

# UNIT 4.2

consciousness  
+  
the two-track mind

## FORMS OF CONSCIOUSNESS

→ an awareness of ourselves + our environment.

- Some occur spontaneously
  - daydreaming
  - drowsiness
  - dreaming
- Some are physiologically induced
  - hallucinations
  - orgasm
  - food / oxygen starvation

- Some are psychologically induced
  - sensory deprivation
  - hypnosis
  - meditation

Latin for  
"about a day"

## DUAL PROCESSING

→ our conscious awareness processes only a small part of all that we experience we intuitively make use of the info we are not consciously aware of - conscious, organizing, & reflective, and unconscious, interpreting, and intuitive

## SELECTIVE ATTENTION

→ the focusing of conscious awareness on a particular stimulus; only a limited portion of our surroundings (i.e. the "cocktail party" effect)

- In-attentional blindness: failing to see visible objects when our attention is directed elsewhere
- change blindness: failing to notice changes in the environment (i.e. choice blindness, change deafness)

## SLEEP & STAGES OF SLEEP

- Biological rhythms + sleep
  - (circadian rhythms) → occur on a 24-hr cycle and include sleep + wakefulness; our "biological clock"; can be altered by artificial light

SCN relies on light, food, etc. and they are considered zeitgebers

↳ light triggers the suprachiasmatic nucleus to decrease (morning) melatonin from the pineal gland + increase (evening) it at nightfall

in the hypothalamus

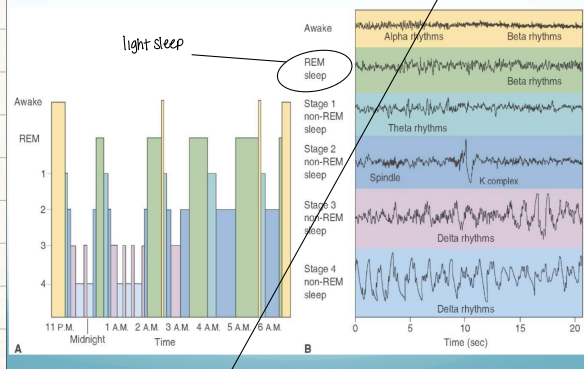
- function of sleep
  - we have to sleep (scientists don't know why)
    - no proof that sleep actually restores the body
    - rats, deprived of sleep, die in 14 days
    - w.r. for humans: 11 days w/o sleep
  - sleep deprivation
    - aggression + irritability
    - reduced energy
    - difficulty concentrating + impaired memory
    - weakens immune system
    - depression, mood swings, lack of confidence

### Sleep stages

- measuring sleep: ≈ every 90 mins. we pass thru a cycle of 5 distinct sleep stages
- sleep cycles
  - adults need 8-10 hrs/day
  - stage 1: easily awoken



# SLEEP CYCLES



- Stage 2: sleep is heavier + brain waves slower w/ bursts of activity
- Stage 3 transitions to stage 4: deep sleep + non-REM dreaming + nightmares, bed-wetting, sleepwalking
- REM stage: dreaming
- alpha waves (awake but relaxed)
  - when an individual closes their eyes but remains awake, their brain activity slows down to a large amplitude, regular alpha waves (9-14 cps)

<https://youtu.be/E7PuQV9WMgQ>

## sleep stages 1-2

during early, light sleep (stages 1-2) the brain enters a high-amplitude, slow, regular wave form called **theta waves (5-8 cps)**. (i.e. a person daydreaming)

## sleep stages 3-4

during deepest sleep, brain activity slows down.
 

- ↳ large amplitude, slow delta waves (1.5-4 cps)
- ↳ w/ each 90-min cycle, stage 4 sleep decreases and the duration of REM sleep increases

## stage 5: REM sleep

after reaching the deepest sleep (stage 4), the sleep cycle starts moving backwards towards stage 1. although still asleep, the brain engages in low-amplitude, fast and regular beta waves (15-40 cps) much like awake-aroused state.

↳ a person during this sleep exhibits rapid eye movements (REM) and reports vivid dreams

## why do we sleep?










WE SPEND 1/3 OF OUR LIVES SLEEPING. IF AN INDIVIDUAL REMAINS AWAKE FOR SEVERAL DAYS, IMMUNE FUNCTION + CONCENTRATION DETERIORATES AND THE RISK OF ACCIDENTS INCREASES.

## SLEEP THEORIES

1. sleep protects: sleeping in the darkness when predators loomed about kept our ancestors safe
2. sleep helps us recover: sleep helps restore + repair brain tissue
3. sleep helps us remember: sleep restores + rebuilds our fading memories
4. sleep may play a role in the growth process: during sleep, the pituitary gland releases growth hormones. older people release less of this hormone + sleep less.

## SLEEP DEPRIVATION (CONT.)

### WHAT TOO LITTLE SLEEP DOES TO YOUR BODY

 <p><b>Colds.</b> A study of 164 healthy people found that those who slept &lt;5 hours per night were more likely to get a cold compared to those who slept 7+ hours, regardless of demographics and weight.</p>	 <p><b>Tummy troubles.</b> Not sleeping can make the symptoms of <b>Inflammatory Bowel Disease</b> and acid reflux worse and may put you more at risk of developing IBD and <b>inflammatory bowel syndrome</b>.</p>	 <p><b>Difficulty learning.</b> Sleep deprivation interferes with our ability to <b>remember</b> and process new information. Researchers recommend <b>pushing back</b> early work and school start times to help ensure we get enough sleep.</p>
 <p><b>Irritability and mood swings.</b> Researchers found that interruptions and disturbances tend to <b>bother us more</b> when we haven't slept.</p>	 <p><b>Headaches and migraines.</b> Research links <b>poor sleep quality</b> to migraines and sleep apnea to headaches.</p>	
 <p><b>Depleted sex drive.</b> Getting enough sleep is important for promoting <b>healthy sexual desire and genital response</b>. It also appears to play a role in <b>how often</b> we engage in sexual activity with our partners.</p>	 <p><b>Poor vision.</b> Sleep deprivation is linked with <b>tunnel vision, double vision, and dimness</b>. The longer you're awake, the more <b>visual errors</b> you'll see and the more likely you are to <b>hallucinate</b>.</p>	 <p><b>Weight gain.</b> When we don't get enough shut-eye, researchers found, we also tend to snack more and pick <b>calorie-rich foods</b> over lighter ones—especially for kids.</p>

SOURCES: Dr. Paul Kales/University of Oxford, Brain Research, 2011; Eating and Weight Disorders, 2014; Headache, 2005, 2014; International Journal of Occupational Medicine and Environmental Health, 2010; Journal of Sexual Medicine, 2010; Journal of Sleep Research, 2014; Learning, Media, and Technology, 2015; Physiology & Behavior, 2014; PLOS One, 2012; Sleep, 2015; Seminars in Neurology, 2009; Sleep, 2009; World Journal of Gastroenterology, 2013

SLEEP  
HYGIENE  
TIPS

# TIPS

- establish a regular, relaxing routine to unwind
- stay away from nicotine and caffeine after 2pm
- turn off computer 30mins before bedtime
- avoid alcohol
- avoid stimulating activities in the late evenings (i.e. heavy studying, computer games, violent / frightening TV shows, videos or books)
- avoid napping - if napping, no longer than 30 mins
- exercise everyday, if possible (2-3 hrs to wind down)
- use your bed for sleep, not studying or TV

## SLEEP DISORDERS

- **insomnia**: a persistent inability to fall asleep
- **narcolepsy**: overpowering urge to fall asleep, which may occur while talking or standing up
- **sleep apnea**: failure to breathe when asleep

.....▶ children are most prone to:

- **night terrors**: the sudden arousal from sleep w/ intense fear accompanied by psychological reactions (i.e. rapid heart rate, perspiration) which occur during stage 4 sleep
- **sleep walking**: a stage 4 disorder which is usually harmless and unrecalled the next day
- **sleep talking**: a condition that runs in families like sleepwalking

## DREAM CONSCIOUSNESS

the awareness of being in an imagined world in which things happen; spontaneous, un-deliberate imaginings

- **car troubles**: powerless over something or heading for a crash
- **faulty machinery**: losing control, losing touch w/ reality something isn't working right or difficulty making connections
- **lost or trapped**: conflict or feeling trapped in real life; unable to make the right choice

# QUICK NOTES

- getting 9-10 hrs has had proven results of efficiency and better mood throughout the day
- < 6 hrs of sleep increases the risk of stroke
- more adenosine, more sleep pressure (when one is deprived of sleep, the buildup of chemicals cause bad results)
- melatonin helps regulate the healthy timing of sleep
- don't stay in bed awake, get up and walk or do something so that your brain can reassociate our beds with only sleeping

## DREAMS

\* the link between REM sleep and dreaming has opened up a new era of dream research \*

why do we dream?

- wish fulfillment
- information processing
- sleep repair
- cognitive development
- activation-synthesis theory (the brain engages in a lot of neural activity and then tries to "synthesize" it or make sense of it)

what do we dream?

- manifest content (story line of dreams)
- negative emotional content
- failure dreams (being attacked, pursued, rejected)
- sexual dreams
  - men: 1 in 10; women: 1 in 30

- missed boat / plane: missed opportunity
- failed a test: feeling tested or unprepared
- ill / dying: a warning of a risk, a wish that someone will go away or a fear of losing
- being chased: someone or something is making you feel threatened
- missing teeth: afraid of being seen as unattractive, embarrassment, loss of power, impotence
- nudity: feeling exposed, awkward, vulnerable
- falling / sinking: feeling insecure or lacking support while feeling overwhelmed or ready to give up