HUMAN ANATOMY & PHYSIOLOGY SOCIETY
Established in 1989 by Human Anatomy & Physiology Teachers

Promoting Excellence in the Teaching of Human Anatomy & Physiology
CONTENTS

Greetings from Your President
Christine Martin 2

Regional Conference
3

Grant Recipients
3

Teaching Tips
4
Model Repair: Sources of Materials
Paul F. Teller
Post-it® Notes for Graphing
Craig Clifford

At the Cutting Edge
Challenging Conventional Wisdom - Is the Foot a Second-Class Lever?
Kenneth Saladin & Harry McDonald 6

HAPS Annual Conference 1999: In Review
Update Seminar: Cardiovascular Aging
Dr. Gary Gerstenblith 8

Workshop: Connecting on the First Day of Class and Beyond
Richard Faircloth and Michael Glasgow 10

Workshop: Seeking Solutions for Presenting Complex Areas in A&P Lecture
Charles Leonard 11

Reviewed by: Charles Wert 14

Our Favorite Web Sites
16

$5000 Fellowships Available
16

Member Directory Updates
16

Position Available
16
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. 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, 222 S Meramec, Suite 303, St. Louis, MO 63105. 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 submitted on 3.5" double density disks are preferred - 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 Editorial Board 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 appears 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: June 1 (August issue); September 1 (November issue); December 1 (February issue); March 1 (May issue).

HAPS-EDucator - August 1999 - page 1
Kudos to Bob Smoes and his stellar conference committee members who provided one of our best annual conferences to date. Many new attendees walked into our annual “First-Timers’ Breakfast” displaying enthusiasm for the organization and expressing an interest in getting involved. I was gratified to see officers and long-time members gather to introduce themselves and make people feel welcome - in my opinion one of the most valuable offerings from HAPS. The Update Seminar speakers varied in their expertise and ranged from a Nobel Laureate discussing nitrous oxide to an inspiring update by a pediatric plastic surgeon. The annual banquet (great food, Bob) found many of us intrigued by an interesting twist provided by our guest speaker regarding alternative forms of medicine in the western world. Conference attendees had nearly fifty workshops to choose from during the two days which allowed us to visit Towson University. The generosity of our publishers and vendors, as always, provided some down time for the attendees and proved to be a much appreciated part of the conference.

Baltimore in May was beautiful as anyone who took a jaunt around the harbor can attest. Fells Point in the downtown area provided a glimpse into the days of early Baltimore with cobblestone streets and small, restored row houses, while Little Italy and its plethora of small family-owned restaurants with sidewalk seating made one feel as if they were part of the family. (Indeed, while eating a plate of pasta, a nephew of the owner asked if he might join us and yelled “Hey Uncle Dominic, youse forgot her napkin.”) Our hotel found us in Hunt Valley, Maryland, in the midst of some of the most beautiful horse country in the Northeast. A drive through the nearby countryside revealed acres of white fence and mown pastures where most neighboring farmers connect riding and jumping runs for fox hunting enthusiasts. Being a small-town girl, I never had the opportunity to travel until I began attending HAPS conferences several years ago. Having the chance to refresh my teaching skills, see old friends, make new ones, and see a different city each year is a wonderful opportunity which this organization has provided me. Thanks to all who made the conference a success. Your turn next year, Nishi!

July saw the transition of new officers and committee chairs. I’m sure I echo the cheers of the organization in congratulating Steve Trautwein on a banner year of serving as President. Steve, your grace and diplomacy during times of adversity has set an example for me which I’m not sure I will be able to follow. Most of us don’t know how we will react until our mettle has been tested, and you have brought us through a year of complex issues and change. Thank you to all who served on the past Board of Directors and continue to do so. There are numerous volunteer hours that go into these elected positions, and your dedication is much appreciated.

Our new President-Elect (and former annual conference host) is our favorite Canuck from Ontario, Henry Ruschin. From the southern region, we are honored to welcome (complete with lovely accent) director Donna Rowell, and from the central region (although an original Idaho spud) director Caryl Tickner. Judi Lindsley comes on board from northwest Ohio to serve as secretary (and stands out as the only person I have ever met who orders a quart glass of milk while at a HAPS social). As our membership continues to grow and we are faced with new challenges, I hope to retain the focus on the teaching mission of HAPS and continue to validate and explore the wishes of the members. I ask your support and patience during my transition as your President.

New, albeit familiar, faces abound on several of the national committee chairs. Sam Drogo of Mohawk Valley Community College in New York will take over the helm of the Competency Testing Committee. Dave Parker, formerly Southern Regional Director, will lead the Annual Conference Committee, while Mary Bracken and Lisa Lupini take over as co-chairs of the Regional Conference Committee. Kevin Petti (San Diego Miramar College) will be presiding over the redesigned Membership Committee. There will be new policy statements forthcoming on Distance Learning and Software Review from Tom Lancraft and Martha Sunner’s committees as well. Each of the aforementioned chairs have been hard at work throughout the summer and have already submitted detailed agendas of activities and ideas for the coming year. That the committee chairs who preceded them laid valuable groundwork for the continued growth of each committee speaks highly of our volunteer effort. Watch for an increased number of regional conferences as well as information from the committees in the next issue of the Educator.

The Board has been addressing several issues of late and will begin our usual calendar of conference calls in preparation for business at the winter Board meeting. We plan to communicate more frequently via e-mails with the purpose of cutting down on some of our conference call time and expense. Our management firm, Organizational Services Group (OSG), has been assuming an increasing role with regards to data base keeping, dues renewals and general organizational duties. They continue to work closely with the Board while freeing us to pursue other avenues of interest to the membership. At the close of the annual meeting in Baltimore, it was suggested that we refer to OSG hereafter as “HAPS Headquarters” to better reflect their services to us and to keep the focus on our organization as well.

Greetings from President continued on page 3
Greetings from President continued from page 2

On suggestion of the membership, the Board, has been examining tiered fee structures for yearly dues. At present we are discussing several different scenarios which examine membership costs for full-time, part-time, student, and retired HAPS members. In looking at these possibilities, it is the responsibility of the Board to ensure, as closely as possible, that our projected income meets our projected expenses for the year - a daunting task as the organization continues to grow and the membership requests additional services. We appreciate the vote during the annual business meeting in Baltimore which approved the budget and allowed us to raise annual dues to $50.00. We are bound to do our best and pledge, as always, to keep the interests of the membership foremost in our minds. As an example of this, during last January’s meeting of officers and committee chairs, the Board decided it would be in the best interest of the membership if we did not make the HAPS Software List available on our web page, with the intention that it would be available to only dues paying members of HAPS (thus its inclusion in your April ballots). In the following months, the membership spoke loud and clear via e-mails and list serve communication and enlightened the Board that the Software List should remain on the web page for all to share; thus, it was reinstated shortly thereafter. We thank those of you who took the time to share your altruistic opinion - it mattered!

Best of luck to all of you for the remainder of the fall term. ☺

Regional Conferences

ReLive the excitement of the HAPS Annual Conference! Explore new concepts in teaching anatomy and physiology laboratories and lectures! Make 50 new friends!

All of this AND MORE can be achieved by your hosting a Regional Conference.

Because of member feedback, the Board has addressed the issue of having more Regional Conferences available for HAPS members who cannot afford the time and/or money to attend the national conferences. The goal of the Board is have a minimum of one Regional Conference in each region on an annual basis. Regional Directors have been charged with the task of aiding the Regional Director Committee Co-Chairs in soliciting HAPS members to host Regional Conferences.

If you have questions about what is required to host a Regional Conference, Mary Bracken and Lisa Lupini, Co-Chairs of the Regional Conference Committee, have a variety of resources to share with you. There are also many HAPS members who have hosted Regional Conferences and who would be happy to fill you in on the joys and pitfalls of hosting a Regional Conference.

Contact: Mary Bracken, Trinity Valley Community College, P.O. Box 668, Dept. of Biology, Terrell, TX 75160 (972) 563-9573, mbbracken@pulse.net; or Lisa Lupini, Baker College of Flint, Dept. HHS, 1050 West Bristol Rd., Flint, MI 48507; (810)766-4194, lupini17@gateway.net

Regions

North East - Director Pamela Langley
ME, MA, CT, VT, NH, NY, RI, PA, DE, NJ, New Brunswick, Newfoundland, Nova Scotia, and Prince Edward Island

Central: - Director Caryl Tickner
OH, IN, IL, WI, MI, MO, MN, IA, Ontario, Quebec

South and Puerto Rico: - Director Donna Rowell
VA, WV, KY, TN, NC, SC, GA, FL, AL, AR, MS, LA, TX, OK, MD

West: - Director Sandy Lewis
HI, WA, CA, MT, CO, ID, KS, OR, NE, ND, SD, UT, AZ, NM, NV, WY, AK, Alberta, British Columbia, Manitoba, Saskatchewan, and Yukon

LOOK WHAT YOU’RE MISSING

You wouldn’t believe what you’ve been missing in cyberland - extremely interesting discussions on myriad anatomy and physiology topics, listings for positions available, humor that only A&P instructors appreciate...all this and MORE await you by merely signing on to the HAPS list serve. To subscribe send an e-mail to:

HAPP-L-request@scimath.imperial.cc.ca.us

with the word SUBSCRIBE by itself in the body of the message. Please note the “HAPP-L” part must be uppercase.

If you have any difficulty subscribing or unsubscribing, please contact Jim Pendley, list manager, by e-mail (pendley@imperial.cc.ca.us).

If you are new to the subject of mailing lists, e-mail Jim Pendley and he will send you some information.

We can’t wait for YOUR input!

HAPS-Educator - August 1999 - page 3
Model Repair: Sources of Materials

Paul F. Teller
Central Carolina Technical College
506 N. Guignard Drive
Sumter, SC 29150

At the HAPS conference this spring in Towson, Maryland, I gave a workshop on the repair of anatomical models. In addition, the May (1999) issue of the HAPS Educator included an article entitled “Stretch Your Budget: Repairing Anatomical Models” which contained some of the same repair information presented during my workshop in Towson.

As a result of the workshop, several participants requested more specific information for sources of some of the materials used in the workshop. I have identified sources of materials and prices for products available on a national basis as well as local sources. Please note that the materials listed in this article are those that I have personally used and which seem to be available on a national basis; there is no implied endorsement of any specific brand. The listing of sources is not complete; thus if you have additional questions, please do not hesitate to write or e-mail me at (pteller@sumter.net). In addition, if you find other suppliers or find new repair methods, please send them to the HAPS Educator.

PLASTER (plaster of Paris) is used as spackling for plaster repairs. A local ACE hardware store carried plaster in 2, 5, and 25 lb. bags. The five pound bag was $2.49. To mix the plaster, follow the package-recommended directions for adding water and stir until a smooth paste is obtained. To ensure a good bond when filling a pre-existing mounting hole, use a pair of angled forceps or a small probe to carve a series of annular grooves down the inside of the hole. Allow the model to dry in an undisturbed location. Most curing of the plaster requires only an overnight cure; however if the repair is extensive, a longer cure time may be required. When properly cured, the plaster should be bright white, dry and cool to the touch.

There are some models which are still made entirely of plaster. Examples include a cell model brought by one workshop participant and the muscle cell models I use in my laboratory at Central Carolina Technical College. Although these plaster models easily chip, they are also easily repaired. After the plaster dries, it can very readily be carved or sanded. If the model is smashed, it can be put together again by applying fresh plaster or glue to exposed surfaces. To stabilize the repair while it dries, it is wise to bore holes in each part and insert toothpicks or other reinforcements.

LATCHES for attaching parts, such as heads to torsos, can be obtained by diligent searching. At the national hardware chain Lowe’s, I have found Stanley brand latches #80-3640, 1 3/8″ long with hasps (a.k.a. “staples”) to accept the hook. They cost about $2.50 for a pack of two hooks and two staples. They were found in the section that included hinges and other fastenings, which is a likely location in almost any hardware store. Sears also stocks Stanley materials.

Another source of latches that resemble the ones shown in pictures at the conference is Woodworker’s Supply of North Carolina, New Mexico, and Wyoming. On page 91 of catalog #145, which was recently published, there are listings for “latch hooks” of the following sizes and prices for a package of four hooks of brass plated steel with the proper screws:

<table>
<thead>
<tr>
<th>Stock No.</th>
<th>Length</th>
<th>$/pkg.</th>
<th>10+ pkgs.</th>
</tr>
</thead>
<tbody>
<tr>
<td>882-581</td>
<td>3/4&quot;</td>
<td>$1.45</td>
<td>$1.45</td>
</tr>
<tr>
<td>882-588</td>
<td>1&quot;</td>
<td>$1.95</td>
<td>$1.75</td>
</tr>
<tr>
<td>882-595</td>
<td>1 1/4&quot;</td>
<td>$2.55</td>
<td>$2.25</td>
</tr>
<tr>
<td>882-602</td>
<td>1 1/2&quot;</td>
<td>$2.85</td>
<td>$2.55</td>
</tr>
<tr>
<td>935-898</td>
<td>9/16&quot;</td>
<td>$1.25</td>
<td>$1.10</td>
</tr>
</tbody>
</table>

(a trifle more ornate)

The 3/4" latch is almost exactly the length of the original latch securing the two halves of our Somso Head and Neck model and is close to the size used as calvarium latches on our plastic

Teaching Tips continued on page 5
Teaching Tips continued from page 4

skulls. The 1" length was what I used to steady the head on the Somso torso illustrated in the May EDUCATOR article. The address on their order form is:

Woodworker's Supply
1108 North Glenn Road
Casper, Wyoming. 82601-1698.
Toll-free: 1-800-645-9292, (24 hr./day, 7 days/wk.) Fax: 1-800-853-WOOD (9663).

This company did not list hasps for the latches, but any screw-eye that will fit the hook will work. On our skulls, a simple panhead screw serves as a hasp.

Latches and hasps could also be useful for articulating parts of larger eye models or any other lab model that requires easy assembly and disassembly.

METAL RODS for pins of almost any length or diameter can be purchased at Lowe's and many hardware stores. If rods are not available, it is possible to use a large nail of the desired diameter and cut it into sections with a hacksaw or cutting pliers. Nails seem to have some of the flexibility of the welding rods used in the workshop and they come in all sizes.

SHEET METAL can be used to repair skeletal joints. If sheet metal cannot be found locally, it is possible to use pieces cut from a stout tin or aluminum can. Flashing or roofing tin would be strong enough for skeletal articulations. Local sheet metal shops should be able to either supply small pieces or to indicate a local source of small sheets; check the yellow pages.

CABLE COVER is the proper name for the split white plastic tubing used to reline pin sockets in models, especially in recent Somso muscle models. The tubing shown in the workshop was purchased from a boat shop in Charleston, South Carolina. A ready national source would be:

BOAT U.S. (Boat Owners Association Of The United States)
884 So. Pickett St., Alexandria, VA 22304
Toll-free: 1-800-937-2628.
(I called to be sure that non-members could order.)

In this year's catalog, DAVIS brand cable covers are listed on page 264. Prices for six-foot lengths are as follows:

<table>
<thead>
<tr>
<th>Diameter</th>
<th>Model</th>
<th>Item</th>
<th>Boat U.S. price</th>
</tr>
</thead>
<tbody>
<tr>
<td>3/32&quot;</td>
<td>251</td>
<td>338410</td>
<td>$ 0.99</td>
</tr>
<tr>
<td>1/8&quot;</td>
<td>252</td>
<td>338411</td>
<td>$ 1.10</td>
</tr>
<tr>
<td>5/32&quot;</td>
<td>253</td>
<td>338412</td>
<td>$ 1.25</td>
</tr>
<tr>
<td>3/16&quot;</td>
<td>254</td>
<td>338413</td>
<td>$ 1.55</td>
</tr>
<tr>
<td>1/4 &quot;</td>
<td>255</td>
<td>338414</td>
<td>$ 1.85</td>
</tr>
<tr>
<td>5/16&quot;</td>
<td>256</td>
<td>338415</td>
<td>$ 2.20</td>
</tr>
<tr>
<td>3/8&quot;</td>
<td>257</td>
<td>338416</td>
<td>$ 2.69</td>
</tr>
</tbody>
</table>

In the workshop and article, I used the 1/4" size. If a larger pin size than the original is used, a larger cable cover would probably be required. A 6' length of cable cover would be sufficient for many repairs.

Craig Clifford
Northeastern State University
611 N. Grand Avenue
Tahlequah, OK 74464
918-456-5511 x 3827
clifford@cherokee.nsuok.edu

Over the past four years I have been involved in an Eisenhower-funded project designed to help teachers better integrate math and science concepts into their teaching. I am part of a team of teachers who present a workshop every summer for other groups of teachers.

I have picked up several good ideas from my counterparts who teach elementary through high school. One such idea involves the use of Post-it® Notes to collect and plot data. Some physiology lab manuals ask students to determine their pulse as a way to study homeostasis and negative feedback mechanisms. These exercises are often the first exercises in the manual and thus are designed for early in the semester. To get the student moving I make them physically record their own average pulse rate on the board.

This past year I changed my approach by having students utilize Post-it® Notes rather than having the students write their values on the board. Each student was given a Post-it® Note that was color-coded for his/her gender. The students recorded their average pulse rates on the Post-it® Notes and then placed these in groups (by gender) on a large sheet of newsprint on a pad. We then averaged the values to determine the average pulse rates of females vs. males.

To introduce the basics of graphing, we then regrouped the Post-it® Notes into ten-unit ranges to illustrate how many individuals' average pulse rates fell into these categories. As we stacked the Post-it® Notes one on top of the other, a bar graph was formed. As per the lab manual's instructions, we then regrouped the average pulse rates based on whether the students exercised regularly or did not exercise regularly. The students could reuse their same Post-it® Notes or be issued new ones with different color-coding based on regularity of exercise. By using the gender color-coded Post-it® Notes, it clearly illustrated how many males vs. females exercised regularly.

Obviously, there are numerous variations on how this tool can be used. For example, when students determine their blood type, different colors of Post-it® Notes could be used to denote O+, O-, A+, etc. The students then could post the notes under headings on the board or on a large sheet of newsprint. In fact, any time information gathering is performed, this approach should increase student participation and interest. At the very least it will surely add some color to your lab!
Challenging Conventional Wisdom - Is the Foot a Second-Class Lever?

Kenneth S. Saladin  
Georgia College & State University  
Milledgeville, Georgia

and

Harry S. McDonald  
Stephen F. Austin State University  
Nacogdoches, Texas

The leading human anatomy and physiology textbooks on the current market almost universally present the foot undergoing plantar flexion as an example of a second-class lever (load in the middle, fulcrum and effort at opposite ends). Casual consideration of plantar flexion seems to support the common comparison to a wheelbarrow: the ball of the foot being the fulcrum, the weight of the body bearing down on the talus being the load, and the action of the gastrocnemius muscle on the calcaneus being the effort. When we stand on tiptoes, the body rises like the load in a wheelbarrow. Or does it?

McDonald (1993) questioned this assumption at a HAPS convention several years ago, drawing not only upon earlier literature that challenged it, but also upon empirical observation of the forces involved in plantar flexion. Textbooks published since that time largely disregarded the point, however, and continued to use the foot to exemplify a second-class lever. Saladin incorporated McDonald’s argument into a textbook manuscript, but it met with so much resistance from reviewers that he eventually relegated the argument to a sidebar (Saladin, 1998, p. 310) and cautiously repeated the wheelbarrow comparison in the main body of the text. We and other contributors discussed this issue on HAPS-L, the HAPS e-mail list, and emerged more convinced than ever that the first-class lever interpretation is correct. Here we present arguments against the conventional wisdom, we show that the foot behaves as a first-class lever in plantar flexion (but a third-class lever in dorsiflexion), and finally, we address the question, if the foot is not a second-class lever, are there any second-class levers at all in the human body?

Arguments Against the Second-Class Lever Interpretation
Consider four points that expose the weakness of the second-class lever interpretation:

1. When we lift a load in a wheelbarrow, the load moves relative to the origins of the muscle doing the work - chiefly the biceps brachii. When we stand on tiptoes, however, the talus and tibia do not move relative to the origins of the gastrocnemius. These bones and muscle origins remain at a constant distance from each other. The gastrocnemius does no work against the tibia and little against the talus (other than its pivoting action). Most of the work is done at the toes.

2. When the body rises on tiptoes, it may seem that we are doing work against the weight of the body itself. However, since all motion is relative, it is no more true (or false) to say we are moving the body farther away from the ground than to say we are pushing the earth farther away from the body (McDonald, 1993). The argument for either lever class cannot stand or fall on the basis of the relative movements of the body and earth.

3. When we lift a heavy load in a wheelbarrow, we create a force bearing down through the feet into the ground. If we’re standing in mud or on thin ice, the effects of this force may be demonstrated in a most unpleasant way. When the gastrocnemius lifts the calcaneus, it creates a similar force bearing down on the talus and thus adding to the load. To compare the action of the gastrocnemius to a wheelbarrow is like standing in the wheelbarrow trying to lift one’s own weight by the handles.

4. A second-class lever always has a mechanical advantage greater than 1. Mechanical advantage is a ratio of out-force to in-force (MA = Fo/Fi) and is approximated by.

Teaching Tips continued on page 7
Teaching Tips continued from page 6

the ratio of the length of the effort arm to the resistance arm (Le/Lr). The out-force of a second-class lever must be greater than the in-force. In standing on tiptoe, the out-force is the force needed to overcome the weight of the body, and the in-force is the tension generated by the gastrocnemius. Kimber et al. (1966, p. 158), however, rejected plantar flexion as a second-class action on the following grounds:

An example of the second-class lever frequently cited is the human foot, when the body is raised on tiptoe, the point of contact with the earth being considered the fulcrum. The pull exerted through the tendon of Achilles in this case is greater than the weight of the body acting at the ankle joint. Hence this is not a lever of the second class.

McDonald (1993) tested the forces involved in plantar flexion by removing a leg from a laboratory skeleton and attaching a spring scale to the calcaneus. The in-force needed to support the leg on the ball of the foot was greater than the weight of the entire skeletal leg, ruling out the possibility that the foot was acting as a second-class lever.

Similarly, Woodbury and Ruch (in Ruch and Fulton, 1960, p. 102) remarked:

At a moderate rate of walking, the triceps surae exerts a tension almost four times the person’s weight, and during running the gastrocnemius may exert a tension some six times the runner’s weight.

Argument for the First-Class Level Interpretation

To see the foot as a first-class lever, it helps to clear our minds of the wheelbarrow analogy for a moment. Imagine that you sit on the edge of a table and plantar flex the foot. Now the tibia is clearly the unmoving fulcrum. The talus rocks on the tibia as the toes move downward and the heel upward. There can be no credible denial that the foot is now acting as a first-class lever. Surely the foot does not change from being a first-class lever when we sit on the table to a second-class lever when we stand on tiptoes. The mechanics of the joint are the same in both cases. The foot does not act as a second-class lever in either case.

Are There Any Second-Class Levers in the Human Body?

Over the past few decades, nearly all anatomy and physiology textbooks have represented plantar flexion as a second-class action. While Kimber et al. (1966) rejected this example, they erred too far in the other direction: “There are no levers of the second class in the body” (p. 158).

For one example to the contrary, we submit that the mandible acts as a second-class lever when the digastric muscles forcibly open the mouth, as proposed by Basmajian (1976). The effort is exerted at the mental spines and the fulcrum is the temporomandibular joint. The resistance probably should be considered the actions of the temporalis and masseter muscles on the coronoid process and body of the mandible, since the digastric must oppose the tonus and the stretch reflex in those muscles in order to open the mouth wider than the relaxed extent afforded by gravity. The platysma makes a synergistic contribution to this second-class action, but the digastric is arguably a better example for textbook purposes because its point of insertion is more narrowly defined.

Another arguable second-class action is adduction of the femur by the adductor magnus and especially the gracilis muscles, which have their insertions distally. The synergistic actions of the pectineus and adductor brevis and longus probably should be interpreted as third-class, since their insertions are more proximal. If so, then femoral adduction shows elements of second- and third-class actions simultaneously. The tonus and stretch reflexes of the femoral adductors can be interpreted as the resistance. Still another arguable example is medial rotation of the scapula by the levator scapulae, with its insertion on the medial border being the point of effort, the humero-scapular joint being the fulcrum, and the resistance being supplied between these points by the tonus or stretch reflexes of the trapezius. Elevation of the ribs during inspiration might also serve as an example of second-class lever action, with the fulcrum at the costovertebral joints, although this example is clouded by the broad distribution of the intercostals over the entire shaft of the rib.

Conclusion

In conclusion, we submit that the foot acts as a first-class lever during plantar flexion. It should not be represented as a second-class lever or compared to the lifting of a wheelbarrow in our textbooks and courses. We do feel, however, that there are at least a few second-class levers in the body, and we suggest that the action of the digastric muscle on the mandible would be the clearest example for students to understand, while they can perhaps be challenged to identify and debate other examples as we have done above.

References


HAPS-EDucator - August 1999 - page 7
Cardiovascular Aging

presented by

Dr. Gary Gerstenblith
Johns Hopkins University
School of Medicine
Baltimore, MD

Dr. Gerstenblith is a professor of Medicine at the Johns Hopkins University School of Medicine in Baltimore, Maryland, where he is the director of clinical trials for the Cardiology Division. A specialist in cardiovascular aging, he received his M.D. from the University of Pennsylvania School of Medicine in 1971. Dr. Gerstenblith is a lifetime learner who has completed, with honors, the requirements for the J. D. degree from the University of Maryland School of Law (1984) and recently received his Masters of Science in Business Concentration in Medical Services Management from the John Hopkins University (1998).

Cardiovascular aging continues to become an increasingly important topic as our population ages. While the United States had fewer than one million individuals over the age of 85 in 1900, there are currently about five million people in that age cohort; and it is estimated that that figure will hit fifteen million before 2050. The increase in the incidence of cardiovascular disease that occurs in older adults is a complex interaction between physiologic changes due to the aging process itself, lifestyle factors that impact on cardiovascular fitness, and, in some cases, other disease conditions (diabetes, for example).

Two types of studies have been particularly helpful in shedding some light on cardiovascular changes that occur as part of the aging process. Studies such as the Framingham Heart Study and the Baltimore Longitudinal Study on Aging have gathered extensive data over several decades on large groups of human subjects. Analysis of data from studies such as these can be used to select individuals similar in general fitness and lifestyles which helps to isolate changes that are directly age-related. Animal studies (rats, rabbits, guinea pigs) involving specific genetic strains raised under controlled conditions can also be used to study age-related changes in these species.

Age-related Changes of the Heart

Several age-related changes in the heart have been documented that have systemic consequences for cardiovascular fitness.

Kitzman et al (1991) used Doppler imaging to study left ventricular filling in younger and older healthy adults. They found that while the peak force of cardiac contraction changes little with aging, there is a significant change in the duration of the contraction event. Compared with the cardiac muscle of the younger heart, the older heart takes longer to complete its contraction and the force remains high for a longer period of time. This results in less diastolic filling of the ventricles and a greater reliance on ventricular filling due to atrial systole. The prolonged contractile period correlates with other studies that have shown an age-related reduction in the efficiency of the active transport system that returns Ca++ ions to the sarcoplasmic reticulum following contraction. The increased reliance on atrial systole for filling the left ventricle necessitates an increase in left atrial pressure which, in turn, causes increased pulmonary blood pressure. The higher dependency on atrial systole also makes atrial fibrillation a significantly more serious problem for the senescent heart than for the younger heart.

Other studies have shown a drop in ventricular efficiency, particularly during exercise, as the heart ages. This results in a lower ejection fraction and an elevated end-systolic volume. Between age 20 and age 80 the ejection fraction drops from about 85% to about 70%. This lower ejection fraction results in a higher end-systolic volume, rising from about 20 ml at age 20 to about 40 ml at age 80.

Another age-related change in the heart is a decreased sensitivity to sympathetic stimulation. White and Leenen (1997) found that norepinephrine has a significantly greater positive effect on the force of heart contraction for the younger heart as opposed to the older heart. Stratton et al (1992) found that greater increases in heart rate in response to isoproterenol are seen in younger hearts than in older hearts. These changes are most likely due to changes in the beta adrenergic receptors in cardiac muscle. Scarpace et al (1992) found that older hearts have a decreased density of beta adrenergic receptors, particularly those receptors with the highest affinity. They also found a diminished response of those remaining receptors and a diminished adenyl cy-
Elevated blood pressure shows a positive correlation with cardiovascular disease and mortality, and this correlation increases with age. Control of elevated systolic blood pressure was shown in one study to result in a 42% drop in cardiovascular incidents and a 22% drop in mortality from cardiovascular incidents. The Joint National Committee on Prevention, Detection, Evaluation, and Treatment of Hypertension strongly recommends the use of lifestyle changes and drug therapy to lower hypertension. Diuretics and long-acting Ca blockers appear to be the most useful drugs for treating elevated systolic blood pressure.

The risk of cardiovascular disease increases with increases in the total blood cholesterol and decreases if total cholesterol is treated and lowered. About 4 out of 5 coronary heart disease patients have elevated total cholesterol levels and over half of these have an additional risk factor as well.

There is a positive correlation between weight and the incidence of cardiovascular disease. In considering weight there is a need to take into account other factors such as smoking, hypertension, insulin resistance, or other subclinical diseases. For example, a thin smoker is not at a lower risk than an overweight non-smoker. The Body Mass Index does not appear to be a good predictor of cardiovascular disease, but the waist to hip ratio does and is also a predictor of cancer risk. Whelton et al. (1998) studied 875 people between the ages of 60 and 80 and found that weight loss reduced the rate of cardiovascular incidents by 30%. Coupling this weight loss with a lowered sodium intake resulted in a 54% reduction in cardiovascular incidents.

Overall physical fitness is a factor in cardiovascular disease. Individuals who have maintained a high level of physical fitness throughout life are at the lowest risk. Individuals who have been unfit and remain unfit are at highest risk. Individuals who have been unfit but change their lifestyles to become more fit will decrease their risk of cardiovascular disease, but are at more risk than those who have been fit throughout their lives.

The news is more encouraging for reformed smokers. Smoking is a known risk factor in cardiovascular disease, but individuals who quit smoking see their cardiovascular risk return to ‘normal’ for their age within 3 to 5 years.

At age 35 males have about six times the risk of cardiovascular incidents and mortality as do women of the same age. This sex-related difference is reduced and eventually disappears with aging. This has led to speculation that female sex hormones have some effect that reduces the risk of cardiovascular disease. Lower incidence of coronary heart disease has been noted in post-menopausal women who are receiving estrogen replacement therapy, but whether this is due strictly to the estrogen therapy is not clear. Possibly those individuals who seek out estrogen replacement therapy are more health conscious in general and are at a lower risk.
because of other factors (non-smoking, lower weight, better physical fitness, etc.). Randomized trials with premarin/progesterin actually showed a slightly increased risk of cardiovascular incidents in the first year with a slightly reduced risk after 4 to 5 years. At the current time there is no shown cardiovascular basis for initiating estrogen replacement therapy.

While there are age-related changes that contribute to cardiovascular disease, cardiovascular disease is not a necessary part of aging. The main key lies in prevention. There are very few sudden heart attacks; most heart attacks take a lot of preparation. Identification and treatment of risk factors can do much to lower morbidity and mortality from cardiovascular disease. ♦

REFERENCES


The Scene: It’s the first day of a new semester. The classroom is filled with students, some of whom are friends, but most are essentially alone with their own thoughts... “Gee, I need this course in order to continue in my program, but I’ve heard it’s really hard! Will I be able to get the A or B that I must have? Or will I have to repeat in summer school? I wonder how much work this is going to take... I sure hope I get a good (easy) instructor! I heard the woman behind me say she has a good person for child care. Boy I wish I did! I just HAVE to get my RN by next spring... We can’t afford for me to stay in school any longer! Why, I must be the oldest person in the class (or the only male or minority)! I really feel out of place here. I’ll bet all the other students already know each other from other classes. Oh... Here’s the instructor. Better get out my pen and paper. Let’s go, notes. Don’t fail me now!”

The Method: During this workshop, participants were asked to assume the roles of students facing circumstances similar to those just described. The presenters then engaged them in a small group activity using faculty/student and student/student interactions to encourage sharing and to develop a “need to know” attitude toward the course by eliciting questions and items of concern from the “students.” Then, the course syllabus was used to demonstrate that the answers to many of the questions that had been raised could be found there. This helped the students get to know others in the class and learn more about the instructor while allaying some of their fears by clarifying what they should expect as the course progresses.

Similar small group, collaborative activities employed compare and contrast exercises to introduce a new unit of study (the integumentary system), reinforced content by encouraging critical thinking (the respiratory membrane), and integrated fundamental concepts from earlier content (embryonic origins of endocrine structures).

The benefits of “Connecting on the First Day of Class” have proven lasting and valuable for encouraging informal col-
Teaching Tips continued from page 10

Laboratory study at all stages of the course both inside and outside of the classroom. For example, the presenters reported that relationships established in this way have facilitated the development of self-confidence among students as well as an atmosphere of inclusiveness within the classroom. Furthermore, as questions recur from session to session, the instructor becomes aware of information which should be added to the syllabus in future semesters.

Seeking Solutions for Presenting Complex Areas in A&P Lecture

Presented by
Charles B. Leonard, Ph.D.
Gallaudet University
Washington, D.C.

Using examples taken from Instructor’s Resource Manual (Anatomy & Physiology, Third Edition, James Kennedy & Daniel A. Ring; Mosby, 1996), a variety of demonstrations that could easily be used in a lecture setting were presented to HAPS workshop attendees at Towson University, Maryland. Materials included toothpicks (spongy bone structure), a small tree limb (lamellae), pencils & colored tape (skeletal muscle structure), tongue depressors & dowel pegs on an overhead transparency (sliding filament), dominos (action potential), colored yarn (nerve plexus) and a six-pack of different soda cans (tight junctions; Goblet cells vs. regular cells). Analogies were also used to illustrate ideas such as many roads leading to an airport but people having to go through one security check-point (afferent/afferent vessels of a lymph node) or different types of openings or doorways to go from one area to another (types of cell membrane transport). The attendees were challenged to share other ways of illustrating complex areas in everyday terminology and then to make the connection with the scientific terminology involved. Several different examples were presented. One example was received following the conference and involved the “wave” seen at sporting events to illustrate the propagation of a nerve impulse. Obviously, the possibilities are limitless and could also involve suggestions from students as a type of student or class project.

A Letter of Thanks for Baltimore Conference

Thank you for the opportunity to share some of the awareness I’ve reached after almost thirty years in science and mathematics classrooms from fifth grade through Graduate and Professional Schools. I feel that both my poster presentation on student-centered learning and my future-oriented workshop filled the need of numerous attendees and, coincidentally, mine.

I enjoyed the conference facilities; the Hotel’s only deficiency was the lack of Television Channel TBS. I missed the Braves...Towson was fine.

I enjoyed meeting, creating, and recreating with the attendees, presenters, and staff. I have two new e-mail friends as a result of the conference; I’d like more.

Sincerely,

David Saltzman, D.D.S, Ph.D.
The Healing Experience
P.O. Box 101
Orange Springs, FL 32182
Home: DSaltz2211@aol.com
Work: david.saltzman@santafe.cc.fl.us

HAPS Conference attendees await the bus trip to the crab feast!
Bob Smoes and wife Caroline enjoy conference speaker.

Conference participants. (l to r) Gail Jenkins, Dr. Michael Robinson (Director of the National Zoological Park), Rich Faircloth, Mike Glasgow, and David Ford (pre-Physical Therapy student).

Vendors help attendees relax!
All smiles! Outgoing President Steve Trautwein hands over his gavel and has a reason to smile!

Bill Perrotti and Caryl Tickner enjoy the pre-banquet cocktail hour sponsored by John Wiley and Sons.

Workshop participants concentrate. (l to r) John Yrios, Leonard Crowley and Frazier Findlay.
Handbook on Teaching Undergraduate Science Courses: A Survival Training Manual
by Gordon E. Uno

This year’s HAPS Conference (Baltimore, MD) began with a presentation by Gordon E. Uno, Ph.D., entitled, “Developing an A&P Curriculum with Content and Skills: Less Really can be More.” The symposium focused on inquiry instruction as a more effective alternative to traditional didactic methods. He developed and supported his contention using several diagrams, which wonderfully encapsulated basic principles of learning theory and sound pedagogy. (True to form, Dr. Uno balanced the didactic elements of his presentation by having the audience engage in active learning activities, including an opportunity to practice making curricular choices for A&P.) Immediately following the symposium, he received several requests for copies of his illustrations. He casually replied that they all came from Handbook on Teaching Undergraduate Science Courses. Those aforementioned diagrams were simply a sampling from what should be a primer for undergraduate college teaching. In Handbook on Teaching Undergraduate Science Courses, Dr. Uno has compiled the most essential elements of the collective wisdom on teaching theory and practice and learning psychology into a deceptively modest little book. It contains the most important principles and techniques related to effective learning and teaching, presented in a very economical fashion. In fact, it is astonishing how much vital information is packed into its 159 pages. However, the writing style is not tedious; instead, in each chapter major issues related to a particular facet of teaching are dealt with succinctly. The following are brief descriptions of the content of each chapter:

Chapter I - some important principles of teaching philosophy, a summary of why non-science majors do poorly in biology courses, a list of characteristics of effective teachers, a list of the instructional responsibilities of a teacher to his/her students, an outline of six goals for science (including biology) education, a list of considerations for course design, and a list of the components of an exemplary biology program.

Chapter II - the results of case studies surveying seven new faculty members about their first years of teaching.

Chapter III - suggestions for interviewing for a teaching position, a list of things to do between accepting a teaching position and starting the job, a discussion of principles and considerations related to textbook selection, a discussion of the elements of a relationship between a mentor and a new instructor.

Chapter IV - an overview of excellent teaching, including: characteristics of excellent and poor instructors, and a list of model teaching techniques.

Chapter V - an overview of basic principles of learning theory, including: a list of six principles of learning; overviews of constructivism, stages of cognitive development, and the technique of front loading; how to address student misconceptions; discussions of student problems with learning and how to help students become self-directed learners; a discussion of principles of biological literacy and how to promote biological literacy; and a discussion of a BSCS instructional model for promoting student learning.

Chapter VI - an overview of several aspects of inquiry instruction (e.g., types of inquiry, the nature of the inquiry process, effective use of inquiry instruction, suggested activities, and suggestions for creating inquiry activities), a discussion of the interacting components of biology, and descriptions of scientific inquiry.

Chapter VII - an overview of critical thinking skills, including: a description of types of critical thinking; a description of the critical thinking approach; suggestions for integrating critical thinking into a course; and lists of behavioral objectives related to each type of critical thinking skill.

Chapter VIII - an overview of student assessment, including: a discussion of instructional objectives; a discussion of interacting factors of teaching and learning related to biology; a description of student outcomes related to knowledge (based on unifying principles of biology), attitudes and habits of mind, and decision-making skills; a discussion of assessment strategies; practical advice for assessing students; suggestions for developing test questions and assembling an exam; a list and description of types of evaluation instruments; a matrix for matching assessment format with instructional outcomes; and a matrix for developing an exam with items that reflect the emphasis on various topics.

Chapter IX - a discussion of the role of educational technology in biological sciences; and a list of ways in which technology can be useful to faculty.

Book Review continued on page 15
Book Review continued from page 14

Chapter X - an overview of the structure and function of lecture, including: “shoulds” and “should nots”; an outline of lecture development; suggestions for improving lectures; a checklist for an effective lecture; suggestions for improving lecture attendance; variations in lecture style; and alternatives, and group learning.

Chapter XI - an overview of the use of in-class discussions, including: a list of applications for which discussion sections are effective; a list of traits of good discussion leaders; a list of suggestions for improving discussions; a brief discussion of wait time; descriptions of different categories of questions that can be used to promote discussions; descriptions of different strategies for answering student questions; a list of suggestions for building rapport with students to encourage discussion; and descriptions of different discussion formats.

Chapter XII - an overview of course organization, including: initial considerations; steps in planning a course; issues related to majors and non-majors; course design; instructional strategies; curriculum themes; issues related to laboratory experiences; guidelines for course planning; and a matrix that correlates course components/goals with teaching and learning strategies.

Chapter XIII - an overview of the structure and application of the course syllabus, suggestions for activities for the first day of a course, and tips for preparing for the first day of a course.

Chapter XIV - an overview of common problems of teaching and dealing with students, and solutions for those problems, including: student expectations of instructors; a list of characteristics of student preparedness of college-level work with associated suggestions for addressing lack of preparedness; a list of instructor- and student-related reasons why students become obstructive; a list of student problems and solutions for those problems; suggestions for dealing with disruptive student behavior; suggestions for preventing/dealing with cheating; a discussion on how to deal with the evolution/creationism debate; suggestions for fostering student creativity; suggestions for student self-help; checking student notes; concept-mapping; suggestions for helping students to ask the right questions; and a list of general suggestions for success for instructors.

Handbook on Teaching Undergraduate Science Courses also includes several excellent figures and tables. For instance, in the figure on page 61 the author employs the image of a cube to illustrate interrelationships between major integrating principles of biology, different types of living systems, and levels of organization. In the next figure, the author uses the same approach to illustrate the interrelationship between the steps in scientific investigation, research emphases, and factors influencing scientific investigations. Both figures could serve as effective tools in communicating to students the nature of biology as a scientific discipline.

Starting on page 88 is a series of three tables that could serve as powerful tools for improving student assessment. The table appearing on pages 88-90 is a real treasure, for it provides an inventory of types of assessment methods, with a description and one or more examples of each. It is immediately followed by a matrix that can serve as a template for matching format of assessment with instructional outcomes, thereby enabling instructors to better assess student outcomes other than knowledge acquisition. The third table (p.92), also a matrix, can serve as a template that allows instructors to develop an examination with test items that reflect the emphasis on the various topics in an instructional unit, as well as enabling instructors to determine the number of test items at each level of thinking skills.

Handbook on Teaching Undergraduate Science Courses is an absolute gem of a resource of teaching practice. It ought to be in a prominent position on the bookshelf of every instructor of undergraduate biology courses, especially of neophyte instructors.

Reviewed by
Charles R. Wert, D.A.
Linn-Benton Community College
Albany, OR 97321
Our Favorite Web Sites

So many web sites, so little time......

As we are all well aware, there are literally millions of web sites on the "information super highway." Deciding which road to travel can be time-consuming and burdensome. In order to help us all whittle down time spent on the internet looking for web sites appropriate for anatomy and physiology instruction, the HAPS Educator editors are initiating a new column "Our Favorite Web Sites." The web sites listed here are those that our colleagues have found helpful. If YOU have a favorite web site that you would like to see included in future Educators, please e-mail me at the address and a brief description of the web site. Mail responses to: ctickner@stark.cc.oh.us

HAPPY SURFING!!

  National Library of Medicine's Visible Human Project.

  Nice histology slides from the University Kansas Department of Anatomy and Cell Biology.

  Histology web site designed for students by HAPS member Don Rubbelke. Includes a testing section.

- http://www.le.ac.uk/pathology/teach/VA/titlpagl.html
  Virtual Autopsy - presents 7 cases in which you (the "doctor") attempt to determine the cause of death.

$5000 Fellowships Available!

If you have some extra time between classes next year, why not take the opportunity to learn about science "in action;" that is, how the research process works, what research scientists do, and the intrinsic satisfaction and sense of excitement that comes from conducting scientific research?

The American Physiological Society's Physiology Insights Fellowship provides life science faculty at 2- and 4-year colleges with a 6-9 week hands-on, laboratory experience at a local research institution. Fellowship recipients have until May 1, 2000 to complete a minimum of six weeks of full-time or an equivalent amount of part-time lab research. Participants are paid a stipend of $400 per week for full-time participation or an adjusted rate for part-time participation in the research lab. In addition, participants will receive the following: a $200 stipend as well as housing and per diem for attending the Human Anatomy and Physiology Society (HAPS) Annual Conference in Charlotte, NC, in June 2000; $200 stipend for writing and submitting an inquiry-based classroom activity for publication; and a $300 mini-grant for materials and resources to use in the development or field testing of their classroom activity.

For more information, contact APS at: educatio@aps.faseb.org or visit the web site at: http://www.faseb.org/aps/educatn/insiinfo.html

Member Directory Updates

All HAPS members should have received their 1999-2000 Membership Directory. We understand that members change positions and mistakes may occur in the data base used to publish the Directory. Below are some changes/corrections that need to be made to your Directory. If there are errors in your membership listing, you may notify the HAPS Educator editor (ctickner@stark.cc.oh.us) for corrections in future HAPS Educators. Please be sure that the corrected information is also sent to the HAPS Secretary Judi Lindsley (jlindsle@lourdes.edu) so that it is entered into the data base.

Michael Palladino
Dept. of Biology
Monmouth University
West Long Branch, NJ 07764
Phone: 732-263-5542
Fax: 732-263-5243
e-mail: mpalladi@monmouth.edu

Joseph Griswold
e-mail: jgris@sci.sun.sci.ccnj.cuny.edu

Anne Lesak Scott
535 Briarcliff Ctr.
New Martinsville, WV 26155
Please delete reference to West Virginia Northern Community College

Donna Rowell
Collin County Community College
Spring Creek Campus H233
2800 Spring Creek Pkwy
Plano, TX 75074
Phone: 972-881-5889
e-mail: drowell@ccccd.edu

DORDT COLLEGE

Faculty Position

Dordt College is seeking a Christian academician with preparation in anatomy, human physiology, and vertebrate biology; or cell biology, molecular biology, and biochemistry; or a combination of the above for an opening beginning August 2000 in the

Biology Department

Evaluation of applications continues until the position is filled. To learn more about the position and receive application materials, qualified persons committed to a Reformed, biblical perspective and educational philosophy are encouraged to send a letter of interest that provides evidence of that commitment and a curriculum vitae to Dr. Rockne McCarthy; Dordt College; 498 4th Ave NE; Sioux Center, IA 51250-1697; facsimile: 712 722-4496; e-mail: vpa@dordt.edu; Web site: www.dordt.edu/offices/acadaff/

Dordt College encourages the nominations and candidacies of women, minorities, and persons with disabilities.

DORDT COLLEGE

498 4th Avenue NE
Sioux Center, Iowa 51250-1697

HAPS-EDucator - August 1999 - page 16
Have you ever wondered where you could obtain a standardized anatomy and physiology test? Or maybe you are thinking about an educational project and are looking for funding? Do you feel strongly about a particular issue and would appreciate an opportunity to discuss it with other HAPS members? The following committee chairs invite input from HAPS members and willingly provide information on the activities of their committees.

ANIMAL USE COMMITTEE
Craig Clifford, Chair
Northeastern State University
611 N. Grand Avenue
Tablequeah, OK 74464
(918) 436-5511 x 3827
clifford@cherokee.nsuok.edu

A three-year plan includes widely distributing the HAPS policy statement, developing animal use internet links on the HAPS Home Page, monitoring relevant legislation, and creating a resource packet for HAPS members. Suggestions and questions from members are welcome.

COMPETENCY TESTING COMMITTEE
Sam Drogo, Chair
Mohawk Valley Community College
1101 Sherman Dr.
Utica, NY 13501
(315) 792-5409
sdrogo@mvcc.edu

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

CORE CURRICULUM AND ASSESSMENT COMMITTEE
Joe Griswold, Co-Chair
Dept. of Biology
City College of New York
Convent Ave. at 138th St., J526
New York, NY 10031
(212) 650-8530
jgris@sciun.sci.cnny.cuny.edu

Dan Lemons, Co-Chair
Dept. of Biology
City College of New York
Convent Ave. at 138th St., J526
New York, NY 10031
(212) 650-8543
daniel@harold.sci.cen.y.cuny.edu

This committee has developed a second, revised edition of the HAPS "Human Anatomy and Physiology Course Guidelines." The second edition includes new guidelines relating specifically to the laboratory component of the course.

HAPS-EDUCATOR EDITORIAL ADVISORY BOARD
David L. Parker, Co-Chair
Northern Virginia Community College
3001 North Beauregard Street
Alexandria, VA 22311-5097
(703) 845-6004
nvparkd@nvcc.va.us

Judith Osborn, Co-Chair
Community College at St. Mary's
49557 Bay Forest Rd.
Lexington Park, MD 20653
(301) 475-8799 x 6358
(301) 475-6700 (fax)
juditho@charles.cc.md.us

Lisa Lupini, Co-Chair
Baker College of Flint, Dept. HHS
1050 West Bristol Rd.
Flint, MI 48507
(810) 766-4194
lupini17@gateway.net

The committee provides mentoring assistance to coordinators of regional conferences. Anyone interested in hosting a regional conference should contact the Chair.

TECHNOLOGY COMMITTEE
Martha DePecol Sanner, Co-Chair
Middlesex Community Tech. College
100 Training Hill Road
Middletown, CT 06457
(860) 343-5780
MDSANNER@aol.com

Jim Pendley, Co-Chair
Imperial Valley College
P.O. Box 158
Imperial, CA 92251
(619) 352-8320 x 303
pendley@imperial.cc.ca.us

The committee monitors and reports on technological changes influencing anatomy and physiology teaching, such as advances in instructional software and data acquisition equipment.

DISTANCE LEARNING POLICY COMMITTEE
Tom Lancerf, Chair
St. Petersburg Junior College
Natural Science
P.O. Box 13489
6605 Fifth Ave. N.
St. Petersburg, FL 33733
(813) 341-4797
lancerft@email.spjcc.fl.us

This committee is responsible for developing and distributing a HAPS position paper on distance learning.

SAFETY COMMITTEE
Sandy Lewis, Convener
Dept. of Biology
Pierce College
1601 39th Ave. S.E.
Puyallup, WA 98374
(253) 840-8377
slewis@pierce.cctc.edu

The Safety Committee is developing standards for safety in the laboratory.

CADAVER USE COMMITTEE
Jay Druetck, Chair
Chadron State College
1000 Main St.
Chadron, NE 69337
(308) 432-6422
jdruecker@csc1.scs.edu

The goals of this committee are to develop guidelines for use of cadavers in anatomy and physiology instruction.
HAPS 14th Annual Conference
June 9-15, 2000

Host:
UNC Charlotte
Charlotte, NC 28223

Proposed Topics:
Advances in cardiovascular studies
Ovarian cancer update
Genetics
Immunology
Advances in liver physiology:
  Mechanism of injury and repair
Building assessment tools into
  educational technology learning
  environments

Watch for updates on the HAPS web page:
www.hapsweb.org

For more information contact:
Nishi Bryska
UNC Charlotte
E-mail: nsbryska@email.uncc.edu
Phone: (704) 547-3454
Fax: (704) 547-3128