CAMPBELL UNIVERSITY

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Preparing Yourself to Be An Effective and Successful Medical Student Who Thrives (not just survives)

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Congratulations! You did it!!! You made it to medical school and are well on your way to achieving your dream of becoming a physician.
We are so excited to welcome you and support you in this journey!

One of the most common questions we receive from incoming students is:

- "**What advice do you have for new students and how to be a successful student**?"

My response:

- "**Take care of yourself—first priority**! You must take care of **ALL** aspects of your health and well-being. Without out this, you cannot be your *best* self—which includes your best student self—not to mention all the other important roles you have in life."

- "Second—**be adaptable.** Be willing to adopt new study strategies and recognize your ability to develop new skills (or refine skills) that are going to make your efforts and hard work more effective."
  - Interested? GREAT! Keep reading and view the resources outlined below. We will also have several sessions during Orientation and early in the Block to help get you started on a successful path.

- "Third. **Seek support and resources** early and frequently." We all need support. None of us got to where we are today without lots of support.
  - Lots of resources are available to you—Academic Advisors, ACE, Behavioral Health, Peer Learning Partners, Peer Navigators, Student Affairs, etc.
  - The entire CUSOM Faculty and Staff are here to support you!

BEWARE of Time-Consuming and/or Passive Study Strategies:
What may have worked in the past may not work well enough for you to keep up with the increased volume, pace, and rigor of medical school while maintaining your health and wellness.

Before watching the video below, think about *how* you studied in the past for your science courses or the MCAT.

- What strategies worked well for you (note: this is different from what you may have *enjoyed* or liked the best—what WORKED? What actually produced positive results?)

- What strategies did not produce the desired outcome (i.e., the grades or score you wanted)?

Watch this video on strategies that are ineffective (what **NOT** to do):

- **Worst Study Strategies**

We all have things with which we struggle—for example, I like to believe that I'm good at multitasking…but the reality is that any type of cognitive task requires my full attention and focus. So, what do I do? I silence my phone, close my emails and any other alerts on my computer, and then, put on headphones to "focus" music. I save multitasking for things that are less cognitively taxing (e.g., folding laundry or preparing dinner while catching up with a friend on the phone).

Out of the "mistakes" you watched, which ones do you personally struggle with the most?

- Cramming
- Flashcards for Recognition, Not Recall
- Highlighting
- Long Study Sessions without Breaks
- Multitasking While Studying
- Passively Rereading Notes/Slides or Rewatching Lectures
- Speeding through Practice Questions
- Studying in Large Groups
- Using Someone Else's Notes

What is one **positive change** you can commit to transforming your habits into being more effective?

Everyone can acquire and refine more effective study habits and skills—and the more you use them, the better skilled of a learner you become!

You can develop effective study skills that will save you time while enabling you to be successful and thrive in medical school.

Watch this video on strategies that are **EFFECTIVE** (what to **DO**):
Evidence-Based Effective Study Strategies

- Recall Ebbinghauss's "**forgetting curve**" (see red line below). What do you notice about the difference on **Day 5** between conducting a third review of the material (green lines = active review sessions) within three days of first seeing the material compared to waiting until day 5 to actively review content?

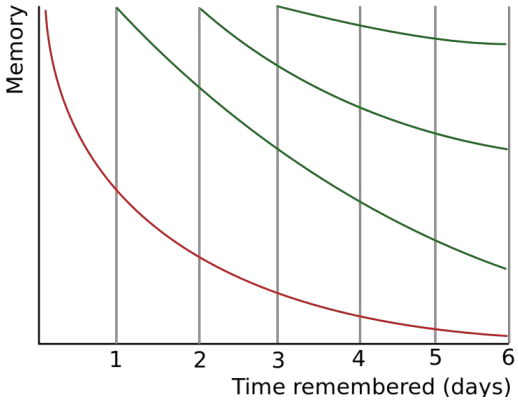


Image from:
Praveen Shrestha, "Ebbinghaus Forgetting Curve," in Psychestudy, November 17, 2017, https://www.psychestudy.com/cognitive/memory/ebbinghaus-forgetting-curve

Key Point: the longer you wait to actively review…the more **EFFORT** + **TIME** you have to invest to re-learn the material. It's like starting completely over!

- Explain in your own words what "**spaced repetition**" actually is.

- What is "**active recall**"?

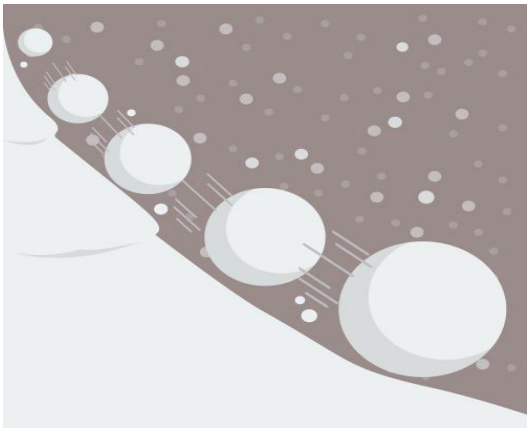
Tips on Active Recall:

1. **Start IMMEDIATELY** after lecture and **stick with it!** (If it feels hard or frustrating at times—Good! You're doing it right. Over time, you will get better at it and start to develop a library of knowledge and greater confidence in yourself…just ask a second-year student how much they've learned in a year!)

2. Go for **QUALITY** over quantity, duration, or speed.
    - 30 minutes of focused, intense active recall covering a third of the slides from a lecture is much better than 2 hours of passive studying or speeding through 50 slides in 30 minutes.

3. **Switch it up** (aka…"**interleaving**").
    - Switch topics and content you are studying frequently throughout the day. Do something for ~25-30 minutes and then **SWITCH**!
    - It may be helpful to interleave between hard⇔easy content or what you find uninteresting⇔interesting. (Reward a hard and/or uninteresting session with a fun and/or easier session and then keep going back and forth, layering and building upon previous content).

4. **Keep up with the material as scheduled.** (Imagine a snowball rolling down the hill…the longer you let it go, the more out of control it gets!)



5. **Zoom OUT.** Zoom IN. **Zoom OUT.** Zoom IN.
    - Always get the "big picture" first. Then, fill in with the details.
    - Every detail you learn should have an organized place to reside within your memory. How is it connected to the bigger picture? How is it connected to the other details?
        i. You need an organized filing system to quickly retrieve the information—so make sure you have a framework first and then build upon it, making connections to related content as you go. Ask yourself, "How does this relate to other information I'm learning?"

6. Use **multiple modes to test yourself** and **adapt** according to **differences in the type of content** you are trying to learn.
    - Content that involves a lot of memorization will require more frequent, spaced repetition sessions. Flashcards are great as long as you know where to place those details in the bigger context of the information.
        i. Examples—anatomy, pharmacology, microbiology, pathology
    - Content that involves understanding complex concepts and application of that information takes more time and requires different techniques such as explaining/teaching the material or sketching/mapping the content.
        i. Examples—immunology, physiology, neuroscience
    - *Keep in mind, in any given course, there will be both: details requiring memorization and complex concepts requiring higher-level understanding (so it is never an all-or-nothing approach but rather a "tailored-to-the content", multi-pronged approach).*

7. **Quiz yourself first** (active recall strategies ALWAYS) **and then quiz each other** (& repeat as time allows), saving enough time to address areas of weakness on your own before a quiz or exam. This may include reaching out to an instructor or ACE services. (So, back to tip #4! Keep up with the material so you have time to seek support and fill in those gaps before a quiz or exam).

Active Recall Strategies: (Testing whether or not you really got it)

- Explaining things **OUT LOUD** is quick and effective—it also makes it very easy to identify where your knowledge stops on a topic.
    - Switch as much as you can from writing things down or spending time on creating study tools to **verbally explaining the content in YOUR OWN WORDS**. (Remember, you are not going to have your notes, flashcards, or any other fancy study materials with you on exam day—so in the words of Elsa…*Let it go!*)

- **Teach**—pretend you are teaching the material to a peer or an undergraduate student (pets make great pupils 😊)

- **Be choosy with time-consuming study tools and strategies.** Save drawing, writing, and other more time-consuming study tasks for mastering content when you really need them. You can't do these techniques for everything—there is simply not enough time.

- **Use study tools already available and FREE**.
    - Your lecture slides and any other materials provided by your instructors are GREAT and the **MOST RELEVANT** study tool resources! (Remember, they are writing your quiz & exam questions 😉—each linked to a learning objective…so pay attention to that "Learning Objectives" slide)
        - For content that relies heavily on **conceptual understanding**:
            - Try printing your lectures (four slides to a page in landscape), and use that to 1) preview before lecture, 2) take active notes, and 3) conduct active review. (You can always recycle these later). Supplement the lecture slide printouts with other study tools and strategies *only as needed*.
            - **Eco-friendly option*: digitally conduct 1) preview and 3) active review viewing 2-4 slides on a larger screen, but 2) actively take "choosy" notes on a tablet/computer one slide at a time during lecture (always more meaningful to use a stylus to write notes than typing—the physical act of writing makes an impact)—less is more (even note-taking can become passive especially if you are trying to record everything!)
                - Don't have a second screen at home? Plug it into your TV screen using an HDMI cable—and voila! (Or use a study room on campus with a larger screen)
        - For content that relies heavily on **memorization**:
            - Use the digital slides as much as you can to quickly generate flashcards and questions. (The key is not spending all your time on *creating* the study tool.)
            - CAUTION—make sure you can still connect every detail to the "bigger picture"—Zoom IN, Zoom OUT, Zoom IN, Zoom OUT…

- **Picmonics—**you should receive an automated email early August to set up your account so keep a lookout for this tool—and see if it works for you.
    - Great way to review key components—the "nuts & bolts" of a particular topic and help you remember details with memorable mnemonics and story-telling.
    - *Be careful* of "passive viewing"—just watching and re-watching videos. Instead, actively watch a video—and then immediately try to explain what you just saw and its connection and meaning to other things you are learning. Then, try out the associated Picmonics quiz.
    - *And again,* Picmonics is a helpful tool—but that's it—a tool. It is just the basics, core items and over-relying on it can mean you miss other important content covered by your professors.
- **Kaplan** and **TRUELEARN** digital accounts— you should receive an automated email early August to set up your account so keep a lookout.
- **Check out the Kaplan lecture notes and videos found within your online student account—these can be helpful to *support* your learning at any stage of medical school.**
- Look up practice questions related to the content you are learning to incorporate board preparation as you advance further into the systems-based content.
    - This will be more and more useful to you as you advance through your later Blocks (especially starting in Blocks 3 and beyond).
    - CAUTION—save this for when you feel ready to take a quiz—not before—and don't spend more than ~10 minutes finding relevant questions. If you can't find them, *let it go* and move on to something else. And again, going to probably be too advanced in Blocks 1-2.

- Use **AI** to create clinical vignettes, practice questions, and other learning resources and support tools.
    - We all have Copilot freely available through Campbell University which when logged into this through your Campbell email and password can be used to directly upload any course-related materials (e.g., lecture slides, recordings, outlines, etc.) to create a variety of learning support resources such as questions, study guides, clinical vignettes, podcasts, etc.
    - **NOTE:** Copilot using your Campbell credentials is the ONLY generative AI system in which you can directly load CUSOM course materials. All other generative AI systems (e.g., ChatGPT, DeepSeek, etc.)
    - However, any AI system may be used to generate materials from the learning objectives, your own prompts generated from topics and concepts you are learning, or your own materials you create that are not plagiarized material from courses.
    - *For a full description of the CUSOM AI Policy*, please refer to the Academic Bulletin. REMEMBER, you signed off on this policy so violation of it is considered a violation of the CUSOM Honor Code.
    - Tip: Be specific & use your learning objectives as helpful guides.

- For example, “Provide a clinical vignette multiple choice question testing the difference between the adaptive and innate immune system.”
- You can also use a case question (e.g., from a lecture) as an example for AI to then generate other similar questions.

- CAUTION: use discernment & YOUR brain—which is AMAZING (AI is good but not perfect—so always critically evaluate the responses!)
- And many times, ***not*** using AI can actually be the most efficient & effective way for you! So know thyself—and always stop to reflect whether this is effective AND efficient—you need it to be BOTH in med school.

- **Quizzing multiple times and multiple ways**—use multiple modes to quiz yourself and your peers
  - Turn learning objectives into questions and explain (these are found at the beginning of your lecture slides)
    - GREAT place to start right after a lecture!

  - Flashcards (e.g., using content from lecture slides, Anki, Quizlet, etc.)
    - Choose one you really like—and use that to fill in the bigger picture with the details that require lots of memorization. (Be choosy—you do not have time to create a flashcard for everything!)

  - Practice questions
    - Questions/study tools provided by professors—always utilize these first!
    - AI generated from your slides’
    - Picmonics quizzes
    - TRUELEARN and Kaplan
    - Study partners/groups (rapid fire questioning after you have had time to conduct active recall on your own)
    - *Make sure you move from first-order/remembering to greater understanding and application of concepts and how things connect to one another or are differentiated from one another.*

Preparing Your Study Plan & Daily Routine

1. **Set a daily wake-up time and bedtime**—block out that time on your daily schedule. Most people need at least **7-8 hours of sleep** to function well.
    - Sleep is very important for so MANY things, but even if you are ready to sacrifice your health and wellness (NOT recommended by the way)…you should note the critical importance of sleep for **MEMORY!!!** If you want to make the most of all that studying and not lose it, SLEEP converts information to long-term memory! Also, the next day will be a lot more productive (and pleasant) if you slept the night before.
    - Would you try to take a quiz or exam drunk? Of course not! Well, being sleep-deprived impairs cognitive function too—much in the same way alcohol consumption does. You need sleep to perform well!
    - Trying to get sleep but can't? Check out: The 20 Ultimate Tips for How to Sleep Better | Sleep Foundation?
        - If you experience insomnia, we encourage you to reach out to Behavioral Health (free resource) and/or contact your healthcare provider.

2. **Review the Block schedule**—block out scheduled activities on your daily/weekly schedule.
    - We strongly recommend attending lectures in person to help you connect with peers, engage with faculty and staff, and develop a strong routine, especially for the first several weeks.
    - As you form strong connections and refine your study strategies and schedule, assess what works BEST for you in regard to attending lectures. This may mean attending most lectures in person. Or perhaps, your daily rhythm and essential commitments make attending lectures in the morning difficult and therefore, remote viewing of lectures is a better option for you. That's okay too—but again, wait to transition to this routine once you are firmly established socially and academically. And, when you do make a change—any change in routine or study strategies—always stop & assess *how that change is working* (or not working).

3. **Schedule the other essentials**—Essentials (besides sleep—see #1) include: nutritious meals, daily renewal time, family/partner/friend time, and other commitments—block out these across your daily/weekly schedule.
    - Do grocery shopping and meal prep on the weekends so you have healthy, quick food options during the week.
    - **Daily renewal time**—you are worth at least 30 minutes of YOU time each day! This can even be broken up into two 15-minute sessions depending on the chaos of the day—but make it priority.
        - Ideas for daily renewal (these should be enjoyable, restful, and/or energizing activities—and NO multi-tasking…turn off notifications and be FULLY present in the activity):
            1. Baking/cooking
            2. Coloring book/painting/drawing

3. Journaling
4. Meditation/Prayer
5. Playing an instrument
6. Reading (something you ENJOY)
7. Some type of physical activity that resets & recenters you
8. Spending time in nature/outdoors
9. Walks/Yoga

- Friends—your social support—make sure you have check-in with friends regularly.
- For students in committed relationships and/or have children, make time for your significant other and/or children. You should have protected "student" time AND protected "family/relationship" time. Maintain and protect these boundaries.
    - You should still make time for friends and social support, but this may look differently than someone who does not have children or a significant other. It may be helpful to connect with other medical students that are navigating similar challenges.
    - Try to be fully present and committed to whichever role requires your attention at a given time. When you are in "student" mode, try to be fully present in giving your focused energy and attention into student tasks (guilt-free). When you are in "family" mode, try to be fully present in giving your focused energy and attention into family (guilt-free).
- Your health & wellness, academics, and social support are all important. If any one of those is suffering, then time to reflect, re-evaluate, and reach out for support.

Develop a Schedule

Look at the first week in Block 1. Schedule the essentials as indicated above.

What is your plan for incorporating **spaced repetition** and **active recall** into your daily routine after you have blocked out the essential items? How can you make the most of the time you have?

Continue to evaluate how things are working and adjust your plan (a good time to do this is at the end of each week) throughout your medical education. And remember, there are lots of free resources and people to encourage and support you along the way!

Give yourself LOTS of grace! It takes time to develop and hone these skills, but **you CAN do this**!

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References & Resources:

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How Much Sleep Do You Need? | Sleep Foundation

https://medschoolinsiders.com/pre-med/the-worst-study-strategies-ranked/

https://medschoolinsiders.com/study-strategies/7-evidence-based-study-strategies-how-to-use-each/

https://www.mindtools.com/a9wjrjw/ebbinghauss-forgetting-curve

Module 3. Impairments due to sleep deprivation are similar to impairments due to alcohol intoxication! | NIOSH | CDC

Six Strategies for Effective Learning. Downloadable Materials — The Learning Scientists

Study Tips to Retain Information. https://www.joyce.edu/blog/study-tips-to-retain-information/

The 20 Ultimate Tips for How to Sleep Better | Sleep Foundation