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Thanks to Jason Hernandez for his artwork on the cover of this issue of HAPS-EDucator. Jason is a freelance illustrator and graphic designer who has been drawing since he was in kindergarten. HAPS member, Sharon Daniel from Orange Coast College, CA, met Jason when he was studying figure drawing at OCC, and encouraged him to submit this drawing.
HAPS-EDucator is the official publication of the Human Anatomy and Physiology Society (HAPS) and is published four times per year. Major goals of the Human Anatomy and Physiology Society are: to promote communication among teachers of human anatomy and physiology in colleges, universities, and related institutions; to present workshops and conferences, both regional and national, where members can obtain information about the latest developments in the health and science fields; and to encourage educational research and publication by HAPS members. HAPS was established in 1989.

Annual membership dues are $50 for full-time faculty, and $35 for part-time and retired faculty. Annual membership renewals shall be due on January 1, April 1, July 1, or October 1. New members shall renew on whichever date most closely follows the date of their initial membership. HAPS Hotline: (800) 448-HAPS (4277). Information on membership, meetings, and more! Send correspondence to: HAPS, 8816 Manchester, Suite 314, St. Louis, MO 63144. Check out our new webpage at: http://www.hapsweb.org/

SUBMISSIONS TO HAPS-EDucator

Papers for publication, requests for information, positions available and wanted, and letters to the editor are welcomed. Articles may be submitted to the editor as an e-mail attachment as a Microsoft Word or Word Perfect file or on 3.5” double density disks—please include a hard copy as a backup. If references are included, please follow the methods suggested in Scientific Style and Format: The CBE Manual for Authors, Editors, and Publishers. 6th Edition, Style Manual Committee (Council of Biology Editors) Cambridge, Cambridge University Press. 1994.

It is the policy of the Human Anatomy and Physiology Society (HAPS) that any advertising appearing in its publication(s) must be related to the teaching of anatomy and physiology. The HAPS-EDucator Editor and HAPS-EDucator Editorial Advisory Panel jointly determine whether an advertisement meets the criteria of HAPS. Any advertisement that is deemed not to meet the needs of the organization will not be printed, and the advertisement plus any monies collected from the advertiser will be returned. The opinions reflected in advertising that appear in this publication do not necessarily represent the opinions of HAPS. Advertisement of a product in the HAPS-EDucator does not represent endorsement of that product by HAPS. Contact the Editor for information on advertising rates, advertisement size and the procedure for submitting an advertisement to HAPS-EDucator for publication.

DEADLINES FOR SUBMITTING MATERIAL TO HAPS-EDucator: April 15 (Summer issue); August 1 (Fall issue); November 1 (Winter issue); February 1 (Spring issue).

CONTACT THE HAPS-EDucator Editor: Susan Baxley, Troy University Montgomery Campus, College of Arts & Sciences, P.O. Drawer 4419, Montgomery, AL 36103-4419, (334) 241-5473, (334) 241-8665 fax. sbaxley@troyst.edu
Welcome, HAPS members! Hope you all enjoyed a wonderful summer and are ready to begin another great academic year teaching our favorite subject! For those of you who had the opportunity to attend the fantastic Annual HAPS Conference and Workshops, hosted by Mt. Royal College and coordinated by Izak Paul and super-team, I hope you are recovering from PHDD!

For those of you who do not know what PHDD is, let me explain. PHDD (Post-HAPS Depressive Disorder) is a rather serious condition which afflicts participants of HAPS conferences after they return home. It was first characterized in 1989 by an unidentified HAPS Conference attendee. Symptoms of the disorder can vary from year to year, but generally include depression (mild to moderate), an overwhelming desire to be in contact with HAPS colleagues, recurring thoughts about great camaraderie, fantastic speakers, inspiring workshops, fun and educational field trips, delicious food, and lodging which can make a person feel like royalty. Recommended treatments for the disorder include, but are not limited to: frequent visits to the HAPS web site, attending and/or hosting a HAPS regional conference, serving on a HAPS committee, considering running for a HAPS office, staying in contact with HAPS colleagues, participating in the HAPS list serve, and/or writing articles for the HAPS-EDucator. However, the one definitive, proven treatment is attendance the next Annual HAPS Conference, which will next be held May 28 to June 2 in St. Louis, Missouri, hosted by the St. Louis College of Pharmacy and coordinated by Margaret Weck!

For those who were unable to attend the Calgary Conference, let me fill you in on some changes in the leadership of HAPS. First, congratulations to our new officers: President-elect, Ric Martini, Treasurer, Gail Jenkins (second term), Western Regional Director, Christine Eckel, and Eastern Regional Director, Richard Faircloth. Serving HAPS in any leadership role is a time and energy commitment by members dedicated to the continued growth and maintenance of our organization.

On behalf of our entire organization, a sincere thank you goes to the following outgoing officers who have so generously given of their time and talents to HAPS. After three years of service in various presidential roles, Past-President, Michael Glasgow has now earned the distinctive honor of being one of our Presidents-Emeriti. His work to finalize the complete revision of the Constitution and By-Laws was a huge contribution to HAPS and will certainly help your leadership team function more effectively and clearly within the guidelines of the Constitution and By-Laws. However, Mike has done so much more for HAPS, we just cannot thank him enough. Regional Director-West, Jim Pendley, has served not only as our RD-West, he has been the manager of our very popular list serve. Jim has been there for HAPS in many ways and we are deeply appreciative of all he’s done and continues to do for our organization. Regional Director-East Elizabeth Harper brought to Board discussions a very enlightened perspective on many issues, and I will indeed miss having her on the Board during my term as President. A sincere thank you goes to Elizabeth for her dedication to HAPS.

We also owe a huge thank you to our outgoing Committee Chairs: Dayton Ford (Technology Committee), Murray Jensen (Curriculum Committee), John Waters (Animal Use Committee), and Christine Eckel (Cadaver Use Committee). I also want to thank those who served so graciously on my nominating committee last year: Jackie Butler, Tom Lancraft, and John Waters. I sincerely appreciate your help with nominations! Finally, I would like to thank our outgoing President, Phil Tate, for all of the time and energy he put into this organization over the past year, and for being my mentor. Although Phil remains an active, voting member of the Board of Directors as Past-President, we owe him a sincere thank you for his efforts and accomplishments on behalf of HAPS last year.

There have been two changes within our committee structure. First, there is no longer a Technology Committee. When this committee was first instituted, it was critical for HAPS to look at how the emerging computer technologies would interface with our organization and the issues relative to A&P instruction. Obviously, debate in this area continues, but technology issues are no longer new to us and are, in fact, already incorporated into the working fabric of each of our other committees. Consequently, there is no longer a need to have a separate Technology Committee. Second, there is a new Web Committee, which is already very busy working with the Board and Carl Shuster to help find a web company that will best serve the needs of HAPS. This committee is being chaired by Tom Lehman.

So much is going on right now in HAPS that I would need to write a book to cover it all, so I will just point out a few of the major issues being currently addressed by your Board of Directors. As I mentioned, the main project right now is finding a web

Presidents Greeting - continued on page 5
company suitable for the growing needs of our organization. It is past time that we appropriately fund web site development and maintenance. Our web site is the face of HAPS to you, our members, potential members, our partner organizations, and the rest of the world. As much as we are fiscally able, we need a web site which is easy to use, allows us to do those things we deem necessary web functions, and allows us to add those dream functions in the future. It is my hope that by the time you receive your Fall Edition of HAPS-EDucator we will have selected a web company and will be in the process of implementing the changes that will assist your utilization of our HAPS web site.

Significant attention is also being made to membership recruitment. We really need to get the word out about HAPS. There are thousands of A&P educators who have never even heard of our organization. There is more attention focused today, than ever before, on undergraduate A&P education. Many new partnerships between health care industries and colleges and universities are being developed. A&P education, being central to all health care education and training, is often a focused area of discussion within these new partnerships. In fact, I wrote this message while in Albany, Oregon, where I will attended (as HAPS President) a Summer A&P Institute sponsored by Linn Benton Community College and the Governor’s Healthcare Initiative for the State of Oregon. The institute brought together a broad representation of stakeholders to discuss and define the outcomes for the year long A&P sequence, share best practices, and identify issues and obstacles. This institute was a gathering together of faculty who are teaching A&P, as well as faculty in health education programs (the providers of instruction collaborating with the receivers of the student product) to discuss outcomes and to reflect upon practices. Does this sound like a HAPS mission? Most definitely, and I enjoyed the discussions as well as meeting lots of potential HAPS members. I hope that you too will put forth a concerted effort to promote our organization. It is easy for all of us to direct potential members to hapsweb.org. So folks, spread the word!

There is so much more activity going on. The Safety Committee, under the leadership of Karen McMahon, has nearly completed the comprehensive HAPS Guidelines for Safety in the A&P Laboratory document which should be ready for final Board approval and publication following our mid-winter Board of Director’s meeting. Christine Eckel represented HAPS at the Coalition of American Societies for Anatomy (CASA) meeting held during the American Association of Clinical Anatomist’s Conference in May, and work continues with our other Partner Associations. The Curriculum and Instruction Committee is updating our Curriculum Guidelines, a critical task which has been worked on diligently this past year by Curriculum Committee members and continues to be carefully scrutinized to insure that our published guidelines not only reflect current instructional methodologies, but also remain consistent with our position statements in HAPS and in CASA. In addition, Donna White, our diligent Marketing Manager, has been highly successful in maintaining and soliciting vendor support for our annual conferences. Although relatively new, the Marketing Manager position has evolved to be vital to our fiscal solvency. Consequently, the Board of Directors is discussing ways to better include the Marketing Manager in Board discussions related to marketing issues.

Finally, I must again thank Izak Paul, Janice Meeking, Katja Hoehn, and all the rest of the Calgary Conference Planning Committee for putting on an absolutely fantastic conference in beautiful Alberta! You will not want to miss the 2005 Annual HAPS Conference to be held in St. Louis, coordinated by Margaret Weck, and then the 2006 Annual Conference to be held in Austin, Texas, coordinated by Mary Lou Percy. The 2006 Annual Conference will also be a 20th anniversary celebration for HAPS! Can you believe that the first HAPS meeting was held nearly 20 years ago?

I have addressed only a portion of the activity going on in HAPS, and have mentioned only a few of the many dedicated members who have volunteered their time and talents for HAPS. One of the things which most impresses me about our organization is the passion of our members for teaching Anatomy and Physiology, and for HAPS. It is so wonderful to belong to an organization filled with professionals who care so much about what we do. Hope you all have a wonderful Fall Semester!

New Contact Information For HAPS

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tonya@fergusonmgmt.com

Tonya Ferguson has formed the association management company, Ferguson Management Inc., which will manage the daily affairs of HAPS. Mrs. Ferguson, who has been involved in the association management business since 1978, was a former partner in OSG, Inc., which has been sold. She received her Certified Association Executive (CAE) designation from the American Society of Association Executives in 1998.
Attractons Abound Around St. Louis, MO

Margaret Weck, Conference Coordinator
St. Louis College of Pharmacy
4588 Parkview Pl.
St. Louis, MO 63110
(314) 446-8483
(314) 446-8760 fax
mweck@stlcop.edu

Many of you still recall the previous HAPS conference in St. Louis in 1995. It is hard to describe what there is to do in St. Louis before or after our next outstanding conference in 2005. The difficulty is not in coming up with activities and attractions, but making the difficult decision of what to leave out! We have history galore, indoor and outdoor attractions, athletics, culture, shopping, and, perhaps best of all, great food!

At least 12 different restaurants and clubs regularly offer live music in the evening. Some well-known spots for listening to Blues and Jazz include the Broadway Oyster Bar and BB’s Jazz, Blues and Soups both south of downtown, and Blueberry Hill west of downtown in the University City Loop Area.

St. Louis is a city steeped in history. The conference hotel itself (Marriott Pavilion Downtown) was originally built for the 1964 New York World’s Fair as the Spanish Pavilion, and later moved to St. Louis and converted into a hotel. The hotel is one of the over twenty historically and architecturally significant buildings on the Rediscover St. Louis Walking Tour. The route is a self-guided walking tour of downtown St. Louis in which you can experience 250 years in less than two hours. Two additional historic places near downtown are Laclede’s Landing (1784) and the Soulard Farmer’s Market (1838), both of which offer unique shopping, dining, and entertainment opportunities.

The conference hotel is conveniently located just across Walnut St. from Busch Stadium, where the St. Louis Cardinals play their home games, and is only two Metro Link (the light rail system) stops from the Edward Jones Dome (where the St. Louis Rams play their home games) and America’s Convention Center. One Metro Link stop in the other direction from the hotel brings you to the Savvis Center that serves as home ice for the St. Louis Blues and the venue for large concerts.

The site of the Louisiana Purchase Exposition (the 1904 World’s Fair) was Forest Park. The park, covering 1,293 acres, was established in 1876 at a location two miles outside the city limits. Today the park sits within the western city limit of St. Louis City proper, and serves as home to a variety of (mostly free) public attractions including: the St. Louis Art Museum, the St. Louis Zoo, the St. Louis Science Center, the Muny Opera, and the Missouri History Museum. There are many outdoor recreation facilities including the Forest Park Golf Course, Dwight Davis Tennis Courts, and the Steinberg Skating Rink. If the weather is nice you can rent canoes or paddle boats and enjoy the recently re-channeled ponds and waterways within the park. On summer evenings you can also enjoy drinks or a meal and live entertainment at the Boat House.

Another outstanding landmark is the Missouri Botanical Garden near Tower Grove Park. Researchers from the Missouri Botanical Garden team joined with many universities worldwide in botanical research focusing on conservation and sustainable development. The Education Center boasts a world-renowned herbarium, and the TROPICOS database, containing fully web-searchable records for over 900,000 plant names and nearly two million specimens with over 50,000 linked plant images. The Garden itself is divided into many sub-gardens, each with its own unique character, from the tranquil Japanese Garden, the formal Victorian Garden, the shady Woodland Garden, the contemplative Chinese Friendship Garden, to the practical Kemper Home Gardening Center. There is so much to see that it is impossible to appreciate all of the Missouri Botanical Garden in just one visit.

One perennially enjoyed attraction in St. Louis is the Anheuser-Busch Brewery Tour. This is a walking tour through the huge Anheuser-Busch facility in south St. Louis. One or more of the Clydesdales are often in residence in their paddock and love to have their pictures taken. When the horses are not at the brewery or in a parade somewhere they are at Grant’s Farm, a 281-acre wildlife preserve located just south of the city limits in St. Louis County. The farm is owned and operated by Anheuser Busch and offers a wonderful way to spend a hot summer day with the family. Grant’s Farm takes its name from our 18th President, Ulysses S. Grant, who actually farmed a portion of the 281 acres in the 1850’s. Today the grounds are home of the Busch family estate, Grant’s Cabin, the Clydesdale Stables, the Deer Park, and a petting zoo with scheduled shows daily. Admission to Grant’s Farm is free but there is a minimal charge for parking.

Relive part of the Lewis and Clark Expedition, which left the St. Louis Area in the spring of 1804. Just to the north of the city is the Edward and Pat Jones Confluence State Park. This newest Missouri State Park is located at the point where the Missouri river turns the corner and flows into the Mississippi River. The interpretive center, opened to the public in 2004, helps tell part of the story of the Expedition of Discovery that established St. Louis as the Gateway to the West.

HAPS 2005 - continued on page 7
Selected things to do in the St. Louis Region outside of the city:

Ten miles to the east of St. Louis near Collinsville, IL is the Cahokia Mounds State Historical Site. In 1982 The Cahokia Mounds site was designated by UNESCO as a World Heritage Site, as this 2,200-acre tract contains some of the most extensive remnants of the prehistoric civilization that thrived in the Mississippi River Basin from A.D. 700-1400. When the first French explorers arrived the area was occupied by a subtribe of the Illini called the Cahokia, from which the site derives its name. Anyone interested in American History before European colonization will find the earthen pyramids and interpretive center at Cahokia Mounds to be a fascinating experience.

Beginning in St. Charles, MO (20 mi. NW of St. Louis City) and extending westward along the Missouri river is the 200-mile Katy Trail. This crushed limestone trail to Sedalia, MO is great for biking or hiking as it is flat and level. The trail is result of the Rails to Trails conversion of the bed for what was once the Missouri-Kansas-Texas Railroad (commonly called the MKT or “Katy” Railroad). Great views of the Missouri river valley, overhanging bluffs, and surrounding prairie remnants abound. The trail and scenic highway also pass through many small towns that originally arose to serve the railroad.

Ste. Genevieve, MO lies about 50 miles south of St. Louis along the Mississippi River. The village of Ste. Genevieve is recognized as the first permanent settlement on the west bank of the Mississippi river. It was established very early in the French occupation of the territory somewhere between 1722 (four years after the founding of New Orleans) and 1749. Today Ste. Genevieve has the greatest concentration of original French Colonial buildings in North America and is still the only surviving French Colonial Village in the United States.

For geology aficionados, if the bluffs along the Missouri are insufficient, then check out the Meramec Caverns about 60 miles SW of St. Louis, near Stanton, MO. This spectacular large cave system contains rare and beautiful natural formations. A small entrance fee will get you a one and one-half hour guided tour underground along the one mile of well-lit concrete walkways with steel hand railings. The colors and the scale of these geologic formations are truly unique.

Certainly no trip to the area is complete without a trip to Hannibal, MO, which lies about 100 miles up the mighty Mississippi north of St. Louis. As you will remember, Hannibal was the boyhood home of Samuel Langhorne Clemens (Mark Twain). Take a cruise on the portion of the Mississippi River that was the setting for Tom Sawyer and The Adventures of Huckleberry Finn, and see the Mark Twain Home and Museum.

We look forward to welcoming HAPS back to St. Louis in 2005.

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Anatomy and Physiology Instructor

Three (3) tenure-track positions available for Fall 2005.

The Community College of Southern Nevada, located in Las Vegas, Nevada has three main campuses with a rapidly increasing enrollment. Due to increasing enrollment and legislative mandate to double the number of nursing students we are hiring three additional anatomy and physiology instructors, with tenure-track positions beginning Fall 2005.

Duties: Teach a two semester, combined anatomy and physiology course.

Qualifications: Master’s degree required, Ph.D. preferred.

Applications for the three positions will be accepted beginning in November 2004. Application forms and information about the college and its programs can be found on the college website: http://www.ccsn.edu
NEW AND COMING SOON
FROM BENJAMIN CUMMINGS...

ANATOMY 360
Where student comprehension comes full circle

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This is a new column that will feature practical information related to cadaver use and maintenance. Anyone with expertise in this area is encouraged to submit a short article to the editor (sbaxley@troyst.edu). Topics may include tips on storage, preservation, safety, and maintenance of cadavers. Our first article suggestion is for anyone interested in building a cadaver lab.

**Cadaver Laboratory Design Process: Step-by-Step**

The following is an outline of the article, Cadaver Laboratory Design Process: Step-by-Step by Paul Krieger.

**Step 1: Obtain legal authorization**

**Step 2: Answer 6 questions**

1. How many cadavers will be stored in the lab?
2. What type of ventilation system will be used?
3. What course(s) will use this lab the most?
4. How will cadavers enter and leave the lab?
5. How will the cadavers be used within the context of the course?
6. Refrigeration? Yes or no?

**Step 3: Room design/building material considerations**

1. Flooring—heavy duty, durable
2. Shower area with garden hose, floor drain
3. Wide metal doors
4. Eye wash and chemical shower station
5. Air curtains
6. Avoid crowding

**Step 4: Suggested equipment/materials**

1. Stainless steel for cabinetry and shelves
2. Hinged shelving around the perimeter of the room
3. Sinks/faucets
4. Lighting
5. Cadaver tables
6. Video monitors
7. Viewing platform
8. Containers for disposable items

**Step 5: Special considerations**

1. Temperature regulation
2. Security
3. Safety
4. Consider traffic flow
5. Disposal

INTERESTED IN BUILDING A CADAVER LAB? NEED MORE INFORMATION THAN THE OUTLINE? We have just the thing for you! If you go to our website (wwwhapsweb.org), then enter the exclusive “MEMBER’S ONLY” section, you will find a downloadable document (pdf file) *Cadaver Laboratory Design Process: Step-by-Step.*
EDU-Snippets is a column designed to let you, the members of HAPS, share your personal or institutional educational experiences. So, here are this edition’s contributions!

For the sake of column continuity, we have done a bit of editing. We have also avoided quotation marks (except in-text). However, we think everyone will be able to tell where our introductions and commentaries leave off and where our contributors’ words begin. In this issue we have tried to stress some activities or suggestions you can use to enhance your students’ learning in your Anatomy/Physiology classroom or laboratory. As usual, we have used a modified outline format to help with the organization.

I. Classroom Suggestions

We also got some great classroom suggestions that we thought would be good to pass along to everyone.

A. Pair and Share

Paul Krieger (Grand Rapids Community College, Michigan, pkrieger@grcc.edu) has a method for engaging the students right in the lecture:

One active learning technique that I use regularly in my A & P classes is the “pair and share” method. My lectures lend themselves to more group work since they have a maximum size of 36 students. Many of my former straight lectures have now become a series of mini-lectures on key concepts. After giving the students an overview of a key physiological concept, I will ask them to pair up with the person sitting next to them. One student must explain to the other what was just covered in his/her own words. The other student can feel free to pose questions to his/her partner on anything that is unclear.

During the sharing time, I wander around the room and actively listen to hear what is being said, and what I hear is always revealing. Students also have an opportunity to ask me questions as I wander around the room. This immediate feedback is very valuable in helping me to determine if students understand the main idea, and it does not take very long to conduct. At the conclusion of the sharing time, I tell the class any misconceptions that I heard, and then correct them for the whole class. Sometimes, I pose addition questions/problems/clinical applications to double check if they have mastered the concept. Depending on how well students did in their review, I may choose either to move on to the next topic or to give more examples to further clarify the concept.

B. Cardiac Horses

Alice Mills (University of Tennessee at Martin, amills@UTM.edu) had an idea to help everyone understand the cardiac conduction system.

On the topic of the cardiac conduction system, I show a photo of the Budweiser Clydesdales hitched up to the beer wagon. I ask the students, “If the beer cart must travel at 20 mph, how fast must each individual horse be able to travel?” [20 mph] “If one horse cannot travel at 20 mph, what does the driver do?” [replace the horse with one that can, otherwise the slow one will fall, and the team will stop] “Which pair of horses should you place up front, the ones who enjoy running the fastest or the laziest ones?” [fastest]

I think this helps at least some students understand that the entire system CAN fire at 80-100 potentials per min., but the fastest cells are placed in the lead [SA node].

II. Saucy Suggestions

A. Trochanting the Ice Breaker

“You Have Really Great Trochanters!” according to Chris Farrell (Trevecca Nazarene University, Tennessee, cfarrell@trevecca.edu).

When students start anatomy, there are just too many terms
to memorize, and too many terms to incorporate into concepts about form, function, and physiology.

The term ‘trochanter’ seems rather remote and does not fit into their former experience. I ask the entire class to stand up and firmly feel with their finger tips the bony projections 3 or 4 inches below the crest of their ilium. A bit of confusion usually takes over until I touch my iliac crest, name it, and then touch my greater trochanters. “Now, keep your fingers in place, and jog a little bit. Come on, every one must do this. Now speed up a bit and you will be ‘cantering.’” Now everyone says, “I am able to canter because I have great trochanters.”

After a few seconds and a bit of laughter, as they begin to sit down, I pass out half page forms with a short assignment. All students who want 2 extra test points must, before sundown, find someone of the opposite sex, who is not taking anatomy, and tell that person, “You have really great trochanters!” The student then has to get this person to document in writing that the student told him/her they had great trochanters, (i.e., Krista told me I have really great trochanters – Chad Hill). The object of having the other student write this short line is to make sure the anatomy student does not simply ask another student to sign a form.

I tell the students that they should chose carefully, and they may legitimately say, “Dr Farrell says I must find someone before sundown and tell that person I noticed he or she has great trochanters.” Students usually have a lot of fun with this assignment, and I have never had any student express reluctance to do it.

In addition the greater trochanter and its muscular attachments are rarely missed on exams!!

B. Poetry in Motion

David Evans (Penn College, Pennsylvania State University, devans@ptc.edu), who is never at a loss for another cute and catchy idea, set up the “Nephron Hip Hop” and he hopes neither he nor his students have their poetic licenses revoked because of it.

Here comes insulin,
An unwanted guest
In the kidney residence

Chorus: An unwanted guest
In the kidney residence

Out through the fenestrae!
Can’t come here say the PCT

Not here!
From the loop of Henle

No home in the DCT!

Collecting tubes yell:
Go to pee!

Chorus: An unwanted guest
In the kidney residence

C. Music To Our Ears

David Evans (Penn College, Pennsylvania State University, devans@ptc.edu) also submitted some acoustically interesting anatomical thoughts.

- The masseters mash your food
- Make sure Grace is ok with it when you stroke her great gracilis
- If you do not watch where you are going, you will wreck your rectus abdominis
- Confused about the hamstrings? The semitendinosus is on the “tail” side.

Meanwhile, Roberta Meehan (Auburn University Montgomery, Alabama, biology@ctos.com) found that her summer Anatomy/Physiology students were going a little stir crazy with the wrist mnemonics.

If you like that “S” bone in the wrist to be the scaphoid, you can always remember your carpals with: Some ladies take Persian house cats to town. Of course, if you would rather call the scaphoid by its navicular name, try this one: Naked ladies take Persian house cats to town.

III. Laboratory Suggestions

A. Sounds Like A Balanced Approach

Mary Bracken (Trinity Valley Community College, Texas, bracken@tvcc.edu) told us how we could demonstrate the anatomy of the ear.

In the past, trying to get the students to understand the bony labyrinth from the membranous labyrinth in the inner ear with their endolymph and perilymph had been a challenge for me. I solved this problem by using two pieces of tubing. I got a clear piece of 1.5” tubing and a 0.5” colored piece of tubing from a hardware store. I insert one tube inside the other. By getting flexible tubing, I could twist the tube within a tube into a cochlea or a semicircular canal. Students seem to understand the concept now.

If you cannot find this size tubing, then two sizes of straws work well also. They are, however, kind of hard to see in large lecture rooms. (NB: We, your EDU-Snippets columnists, have found that this can be done using drinking straws and cocktail straws, but we definitely like Mary’s idea of a tube within a tube better! RM/RF)

B. Sounds Rather Fishy

Mary Bracken (Trinity Valley Community College, Texas, bracken@tvcc.edu) also told us how we could demonstrate the effect of chemicals on blood flow.

While some labs call for pithed frogs, I found using them to be quite cumbersome. I decided to try minnows or goldfish (whichever is easiest to procure in your area. Most areas have quite a few bait shops nearby). Place the fish lengthwise on a glass slide and secure it with a paper towel or strip of cotton wrapped around both the fish and the slide. Keep the tail clear for viewing. Place the slide in a Petri dish and view it on a compound microscope using low power. Have one student keep the fish moist with an eyedropper full of aquarium water. You can clearly see the blood flow in an arteriole, a venule, and a capillary with the 10x lens. They can even try to focus with high power to see more detail of capillary flow.

Once the students have observed normal blood flow, have them apply alcohol (your choice of ethanol or propanol) drop by drop to the tail’s surface until they notice a change in blood flow. You can dilute the solution to 50% concentrations or experiment with your own concentrations. Repeat with nicotine and caffeine (coffee from the coffee machine in the teachers’ lounge).
nicotine, I get a cigarette from a student and soak the tobacco overnight in distilled water. Then I strain the concoction through cheesecloth and dilute.

This is a fairly simple lab to show vasoconstriction and vasodilation. It takes about 45 minutes and there are lots of squeals as the fish decide to flop around. You might also be able to show the autonomic response to stress, as some fish will reroute blood flow away from the tail. Students will think they have killed the fish when actually it has stopped the flow of blood to the tail. Upon completion of the lab, I “free” the fish to our pond. However, I do have to tell the students that some fish do not survive this lab. Be prepared for those students who worry about hurting the fish.

Feel free to contact me if you have any questions. I will be glad to help you with this lab.

IV. And We Hope You Will….

Keep those cards and letters coming! We thank you all for your EDU-Snippet contributions. Our next deadline for us is November 1, 2004, so if you could get your contributions in significantly before that, we would really appreciate it. Submit your ideas now and maybe you too will see your EDU-Snippet in print!
Concept Mapping as a Tool to Improve Exam Performance on Examinations in a Large Anatomy and Physiology Course

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Concept mapping, initially developed by Joseph Novak, is used in all levels of education from elementary school to college and professional school. When developing a concept map, a set of concepts that relate to a general topic is chosen and written on paper. If a relationship exists between two or more concepts, a line joining the concepts is drawn and labeled; the label describes the appropriate relationship. A map with a greater number of connecting lines is thought to reveal a greater level of critical thinking and understanding than a map with fewer connecting lines.

We teach a large anatomy and physiology course to (300-400) undergraduate students. The course consists of anatomy and physiology lectures and an anatomy lab. Separate examinations are administered in the lecture and lab. The lecture examinations consist of multiple-choice questions of varying cognitive difficulty. The laboratory questions are recall questions; students write the name of the structure on an answer sheet. In 100% of the examinations we have administered, the laboratory exam score is considerably higher than the corresponding lecture exam score. We have attributed this performance discrepancy, in part, to difficulties in the students’ abilities to critically think beyond the recall level.

To address this problem, we chose to implement concept mapping in our class. We examined the feasibility of concept mapping in a large undergraduate course, performance on the lecture exams, and student feedback on the process.

Methods

The study took place over a two-year period and included 300-400 students enrolled in two, two-semester courses. Students enrolled during the first year formed the control group. This group received traditional instruction consisting of instructor-delivered lectures on anatomy and physiology topics. In the laboratory sessions, teaching assistants taught students to identify structures on models and prosections. Instructors were available to help students learn the material, but study techniques were left up to the students. Traditional multiple-choice examinations covering the lecture material were administered in the lecture hall every 5th week. Laboratory practical examinations were administered in the laboratory during the same week.

Students enrolled in the second year formed the experimental group. This group received instruction covering the same material in the same order as the control group; however, concept mapping was introduced and used as a teaching tool during lectures and discussions. Examples of concept maps were also displayed in the laboratory. Students were given topics to map on their own.

Students in the experimental group were administered written multiple-choice examinations that matched the content of each corresponding exam in the previous year, although the questions were different. (This is necessary to avoid distribution of exams to future classes of students.) In addition, these exams included a “fill-in-the-blank” concept map as an examination question on the three main unit exams, with the remainder of the examination remaining multiple-choice as in the previous year. No map was included on the final exam. At the end of each semester all students were given an in-class survey regarding their impressions of the course.

Results:

The majority of students reported that they spent 25% or less of their study time using maps. Figure 1 summarizes the results of a two-tailed t-test comparing multiple choice exam scores of the control vs. the experimental group. Although a trend toward better performance is indicated in the spring semester, overall, results were mixed.

Scores on the concept map portion of each exam of the experimental group were compared to the scores on the multiple-choice portion. Results of this two-tailed t-test are shown in Figure 2.
Two questions were asked of students in the concept map group: 1) Concept mapping was helpful in understanding how facts relate to one another, and 2) I can demonstrate my knowledge better with a concept map than with multiple choice questions. These were evaluated using a Likert scale (1-strongly disagree, 5-strongly agree). Results are shown in Figure 3.

Discussion:

The feasibility of concept mapping depends on instructors’ willingness to teach in a non-traditional format, students’ willingness to move away from memorization, and assessment of student learning. Although the instructors modified their lecture format, it remained an instructor-driven process. Students copied concept maps as if they were copying routine lecture notes. In addition, the concept map tended to be added on at the end, and not integrated into, the lecture. Student study habits changed very little and the amount of time they spent studying with the maps was 25% or less of their time. Spending time with individual students, or grading the maps could improve changing study habits to include mapping; however this adds work in a large class. Previous studies that have used concept mapping have enrolled less than 100 students\textsuperscript{2,3,7,12,13} making it easier for instructors to spend time with individual students.

Performance on multiple-choice questions did not show consistent improvement in those using concept maps vs. those who did not. However, performance on the concept map was better than performance on the multiple-choice section in all but one exam. This could be due in part to the construction of the concept maps into fill-in-the-blank formats. This format was chosen because results of a pilot study revealed that grading maps using other methods\textsuperscript{4} took too much time and had only moderate inter-rater reliability. It is possible that students were simply guessing at the appropriate answers, a process that may be easier to perform than deciphering responses to multiple-choice exams. A concrete grading system for concept maps has yet to be devised. Some authors discourage grading, stating that it actually undermines learning.\textsuperscript{5,6} However, grading remains a fundamental assessment process, and the inability to grade concept maps makes it difficult to incorporate them into the class.

The lack of improvement in the multiple-choice scores may be due to task-specific learning. In two previous studies, positive results were shown when concept maps were used as both study and assessment tools.\textsuperscript{2,4} However, others showed no effect of concept mapping on the performance on standardized examinations.\textsuperscript{7, 11,12} These studies and our results suggest that teaching students to use concept maps may help their performance on exams using maps, but does not necessarily help them perform better on other types of assessment questions.

The literature reports student perceptions of concept mapping to be generally positive. Students reported increased involvement,\textsuperscript{3} learning more, and enjoying the maps,\textsuperscript{7} and usefulness of the maps as a study tool.\textsuperscript{3} In our study, informal discussions with students revealed frustration and dissatisfaction. This discomfort could also have contributed to the resistance to changing study habits. Despite these comments, the survey results indicated that mapping helped them understand the relationships between facts and demonstrate knowledge.

Conclusions and Suggestions for Future Work:

The use of concept maps in a large class is challenging. Students need strong encouragement, instruction, and evidence of the direct benefit of mapping in order to change their habits. Effective evaluation methods of maps need to be developed to encourage faculty to adopt the process. Multiple-choice exams will likely remain a preferred format of evaluation in standardized tests and in exams of large numbers of students because of their ease in grading. Therefore, if using maps does not directly improve performance on these exams, it becomes more difficult to justify incorporating maps into a course.

The process of initiating a map is also difficult for students who have not used this technique in their primary or secondary education. Some basic knowledge of a subject and its terminology is needed in order to construct a map. Our students struggle to learn these basic definitions. Implementation of an intermediate learning tool that guides students from the definitions to the relationships may be helpful.

References

Educational Issues - continued from page 14


Passing the gavel, Phil Tate to Sandy Lewis

Donna White, Marketing Director, and Izak Paul, our host in Calgary. Thanks to both of you for a great conference!

Mount Royal College, site of the workshops of HAPS 2004
A “Figure it Out” Approach for Learning Muscle Origins, Insertions, and Actions in Human Anatomy

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It has been my experience during the past thirty-five years of teaching, that one of the more frustrating tasks for many beginning human anatomy students is dealing with and learning the names of skeletal muscles, their origins, insertions, and actions. I have never felt it necessary for most pre-allied health students to learn all of the six hundred plus skeletal muscles in the human body, let alone all of the associated points of attachment. Therefore, students are required to learn only a select few muscles from each major region of the body. As for points of attachment (origins and insertions) and actions, I have taught a relatively simple tool for students to use to develop a good sense of these muscle features without the arduous task of so much rote memorization. My experience has been that students remember this information much longer because they need only learn the process for figuring it out, and, with some practice, are able to repeat the process whenever necessary, and have found it equally useful in a systems approach of studying human anatomy.

This exercise begins after we consider the muscular anatomy of each body region. During their laboratory time, students learn to recognize and locate the major muscles of each region. At the next class period students are given a list of select muscles from each region with three columns following each muscle name: (1) ORIGINS, (2) INSERTIONS, and (3) ACTIONS. For each muscle, either the columns labeled ORIGINS and INSERTIONS are left blank and the column labeled ACTIONS is filled in, or the column labeled ACTIONS is left blank with columns labeled ORIGINS and INSERTIONS filled in (see sample form below). The object of the exercise is for students to fill in the blank column(s) by “figuring it out.” They are instructed to do this by carefully considering the surface anatomy, shape of the muscle, how it lies within the body (e.g., the joints it crosses), and any other information given. If they know generally where a muscle attaches and remember that individual muscles work usually by pulling, they can figure out the probable action(s) of that muscle. Moreover, if they know the action(s) of a muscle, they can come very close to figuring out the points of origin and insertion. I tell them not to be concerned about determining the exact answer—that in this exercise, close is good. My students work in small groups and are encouraged to collaborate. The work must be done in class, however, and students are not allowed to use books or notes. I want them to figure it out using only information they should already know or that has been given to them in the exercise, as opposed to looking it up in a textbook. I also provide them with blank diagrams of the skeletal system and encourage them to sketch in muscles as they figure them out. In order to get them started, I usually do one or two muscles as examples; afterwards, as a class we go over the entire exercise using slides, transparencies, models, and cadaver specimens. At that time, specific anatomical locations of attachment on bones can be added.

Student response to this exercise has been quite good. Most students appreciate not having to memorize a lot of “stuff” that they quickly forget. This approach gives beginning students an appreciation for the importance of this information to normal anatomy and physiology, and to those who will continue studies in the field, it gives a good foundation on which to build in subsequent courses.

SAMPLE FORM

DIRECTIONS: Provide the missing information based upon the information given in each case.

<table>
<thead>
<tr>
<th>Muscle Name</th>
<th>Origin</th>
<th>Insertion</th>
<th>Action</th>
</tr>
</thead>
<tbody>
<tr>
<td>Pronator teres</td>
<td>?</td>
<td>?</td>
<td>pronates the forearm, flexes the elbow</td>
</tr>
<tr>
<td>Biceps brachii</td>
<td>scapula</td>
<td>radius</td>
<td>?</td>
</tr>
<tr>
<td>Triceps brachii</td>
<td>?</td>
<td>?</td>
<td>extends the elbow</td>
</tr>
</tbody>
</table>
Anatomy & Physiology
New textbook offerings for Spring 2005!

Seeley/Stephens/Tate: Human Anatomy & Physiology, 7th edition
The successful recipe that has been followed for 6 editions – continues in a 7th edition!
Clear, accurate descriptions of anatomy blend with precise explanations of how structures function.
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disease. A special focus on homeostasis and the regulatory mechanisms that maintain the body
further enhance understanding.

Sheir et al.: Hole’s Essentials of Human Anatomy & Physiology, 9th edition
A tradition in the one-semester anatomy and physiology course – Hole’s Essentials of Anatomy &
Physiology – 9th edition, continues to ensure the success of many students. Designed for the one-
semester anatomy and physiology course, Hole’s Essentials of Human Anatomy and Physiology
assumes no prior science knowledge and supports core topics with clinical applications, making
difficult concepts relevant to students pursuing careers in the allied health field.

Fox: Human Physiology, 9th edition
Human Physiology provides students with the framework they need to comprehend physiological
principles. The chapters that follow promote conceptual understanding rather than rote memorization
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between anatomical structures and their functions.

Widmaier/Raff/Strang: Vander’s Human Physiology, 10th edition
The tenth edition of this classic text has been entrusted into the capable hands for the 2nd time to a
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On Saturday, February 28, 2004, Moraine Valley Community College in Palos Hills, IL played host to a Midwest/Central Regional HAPS conference. Mike Timmons and Sam Chen were our primary hosts and they, along with the other members of their team, did a wonderful job. Mike and Sam must have some powerful influence with the weather because the wonderful, sunny weather made travel to the conference easy for the over 140 participating educators present. There were participants from CO, OK, NB, IA, WI, MO, MI, IN, IL, MN, and OH all gathered for a full day of speakers, workshops, viewing products provided by vendors, and fellowship.

The day started with a well organized check in and a very nice continental breakfast with plenty of good food and hot drinks to get us ready for the day. Conference Chair, Mike Timmons, and Moraine Valley Assistant Vice President of Academic Affairs, Judith Marwick made us very welcome during the opening of the meeting.

The Opening Keynote address was given by Steve Sandy, Vice President of TeraRecon Inc. from San Francisco. The address “3-D Imaging Technology—Changing the Way Physicians View the Body and Interpret Pathology” was very interesting. We were treated to many different examples of imaging. The ability to clearly see internal structures and systems was demonstrated very effectively. There were numerous questions from the audience and enthusiastic applause at the end of the session.

After a brief break there were two breakout sessions offered. One was “The Modern Cardiologist Looks at the Heart and Great Vessels.” This was offered by Dr. Thomas McKiernan, M.D., from Loyola University. The other session was a continuation of the keynote address with participants getting a chance for some hands-on manipulation of images. Both sessions were well received. I attended Dr. McKiernan’s presentation and they literally had to come to get us for lunch because no-one wanted to leave!

Lunch was a very tasty buffet in the College Center Moraine room. Everyone had the opportunity to chat with their colleagues and much information was shared informally. After lunch there were three workshop sessions and a break. Vendors and publishers had numerous displays for us in a well stocked exhibit area. Afternoon workshop/presentations included “Kinesthetic Anatomy in Clay – Neurology,” “Teaching Physiology in the 21st Century: Imagining the Possibilities,” “Motivating the Unmotivated Learner,” “Digital Photography, PowerPoint and Electronic Chalk,” “Live and Virtual Cardiograms,” “Cadaver Workshops: Serving your Community and Generating New Revenue,” “Using Technology in the Classroom”, “3-D Anatomy Presentation Software,” “Tips for Designing or Renovating Science Buildings” and “Serendipitous Gallimaufry for A & P?”

Our day ended with a second keynote address by Dr. Mary J.C. Hendrix, President and Scientific Director of the Children’s Memorial Institute for Education and Research at Northwestern University. Dr. Hendrix specializes in stem cell research. In her address she spoke on the topics of stem cell sources, and reproductive and therapeutic cloning. She addressed these topics from scientific, legal, and social perspectives. The promise of stem cell research—what we have gained and where we may yet go—were also part of the presentation. It was a very interesting and thought-provoking speech.

Thanks again Mike Timmons, Sam Chen, and all those at Moraine Valley Community College who helped host this event. It was a truly worthwhile experience for all the attendees.
Revising the HAPS Curriculum Guidelines

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The intent of this article is to draw attention to the current work of the HAPS Curriculum and Instruction Committee. At the 2003 HAPS Conference in Philadelphia, the HAPS Board charged the Core Curriculum Committee (which has now officially been renamed The Curriculum and Instruction Committee) with the job of revising the 1994 Guidelines. This article will pose and answer some questions surrounding the purpose, people, process, and even politics of creating and making available an official curriculum document.

Does HAPS really need a curriculum document?
YES! We need an official document for many reasons, but here are two of the more obvious.
1. The HAPS curriculum document can help promote and maintain the quality of anatomy and physiology programs during political battles. Every year HAPS receives requests for its official curriculum document, usually from instructors who are looking to update their courses or from teachers involved in political struggles, such as dropping lab requirements. (“According to HAPS, we should have at least….” Having an entire organization supporting a position is always better than being a single voice in a negotiation.) Used this way, the HAPS curriculum document is a very powerful and useful tool.
2. If HAPS does not have a curriculum document, how do we know what questions should be in the official HAPS exam? At this time, HAPS has a testing committee, so it seems obvious that this committee receive information on what content should be included in their exam.

Why do we need a new document?
Presently the, the official HAPS curriculum statement or guidelines are published: 1. in a yellow pamphlet entitled “Course Guidelines for Undergraduate Instruction of Human Anatomy and Physiology,” and 2. in the members area of the HAPS Web Site. This document was prepared by the Core Curriculum Committee and was approved by the HAPS Board in September 1994; therefore the document is outdated and in need of review and revision.

What is the purpose of a curriculum document?
Curriculum documents typically address two basic educational questions: 1. what topics are to be taught/what topics are be learned (i.e., curriculum); and 2. How should those topics be taught (i.e., instruction). Other issues addressed by curriculum documents include: What minimum qualifications should the instructor possess? How many hours per week should a student be in a classroom? Specific examples for anatomy and physiology include: Should all A & P courses have a lab? Should all labs use cadavers? Can Graduate Teaching Assistants be used to teach in the labs? How many students should be in a lab at one time? Is it OK to have 40 students working on one cadaver?

The 1994 guidelines are organized into the following components: Clarification of Intent, Rationale for Development, Credits/Hours, Pre-Requisites, Course Description, Laboratory Experience, and Content. The Content section is the largest portion of the document (11 of the 19 pages in the pamphlet). The Clarification of Intent section states: the “The HAPS Core Curriculum Committee has developed course guidelines that identify the minimum standards appropriate for an introductory undergraduate level learning experience in human anatomy and physiology.” The key word in this sentence is minimum – the 1994 Guidelines represent the minimum content that should be taught in an introductory undergraduate anatomy and physiology course.

Although the 1994 HAPS Guidelines report set minimum content goals regarding content, one of the many issues facing the revision of the HAPS Guidelines is if we want a hierarchical curriculum or only state minimum content. Do we want to state that same topics are more important than others, for example, by distinguishing between material students “must know,” “should know,” and what is “nice to know?”

Do all curriculum documents address “how to teach?”
Historically, most curriculum documents are similar to the 1994 HAPS Guidelines in that they devote little attention to
Who creates curriculum documents?

In the United States, most all public school districts create their own curriculum documents, authored by teachers employed within the districts, and then approved by the school board. These documents typically remain obscure to the public unless a controversy, such as “evolution vs. creationism,” arises. Many states are now implementing standards in attempts to improve the quality of their schools. These programs frequently use statewide testing to measure the quality of the schools and quantify students’ learning. The effectiveness, and validity, of these programs draw quite a bit of attention when the results of the statewide testing are reported in the popular media.

The most recognized science curriculum documents in the United States come from large organizations such as The American Association for the Advancement of Science (AAAS), or The National Research Council (NRC). Those organizations use panels of experts who meet for long periods of time (sometimes years) trying to determine “what knowledge is worth knowing,” and more and more frequently how should that knowledge should be attained. Those goals are then communicated in carefully constructed documents, written by professional writers and editors, and published with official announcements in newspapers and journals. Two of the most prominent curriculum documents are AAAS’s Project 2061 (URL: http://www.project2061.org/) and the NRC’s National Science Education Standards (URL: http://www.nap.edu/readingroom/books/nses/index.html). These organizations are attempting to help teachers and schools make informed curricular decisions so that students become scientifically literate, thus help allowing the US to compete with the rest of the world by developing a well educated populace.

All curriculum documents come from authority organizations with authority— associations— of humans that are trying to influence and change the lives of others. This sounds quite powerful and almost conspiratorial. By intent, we are supposed to TRUST organizations such as the American Association for the Advance of Science and The National Research Council, – and therefore TRUST that their curriculum recommendations are true and good.

Why are curriculum documents difficult to create?

Creating a curriculum document requires people to make difficult decisions focusing on “what knowledge is worth knowing” and “how should students achieve that knowledge.” There are three general areas where curricular documents become political, but also earn their merit or show their weakness:

1. By prescribing a list of items to be learned. This initially seems simple, but the politics start when new topics (e.g., genomics, proteomics, etc.) begin taking time away from historically important topics. For example, the role of gross anatomy in the medical school curriculum has greatly changed over the past twenty years. Most medical students today are being required to learn less and less anatomy as compared to 20 or 40 years ago. (In some medical programs, gross anatomy is now an elective!) However, today’s medical students are required to learn more about genetics, genomics, and immunology as compared to 20 or 40 years ago. This is very political, especially for those who teach gross anatomy in a medical school, and your program is losing funding.

Effective curriculum documents help instructors make difficult decisions about what topics to include and, sometimes more importantly, what topics to omit.

2. By prescribing the allocation of time, money, and human resources. How much time should students spend in the lecture hall? How much time should students spend in the lab? If you work at an institution that has had to eliminate all lab experiences (and this has happened) should an anatomy and physiology course still be offered? Should all the labs be offered on-line? Should the whole course be offered on-line? All of the above questions are important to designing and implementing an effective anatomy and physiology program, and a good curriculum document should help in the decision making process. It is extremely important for the new HAPS Guidelines to address the issues related to on-line / Internet-based courses, and on-line/ Internet-based lab experiences.

3. By prescribing minimum qualifications of the instructors. What should be the minimum educational background for a person to teach anatomy and physiology? A.A.? B.A? Masters in anatomy? Masters in Business Administration? PhD in anthropology? PhD in electrophysiology? PhD in history? Etc. This becomes political again because of money, and also potential shortages in qualified instructors.

At the University of Minnesota there is a movement to allow only biologists to teach biology courses. This initially sounds reasonable, but some of our best instructors come from the history of science, nutrition, and horticulture departments. Can a person who is an expert in the history of biology, horticulture, or nutrition effectively teach a biology course? And to become even more specific, what about someone who has a PhD in biochemistry? Are they biologists or are they biochemists? And if they are biochemists, should they be allowed to teach biology courses? It is unlikely that even the very best curriculmm document will resolve every issue surrounding who is qualified to teach, but it should at least aid in the discussion.
Committee Reports - continued from page 20

Are there any curriculum documents that HAPS can use as examples?

Yes and no. Yes, we can learn from experiences and products of other organizations, but no, because we are unique and have a very specific niche within the world of academia. There are many professional organizations that have published not only their official curriculum, but also have posted the process by which they created the document. For example, the American Physiology Society recently completed a curriculum project entitled The Medical Physiology Curriculum Objectives Project and have their materials posted at: http://www.the-aps.org/education/MedPhysObj/medcor.htm. It would be wise for HAPS to learn from other organizations how to effectively create and implement a curriculum document.

What are the major obstacles facing the process of creating a new HAPS Curriculum Guideline?

There are two major several obstacles facing HAPS in creating new guidelines: 1. HAPS members teach at many different academic levels and in different types of educational institutions. A “one-size-fits-all” document is almost an impossibility. What is needed is, a document that is both flexible and specific. 2. Time limitations. The work required to create this document will all be done by volunteers who, typically, do not have the many hours required to revise, and, possibly, to create a new curriculum document. There is no way that we can create a document that is as comprehensive and good-looking as other larger organizations, but the work is extremely important, nonetheless.

We need dedicated and smart people to help revise the 1994 HAPS Curriculum Guidelines.
The following are the reflections of the 2004 Robert Anthony Scholarship recipients. Ken Hoekstra, Muffie Slater, and Sherry Stewart have each become more involved in HAPS after attending their first meeting. Sherry and Ken have joined the Grants and Scholarship Committee. Their reflections follow:

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First and foremost, I would like to thank HAPS for giving me the opportunity to attend the annual meeting through the financial support of the Robert Anthony Scholarship. Without this scholarship I may not have attended the annual meeting and would have missed a wonderful educational experience. I have been to many conferences but few as organized as HAPS Calgary. Hats off to a job well done. Everything ran seamlessly (except for the power failure at the Tyrrell Museum - but that was an act of God, I am told). The conference began with an opening mixer where I was fortunate enough to be granted access without having yet registered. Furthermore, I was able to obtain a new T-shirt via the popular T-shirt exchange, a great activity that I hope continues at future HAPS conferences. Having previously followed the scientific research of two research update presenters, I enjoyed the subject updates in such diverse areas as medical education, pancreatic islet transplantation, and our A & P favorite, inflammation. The teaching strategies and workshops were offered in the second half of the conference and I took home many new and fun and innovative approaches to A & P topics including new approaches to anatomy, interesting mnemonics for all body systems, and the integration of pathology into our A & P teaching. I even joined the HAPS Grants and Scholarships Committee to strengthen my involvement in such a great organization.

Between the official conference proceedings, many HAPS members including myself escaped into the streets of Calgary to share lunches and life experiences. To those individuals, thank you for the memories.

Although I am a scientist by training, I have always been a teacher. Through high school, undergraduate studies and many years of graduate school I always treasured the opportunity to teach others. Teaching is my way of caring for others. I treasure my teachers and mentors, and many of my students are good friends today. My experiences at HAPS Calgary have given me additional mentors, acquaintances and friends, who, not surprisingly, are committed to their students. I look forward to attending future HAPS conferences. Best wishes for the coming academic year. See everyone in St. Louis.

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I first became aware of HAPS while attending Northern Illinois University as a biology undergraduate student in their Human Anatomy Program. I had recently gotten a job tutoring A&P at Elgin Community College, and a Midwest regional HAPS conference was held there that year. My interest was piqued. I entered graduate school at NIU and was fortunate enough to be able to attend my first HAPS annual meeting in Maui in 2001. I was hooked! In HAPS I found lots of other folks who are just as passionate about the stuff I like; they understood me and we spoke the same language. I had found a professional home. In 2000 I had begun as a teaching assistant for Anatomy and Physiology, so I found the workshops I attended to be loaded with plenty of good teaching suggestions that I could incorporate. In 2002, my advisor hosted the regional conference at NIU and I was involved first hand in that process. Even though the day of the conference was one of the rainiest days of the decade, we had a good turn out and lots of great ideas were exchanged. Then it was on to Phoenix for my second annual meeting. It was fun to see people I had met the year before and to meet new ones. And it is fun to learn. At HAPS, you cannot help but learn from all the dedicated and experienced folks there.

2003 brought a full time job position teaching A&P at Elgin Community College, graduation with a Masters Degree, the regional conference at University of Illinois-Chicago, and the Philadelphia annual meeting. Who will ever be able to forget the Mutter Museum? More good information! Guess it is time to buy a filing cabinet so I can keep it all organized...

Now it is 2004. I have one year of full time teaching under my belt. I attended the regional conference at Moraine Valley CC and applied for the Robert Anthony Scholarship to attend the annual meeting in Calgary. The Robert Anthony Scholarship is available to anyone who is in their first three years of full-time teaching of A&P. It pays for the annual conference registration and also the banquet. Application is easy; just fill out a brief form, get your dean to write a letter in support of your application, and send all of your documents to Rich Faircloth before the December 31 deadline.

The annual meetings are jam packed with good information. The first two days have update seminars in which experts in their fields talk about the most recent research and developments. These are always interesting and give current information that can be taken back to the classroom. The second two days are filled with workshops. These workshops cover a myriad of topics, ranging...
from how to teach on-line A&P classes to strategies for first-day activities and everything in between. For example, this year, I “walked” and “digested” my way through a bigger than life-size digestive tract which was set up to help kinesthetic learners, I investigated a scavenger hunt full of interesting special projects my students can do this semester, and I got lots of interesting ways to help my students remember all those details by using analogies. What is really fun is that the presenter of each workshop always has lots of good ideas and these are often supplemented by those who attend the workshops. That is something like saying the sum of its parts is greater than the whole! Or more bang for your buck! Either way, HAPS is the best thing going. Try it, you will love it!

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I have had the good fortune to attend many conferences over the years but none of them has been more enjoyable and more profitable than the HAPS Conference in Calgary. I am very thankful for the opportunity to attend the conference with assistance from the Robert B. Anthony Scholarship. I have never attended a conference where I gained useful information from every seminar and session I attended. The Scholarship Committee and the membership should know that their money was well invested by helping me attend the HAPS Calgary Conference.

Izak, Janice, Katja, and their committee did a fabulous job in organizing the conference from the opening reception with the fiddlers to the trip into the Canadian Rockies. The First Timers breakfast gave me an opportunity to meet other A&P teachers from around the continent. I have already heard from one. The Banquet was another great meal. The beef was some of the best I have ever eaten, which is saying a lot coming from a Texan. The directory of names (which I have marked with the people I met) will be a great reference. It may have been my good fortune in choosing the sessions I attended, or maybe they were all great, but I will be able to use material from each one. The field trips were wonderful, even though we had a scare at the Royal Tyrrell Museum. The lights came back on just in time and we were able to see all of those magnificent dinosaurs and the ammonite fossil that is used to make the ammolite jewelry (Canada’s opal). I bought one piece in Calgary and have been on eBay since I got home trying to purchase more. Because of this, my husband may be hesitant to see me go to St. Louis! Beginning this fall, my A&P classes will be much improved because of the new information and ideas I will incorporate from the HAPS Conference. As I told Margaret Weck at our Lake Louise stop, I am glad that Austin is not following Calgary so that I will have another conference under my belt before I have to become part of the 2006 host committee! I am looking forward to the conference next year in St. Louis to see how they can top our experiences this year.

Thank you again to the Scholarship Committee and to the membership for their generous contribution through the Robert B. Anthony Scholarship.

The 2005 Robert Anthony Scholarship application deadline is December 31, 2004. Please go to the Haps website (wwwhapsweb.org) for applications and the call for proposals for grants and scholarships. If you have any questions regarding grants and scholarships contact Richard Faircloth at rfaircloth@aacc.edu.
Electing the Leadership

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The annual process of identifying candidates for the 2005 HAPS election is underway. The Nominating Committee, which I chair, will be assembling a slate of top candidates to fill each of the offices that have terms ending on July 1, 2005. These are President-Elect, Secretary, Central Regional Director, and Southern Regional Director. The following operating principles will guide the Nominating Committee in its work:

• A maximum of two candidates will be nominated for the position of President-Elect. This ensures that whoever is elected is supported by a majority of those members who vote. The maximum number of candidates for offices other than President-Elect has been set at three.

• Members of the Nominating Committee will solicit candidate recommendations from other HAPS members. You are invited to submit your own suggestion to the Nominating Committee on or before January 31, 2005, in order to be considered for nomination.

• The Nominating Committee will compile a list of possible candidates for each office and prioritize the lists according to criteria approved by the HAPS Board of Directors. The criteria include the following:
  1) years of HAPS membership,
  2) committee participation and/or leadership,
  3) current or previous elected or appointed positions,
  4) attendance at regional and/or national conferences,
  5) presentations made at regional and/or national conferences,
  6) other special work for HAPS, and
  7) evidence of support from the home institution.

• After a list of potential candidates has been compiled and prioritized, each candidate will be approached individually to determine his or her willingness to run for a specific office.

• All discussions of potential candidates will remain confidential within the Nominating Committee.

• In late March or early April, each member of HAPS will receive brief biographies of the candidates along with ballots on which to indicate their choices. Write-in candidates are acceptable at the time of balloting. However, if you choose to enter a write-in vote for someone other than yourself, it is requested that you obtain the candidate’s approval before doing so. All ballots are to be submitted directly to Ferguson Management, Inc., HAPS management company in St. Louis, where they will be counted by Ferguson Management, Inc. staff. It will be my pleasure to announce the results of the election during the annual business meeting at the HAPS 2005 Conference in St. Louis.

Description of the offices to be filled in the 2005 elections:

President-Elect: The office of President-Elect actually involves a three-year commitment (first as President-Elect, then President, and finally Past President). The year-long training period of the President-Elect includes a position on the Board of Directors and ensures a smooth transition to the presidency the following year. The President-Elect works closely with the President and is privy to all of the decision making and much of the correspondence in which the President engages. During the training year, the President-Elect is responsible for chairing the Nominating Committee for the next election, and for chairing the Partners Association Committee.

Secretary: The Secretary maintains corporate records and the minutes of the Board meetings, Annual meetings, and other meetings as needed. The Secretary also assists with the membership directory, member renewals, budgeting, and any official correspondence for the Society. There is a two-year term of office, with the possibility of re-election for a second term.

Regional Directors: The Regional Directors are elected by the entire membership and exist to ensure that there will be individuals from across the continent serving on the Board of Directors. Each Regional Director is responsible for communicating with his/her constituents via small group meetings and written communications. They also serve as members of the Regional Conference Committee to promote local/regional conferences in their respective areas. Regional Directors are responsible to support and communicate with various HAPS committees assigned to them. The term of office for this position is two years with the opportunity to be re-elected for one additional consecutive term. The positions up for election this year are the Central and Southern Regional Directors.
In his update seminar on the techniques and challenges of islet transplantation for the treatment of insulin dependent (Type 1) diabetes mellitus Dr. Shapiro stated that in 2004 an estimated 171 million people worldwide are afflicted with this form of diabetes. There are 3.2 million diabetes-related deaths, including 25% of deaths in the 35 to 64 age group. Initially performed in 1974 in mice, successful islet transplants secrete insulin in a physiologic manner that normalizes blood glucose and Hemoglobin A1c levels. In addition to eliminating the need for insulin therapy in most recipients, this gives promise of reducing the secondary heart, kidney, and vascular complications of diabetes, which lead to a 10- to 15-year shorter life expectancy for diabetics.

Development of the “Edmonton Protocol” for viable islet isolation from donor pancreases and immunologic suppression of the recipient improved the rate of successful transplants from 8% of 450 attempts reported worldwide by 1999 to up to 100% success in the first year after transplant in 2000.

In the Edmonton Protocol, fresh donor pancreatic tissue is gently macerated, enzymatically treated, and then centrifuged under sterile, cool conditions to isolate viable islets. Even with this care, currently only 50% of donor pancreases yield viable islets which are held for 1 to 3 days in culture media while blood type matched recipients are prepared to receive the islets. After the portal vein is cannulated by a trans-hepatic catheter under CT guidance, about 60 ml of the islet solution is infused while the portal vein pressure is monitored. Immediate complications of bleeding, infection, and portal vein thrombosis are uncommon, and most patients leave the hospital after one day. In contrast, surgical complications of whole organ pancreas transplantation are significant, with prolonged post-operative hospitalizations not uncommon. Approximately 300,000 transplanted islets are required to eliminate the need for insulin therapy, so up to 3 donor pancreases may need to be used, and 1 or 2 infusions performed to treat one recipient.

The recipients are immune suppressed just prior to transplantation with non-corticosteroid anti-rejection drugs, including sirolimus, tacrolimus, and genetically engineered antibodies to T cells. The continuous immuno-suppression required has potential complications including infection, and kidney damage. Ironically, it may also result in diabetogenic islet cell toxicity which appears to be reduced by the avoidance of corticosteroid anti-rejection drugs.

Due to the scarcity of donor pancreases, the complex requirements for islet isolation, and complications associated with immuno-suppression, injected insulin is still the treatment of choice for most Type 1 diabetics. Progress in islet transplantation is dependent on the development of partial pancreas/living donor techniques, improved islet isolation, and less toxic immunosuppressive measures. Other avenues of investigation include new methods for shielding transplants from rejection and the cloning of islets from stem cells. While recent progress has been highly dependent on animal research, future developments in islet transplant may depend on the opportunity for stem cell research. In Canada, both animal and stem cell studies are in progress; patients from all over the world, including countries where such research is not possible, have already benefited from this stem cell research.

The Chem Matters workshop was developed following conversations between Paul Krieger and a member of the Grand Rapids Community College faculty. In this workshop, Paul covered teaching strategies for presenting fundamental chemistry concepts in ways that do not perpetuate misconceptions.

Concepts to emphasize in the area of chemical bonding include the fact that the formation of a chemical bond involves both the storage and release of energy. Energy must be invested in order to break a chemical bond; therefore, chemical bonds do not fly apart. Chemical bonds can be described in terms of their varying degrees of permanence, with covalent bonds being the most permanent and
Providing More Lecture Options to Classroom Students As Well as Distant Education Students

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Imagine delivering a lecture to a class of 60 students in a lecture hall. At the same time the students are hearing it, the instructor could be recording this lecture with a system called Tegrity WebLearner™ (http://www.tegrity.com). Thus, a traditional, on-campus lecture would be turned into an online lecture, and the recording could be used to increase student’s options in viewing the material. Within hours, the lecture material could be downloaded from a website onto a computer at home, in the library, a computer lab, or at work. This asynchronous presentation approach is extremely useful for many non-traditional students who must schedule study time around work and home responsibilities. It decreases the scheduling problems many traditional students face when class times conflict. Lectures may be viewed at any time, classroom space is optimized, yet students are not relegated to a delivery mode that is based on print media alone.

Television delivery, while successfully used for years, is limited by distance and Direct TV systems. This newer option for web-delivered content uses hardware and software produced by Tegrity WebLearner™. A portable Tegrity™ cart with a computer, projector, and two cameras is rolled into a classroom equipped with a whiteboard or projection screen. This hardware and software can capture and edit in-class lessons as they are being delivered to a resident class. Questions can be asked and answered in class, and students accessing the lessons at a later time can still feel like a member of the classroom.

PowerPoint™ slide shows can be used, and a cordless pencil-like mouse allows the instructor to add additional material (which is captured by Tegrity™) during class to keep students engaged. Other instructional modes, including the use of overhead transparencies and the traditional blackboard, are also very effective. Blackboard users write on a whiteboard and the camera captures the notes and drawings. Internet content displayed during the lecture can also be recorded with this system. A document camera records images of objects such as models, and, with a projection system, can be shown on a screen for the whole class to observe.

At the end of the lecture, the computer compiles the information into a folder of files that is then uploaded to a web site with a streaming server. Post editing is available, but not necessary. These lessons can then be accessed by students at dial-up speeds as slow as 28.8K, but higher speed access is probably needed for acceptable download times. With a higher speed system, the student will hear clear audio, see a rough video, and good PowerPoint™ show or whiteboard presentation with added notations. Its audio/video delivery format is Windows Media™. PowerPoint™ slides of the presentation are generated during the lecture and can be downloaded from the server as well.

This workshop presentation can be viewed by emailing the author nkincaid@troyst.edu for the current link.
A PowerPoint™ presentation was used to show samples from a book Paul recently completed entitled A Visual Analogy Guide to Human Anatomy, a supplement published by Morton Publishing, available for Fall 2004, that can be used in any undergraduate anatomy or anatomy & physiology course. He gave everyone a handout that highlighted different analogies he uses for anatomy and encouraged others to share their ideas with each other. He presented examples from each organ system in the same order they would be found in an anatomy & physiology textbook, beginning with histology and ending with reproductive systems.

Here are a few of the analogies presented in the workshop:

- **TISSUES - simple squamous epithelium:** Each cell is like a flat, roof shingle and the whole tissue is like all the shingles on the roof.
- **SKELETAL SYSTEM**
  - **coronal suture:** Think of a tiara that rests on a beauty queen’s head. It follows the same direction as the coronal suture. In addition, the term coronal means crown.
  - **sphenoid (entire bone):** The entire bone looks like a bat with its wings spread straight out. The wings of the bat are the greater wings, the big ears of the bat are the lesser wings, the bat’s body is the sella turcica, and the legs are the pterygoid processes.
  - **sphenoidal foramina:** Use the “ROS” the cowboy analogy” which uses a visual aid to link together five different sphenoidal foramina. A cowboy named ROS sits in the sella turcica. He is named after three foramina on either side of him – Rotundum, Ovale, Spinosum. His Legs go through Lacerum, and his arms go through the optic canal. Imagine the optic nerve coming through the optic canal. ROS grabs the optic nerves like they were the reins of a horse.
- **MUSCULAR SYSTEM:** To distinguish the relative positions of the three different muscles that make up the hamstring group, remember that “the two semis go together” (semitendinosus and semimembranosus). The semimembranosus has a long tendon and the semimembranosus is More Medial. The Biceps brachii is BY itself on the lateral aspect of the thigh.
- **DIGESTIVE SYSTEM:** The hepatic lobule looks like a small “kiddie” ferris wheel with six swinging chairs. The hub of the ferris wheel is the central vein, each swinging chair gives the location of the hepatic triad, the spokes of the wheel are the sinusoids.
- **MALE REPRODUCTIVE SYSTEM:** The penis in cross section looks like a chimpanzee’s face. The area around the eye is the corpora cavernosa, the area around the mouth is the corpus spongiosum, and the mouth itself is the male urethra.
- **FEMALE REPRODUCTIVE SYSTEM:** To remember the maturation of a follicle in the ovarian cycle, the filling of the follicle with follicular fluid is functionally like a water balloon filling with water.

If you are interested in a copy of the handout that was provided, please contact the presenter.

---

**Correction**

Workshop #204 at HAPS 2004
Ways to More Actively Engage Students in Cadaver Labs
Utilizing Community Based Professional Resources

Dr. Michael VanLue, Assistant Professor, Dept. of Communication Sciences & Disorders, Radford University, Radford, VA 24142
and Mr. John Kell, Instructor, Department of Biology, Radford University, Radford, VA 24142 were mistakenly omitted as collaborators on a portion of the workshop.
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Development of a standardized fee structure for the annual conference, formulation of guidelines and assistance for the conference coordinator, and generation of a calendar of conference sites.

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PARTNERS ASSOCIATION
Ric Martini, Chair
(see above information)
Coordinates the pursuit of common goals, information exchange, and the sharing of resources between HAPS and other professional societies.

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Recently completed, tested, and approved the HAPS Standardized Test for Human Anatomy and Physiology. Any HAPS member may obtain a copy of the test by writing to the Chair.

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The committee chairs invite input from HAPS members and willingly provide information on the activities of their committees.
HAPS Gratefully Acknowledges the Following for their Sponsorship and Support of HAPS 2004 in Calgary

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