, irregular, high-amplitude delta waves

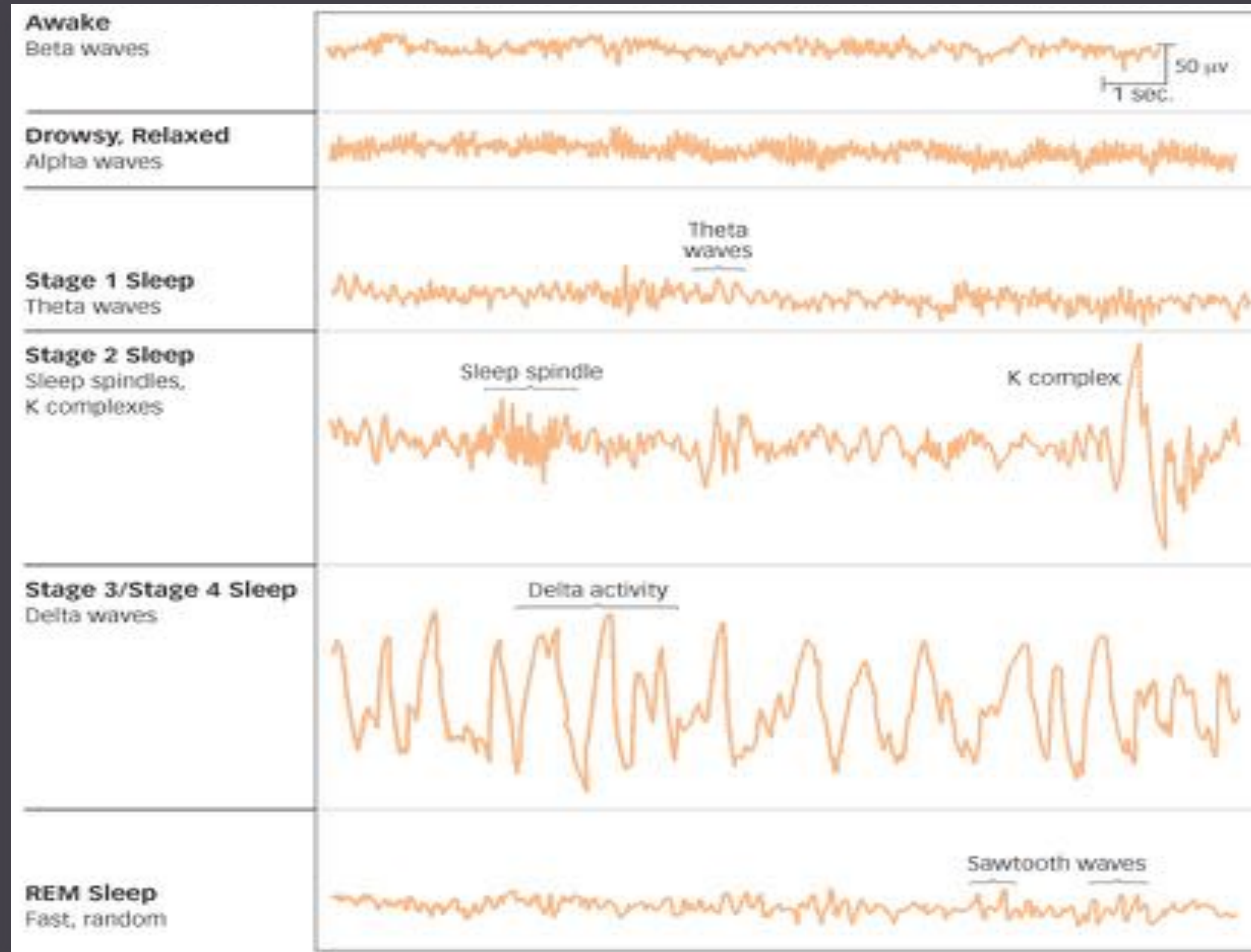


Stages Of Sleep

- Cycle back
- Upon reaching stage 3/4 and after about 80 to 100 minutes of total sleep time, sleep lightens, returns through stages 2
- REM sleep
 - Characterized by EEG patterns that resemble beta waves of alert wakefulness
 - Muscles most relaxed
 - Rapid eye movements occur
 - Dreams occur
 - **Four or five sleep cycles** occur in a typical night's sleep



Brain Waves During Stages Of Sleep



Why Do We Sleep?

- **Conservation**
 - Perhaps we sleep to save energy/calories?
 - Comparing energy use from sleep to wake shows that there is little gained
- **Restoration**
 - Yes--evidence that body is recuperating at a genetic level
- **Memory consolidation/neural synthesis**
 - connections that are important are linked, strengthened
 - we do better at memory tasks when we “sleep on it”
 - we are more creative when rested
 - we are even more racist when tired...

Circadian Rhythms And Racial Stereotypes

(Bodenhausen, 1990)

- Stereotypes are a form of judgmental *heuristic*- a quick shortcut that sidesteps the need for complex thinking.
- *Motivation* and *ability* to process information figure into the use of judgmental heuristics
- Across 2 studies, looked at morning people vs. night people on the use of stereotyping
 - Pretend you are on a jury evaluating the guilt of a defendant on a drug charge
 - Roberto Garcia
 - Robert Garner

Table 1. Mean ratings of perceived guilt likelihood of student defendants as a function of time of day, personality type, and stereotype activation

	Time of Day		
	9 a.m.	3 p.m.	8 p.m.
Morning Types			
Stereotype	4.92 (13)	6.67 (18)	6.50 (16)
No Stereotype	5.39 (13)	5.61 (18)	5.79 (14)
Evening Types			
Stereotype	6.79 (19)	5.13 (16)	5.60 (15)
No Stereotype	5.05 (19)	5.67 (15)	6.45 (13)

Note. Cell sizes are indicated in parentheses.

How Much Sleep Do We Need?

- Newborns
 - About 16 hrs
- 6 year-olds
 - about 11/12 hrs
- Adults
 - ~8 hours
- **How much sleep did you get last night?**

Russel Foster On Sleep Deprivation



Sleep Disorders

- Insomnia
 - difficulty in falling or staying asleep
- Sleep Apnea
 - a disorder in which the person stops breathing for brief periods while asleep
- Narcolepsy
 - a disorder in which sudden sleep attacks occur in the middle of waking activities
- Sleep Paralysis
 - the experience of waking up unable to move
- Night Terrors
 - abrupt awakenings with panic and intense emotional arousal



[HTTP://WWW.YOUTUBE.COM/WATCH?V=JTJ3A2NHW8K](http://www.youtube.com/watch?v=JTJ3A2NHW8K)

Dreams

To sleep: perchance to dream: ay, there's the rub;
For in that sleep of death what dreams may come
when we have shuffled off this mortal coil,
must give us pause

-Hamlet

2 Types Of Sleep

Slow-wave/quiet sleep

- eyes drift separately and slowly
- immobile and hard to wake up

REM sleep

- active cortex
- EEGs similar to waking
- paralyzed, except for eyes
- Dreams

True Dreams Versus Sleep Thought

- True dream - vivid, detailed dreams consisting of sensory and motor sensations experienced during REM
- Sleep thought - lacks vivid sensory and motor sensations, is more similar to daytime thinking, and occurs during slow-wave sleep

Facts About Dreams

- Everyone dreams
- About 90 minutes a night
- Dream time = Real time
- Day residue
- Fragile memories

Why Dream?

- Freudian view
 - “Joseph” the dream interpreter
 - “Manifest” vs “Latent” content
 - Dreams were the “royal road” to the unconscious
 - Only filtered through the language of symbolism
- More likely the part of brain attempting to interpret the processing of information occurring in the brain
 - “Activation-Synthesis” view
 - Brain tries to make sense of what’s going on

Crazy Neuroscientists, One Day, May Be Able To See Your Dreams

Presented clip



Clip reconstructed from brain activity

