Dear HAPS Eastern Region Conference Attendee,

I am pleased to welcome you to the University of Pittsburgh campus here in Oakland for the Human Anatomy and Physiology Society 2020 Eastern Regional Meeting.

We are very excited for the opportunity to welcome visitors to our campus and to showcase the excellent undergraduate programs and different tracks our students follow as they prepare for careers, graduate programs and professional programs in biomedical fields. We strive to maintain high standards of excellence in our Anatomy and Physiology lecture- and laboratory-based classes are also excited to discover what you're doing in your own classrooms and laboratories. It is a pleasure to host a group committed to promoting teaching excellence, high student achievement, and effective preparation of students for their chosen careers.

I hope you will find our state-of-the-art facilities both within and outside of the Clapp-Langley-Crawford complex to be conducive for collaboration, innovation, and learning. We are proud of our campus and even more proud of the diverse community of colleagues and students we have studying and working here.

If you are new to Pittsburgh, please try to find time to see campus landmarks such as the Cathedral of Learning, whose Nationality Rooms (https://www.nationalityrooms.pitt.edu/) are a mere 100 meters from the Department of Biological Sciences and showcase the commitments made by diverse communities in Pittsburgh towards the education of its people. Many other city attractions — including the Carnegie Museum of Natural History, Carnegie Museum of Art, the Phipps Conservatory — are less than half a mile from campus. If you plan to venture Downtown, the views from Mount Washington and the Incline ride are a must. Food and shopping at the eclectic Strip District offer a special and diverse selection of ethnic goods. The cultural district Cultural District has seven world-class theaters and is home to a vibrant entertainment atmosphere and great restaurants. You can find out more about all our city has to offer at this link https://www.visitpittsburgh.com/plan-your-trip/visitors-guide/

Once again, welcome. I hope you enjoy your time on our campus and time with each other.

Sincerely,

Dr. Jeffrey Lawrence
Professor and Chair
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<th>Time</th>
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<td>Langley Hall 219A</td>
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<td>7:30 – 8:30 AM</td>
<td>Registration &amp; Breakfast</td>
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<td>8:30 – 9:00 AM</td>
<td>Welcome: Regional Host: Burhan Gharibeh Regional Organizers: Laurel Roberts, Suzanna Gribble, and Charles Welsh</td>
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<td>9:00 – 10:00 AM</td>
<td>Update Speaker I: Alan Sved, University of Pittsburgh “How a Baroreceptor Reflex Researcher Teaches Baroreceptor Reflex Physiology”</td>
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<td>Update Speaker II-A: A. Karthik Hariharan, University of Pittsburgh “Human Anatomy: A Hybrid Three-Dimensional Clinical Approach”</td>
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<td>Update Speaker II-B: Luke Ziegler, University of Pittsburgh Medical Center “Alive Without a Pulse: Anatomic and Physiologic Considerations in the Design and Clinical Utilization of Cardiac Assist and Cardiac Replacement Devices”</td>
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<td>11:45 AM – 1:00 PM</td>
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<td>3:30 – 4:00 PM</td>
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HAPS Eastern Regional Meeting
Exhibitors

HAPS would like to recognize and thank our conference exhibitors. Their generous support makes this conference possible.

Exhibitors
3B Scientific
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McGraw Hill Higher Education
MOPEC
Morton Publishing Company
W. Nuhsbaum, Inc.

The HAPS 34th Annual Conference will be held in Ottawa, Ontario on May 23 through May 27. The Update Seminar portion of the meeting (May 23-25) will be held at The Westin Ottawa and the Workshop portion of the meeting (May 26-27) will be held at The University of Ottawa.

Register online today!
Update Speaker I

Alan Sved

“How a Baroreceptor Reflex Researcher Teaches Baroreceptor Reflex Physiology”

9:00 – 10:00 AM
Langley Hall 221

Abstract: The baroreceptor reflex, a powerful negative feedback reflex, plays an essential role in cardiovascular regulation, acting to maintain arterial blood pressure within a narrow range. Much is known about the baroreceptor reflex and how it functions, but what are the fundamental aspects of this reflex that might be important to cover in a systems-level physiology course? Key aspects of baro-sensing, the neural pathways connecting baroreceptor afferent nerves to the relevant effector mechanisms, and how the baroreceptor reflex contributes to overall cardiovascular regulation in health and disease will be addressed. Studies in experimental animals that provide insight into these issues will be discussed, as well as highlighting some of the major questions remaining in baroreceptor reflex physiology.

Bio: Dr. Alan Sved is currently Professor and Chairman of the Department of Neuroscience and co-director of the Center for Neuroscience at the University of Pittsburgh. He received his PhD in neuroscience from MIT and continued with post-doctoral training at Cornell University Medical College. He then spent 5 years on the faculty in the Department of Neuroscience at the University of Medicine and Dentistry of New Jersey before moving to the University of Pittsburgh in 1987. Dr. Sved’s research focuses on two distinct areas, the neuropsychopharmacology of nicotine and the central neural control of autonomic function, particularly the cardiovascular system. His laboratory has been well-funded and productive over many years, and Dr. Sved has authored over 200 publications. Dr. Sved is also the PI of successful NIH predoctoral training grant in neuroscience. He is involved in all aspects of training, from teaching a popular undergraduate course in Human Physiology, to mentoring undergraduate students, graduate students, and post-doctoral trainees in his laboratory and the larger neuroscience community. Dr. Sved has served on numerous grant review panels at NIH and the American Heart Association and has served in various capacities in the American Physiological Society, including a term as an elected Councilor, and the Society for Neuroscience. Dr. Sved has served as Senior Editor of Brain Research and as an Associate Editor of the American Journal of Physiology. Dr. Sved has received several notable awards for research and teaching, including an Established Investigator Award from the American Heart Association, a Research Recognition Award from the American Physiology Society, and the inaugural University of Pittsburgh Provost’s Award for excellence in Graduate Student mentoring, and the Chancellor’s Distinguished Teaching Award.
Update Speaker II-A

A. Karthik Hariharan

“Human Anatomy: A Hybrid Three-Dimensional Clinical Approach”

10:45 – 11:45 AM
Langley 221A

Abstract: Students in Health Care majors must demonstrate competence in Human Anatomy consistently throughout their education and careers. Since application of this knowledge to patients is limited to the Diagnostics and Physical Examination coursework before entering the clinical phase of their education, application of the knowledge of Human Anatomy, identification of surface structures or the external anatomical landmarks and their corresponding deeper structures, on live patient models should be reinforced as much as possible. To address this need, instruction and assessment was integrated into the Human Anatomy coursework using 3-D applications, clinically oriented problem-based approach, standardized patients as “live” models. Further research is needed regarding its impact on pre-clinical and clinical coursework, including the effects of interactions with both live and cadaver models during the didactic portion of health care education and upon later formative and summative patient interactions in their careers. Preliminary data based on student feedback supports the role of a hybrid 3-dimensional approach to instruction and assessment of Human Anatomy in health care education.

Bio: Karthik Hariharan is currently a full-time instructor in the Dept. of Physical Therapy at the University of Pittsburgh, School of Health and Rehabilitation Sciences. He serves as the Director of Human Anatomy for the School of Health and Rehabilitation Sciences (SHRS). He currently teaches the Human Anatomy courses for the undergraduate (Rehabilitation Science; Athletic Training; pre-med majors) and graduate (Physician Assistant Studies, Masters in Sports Medicine, Doctor of Physical Therapy) programs at SHRS. In addition to this, Karthik serves as a member of the Committee for Oversight of Anatomical Specimen at the University of Pittsburgh. The courses he teaches include lecture and cadaver lab components. Since the time he started teaching Human Anatomy in 2013, he has adopted a clinical approach for the same considering the clinical / health care related programs. His courses adopt a 3-dimensional approach to content delivery where lectures consist of instruction using a 3-D application instead of traditional PowerPoints and textbooks. His research interests are closely aligned with his teaching model comparing clinical, problem based, 3-dimensional content delivery reinforced with surface anatomy and cadaver-based lab sessions with traditional Human anatomy courses.
Update Speaker II-B

Luke Ziegler

"Alive Without a Pulse: Anatomic and Physiologic Considerations in the Design and Clinical Utilization of Cardiac Assist and Cardiac Replacement Devices"

10:45 – 11:45 AM
Langley 224A

Abstract: While over 250,000 patients suffer from advanced systolic heart failure in the United States, there are less than 4,000 donor organs available yearly for use in cardiac transplantation. For this reason, a variety of mechanical blood pumps have been developed to augment, or even totally replace, the failing human heart. This talk will provide a brief overview of the pathophysiology and pharmacologic treatment of systolic heart failure, followed by a more extensive discussion of ventricular assist devices and total artificial hearts. Attention will be paid to 1) how the preexisting anatomy of structures in the thorax and abdomen have influenced device design and implantation strategies over time and 2) how device design has evolved over time to minimize the incidence of thrombosis, stroke, infection, bleeding, and death. Finally, the complex interactions of the cardiac assist device and the patient’s physiology will be explored, with emphasis on current-generation pumps that create continuous blood flow into the aorta.

Bio: Luke Ziegler is a Senior Biomedical Engineer at the UPMC Artificial Heart Program and Procirca’s Mechanical Circulatory Support division. In this role he has participated in implanting over 75 ventricular assist devices and contributed to the critical care management of several hundred patients undergoing these advanced therapies. He has a particular focus on pediatric mechanical circulatory support, having overseen the first ever use of glycoprotein IIb/IIIa inhibitor in a pediatric device patient, published the first ever use of a total artificial heart in a human infant, and is currently supporting the human trials of a novel ventricular assist device for infants and small children. Luke is also actively involved in cardiac device research with several institutions, having published his work in journals such as Artificial Organs and Annals of Thoracic Surgery, and serving as an invited reviewer for journals such as The International Journal of Artificial Organs.
Poster Presentations

“I Was the Clumsy One” - A Directed Case Study on Type I Chiari Malformation
Philomena Behmer, Pennsylvania College of Health Sciences, pmbehmer@pacollege.edu, Stacy Ropp, Pennsylvania College of Health Sciences, sropp01@gmail.com, Angela Shertzer, Pennsylvania College of Health Sciences, angieshertzer@gmail.com
This directed case study explores the central nervous system (CNS) by comparing normal CNS anatomy and physiology (A&P) to individuals with Type I Chiari Malformation (CM). Type I CM is a condition involving anatomical anomalies of the hindbrain that causes the protrusion of cerebellar tissue into the spinal cavity. These defects can compromise brain and cranial nerve function and disrupt the normal flow of cerebrospinal fluid (CSF). Stacy Ropp, a patient with Type I CM, narrates her experiences by discussing symptoms, diagnosis, and treatment associated with this condition.

Impact of Lecture Captures on A&P Student Outcomes
Kimberly Loscko, Mount Carmel College, kloscko@mccn.edu
This study employs a cross-sectional design and involves a retrospective sample of students taking a two semester introductory sequence of anatomy and physiology at a private college in Columbus, Ohio. An ANOVA model indicated that success in A&P was significantly associated with students utilizing lecture captures along with split screens and real time drawings accompanied with audio recorded lectures as effective innovative teaching strategies for an A&P classroom, along with face to face lectures. In addition, a bivariate correlation study indicated a positive correlation between success in A&P and ACT scores and TEAS (Test of Essential Academic Skills) scores.

Prevalence Summary for Five Aberrant Muscles of the Hand: A Literature Review and Pedagogical Resource
Lola Smith, The Pennsylvania State University, DuBois Campus, lmd13@psu.edu
An anomalous muscle of the hand was discovered during a cadaver dissection at the University of Alabama at Birmingham’s Gross Anatomy for Teacher Education program in July 2019. A literature review revealed information and prevalence data for five aberrant muscles of the hand. No one article addressed all five of these muscles. The articles expressed the importance of knowing about these muscles for clinical reasons, but the relevance to pedagogy was not mentioned. This poster provides information, diagrams, and prevalence data for all five of the aberrant muscles and is a useful pedagogical resource.
Workshop Presentations

Session 1: 1:00 – 2:00 PM

Workshop 101: Langley 224A
Using Simulations to Teach Electrocardiogram (ECG) Concepts in an Undergraduate Physiology Laboratory Session
Burhan Gharaibeh, University of Pittsburgh, burhan@pitt.edu, Suzanna Gribble, University of Pittsburgh, sgribble@pitt.edu, Laurel Roberts, University of Pittsburgh, laurelb@pitt.edu
To augment the ECG lab experience with clinical aspects, we have designed a case study of myocardial infarction in a 73 year old patient. Students role play the patient’s family and health professionals interacting with a mannequin in a scenario. They interpret different outputs displayed in realistic emergency room settings and are prompted to consider relevant interventions to manage the case. Following this scenario, class meets to debrief and evaluate the experience. Learning assessment includes pre- and post-scenario quizzes. In this workshop, we present preliminary findings that suggest that clinical simulations are effective physiology education tools.

Session 2: 2:30 – 3:30 PM

Workshop 201: Langley 224A
Adding Diversity to the Physiology Curriculum
Laurel Roberts, University of Pittsburgh, laurelb@pitt.edu
Incorporating diversity into a science course is problematic. It can be difficult to seamlessly integrate diversity topics into a lecture course without losing focus on the required material, especially in a content-driven course like physiology. I will share how I use the Howard Hughes Medical Institute resources, Biology of Skin Color and Sex Verification, in my physiology course to effectively explain differences between the scientific basis for our understanding of race and gender and their social contexts. I will also introduce the HHMI Faculty Mentoring Program and discuss the application process for the 2020 program.
On behalf of the Human Anatomy and Physiology Society (HAPS) I would like to thank you for visiting Pittsburgh, PA and for participating in our Spring 2020 HAPS Eastern Regional Meeting at the Department of Biological Sciences, University of Pittsburgh. Your attendance and participation are greatly appreciated. Thank you for sharing your knowledge and expertise. Scientific education and research can only grow by dedicated people like you.

Thank you to the Department of Biological Sciences and University of Pittsburgh faculty, staff, and committee members for the great support and hard work to make this conference possible. This event would not have been possible without the help and assistance from you all.

I also would like to thank our loyal exhibitors, update speakers, and workshop and poster presenters.

In addition, a special thanks to Brittney Roberts, HAPS Assistant Business Manager, for her great support and assistance in making this meeting a success.

We hope to see you again at another regional conference and in May 2020 at the 34th annual HAPS Conference in Ottawa, Ontario.

Sincerely,

Burhan Gharaibeh, PhD
Host – HAPS Spring 2020
Eastern Regional Conference in Pittsburgh