

Learning Physiology

Best Practices

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Thank you!
Dr. Elina and Professor Cheng





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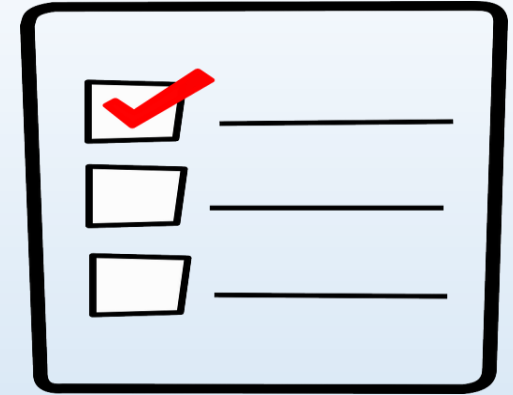
Medical College of Virginia

Founded 1838

Historic Egyptian Building



Today's topics



- Physiology – what's different?
- Best learning practices for physiology
- To book or not to book?
- I need to write!
- "Order of events" (aka sequential thinking)
- Self-quizzing – how does it work?
- Forgetting is good!
- "Own it"!!!
- Smart test-taking in physiology

Physiology is different!



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The stakes feel higher



“Physiology is the basis for pathophysiology”

Hm...could be important

“Physiology is the basis of medicine”

Yeah, yeah...that's what anatomy and biochemistry said too!

- Physiology is essential for year-end barrier exams

Ok, now you have my attention!

Personal philosophy

- Physiology *is* the foundation of medicine.
- Physiology is the “*WHY?*”
- Physiology *cannot* be memorized.
- If you practice the principles of physiology, you will OWN them for life.

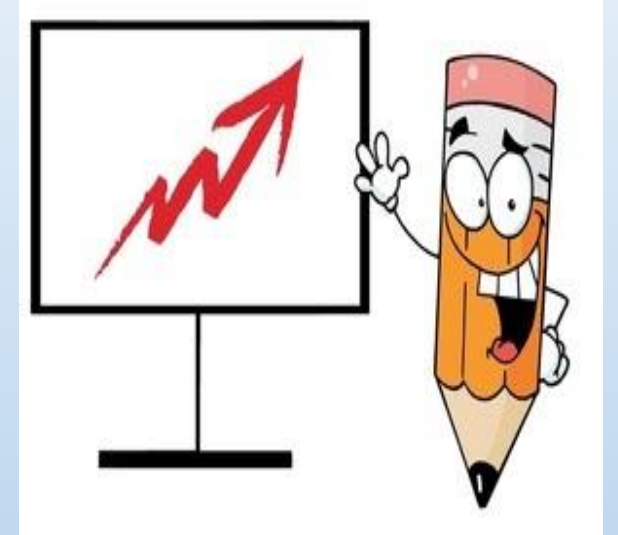
Think physiologically!

Physiology *is* different!

- Physiology can't be memorized (and you're good memorizers)
- Understanding physiology can't be rushed
- Concepts and principles >>> isolated facts
- Interconnections, recurring themes

Making peace with graphs, equations and calculations

- The “language” of physiology
- “I don’t do graphs”????
- Secret: translate graphs and equations into intuitive



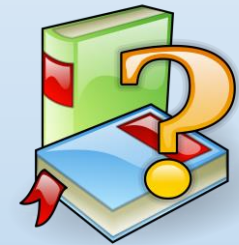
Learning physiology – best practices

Time-honored cycle that works

- Pre-read
- Attend class
- Review
- Practice questions



To book or not to book



Books can.....

- Provide a source for your pre-read
- Tell same story, different voice
- Show the hierarchy of concepts
- Provide cohesive story
- Translate graphs, equations and calculations into words

Books can.....

- Fill gaps
- Give spot help for difficult topics
- Provide extra practice questions
- **Stand by you in difficult times**



I need to write in order to learn!

Writing makes my brain work better

What can I write for physiology?



What *NOT* to write!

- Do not “copy the notes”
- Copying is passive
- Copying wastes time
- Kick the copying habit!



Writing *is* good!
Writing should be *active*!



Active writing

The only limit is your own imagination

- Write order of events – **the best!**
- Make your own charts – **awesome!**
The nephron, V/Q defects, autonomies,
cardiac ion channels, endocrine disorders, GI hormones
- Re-draw graphs – **wow!**
 - While talking through
Frank-Starling, pressure-volume loops,
lung compliance curves
- Practice questions – **your BFFs!**



Let's dive into order of events

- This is how to **OWN** physiology!
- Practice order of events
 - What happens first?
 - What happens next?
 - Follow the logic
 - Accurately predict
- **OWN** it forever!



Here's an example of “order of events”

Nephrogenic diabetes insipidus

1. What happened first? ADH can't act
2. What happened next? Collecting ducts can't reabsorb water
3. Next? Excess water excreted → ↓ urine osmolarity
4. Next? ↑ plasma osmolarity
5. Next? ↑ ADH

You own it!!

Self-quizzing
is high-powered active review



Make it a daily habit!!!

Self-quizzing requires no tools....



Except your good 'ol brain

Self-quizzing

How it works....



- Retrieve from memory
- Visual and mental rehearsal
- What did I study yesterday? Two days ago? Two weeks ago?
- Key ideas? Most important? New to me?
- Connections to what I already know?

Forgetting is good!

- What??
- Space your self-quizzing sessions
- Allow forgetting to occur
- "Decay" strengthens long-term learning
 - Long-term learning \propto effort




Smart physiology test-taking



Yes! Sign me up!

Physiology multiple choice test-taking

The tried and true

- Sleep (night before exam) 
- Read question carefully
 - Most common testing error = not answering the question asked
- What's topic of the question? Go to the right place in your brain.
- “Cover-up” technique
 - Cover answer choices
 - Think through order of events steps → your answer
 - Match with best answer choice
- Next question!

Test-taking “don’ts



- *Don't* read questions too fast
- *Don't* be distracted by distractors (distractors = wrong answers)
- *Don't* over-think
 - Think just enough!
- *Don't* reconsider your career choice while taking tests
- *Don't* change answers impulsively

Recommended resources

Physiology

Didactic textbook with questions (can be used for pre-read or post-read). Wait for 7th edition in December 2021; print version comes with electronic Inkling access. (Do not buy Kindle version.): Costanzo Physiology, 7th edition (December, 2021)

https://www.amazon.com/Physiology-Linda-S-Costanzo-PhD/dp/0323478816/ref=sr_1_1?crid=3P6U6AERWXR91&keywords=costanzo+physiology&qid=1636213829&s=books&sprefix=costanzo%2Cstripbooks%2C143&sr=1-1

Review book with multiple choice questions:

BRS Physiology, 7th edition

https://www.amazon.com/Physiology-Board-Review-Linda-Costanzo/dp/1496367618/ref=sr_1_10?crid=3P6U6AERWXR91&keywords=costanzo+physiology&qid=1636213902&s=books&sprefix=costanzo%2Cstripbooks%2C143&sr=1-10

Recommended resources

Pathology

Pathology review book (great for pathology pre-read):
Pathoma.com

Question/explained answers book (excellent):

Robbins Review of Pathology

https://www.amazon.com/Robbins-Cotran-Review-Pathology/dp/0323640222/ref=sr_1_1?crid=3QU4PB3EE3UDW&keywords=robbins+review+of+pathology&qid=1636214014&s=books&sprefix=robbins+review+of+pathology%2Cstripbooks%2C120&sr=1-1

Image bank and question bank (excellent and free from the Robbins folks)

WebPath -- The University of Utah

<https://webpath.med.utah.edu/>

Recommended resources

Comprehensive electronic question bank

U World for Step 1 (outstanding!)

<https://medical.uworld.com/usmle/usmle-step-1/>

Best wishes from VCU!!!

