Sleep Learning: It's Like Sleepwalking, Except Less Embarrassing

The amount neuroscientists have learned about how the brain works in the last 20 years is astounding. Here are some examples that may help you be a better student, by simply convincing you to get your 7 to 9 hours of nightly sleep.

Sleep Before You Learn:

- It is now known that during sleep the brain moves fact-based information out of a temporary storage location (the hippocampus) to a more permanent one (the cortex), freeing up space for new information. Without sleep, we end up overwriting or simply not storing information due to saturation of the hippocampus. You may have heard this called interference forgetting and it is strongly associated with sleeping 6 hours or less.

  Walker, M. (2017). *Why We Sleep.* New York, NY: Simon and Schuster. p. 109-110.

- Controlled experiments regarding pulling all-nighters to study show very large deficits (a few tens of percent) in learning compared to students who slept normally.

  Walker, M. (2017). *Why We Sleep.* New York, NY: Simon and Schuster. p. 153-154.

Sleep After You Learn:

- The process of moving information from the hippocampus to the cortex is called consolidation. Consolidation takes place during sleep, saves information (perhaps permanently), and protects it from interference forgetting. Highly replicated experiments have shown that the memory benefit of sleeping 8 hours over being awake for the same 8 hours is 20% to 40%.

  J.G. Jenkins and K.M. Dallenbach, "Obliviscence during sleep and waking," *American Journal of Psychology* 35(1924):605-12. (First such experiment)

- Experiments have shown that sleeping the night immediately after learning is crucial. In essence, you do not get a second chance to consolidate the memories, you simply have to relearn them.

  Walker, M. (2017). *Why We Sleep.* New York, NY: Simon and Schuster. p. 156-157.