



# Putting Your Anatomy to the Test Learning to Achieve Success in Examinations

By Earle Abrahamson and Jane Langston

**A**natomy is a journey, one which begins with an understanding of a concept or term and culminates in an assessment to measure the understanding. For many students the thought of having to sit an examination is enough to disrupt the learning. Robert Collier best summarised success when he wrote: 'Success is the sum of small efforts, repeated day in and day out.' Expanding these words, it is important to acknowledge that learning is a process, one that requires time, effort and quality revision. Insufficient or inadequate revision often results in failure. How best should students revise for examinations? What content is useful in navigating the challenges within an assessment? How should teachers prepare students for anatomy examinations, so that knowledge is retained and not lost? This article explores learning and revision strategies for anatomy and physiology assessments by emphasising the purpose and value of effective preparation for assessment, and lifelong learning of anatomical content.

It is no surprise that most people hate exams. How do you feel about them? Have a think...

*It's the day of the written anatomy and physiology examination at last. So, take a few minutes to imagine the day of your anatomy and physiology examination. Visualise yourself walking into the examination hall... sitting waiting for the invigilator to tell you the examination is about to start... reading the first question... holding your pen... How does it make you feel? Terrified? Exhausted from a couple of all-nighters? Sweating profusely and heart racing with fear? You are so nervous that all knowledge of the digestive system has disappeared, and the only thing you know about your stomach is that it is churning in terror?*

And that is just how the teachers feel! Yes, teachers worry about exams too! They frantically pace the floor outside the examination hall like a mother hen whilst their little chicks are scribbling away.

For students, here are some key study skills that will firmly embed the anatomy and physiology knowledge rather than just learning to pass an examination, giving a long-lasting memory of the facts and concepts. Teachers, do carry on reading, as by following some of our tips, you can help your students best prepare for their

upcoming examinations. The key word here is PREPARATION.

## Organise your study

Confidence in examinations comes from being prepared and organised, and in that preparation become familiar with the examination format and structure so there are no surprises.

Sort through your notes before you begin and organise them into a sensible structure. Start by sorting your resources, relevant books and classroom notes. Get rid of scrappy bits of paper. The reality is that you must make time to avoid panic which is debilitating and totally counter-productive, so get organising now.

Rather than spending hours making a pretty revision timetable that takes longer to make than it does to revise, use a diary to record all activities that you already have planned, all appointments, lectures and compulsory activities. Include absolutely everything that isn't revision. This creates a diary that tells you when you can't revise, making it very clear when you do have free time for revision. Now block out that time as revision. Make it a fixture that is not replaced by any other task.

The next important task for organising revision is working out what you already know, what you don't know, and what you need to know. Look through the intended learning outcomes for your course, and any past examination papers. If you have not been given them, then ask for them. Teachers, make sure you provide them. Identify the topics and areas which you categorically do not remember and highlight them. A useful learning aide is developing revision cards. The design of the card is dependent on the content to be learned. Once you have mastered the content of a card place it in a pile marked 'I know this'. Use this 'I know this' pile to help motivate your knowledge development. Content that is troublesome can then be placed in a second pile, which is labelled 'I still need to revise this'. Spend time working on content that requires revision, and use the content you have learned to inspire the content you still need to learn.

Consider a diary sheet annotated with all the different topics you need to cover and tick them off as you study them.

Vary the method of study; use websites, quizzes, apps as well as good old pen and paper. Making links between the information will embed the learning and make it memorable and extend your knowledge. Adding notes and reviewing the material within your existing class notes and resources helps you do this.

Even if your course is an e-learning course, there is often a forum or Facebook group for the class. Send out a group email with the Origin and Insertion of the Day, or Hormone of the Week.

## Use colour where possible

Highlighter pens, coloured pens, and coloured sticky notes can all be used. Arteries in red, veins in blue, lymphatics in green are the usual colours to be seen in a text book, but go further, with digestive system in brown, urinary system in yellow, skin in orange, nervous system in purple and immune system in black.

Why not try underlining or colour coding particular pieces of information? A series of different colour highlighter pens might be useful here. This is a very useful first step to breaking down long pieces of writing into more usable short lists or diagrams.

## Repetition, over and over

Having sorted your notes, made time on a regular basis to study (in short blocks of time), created your learning aides, the trick to memorising the information is to repeatedly revisit it. The minimum repetitions and re-reading that is needed is three times of working through a topic, ideally more. Talk out loud to the cat/dog/goldfish/hamster and

tell them all about bone structure!

Reviewing the structure of past examinations will mean that it is easier to prepare for and the format will be familiar. Work through the past examination questions. Experiment with the questions so that you can substitute in alternative topics whilst maintaining the format.

Homework questions are doubly useful as examination practice, as the teacher with have already given guidance on missing information (feedforward), and will have given marks for the answer.

Make a list of the topics that you already know well, and leave these until near the end of your revision. It is easy to feel very pleased with yourself when you revise a topic that you know inside out and back to front, but it is a procrastination exercise.

## Where, what and why?

For each anatomical structure, aim to learn its location (using anatomical language), be able to describe what it looks like and list its functions.

## Get creative!

Making up catchphrases or rhymes can help you with crucial bits of information. It may make you cringe but you won't forget it. The Amatsu Training School students of the class of 2010 will never forget the name of the fifth cranial nerve after their rendition of 'The 12 Cranial Nerves' song, set to the tune of 'The 12 Days of Christmas' (look it up on YouTube!).

Mnemonics and acronyms can do a great deal more for you with less risk of procrastination. A mnemonic is a word or abbreviation that helps you remember. An acronym is a word made using the first letters of a series of other words or a series of sentences. For example, to remember the order of the carpals, which is the more memorable list?

Cheesy but effective ways of getting you to remember key points:

### Example:

- Can you remember this?:
- Scaphoid Lunate Triquetrum Pisiform Trapezium Trapezoid Capitate Hamate
- Or the memorable mnemonic:  
Some Lovers Try Positions That They Can't Handle

## Flash cards and posters

Make some posters or flash cards by writing down key words that you want to remember and putting them up in your room at home.

Try different colours for different subjects

or different areas of the room. If you can persuade your family to go along with this, another way of utilising this technique is by using different rooms in the house for different topics.

## Audio format

Several good basic anatomy books have an audio format, so you can utilise this by listening to it whilst dog-walking, waiting for children or gardening. You would be unlikely to take your revision file out to the park when you walk the dog but there is no reason why you can't take your iPod or phone with you and listen. Why not produce your own audio or video compilation? Imagine you are teaching someone who has no, or limited, knowledge of the subject. What are the important learning points you need to get across? How will you make these learning points inspirational? Create a storyboard and direct your learning, thereby creating a lived experience of the challenges and successes you encounter as you uncover knowledge and prepare for assessments.

Above all, make it FUN! There is no rule to say that revision has to be stressful, miserable or boring. Your revision experience is your choice; it's up to you – so aim to enjoy it!

## Examination Toolkit

- ✓ Sort out your equipment the day before. Put pens, coloured pens, pencils, ruler and eraser into a transparent pencil case.
- ✓ If you need to bring identification with you, pack it the day before and keep it with your pencil case. This all helps you to remain calm and organised if you have already packed everything you need.
- ✓ Do have breakfast on examination day. Feed your brain! Saying 'I don't eat breakfast' is like saying 'I don't put fuel in my car.'
- ✗ Don't get stuck into files at the last minute – use brief revision aids instead, if you want to do last-minute revision
- ✓ Set the alarm clock a bit earlier than you need. Set two alarm clocks if you struggle with early waking.
- ✓ Get to the examination in plenty of time.
- ✓ Keep calm and breathe! Avoid panic by keeping your breathing slow and deep. Concentrate on feeling the floor with your feet. What can you feel? Can you feel your shoes? Socks? Give your toes a wiggle. By concentrating on something

else other than the panic, the terror will disappear, and you will feel grounded and more able to continue the exam.

- ✓ Drink water. Hydration is key for good brain function; your text books have told you that when you were revising. Keep that brain hydrated with sips of water so thought processes are clear.
- ✗ Always read through the examination paper before answering a single question.
- ✓ Clock watch. Plan the timing needed so you are clear how many minutes you should devote to each question, and keep a watch to hand so you can keep glancing at the time. Give yourself 10 minutes at the end of the examination to read through the questions and to check your answers. If you think of a few extra things to say, or you are running out of time, use bullet points and lists to scribble the answer down.
- ✓ Use diagrams and tables to explain yourself. The examiners aren't expecting fine art so a rough sketch is usually fine. Tables can be a useful way of clearly laying out answers, particularly for 'compare and contrast' style questions.
- ✓ Keep a positive frame of mind. If you watch athletes at the start of a race, they are telling themselves that they are going to succeed. You have done all the work and deserve to succeed. Believe that you can too!!

## Avoid common examination mistakes

- ✗ Disregarding the marking scheme. Check the number of marks that are allocated, and answer accordingly. Don't waste half an hour scribbling five pages of detail, when there are only 2 marks allocated to the question.
- ✗ Misspelling. Although anatomy and physiology is not a spelling test, there are a few words which can be easily confused, and where misspelling a word means that the body part is in a completely different part of the body than where you meant. This is vitally important when it comes to medical matters, so best learn the correct spelling of the anatomical parts now.
  - **Ileum** is in the intestines, and **ilium** is a pelvic bone. Don't mix them up!
  - **Trapezius** is a muscle, trapezoid is a ligament in the shoulder as well as a carpal bone in the wrist, and trapezium is also a carpal bone.
  - **Perineum** is the area between the genitals and the anus, whereas the peritoneum is the membrane covering your intestines and lining the abdomen.
  - **Perineal** is the area around the perineum, which is between the genitals and the anus, whereas peroneal refers the area around the peroneus muscle which is also known as the fibularis muscle, on the outside of the lower leg.

- **Trachea** is the tube between the back of the throat and the lungs, whereas trochlear is the name of the fourth cranial nerve which innervates the eye. And just to further confuse, the trochlea is a term in anatomy which means a grooved structure similar to the wheel of a pulley. Trochleas are found at the humerus, femur and talus.

## Final Thoughts

Preparation for examinations is a continuous process which requires time and concentration. The challenge is to use these techniques to develop examination skills and demonstrate knowledge under different assessment conditions. Remember, success stems from a drive to achieve and a passion to continue learning long after the assessment is complete. In the words of Robert Collier: 'The best way to finish an unpleasant task is to get started.' Once you start, the journey has begun and you are in control of the destination. Think carefully about whether assessments are simply the measures of what you have learned or required to learn, or whether you can use assessments as a powerful driver to continue your learning. Through assessments, students begin to appreciate what they know, and more importantly what they still need to learn.

## References

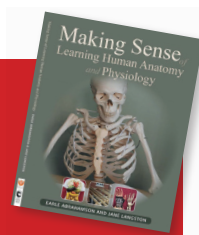
<http://www.bath.ac.uk/students/support/academic/procrastination/index.html>  
(Accessed 13/3/15)



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Further information on Anatomy and Physiology courses can be found here: [www.learnanatomy.uk](http://www.learnanatomy.uk)  
Further information on training courses can be found here:  
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