Sleep: Tell me, what’s that for?

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Goals for today

- Understand the impact of sleep on cognition, learning, and mood
- Learn ways to sleep better
How many times has this happened to you?
So, does that lack of sleep matter?

(HINT: YES!)
Lack of sleep* has negative effects on...

- Higher cognitive functions
  - Attention and concentration
  - Learning and memory
  - Problem solving, decision making, creativity

- Academic performance

- Mood

* we’ll focus mainly on chronic partial sleep deprivation = < 5-7 hours per night
Across cognitive tasks, performance of partially sleep deprived persons fell 3 standard deviations below that of non-sleep deprived

- Non-sleep deprived person @ the 50\textsuperscript{th} percentile = sleep deprived person @ <1\textsuperscript{st} percentile
  - That’s a 55 IQ or severely impaired

Pre-frontal cortex (PFC) involved in executive processes susceptible to sleep deprivation\(^2, 3\)

- w/chronic partial deprivation = deficits accumulate, even when you don’t feel sleepy
Day time sleepiness and “microsleeps”\(^3\)
- Failure to respond during cognitive demands
- Instability in cognitive performance, i.e., errors of omission and commission, which increases with time on task

Vigilance (sustained attention) reduced by almost 1 standard deviation\(^4\) (that’s 15 IQ points!)

PFC is critical structure in attention control
Memory

- Failure to retain new information\(^2, 3\)
  - Sleep is needed to consolidate both procedural (skill) and declarative (knowledge) memories
  - There is also data showing the importance of sleep in the integration of new information into existing networks\(^5\)

- Decline in short-term recall and working memory\(^3\)
Academic Performance

- Less sleep correlated with lower GPA$^6$

- Cognitive slowing on self-paced tasks, and time pressure increases errors$^3$
Mood

- Mood ratings 3 standard deviations below non-sleep deprived\(^1\)

- More emotional reactivity\(^7\)
  - Without sleep the brain's emotional centers were more reactive

- Stress, depression, irritability increase
How much do you need?

- CDC – 7-9 hours
- 7 per night is recommended minimum
- Need to be consistent
How to get better sleep

- Make it a priority – VALUE IT!
  - Treat it like food and water

- Understand it doesn’t require effort – don’t need to fight for it

- Bed = sleep and sex only
  - Avoid reading, studying, watching TV, etc. in bed
How to get better sleep

- Consistent bed and wake up times
  - NO ALL NIGHTERS!
    - All nighters = ↑ confusion, ↓ attention and working memory for days

- Bed time routine

- If can’t sleep after 30 minutes, get up and redo bed time routine
  - Don’t associate bed with tossing and turning
  - Keep lights low

- No screens for half an hour before sleep

- No naps
How to get better sleep

- **Address anxiety**
  - Breathe!
  - Mindfulness
  - Apps
    - Get some headspace.com
    - Breathe2Relax, Mindshift, Bellybio (iphone only)
    - E.g., Sleep well with Glenn Harrold (hypnosis)
If you need more help...

- **Psychological Services Center (PSC)**
  - 439-2277
  - Campeche Building (behind Bourne, above Accounts department)
  - [www.sgu.edu/psc](http://www.sgu.edu/psc)

- **Department of Educational Service (DES)**
  - 444-5008
  - Below Pensick Hall
  - Individual Learning Strategist, Seminars, Handouts, etc.
  - My SGU – Student Services – DES Student Resource
References


