

STATES OF CONSCIOUSNESS

Psychology 101

The Nature of Consciousness

- Defining consciousness
- Consciousness and the brain
- Theory of mind
- Levels of awareness

The Nature of Consciousness

- Defining consciousness
 - The private inner mind
 - Thoughts
 - Feelings
 - Imagination
 - Reliving experiences
- Stream of consciousness
 - Continuous flow of changing thoughts, feelings, images and sensations
 - Changes constantly

Defining Consciousness

- Consciousness

- Awareness

- Awareness of self
 - Awareness of surroundings
 - Thoughts about one's experiences

- Arousal

- Physical state of being engaged with the environment
 - Can be high, low or inbetween

Levels of awareness

- Higher level consciousness
- Lower-level consciousness
- Altered states of consciousness
- Subconscious awareness
- No awareness

Higher level consciousness

- Controlled processes
 - Focused on one goal or task
 - Not aware of other stimuli unless they are overwhelming
 - Requires selective attention
 - Thinking is slower than automatic processes

Lower level consciousness

- Automatic processes
 - States of consciousness that require little attention and do not interfere with on-going activity
 - Occur at a lower level than controlled processes, but are still conscious
- Daydreaming
 - Not fully conscious, but not asleep
 - Usually happens when we are doing something that requires less than full attention
 - “Mind wandering”

Altered states of consciousness

- State of mind and awareness that are very different from everyday life
 - Trauma
 - Fever
 - Fatigue
 - Psychoactive drugs

Subconscious awareness

- Can occur whether we are awake or asleep
- Waking subconscious awareness:
 - Incubation: Solving a problem when not aware of thinking about it
 - Parallel processing: Being aware of both what's happening and the details of what's happening
- Sleep and dreams
 - Not entirely unaware
 - Low levels of consciousness

No awareness

- Unconscious
 - Freud Vs. modern definition
 - Anesthetized
 - “Knocked out”
 - Coma

Biological Rhythms and Sleep

- Circadian rhythms
 - 24 hour “clock”
 - Sleep and waking
 - Hormones
 - Blood sugar (glucose)
 - Body temperature
 - Desynchronization (e.g., “jet lag”)
 - Melatonin

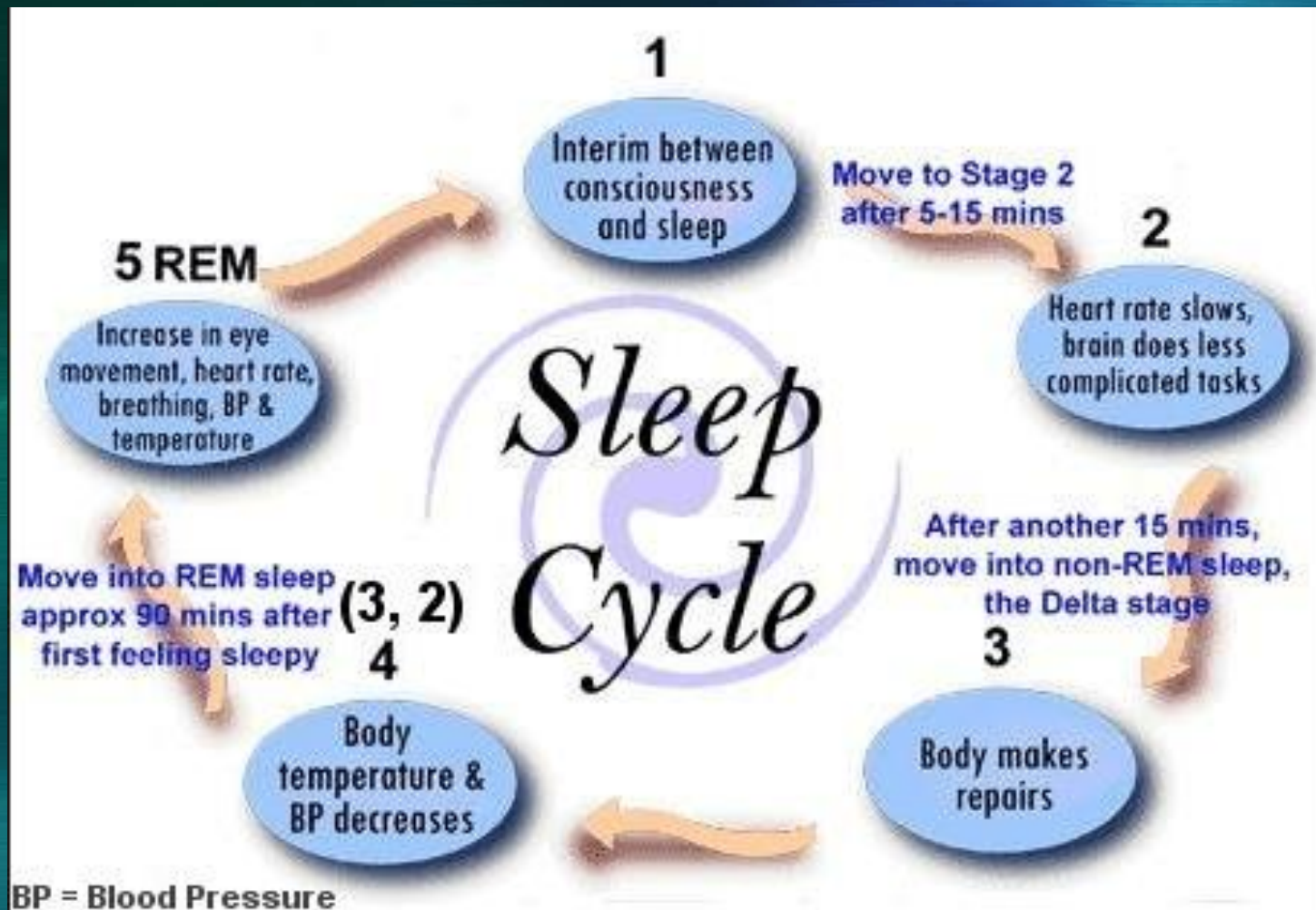
Sleep Theories

- Evolutionary
- Conservation of energy
- Sleep is restorative
- Sleep enhances brain plasticity

Stages of sleep

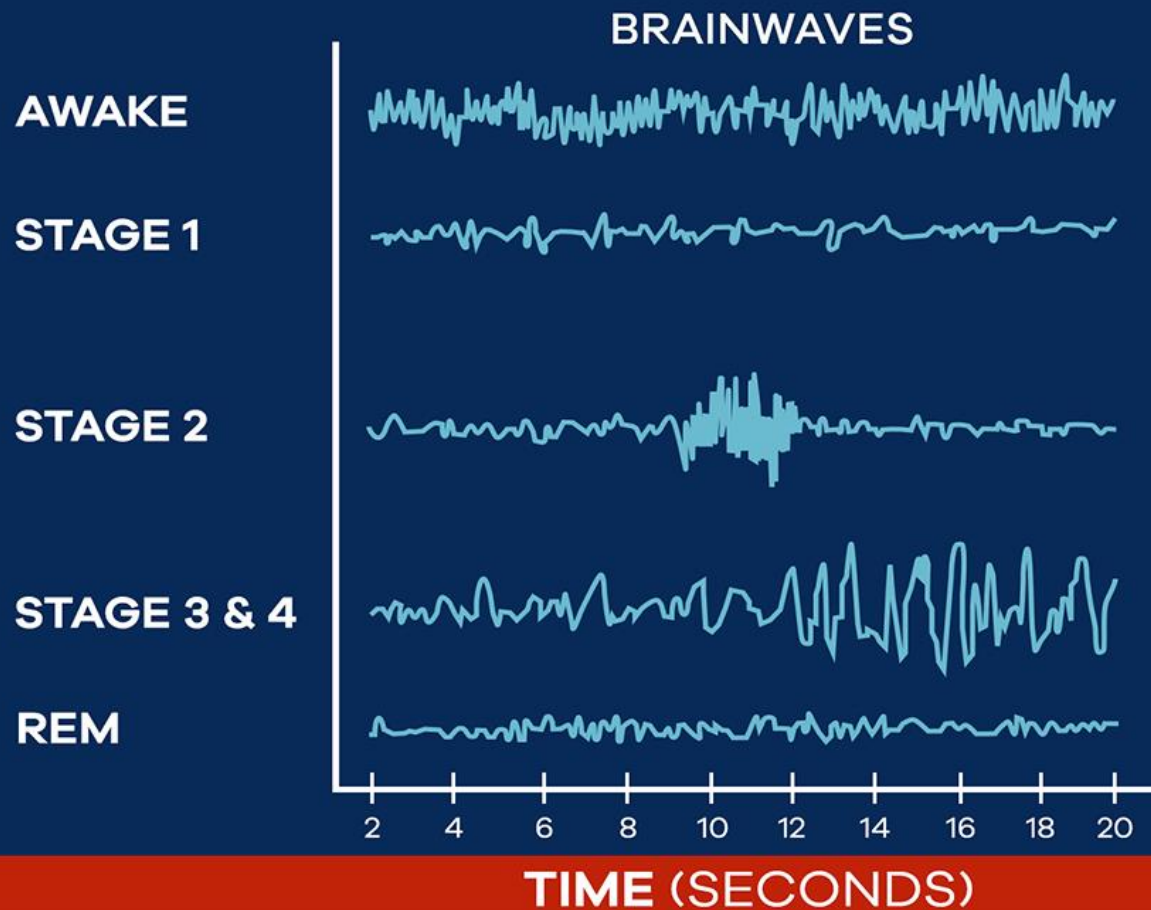
- Non-REM sleep:
 - Stages 1-4
 - Different brain waves
- REM (rapid eye movement) sleep:
 - EEG shows a state similar to relaxed wakefulness
 - Eyes move back and forth behind closed eyelids
 - Plays a role in memory
 - Heavy cannabis smokers spent less time in REM sleep

Stages of sleep



WHAT IS THE BRAIN DOING WHEN WE SLEEP?

EEG



Time spent in stages of sleep

- 1-2: 60%
- 3-4: 20%
- REM: 20% (More during second half of sleep)

Sleep and the brain

- Sleep strongly related to activity in the reticular formation
- Neurotransmitters involved in sleep:
 - Acetylcholine (Ach)
 - Norepinephrine
 - Serotonin

Sleep and disease

- Stroke and asthma attacks more likely at night
- Sleeplessness associated with obesity and heart disease
- Neurons that control sleep closely associated with immune system (e.g., cytokines)
- Many with mental health problems suffer from insomnia

Sleep disorders

- Insomnia
- Sleepwalking, -talking and -eating
- Nightmares
- Night terrors
- Narcolepsy
- Sleep apnea

Insomnia

- Unable to fall asleep
- Waking often during sleep
- Early morning wakening
- Sleep medications: A short-term solution
- Melatonin

Sleep behaviors

- Sleep walking
- Sleep talking
- Sleep eating and driving (Ambien)

Nightmares/night terrors

- Nightmare:
 - A frightening dream
 - Wakes the sleeper from REM sleep
 - Nightmares are common
 - May be associated with life stressors
- Night terror:
 - Sudden arousal from sleep
 - Terror
 - Maybe accompanied by physical symptoms
 - Most common among young children

Narcolepsy

- Sudden, overpowering urge to sleep
- Not produced by boredom
- Usually occurs in adulthood
- Rare

Sleep apnea

- Breathing stops during sleep because:
 - Windpipe fails to open
 - Problem occurs with the respiratory area of the brain
- People with sleep apnea waking up numerous times a night and maybe sleepy during the day
- Snoring followed by apnea
- Factor in sudden infant death syndrome (SIDS)

Psychoactive drugs

Dreams

- Freud:
 - Dreams represent unconscious desires
 - Manifest Vs. latent content
- Often much like waking life
- No evidence that dreams help us solve problems

Dreams

- Dream theories:
 - Cognitive theory
 - Sleeping is much like waking life
 - No search for latent content
 - Dreaming seen as dramatization of normal events that can be understood as metaphors
 - Life is a highway
 - She is a shining star
 - The snow is a white blanket.

Dreams

- Dream theories:
 - Activation synthesis
 - Cortex synthesizes (makes) brain signals generated in the lower portions of the brain
 - Dreaming is the cortex's attempt to make sense of random lower brain signaling OR
 - Dreaming is the brain's tendency to incorporate external stimuli into sleep images

Hypnosis

- EEG similar to people in a waking state (beta and alpha waves)
- An altered state of mind in which the subject is unusually receptive to suggestions
- Ability to be hypnotized (hypnotizability) depends on the individual

Steps in hypnosis

- Hypnotist:
 - Minimizes distractions
 - Makes the subject comfortable
 - Has subject focus on something specific
 - Informs subject what to expect
 - Suggestions things that s/he knows will happen or are likely.
 - When these things happen, subject believes something is happening and becomes more suggestible

Understanding hypnosis

- Divided state of consciousness theory
 - Consciousness split into different parts
 - One follows hypnotist's commands
 - Other is a "hidden observer"
 - "Ice water"
- Social cognition theory
 - Hypnosis not an altered state of mind
 - Hypnotized people act like they think hypnotized people should act
 - Does not explain how people who have never seen hypnosis can be hypnotized

Uses of hypnosis

- Address substance use problems (e.g., smoking)
 - Hypnosis seems to work best when people are motivated to change
- Treat mental health disorders
- Address pain
 - Pain seems to be felt in the lower brain, but not in cortex
 - Pain does not make its way to full consciousness

Meditation

- Attaining a peaceful state of mind free of worries
- Meditator is aware of problems but is not overwhelmed by them
- Mindfulness meditation:
 - Not about avoiding problems, but