Draw It To Learn It: Anatomy Tutorial

Developed by Katherine Copely, Class of 2018

Overview

Learning anatomy can feel overwhelming and often difficult to accomplish outside of the anatomy lab. Drawing your own diagrams can be a great way to learn and solidify your knowledge. Artistic abilities are not a requirement for these types of exercises and there are shortcuts you can use along the way. Research shows that active learning increases long-term retention and deeper understanding, and it certainly is more enjoyable.

Research on Note-Taking and Drawing

Drawing and writing by hand forces you to spend more time than you would spend on reading or typing, as well as focuses your attention and can minimize distraction. It is a form of active learning, whereas an example of passive learning is watching a video or listening to a lecture. In addition, research has demonstrated a hand-to-brain connection that aids in learning. More specifically, researchers contend writing by hand stimulates special neural circuits, leading to stronger reading ability, new idea generation, and retention of information (Mueller & Oppenheimer, 2014). In addition, drawing or sketching anatomical figures can reduce the time needed to learn essential anatomical structures, thus freeing up time to study other important concepts (Noorafshan, Hoseini, Amini, Dehghani, Kojuri & Bazrafkan, 2014).

Supplies

Marker pens, pencil, eraser, printer paper.

Instructions

1. Think about a picture from a textbook that makes sense to you or one that you automatically think about when trying to recall anatomy. If there isn’t one, search in Google/Images for “blank [organ of interest] diagram.” For example, you can search for “blank lung diagram.”

2. Save, download, or screen capture your picture of interest. Try to print the diagram in black and white – this can help specific structures “pop” in busy or detailed diagrams. If you would rather, you can carefully hold up a blank piece of paper over your computer screen and lightly trace with a pencil. If you are really motivated, you can draw free hand.

3. Once you have obtained your printout or sketch, grab your pencil and start filling in structures of interest. Pay attention to what structures are next to each other or are in the middle or periphery. Taking the time to draw forces you to spend more time actively thinking about the physical relationships than you would practicing with flash cards or trying to memorize cadavers. I recommend writing text in pencil initially, so that changes can be easily made if necessary.

4. Trace over the pencil with colored marker pens. Sometimes it is helpful to create a color-coding system. If you can only remember the color, then you can deduce other information.

5. Once you have finished tracing with markers, erase all of the pencillines.
Figure 1.

Figure 2.

HIDRADENITIS

Anus

Terminal branches of superior rectal artery

Rectum

Internal anal sphincter

Anal canal

External anal sphincter

Fecal incontinence

Anus

Anus

Terminal branches of superior rectal artery

Rectum

Internal anal sphincter

Anal canal

External anal sphincter

Fecal incontinence

Anus

Anus

Terminal branches of superior rectal artery

Rectum

Internal anal sphincter

Anal canal

External anal sphincter

Fecal incontinence

Anus

Anus

Terminal branches of superior rectal artery

Rectum

Internal anal sphincter

Anal canal

External anal sphincter

Fecal incontinence

Anus

Anus

Terminal branches of superior rectal artery

Rectum

Internal anal sphincter

Anal canal

External anal sphincter

Fecal incontinence

Anus

Anus

Terminal branches of superior rectal artery

Rectum

Internal anal sphincter

Anal canal

External anal sphincter

Fecal incontinence

Anus

Anus

Terminal branches of superior rectal artery

Rectum

Internal anal sphincter

Anal canal

External anal sphincter

Fecal incontinence

Anus

Anus

Terminal branches of superior rectal artery

Rectum

Internal anal sphincter

Anal canal

External anal sphincter

Fecal incontinence

Anus

Anus
Figure 3.
Suggestions and/or other Adaptations

- When working on your drawings and, while working in the anatomy lab, ask yourself “what if” questions. For example: What if the cadaver/specimen was presented from another angle? What if a clinical follow-up question is asked? Predicting what may be asked and incorporating this information within your diagrams can help to strengthen the connections between anatomy and physiology that will be beneficial now and in the future. Add these details to your diagrams.
- When you are finished, try explaining your diagram to a friend. Teaching is a great way to cement knowledge. Encourage your friends to ask questions to force you think more deeply about the content.
- Take the process a step forward by sketching cadavers of interest while in the anatomy lab, then elaborating and coloring in/labeling outside of the lab.
- Don’t worry about making mistakes. Often times the mistakes are easier to remember.
- Another option is to draw along with a video, that way you can associate step-by-step information with your drawings.
- Hang onto your drawings as extra annotation space for USMLE study. Write annotations in a different color, or pencil, so that you know where the information came from. File them into your main resource (e.g. First Aid for the USMLE Step 1) in the appropriate chapters.

To Learn More … Research and Resources

- [Notes on Note-Taking: Research and insights for students and instructors](#)
- [Drawing-to-Learn: A Framework for Using Drawings to Promote Model-Based Reasoning in Biology](#)

References
