“Healthy sleep is essential for optimal learning and memory function.”

You need sleep. Your brain needs sleep. Sleep is not a luxury. When was the last time you stopped eating? Sleep is like food. Without it academic performance plummets and you become sick. Yes, sleep deprivation can even kill you; it’s that important. Unfortunately, the immediate physical consequences of sleep deprivation aren’t as dramatic or recognizable as hunger pangs. You may think you’re fine, but if you’re not sleeping enough, you’re not OK.

Sleep deprivation is a serious problem. Much research has been motivated by the dire consequences caused by sleep deprived truck drivers, and, yes, medical students and residents. Sleep is so essential to your performance in medical school and residency that you need to allocate 6-8 hours per day. If you think you can’t afford the time for sleep, think again and reevaluate your time commitments. You can’t skip sleep to gain study time. Sleep is non-negotiable.

The purpose of sleep is to reenergize, refresh and restore the body. Even though we appear to shut down while sleeping, it is a time when important biological processes occur, such as: (1) Long-term memory consolidation, and (2) Tissue, cellular, and biochemical repair and renewal.

Sleep is divided into two distinct states – REM and non-REM – as different from each other as both are from being awake. Non-REM and REM states alternate in 90-110 minute cycles throughout the night. REM sleep makes up roughly 25% of the sleep cycle, and is when most dreaming takes place. Slow wave, non-REM sleep (SWS or deep sleep) plays an important role in memory consolidation.

SLEEP DEPRIVATION

Insomnia (inability to fall or stay asleep) may be a symptom of a treatable medical or psychological condition. If you suffer from insomnia, especially if it lasts more than a week, see your doctor. The effects of sleep deprivation can be as dramatic as excessive alcohol consumption. One study found that after 17-19 hours of being awake, individuals performed worse than people with a 0.05 blood alcohol content (considered legally impaired in most of Europe).

Short-term deprivation leads to irritability, loss of concentration, reduced attention span, inability to focus on mental tasks, slower reaction speed, diminished coordination, and reduced ability to do simple motor tasks (e.g., accurately bubble in a scantron). The impact on concentration, coordination, and reaction time make sleep deprivation a major cause of traffic fatalities – up to 60% of road accidents may be attributable to lack of sleep. Poor exam performance is also a common result of failure to get an adequate night’s sleep. “Pulling an all-nighter” or studying into the wee hours is not worth it. Any information you might cram during your late night study session will likely be negated (and then some) by your sleep-deprived poor performance during the exam.

Long-term deprivation has even more serious physical and mental consequences, including reduced immunity (leading to more frequent colds and flu) and profound cognitive effects (moodiness, psychosis, vision problems, and headaches). Obviously, these can seriously compromise academic performance, to say nothing of the enjoyment of life.

Sleep loss is cumulative. For every night you don’t get enough sleep you accrue “sleep debt” from which your body will try to recover. The more sleep debt you accumulate, the sleepier you’ll be during the day. You may find yourself dozing off in class, while studying, or possibly while driving.
How much sleep do you need?
- The normal range is 6 to 9 hours out of every 24, but everyone needs a different amount, and it varies among individuals, as well as over the lifetime of a single individual. During periods of stress, you may need more sleep than normal. Unfortunately, stress can also produce insomnia. One way to know whether you’ve had enough sleep is if you feel alert within 45 minutes of waking up.
- Quantity of sleep isn’t the only issue. Sleep quality and keeping in sync with your internal circadian rhythms (circadian refers to a 24 hour cycle) are also important. Taking two-hour naps every 12 hours can attenuate the negative consequences of prolonged sleep deprivation (e.g., staying up for 3 days in a row), but cannot make up for long term sleep loss, and should not be considered a long-term solution.

Tips for getting a better night’s sleep
- Avoid alcohol
- Avoid caffeine within two hours of bedtime
- Establish a sleep routine, such as going to bed at about the same time every night
- Don’t study in the bedroom
- Practice stress reduction techniques daily (exercise, meditation)
- Perform breathing exercises and progressive muscle relaxation techniques right before bed
- If you don’t fall asleep within 30 minutes of lying down, get up and do some small task – it might actually make you sleepy – then try again
- Keep a notebook and pencil on your nightstand – if your brain is caught in an endless loop thinking about something, write it down so you can review it the next day

Additional resources
2. Coping with Excessive Sleepiness: http://www.webmd.com/sleep-disorders/excessive-sleepiness-10/default.htm