

Premed Newsletter

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*“By recognizing the spiritual importance of the cadavers,
perhaps we erect them once again, reassemble them,
resurrect them from their cadaveric fall.”*

—Albert Howard Carter III

First Cut: A Season in the Human Anatomy Lab

MCG Recruiting Visit to GCSU, September 23

MCG Admissions Counselor **Brandon Hunter** and other representatives will visit GCSU for a recruitment presentation on Wednesday, September 23, 12:00 in room 249 Herty. This is your big annual opportunity to ask questions about MCG medical school admission and get up-to-date information on admissions and preparation for medical school. Be there or be square!

Sign Up For a Better MCG Tour

Krystal Meadows writes that GCSU premeds who went on a Closer Look Tour at MCG last year were disappointed because it covered multiple health professions so broadly that it didn't cover medicine itself in any depth. Thanks to Krystal's typical energy and initiative, she has made it possible for our premeds to get a much more in-depth, premed-specific tour of MCG in the spring. She met with Brandon Hunter on September 11 and they agreed that it would be desirable to give an in-depth tour just for our premeds. *But you need to sign up.*

The tour will likely be either March 19 or April 16, and thanks to **Dr. Mike Gleason**, we may be able to get a van to go there at no cost to the students. Here is Krystal's description of what she and Mr. Hunter have planned for the tour:

During the tour Mr. Hunter will have the 3 main people in Admissions speak to the group and allow for any questions, even one-on-one questions at the end. He will have a faculty member from MCG present to answer any questions about curriculum, at least 5 MCG students available to speak/answer questions, and possibly the Dean or Assistant Dean of the medical college. After this, students will be allowed to see the research buildings (only inside the main entrance for security reasons), a student lecture hall, the cadaver laboratory, and patients rooms where students treat paid actors who pretend to be patients. Mr. Hunter showed me all of this personally and its very exciting.

Since MCG is working so hard to give us a great tour and really show us what their school is all about I would like to have a good group going. I told Mr. Hunter I would give him an exact number 30 days before the tour but for now he would like a guesstimate just so he can begin planning for people to help if we need to split up for the tour, etc.

If you are interested in going, sign up on one of the sheets on my door or the doors of the other premed advisors. Krystal wants to collect these by October 8 so she can give Mr. Hunter an approximate count.

In the Mentorship

Here's what's been going on lately in our first few weeks of Thursday evening mentorship meetings this semester.

Health Policy Discussions. Our book for the semester is *Understanding Health Policy* by Thomas Bodenheimer and Kevin Grumbach. MCG admissions officials have said that they like to see applicants who are at least a little conversant on the U.S. health-care system and contemporary issues, and this is all the more important in the current political climate of debate on health-care reform. In the first few chapters (1–4) of “B&G,” we’ve looked at such issues as:

- Disparities in access to quality health care; the haves, have-nots, and have-too-muches (the last of these being over-referral for expensive and pointless treatments).
- The history of how health care has been paid for in the U.S.; growth of the insurance industry; government-financed health care (Medicare, Medicaid, SCHIP); and the social burden of paying for public health.
- Factors that determine people’s access to health care: availability of services, the ability to pay, the growing inadequacy of health insurance plans; the impact of underinsurance on health outcomes; and the effects of sex, race, and income on the quality of health care one receives.
- The varied ways in which doctors and hospitals are paid for their services: HMOs and PPOs, capitation, and salaried and per diem systems of payment.

MCAT Practice. Most of the mentees are now juniors, so this is a year of tense anticipation of that all-important hurdle, the MCAT. We expect to focus with increasing intensity on MCAT preparation as this year progresses. We began on September 10 with a practice 30-minute MCAT essay. Mentees wrote on an essay topic they had never seen before, and their essays were then distributed with only identifying numbers for anonymous peer evaluation; everybody evaluates, scores, and comments on everyone else’s essays. Readers benefit by seeing in other people’s essays hints of what one might do better, oneself; and writers benefit by getting feedback from everyone else on how their essays look to an impartial reader. We’ll be moving soon into practice verbal reasoning and life sciences MCATs, and next semester into the physical sciences and at least one full-length practice MCAT. At least one future issue of this newsletter also will deal in some depth with what to expect of the national MCAT.

Medical Vocabulary and Pronunciation. How do you pronounce mediastinum, parenchyma, tinnitus, neuroglia? Are you sure your pronunciation is right? Are you even sure your professor’s pronunciation is right? What do the medical dictionaries say? On September 17, we had an exercise on this based on a workshop that I presented in 2008 at a Human Anatomy and Physiology Society conference in New Orleans, where it was found that many and sometimes *most* anatomy professors were pronouncing things “wrong,” as least if we take the medical dictionaries as our standard of what’s “right.” We’re going to repeat and extend this in the mentorship later with a set of electronic “clickers” that is not on order.

Limbering Up the Synopses. Frivolous as this might seem, we often start our sessions with a 10- or 15-minute Sudoku, Jumble, or crossword puzzle from a recent newspaper—a little like stretching and warm-ups before a fitness workout, but a little more than that, too. I have a theory, you see, that such things tend to exercise cognitive skills that may have some carry-over value to such things as an MCAT or even to diagnostic medicine and doctor-patient relations (subject of a separate article, below). Those with the best scores also earn a few points toward what I call the Book of the Semester. I have to keep my personal medical reference library updated with new editions, so what is one to do with the old editions? I’ve taken to giving these away to individuals in the mentorship who earn the most points over a semester for exercises large (best score on a practice MCAT), to medium (weekly health policy quizzes), to small (best Sudoku score of the week). Netter’s *Atlas of Human Anatomy* and Ganong’s *Review of Medical Physiology* were two of last year’s books. This semester’s book is a great one that I’ve

used heavily for medical reference and that may be quite helpful to an undergraduate, especially in the junior to senior years; I bought the new edition just last year, so some lucky winner will get my previous edition. But I won't ruin the surprise by saying what it is.

The Saladin Theory of Crossword Puzzles, Sudoku, and Medical Aptitude

Spending mentorship time on crosswords, Sudoku, Cryptoquotes, and other types of puzzles might seem rather trivial and off-topic, but I think there's a bit more to it than that. Among the cognitive skills of a good physician—in my view and as reinforced by last spring's reading, *How Doctors Think*—are a subtle understanding of language, word play, and ambiguity; verbal and numerical reasoning skills; ability to focus and think clearly under time pressure; awareness of history, literature, the arts, and even popular culture; and a sense of fun, word puns, and humor. Word and number puzzles bring out and hone these skills, and I get some insight into my mentees' cognitive abilities from the results.

Our crossword puzzle on August 27, for example, called upon one's knowledge of figures as diverse as Vladimir Lenin, Lewis & Clark, Jennifer Aniston, Bing Crosby, and Elias Howe; on tiny flashes of anatomical insight including the lungs, the fibula and femur, and adipose tissue; on ancient Rome and 20th-century theatre; and on word plays like two long crucial ones in this puzzle, *overhearing* and *overbearing*. Crossword puzzles also bring up matters of recognizing parts of speech and using parallel constructions in English. For example, which would be the better answer to "finishes last"—*loser* or *loses*? If you need a 5-letter word for "with dignity" and you have no clue on any of the letters yet, would you opt for *pride*, *proud*, *noble*, or *nobly*? Which looks like the best fit to you? Might an ability to make such distinctions help on the MCAT Verbal Reasoning test?

In addition, a recent article in one of my subscription journals—though I now forget which one (*Science*, *Nature*, *JAMA*, *NEJM*, one of those) reported a study showing that working cognitive puzzles like these "trains" the synapses in regions such as the hippocampus that are important in problem-solving in other contexts. In other words, working puzzles doesn't merely enhance your ability to do that kind of puzzle, but "limbers up your neurons" and improves one's cognitive skills in other areas. I have a hunch that word and number puzzle skills, especially as shown under the circumstances of friendly competition and the 10- and 15-minute time limits I place on these, may be just a wee bit relevant to the same skills one might employ in the MCAT, in medical board exams, and in the practice of medicine itself. Aside from a bit of in-class fun, I feel the results of these puzzles give me a little window—one among several—into the minds of my students.

Everybody's Talking About It But Nobody's Reading It

House Resolution 3200, that is—the hotly debated health-care reform bill or so called "Obama plan." I haven't felt entirely sure of my own opinion on it, and I've grown tired of the overblown rhetoric going around, so I decided to read it for myself. Yes, all 1,017 pages of it. And write up my own "plain language" abstract of it as a reference for discussion in Mentorship. As of this writing, I have about 200 pages of the bill to go. I might make my abstract (8–10 pages?) available through the Premed Newsletter when I'm done, or I might prepare an "abstract of the abstract" and print that in the Newsletter itself. But in the meantime, if you can't wait to dig into those 1,017 pages for yourself, you can read the whole bill here:

http://energycommerce.house.gov/Press_111/20090714/aahca.pdf/

Not that many *will* read it, but for those who do, the bill itself will give the lie to the rumors that it provides for "death panels" to decide whether to pull the plug on grandma, that it will provide federal funding for elective abortions, or that it will provide free medical care at taxpayer expense to illegal aliens, among other distortions and fabrications.

“A 19-Year-Old Man With Excruciating Pain In the Jaw”

A lot of case studies in *JAMA* and *NEJM* have titles that read much like that. For my classes—both Human Anatomy & Physiology and Premedical Mentorship—I made up one this semester to see how well health-care students can identify a problem, research facts about it, and answer questions in open classroom discussion. Both the premed and the A&P students said they found this to be fun and hoped we would do more, so maybe other newsletter readers would like to take a shot at this too. Here’s the first case study of the semester; I expect to have more later.

The case:

Tom Condyle has been studying almost all night for his A&P midterm, and he’s very tired. Around 4 in the morning, he yawns very deeply. He is suddenly stricken with intense pain just in front of his ears and radiating down to the shoulders, and can hardly move his jaw. His yelling wakes up his roommate. Tom cannot speak clearly enough to explain what happened, but his roomie drives him to the emergency room at the local hospital. After a brief 6-hour wait (barely able to talk, and with intensely aching jaw muscles), Tom is seen by an E.R. doctor who, after a physical examination, quickly and easily solves the problem. Tom is released and advised to avoid opening his mouth widely, and to follow up in 6 weeks with his personal physician. It is now past 10:00, however. Tom has missed his midterm exam and is wondering whether his professor is going to believe his story, whereas his parents will soon be more worried about the huge E.R. bill from the hospital.

Questions for discussion:

What is the formal name of the joint involved in Tom’s disorder?

What is the medical term for what has happened at this joint? How could yawning cause it? Use exact anatomical terminology.

What specific muscles do you think were hurting so badly while Tom was waiting in the E.R. for treatment?

Dr. Janet Howard, on E.R. duty that night, examines Tom and notes on his chart that he exhibits **bilateral preauricular depression, prognathia, and trismus**. What do you think these mean and why would they would be diagnostic of the above condition?

In medicine, what is the difference between **signs** and **symptoms**? Which of Tom’s conditions would you classify as signs, and which would you classify as symptoms? Explain your answers.

Based on her conclusions from the examination, Dr. Howard decides to perform a **closed reduction**. What is that? Contrast this with an open reduction. Describe the exact procedure you think Dr. Howard may perform to treat Tom’s condition. (There are photos on the Internet of how this is done.)

Dr. Howard orders a nurse to give Tom an IV injection of **midazolam**. What do you think were the purposes (more than one) of this medication? Which of its effects do you think would be most essential to the closed reduction?

Before performing the reduction, Dr. Howard wraps both of her thumbs with several layers of gauze before putting on latex gloves. Why do you think she took this unusual step?

If Tom lived in _____ instead of the United States, there wouldn’t even be a huge E.R. bill.

Coming up in the mentorship, we have another case study that involves a student I had in Human Anatomy and Physiology a few years ago—a 24-year-old female competitive weightlifter who began having some back problems. We’ll see if the mentees can arrive at an

informed diagnosis from her clinical report. (The student, who remains anonymous in the case study, gave me a copy of her lab report and permission to use it.)

Alternative Careers in Health Care—Occupational Therapist

An unfortunate but persistent fact of premedical advising is that for every 10 new freshman advisees I get who declare themselves to be premed, only 1 ever gets as far as applying to medical school; and for all those who apply, only about one-third are admitted. Or to invert this, for every advisee I see admitted to medical school, I handle about 3 applicants and 30 students who thought they were premed when they first began college. The take-home lesson: it is always important to have a Plan B. What will you do if you don't go to medical school? Today I wrote a letter of recommendation for a student applying to occupational therapy school, so let's take a look at that.

An **occupational therapist (O.T.)** is a medical professional who works intensively with handicapped clients to help them recover or develop the everyday skills needed to improve their independence and quality of life. At O.T.'s clients are as diverse as premature infants, autistic children, victims of vehicular accidents, and elderly persons suffering visual loss or stroke. The O.T. helps the individual acquire or recover such abilities as dressing, grooming, bathing, eating, time management, appropriate social skills, seeking or maintaining employment, and caring for a home and family. Progress is sometimes slow, and a prospective O.T. must have an abundance of patience, compassion, understanding, and a passion for being able to change someone's life for the better. O.T.s work in physician practices, hospitals, nursing homes, rehabilitation centers, school systems, mental health centers, and home health agencies.

There are both master's- and doctoral-level programs in O.T., with the latter entailing extended study that includes clinical practice skills, research skills, administration and leadership, program and policy development, advocacy, and education. Master's programs may admit students who have not yet completed a bachelor's degree; one finishes the bachelor's degree in the O.T. program and then progresses to the master's. Two universities in Georgia offer O.T. programs: the Medical College of Georgia and Brenau (in Gainesville). Students commonly enter O.T. programs from such undergraduate majors as biology, kinesiology, psychology, sociology, anthropology, and liberal arts. Candidates must also have observational or volunteer experience in O.T. by the time of application. This can be gotten by contacting a hospital, nursing home, rehab center, or school system in one's area, stating the reason for one's request to volunteer or observe, and stating one's hours of availability. Such institutions are generally very accommodating to such requests. Upon completion of an O.T. program, one must pass the National Board for Certification in O.T. (NBCOT) to qualify for a license to practice. As of 2009, average salaries for O.T.s are \$80,000 in Macon, \$81,000 in Milledge-

ville, and \$102,000 in Atlanta. For further information see the resources below.

<http://aota.org/Students/Prospective/OT/38202.aspx> on career and training program information online

<http://www.indeed.com/salary/Occupational-Therapist.html> for salary information on other cities

E-mail educate@aota.org to request information on studying to become an O.T.

E-mail AskAStudent@aota.org to ask questions of an O.T. student

Anatomical Mnemonics—Aids to Memory

From time immemorial, medical students have struggled with ways to memorize lists of terms such as the 12 cranial nerves, the 8 carpal bones, and others. Often they've turned to mnemonics (memory aids) such as rhymes and other easily remembered sentences whose first letters correspond to the first (or more) letters of the thing to be memorized. The results range from the utterly silly, to the risqué (“Some lovers try positions that they can’t handle” for scaphoid, lunate, triquetral, and other carpal bones), to the unprintably ribald, with some medical students (and professors) arguing that the more obscene it is, the easier it is to remember (such as “Oh! Oh! Oh! To touch and feel...” or “Never take down Tillie’s pants...”—well, you can look the rest up yourself¹). Since the 1800s, medical students have recited “On old Olympus’ towering tops...” to help remember the cranial nerves (olfactory, optic, oculomotor, trochlear, trigeminal...), but then someone changed the names of a couple of these nerves and Old Olympus no longer works so well.

Back in the early 1990s, I challenged my anatomy & physiology students to come up a new mnemonic for the contemporary names of the 12 pairs of cranial nerves. The winner was Marti Haykin, who was then a premedical student as well as a member of the GCSU Art Department faculty, and is now an M.D. practicing neurology in Baltimore. Below is her mnemonic, “Old Opie,” which uses not just one but usually two to four letters of each cranial nerve name. I published this in my first textbook in 1997 and it has since “gone viral,” being found all over the Internet with most contributors having no idea who originally wrote it. It’s near the top of the list at Wikipedia now. Another one popular on the Internet is “Good Vacation,” below, and even I have no idea who first wrote that one.

Mnemonics for the 12 pairs of cranial nerves

No.	Name	Old Olympus	Old Opie	Good Vacation
I	Olfactory	O n	O ld	O h,
II	Optic	o ld	O pie	o nce
III	Oculomotor	O lympus’	o ccasionally	o ne
IV	Trochlear	t owering	t ries	t akes
V	Trigeminal	t ops,	t rigonometry	t he
VI	Abducens	a	a nd	a natomy
VII	Facial	F inn	f eels	f inal,
VIII	Vestibulocochlear	a nd ²	v ery	v ery
IX	Glossopharyngeal	G erman	g loomy,	g ood
X	Vagus	v iewed	v ague,	v acation
XI	Accessory	s ome ³	a nd	a head!
XII	Hypoglossal	h ops.	h ypoactive.	

- ¹ See http://en.wikipedia.org/wiki/List_of_mnemonics_for_the_cranial_nerves for others
- ² Formerly called the *auditory nerve*
- ³ Formerly called the *spinal accessory nerve*