Effective Strategies for Reading and Organizing Notes in Medical Education

Strong Starts Series: Session 1

Eron Drake, Ed.D., Director of Academic Success
August 11, 2017 | CMED 2403 | 12:00 – 12:50 p.m.
Medical Education is a Marathon, Not a Sprint
Enhancing Reading and Retention
“All medical students would probably benefit from being taught specific strategies for reading deeply, which suggests that teaching strategies could be usefully incorporated into the beginning of medical school, perhaps as an introduction to how to succeed” (Roberts & Klamen, 2010, p. 329).

SQ3R: Survey

• Think about concepts
  • What do you know?
  • What do you want to know?
• Glance at topic headings
• Skim sections
• Review images, tables, charts
• Read chapter summary
• Identify 3 – 6 “big” ideas

Learning Objectives:

1. Describe the defense mechanisms employed by innate immunity.
2. Describe three features that distinguish adaptive from innate immunity.
3. Describe the locations and functions of cells of the immune system.
4. Compare and contrast the activation of cells of the innate and adaptive immune systems.
5. Describe the functions of primary and secondary lymphoid tissues.
SLO: Describe the functions of primary and secondary lymphoid tissues.
SQ3R: Question

• Ask:
  • What questions do I have that the chapter might answer?”
  • What questions might a faculty member ask about this content?
  • How does this content align with our SLOs?
  • When? How? Why?
  • Turn headings into questions
• Generate questions for images or other graphics
• Write down unfamiliar vocabulary and guess at meaning
SQ3R: Read

• Read one section at a time seeking to answer questions
• Search for answers to your questions
• Question or “argue” with the author(s)
• Review bolded or italicized words
• Review tables, graphs, and illustrations
• Generate additional questions
SQ3R: Recite

• Stop periodically to recall
• Look away and try to recite the answer to your questions
• Summarize key points by talking out loud or writing down key phrases
• Use your own words and give examples
• Recall main headings
• Identify the important ideas of graphs, charts, or illustrations
• Summarize the overall concept or most important points
• Connect what you have just read to what you already know
SQ3R: Review

• Test your memory by asking yourself the questions you’ve identified
• Test yourself utilizing the relevant chapter questions
• Review your notes and answer questions (create flowcharts, label images, outline)
• Synthesize the content with information from LG, PBL, or Clinical Correlates
• Consider implications or applications
• Answer “Why is this information clinically relevant?”
• Identify remaining questions
• Revisit topics that you can’t recall after testing yourself
• Create study aids to enhance review (flashcards, notes, etc.)
• Review daily
Create Notes = Study Tools

Create Notes = Study Tools

**Figure 1.4: Diverse microorganisms cause human disease.**

<table>
<thead>
<tr>
<th>Type</th>
<th>Disease</th>
<th>Pathogen</th>
<th>General classification*</th>
<th>Route of infection</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Viruses</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Severe acute respiratory</td>
<td>SARS virus</td>
<td>Coronaviruses</td>
<td>Oral/respiratory/ocular</td>
<td></td>
</tr>
<tr>
<td>encephalitis</td>
<td>West Nile virus</td>
<td>Flaviviruses</td>
<td>Bite of an infected mosquito</td>
<td></td>
</tr>
<tr>
<td>Yellow fever</td>
<td>Yellow fever virus</td>
<td>Flaviviruses</td>
<td>Bite of infected mosquito (Aedes aegypt)</td>
<td></td>
</tr>
<tr>
<td>Hepatitis B</td>
<td>Hepatitis B virus</td>
<td>Hepadnaviruses</td>
<td>Sexual transmission; infected blood</td>
<td></td>
</tr>
<tr>
<td>Chickenpox</td>
<td>Varicella-zoster</td>
<td>Herpes viruses</td>
<td>Oral/respiratory</td>
<td></td>
</tr>
<tr>
<td>Mononucleosis</td>
<td>Epstein-Barr virus</td>
<td>Herpes viruses</td>
<td>Oral/respiratory</td>
<td></td>
</tr>
<tr>
<td>Influenza</td>
<td>Influenza virus</td>
<td>Orthomyxoviruses</td>
<td>Oral/respiratory</td>
<td></td>
</tr>
<tr>
<td>Measles</td>
<td>Measles virus</td>
<td>Paramyxoviruses</td>
<td>Oral/respiratory</td>
<td></td>
</tr>
<tr>
<td>Mumps</td>
<td>Mumps virus</td>
<td>Paramyxoviruses</td>
<td>Oral/respiratory</td>
<td></td>
</tr>
<tr>
<td>Poliomyelitis</td>
<td>Polio virus</td>
<td>Picornaviruses</td>
<td>Oral</td>
<td></td>
</tr>
<tr>
<td>Jaundice</td>
<td>Hepatitis A virus</td>
<td>Picornaviruses</td>
<td>Oral/respiratory</td>
<td></td>
</tr>
<tr>
<td>Smallpox</td>
<td>Variola</td>
<td>Pox viruses</td>
<td>Oral/respiratory</td>
<td></td>
</tr>
<tr>
<td>AIDS</td>
<td>Human immunodeficiency</td>
<td>Retroviruses</td>
<td>Sexual transmission, infected blood</td>
<td></td>
</tr>
<tr>
<td>Rabies</td>
<td>Rabies virus</td>
<td>Rhabdoviruses</td>
<td>Bite of an infected animal</td>
<td></td>
</tr>
<tr>
<td>Common cold</td>
<td>Rhinoviruses</td>
<td>Rhinoviruses</td>
<td>Nasal</td>
<td></td>
</tr>
<tr>
<td>Diarrhea</td>
<td>Rotavirus</td>
<td>Rotaviruses</td>
<td>Oral</td>
<td></td>
</tr>
<tr>
<td>Rubella</td>
<td>Rubella</td>
<td>Togaviruses</td>
<td>Oral/respiratory</td>
<td></td>
</tr>
</tbody>
</table>

Increase Efficiency of Reading Time

Pomodoro Technique
Pomodoro Technique

1. In your daily schedule, plan for blocks of 25 – 35 minutes of focused study time (e.g., reading, researching, note making)
2. Followed by 5 minutes of relaxed or diffused time (take a short walk, get a drink, organize your papers)
3. Repeat.
4. After about 3 or 4 Pomodoro’s take a longer, 20-minute or more break depending upon your natural rhythms or needs.

(Visit The Pomodoro Technique to learn more.)
I'm very busy doing things I don't need to do in order to avoid doing anything I'm actually supposed to be doing.
Introduction to Note Taking and Organization
“...Note-taking has been found to be as cognitively demanding as playing chess is for an expert, as both require the retrieval of knowledge, planning, and the development of solutions.”

(Piolat et al., 2005, as cited by Friedman, n.d.)
THE STRUGGLE IS REAL

Comprehension vs Production
## Cornell Note-taking System

### Notetaking Column

1. **Record**: During the lecture, use the notetaking column to record the lecture using telegraphic sentences.

2. **Questions**: As soon after class as possible, formulate questions based on the notes in the right-hand column. Writing questions helps to clarify meanings, reveal relationships, establish continuity, and strengthen memory. Also, the writing of questions sets up a perfect stage for exam-studying later.

3. **Recite**: Cover the notetaking column with a sheet of paper. Then, looking at the questions or cue-words in the question and cue column only, say aloud, in your own words, the answers to the questions, facts, or ideas indicated by the cue-words.

4. **Reflect**: Reflect on the material by asking yourself questions, for example: “What’s the significance of these facts? What principle are they based on? How can I apply them? How do they fit in with what I already know? What’s beyond them?”

5. **Review**: Spend at least ten minutes every week reviewing all your previous notes. If you do, you’ll retain a great deal for current use, as well as, for the exam.

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### Summary

After class, use this space at the bottom of each page to summarize the notes on that page.

http://lsc.cornell.edu/LSC_Resources/cornellsystem.pdf
Organization of Notes

Graphic Organizers
Note-Checking with a Peer

Instructions:
1. Select one LG lecture or PBL case.
2. Compare your notes with a partner.
3. Identify the “big ideas”
4. Check notes for omissions and accuracy.
5. Add details to your notes.
6. Identify remaining questions.
Creating a Visual Representation of Week 1
Student Samples
Binder

Paul Zeller

• Created handwritten notes from lecture and PBL.
• Review SLOs.
Merna Abdou

• Separated lectures (by exam)
• Created sections on topics
• Created subpage for SLOs (answered SLOs, added notes, images
• Tagged questions or important facts
Selected SLOs from LG6 in Repro/HD

1. Describe the phases (Fig. 2-14, ~p. 30, Moore) & list the sequence of key events involved in fertilization.
   Fertilization occurs when after the sperm has traversed through the corona radiata through use of the acrosomal reaction and made it through the zona pellucida.
   ○ Sperm needs to be capacitated in order to properly carry out this function
   Once one sperm gets through the zona pellucida, the membranes of the egg and the sperm fuse, triggering blocks and changes to prevent polyspermy.
   ○ At this point, the egg has already resumed meiosis II and is ready for the pronuclei to fuse. The pronuclei fuse and the zygote is created

Natalie Lopes
• Reviewed SLOs with roommates prior to lecture
• Answer SLOs by writing on whiteboard
• Review lecture and cases and answer SLOs the same day
• Create mind maps to review
Activation of Helper T Cells

W. Robert Fleischmann, Ph.D.
Foundational Sciences Discipline
1431 College of Medicine Building
(909) 774-7857
Anatomy of the Main Ascending & Descending Tracts of the Spinal Cord & Brain  
(Motor & Sensory Pathways)

M2s, Lg. Grp # 21 & 22  
Wed., 9/7/16, 1-3 pm  
Mark DeSantis, MD
Breaching the blood brain barrier - host vs. pathogen

Starship Troopers – Robert Heinlein

Michael James Conway, Ph.D.
Foundational Sciences Discipline
michael.conway@cmich.edu
Brooks Hall 117
(989) 774-3930
OneNote Tips
Adding PPTs, PDFs, Notes into OneNote

• File Attachment
• Insert File Printout
  • Automatic File Attachment
  • Under 10 pages – 1 OneNote Page
  • Over 10 pages – 1 Page Per OneNote Page

(Kip Ferguson, 2016)
Elaborating, Adding Details, Making Connections

• Pictures

![Screen Clipping, Pictures, Online Pictures]

• Drawing Tools

(Kip Ferguson, 2016)
Utilizing Audio and Video

• Audio and Video Sync to Notes
• Allows the ability to focus on Key Points

(Kip Ferguson, 2016)
Tag Concepts or Questions
Additional Note Organization Options

• Growly Notes (Mac)
• Evernote (used as an alternative to OneNote)
• Penultimate (digital handwriting for iPad, can use with Evernote)
• Turbo Scan (scan multipage documents to store as PDFs or JPEGs)
• Google Drive (Note: NOT HIPAA compliant, no patient information)
• Dropbox (Note: NOT HIPAA compliant, no patient information)
• Notebook
• Three-ring binder

(Kip Ferguson, 2016)
More About Organizing Notes and Note Making ...

- **Organizing Notes in Medical School and Residency** (This blog, by medical students at Baylor College of Medicine, overviews various apps used to help organize notes, effective tools in apps (e.g., find), and offer tips for studying using notes.)

- **How to Use One Note** (This guide, developed by Heather de Anda, a medical student at the University of Texas Health Science Center, provides detailed instructions for creating notebooks, using sections and pages, importing course content, creating “to-do” lists, and more.)

- **This Med Student Makes Comics to Help Him Study** (BuzzFeed article about Mike Natter, MD candidate at Jefferson Medical College at Thomas Jefferson University)

- **Clinical Sketchnotes** (33 Charts article by Dr. Bryan Vartabedian about the opportunities to use sketchnotes in the clinic.)
References


Merka, J. (n.d.) Processing information – Strategies for supporting memory. Penn State Hershey College of Medicine, Hershey, PA.


Contact

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