



# SPARK

ATSU

# FIRSTS



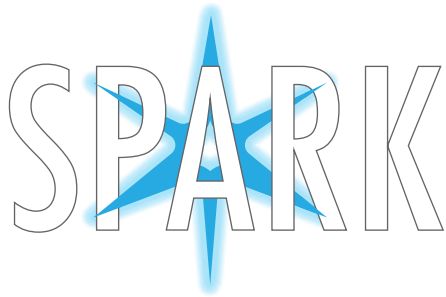
**Human Nervous System**

Dissected, mounted, and labeled by two students  
in their sophomore year during the term 1925-26,  
at the **Kirksville Osteopathic College**.  
It represents a special project additional to the  
work required by the College in Dissection.

To Dr. George M. Laughlin  
in whose laboratory the dissection was made in  
Kirksville, from which a duplicate is being made to  
be deposited in the University of Chicago  
in recognition of the kindness of the author  
in making the dissection possible.  
**The Kirksville Osteopathic College**  
With the compliments of the Donor.  
KIRKSVILLE, MO.  
1926

In 1925-26, medical students M.A. Schalck and L.P. Ramsdell, from the class of 1928, dissected an entire human nervous system. The nervous system is on display at the Museum of Osteopathic Medicine and is one of only four such dissections in the world.

Museum of Osteopathic Medicine, Kirksville, Missouri [1999.08.01]



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2019-20

A.T. Still University's scholarly activity magazine

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### ATSU Mission

A.T. Still University of Health Sciences serves as a learning-centered university dedicated to preparing highly competent professionals through innovative academic programs with a commitment to continue its osteopathic heritage and focus on whole person healthcare, scholarship, community health, interprofessional education, diversity, and underserved populations.

### ATSU schools and colleges

The University comprises Kirksville College of Osteopathic Medicine (ATSU-KCOM), College of Graduate Health Studies (ATSU-CGHS), Missouri School of Dentistry & Oral Health (ATSU-MOSDOH), Arizona School of Dentistry & Oral Health (ATSU-ASDOH), Arizona School of Health Sciences (ATSU-ASHS), and School of Osteopathic Medicine in Arizona (ATSU-SOMA).

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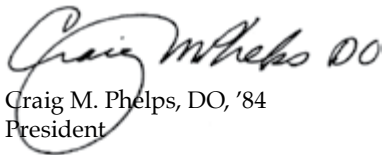
## Leaders in healthcare and education

ATSU's continued success and ability to fulfill its mission are made possible by the many individuals who pursue new ideas, seek answers, and overcome challenges. Through their efforts, the University's influence on healthcare and education extends beyond our campuses and learning sites and reaches communities across the country and around the world.

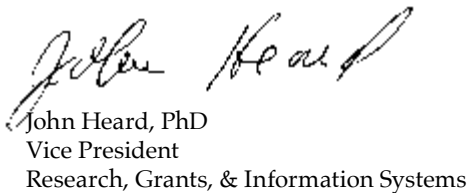
In this second edition of *Spark* magazine, we are proud to highlight some of the exciting endeavors from our faculty, staff, and students. The cover story takes a closer look at recent ATSU firsts, specifically the National Center for Community Health Research, grants from the National Institutes of Health, and an award from the Patient-Centered Outcomes Research Institute. Boyer's definition of scholarly activity is discussed, along with examples from around the University. Also featured is the latest on tick research, culture and its effect on nutrition, how teledentistry is improving access to care, and much more.

The researchers and academicians featured in this issue are a few of the many dedicated ATSU faculty, staff, and students who are making important contributions to the health professions. We hope their stories inspire and reveal new opportunities in your own work.

Yours in service,



Craig M. Phelps, DO, '84  
President



John Heard, PhD  
Vice President  
Research, Grants, & Information Systems

# SPARK

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**Your feedback is welcome.**

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**ATSU**  
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UNIVERSITY

First in  
whole person  
healthcare



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# Instrumental learning

Prior to A.T. Still Research Institute's (ATSRI) inception in 2001, adequate instrumentation had not been developed to objectively measure the characteristics and skills used in osteopathic manipulative medicine. Brian Degenhardt, DO, director, ATSRI, and his team began developing various systems to objectify the localization of clini-

cians when they are palpating the skeletal system.

First, they used a camera system, which became more advanced through a collaboration with the Departments of Mathematics and Physics at Truman State University. The system became what is now called the Digital Camera Measurement System.

"This is a highly calibrated system," says Dr. Degenhardt. "It allows us to objectify the degrees of asymmetry or symmetry between one landmark versus another based on how each person localizes it."

As the research has evolved, so has the instrumentation. The institute now uses infrared cameras to quantify the position of reflective

Cutting-edge  
technology advances  
osteopathic  
manipulative  
medicine

By Devon Williams

## THEN

(left)

Where it all began, students use the original palpation models and Digital Camera Measurement System.

## NOW

(right)

An ATSU-KCOM student uses the current advanced infrared technology to measure palpation accuracy.



THEN

markers in three dimensions with a level of sensitivity down to the micrometer. The technology allows measurement of clinicians' hands when they are palpating, including pressure, change in position, and force.

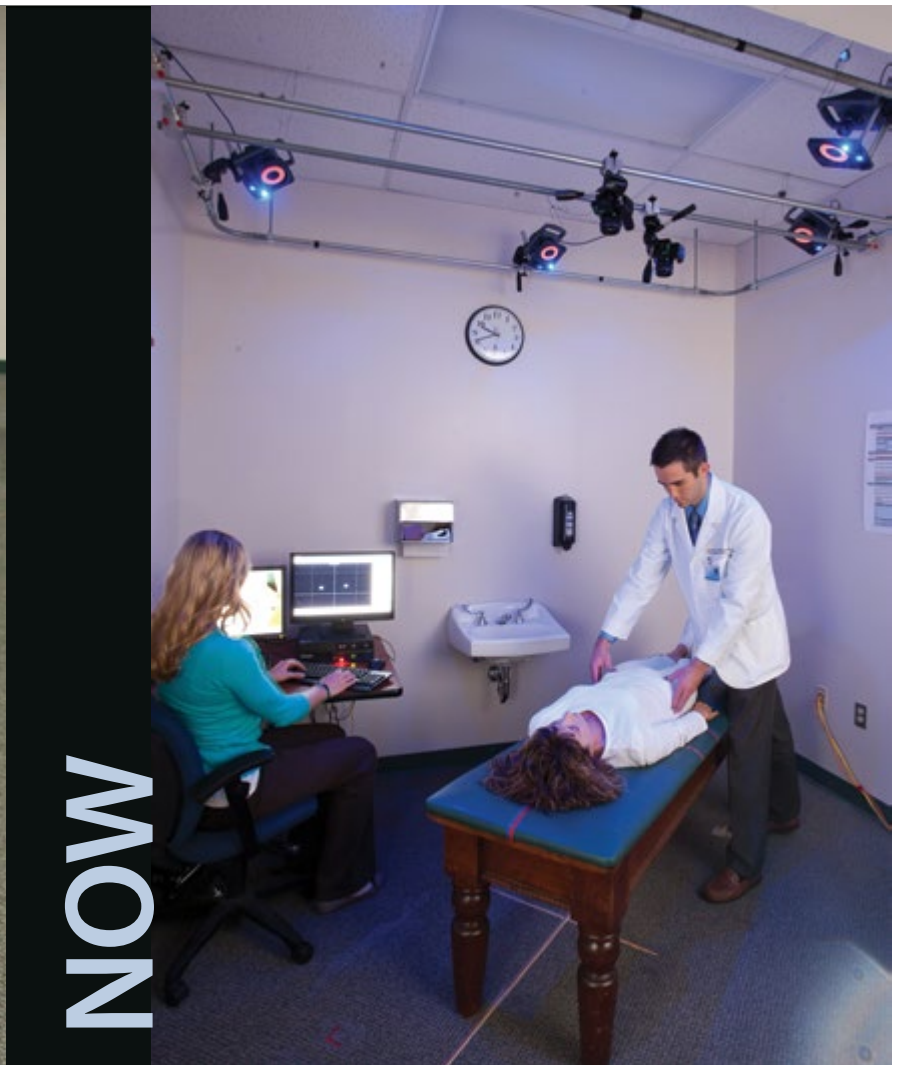
"The instrumentation allows students and faculty to identify different stages of development

throughout the curriculum, to see how the student's skills are changing," Dr. Degenhardt says. "There was no way to measure it before."

ATSU students are not the only ones using ATSR's cutting-edge technology. People throughout the world, including practicing clinicians, are coming to Kirksville, Missouri, to train and practice on

this equipment. The value of the institute's approach is being well recognized throughout the osteopathic community.

"This is really the only place with a system that provides objective feedback regarding palpation skills," says Dr. Degenhardt.





# Dental caries prevention

By Aubrey Henning

## Q&A with Drs. Seena Patel, Maureen Perry, and Ann Spolarich and Andrew Dugum, D4



Dr. Seena Patel performs a head and neck exam to evaluate for any lymphadenopathy, as well as tenderness of the sternocleidomastoid muscle.

ATSU-ASDOH's Seena Patel, DMD, MPH, associate director; Maureen Perry, DDS, MPA, MAEd, associate dean; Ann Spolarich, PhD, RDH, FSCDH, director of research; and Andrew Dugum, D4, are studying fluoride delivery for patients who have undergone radiation treatment for head and neck cancer. Using a randomized, controlled clinical trial study design, they are examining effects of two different routes of fluoride delivery on patient compliance with fluoride use recommendations and on rates of dental caries.

### What are you investigating?

We are comparing the effects of fluoride delivery on rates of dental caries formation for one year after radiation therapy using custom-made trays, which participants wear at bedtime for five minutes, versus brushing fluoride on the teeth for two minutes using a toothbrush. We are also assessing compliance rates with fluoride use through a brief series of questions that each participant answers at every study visit. All participants are seen every three months for one year.

### Why is the research important?

This study is a non-inferiority study. We hope to find no difference in rates of new caries formation between the groups. If our results find that fluoride therapy is effective regardless of route of delivery, current clinical practice guidelines, which advocate the use of custom fluoride trays over the brush-on method, could be affected. Our compliance data will be critical because if we can show patients are more compliant with brushing on their fluoride, which in turn effectively reduces caries formation, there will be a compelling argument for both methods to be acceptable to the professional community.

### What challenges come with the study?

Undergoing cancer therapy is very challenging. Many patients develop mouth sores, burned tissues, significant dry mouth, and oral discomfort during and after treatment for head and neck cancers. The treatment regimen itself is quite grueling. We have to approach them about not only participating in the study at a very difficult and emotional time, but also inform them after their treatment is over they will be at lifelong risk for dental disease. For some individuals, it can be a lot to handle. While it may not seem like a big deal to have to apply fluoride to the teeth every night, it can be just "one more thing" to add to the list of new expectations and behaviors the patient has to learn to deal with and accept.

### What is the next step in your research?

We are well on our way to enrolling and treating our target goal of 40 participants. Data from this study will be used as pilot data for an external grant application that expands the study by recruiting a greater number of participants.



# Think FAST

## ATSU-ASHS faculty members develop assessment for upper extremity injury in baseball players

By Anne Ackroyd

It's no secret a sports-related injury can impact an athlete's emotional well-being and quality of life off the field. However, most measures of patient-reported outcomes after an injury only address the area directly affected by the injury. For the past decade, researchers at ATSU-ASHS have been working on a scale for baseball players with an upper extremity injury that assesses the effects of the injury on the patient's overall health and well-being. True to ATSU's philosophy of care, the Functional Arm Scale for Throwers (FAST) assessment is the only survey of its kind to evaluate the athlete as a whole person.

The FAST assessment is administered by healthcare providers. It measures the impact of an upper extremity injury on various aspects of life using a scale from 0-100 points. A lower score means a lower impact. Results of the survey may be used to develop a patient-specific treatment plan, track the pace of recovery, and respond to the patient's needs as they arise. Some questions address



The FAST assessment allows healthcare providers to track patient-reported outcomes in baseball players with an upper extremity injury. FAST was developed by ATSU-ASHS faculty members Eric Sauers, PhD, ATC, FNATA, '97; Kellie Huxel Bliven, PhD, ATC; Alison Snyder Valier, PhD, ATC, FNATA; Traci Ellery, MS, ATC, '07; and Curtis Bay, PhD.

musculoskeletal effects of the injury ("How much pain or discomfort do you have in your arm at night?"), some measure impact of the injury on athletic performance ("How much has your throwing accuracy decreased since your arm injury?"), and others look at the patient's overall quality of life ("Since your arm injury, do you have a more negative outlook on life?").

"In high-level athletes, the emphasis has historically been on rapid return to sport following injury with limited emphasis on whole person healthcare," says Eric Sauers, PhD, ATC, FNATA, '97, professor and chair, interdisciplinary health sciences, ATSU-ASHS. "The FAST assessment provides a means

to assess the global impact of sport-related arm injuries, enabling clinicians to look beyond a patient's shoulder or elbow and see how the specific injury is impacting their overall health-related quality of life."

The scale has been adopted by clinicians across the country and by secondary schools and youth baseball programs. It provides valuable information to address the whole person, not just traditional injury-specific symptoms, such as pain or weakness. In addition, it creates opportunities for healthcare providers to have meaningful conversations with patients, inspiring and supporting a patient-centered model of care.



# ATSU FIRSTS

By Katie Hubbard

Since its founding in 1892 as the first school of osteopathic medicine, ATSU has continued to leave a legacy of firsts. Pioneering contributions from faculty, staff, and students have led ATSU to become a leader in healthcare professions education. Recently, ATSU has achieved a number of scholarly activity firsts, including forming the National Center for Community Health Research and receiving National Institutes of Health and Patient-Centered Outcomes Research Institute awards.

### **The National Center for Community Health Research**

ATSU recently formed an alliance with the National Association of Community Health Centers (NACHC) to create the National Center for Community Health Research (NCCHR). This alliance is the first of its kind between NACHC and a university aimed at conducting quality research on and within community health centers. The ultimate goal of NCCHR is to improve health and well-being and promote health equity.



“NCCHR is special because of our partnership with NACHC,” says Joy H. Lewis, DO, PhD, chair, public health, ATSU-SOMA. “They are wonderful partners with great dedication, insight, and commitment to evaluating and addressing the needs of community health centers.”

Dr. Lewis is the founding director of NCCHR. The center was a natural evolution from her work as a faculty member at ATSU-SOMA. When she joined the School in 2011, one of her goals was to increase the level of scholarship in student community projects. She increased the rigor required and encouraged the use of research best practices. She also introduced the concept of community-oriented primary care to ATSU-SOMA and included it in the community project requirements.



ATSU-SOMA's community projects received significant recognition from NACHC and leaders of the School's partner health centers. Dr. Lewis then initiated small grant-funded research projects and a practice-based research network at the partner health centers. Over time, these projects and grants grew. After a few years and with the help of Gary Cloud, PhD, vice president, strategic university partnerships & diversity, ATSU, who garnered support from NACHC, the center was established.

Housed within the A.T. Still Research Institute (ATSRI), NCCHR has its own advisory board, which meets annually to review research priorities. The board consists of alliance stakeholders and health center leaders. NCCHR works with health centers, local organizations, and community members to promote community-oriented primary care and community-based research focused on social determinants of health.

“We want to make a difference in the lives of people in the communities served by health centers and make a difference for our health center partners,” Dr. Lewis says.

In addition to Dr. Lewis, others involved

with the center include Kate Whelihan, MPH, instructor, ATSU-SOMA; Earla White, PhD, MEd, chair, undergraduate medical education, ATSU-SOMA; Debosree Roy, PhD, postdoctoral research fellow, ATSRI; and Lise McCoy, EdD, director and assistant professor, ATSU-SOMA, as well as those who are involved with various research projects. NCCHR has several projects underway along with student community projects. While long-term outcomes of the student projects are not yet available, there is evidence suggesting the projects have a positive effect.

One such project involved a group of ATSU-SOMA students who worked with a local organization to provide education on how to treat overdose victims. After project completion, students learned the individuals they taught were able to save at least eight overdose victims.

“We aren't going to the health centers and using them to publish papers,” Dr. Lewis says. “The research we conduct is based on what is important to the health centers and what is valuable for the patient populations and communities served.”

According to Dr. Lewis, NCCHR's work is founded on a continual partnership with health centers. The research focuses on what is important to the health centers, which ensures maximum input and participation.

“At ATSU-SOMA, with our distributed model of education, we have strong health center partnerships from New York to Hawaii,” Dr. Lewis says. “We have close relationships with the leaders, providers, and staff at all of our community health centers. In addition, through our partnership with NACHC, we have the ability to work with all health centers and health center networks in the U.S. This is a tremendous opportunity to affect millions of lives in positive ways.”

### **National Institutes of Health grants**

*“Multi-limb Control in Parkinson's Disease: Implicit and Explicit Control of Attention”*

The Mesa, Arizona, campus' first independent National Institutes of Health (NIH) R15 grant<sup>1</sup> was awarded in September 2017. Tara McIsaac, PT, PhD, associate professor, physical therapy, ATSU-ASHS, received a three-year, \$384,317 award for her research on “Multi-limb Control in Parkinson's Disease: Implicit and Explicit Control of Attention.” The purpose of her study is to understand how attention affects the way people with Parkinson's disease move and how they shift their attention.

The grant is a collaboration with Jyothi

<sup>1</sup> Research reported in this publication was supported by the National Institute of Neurological Disorders and Stroke of the National Institutes of Health under Award No. R15NS098340 (a \$384,317 grant with 0 percent financed by nongovernmental sources). The content is solely the responsibility of the authors and does not necessarily represent the official views of the National Institutes of Health.



Gupta, PhD, professor and chair, occupational therapy, ATSU-ASHS; Curt Bay, PhD, professor, interdisciplinary health sciences, ATSU-ASHS; Rajal Cohen, PhD, assistant professor, psychology and communication studies, University of Idaho; and Charles Adler, MD, PhD, an international expert on Parkinson's disease and professor of neurology, Mayo Clinic College of Medicine and Science.

Dr. McIsaac has studied Parkinson's and neurodegenerative diseases for several years. Her current research began with evaluating dual tasking – paying attention to a few things at once. Though many studies have focused on dual tasking while walking, Dr. McIsaac wanted to know how people behave and switch between tasks when balance, a factor in walking, is removed from the equation. She chose to evaluate dual tasking in a seated activity, specifically driving.

"Driving is an important activity of daily living," Dr. McIsaac says. "People with Parkinson's have difficulty driving, and when they have to give up their keys, it's really devastating for them."

Some studies have shown people with Parkinson's disease shift their attention well based on explicit cues, but they do not shift their attention as well with implicit cues where they gather information from context. An example of an implicit cue while driving could be a child playing with a ball near the side of the road. Such a situation would normally cause a driver to slow down or at least have heightened awareness.

Dr. McIsaac began her data collection and analysis with a seated, non-driving exercise in a motion analysis lab. She gave participants hand and foot tasks, along with explicit and implicit cues. Data from the exercise suggested a difference in dual tasking between people with Parkinson's disease and people of the same age without the disease. She presented these results in October 2018 in Hong Kong at the Interna-

tional Congress of Parkinson's Disease and Movement Disorders.

Dr. McIsaac's next step was to conduct her research on a driving simulator. Since 2014, her work has been funded by ATSU internal grants. She received a \$4,000 grant from the Warner-Fermaturo Fund and \$30,000 from the Strategic Research Fund to purchase a fixed-base driving simulator. The NIH grant supports the translation of her research into a safe, simulated environment.

Most recently, she finalized the driving scenarios for the eight experimental conditions in the simulator and began data collection. Ultimately, she plans to develop rehabilitation strategies to reduce driving difficulties for patients with Parkinson's disease, helping them retain their independence and quality of life.

"The research support I've received from ATSU has been wonderful and was critical to receiving the NIH award," Dr. McIsaac says. "This grant will allow us to make a big step forward in finding ways to keep people with Parkinson's disease driving more safely and for longer."

#### *"Atomic-Scale Refinement of CFTR and TAAR1 Molecular Models for the Study of Drug Binding"*

In August 2018, a Kirksville, Missouri, campus faculty member, Yohei Norimatsu, PhD, assistant professor, physiology, ATSU-KCOM, received notification his NIH R15 grant application<sup>2</sup> was approved for funding. He received a three-year, \$382,343 award for his study "Atomic-Scale Refinement of CFTR and TAAR1 Molecular Models for the Study of Drug Binding." Dr. Norimatsu is the second ATSU researcher within one year to earn an NIH R15 grant, another first in ATSU's history.



The purpose of Dr. Norimatsu's study is to improve design and discovery of pharmacological therapies for cystic fibrosis (CF), secretory diarrhea, schizophrenia, and drug addiction.

<sup>2</sup> Research reported in this publication was supported by the National Institute of General Medical Sciences of the National Institutes of Health under Award No. R15GM124623 (a \$382,343 grant with 0 percent financed by nongovernmental sources). The content is solely the responsibility of the authors and does not necessarily represent the official views of the National Institutes of Health.



Specifically, he is using computer-based modeling of proteins to find novel drug target locations and promising drug candidates. He is being assisted by Oliver Beckstein, PhD, Arizona State University, co-developer of dynamic importance sampling techniques used in the study.

“The funding allows me to investigate how protein structures and dynamics of CFTR and TAARI relate to their functions, and accelerates our research toward the long-term goal of in silico drug screening and structure-based drug design,” Dr. Norimatsu says.

Cystic fibrosis transmembrane conductance regulator (CFTR) is a drug target for CF, the most common lethal genetic disease in the U.S., and secretory diarrhea, one of the leading causes of death among children globally. Trace amine-associated receptor 1 (TAARI) is a promising drug target for schizophrenia, a devastating psychiatric illness that affects approximately 1 percent of the U.S. population, and drug addiction, which is causing at least 196 drug overdose deaths every day in the U.S.

According to Dr. Norimatsu, high-resolution structural information is incomplete for CFTR and lacking for TAARI, making it difficult to understand how drugs bind to these protein molecules. Development of atomic-scale molecular models for these proteins should advance design and discovery of pharmacological therapies for CF, secretory diarrhea, schizophrenia, and addiction.

“I hope this study will lead to collaborations with other investigators within ATSU and beyond,” Dr. Norimatsu says. “What is exciting to me is that extra funding resources make it possible to have more students in my lab to experience biomedical research.”

### **Patient-Centered Outcomes Research Institute award**

ATSU’s first award from the Patient-Centered Outcomes Research Institute (PCORI) was given in October 2017 to J. Michael Menke, PhD, associate director, ATSRI. Dr. Menke received a Tier A Pipeline to Proposal award<sup>3</sup> of \$50,000 for his project “Traumatic Brain Injury Treatments for Veterans.” The one-year project was a collaboration with sports-related concussion expert Tamara Valovich McLeod, PhD, ATC, FNATA, director, athletic training, ATSU-ASHS, who served as co-principal investigator.

PCORI was established to fund research that helps patients and those who care for them make informed decisions about healthcare

choices. Its mission is to improve healthcare delivery and outcomes by producing and promoting evidence-based information from stakeholder-guided research. Tier A awards, specifically, provide seed money to develop capacity, partnerships, and infrastructure for patient-centered healthcare research ideas.

According to Dr. Menke, patients with traumatic brain injuries (TBIs) feel they are not listened to and their care is dictated to them. They do not often have the opportunity to describe their problems or needs in their own words. With PCORI funding, Drs. Menke and McLeod set out to learn – in patients’ own words – their problems, resources, and needs.



“It’s a difficult problem because every brain injury is unique and we don’t know how much each injury has in common,” Dr. Menke says.

The project began with interviewing and surveying veterans with TBIs. The interviews and surveys were conducted in Arizona, which is a popular state for veterans to live. Their ultimate goal was to learn qualitative information and determine outcome measures that could be tested in the future.

“Patient-centered care is achieved through understanding patient values, as well as caregiver needs and community support resources,” Dr. Menke says. “By adopting an individualized approach to care, rather than a one-size-fits-all diagnosis and treatment protocol, we should get much better outcomes, while reducing unnecessary medical costs and side effects.”

After receiving the PCORI Pipeline to Proposal award, Drs. Menke and McLeod applied for further support to create a TBI network based on TBI survivor suggestions and feedback learned through TBI focus groups. If funded, their work will address patient values and personal goals for recovery, while filling gaps in what is known currently about TBI diagnoses, psychological care, and caretaking. ☒

<sup>3</sup> This project was funded through a Patient-Centered Outcomes Research Institute (PCORI) Pipeline to Proposal Award (Contract #7717760), administered on behalf of PCORI by the Trailhead Institute.

# Scope of scholarship



By Aubrey Henning

Through the pursuit of knowledge, society grows in its ability to reason and adapt to situations. From the first vaccine to artificial limbs, the healthcare world is continuously expanding. Every day, great minds conceive ideas to boost quality of life.

At ATSU, faculty, staff, and students apply their skills and knowledge to increase comprehension and application of healthcare principles. ATSU scholars use their expertise to contribute to scholarly activity through discovery of new knowledge, application of previous research to real-world situations, integration of ideas from different disciplines, improvement of teaching methods for future professionals,

and engagement with communities to solve relevant healthcare issues.

In 1990, Ernest L. Boyer, former president of the Carnegie Foundation for the Advancement of Teaching, proposed an expansion of the definition of scholarship to include four parts: discovery, application, integration, and teaching. Shortly before his death, he proposed a fifth element: engagement. ATSU recognizes Boyer's five categories as the definition of scholarly activity and encourages and recognizes the work of faculty, staff, and students in each category. The following are examples of work done by ATSU in each of the five categories.

“Of what value is a mind when placed in the brain of a coward? If mind is a gift of God to man for his use, let him use it.”

– A.T. Still, DO





## DISCOVERY

According to Neal Chamberlain, PhD, professor, microbiology/immunology, ATSU-KCOM, the bacterial genus *Staphylococcus* is a common cause of human illness. These organisms are constantly developing ways to survive after they have been exposed to antibiotics and have developed the ability to go into a slow-to-no growth state. Bacteria in this slow-to-no growth state are called persisters. While in this state, they become tolerant to nearly all antibiotics. Dr. Chamberlain researches how disease-causing bacteria in the genus *Staphylococcus* avoid being killed by antibiotics.

“My laboratory was the first to demonstrate that a species of staphylococcus, *Staphylococcus epidermidis*, produces persisters,” says Dr. Chamberlain. “Additionally, we were able to describe the effect of mutating a particular gene on the ability of *Staphylococcus aureus* to make persister cells. When this gene was mutated, the organism could not make as many persister cells.”

## APPLICATION

Practice-based research networks (PBRNs) give researchers access to a vast number of healthcare records. Providers upload patient records to the system, including diagnoses, treatment, and outcomes, and researchers study the results of care provided to patients and come to conclusions that can improve treatment. Through this process, the most effective forms of care may be found and applied to different healthcare practices. ATSU currently has four PBRNs: Athletic Training PBRN (AT-PBRN), DO-Touch.NET, ATSU-SOMA PBRN, and Network for Community Oral Health Research (NCOHR).

## INTEGRATION

The Drabing Human Patient Simulation (HPS) lab provides a place for the creation of interprofessional collaboration. Former residents, Maggie Barnidge, DO, and Katie Willcox, DO, used the HPS lab to study the use of high-fidelity simulation in neonatal resuscitation. By using this simulation, healthcare professionals are able to practice working as a team to provide high-quality care to newborns. Drs. Barnidge and Willcox trained physicians, residents, nurses, respiratory therapists, and nurse practitioners in high-fidelity neonatal resuscitation and hosted a class on the topic for the Adair County emergency medical services.

“The use of high-fidelity simulation in training for any type of resuscitation is still fairly new, but studies looking at this method

of training for both adult and pediatric populations show improved retention of skills and knowledge by providers when high-fidelity simulation is used,” says Dr. Barnidge. “In our experience, we have observed improved retention and recall of neonatal resuscitation program by residents with high-fidelity simulation training.”

## TEACHING

In the advancing world of technology, Joy H. Lewis, DO, PhD, chair, public health, ATSU-SOMA, works to find ways to prepare future and present DOs by using and evaluating technology enhanced active learning. She recently worked with the app developer Medical Joyworks LLC, the American Osteopathic Association (AOA), and the Centers for Disease Control and Prevention (CDC) to develop, disseminate, and evaluate an app to help combat overuse of antibiotics. The app, called Prognosis SOMA: Antibiotics, uses game technology to educate providers of all levels about the dangers of antibiotic overuse and about appropriate antibiotic use for various clinical scenarios. The app, available for iOS and Android download, has already been used by thousands of clinicians.

“At ATSU-SOMA we have been studying active learning techniques and the use of game technology for many years,” Dr. Lewis says. “Partnering with Medical Joyworks, AOA, and CDC scientists allowed us to share these techniques with a broad audience. This has been a tremendous opportunity to combine primary care and public health education.”

## ENGAGEMENT

Jeffery Alexander, PhD, FAACVPR, associate professor, ATSU-CGHS; Elton Bordenave, PhD, MEd, associate professor, ATSU-ASHS; and Brandi Buchanan, OTD, OTR/L, program researcher, ATSU-ASHS, work in ATSU’s Center for Resilience in Aging. The center’s Still Standing Fall Prevention Outreach program is focused on reducing falls, a major cause of injury and death in the older population. More than 60 community agencies participate in the annual outreach that provides falls prevention education for older adults. ATSU students are able to work with community members to solve a relevant healthcare issue while learning skills that apply to their careers.

“What we do in fall prevention is the epitome of the scholarship of engagement,” says Dr. Alexander. “It is a wonderful marriage between the University and the community that benefits both the participants and the students.” ■

# The burning question

Tick-borne diseases are on the rise.

How can the public manage the problem?

By Katie Hubbard

The clock is ticking. Cases of tick-borne diseases are increasing rapidly. According to the Centers for Disease Control and Prevention, the number of reported cases in the U.S. more than doubled from 22,527 in 2004 to 48,610 in 2016. With ticks posing an increasing threat to public health, the search is on for ways to control the spread of these diseases.

Every month from April to September, Deborah Hudman, MS, suits up in Tyvek coveralls, chaps, and a vest full of supplies to collect ticks. She hikes through the public fields and forests of northeast Missouri to visit a dozen collection sites. Her research began with trying to understand the health risks associated with ticks in the area. Today, her research has expanded to include land management practices that best control tick populations and reduce risks of disease for those who work and play outdoors.

Hudman follows a methodical process at each site. At the base of a nearby tree, she locates a Kestrel meter, which records weather conditions every hour. She downloads data from the meter, including temperature, dew point, relative humidity, and heat stress index. Using weather meters at each site, near tick habitat, provides accurate data about the conditions that affect ticks at those specific coordinates.

At each site, she surveys three transects. She begins by unrolling a white felt flag and dragging it along the ground for 100 meters. Her method is slow. Because ticks are attracted to carbon dioxide, she uses herself as bait. She stops every few meters along each transect to pull ticks off the flag – and her suit. She places them in vials filled with ethanol, which preserves them until she can complete her analysis. Once she reaches the end of a transect, she rolls up her flag and heads to the next one.

Tick collection can be hot and uncomfortable work, but each month, she trudges on. A senior research associate in ATSU-KCOM's Microbiology & Immunology department, Hudman began researching ticks in 2014. Since then, she has collected more than 87,000 ticks in northeast Missouri. The three species she has found are the lone star tick, American dog tick, and blacklegged tick. Lone star ticks are by far the



Hudman drags a meter-wide flag along the ground to collect ticks.

most common species – representing nearly 90 percent of all ticks collected. American dog ticks are the second most common species, with blacklegged ticks found in very low numbers.

Initially, Hudman collected approximately 15,000 ticks from four areas in northeast Missouri: Big Creek, Sugar Creek, Montgomery Woods, and Shoemaker Conservation Areas. Using polymerase chain reaction assays, she found the presence of pathogens *Ehrlichia chaffeensis* and *Ehrlichia ewingii*, which cause ehrli-



Vials of ethanol preserve ticks until they are analyzed in Hudman's lab.

After hatching from an egg, the lone star tick has three active life stages. To molt into the next life stage, a tick needs a blood meal.

**Lone star tick**



**Stage 1:** larva (seed tick)



**Stage 2:** nymph



**Stage 3:** adult female and adult male



Located at the base of a tree, a Kestrel weather meter records the hourly temperature, dew point, relative humidity, and heat stress index.

chiosis in humans, and putative agents *Borrelia lonestari*, *Rickettsia amblyommatis*, and *Rickettsia montanensis*, which are suspected to be involved with southern tick-associated rash illness.

In 2015, she collected an additional 15,000 ticks from the same four conservation areas and tested for infection rates. According to her data, one in four adult ticks carries *Ehrlichia* species. This significant, yet unsettling result revealed the prevalence of pathogens in the region. In addition, she discovered the quantity of ticks collected from Big Creek and Sugar Creek was nearly half the number collected from Montgomery Woods and Shoemaker.

Montgomery Woods and Shoemaker are unmanaged conservation areas, while Big Creek and Sugar Creek are managed areas. The latter use land management techniques such as disking, food plots, thinning and removing tree stands, and prescribed burning. Prescribed burns are fires set intentionally by a team of experts under certain weather conditions to restore health to ecosystems and control invasive plants.

With the high prevalence of pathogens in ticks, Hudman's next step was to quantify the prevalence of residents acquiring tick-borne diseases and seeking medical treatment. Because symptoms of infected tick bites resemble those of the flu, cases are often untreated or misdiagnosed.

In 2017, she surveyed people who work outdoors, such as farmers and employees of the Missouri Department of Conservation (MDC) and U.S. Department of Agriculture. She found

### Tip for avoiding ticks

One of the best strategies for avoiding ticks when going into the field is to wear clothes treated with permethrin.

38 percent of those surveyed were having flu-like symptoms after a tick bite. In addition, 17 percent of people surveyed were removing 11 or more attached ticks per year, and 44 percent of healthcare providers surveyed were treating 11 or more patients per year for tick-borne diseases. According to the Missouri Department of Health and Senior Services, the only confirmed cases of tick-borne diseases from 2013-17 were for ehrlichiosis.

"Ehrlichiosis becomes life threatening for the elderly, very young, and immunocompromised," Hudman says. "As we age, we need to be more careful with flu-like symptoms in the summer."

Based on her 2015 data, Hudman added a twist to her tick research to gain a better understanding of how land management techniques affect tick populations. Specifically, she chose to focus on prescribed burning. She says many studies have evaluated prescribed burning as a mechanism for tick population control, but these studies have conflicting results depending on location, climatic conditions, frequency of burns, and size of plots burned.

"Prescribed burning is a promising strategy," Hudman says. "It can be applied to large tracts of land without interfering with other land uses like cattle grazing, timber production, natural community restoration, and recreational hunting."

In spring 2018, Hudman began a three-year study, in partnership with MDC, to collect tick species at Union Ridge Conservation Area. Hudman's collection sites at Union Ridge are being rotated for prescribed burns by MDC, which will help her determine the effectiveness of prescribed burning in a controlled manner. Her continued collection and analysis will provide a more accurate assessment of the effects of prescribed burns on tick numbers and the pathogens they carry.

Ultimately, Hudman hopes her research will increase awareness of tick-borne disease in the medical community. As long as the antibiotic doxycycline remains effective, she says it is a very good way to treat tick-borne infections. She notes the best way to reduce risk of disease, of course, is to prevent tick bites altogether. ■





# Culture and diet

By Devon Williams

In 2011, a former student asked Joshua Bernstein, PhD, CHES, associate professor, AT-SU-CGHS, to be his research chair for his doctoral research project. The project's focus was cultural influence on diet, specifically in Arabic-speaking regions. Together, Dr. Bernstein and Basil Aboul-Enein, MSc, MPH, MA, EdD, FRSPH, '14, found cultural influence could be much more powerful than correct information regarding diet and eating patterns.

Incorrect information, when put into cultural context, is very powerful. Correct information, without cultural context, is easily ignored. The two published several papers together on the topic of information, culture, and its effects on diet and received positive feedback.

Next, they decided to take the cultural angle forward and focus on diet habits of a specific region. Dr. Aboul-Enein suggested looking at the Middle East and North Africa (MENA) region. What they found proved to be very interesting. Arabic-speaking regions, particularly the MENA region, are importing westernized diet culture faster than they can deal with the effects.

"Escalating overweight and obesity rates have

become a significant public health problem in the MENA region," says Dr. Bernstein. "These rate increases have been associated with shifts toward a westernized convenience diet."

Their research quickly transitioned to finding a solution to the problem. The answer, they found, begins with education. According to Dr. Bernstein, the region's public health and nutrition education system is loose knit and underpowered. Most information comes from outside sources, and very little is presented in the native language. Further, information is not often regionally or culturally specific.

"We can provide the knowledge today, but we have found granting access to information is the tip of the iceberg," says Dr. Bernstein. "If it's not set in a meaningful, contextual, culturally congruent way, it will be frequently ignored."

After continued research, results suggest change will be slow. They have made recommendations to the public health and health promotion communities of the MENA region but not directly to the Arabic people. They believe if positive change is to occur it has to come from within and relate to the culture. ■

# Dental care at a distance

By Laurie Trowbridge

Traditionally, obtaining dental care required visiting a dentist's office and meeting with a hygienist, an assistant, and a dentist who collectively developed a treatment plan. Teledentistry is a departure from the conventional dentist office visit. Using information technology and telecommunication to provide care, the goal of teledentistry is to connect patients in remote areas, and even close to home, with convenient and efficient services.

In July 2015, ATSU-ASDOH was awarded a \$1.7 million interprofessional education grant from the U.S. Health Resources and Services Administration. As part of the grant, ATSU-ASDOH's Scott Howell, DMD, MPH, FSCD, '14, assistant professor, and Colleen Trombly, RDH, MHSA, assistant professor, were hired and assigned the task of developing and implementing a teledentistry program.

"The goal of our program is to get people into the healthcare system who may have not been able to before because of location, transportation, situation, or lack of finances," says Dr. Howell. "The program also provides students experience working with various populations and educating patients about proper oral healthcare."

An example of ATSU-ASDOH's teledentistry program is currently underway at Arizona's Maricopa County juvenile detention centers. Before the teledentistry program, youths entering the detention centers were provided physical and oral exams. If a youth had a toothache, he or she may have been sent to Maricopa Integrated Health System where the tooth would likely be extracted, even if it could be saved through other treatments.

Through ATSU-ASDOH's teledentistry program, dental students visit the detention center, with faculty supervision, to take X-rays, photograph the mouth and teeth, and provide cleanings. After completion of the exam, all patient data is sent electronically and securely to ATSU-ASDOH, where Dr. Howell and other clinical faculty review the information to provide a treatment plan. If urgent care is needed,

patients are scheduled for treatment at the University's Advanced Care Clinic. All other patients are referred to ATSU-ASDOH's Dental Clinic or another dental professional for routine oral healthcare after release from detention.

The teledentistry program has also partnered with Arizona Recreation Center for the Handicapped and with East Valley Adult Resources. Students are able to work off campus in a number of environments considered atypical for providing oral care. Students also gain interprofessional experience working with other healthcare providers and with underserved populations, a core component of their education. Because of ATSU-ASDOH's teledentistry program, patients who were inaccessible may now enter the healthcare system and receive routine care with less disruption to their personal and financial lives.

"Imagine living in a remote area where a dentist isn't available for maybe hundreds of miles," Dr. Howell says. "An individual would need reliable transportation to see a dentist and likely take time off for one or multiple appointments."

Teledentistry can overcome obstacles such as location, time, and finances. It works well for rural patients, but Dr. Howell believes teledentistry may work just as effectively in urban areas, too.

"By scheduling dental visits at companies, employees could easily visit a professional for care without leaving work or taking time to travel to a dental office," he says. "This saves the employee time and lessens impact to work productivity for the company."

In addition to using technology to provide dental care access to vulnerable populations, Dr. Howell and his team will complete an oral health surveillance based on teledentistry patient records. This will include looking at rates of disease and comparing them with other findings such as mental and behavioral conditions. The data, including number of patients and populations being seen, will be reported to the grant funders.

"Our primary goal is to work with com-

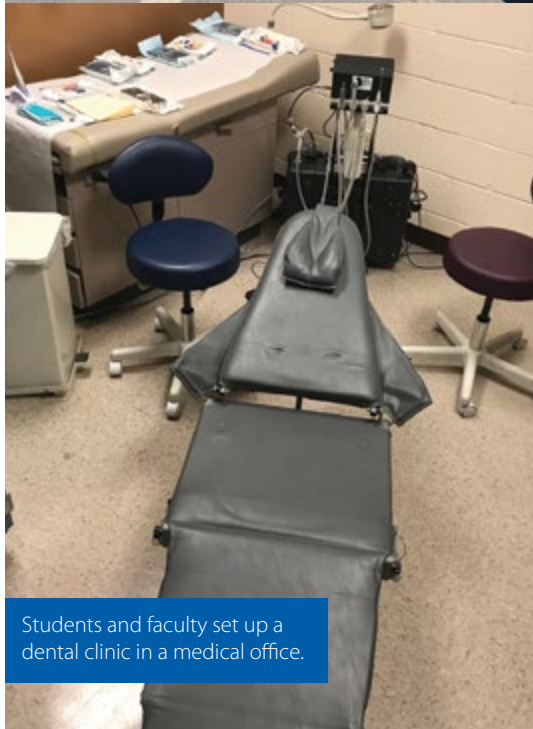


Dr. Scott Howell





Third-year dental student Joe Jagers loads the ATSU-ASDOH teledentistry van.



Students and faculty set up a dental clinic in a medical office.



Third-year dental student Akram Saad provides care under faculty supervision.

munity partners using technology to connect patients in the field back to the School,” says Dr. Howell. “The project is focused on program development, program evaluation, and health surveillance.”

With funding expiring in June 2020, Dr. Howell will apply for a continuation of the grant with the goal of incorporating the program

into ATSU without grant support. The program would then support itself through patient visits and would be part of the University’s budget. Dr. Howell’s hope is teledentistry at ATSU-ASDOH will continue to grow through collaboration so his team and students can help patients with any necessary follow-up oral healthcare. 📧

# Orthodontic research leads to new technology

Since 2008, Jae Hyun Park, DMD, PhD, MSD, MS, professor and chair, postgraduate orthodontics, ATSU-ASDOH, has published more than 180 scientific and clinical articles in peer-reviewed orthodontic and dental journals. His research interests include cone-beam computed tomography (CBCT) and temporary skeletal anchorage devices (TSADs). His publications on these topics have been featured in three cover pages in the *American Journal of Orthodontics and Dentofacial Orthopedics*, two books, and 15 book chapters.

## What are you investigating?

CBCT is gaining popularity because of its accuracy. This technology uses computed tomography to obtain 3D images of all dental structures (soft tissue, nerves, bone). The amount of diagnostic information gleaned from CBCT is immense although deciphering it occasionally seems daunting. To overcome this and provide a simplified way to analyze images, my colleagues and I became involved in studies related to superimpositions of 3D CBCT images. We used one of the surface-based registration techniques (using multiple images to obtain a more complete single image) to develop a superimposition technique for evaluating dental and skeletal changes. These studies have used the accuracy of CBCT to validate what orthodontists have been surmising for years.

The placement of TSADs has become routine for many orthodontic purposes. They have facilitated tooth movements in directions and amounts not considered possible before. In addition, patient compliance is less of a concern when TSADs are used. Since TSADs are often placed in the palatal area and the success of TSADs is dependent mainly on the quality and quantity of bone and overlying soft tissue, we evaluated the quality and quantity of bone and overlying tissue to enable the use of TSADs with more predictable outcomes.

## Why is your research important?

With information gathered from our studies on the evaluation of CBCT images, we have designed various appliances to correct dental malocclusions (misaligned teeth). We reported on the use of a double J retractor along with TSADs to close extraction spaces in the front teeth. We also demonstrated how esthetic lingual retractors used in conjunction with TSADs could be very helpful in treating bimaxillary dental-alveolar protrusion, a condition in which both jaws



Dr. Jae Hyun Park shows models of an upper and lower jaw to an ATSU-ASDOH postgraduate resident.

and teeth are too far forward. We reported on the use of maxillary palatal appliances (MPAPs) that can be designed in multiple and novel ways to correct many different malocclusions in the sagittal and vertical planes, including total arch distalization (moving all of the teeth backward) and intrusion. The distalization capability of a MPAP can also be employed along with extractions to achieve tremendous improvement in the facial profiles of bimaxillary protrusive patients without surgery. MPAPs are versatile and can be easily modified for use as molar protraction (bringing teeth forward) or distalization devices, depending on what is needed to correct the patient's malocclusion.

## What is your outlook on the orthodontic field?

A career in orthodontics involves lifelong learning. The field is constantly changing and improving in response to new research and emerging technologies. Research and continuing education play vital roles in maintaining successful orthodontic practices and enhancing patient quality of life.



# Enhanced student learning

Cailee Welch Bacon, PhD, ATC, associate professor, athletic training, ATSU-ASHS, investigates educational outcomes for health professions education with an emphasis on athletic training. In collaboration with colleagues at ATSU and across the country, her research currently focuses on three educational outcomes – post-professional, clinical, and innovative strategies to enhance student learning.

## What are you investigating?

My first emphasis is in post-professional educational outcomes. To get a clearer understanding of post-professional educational outcomes, my colleagues at Old Dominion University and Indiana State University and I are investigating employers' perceptions of the doctor of athletic training degree and the value of graduates with this degree in clinical and academic arenas.

My second emphasis focuses on clinical education outcomes. I am collaborating with colleagues from Old Dominion University and Ball State University to investigate the characteristics of patient encounters and the impact of clinical experiences for professional athletic training students. This multisite investigation will give us insight into the types of patient encounters students are experiencing and will identify particular diagnoses students are not regularly seeing.

Lastly, my third emphasis involves innovative strategies to enhance student-learning outcomes. Kirsty Gaither, MA, with ATSU's Educational Technology Development Center, and I are investigating effectiveness of personalized learning pathways to enhance student-learning outcomes and promote a learner-centered environment in and out of the classroom.

## Why is your research important?

As health professions education continues to evolve, the necessity of demonstrating successful educational outcomes is becoming increasingly important. Therefore, it is essential to assess outcomes of our future healthcare professionals across all levels of the education continuum.

## What do you hope to achieve?

Whether we are investigating interventions to improve student-learning outcomes at the individual course level, effectiveness of a clinical education experience to enhance a student's competence in a particular area, or the value of post-professional degrees to fill practice gaps in the constantly evolving healthcare landscape, this research will contribute to the existing body of knowledge for educational outcomes and will help us refine our teaching and learning practices to produce the kinds of healthcare professionals our communities need.



Dr. Cailee Welch Bacon (left) receives a \$5,000 grant at the annual SparkTank competition for her project, "Foundations of Competency-Based Education: Building an Infrastructure to Promote a Learner-Centered Experience."

# The future of dental implants

ATSU-MOSDOH's Ammar Musawi, MDS, BDS, director, pre-clinical education and simulation clinic, found his research focus when talking to his brother, a material engineer. His brother was completing his master's program research on a ceramic and titanium alloy. Because ceramic and titanium are used in dental implants, Dr. Musawi wondered if the alloy his brother was researching could be a stronger dental implant material.

## What are you investigating?

Our research aims to use a specific material to manufacture a dental implant. To manufacture the dental implants, we will place them in the femur bone of rabbits and test whether they can function as implants (i.e., osseointegrate). Before deeming any material's suitability to be used as an implant material, osseointegration needs to be confirmed. This research is interprofessional in nature; the team working on it includes engineers, dentists, pharmacists, and a veterinarian.

When implants were first used, each implant would support one crown of a tooth. If the patient was missing all of their teeth, a minimum of two or

four implants would be placed into the jaw, and the denture would be placed on top of the implants. This process started with surgery to insert the implant. Then, the surgical site would be covered, and patients would wait three to six months to heal. After that, dentists would make sure the implant had bonded with the bone before they would expose it and put on the part that replaces the teeth. At some point in the development of implants, mini-implants were created. Mini-implants abbreviated the steps and waiting period of the traditional implant process because they were immediately screwed into the jaw (no actual surgical procedure), but research on the smaller implants found they would often break because of their smaller diameter. Dentists stopped using mini-implants for conventional prosthodontic treatment and went back to the traditional implant size. The new material we are testing has a high-fracture toughness and resistance. It does not break easily, which means a smaller diameter implant is equal in strength to the wider diameter implant. We are now at the manufacturing stage of the project.

## Why is your research important?

The material we are testing has superior physical properties compared with the ones already being used in current implants (titanium and ceramic). It also has the possibility of being much more affordable, and it can be used in areas where there is minimal bone thickness.

## What do you hope to achieve?

We first hope the material will perform well in a live-tissue setting so it can replace the current implant materials. If the implant works, we hope to patent it and make it available for patients.



Dr. Ammar Musawi reviews X-rays in the dental lab.



# Combating drug-resistant bacterial infections

Zulfiqar Ahmad, PhD, professor, biochemistry, ATSU-KCOM, researches drug discovery and development. His lab is identifying and modulating novel, potent, selective inhibitors of ATP synthase to deprive cancer or bacterial cells of required energy, which will lead to cell death.

## What are you investigating?

The overall goal of my research is to demonstrate ATP synthase is a viable alternative molecular target against drug-resistant bacterial infections. Antimicrobial resistance is a substantial threat. According to “The Review on Antimicrobial Resistance,” antibiotic resistance will result in 10 million additional deaths worldwide per year by 2050. Currently, about 700,000 people die every year from microbial infections. Thus, microbial superbugs are poised to become the top global killer, surpassing cancer. The effect of this public health crisis on the global economy is projected to cost \$100 trillion. The World Health Organization’s global report on surveillance of antimicrobial resistance estimated the yearly cost to the U.S. health system will reach \$34 billion. Fast-encroaching antibiotic resistance by microbes in general and *Escherichia coli* in particular is the main reason for this situation. Thus, finding alternative ways to kill microbes is of paramount importance.

## Why is your research important?

We propose one of the most effective alternative ways to combat microbial infection is selective inhibition of microbial ATP synthase. ATP synthase is critical to human health and malfunction of this complex has been implicated in a variety of diseases, including cancer, tuberculosis, neuropathy, Alzheimer’s disease, Parkinson’s disease, and mitochondrial myopathies. Therefore, this enzyme presents a potent molecular



Dr. Zulfiqar Ahmad presents his research at the 10th annual Interdisciplinary Biomedical Research Symposium in Kirksville, Missouri.

drug target for treatment of diseases, in general for mitochondrial myopathies, diabetes, tuberculosis, Alzheimer’s disease, and Parkinson’s disease, and in particular for cancer and microbial infections.

## What are your current findings?

A wide range of natural and synthetic molecules, including phytochemicals and peptides, bind and inhibit ATP synthase. ATP synthase has distinct phytochemical and peptide-binding sites. Recently, we found antimicrobial properties of dietary olive phenolics, such as tyrosol, and saffron phenolics, such as safranal, were linked to inhibition of microbial ATP synthase. Similarly, we identified a direct connection between antimicrobial properties of venom peptides and microbial ATP synthase.

# Attendance policy

ATSU-SOMA's Uzoma Ikonne, PhD, chair, basic medical science, and Anna Campbell, PhD, associate professor, were inspired to research the effect of class attendance on student academic performance while attending a faculty development conference in 2014. After hearing a lively discussion about attendance and academic performance, Drs. Ikonne and Campbell, who happened to be seated next to each other, realized the topic had not been formally evaluated at ATSU. Both agreed it would be an important line of investigation.



Drs. Uzoma Ikonne and Anna Campbell present their research at the American Association of Colleges of Osteopathic Medicine's 2016 annual conference.

## What are you investigating?

We recently completed a study investigating the relationship between classroom attendance and student academic performance. Our study examined the use of lecture capture technology and other factors that influenced classroom attendance decisions.

In our study, we found a decrease in first-year classroom attendance during the academic year and no significant relationship between classroom attendance and academic performance. Recorded formats, including lecture capture and video podcasts, were perceived as advantageous to attending class because they allowed students more flexibility. Faculty opinions were varied about attendance-related issues; however, results from our study suggested faculty felt increased job satisfaction when sessions were well attended. Results from our study also suggested curricular design and policies should balance the needs of students and faculty for optimal educational outcomes. We are currently working on a manuscript to examine faculty perceptions and advising practices related to student attendance.

## Why is your research important?

We believe it is important to make evidence-based decisions about curriculum design and related policies. Understanding faculty and student perceptions and preferences allows us to optimize a student-centered learning environment.

## What do you hope to achieve?

We are hoping to contribute to evidence-based findings of the medical education literature and provide insight for institutions developing curricula and policies to enhance student academic achievement.



# Active aging

Sarah Everman, PhD, associate professor, kinesiology, ATSU-CGHS, began her career investigating changes in muscle protein synthesis with aging and in people with prediabetes. Her research led her to advocate for a lifestyle of continued movement to promote healthy aging for all ages. Even though increased responsibilities may lead to decreased activity levels, Dr. Everman says making time for physical activity is possible and critical for healthy aging. For example, Dr. Everman uses a treadmill desk in her office to pursue her own personal fitness while at work.

## What are you investigating?

My career investigating changes in muscle protein synthesis with aging and in people with prediabetes led to an interest in learning how to mitigate some of the physiological effects of aging through physical activity. My co-authors and I demonstrated how people who maintain habitual physical activity can have better-than-expected fitness in later years. More recently, I collaborated with a group in Brazil, and we just published a paper on the effects of Pilates for maintaining blood pressure control in postmenopausal women. My research continues to investigate the importance of physical activity for healthy aging.

## Why is your research important?

We all want to maintain functional independence as we age, and my research helps demonstrate how important physical activity is throughout the lifespan. Many people have a perception that activity will decrease or stop with aging, but it is very important for health and fitness professionals to show it is possible to maintain activity with aging, preferably through a mixture of higher intensity, lower intensity, and resistance-training activities.

## What do you hope to achieve?

I hear so many people attribute various aches and pains to “getting older.” There is no doubt aging is tough in many ways, and 60-year-olds do not outperform 30-year-olds. However, my hope is to teach people physical activity is always possible and always important. I want people to be out on the trails at age 90 because they were taught active aging is possible and so maintained a culture of physical activity throughout their lives.



Dr. Sarah Everman

# Muscle fatigue



A participant squeezes handgrip model while blood flow and neural activation is measured.

During contractions, we measure blood flow through the brachial artery, the main artery supplying blood to forearm muscles, using Doppler ultrasound. Neural activation is measured using an electromyogram (a similar concept to an electrocardiogram of the heart) that measures electrical activity (action potentials) of forearm muscles (e.g., brachioradialis, flexor carpi radialis, flexor carpi ulnaris, and flexor digitorum profundus) during contractions. The electromyogram provides information about levels of activation

ATSU-KCOM's Kade Kinney, OMS I, is studying effects of muscle fatigue. Along with mentor William Brechue, PhD, chair, physiology, and co-investigators Tatyana Kondrashova, PhD, associate professor, family medicine; Barry Robbins, DO, FACN, '70; and Joseph Novinger, DO, '89, Kinney hopes to provide information that will improve understanding of the complexity of fatigue.

## What are you investigating?

Our experiments are designed to investigate metabolic and neuromuscular correlates of skeletal muscle fatigue with a specific emphasis on the interaction between blood flow, neural activation, and sensory feedback.

To study fatigue, we are using a handgrip model with sustained isometric contractions, which means participants squeeze a lever for a given period of time or until force decreases to a given level of initial force, depending on the particular experiment. Individual experiments are conducted at different intensities of isometric contractions because such contractions interfere with blood flow to varying degrees. This experiment will allow us to understand the relationship between the impact of muscle force on blood flow and, ultimately, muscle fatigue.

and motor unit recruitment of these forearm muscles during the handgrip contraction and how they change with fatigue.

To study the role of sensory feedback in muscle fatigue, some experiments are conducted with participants taking acetazolamide, a drug our laboratory previously showed impairs sensory transmission. In these experiments, we are investigating how impaired sensory transmission changes neural activation, blood flow, and sense of effort, all of which will help us understand the role of sensory feedback in determining or mitigating muscle fatigue.

## Why is your research important?

The topic of fatigue has been studied for years, but many questions based on mechanisms of fatigue are still unanswered because of new hypotheses and the complexity of fatigue. For example, one of these questions specifically addresses influence of sensory feedback on the fatigue response.

## What do you hope to achieve?

I hope to be able to publish my research and add to existing literature about mechanisms of fatigue.



# Health outreach program empowers youth

Since 2016, ATSU-SOMA students have led Nutrition and Health Awareness (NHA) curriculum for fourth- and fifth-grade students. Initially created by undergraduates at Arizona State University in 2012, this curriculum empowers children to understand their health and improve health attitudes while promoting health and wellness in Arizona communities. The NHA team has taught at least 1,200 students at more than 15 community sites and conducted four research projects. ATSU-SOMA's Sara Brundage, OMS II, is working to expand the NHA curriculum to include lessons on oral hygiene.

## What are you investigating?

NHA is a pediatric preventive education program with multiple studies conducted in the past couple years. This year, we are tweaking the original NHA curriculum, which includes lessons on physical exercise, nutrition, food labels, sugar metabolism, and heart disease, to include oral hygiene and oral health maintenance. In addition to determining whether the program promotes increased physical activity levels and improved health knowledge and attitudes, we will assess whether there is an increase in oral health aptitude. These parameters will be measured with a questionnaire, administered at baseline and at program completion, and with the Fitbit Flex 2, which will monitor and collect students' activity levels throughout the program and for one week after program completion.

## Why is your research important?

With increasing rates of childhood obesity, we are concerned with the subsequent increasing risk of diabetes and cardiovascular disease. By providing free health education at elementary schools and motivating children to manage these modifiable risk factors, we hope to tackle these health issues at an early grassroots level. In concordance with the tenets of osteopathic medicine, this curriculum teaches children how body, mind, and spirit are integrated entities and emphasizes the importance of holism in health maintenance and primary prevention. Because osteopathic medical



Left to right: Second-year ATSU-SOMA students Melanie Biegler, Suhani Dalal, Sara Brundage, and Erinn Gallagher deliver the NHA curriculum at Superstition Springs Elementary School.

students teach children in their elementary school classroom, not only are future medical professionals providing education about the field of osteopathic medicine, but they are also doing it in a comfortable and familiar setting for the children. In this setting, elementary school participants are encouraged to learn about appropriate health skills, while reinforcing their trust and confidence in medical health professionals. Meanwhile, future medical professionals gain early exposure to, and experience in, practicing patient-centered, empathetic, and holistic healthcare.

## What do you hope to achieve?

By educating young students, we cultivate a health and wellness culture in the community of any given school. We hope these attitudes will transcend beyond the school district and reach the greater Arizona communities. Furthermore, we hope to contribute new and original data to current literature about the impact of education and its role in primary prevention, specifically through the lens of osteopathic medicine.

# Oral health education for special needs patients

ATSU-ASDOH's Taylor Velasquez, D4, and faculty mentors Maureen Perry, DDS, MPA, MAEd, and Ann Spolarich, PhD, RDH, FSCDH, are investigating the perceived value of oral health education by individuals with special needs and their caregivers. Their research is being conducted in the Advanced Care Clinic at ATSU-ASDOH using surveys completed by patients and their caregivers.

## What are you investigating?

We are investigating whether individuals with special needs and their caregivers value oral health education. The existing literature includes lots of information about how to train caregivers to provide oral hygiene care, but there is a lack of information about whether caregivers' knowledge and attitudes match those of the patient. We developed an original survey instrument to assess knowledge about oral health in general, to assess whether the patient realizes he or she has received oral hygiene education, and to identify what oral health topics the patient would like to learn more about and how he or she wants to get this information (e.g., one-on-one training, pamphlets, or videos). We

developed a comparable instrument to assess the same information from the patient's caregiver. The patient and caregiver are invited to participate in this study during a regularly scheduled preventive visit. If they agree, the patient's cognitive abilities and orientation are assessed using the modified St. Louis University Mental Status exam to determine eligibility to participate. Eligible patients then complete the brief 16-item survey using an iPad. Assistance with entering answers on the iPad may be given if needed. The caregivers answer their survey on the iPad as well.

## Why is your research important?

As a student dentist working with the special needs community, I often wonder how my educational messages are connecting with my patients. Giving individualized patient education to this underserved population is a necessity often overlooked by dental providers. Some assume people with intellectual and developmental disabilities or cognitive impairments cannot understand or value oral health information the same way unaffected individuals do. In fact,

there is no research or data about whether patients with special needs value their oral health or oral health education provided by a dental professional. For me, this question stands out as a topic of interest since, arguably, this vulnerable patient population needs preventive care and educational interventions the most. We should not assume people who are physically unable to perform their own self-care do not value their oral health and hygiene.

## What do you hope to achieve?

I plan to assess as many patients and caregivers as possible over a one-year period. This type of research is the first of its kind, and we hope to understand how we can better educate our special needs patients and their caregivers.



ATSU-ASDOH students work with a patient in the clinic.



# Inclusion in school-based sports

Mallory Freeman Parris, DPT, '18, and Jennifer Chalanycz, DPT, '18, worked alongside Deanne Fay, PT, DPT, MS, PCS, professor, physical therapy, ATSU-ASHS, to study experiences of athletes with physical disabilities who participate in school-based sports teams. The team received the Physical Therapy department's 2018 Outstanding Capstone Project Award for their research.

## What are you investigating?

Recommendations from the Government Accountability Office and the Department of Education have improved sports participation at the school level for students with a physical disability, but confusion remains about how to best provide equal opportunities for these students. Obtaining information from the perspective of the athlete with a physical disability is essential for a better understanding of challenges and successful strategies for school-based sports participation. Our study was designed to describe and interpret the lived experience of participating or attempting to participate as an athlete with a physical disability on a school-based sports team. Our participants were recruited at Adaptive Sports USA Junior Nationals. They ranged in age from 14-18 years, came from several different U.S. states, and represented a variety of disabilities and sports. Data were collected through in-person, semi-structured one-on-one interviews or focus groups, depending on the preference of the participants. Interviews were transcribed, and data were analyzed using a constant comparison method to identify common categories and themes. Overall, this study supports positive experiences for athletes with a disability in school-based sports but identifies barriers and necessary components for success.

## Why is your research important?

Findings of this research could be meaningful to advance inclusion of athletes with a disability in school-based sports. While there is literature from other countries investigating barriers to sports participation for children with a disability, there is currently no data for schools in the U.S. Therefore, collected data may be used to guide school administrators, coaches, parents, and other individuals assisting with inclusion of athletes with a disability. The information may also empower athletes to work with school districts and state agencies to address existing barriers, potentially leading to greater inclusion of athletes with a disability.

## What do you hope to achieve?

Our goal was to find a voice for athletes with a physical disability and identify common themes that show their perspective on inclusion and barriers they face. We hope these findings will provide the Department of Education with the necessary guidance to communicate to school administrators, coaches, and parents about how they can better include these participants and ensure their overall experience is equivalent to their peers without disabilities.



Drs. Mallory Freeman Parris and Jennifer Chalanycz receive the Outstanding Capstone Project Award for their research, along with their adviser, Dr. Deanne Fay (center).

# Dental health for the youngest

Visiting the dentist, brushing teeth, and not eating too much candy come to mind when people hear about preventive dental care, but these tips do not go far when it comes to preventing cavities in infants. With a diet consisting mostly of milk or formula, it seems logical to give infants the food with the least cavity-causing potential. ATSU-MOSDOH's Lisa Bosch, D4, and classmate Jill Bleything, D4, are investigating which food source causes the least amount of cavities, with the help of Marcos Betancourt, D3, and Rong Zeng, D3.

## What are you investigating?

We developed this research project to investigate the cavity-causing potential of the infant milk sources, breastmilk, infant formula, and cow's milk.

Our research is composed of three parts. We measured biofilm formation ("stickiness" of the milk with oral bacteria), pH change of the milk (how acidic the milk is with bacteria), and demineralization of tooth samples (actually measuring cavity formation and penetration). We also added sugar to each of the infant food sources to mimic when a mother adds other foods to the infant's diet.

## Why is your research important?

The cavity-causing ability of both infant formula and breastmilk is a hot topic with some political implications. Because of a lack of knowledge about cavity-causing potential of breastmilk, there are inconsistencies in American Academy of Pediatrics and Academy of Pediatric Dentistry recommendations for breastfeeding practices.

In addition, early childhood tooth decay is of great concern in America. It is the most common disease among

children and frequently results in pain and lost time at school. As such, it also has the potential to cause emotional trauma.

## What do you hope to achieve?

We worked on the same topic in a previous project that surveyed current dentists about cavity-producing potential of infant food sources. We found opinions varied, likely because of the lack of research and understanding of the topic. We hope this next phase of our research can build on current knowledge for this topic.

This research specifically compared each infant food source with one another instead of independently. We hope our results will aid understanding of the cavity-causing potential of each source and help guide dentists regarding risk assessments and recommendations of milk source options for young children.



Lisa Bosch presents her research on infant milk sources at the American Association of Dental Research Conference in Fort Lauderdale, Florida, on March 24, 2018.



# Tactical Emergency Casualty Care

Heidie Rothschild, DHSc, MHA, '18, has more than 23 years of military and civilian experience in disaster preparedness, medical readiness, emergency response, and healthcare management. Along with Kathleen Mathieson, PhD, CIP, associate professor, health sciences, ATSU-CGHS, she studied how Tactical Emergency Casualty Care (TECC) training for law enforcement officers can improve care for prehospital trauma patients and reduce the number of preventable deaths. The research was published in *Prehospital and Disaster Medicine* in October 2018.

## What are you investigating?

This study evaluated how TECC training, fashioned after the military's Tactical Combat Casualty Care training, has prepared law enforcement officers with the necessary tools to provide immediate, on-scene medical care to successfully stabilize victims of trauma.

## Why is your research important?

External hemorrhage after severe injury is recognized as the main cause of potentially preventable death in the civilian population and a leading cause of prehospital death of military personnel on the battlefield. Responsive and timely prehospital care is critical to saving lives in these situations. Tourniquets and hemostatic agents used by first responders are quick and effective to stop bleeding. Therefore, TECC principles focus on damage control resuscitation. As law enforcement officers are frequently the first responder to arrive on scene, it is essential they are trained in TECC, including use of tourniquets and hemostatic dressings to control hemorrhage, needle decompression for tension pneumothorax, and airway management.



Dr. Heidie Rothschild

## What do you hope to achieve?

Findings, while preliminary, support TECC training for law enforcement officers. This training provides the skills, knowledge, and tools necessary to treat and stabilize civilian victims of prehospital trauma. It is essential for TECC training to be expanded throughout additional communities across the U.S., as training first responders is the key to saving lives and avoiding preventable fatalities in the future.

## WANT MORE RESEARCH?

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## FACULTY and STAFF SCHOLARLY ACTIVITY

December 2016-August 2018

**Ackroyd, A.** Presentations/abstracts: Louder together: bridging departmental divides to build a united social media presence.

**Adams, J.** Presentations/abstracts: Alterations of systemic blood flow produces tonic immobility in alligators. Is there an independent anatomical definition of metatarsus atavicus? Tonic immobility in alligators is caused by changes in carotid artery blood flow as identified by Doppler ultrasonography.

**Adler, K.** Publications: Exploring hospitals CEOs' perceptions of health administration graduates' leadership competencies, *Journal of Health Administration Education*. Presentations/abstracts: How do U.S. hospital CEOs perceive leadership competencies of health administration graduates? Integrating applied learning and community outreach into online education. Using competency mapping to improve online education. Leadership-competency gaps of health administration graduates: what does the industry tell us? One tale from two surveys: how do hospital CEOs in Midwestern region perceive leadership competencies of health administration graduates? Evaluating online programs: challenges and strategies.

**Ahmad, Z.** Publications: A therapeutic connection between dietary phytochemicals and ATP synthase, *Current Medicinal Chemistry*. Does posttreatment thymoquinone reverse high-dose atorvastatin-induced hepatic oxidative injury in rats? *Canadian Journal of Physiology and Pharmacology*. Does silybin protect against toxicity induced by polymyxin E in rat kidney? *Neurourology and Urodynamics*. Possible protective role of silybin against polymyxin E-induced toxic effect in rat kidneys: a biochemical approach, *Neurourology and Urodynamics*. Safranal and its analogs inhibit *Escherichia coli* ATP synthase and cell growth, *International Journal of Biological Macromolecules*. Understanding the link between antimicrobial properties of dietary olive phenolics and bacterial ATP synthase, *International Journal of Biological Macromolecules*. Presentations/abstracts: ATP synthase: a molecular drug target for olive oil constituent tyrosol and its analogs. Connection between antimicrobial venom peptides and bacterial ATP synthase. Effect of cyclophosphamide on the rat urinary bladder and the possible protective role of thymoquinone. Exploring the link between antimicrobial properties of venom peptides and microbial ATP synthase. Selective inhibition

ATP synthase in combating microbial infections. Significance of charged residues in the catalytic sites of *Escherichia coli* ATP synthase. Understanding the link between antimicrobial properties of safranal and microbial ATP synthase.

**Alexander, J.L.** Publications: Effect of a Matter of Balance programme on avoidance behaviour due to fear of falling in older adults, *Psychogeriatrics*. Fitness professionals' perceptions and attitudes toward certification, online education, and medical fitness, *International Journal of Kinesiology in Higher Education*. Presentations/abstracts: Moderators of the relationship between participation in a Matter of Balance program and improved balance confidence.

**Allegro, K.** Presentations/abstracts: The effects of AlterG® treadmill training on locomotor function in an individual diagnosed with the Miller-Fisher variant of Guillain-Barré syndrome.

**Allen, D.** Presentations/abstracts: Ayurveda: the science of life. Characteristics of human sexuality educators in Vermont high schools. Communication: the cornerstone of learning.

**Allgood, J.A.** Presentations/abstracts: Addressing health disparities in medical education. Attitudes toward people experiencing homelessness among ATSU-SOMA students, physicians, faculty, and staff. Attitudes towards people experiencing homelessness among students, preceptors, and faculty. Strategies to address student and resident wellness: bridging the standards of UME and GME.

**Altman, D.** Publications: A survey of dental public health specialists on current dental public health competencies, *Journal of Public Health Dentistry*. New competencies for the 21st century dental public health specialist, *Journal of Public Health Dentistry*. The current status of professional journals in dental and oral health from Arabic-speaking countries, *World Medical & Health Policy*.

**Anderson, B.E.** Publications: Is there a relationship between the Functional Movement Screen, Star Excursion Balance Test, and Balance Error Scoring System? *Clinical Journal of Sport Medicine*. The use of breathing exercises in the treatment of chronic, nonspecific low back pain, *Journal of Sport Rehabilitation*. Presentations/abstracts: Changes in knowledge, skills, and integration of the core competencies during post-professional education. Characteristics of positive clinical experiences in post-professional education. Elevating undergraduate to graduate education through the substantive change process: a report from the Athletic Training Clinical Education Network. Inter-rater reliability of clinical tests to assess breathing pattern. Observable changes in breathing pattern based on body position.

**Archer, L.** Publications: Human patient

simulation as a teaching tool, *Missouri Medicine*. Presentations/abstracts: Simulated PGY1 night call: early exposure to EPA 10.

**Baer, R.W.** Publications: Physician-mentored patient rounds to observe and assess entrustable professional activities 1 and 2 in preclinical medical students, *Journal of the American Osteopathic Association*. Presentations/abstracts: Creation of physician-mentored patient rounds (PMPR) to observe pre-clinical medical students' ability to perform Entrustable Professional Activities 1-4. Use of physician-mentored patient rounds (PMPR) to observe pre-clinical medical students' ability to perform Entrustable Professional Activities 1-4. What students say when physicians ask them to call a patient and discuss test results.

**Bansal, S.** Presentations/abstracts: Evaluation of patient-provider communication.

**Bay, R.C.** Publications: Effect of a Matter of Balance programme on avoidance behaviour due to fear of falling in older adults, *Psychogeriatrics*. Multimodal counseling interventions: effect on human papilloma virus vaccination acceptance, *Healthcare*. Previous knee injury and health-related quality of life in collegiate athletes, *Journal of Athletic Training*. Relationships among common vision and vestibular tests in healthy recreational athletes, *International Journal of Sports Physical Therapy*. Technical feasibility of tissue microarray (TMA) analysis of tumor-associated immune response in prostate cancer, *Cancer Journal of Cancer*. 18F-FDG PET/CT response in a phase 1/2 trial of nab-paclitaxel plus gemcitabine for advanced pancreatic cancer, *Cancer Imaging*. Effectiveness of pulsed electromagnetic field for pain caused by placement of initial orthodontic wire in female orthodontic patients: a preliminary single-blind randomized clinical trial, *American Journal of Orthodontics & Dentofacial Orthopedics*. Elite distance runners: a 45-year follow-up, *Medicine & Science in Sports & Exercise*. Evaluation of factors influencing the success rate of orthodontic microimplants using panoramic radiographs, *Korean Journal of Orthodontics*. Normative grip strength values in males and females, ages 50 to 89 years old, *International Journal of Allied Health Sciences and Practice*. Reference values for the Pediatric Quality of Life Inventory and the Multidimensional Fatigue Scale in adolescent athletes by sport and sex, *American Journal of Sports Medicine*. Reports of concussion history and newly diagnosed concussions are higher among students with self-reported learning disabilities and attention deficit hyperactivity disorder, *Athletic Training and Sports Health Care*. The Functional Arm Scale for Throwers (FAST). Part I: the design and development of an upper extremity region-specific and population-specific patient-reported outcome scale for throwing athletes, *Orthopaedic Journal of Sports Medicine*. The Functional Arm Scale for Throwers (FAST). Part II: reliability and validity of an upper

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extremity region-specific and population-specific patient-reported outcome scale for throwing athletes, *Orthopaedic Journal of Sports Medicine*. Presentations/abstracts: A brief intervention model of physical therapy within the community health care center. A brief intervention model of physical therapy within the community health center. Exodus from the classroom: student perceptions, lecture capture technology, and the inception of on-demand preclinical medical education. Improved non-surgical treatment of chronic periodontitis with 980 nm diode laser. Lecture capture technology, study attendance and academic performance. Moderators of the relationship between participation in a Matter of Balance program and improved balance confidence. The internal consistency of a modified version of the Lower Extremity Functional Scale for patients receiving a total joint arthroplasty. Vibrotactile feedback improves locomotor function in lower extremity amputees. A descriptive analysis of injuries reported in USA Cycling sanctioned competitive road cycling events. Baseline IMPACT scores differ for future concussed vs non-concussed by sex. Changes in health-related quality of life in adolescent athletes following an ankle sprain injury: a report from the Athletic Training Practice-Based Research Network. Changes in knowledge, skills, and integration of the core competencies during post-professional education. Characteristics of positive clinical experiences in post-professional education. Influence of self-reported learning disabilities, dyslexia, and attention deficit hyperactivity disorder on symptom presentation at baseline and post-concussion. Inter-rater reliability of clinical tests to assess breathing pattern. Observable changes in breathing pattern based on body position. Responsiveness of the Functional Arm Scale for Throwers® (FAST) in injured baseball players. The impact of concussion on health-related quality of life as measured by the Patient Reported Outcome Measures Information Systems in adolescent athletes. The use of the Lever Sign for the diagnosis of anterior cruciate ligament ruptures: preliminary results for diagnostic accuracy.

**Beary, JM.** Publications: Delayed post-hypoxic leukoencephalopathy: a case series and review of the literature, *Cureus*. Fulminant herpes simplex virus type 1 encephalitis despite maximal medical therapy, *Cureus*. Pitfall in pupillometry: exaggerated ciliospinal reflex in a patient in barbiturate coma mimicking a nonreactive pupil, *Cureus*. Somatosensory evoked potentials as a tool to evaluate brainstem herniation in the neuroscience intensive care unit, *Cureus*.

**Bennett, T.** Publications: Teaching medical students about health systems science and osteopathic principles and practice using a virtual world: the Envision Community Health Center, *Journal of the American Osteopathic Association*. Presentations/abstracts: An interprofessional patient case designed for community health.

**Bergman, SR.** Presentations/abstracts: Correlation between pelvic index, as measured on lateral postural radiograph, and chronic low back pain.

**Bernstein, J.** Publications: A historiographic review of health education interventions and the microcomputer, *Technology in Society*. Addressing cardiovascular disease risk in Hungarian American populations: a cultural exploration of transdisciplinary health promotion, *Central European Journal of Sport Sciences and Medicine*. Peer-reviewed public health journals from Arabic-speaking countries: an updated snapshot, *Journal of Public Health Policy*. Peer-reviewed veterinary journals from Arabic-speaking countries: a systematic review, *Annals of Global Health*. Professional nutrition journals from Arabic-speaking countries: a regional status, *Nutrition Bulletin*. Selected weight management interventions for military populations in the United States: a narrative report, *Nutrition and Health*. The current status of professional journals in dental and oral health from Arabic-speaking countries, *World Medical & Health Policy*. Presentations/abstracts: Effects of a stroke awareness program on African-American women.

**Bhatia, S.** Publications: Appraisal of the DIERS method for calculating postural measurements: an observational study, *Scoliosis and Spinal Disorders*. Comparison of autonomic function before and after surgical intervention in patients with temporal lobe epilepsy, *Journal of Epilepsy Research*. Ultrasonographic evaluation of the effect of osteopathic manipulative treatment on sacral base asymmetry, *Journal of the American Osteopathic Association*. Presentations/abstracts: Correlation of force and displacement on level of restriction in vertebral segments. Evaluation of patient-provider communication.

**Blue Spruce, G.** Publications: Workforce diversity in dentistry: current status and future challenges, *Journal of Public Health Dentistry*.

**Bonsall, A.** Publications: Fatherhood in the Nordic welfare states: comparing care policies and practices, *Journal of Occupational Science*. Narrative transitions in views and behaviors of fathers parenting children with disabilities, *Journal of Family Studies*.

**Bordenave, E.** Publications: Effect of a Matter of Balance programme on avoidance behaviour due to fear of falling in older adults, *Psychogeriatrics*. Presentations/abstracts: Moderators of the relationship between participation in a Matter of Balance program and improved balance confidence.

**Bordenave, L.** Publications: Effect of a Matter of Balance programme on avoidance behaviour due to fear of falling in older adults, *Psychogeriatrics*. Presentations/abstracts: Leadership in the American Physical Therapy

Association: the experience of early career physical therapy professionals. Moderators of the relationship between participation in a Matter of Balance program and improved balance confidence. Transforming data through the use of metaphors: strategies for experienced and novice researchers.

**Branch-Mays, GL.** Publications: An interprofessional education and collaborative practice model for dentistry and pharmacy, *Journal of Dental Education*.

**Brechue, WF.** Publications: Validity and reliability of a novel instrumented one-legged hop test in patients with knee injuries, *Knee*. Presentations/abstracts: Bioelectrical impedance analysis and skinfold prediction of percent fat in male college athletes. Carbonic anhydrase inhibition alters the Starling, but not the Anrep contractile responses in the isolated heart in vitro. Carbonic anhydrase inhibition does not impact force generation or fatigue following sustained MVICs. Carbonic anhydrase inhibition does not impact force generation or fatigue following sustained voluntary maximal isometric contractions. Carbonic anhydrase inhibition: effect on rat hearts in vitro with and without pH perturbations. Cardiac structure-function and aerobic capacity in young adults with a history of competitive sports. Changes in upper-body strength are independent of initial fat-free mass and strength level. Electrocardiograph changes associated with a 24-hour footrace. Impact of music on suppression of the autonomic stress response and central motor drive of sustained isometric muscle contractions. Impact of body type on change in upper-body strength following resistance exercise training in young women. Importance of first metatarsal loading on foot arch structure and gait. Inconsistency of bilateral asymmetry between sprinting and jumping performance: rethinking leg dominance. Influence of body type and mode of resistance training on changes in upper-body strength in young men. Is there an independent anatomical definition of metatarsus atavicus? Osteopathic muscle energy treatment, pulmonary function and exercise tolerance. Relationship of fat-free mass and fat mass to body weight in college female athletes. Reliability and smallest worthwhile difference in reactive strength index modified in male and female athletes. Specific modification of cardiac structure-function associated with intense training in NCAA D-II college athletes. Squat jump performance is not related to bilateral asymmetry or training state in college-aged men. Validity of repetition prediction equations to estimate upper-body strength before and after resistance training in young women. Validity of repetition prediction equations to estimate upper-body strength in trained and untrained men.

**Breitenbach, E.** Presentations/abstracts: A self-plagiarism intervention for doctoral students: a qualitative pilot study.

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## FACULTY and STAFF SCHOLARLY ACTIVITY (December 2016–August 2018)

**Brooks, WJ.** Publications: Characterizing adverse events reported immediately after osteopathic manipulative treatment, *Journal of the American Osteopathic Association*.

**Brown, MJ.** Publications: Use of weighted pencils to improve handwriting legibility, *Journal of Occupational Therapy, Schools, & Early Intervention*. The Biggest mover: empowering students with intellectual and developmental delays and physical challenges, *Strategies: A Journal for Physical and Sport Educators*. Presentations/abstracts: You can create your own online course: creating an online course using Moodle. Weighted pencils, do they work? Using professional reasoning & protocol to determine effectiveness. The Biggest Mover program: promoting health and wellness in individuals with special needs through teacher and student education.

**Brown, S.** Presentations/abstracts: Elevating undergraduate to graduate education through the substantive change process: a report from the Athletic Training Clinical Education Network. Evidence-informed care: educational and practice implications.

**Bryant, V.** Publications: Germline SAMD9 and SAMD9L mutations are associated with extensive genetic evolution and diverse hematologic outcome, *JCI Insight*.

**Burch, A.** Presentations/abstracts: A brief intervention model of physical therapy within the community health center. A brief intervention model of physical therapy within the community health care center. Developing interest in rural physical therapy practice through clinical and community service experiences.

**Bustillo, KL.** Presentations/abstracts: Identification and physical therapy treatment of axillary web syndrome post axillary dissection: a case study report.

**Campbell, A.** Presentations/abstracts: Exodus from the classroom: student perceptions, lecture capture technology, and the inception of on-demand preclinical medical education. Lecture capture technology, study attendance and academic performance.

**Chaffin, J.** Publications: Effect and acceptance of silver diamine fluoride treatment on dental caries in primary teeth, *Journal of Public Health Dentistry*.

**Chamberlain, NR.** Publications: Physician-mentored patient rounds to observe and assess entrustable professional activities 1 and 2 in preclinical medical students, *Journal of the American Osteopathic Association*. Presentations/abstracts: Creation of physician-mentored

patient rounds (PMPR) to observe pre-clinical medical students' ability to perform Entrustable Professional Activities 1-4. Initial characterization of persistence inducing factor in *Staphylococcus aureus* SH1000. Use of physician-mentored patient rounds (PMPR) to observe pre-clinical medical students' ability to perform Entrustable Professional Activities 1-4. What students say when physicians ask them to call a patient and discuss test results.

**Chang, Y.** Publications: Dyslipidemia management update, *Current Opinion in Pharmacology*. MG132 induces expression of monocyte chemotactic protein-induced protein 1 in vascular smooth muscle cells, *Journal of Cellular Physiology*. Monocyte chemotactic protein-induced protein 1 controls allergic airway inflammation by suppressing IL-5-producing TH2 cells through Notch/Gata3 pathway, *Journal of Allergy and Clinical Immunology*. Presentations/abstracts: Age-related lipid profile changes in MCP1P1 deficient mice. Role of MCP1P1 in high insulin-related endothelial cell dysfunction. The possible role of MCP1P1 in hyperinsulemia-enhanced vascular injury-induced stenosis.

**Cleaver, D.** Publications: Regression of nevi after Candida injection for the treatment of verruca vulgaris, *Pediatric Dermatology*.

**Cleaver, L.** Publications: Regression of nevi after Candida injection for the treatment of verruca vulgaris, *Pediatric Dermatology*.

**Cottam, W.** Presentations/abstracts: Expanding dental workforce training within collaborative, team-based care. Expanding dental workforce training within collaborative, team-based care targeting FQHC/underserved populations. Using telemedicine to deliver oral health services to underserved populations in the Phoenix metro area. Building the case for social mission in dental education.

**Cox, JL.** Presentations/abstracts: Effect of MTA3 overexpression on B16 melanoma cells. Cystatins as anti-metastatic agents.

**Crutchfield, J.** Presentations/abstracts: Ultrasound imaging based medical education for first- and second-year osteopathic medical students. The (re)education of the educators: teaching anatomy.

**Dajani, T.** Presentations/abstracts: Bone health self-care through the life stages.

**Daniels, JT.** Publications: Active voice: never stop moving, *Sports Medicine Bulletin*. Elite distance runners: a 45-year follow-up, *Medicine & Science in Sports & Exercise*.

**Davis, JM.** Publications: Interprofessional education in dental education: an international perspective, *European Journal of Dental Education*. Presentations/abstracts: A decisional treatment tool: key to positive experience for oral care of patients with autism. Using digital imaging in the care of pediatric dental patients.

**De Wan, D.** Publications: Integration of ultrasound imaging into pre-clinical dental education, *European Journal of Dental Education*.

**Degehardt, B.** Publications: A focus on research at the first school of osteopathic medicine, *Journal of the American Osteopathic Association*. Appraisal of the DIERS method for calculating postural measurements: an observational study, *Scoliosis and Spinal Disorders*. Changes in cytokines, sensory tests, and self-reported pain levels after manual treatment of low back pain, *Clinical Spine Surgery*. Characterizing adverse events reported immediately after osteopathic manipulative treatment, *Journal of the American Osteopathic Association*. Influence of transverse process landmark localization on palpation accuracy of lumbar spine models, *Journal of the American Osteopathic Association*. Tool for predicting medical student burnout from sustained stress levels: factor analysis of the Medical Education Hassles Scale-R, *Journal of the American Osteopathic Association*. Presentations/abstracts: Correlation of force and displacement on level of restriction in vertebral segments. Postural changes and osteopathic manipulative treatment – a case report.

**Diamant, R.** Presentations/abstracts: Examining competencies for intraprofessional collaboration in the OT/OTA relationship. Preparing for intraprofessional practice: examining methods of learning competencies for OT/OTA collaboration. The relationships between visual-perceptual-motor skills, sensory processing behaviors, and handwriting in school-age children with autism.

**DiBaise, M.** Presentations/abstracts: Diversity, discrimination, abuse and attrition in PA education. RIA: putting research into action—advancing treatment. SHOW—Student Health Outreach for Wellness: an innovative interdisciplinary, inter-institutional student run free clinic for the homeless. The impact of longitudinal outreach activities on physician assistant students' knowledge, skills, and attitudes of oral health.

**Dillenberg, J.** Publications: Dentistry as an effective entry into primary care: the dental school-community health center collaboration, *Compendium of Continuing Education in Dentistry*. Innovation in undergraduate dental education: forging a pathway to dentistry's future, *Compendium of Continuing Education in*

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**Dentistry.** Presentations/abstracts: Expanding dental workforce training within collaborative, team-based care. Expanding dental workforce training within collaborative, team-based care targeting FQHC/underserved populations.

**Dishman, L.** Publications: Exploring hospitals CEOs' perceptions of health administration graduates' leadership competencies, *Journal of Health Administration Education*. Practices of effective online faculty: how to enhance e-learning experience of health administration students, *Journal of Health Administration Education*. Presentations/abstracts: Does size matter? A quantitative study of patient experience self-reported by U.S. for-profit, non-profit, and governmental hospitals from 2009 to 2012. Electronic health records and stroke patients' experience: a case study of an award-winning Midwestern acute care hospital. Employee engagement and organizational performance. Examining the relationship among hospitalist continuing education, hospitalist communication competency, and stroke patient outcomes. Examining the relationship among hospitalist continuing education, hospitalist communication competency, and stroke patient outcomes: a discussion of findings. How do U.S. hospital CEOs perceive leadership competencies of health administration graduates? How does patient experience predict operating margins and cash-flow margins of U.S. for-profit, non-profit, and governmental hospitals? How to engage health administration students in online courses? Investigating the relationship among patient experience, hospital types, and financial performance of for-profit, non-profit, and governmental hospitals in the United States. Leadership-competency gaps of health administration graduates: what does the industry tell us? One tale from two surveys: how do hospital CEOs in Midwestern region perceive leadership competencies of health administration graduates? Patient experience and financial performance of United States hospitals: a longitudinal analysis of 1,377 for-profit, non-profit, and governmental hospitals. Patient experience and hospital financial performance: a longitudinal analysis of U.S. for-profit, non-profit, and government hospitals. Patient experience as a predictor of operating margins and cash-flow margins of United States for-profit, non-profit, and governmental hospitals. Patient experience impacts financial performance of United States for-profit, non-profit, and governmental hospitals differently: evidence from a longitudinal national study. What are the attributes of U.S. hospitals' financial performance?

**Dixon, C.** Presentations/abstracts: Evaluation of the Nutrition and Health Awareness program and changes in physical activity on health and wellness education.

**Drachman, D.** Publications: A randomized, double-blind study of the effects of a sustained release formulation of sodium nitrite (SR-nitrite)

on patients with diabetic neuropathy, *Pain Physician*.

**Drew, GS.** Publications: GAPO syndrome: a rare genodermatosis presenting with unique features, *International Journal of Dermatology*.

**Duong, MT.** Publications: U.S. dental schools' preparation for the Integrated National Board Dental Examination, *Journal of Dental Education*. Access to dental care for people with bleeding disorders: survey results of hemophilia treatment centers in the U.S., *Special Care in Dentistry*. Presentations/abstracts: Electronic nicotine delivery systems: the good, the bad and the unknown. Exposure of pre-clinical dental students to patients with special needs. Fellows' presentation from summer program for emerging academic leaders. Horizontal and vertical students teams in a group practice model. Integrating social workers to maximize financial assistance in patient care. Evaluating the effectiveness of animal assisted therapy in a dental setting.

**Elmslie, KS.** Publications: Inhibition of  $\alpha 9\alpha 10$  nicotinic acetylcholine receptors prevents chemotherapy-induced neuropathic pain, *Proceedings of the National Academy of Sciences of the United States of America*. Presentations/abstracts: Expression of Nav 1.9 channels in Group III and Group IV muscle afferents.

**Everman, S.** Publications: Active voice: never stop moving, *Sports Medicine Bulletin*. Elevated hemoglobin A1C is significantly associated with decreased post-exercise heart rate recovery in patients with diabetes mellitus, *International Journal of Diabetes and Clinical Research*. Elite distance runners: a 45-year follow-up, *Medicine & Science in Sports & Exercise*. The effects of isoflavone supplementation plus combined exercise on lipid levels, and inflammatory and oxidative stress markers in postmenopausal women, *Nutrients*.

**Fallone, K.** Presentations/abstracts: Impact of a training program on dental hygiene student perceptions of working with patients with special needs. Training dental hygiene students to care for individuals with special needs.

**Falsone, S.** Publications: National Athletic Trainers' Association position statement: evaluation, management, and outcomes of and return-to-play criteria for overhead athletes with superior labral anterior-posterior injuries, *Journal of Athletic Training*. Presentations/abstracts: Criteria based return to sport in the throwing athlete.

**Farris, JW.** Publications: Active voice: never stop moving, *Sports Medicine Bulletin*. Elite distance runners: a 45-year follow-up, *Medicine & Science in Sports & Exercise*. Survey of methods used to determine if a patient has a deep vein thrombosis: an exploratory research report,

*Physiotherapy Theory and Practice*. Presentations/abstracts: The effectiveness of ACL prevention programs in reducing the incidence of ACL injuries: a systematic review using NNT, odds ratios, and z statistics.

**Fay, D.** Publications: Effect of group setting on gross motor performance in children 3-5 years old with motor delays, *Physical & Occupational Therapy in Pediatrics*. Presentations/abstracts: Effects of a Bal-A-Vis-X intervention on coordination and balance in typically developing school-aged children. Experiences of athletic trainers who have worked with athletes with a physical disability in school-based sports. I am an athlete: the lived experience of athletes with a physical disability participating on school-based sports teams. Let's play! Adaptive sports roles and opportunities for physical therapy: youth adaptive sports. The experience of evidence-based practice: the clinician's perspective. The inclusion and progression of two athletes with disabilities in high school sports: a case study. Transforming data through the use of metaphors: strategies for experienced and novice researchers.

**Fick, J.** Publications: Exploring hospitals CEOs' perceptions of health administration graduates' leadership competencies, *Journal of Health Administration Education*. Presentations/abstracts: Examining the relationship among hospitalist continuing education, hospitalist communication competency, and stroke patient outcomes. Examining the relationship among hospitalist continuing education, hospitalist communication competency, and stroke patient outcomes: a discussion of findings. How do U.S. hospital CEOs perceive leadership competencies of health administration graduates? Leadership-competency gaps of health administration graduates: what does the industry tell us? One tale from two surveys: how do hospital CEOs in Midwestern region perceive leadership competencies of health administration graduates? Using simulations to champion strategic change management initiatives in health care organizations. Using team based simulations to introduce organizational change management theory and practice to business students.

**Finet, M.** Presentations/abstracts: Understanding the experiences of caregivers learning a home program from an occupational therapist.

**Franklin, GA.** Publications: Appraisal of the DIERS method for calculating postural measurements: an observational study, *Scoliosis and Spinal Disorders*.

**Fryer, G.** Publications: Acute electromyographic responses of deep thoracic paraspinal muscles to spinal manual therapy interventions: an experimental, randomized cross-over study, *Journal of Bodywork and Movement Therapies*. Integrating osteopathic approaches based on biopsychosocial therapeutic mechanisms.

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## FACULTY and STAFF SCHOLARLY ACTIVITY (December 2016-August 2018)

Part 1: the mechanisms, *International Journal of Osteopathic Medicine*. Integrating osteopathic approaches based on biopsychosocial therapeutic mechanisms. Part 2: clinical approach, *International Journal of Osteopathic Medicine*. Osteopathic manipulative treatment for low back and pelvic girdle pain during and after pregnancy: a systematic review and meta-analysis, *Journal of Bodywork and Movement Therapies*. Somatic dysfunction: an osteopathic conundrum, *International Journal of Osteopathic Medicine*. Presentations/abstracts: Evidence-informed osteopathic treatment of neck pain and headaches.

**Fuszner, CD.** Publications: Complete sagittal root fracture: case report, *Dental Today*.

**Geisbuhler, T.** Publications: Cardioprotective effect of hydroxysafflor yellow A via the cardiac permeability transition pore, *Planta Medica*. Presentations/abstracts: Carbonic anhydrase inhibition alters the Starling, but not the Anrep contractile responses in the isolated heart in vitro. Carbonic anhydrase inhibition: effect on rat hearts in vitro with and without pH perturbations.

**Gohlke, E.** Presentations/abstracts: Impact of a training program on dental hygiene student perceptions of working with patients with special needs. Training dental hygiene students to care for individuals with special needs.

**Gold, J.** Publications: Effect and acceptance of silver diamine fluoride treatment on dental caries in primary teeth, *Journal of Public Health Dentistry*. Limited evidence links silver diamine fluoride and caries arrest in children, *Journal of Evidence-Based Dental Practice*. Secondary Sjögren syndrome: a case report using silver diamine fluoride and glass ionomer cement, *Journal of the American Dental Association*. Silver diamine fluoride arrests caries in primary teeth, *Journal of Evidence-Based Dental Practice*. Presentations/abstracts: Effect of silver diamine fluoride on dental caries in primary teeth: a pilot study. Effectiveness of e-learning in teaching evidence-based dentistry. How to read systematic reviews in evidence-based practice. Incorporating oral health into medical and other health education. Silver diamine fluoride for caries control in dental public health settings. Silver diamine fluoride for caries control. WIC oral health program in Alachua County Florida.

**Goldstein, LB.** Publications: Changing opioid prescribing patterns for post-extraction dental pain, *Practical Pain Management*. Dentistry as an effective entry into primary care: the dental school-community health center collaboration, *Compendium of Continuing Education in Dentistry*. Differences in pain management of peripheral vascular disease and peripheral artery

disease, *Practical Pain Management*. Examining interprofessional collaboration: there is no "I" in "healthcare team," *Otolaryngology*. Getting at the root of opioid-induced constipation with an osteopathic approach, *Practical Pain Management*. Gum bacteria now linked to RA, *Practical Pain Management*. Innovation in undergraduate dental education: forging a pathway to dentistry's future, *Compendium of Continuing Education in Dentistry*. Integrative management of acute and post-operative dental pain, *Advances in Dentistry & Oral Health*. Lumbar lordosis and back pain, *Practical Pain Management*. Managing cancer-related pain: a look at alternate approaches, *Practical Pain Management*. Myofascial pain: overview of treatment options, *Practical Pain Management*. Oral cancer diagnosis: from biopsy to metabolomics, *EC Dental Science*. Osteopathic treatment considerations for head, neck, and facial pain, *Practical Pain Management*. Plantar fasciitis: diagnosis and management, *EC Orthopaedics*. Spiritual factors impacting a patient's ability to cope with uncertainty (part 3), *Practical Pain Management*. The effects of religion and spirituality on coping efficacy for death and dying, *Practical Pain Management*. Theory of motivated information management and coping with death, *Practical Pain Management*. Tinnitus: diagnosis and treatment options, *Heighpubs Otolaryngology and Rhinology*. Topical medications for common orofacial pain conditions, *Practical Pain Management*. Utilizing acupuncture and osteopathic manipulative treatment (OMT) in the integrative treatment of TMDs, *Otolaryngology*. Presentations/abstracts: Effects of the opioid crisis on rural women's health through the life cycle. Improving underserved health through clinical training at CHCs. Improving dental and whole person healthcare through IPE. Improving rural health through clinical training at community health centers. Improving rural health through clinical training at rural hospitals and community health centers. Improving underserved health, health equity, and recruitment and retention by providing clinical training in rural and underserved areas. Improving whole person healthcare through IPE. Interprofessional collaboration between dentists and acupuncturists help improve health for women in rural communities. Utilizing acupuncture and osteopathic manipulation in the treatment of TMDs.

**Grady, L.** Presentations/abstracts: Addressing nutrition education with cultural competence using a novel approach: "my traffic light plate." Bridging the gap: providing health education to victims of intimate partner violence.

**Grogg, S.** Publications: Two-year antibody persistence in children vaccinated at 12-15 months with a measles-mumps-rubella virus vaccine without human serum albumin, *Human Vaccines & Immunotherapeutics*. Lot-to-lot consistency,

safety and immunogenicity of 3 lots of Haemophilus influenzae type b conjugate vaccine: results from a phase III randomized, multicenter study in infants, *Vaccine*.

**Grubb, J.** Publications: Evaluation of American Board of Orthodontics certification protocols in postgraduate orthodontic programs in the United States and Canada, *American Journal of Orthodontics & Dentofacial Orthopedics*.

**Gupta, J.** Publications: "Academic innovation in the service of" what? The scope of North American occupational science doctoral graduates' contributions from 1994-2015, *Journal of Occupational Science*.

**Halupa, C.** Publications: A dental radiography checklist as a tool for quality improvement, *Journal of Dental Hygiene*. The changing roles of online deans and department heads in small private universities, *Journal of Open, Flexible and Distance Learning*. Presentations/abstracts: A dental radiography checklist as a tool for quality improvement. Medical student wellness initiatives. Transformative learning in the world of technology: how ready are you to maximize your students' potential? You ANA convert to CANvas!

**Hammers, ME.** Presentations/abstracts: Effect of tetracycline on carbohydrate metabolism in *Trichomonas* spp. Proteomic effect of tetracycline on *Trichomonas vaginalis*. Regulation of protein synthesis in *Trichomonas vaginalis* by tetracycline.

**Han, BH.** Publications: A novel fluorescent imaging technique for assessment of cerebral vasospasm after experimental subarachnoid hemorrhage, *Scientific Reports*. Evaluation of <sup>64</sup>Cu-based radiopharmaceuticals that target Aβ peptide aggregates as diagnostic tools for Alzheimer's disease, *Journal of the American Chemical Society*. Presentations/abstracts: Computational investigation of biflavonoid inhibitors of amyloid beta aggregation in Alzheimer's disease.

**Hardee, MR.** Publications: Physician-mentored patient rounds to observe and assess entrustable professional activities 1 and 2 in preclinical medical students, *Journal of the American Osteopathic Association*. Presentations/abstracts: Creation of physician-mentored patient rounds (PMPR) to observe pre-clinical medical students' ability to perform Entrustable Professional Activities 1-4. Use of physician-mentored patient rounds (PMPR) to observe pre-clinical medical students' ability to perform Entrustable Professional Activities 1-4. What students say when physicians ask them to call a patient and discuss test results.

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**Headman, Z.** Presentations/abstracts: Cardiac structure-function and aerobic capacity in young adults with a history of competitive sports.

**Heard, JT.** Publications: A focus on research at the first school of osteopathic medicine, *Journal of the American Osteopathic Association*.

**Heath, D.** Publications: Gum bacteria now linked to RA, *Practical Pain Management*. Myofascial pain: overview of treatment options, *Practical Pain Management*. Osteopathic treatment considerations for head, neck, and facial pain, *Practical Pain Management*. Teaching medical students about health systems science and osteopathic principles and practice using a virtual world: the Envision Community Health Center, *Journal of the American Osteopathic Association*. Presentations/abstracts: Ultrasound imaging based medical education for first- and second-year osteopathic medical students.

**Hendricks, LG.** Publications: Improving the safety of dental unit waterlines, *Dimensions of Dental Hygiene*.

**Herskowitz, L.** Presentations/abstracts: Using resilience training curriculum in high school students to reduce the consequences of adversity.

**Hodges, C.** Presentations/abstracts: A brief intervention model of physical therapy within the community health care center. A brief intervention model of physical therapy within the community health center.

**Houser, JJ.** Publications: Gross anatomy education today: the integration of traditional and innovative methodologies, *Missouri Medicine*.

**Howell, S.** Publications: Protocols for treating patients with end-stage renal disease: a survey of nephrology fellowships, *Special Care in Dentistry*. Presentations/abstracts: Antibiotic prophylaxis protocols for treating patients with end-stage renal disease: results of a three part study. Breaking down silos: integrating dentistry into the medical clinic. Expanding dental workforce training within collaborative, team-based care targeting FQHC/underserved populations. Expanding dental workforce training within collaborative, team-based care. Teledentistry: using emerging technologies to provide care to underserved communities. Caring for the whole person: integrating oral health & primary care. Managing dental pain in a medical setting: teaching dental anesthesia to medical providers. Resident grand rounds: resident cases and clinical questions. Teledentistry: promoting technology to enhance access to care. Using teledentistry to deliver oral health services to underserved populations in the Phoenix metro area. Building the case for social mission in dental education. Dental local anesthesia training for medical professionals using innovative techniques.

**Hudman, DA.** Publications: Exposure to ticks and their pathogens in Northeast Missouri, *Missouri Medicine*. Fine epitope mapping of monoclonal antibodies to the DNA repair protein, RadA, *Monoclonal Antibodies in Immunodiagnosis and Immunotherapy*. Prevalence of tick-borne pathogens in Northeast Missouri, *Missouri Medicine*. Presentations/abstracts: Fine epitope mapping of monoclonal antibodies to the DNA repair protein, RadA. Impact of *queA* gene deficiency on DNA repair-dependent processes in *Escherichia coli*. Prevalence of tick-borne pathogens in Northeast Missouri.

**Hutman, R.** Presentations/abstracts: Using ultrasound imaging to enhance education of clinical musculoskeletal anatomy and examination skills in professional and post-professional athletic training students.

**Huxel Bliven, KC.** Publications: Evaluation and assessment patterns of sport-related knee sprains at the point-of-care: a report from the Athletic Training Practice-Based Research Network, *Athletic Training and Sports Health Care*. National Athletic Trainers' Association position statement: evaluation, management, and outcomes of and return-to-play criteria for overhead athletes with superior labral anterior-posterior injuries, *Journal of Athletic Training*. Outcomes of Latarjet procedure compared with Bankart repair for recurrent traumatic anterior shoulder instability, *Journal of Athletic Training*. Pitch volume and glenohumeral and hip motion and strength in youth baseball pitchers, *Journal of Athletic Training*. The effect of shoulder plyometric training on amortization time and upper-extremity kinematics, *Journal of Sport Rehabilitation*. The Functional Arm Scale for Throwers (FAST). Part I: the design and development of an upper extremity region-specific and population-specific patient-reported outcome scale for throwing athletes, *Orthopaedic Journal of Sports Medicine*. The Functional Arm Scale for Throwers (FAST). Part II: reliability and validity of an upper extremity region-specific and population-specific patient-reported outcome scale for throwing athletes, *Orthopaedic Journal of Sports Medicine*. The use of breathing exercises in the treatment of chronic, nonspecific low back pain, *Journal of Sport Rehabilitation*. Presentations/abstracts: Allied health students' utilization and perceptions of human anatomy learning resources. Clinical evaluation findings in patients diagnosed with impingement or shoulder pain: a report from the Athletic Training Practice-Based Research Network. Clinical presentation of patients following sport-related elbow injuries: a report from the Athletic Training Practice-Based Research Network. Clinical presentations at the point-of-care of common sport-related injuries: a report from the Athletic Training Practice-Based Research Network. Epidemiology of gymnastic injuries sustained by female secondary school athletes: a report from the National Athletic Treatment, Injury, and Outcomes Network. Epidemiology

of secondary school girls' volleyball injuries: a report from the National Athletic Treatment, Injury, and Outcomes Network. Examining stakeholder attitudes of professional enhancement related to the post-professional clinical doctoral degree in athletic training. Examining stakeholder perceptions of programmatic design of the post-professional clinical doctoral degree in athletic training. Inter-rater reliability of clinical tests to assess breathing pattern. Observable changes in breathing pattern based on body position. Ultrasound imaging based medical education for first- and second-year osteopathic medical students. Responsiveness of the Functional Arm Scale for Throwers© (FAST) in injured baseball players. Unusual vascular variations of the left kidney: a case study. Using ultrasound imaging to enhance education of clinical musculoskeletal anatomy and examination skills in professional and post-professional athletic training students. The effect of a novel stretch on posterior shoulder tightness.

**Ikonne, U.** Publications: Aβ42-mediated proteasome inhibition and associated tau pathology in hippocampus are governed by a lysosomal response involving cathepsin B: evidence for protective crosstalk between protein clearance pathways, *PLOS One*. Presentations/abstracts: Exodus from the classroom: student perceptions, lecture capture technology, and the inception of on-demand preclinical medical education. Lecture capture technology, study attendance and academic performance.

**Imundi, J.** Presentations/abstracts: Diabetes prevention for Native Hawaiian women: a case series design. Identification and physical therapy treatment of axillary web syndrome post axillary dissection: a case study report.

**Imundi, M.** Presentations/abstracts: Identification and physical therapy treatment of axillary web syndrome post axillary dissection: a case study report.

**Inks, P.** Presentations/abstracts: Meeting older adults where they live: an innovative approach to improve oral health.

**Johnson, JC.** Publications: Acute electromyographic responses of deep thoracic paraspinal muscles to spinal manual therapy interventions: an experimental, randomized cross-over study, *Journal of Bodywork and Movement Therapies*. Changes in cytokines, sensory tests, and self-reported pain levels after manual treatment of low back pain, *Clinical Spine Surgery*. Characterizing adverse events reported immediately after osteopathic manipulative treatment, *Journal of the American Osteopathic Association*. Histological characteristics of knee menisci in patients with osteoarthritis, *Clinical Anatomy*. Incidence of variations in human cadaveric renal vessels, *Folia Morphologica*. Performance assessment in medical school curricula: an innovative method of evaluating sonographic skills using

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## FACULTY and STAFF SCHOLARLY ACTIVITY (December 2016–August 2018)

ultrasound practical examinations, *Medical Science Educator*. Tool for predicting medical student burnout from sustained stress levels: factor analysis of the Medical Education Hassles Scale-R, *Journal of the American Osteopathic Association*. Presentations/abstracts: Correlation between pelvic index, as measured on lateral postural radiograph, and chronic low back pain.

**Kalamchi, S.** Publications: Demographic features of patients with concomitant facial fractures and closed head injuries in Maricopa, Arizona, *Oral Surgery Oral Medicine Oral Pathology Oral Radiology*.

**Kaylor, MB.** Publications: The relationship between functional independence measure scores, socio-demographics and site of discharge for inpatient rehabilitation patients with stroke in one California facility, *Physical Therapy Journal of Policy Administration and Leadership*.

**Keane, J.** Publications: Plantar fasciitis: diagnosis and management, *EC Orthopaedics*. Tinnitus: diagnosis and treatment options, *Heighpubs Otolaryngology and Rhinology*.

**Kellar, C.** Publications: Tracking active learning in the medical school curriculum: a learning-centered approach, *Journal of Medical Education and Curricular Development*.

**Kernan, D.** Presentations/abstracts: The impact of a 5 week seminar on biopsychosocial model of self-care on perceived levels of anxiety, depression, self-compassion, stress and mindfulness in graduate healthcare students.

**Kinney, M.** Publications: A crowdsourced system for creating practice questions in a clinical presentation medical curriculum, *Medical Science Educator*. A descriptive, cross-sectional study of medical student preferences for vod-cast design, format and pedagogical approach, *BMC Medical Education*. What millennial medical students say about flipped learning, *Advances in Medical Education and Practice*. Presentations/abstracts: Finding the perfect balance between flipped learning and lecture-based instruction.

**Klawonn, A.** Presentations/abstracts: Feasibility and benefits of an adapted Pilates program for individuals with Parkinson's disease. The impact of a 5 week seminar on biopsychosocial model of self-care on perceived levels of anxiety, depression, self-compassion, stress and mindfulness in graduate healthcare students.

**Knilans, J.** Presentations/abstracts: The effects of a kinetic lower extremity orthosis on locomotor function in individuals with hemiparesis.

**Kondrashov, P.** Publications: Gross anatomy education today: the integration of traditional

and innovative methodologies, *Missouri Medicine*. Histological characteristics of knee menisci in patients with osteoarthritis, *Clinical Anatomy*. Integration of ultrasound imaging into pre-clinical dental education, *European Journal of Dental Education*. Introduction of a combined gastrointestinal histopathology laboratory exercise into an undergraduate medical school curriculum, *Missouri Medicine*. Medical student perception of the impact of early ultrasonography education on experiences during clinical rotations, *Medical Science Educator*. Performance assessment in medical school curricula: an innovative method of evaluating sonographic skills using ultrasound practical examinations, *Medical Science Educator*. Premedical anatomy experience and student performance in medical gross anatomy, *Clinical Anatomy*. Integration of ultrasonography into the undergraduate medical curriculum: seven years of experience, *Missouri Medicine*. Presentations/abstracts: The role of obesity and meniscal instability in the progression of osteoarthritis. Use of contralateral knee as control in the destabilization of medial meniscus osteoarthritis rat model.

**Kondrashova, T.** Publications: A comparison of point-of-care ultrasonography use in rural versus urban emergency departments throughout Missouri, *Missouri Medicine*. Enhancing learning experience using ultrasound simulation in undergraduate medical education: student perception, *Medical Science Educator*. Increasing self-awareness of medical students through the use of ultrasonography, *Journal of the American Osteopathic Association*. Integration of 3-dimensional/4-dimensional ultrasound technology into undergraduate medical education: student perception of innovative obstetrics education, *Missouri Medicine*. Integration of ultrasonography into the undergraduate medical curriculum: seven years of experience, *Missouri Medicine*. Integration of ultrasound imaging into pre-clinical dental education, *European Journal of Dental Education*. Medical student perception of the impact of early ultrasonography education on experiences during clinical rotations, *Medical Science Educator*. Performance assessment in medical school curricula: an innovative method of evaluating sonographic skills using ultrasound practical examinations, *Medical Science Educator*. Ultrasonographic evaluation of the effect of osteopathic manipulative treatment on sacral base asymmetry, *Journal of the American Osteopathic Association*. Presentations/abstracts: 3D/4D Ultrasound technology in medically underserved communities: a survey of second-year medical students. Alterations of systemic blood flow produces tonic immobility in alligators. Cardiac structure-function and aerobic capacity in young adults with a history of competitive sports. Improving obstetrical care in medically underserved communities using modern technology: medical student

perception. Integration of 3D/4D ultrasound technology into undergraduate medical education: student perception. Specific modification of cardiac structure-function associated with intense training in NCAA D-II college athletes. Tonic immobility in alligators is caused by changes in carotid artery blood flow as identified by Doppler ultrasonography.

**Konecny, LT.** Presentations/abstracts: Cannabis vaping among teens: an emerging risk. Medical student wellness initiatives. From student to faculty to both: exploring the ongoing journey.

**Kuettel, J.** Presentations/abstracts: The feasibility of tracking strength gains using the supine hip extension test in a neurologic population.

**LaBaere, RJ.** Presentations/abstracts: Creative approaches to bringing osteopathic recognition to your residency program. Building community around the sponsoring institution. Creative approaches to bringing osteopathic recognition to your residency program: osteopathic postdoctoral training institute (OPTI) as catalyst.

**Lam, KC.** Publications: A cross-sectional study of age differences and postural control using the Stability Evaluation Test (SET), *International Journal of Athletic Therapy & Training*. Athletic trainers' perceptions of and barriers to patient care documentation: a report from the Athletic Training Practice-Based Research Network, *Journal of Athletic Training*. Athletic trainers' reasons for and mechanics of documenting patient care: a report from the Athletic Training Practice-Based Research Network, *Journal of Athletic Training*. Evaluation and assessment patterns of sport-related knee sprains at the point-of-care: a report from the Athletic Training Practice-Based Research Network, *Athletic Training and Sports Health Care*. Future strategies to enhance patient care documentation among athletic trainers: a report from the Athletic Training Practice-Based Research Network, *Journal of Athletic Training*. Is there a relationship between the Functional Movement Screen, Star Excursion Balance Test, and Balance Error Scoring System? *Clinical Journal of Sport Medicine*. Previous knee injury and health-related quality of life in collegiate athletes, *Journal of Athletic Training*. Reference values for the Pediatric Quality of Life Inventory and the Multidimensional Fatigue Scale in adolescent athletes by sport and sex, *American Journal of Sports Medicine*. Presentations/abstracts: A comparison of estimated direct costs of care provided by athletic trainers between mild and severe lower extremity disorders: a report from the Athletic Training Practice-Based Research Network. Advancing scholarship through the degree tradition. Changes in health-related quality of life in adolescent athletes following

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a lower extremity injury: a report from the Athletic Training Practice-Based Research Network. Changes in health-related quality of life in adolescent athletes following an ankle sprain injury: a report from the Athletic Training Practice-Based Research Network. Clinical evaluation findings in patients diagnosed with impingement or shoulder pain: a report from the Athletic Training Practice-Based Research Network. Clinical presentation of patients following sport-related elbow injuries: a report from the Athletic Training Practice-Based Research Network. Clinical presentations at the point-of-care of common sport-related injuries: a report from the Athletic Training Practice-Based Research Network. Cost and treatment characteristics for sport-related knee injuries managed by athletic trainers: a report from the Athletic Training Practice-Based Research Network. Disablement models: a framework for whole person, patient-centered healthcare. Engaging students in scholarly activities at the point of care. Practice characterization: how the simple act of counting can improve patient care and enhance clinical practice. Selecting the most appropriate patient-reported outcome measure for patient care: key considerations and commonly used measures in athletic training. Strategies to engage clinicians in research. The effectiveness of online videos in improving clinical skills involving musculoskeletal injury assessment. The management and estimated direct costs of care of ankle sprain injuries at the point-of-care: a report from the Athletic Training Practice-Based Research Network. The use of the Lever Sign for the diagnosis of anterior cruciate ligament ruptures: preliminary results for diagnostic accuracy.

**Laursen, RM.** Presentations/abstracts: Evidence-informed care: educational and practice implications.

**Leafman, J.** Publications: Access to digital communication technology and perceptions of telemedicine for patient education among American Indian patients with diabetes, *Journal of Health Care for the Poor and Underserved*. Surgical physician assistant perceptions of mentoring, *HPB (Oxford)*. Addressing the cost, value, and student debt in nursing education, *Nursing Economics*. Presentations/abstracts: Self-image, obesity, and African-American women.

**Leaming, L.** Presentations/abstracts: Using simulations to champion strategic change management initiatives in health care organizations.

**LeBeau, L.** Presentations/abstracts: The design and implementation of an OMM mini-CEX.

**Levine, R.** Publications: Dental lasers: choosing the right equipment for your practice, *Compendium of Continuing Education in Dentistry*. Use of a 10,600-nm CO<sub>2</sub> laser mandibular vestibular extension in a patient with a chromosomal abnormality, *Compendium of Continuing Education in*

*Dentistry*. Presentations/abstracts: Characteristic performance measurements: beam distribution and output power from two laser systems used in dentistry. Double-blinded study to investigate effectiveness of 980 nm diode laser for chronic periodontal disease: preliminary results. Improved non-surgical treatment of chronic periodontitis with 980 nm diode laser. Output characterization of clinically applied diode laser systems for management of chronic periodontal disease. Non-surgical periodontal therapy using scaling and root planing (SRP) in combination with diode laser.

**Levy, AB.** Presentations/abstracts: PIPS vs. standard treatment for endodontic bacterial decontamination.

**Lewis, JH.** Publications: Gaming science innovations to integrate health systems science into medical education and practice, *Advanced Medical Education Practice*. Rest and return to activity after sport-related concussion: a systematic review of the literature, *Journal of Athletic Training*. Teaching medical students about health systems science and osteopathic principles and practice using a virtual world: the Envision Community Health Center, *Journal of the American Osteopathic Association*. Presentations/abstracts: Addressing health disparities in medical education. Addressing nutrition education with cultural competence using a novel approach: "my traffic light plate." An interprofessional patient case designed for community health. An update on the AMA's Accelerating Change in Medical Education initiative: addressing and assessing the emerging third science in UME—health systems science. Attitudes toward people experiencing homelessness among ATSU-SOMA students, physicians, faculty, and staff. Attitudes towards people experiencing homelessness among students, preceptors, and faculty. Bridging the gap: providing health education to victims of intimate partner violence. Compliance with and effectiveness of return-to-activity progressions following concussion: a systematic review of the literature. Determining efficacy of dental educational interventions in Ohio adolescents. Evaluating the impact of the Nutrition and Health Awareness program on physical activity and health awareness. Evaluation of patient-provider communication. Evaluation of the Nutrition and Health Awareness program and changes in physical activity on health and wellness education. Examination of passive and active nutrition education on health eating habits. Exodus from the classroom: student perceptions, lecture capture technology, and the inception of on-demand preclinical medical education. Improving knowledge of hepatitis C virus in community members who have regular contact with populations at high risk for infection. Lecture capture technology, study attendance and academic performance. The Mentors in Medicine program: improving health education in the Woodlake community. Using resilience

training curriculum in high school students to reduce the consequences of adversity. An EHR approach to addressing the social determinants of health. Beyond clinical experience: engaging students in community oriented primary care. Examination of the teach-back method in nutrition education with eighth grade middle school students. Opioid excess – educating Portland citizens on the importance of proper disposal of excess opioid prescriptions. Determining the effect of musical therapy and basic hygiene education on improving mental health and well-being of Bhutanese refugees. Improving knowledge of hepatitis C virus in community members who have regular contact with populations at higher risk for infection. Efficacy of a healthcare career workshop with underrepresented minority college students. Bridging the patient-provider gap: using multimedia to enhance the quality of advanced care planning discussions. Mentors in Medicine program: improving health education in Woodlake Unified School District and surrounding community. Park Rx: increasing physician prescription of outdoor physical activity to promote long-term health and well-being. Kūlia i ka Nu'u (Strive for the Highest) health education project. Applying osteopathic manipulation techniques to decrease stress and anxiety in patients with hypertension. Nutritional barriers experienced by people with type-II diabetes mellitus in the Seattle, King County area.

**Line, D.** Presentations/abstracts: Unintentional injuries and opioid use in the rural United States. Using competency mapping to improve online education. Water crisis: a social and environmental justice issue.

**Lohman Bonfiglio, CM.** Presentations/abstracts: Allied health students' utilization and perceptions of human anatomy learning resources. Biomechanical analysis of cervical spinal nerves during radial and ulnar biased neurodynamic testing. Effects of median, radial, and ulnar biased neurodynamic testing on cervical spinal nerves. Perceptions and utilization of three-dimensional printing in human anatomy courses: a pilot study. Unusual vascular variations of the left kidney: a case study.

**Long, R.** Publications: Human patient simulation as a teaching tool, *Missouri Medicine*.

**Lopes Sauers, AD.** Publications: Quality improvement in athletic healthcare, *Journal of Athletic Training*. Translation, cross-cultural adaptation, and measurement properties of the Brazilian version of the Identification of Functional Ankle Instability (IdFAI) questionnaire, *Physical Therapy in Sports*.

**Love, A.** Presentations/abstracts: Are oral health and access to dental care major issues for incarcerated women?

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**Lovy, A.** Presentations/abstracts: Electrocardiograph changes associated with a 24-hour footrace.

**Lukavsky, T.** Presentations/abstracts: Coping with chronic illness.

**Lynskey, J.** Presentations/abstracts: The effects of a kinetic lower extremity orthosis on locomotor function in individuals with hemiparesis. The effects of AlterG® treadmill training on locomotor function in an individual diagnosed with the Miller-Fisher variant of Guillain-Barré syndrome. The impact of a 5 week seminar on biopsychosocial model of self-care on perceived levels of anxiety, depression, self-compassion, stress and mindfulness in graduate healthcare students. Vibrotactile feedback improves locomotor function in lower extremity amputees.

**Makin, I.** Publications: Multiplex real-time PCR detection and relative quantification of periodontal pathogens, *Clinical and Experimental Dental Research*. Subcutaneous infiltration of carbon dioxide (carboxytherapy) for abdominal fat reduction: a randomized clinical trial, *Journal of the American Academy of Dermatology*. Utility of a high-resolution superficial diagnostic ultrasound system for assessing skin thickness: a cross-sectional study, *Dermatologic Surgery*. Presentations/abstracts: Carboxytherapy for subcutaneous abdominal fat reduction: a randomized controlled trial. Characteristic performance measurements: beam distribution and output power from two laser systems used in dentistry. Controlled high-frequency scanning technique to reliably measure subcutaneous tissue thickness in combination with carbon dioxide aesthetic procedure. Double-blinded study to investigate effectiveness of 980 nm diode laser for chronic periodontal disease: preliminary results. Inter-institutional collaboration for faculty training, integrating ultrasound in medical education. Longitudinal ultrasound curriculum: a reality. Improved non-surgical treatment of chronic periodontitis with 980 nm diode laser. In-vivo demonstration of a self-contained ultrasound-based battery charging approach for medical implants. Nasal MRSA colonization in dental students. Nasal MRSE colonization in dental students. Non-surgical periodontal therapy using scaling and root planing (SRP) in combination with diode laser. Output characterization of clinically applied diode laser systems for management of chronic periodontal disease. Ultrasound imaging based medical education for first- and second-year osteopathic medical students. Using ultrasound imaging to enhance education of clinical musculoskeletal anatomy and examination skills in professional and post-professional athletic training students. Utility of high-resolution superficial diagnostic ultrasound system for assessing skin thickness of the face and neck.

**Manne, D.** Presentations/abstracts: Meeting older adults where they live: an innovative approach to improve oral health.

**Manton, C.** Presentations/abstracts: Interrater reliability of physical therapy students using the Functional Movement Screen. The association of the Functional Movement Screen™ and single leg hop tests with musculoskeletal injury in firefighter recruits. The effect of a novel stretch on posterior shoulder tightness.

**Marshall, AN.** Presentations/abstracts: Changes in health-related quality of life in adolescent athletes following a lower extremity injury: a report from the Athletic Training Practice-Based Research Network.

**Mathieson, K.** Publications: Access to digital communication technology and perceptions of telemedicine for patient education among American Indian patients with diabetes, *Journal of Health Care for the Poor and Underserved*. Attitudes of physician assistant educators toward interprofessional education and collaborative care, *Journal of Physician Assistant Education*. The relationship between functional independence measure scores, socio-demographics and site of discharge for inpatient rehabilitation patients with stroke in one California facility, *Physical Therapy Journal of Policy Administration and Leadership*. Randomized trial of oral versus intravenous acetaminophen for postoperative pain control, *American Journal of Health-System Pharmacy*.

**Matthews, E.** Publications: Acute kidney injury and iodinated contrast media, *Radiologic Technology*. Knowledge and beliefs about cancer in African American population, *Journal of Health Disparities Research and Practice*. Presentations/abstracts: Curriculum design: introducing best practices in online graduate course development.

**McCoy, L.** Publications: A descriptive, cross-sectional study of medical student preferences for podcast design, format and pedagogical approach, *BMC Medical Education*. Gaming science innovations to integrate health systems science into medical education and practice, *Advanced Medical Education Practice*. Teaching medical students about health systems science and osteopathic principles and practice using a virtual world: the Envision Community Health Center, *Journal of the American Osteopathic Association*. Tracking active learning in the medical school curriculum: a learning-centered approach, *Journal of Medical Education and Curricular Development*. What millennial medical students say about flipped learning, *Advances in Medical Education and Practice*. Presentations/abstracts: An interprofessional patient case designed for community health. Finding the perfect balance

between flipped learning and lecture-based instruction. Integrated professional education at community health centers. Training healthcare heroes in the trenches. Virtual IPE rotation: let's meet online to discuss patient case Araceli Gamboa, an adolescent with obesity.

**McDaniel, CS.** Presentations/abstracts: Curriculum design: introducing best practices in online graduate course development. Evaluating online programs: challenges and strategies. Integrating applied learning and community outreach into online education. Using competency mapping to improve online education.

**McIsaac, TL.** Presentations/abstracts: Applying the dual task taxonomy: cognitive, auditory, visual, and manual modes. Feasibility and benefits of an adapted Pilates program for individuals with Parkinson's disease.

**McLeod, I.** Publications: Cumulative risk on the oxytocin receptor gene (OXTR) predicts empathic communication by physician assistant students, *Health Communication*. Presentations/abstracts: Concussion management among NCAA swim programs. Influence of prior concussion education on club swim coaches' perceived importance, knowledge, and confidence regarding sport-related concussion.

**McNeil, L.** Presentations/abstracts: Training faculty in a distributed model to prepare OMS for the COMLEX Level 2 PE.

**Mehta, Z.** Presentations/abstracts: The clinical challenge of diagnosing and managing central auditory processing disorder. Trisomy 13 mosaicism with ring chromosome 13: a case study.

**Menke, JM.** Publications: More accurate oral cancer screening with fewer salivary biomarkers, *Biomarkers in Cancer*. The K-SF-42: a new short form of the Arizona Life History Battery, *Evolutionary Psychology*.

**Michaelis, R.** Presentations/abstracts: Integrated professional education at community health centers. Expanding dental workforce training within collaborative, team-based care.

**Middlemas, DS.** Presentations/abstracts: Ghrelin, a potential antidepressant in adult rats, does not reduce depressive-like symptoms in juvenile rats. Intracerebroventricular peptide administration for antidepressant studies in juvenile rats. Modified tail suspension as an indication of depression in adolescent rats.

**Miller, CL.** Publications: Graduate teaching assistant pedagogical training: a case study, *Journal of Applied Instructional Design*.

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**Morgan, C.** Publications: Tracking active learning in the medical school curriculum: a learning-centered approach, *Journal of Medical Education and Curricular Development*. Presentations/abstracts: Creating a primary care pipeline: a collaborative approach. Strategies to address student and resident wellness: bridging the standards of UME and GME. The design and implementation of an OMM mini-CEX. When family medicine residents train in community health centers, do they stay?

**Morgan, J.** Presentations/abstracts: Creating a primary care pipeline: a collaborative approach.

**Motahari, M.** Presentations/abstracts: Interprofessional education at the schools of A.T. Still University.

**Musawi, A.** Publications: An experimental study of the effects of psychological interventions on adult patients with dental anxiety, *International Journal of Psychological Studies*. Effects of a combination of non-pharmaceutical psychological interventions on dental anxiety, *Journal of Clinical and Translational Research*. Factors associated with faculty participation in research activities in dental schools, *Singapore Dental Journal*.

**Nenad, MW.** Publications: A dental radiography checklist as a tool for quality improvement, *Journal of Dental Hygiene*. Presentations/abstracts: A dental radiography checklist as a tool for quality improvement.

**Norman, L.** Publications: Characterizing adverse events reported immediately after osteopathic manipulative treatment, *Journal of the American Osteopathic Association*.

**Nurrohman, H.** Publications: The role of pro-enzyme inhibitors on the remineralization of demineralized dentin using the PILP method, *PLOS One*. Presentations/abstracts: Determination of the relative cariogenic potential of breastmilk, bovine milk, and infant formula.

**Obadia, S.** Publications: Step up—not on—the Step 2 Clinical Skills exam: Directors of Clinical Skills Courses (DOCS) oppose ending Step 2 CS, *Academic Medicine*. Presentations/abstracts: Addressing health disparities in medical education. Training faculty in a distributed model to prepare OMS for the COMLEX Level 2 PE.

**Olsen, L.** Publications: Population-based cross-sectional research: salient processes, rationale, and insights from the National Health Educator Competencies Update Project, *SAGE Research Methods*. Presentations/abstracts: A cornucopia of creative classroom activities. Cell telephone use: today's new addiction for Mexican high school youth? Implications for APHA-SHES to create a healthier nation through a unified strategic vision for 2025.

Characteristics of human sexuality educators in Vermont high schools.

**Ostrowski, TD.** Publications: Blunted respiratory responses in the streptozotocin-induced Alzheimer's disease rat model, *Journal of Alzheimer's Disease*. H<sub>2</sub>O<sub>2</sub> augments cytosolic calcium in nucleus tractus solitarii neurons via multiple voltage-gated calcium channels, *American Journal of Physiology Cell Physiology*. Presentations/abstracts: Activation pattern of nucleus tractus solitarii neurons in response to acute hypoxia in the STZ-induced rat model of Alzheimer's disease: a preliminary study. Blunted respiratory responses in the STZ-induced rat model of Alzheimer's disease. Ghrelin, a potential antidepressant in adult rats, does not reduce depressive-like symptoms in juvenile rats. Impaired chemoreflex response to acute hypoxia correlates with decreased activation of the medial nucleus tractus solitarii in the STZ-induced rat model of Alzheimer's disease. Intracerebroventricular peptide administration for antidepressant studies in juvenile rats.

**Palmieri, PA.** Publications: La tecnica Delphi: un método de consenso para la investigación en servicios de salud en Latino América, *Ágora Revista Científica*. Medical tourism: the role of the primary care provider, *BJGP Open*. Reproductive decision-making in women living with human immunodeficiency virus: a systematic review, *International Journal of Nursing Studies*. The experience of pregnancy in women living with HIV: a meta-synthesis of qualitative evidence, *Journal of the Association of Nurses in AIDS Care*. Presentations/abstracts: A Peruvian multi-center study on nursing faculty attitudes in caring for people living with HIV/AIDS. An evidence-based education and simulation strategy to improve the satisfaction, confidence, and communication of nurses during neonatal resuscitation. An evidence-based educational strategy to improve influenza vaccination rates among hospital nurses. Avance de la enfermería en América Latina: ontología del cuidado humano y la epistemología de la ética. Caring for people living with HIV/AIDS: comparing American and Peruvian nursing faculty attitudes. Effectiveness of the patient-centered medical home as an intervention strategy for diabetes mellitus: a systematic review of the evidence. Investigación en torno al cuidado humanizado. Liderazgo para fortalecer el cuidado y seguridad del paciente. Nursing faculty attitudes to caring for people living with HIV/AIDS: preliminary results from an international multi-center survey study. Perioperative orientation, education, and mentoring (POEM) program. Peruvian, Spanish, and American nursing faculty attitudes to caring for people living with HIV/AIDS. Reproductive decision-making in women living with HIV. The influence of partners on reproductive decision-making of women living with HIV: a conceptual framework.

**Park, JH.** Publications: A comparison of treatment effects of total arch distalization using modified C-palatal plate vs buccal miniscrews, *Angle Orthodontist*. A current review of asymmetry, *Journal of Clinical Orthodontics*. A finite element analysis of the optimal bending angles in a running loop for mesial translation of a mandibular molar using indirect skeletal anchorage, *Orthodontics & Craniofacial Research*. A three-dimensional photogrammetric analysis of the facial esthetics of the Miss Korea pageant contestants, *Korean Journal of Orthodontics*. Adult gummy smile correction with temporary skeletal anchorage devices, *Journal of the World Federation of Orthodontists*. American Board of Orthodontics: time for change, *American Journal of Orthodontics & Dentofacial Orthopedics*. Anterior open-bite correction with miniscrew anchorage and a combination of upper lingual and lower labial appliances, *Journal of Clinical Orthodontics*. Application of palatal plate for nonextraction treatment in an adolescent boy with severe overjet, *American Journal of Orthodontics & Dentofacial Orthopedics*. Authors' response: impacted and transposed canine, *American Journal of Orthodontics & Dentofacial Orthopedics*. Camouflage treatment of skeletal Class III malocclusion with conventional orthodontic therapy, *American Journal of Orthodontics & Dentofacial Orthopedics*. Clinical applications and treatment outcomes with modified C-palatal plates, *Seminars in Orthodontics*. Common errors observed at the American Board of Orthodontics clinical examination, *American Journal of Orthodontics & Dentofacial Orthopedics*. Comparison of treatment effects between the modified C-palatal plate and cervical pull headgear for total arch distalization in adults, *Korean Journal of Orthodontics*. Correction of bimaxillary protrusion after extraction of hopeless mandibular posterior teeth and molar protraction, *Journal of Clinical Orthodontics*. Displacement and stress distribution by different bone-borne palatal expanders with facemask: a 3-dimensional finite element analysis, *American Journal of Orthodontics & Dentofacial Orthopedics*. Effectiveness of pulsed electromagnetic field for pain caused by placement of initial orthodontic wire in female orthodontic patients: a preliminary single-blind randomized clinical trial, *American Journal of Orthodontics & Dentofacial Orthopedics*. Effects of acid etching and calcium chloride immersion on removal torque and bone-cutting ability of orthodontic mini-implants, *American Journal of Orthodontics & Dentofacial Orthopedics*. Evaluation of American Board of Orthodontics certification protocols in postgraduate orthodontic programs in the United States and Canada, *American Journal of Orthodontics & Dentofacial Orthopedics*. Evaluation of factors influencing the success rate of orthodontic microimplants using panoramic radiographs, *Korean Journal of Orthodontics*. Forced eruption of a palatally impacted and transposed canine with a temporary skeletal anchorage device, *American Journal of Orthodontics & Dentofacial*

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## FACULTY and STAFF SCHOLARLY ACTIVITY (December 2016-August 2018)

**Orthopedics.** Full-step Class II correction using modified C-palatal plate for total arch distalization in adolescents, *Journal of Clinical Pediatric Dentistry*. Lateral open bite and crossbite correction in a Class III patient with missing maxillary first premolars, *American Journal of Orthodontics & Dentofacial Orthopedics*. Orthodontic treatment in conjunction with twin-block treatment and growth hormone therapy in Silver Russell syndrome, *Journal of Clinical Pediatric Dentistry*. Orthodontic uprighting of a horizontally impacted third molar and protraction of mandibular second and third molars into the missing first molar space for a patient with posterior crossbites, *American Journal of Orthodontics & Dentofacial Orthopedics*. Prediction of optimal bending angles of a running loop to achieve bodily protraction of a molar using the finite element method, *Korean Journal of Orthodontics*. Three-dimensional evaluation of maxillary dentoalveolar changes and airway space after distalization in adults, *Angle Orthodontist*. Presentations/abstracts: ABO certification protocols in postgraduate orthodontic programs. An evaluation of ABO certification protocols in postgraduate orthodontic programs in the United States and Canada. Biomechanical and clinical considerations using TADs for molar uprighting and protraction. Correction of challenging sagittal and vertical problems using TADs and CBCT. Correction of vertical problems with TADs and CBCT in challenging cases. Diagnosis and treatment of impacted maxillary canines and ankylosed teeth using CBCT. Key factors in anterior open bite correction. Key factors in molar uprighting and protraction with TADs. Orthodontic treatment of impacted and ankylosed teeth. The application of CBCT and TADs in challenging cases. The application of CBCT and TADs in contemporary orthodontics. Mandibular symphysis bone density and its effect on mandibular growth and morphology in adolescent patients.

**Patel, S.** Publications: Delayed diagnosis of desquamative gingivitis, *Pennsylvania Dental Journal*. Topical medications for common orofacial pain conditions, *Practical Pain Management*. Presentations/abstracts: Direct oral anticoagulants (DOACs) and postoperative bleeding complications after dental extractions. Direct oral anticoagulants (DOACs) and postoperative bleeding complications after invasive dental procedures. Mucous membrane pemphigoid: an overview of etiology, diagnosis, and management.

**Pazdernik, V.** Publications: Being hungry affects oral size perception, *Iperception*. Does posttreatment thymoquinone reverse high-dose atorvastatin-induced hepatic oxidative injury in rats? *Canadian Journal of Physiology and Pharmacology*. Influence of transverse process landmark localization on palpation accuracy of lumbar spine models, *Journal of the American*

*Osteopathic Association*. Medical student perception of the impact of early ultrasonography education on experiences during clinical rotations, *Medical Science Educator*. Motivational interviewing to promote long-acting reversible contraception in postpartum teenagers, *Journal of Pediatric & Adolescent Gynecology*. Presentations/abstracts: Association of vitamin D and abnormal uterine bleeding.

**Pedapati, C.** Presentations/abstracts: Output characterization of clinically applied diode laser systems for management of chronic periodontal disease. Ultrasound imaging based medical education for first- and second-year osteopathic medical students.

**Perry, M.** Publications: Protocols for treating patients with end-stage renal disease: a survey of nephrology fellowships, *Special Care in Dentistry*. Presentations/abstracts: Antibiotic prophylaxis protocols for treating patients with end-stage renal disease: results of a three part study. Assisted pet therapy in the dental setting. Exposure of pre-clinical dental students to patients with special needs. Evaluating the effectiveness of animal assisted therapy in a dental setting. INR testing at the point of care delivery. Recall of oral hygiene education among patients with special needs and their caregivers.

**Peterson, DF.** Publications: Tool for predicting medical student burnout from sustained stress levels: factor analysis of the Medical Education Hassles Scale-R, *Journal of the American Osteopathic Association*.

**Peterson, S.** Publications: Physical therapist clinical reasoning and action for individuals with undiagnosed lower extremity tumors: a report of 3 cases, *Journal of Orthopaedic & Sports Physical Therapy*. Telerehabilitation booster sessions and remote patient monitoring in the management of chronic low back pain: a case series, *Physiotherapy Theory and Practice*.

**Pettit, RK.** Publications: A crowdsourced system for creating practice questions in a clinical presentation medical curriculum, *Medical Science Educator*. A descriptive, cross-sectional study of medical student preferences for vod-cast design, format and pedagogical approach, *BMC Medical Education*. Ten tips to encourage student interaction with screen-capture type vodcasts, *Advances in Medical Education and Practice*. Tracking active learning in the medical school curriculum: a learning-centered approach, *Journal of Medical Education and Curricular Development*. What millennial medical students say about flipped learning, *Advances in Medical Education and Practice*. Presentations/abstracts: Finding the perfect balance between flipped learning and lecture-based instruction.

**Phillips, P.** Publications: Biofilm detection by wound blotting can predict slough development in pressure ulcers: a prospective observational study, *Wound Repair and Regeneration*. *Porphyromonas gingivalis* and adverse pregnancy outcome, *Journal of Oral Microbiology*. The compatibility of chlorhexidine and a skin care product line: a real-world analysis of hospital-acquired infections rates, *Health Care Manager*. Presentations/abstracts: Changes in the oral microbiome in response to *Porphyromonas gingivalis* inoculation and pregnancy in rats. Development of *fim* operon knockouts in select *Porphyromonas gingivalis* strains. Epigenetic reprogramming of host genes in response to oral *Porphyromonas gingivalis* infection.

**Polkey, F.** Presentations/abstracts: Examination of passive and active nutrition education on health eating habits.

**Pruzansky, D.** Publications: A current review of asymmetry, *Journal of Clinical Orthodontics*. Evaluation of American Board of Orthodontics certification protocols in postgraduate orthodontic programs in the United States and Canada, *American Journal of Orthodontics & Dentofacial Orthopedics*. Presentations/abstracts: ABO certification protocols in postgraduate orthodontic programs.

**Raines, DA.** Publications: When a baby is sent away: evidence to support best practice after neonatal transport, *Neonatal Network*. Presentations/abstracts: A mindfulness intervention to enhance leadership effectiveness. The impact of aromatherapy on stress and happiness on the nursing unit.

**Ramachandra, R.** Publications: Inhibition of  $\alpha 9\alpha 10$  nicotinic acetylcholine receptors prevents chemotherapy-induced neuropathic pain, *Proceedings of the National Academy of Sciences of the United States of America*. Presentations/abstracts: Expression of  $Na_v 1.9$  channels in Group III and Group IV muscle afferents.

**Ramaraj, P.** Publications: Differential biological effects of dehydroepiandrosterone (DHEA) between mouse (B16F10) and human melanoma (BLM) cell lines, *Dermato-Endocrinology*. In-vitro effect of steroids on melanoma cell growth: a prelude to melanoma treatment? *Journal of Cancer Therapy*. In-vitro inhibition of human melanoma (BLM) cell growth by progesterone receptor antagonist RU-486 (Mifepristone), *Journal of Cancer Therapy*. Presentations/abstracts: Biochemical basis of protection by progesterone in melanoma based on curcumin pre-treatment of human melanoma cells models. Biochemical basis of protection by progesterone in melanoma based on in-vitro study with human melanoma cell models cancer cells: human melanoma cell lines BLM

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and 1205Lu. In-vitro anti-cancer actions of androgens (androstenedione and testosterone) based on human melanoma rescued and recovered cell growth, adhesion and migration functions. In-vitro determination of the biological basis of protection by progesterone in melanoma based on mouse and human melanoma cell models. In-vitro study to determine the biochemical basis of protection by progesterone in melanoma based on human melanoma cell models. In-vitro study to determine the protective functions of progesterone in melanoma based on mouse and human melanoma cell models. Protective effect of silybin against verapamil-induced hepatotoxicity in rats.

**Ratto, L.** Presentations/abstracts: Addressing health disparities in medical education. Training faculty in a distributed model to prepare OMS for the COMLEX Level 2 PE.

**Reddy, A.** Presentations/abstracts: Using digital imaging in the care of pediatric dental patients.

**Rhea, MR.** Publications: Age differences in measures of functional movement and performance in highly trained youth basketball players, *International Journal of Sports Physical Therapy*.

**Rigney, C.** Presentations/abstracts: Measuring interrecti distance to screen for diastasis recti abdominis (DRA).

**Robbins, B.** Publications: Acute electromyographic responses of deep thoracic paraspinal muscles to spinal manual therapy interventions: an experimental, randomized cross-over study, *Journal of Bodywork and Movement Therapies*. Presentations/abstracts: Carbonic anhydrase inhibition does not impact force generation or fatigue following sustained MVICs. Carbonic anhydrase inhibition does not impact force generation or fatigue following sustained voluntary maximal isometric contractions.

**Roehling, T.** Presentations/abstracts: Measuring interrecti distance to screen for diastasis recti abdominis (DRA).

**Roush, JR.** Publications: Normative grip strength values in males and females, ages 50 to 89 years old, *International Journal of Allied Health Sciences and Practice*. Presentations/abstracts: Estimations of lateral patella forces from derived quadriceps forces during three speeds of walking and two speeds of running/jogging. Five quick and easy tests for screening older adults. Review of biomechanics for physical therapists: or is that torque clockwise or counter-clockwise? The effectiveness of ACL prevention programs in reducing the incidence of ACL injuries: a systematic review using NNT, odds ratios, and z statistics. The internal consistency of a modified version of the Lower Extremity Functional Scale for patients receiving a total joint arthroplasty.

**Salisbury, H.** Publications: Multimodal counseling interventions: effect on human papilloma virus vaccination acceptance, *Healthcare*.

**Sargentini, NJ.** Publications: Fine epitope mapping of monoclonal antibodies to the DNA repair protein, RadA, *Monoclonal Antibodies in Immunodiagnosis and Immunotherapy*. Prevalence of tick-borne pathogens in Northeast Missouri, *Missouri Medicine*. Presentations/abstracts: Fine epitope mapping of monoclonal antibodies to the DNA repair protein, RadA. Impact of *queA* gene deficiency on DNA repair-dependent processes in *Escherichia coli*. Prevalence of tick-borne pathogens in Northeast Missouri.

**Sartor-Glittenberg, C.** Publications: Effect of a Matter of Balance programme on avoidance behaviour due to fear of falling in older adults, *Psychogeriatrics*. Presentations/abstracts: A brief intervention model of physical therapy within the community health care center. A brief intervention model of physical therapy within the community health center. Moderators of the relationship between participation in a Matter of Balance program and improved balance confidence.

**Sauers, EL.** Publications: Quality improvement in athletic healthcare, *Journal of Athletic Training*. The Functional Arm Scale for Throwers (FAST). Part I: the design and development of an upper extremity region-specific and population-specific patient-reported outcome scale for throwing athletes, *Orthopaedic Journal of Sports Medicine*. The Functional Arm Scale for Throwers (FAST). Part II: reliability and validity of an upper extremity region-specific and population-specific patient-reported outcome scale for throwing athletes, *Orthopaedic Journal of Sports Medicine*. Presentations/abstracts: A comparison of estimated direct costs of care provided by athletic trainers between mild and severe lower extremity disorders: a report from the Athletic Training Practice-Based Research Network. Comparison of high school girls' and college women's softball injury incidence, 2004/05-2013/14. Responsiveness of the Functional Arm Scale for Throwers® (FAST) in injured baseball players.

**Schaffer, R.** Publications: Access to dental care for people with bleeding disorders: survey results of hemophilia treatment centers in the U.S., *Special Care in Dentistry*. Presentations/abstracts: INR testing at the point of care delivery. INR testing at the point of dental care delivery.

**Schmidt, R.** Presentations/abstracts: A decisional treatment tool: key to positive experience for oral care of patients with autism.

**Schneider, RP.** Presentations/abstracts: Osteopathic muscle energy treatment, pulmonary function and exercise tolerance.

**Schrant, BL.** Publications: Human patient simulation as a teaching tool, *Missouri Medicine*. Presentations/abstracts: Diaphragm function before and after neuromuscular blockade in rats. Simulated PGY1 night call: early exposure to EPA 10.

**Schuknecht, SC.** Presentations/abstracts: Traditional versus non-traditional anatomy instruction among physical therapy students: a comparative study.

**Schulz, E.** Publications: Personality, social capital, and depressive symptomatology among African Americans, *Journal of Black Psychology*. The relationship between religious beliefs and behaviors and changes in spiritual health locus of control over time in a national sample of African Americans, *Mental Health, Religion & Culture*.

**Schwartz, FN.** Publications: Teaching medical students about health systems science and osteopathic principles and practice using a virtual world: the Envision Community Health Center, *Journal of the American Osteopathic Association*.

**Segal, S.** Presentations/abstracts: Alterations of systemic blood flow produces tonic immobility in alligators.

**Sexton, PS.** Publications: Entrustable professional activities for entering residency: establishing common osteopathic performance standards in the transition from medical school to residency, *Journal of the American Osteopathic Association*. Physician-mentored patient rounds to observe and assess entrustable professional activities 1 and 2 in preclinical medical students, *Journal of the American Osteopathic Association*. Maintaining balance in medical school through medical humanities electives, *Missouri Medicine*. Presentations/abstracts: Creation of physician-mentored patient rounds (PMPR) to observe pre-clinical medical students' ability to perform Entrustable Professional Activities 1-4. Use of physician-mentored patient rounds (PMPR) to observe pre-clinical medical students' ability to perform Entrustable Professional Activities 1-4. Simulated PGY1 night call: early exposure to EPA 10. What students say when physicians ask them to call a patient and discuss test results.

**Sexton, WL.** Publications: Skeletal muscle microvascular and interstitial PO<sub>2</sub> from rest to contractions, *Journal of Physiology*. Presentations/abstracts: A new method to measure diaphragm function before and after neuromuscular blockade in rats. Diaphragm function before and after neuromuscular blockade in rats. Effect of atorvastatin on interstitial PO<sub>2</sub> in skeletal muscle of rats. Inonotus obliquus polysaccharide extract (IOP) does not enhance exercise duration or alter interstitial oxygen kinetics in rat skeletal muscle. Measurement of myocardial microvascular PO<sub>2</sub>: impact of sumatriptan.

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**Shanker, K.** Presentations/abstracts: A decisional treatment tool: key to positive experience for oral care of patients with autism.

**Shanti, SD.** Presentations/abstracts: Case for non-violent mass media and how to mobilize globally to advance this. Health behavior: population-based perspectives and barriers to change. Public health and crime prevention: shared goals and opportunities.

**Sheppard, ME.** Presentations/abstracts: Relationship of depression, anticipated stigma, and perceived health status among family members and loved ones of incarcerated individuals. RN to BSN: variables related to intent to return to school for pre-Bachelor of Science nurses.

**Shlossman, M.** Publications: Multiplex real-time PCR detection and relative quantification of periodontal pathogens, *Clinical and Experimental Dental Research*. Presentations/abstracts: Characteristic performance measurements: beam distribution and output power from two laser systems used in dentistry. Double-blinded study to investigate effectiveness of 980 nm diode laser for chronic periodontal disease: preliminary results. Effects of chlorine dioxide rinse in adolescents with orthodontia. Improved non-surgical treatment of chronic periodontitis with 980 nm diode laser. Non-surgical periodontal therapy using scaling and root planing (SRP) in combination with diode laser. Output characterization of clinically applied diode laser systems for management of chronic periodontal disease.

**Shoup, D.** Publications: Getting at the root of opioid-induced constipation with an osteopathic approach, *Practical Pain Management*. Myofascial pain: overview of treatment options, *Practical Pain Management*. Plantar fasciitis: diagnosis and management, *EC Orthopaedics*. Utilizing acupuncture and osteopathic manipulative treatment (OMT) in the integrative treatment of TMDs, *Otolaryngology*.

**Sidwell, JL.** Presentations/abstracts: Voices in the choir: librarians helping to move osteopathic research forward.

**Simon, A.** Publications: Cumulative risk on the oxytocin receptor gene (OXTR) predicts empathic communication by physician assistant students, *Health Communication*.

**Simon, H.** Presentations/abstracts: An interprofessional patient case designed for community health.

**Simon, JE.** Presentations/abstracts: Epidemiology of low back injuries sustained by secondary school athletes: a report from the National Athletic Treatment, Injury, and Outcomes

Network. Epidemiology of secondary school boys' and girls' basketball injuries: a report from the National Athletic Treatment, Injury, and Outcomes Network.

**Singh, VK.** Publications: Multiplex real-time PCR detection and relative quantification of periodontal pathogens, *Clinical and Experimental Dental Research*. Roles of pyruvate dehydrogenase and branched-chain  $\alpha$ -keto acid dehydrogenase in branched-chain membrane fatty acid levels and associated functions in *Staphylococcus aureus*, *Journal of Medical Microbiology*. Presentations/abstracts: Characterizing the effects of staphyloxanthin and branched chain fatty acid deficiencies in *Staphylococcus aureus*. Determination of the relative cariogenic potential of breastmilk, bovine milk, and infant formula.

**Smith, MK.** Presentations/abstracts: Unintentional injuries and opioid use in the rural United States. Water crisis: a social and environmental justice issue.

**Snider, EJ.** Publications: Influence of transverse process landmark localization on palpation accuracy of lumbar spine models, *Journal of the American Osteopathic Association*.

**Snider, KT.** Publications: Ultrasonographic evaluation of the effect of osteopathic manipulative treatment on sacral base asymmetry, *Journal of the American Osteopathic Association*. Presentations/abstracts: A novel method for training preceptors to teach and assess OMM. Correlation between pelvic index, as measured on lateral postural radiograph, and chronic low back pain.

**Snyder Valier, AR.** Publications: The effect of following clinical practice guidelines on the pain and disability outcomes of patients with low back pain: a critically appraised topic, *Journal of Sport Rehabilitation*. Evaluation and assessment patterns of sport-related knee sprains at the point-of-care: a report from the Athletic Training Practice-Based Research Network, *Athletic Training and Sports Health Care*. Previous knee injury and health-related quality of life in collegiate athletes, *Journal of Athletic Training*. Quality improvement in athletic healthcare, *Journal of Athletic Training*. Reference values for the Pediatric Quality of Life Inventory and the Multidimensional Fatigue Scale in adolescent athletes by sport and sex, *American Journal of Sports Medicine*. The Functional Arm Scale for Throwers (FAST). Part I: the design and development of an upper extremity region-specific and population-specific patient-reported outcome scale for throwing athletes, *Orthopaedic Journal of Sports Medicine*. The Functional Arm Scale for Throwers (FAST). Part II: reliability and validity of an upper extremity region-specific and

population-specific patient-reported outcome scale for throwing athletes, *Orthopaedic Journal of Sports Medicine*. Presentations/abstracts: A descriptive analysis of injuries reported in USA Cycling sanctioned competitive road cycling events. Epidemiology of secondary school girls' volleyball injuries: a report from the National Athletic Treatment, Injury, and Outcomes Network. Secondary school athletic trainers' influential factors and barriers to implementation of the Executive Summary Consensus Recommendations on the Appropriate Care of Spine Injured Athletes. Arizona athletic trainers' awareness and knowledge of the Executive Summary Consensus Recommendations on the Appropriate Care of Spine Injured Athletes. Clinical evaluation findings in patients diagnosed with impingement or shoulder pain: a report from the Athletic Training Practice-Based Research Network. Clinical presentations at the point-of-care of common sport-related injuries: a report from the Athletic Training Practice-Based Research Network. College athletic trainers' use of Recommendations for Acute Care of Spine Injured patients. Epidemiology of gymnastic injuries sustained by female secondary school athletes: a report from the National Athletic Treatment, Injury, and Outcomes Network. Epidemiology of secondary school boys' and girls' basketball injuries: a report from the National Athletic Treatment, Injury, and Outcomes Network. Evaluation of core strength and fitness exercises in Xcel competitive youth gymnasts. Experiences of athletic trainers who have worked with athletes with a physical disability in school-based sports. Responsiveness of the Functional Arm Scale for Throwers® (FAST) in injured baseball players. Adolescent athletes' perceptions of activity limitations following sport-related concussion. Competitive gymnasts' perceptions of activity limitations using the Patient Specific Functional Scale following orthopedic injury. Epidemiology of low back injuries sustained by secondary school athletes: a report from the National Athletic Treatment, Injury, and Outcomes Network. Recreational and competitive athletes' perceptions of functional activity limitations using the Patient Specific Functional Scale following orthopedic injury. The impact of concussion on health-related quality of life as measured by the Patient Reported Outcome Measures Information Systems in adolescent athletes. What is a position statement and how does it relate to my practice?

**Spolarich, AE.** Publications: A dental radiography checklist as a tool for quality improvement, *Journal of Dental Hygiene*. Does use of alcohol-containing mouthrinse increase risk for oral cancer? *International Journal of Evidence-Based Practice for the Dental Hygienist*. Impact of operator positioning on musculoskeletal disorders and work habits among Mississippi

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dental hygienists, *Journal of Dental Hygiene*. Oral complications of medication use, *Decisions in Dentistry*. Presentations/abstracts: A dental radiography checklist as a tool for quality improvement. Antibiotic stewardship. Assisted pet therapy in the dental setting. Coping with chronic illness. Effects of chlorine dioxide rinse in adolescents with orthodontia. Increasing patient engagement: tools for modifying oral health behaviors. Expanding dental workforce training within collaborative, team-based care. INR testing at the point of care delivery. INR testing at the point of dental care delivery. Nasal MRSA colonization in dental students. Nasal MRSE colonization in dental students. PIPS vs. standard treatment for endodontic bacterial decontamination. Recall of oral hygiene education among patients with special needs and their caregivers. Training dental hygiene students to care for individuals with special needs. Training pharmacists to counsel older adults about oral health. Training pharmacists to counsel older adults about oral health: a demonstration project with Oral Health America's Tooth Wisdom for pharmacists. Molar intrusion capabilities of Invisalign with or without miniscrew anchorage in the open bite patient: a pilot study. Direct oral anticoagulants (DOACs) and postoperative bleeding complications after dental extractions. Evaluating the effectiveness of animal assisted therapy in a dental setting. Expanding dental workforce training within collaborative, team-based care targeting FQHC/underserved populations.

**Stanley, EM.** Presentations/abstracts: Ghrelin, a potential antidepressant in adult rats, does not reduce depressive-like symptoms in juvenile rats. Intracerebroventricular peptide administration for antidepressant studies in juvenile rats. Modified tail suspension as an indication of depression in adolescent rats.

**Starks, Z.** Publications: Appraisal of the DIERS method for calculating postural measurements: an observational study, *Scoliosis and Spinal Disorders*. Presentations/abstracts: Bioelectrical impedance analysis and skinfold prediction of percent fat in male college athletes. Changes in upper-body strength are independent of initial fat-free mass and strength level. Peripheral fatigue does not influence the onset of fatigue in older adults. Postural changes and osteopathic manipulative treatment – a case report.

**Steffans, S.** Presentations/abstracts: Attitudes toward people experiencing homelessness among ATSU-SOMA students, physicians, faculty, and staff. Attitudes towards people experiencing homelessness among students, preceptors, and faculty.

**Stephens, P.** Publications: State of evidence-based practice in physician assistant education, *Journal of Physician Assistant Education*.

**Stuart, MK.** Publications: Changes in cytokines, sensory tests, and self-reported pain levels after manual treatment of low back pain, *Clinical Spine Surgery*. Fine epitope mapping of monoclonal antibodies to the DNA repair protein, RadA, *Monoclonal Antibodies in Immunodiagnosis and Immunotherapy*. Implementation of oral case presentations in an immunology course, *Missouri Medicine*. Presentations/abstracts: Effect of tetracycline on carbohydrate metabolism in *Trichomonas* spp. Fine epitope mapping of monoclonal antibodies to the DNA repair protein, RadA. Proteomic effect of tetracycline on *Trichomonas vaginalis*. Regulation of protein synthesis in *Trichomonas vaginalis* by tetracycline.

**Tai, K.** Publications: A current review of asymmetry, *Journal of Clinical Orthodontics*. A finite element analysis of the optimal bending angles in a running loop for mesial translation of a mandibular molar using indirect skeletal anchorage, *Orthodontics & Craniofacial Research*. Adult gummy smile correction with temporary skeletal anchorage devices, *Journal of the World Federation of Orthodontists*. Anterior open-bite correction with miniscrew anchorage and a combination of upper lingual and lower labial appliances, *Journal of Clinical Orthodontics*. Prediction of optimal bending angles of a running loop to achieve bodily protraction of a molar using the finite element method, *Korean Journal of Orthodontics*.

**Taylor, B.** Publications: Interventional audiology: moving from concept to clinical practice, *Seminars in Hearing*.

**Theobald, RJ Jr.** Publications: Role of centrally active cardiovascular agents in cognitive disorders, *Current Opinion in Pharmacology*.

**Thrasher, AB.** Presentations/abstracts: Advancing scholarship through the degree tradition.

**Trombly, C.** Presentations/abstracts: Expanding dental workforce training within collaborative, team-based care. Expanding dental workforce training within collaborative, team-based care targeting FQHC/underserved populations. Using teledentistry to deliver oral health services to underserved populations in the Phoenix metro area.

**Trombly, R.** Presentations/abstracts: Impact of integrating OB and oral health: one year later.

**Troncoso, V.** Publications: Gum bacteria now linked to RA, *Practical Pain Management*. Lumbar lordosis and back pain, *Practical Pain Management*. Osteopathic treatment considerations for head, neck, and facial pain, *Practical Pain Management*. Myofascial pain: overview of treatment options, *Practical Pain Management*. Tinnitus: diagnosis and treatment options, *Heighpubs Otolaryngology and Rhinology*. Utilizing acupuncture and osteopathic manipulative

treatment (OMT) in the integrative treatment of TMDs, *Otolaryngology*. Presentations/abstracts: Improving whole person healthcare through IPE.

**Troxell, TN.** Publications: GAPO syndrome: a rare genodermatosis presenting with unique features, *International Journal of Dermatology*.

**Tshuma, L.** Publications: Perceived discrimination, harassment, and abuse in physician assistant education: a pilot study, *Journal of Physician Assistant Education*. Presentations/abstracts: Diversity, discrimination, abuse and attrition in PA education. Legal, ethical and professional shared decision making. Integrated behavioral health in PA education. Discrimination, harassment and abuse in physician assistant education. From the hidden curriculum to brave spaces: intentional integration of diversity and inclusion practices for faculty, staff and students.

**Turner, A.** Presentations/abstracts: Unintentional injuries and opioid use in the rural United States. Water crisis: a social and environmental justice issue.

**Valovich McLeod, TC.** Publications: A cross-sectional study of age differences and postural control using the Stability Evaluation Test (SET), *International Journal of Athletic Therapy & Training*. A multifactorial approach to sport-related concussion prevention and education: application of the socioecological framework, *Journal of Athletic Training*. Assessing school nurses' experiences with comprehensive concussion management: using multimethodologies to collect meaningful data, *SAGE Research Methods*. Athletic trainers' perceived challenges toward comprehensive concussion management in the secondary school setting, *International Journal of Athletic Therapy & Training*. Athletic trainers' roles and responsibilities regarding academic adjustments as part of the concussion-management process in the secondary school setting, *Journal of Athletic Training*. Diagnosing exertional rhabdomyolysis across athletic training practice settings: clinical bottom line, *NATA News*. Estimating concussion incidence using sports injury surveillance systems: complexities and potential pitfalls, *Neurologic Clinics*. Is state anxiety, trait anxiety, or anxiety sensitivity a clinical predictor of symptoms in those presenting with mild traumatic brain injury or concussion? *Journal of Sport Rehabilitation*. Lived experiences of adolescent athletes following sport-related concussion, *Orthopaedic Journal of Sports Medicine*. Mental health outcomes following sport-related concussion, *Athletic Training and Sports Health Care*. New concussion guidelines impact secondary school settings, *NATA News*. Parents' and child's concussion history as predictors of parental attitudes and knowledge of concussion recognition and response, *Orthopaedic Journal of Sports Medicine*. Physical activity and intermittent postconcussion symptoms after a

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## FACULTY and STAFF SCHOLARLY ACTIVITY (December 2016–August 2018)

period of symptom-limited physical and cognitive rest, *Journal of Athletic Training*. Premorbid diagnosis of attention deficit hyperactivity disorder and the association of concussion risk and prolonged recovery: an evidence-based report, *Athletic Training and Sports Health Care*. Previous knee injury and health-related quality of life in collegiate athletes, *Journal of Athletic Training*. Reference values for the Pediatric Quality of Life Inventory and the Multidimensional Fatigue Scale in adolescent athletes by sport and sex, *American Journal of Sports Medicine*. Reliability and concurrent validity of select C3 Logix test components, *Developmental Neuropsychology*. Relationship between concussion history and concussion knowledge, attitudes, and disclosure behavior in high school athletes, *Clinical Journal of Sport Medicine*. Relationships among common vision and vestibular tests in healthy recreational athletes, *International Journal of Sports Physical Therapy*. Reports of concussion history and newly diagnosed concussions are higher among students with self-reported learning disabilities and attention deficit hyperactivity disorder, *Athletic Training and Sports Health Care*. Rest and return to activity after sport-related concussion: a systematic review of the literature, *Journal of Athletic Training*. School nurses' perceptions and experiences with an interprofessional concussion management team in the secondary school setting, *Journal of Interprofessional Care*. Statements of agreement from the Targeted Evaluation and Active Management (TEAM) Approaches to Treating Concussion meeting held in Pittsburgh, October 15-16, 2015, *Neurosurgery*. Summary of the 2015 University of Michigan Sport Concussion Summit, *Concussion*. Teachers' beliefs and practices regarding academic support following concussion, *Teaching and Teacher Education*. The comparison of instrument-assisted soft tissue mobilization and self-stretch measures to increase shoulder range of motion in overhead athletes: a critically appraised topic, *Journal of Sport Rehabilitation*. The diagnostic accuracy of clinical diagnostic tests for thoracic outlet syndrome, *Journal of Sport Rehabilitation*. The effect of cognitive rest as part of postconcussion management for adolescent athletes: a critically appraised topic, *Journal of Sport Rehabilitation*. What is the physiological time to recovery after concussion? A systematic review, *British Journal of Sports Medicine*. Presentations/abstracts: A comparison of healthcare professional and school personnel perceptions and familiarity of academic adjustments for concussed adolescents. A preliminary investigation of self-report sport-related injury among pediatric soccer athletes. A preliminary investigation of sports specialization and recent injury history among pediatric soccer athletes. Adolescent athletes' perceptions of activity limitations following sport-related concussion. Adolescent athletes' social perspectives following a sport-related

concussion. Assessment of the delivery of athletic health care at the Division I Football Championship Subdivision-level. Association between concussion history and knowledge among Italian youth soccer athletes. Baseline IMPACT scores differ for future concussed vs non-concussed by sex. Changes in health-related quality of life in adolescent athletes following a lower extremity injury: a report from the Athletic Training Practice-Based Research Network. Clinical presentation, concussion management and return-to-play practices of secondary school athletic trainers between 2013-2015. Compliance with and effectiveness of return-to-activity progressions following concussion: a systematic review of the literature. Concussion education associated with teachers' increased familiarity with and recommendation of academic adjustments for adolescents post-concussion. Concussion knowledge among professional youth Italian soccer players. Concussion management among NCAA swim programs. Concussion prevention and early intervention. Determining meaningful change in concussion studies. Horizontal dynamic visual acuity test of C3Logix provokes symptoms in healthy collegiate athletes. Horizontal dynamic visual acuity testing considerations for management of sport-related concussion. Influence of parent and child concussion history on parental knowledge and attitudes regarding concussion. Influence of prior concussion education on club swim coaches' perceived importance, knowledge, and confidence regarding sport-related concussion. Influence of self-reported learning disabilities, dyslexia, and attention deficit hyperactivity disorder on symptom presentation at baseline and post-concussion. Integrating healthcare and school environments to improve concussion management. Knowledge perception and confidence regarding sport-related concussion among school personnel. Sport participation and specialization characteristics in youth soccer athletes. Strategies to engage clinicians in research. The impact of athletic trainer access on school counselors' perceptions of academic adjustments for concussed student-athletes in the secondary school setting. The impact of concussion on health-related quality of life as measured by the Patient Reported Outcome Measures Information Systems in adolescent athletes. The influence of prior concussion history on teachers' knowledge and confidence in the secondary school setting. The use of academic adjustments following concussion among adolescent athletes. Validity and reliability of select neurocognitive tests of the C3 Logix concussion assessment battery.

**Van Duyn, IM.** Publications: A preliminary study of online doctoral student scores and the self-directed learning readiness scale, *International Journal of Self-Directed Learning*.

**Vij, A.** Presentations/abstracts: Using digital imaging in the care of pediatric dental patients.

**Villanueva, N.** Presentations/abstracts: Addressing nutrition education with cultural competence using a novel approach: "my traffic light plate." Bridging the gap: providing health education to victims of intimate partner violence.

**Wagner, R.** Presentations/abstracts: Evaluation of the Nutrition and Health Awareness program and changes in physical activity on health and wellness education.

**Walker, SE.** Presentations/abstracts: Elevating undergraduate to graduate education through the substantive change process: a report from the Athletic Training Clinical Education Network. Perceptions of scholarship requirements in professional athletic training programs: a report from the Athletic Training Clinical Education Network. Professional masters level athletic training program administrators' experiences with the preparation and development of preceptors. Program directors' perceived barriers and resources necessary to conduct student scholarship within a professional athletic training program: a report from the Athletic Training Clinical Education Network.

**Wallace, L.** Publications: Addressing the cost, value, and student debt in nursing education, *Nursing Economics*.

**Walters, S.** Presentations/abstracts: Beyond incredible—the power of Paralympic sport: a pilot ethnographic study.

**Watts, L.** Presentations/abstracts: Using resilience training curriculum in high school students to reduce the consequences of adversity.

**Webb, S.** Presentations/abstracts: Correlation of force and displacement on level of restriction in vertebral segments.

**Welch Bacon, CE.** Publications: The diagnostic accuracy of screening tools to detect eating disorders in female athletes, *Journal of Sport Rehabilitation*. Assessing school nurses' experiences with comprehensive concussion management: using multimethodologies to collect meaningful data, *SAGE Research Methods*. Athletic trainers' perceived challenges toward comprehensive concussion management in the secondary school setting, *International Journal of Athletic Therapy & Training*. Athletic trainers' perceptions of and barriers to patient care documentation: a report from the Athletic Training Practice-Based Research Network, *Journal of Athletic Training*. Athletic trainers' reasons for and mechanics of documenting patient care: a report from the Athletic Training

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Practice-Based Research Network, *Journal of Athletic Training*. Athletic trainers' roles and responsibilities regarding academic adjustments as part of the concussion-management process in the secondary school setting, *Journal of Athletic Training*. Current evidence does not support the accuracy of aural thermometry for core body temperature as compared to rectal thermometry, *Athletic Training and Sports Health Care*. Diagnosing exertional rhabdomyolysis across athletic training practice settings: clinical bottom line, *NATA News*. Future strategies to enhance patient care documentation among athletic trainers: a report from the Athletic Training Practice-Based Research Network, *Journal of Athletic Training*. Lived experiences of adolescent athletes following sport-related concussion, *Orthopaedic Journal of Sports Medicine*. Motivators, anticipated challenges, and supportive factors for athletic trainers pursuing the doctor of athletic training degree, *Athletic Training Education Journal*. Reference values for the Pediatric Quality of Life Inventory and the Multidimensional Fatigue Scale in adolescent athletes by sport and sex, *American Journal of Sports Medicine*. Rest and return to activity after sport-related concussion: a systematic review of the literature, *Journal of Athletic Training*. School nurses' perceptions and experiences with an interprofessional concussion management team in the secondary school setting, *Journal of Interprofessional Care*. Teachers' beliefs and practices regarding academic support following concussion, *Teaching and Teacher Education*. The comparison of instrument-assisted soft tissue mobilization and self-stretch measures to increase shoulder range of motion in overhead athletes: a critically appraised topic, *Journal of Sport Rehabilitation*. The current evidence does not support the use of electrical stimulation to decrease pain and edema and improve function following a lateral ankle sprain: a critically appraised paper, *International Journal of Athletic Therapy & Training*. The diagnostic accuracy of clinical diagnostic tests for thoracic outlet syndrome, *Journal of Sport Rehabilitation*. The effect of cognitive rest as part of postconcussion management for adolescent athletes: a critically appraised topic, *Journal of Sport Rehabilitation*. Presentations/abstracts: A comparison of healthcare professional and school personnel perceptions and familiarity of academic adjustments for concussed adolescents. Adolescent athletes' social perspectives following a sport-related concussion. Advancing scholarship through the degree tradition. Allied health students' utilization and perceptions of human anatomy learning resources. Arizona athletic trainers' awareness and knowledge of the Executive Summary Consensus Recommendations on the Appropriate Care of Spine Injured Athletes. Assessment of the delivery of athletic health care at the Division I Football Championship Subdivision-level. Association between concussion history and knowledge among Italian youth soccer athletes. Athletic trainers as health care providers in the

current medical landscape. Athletic training educators' knowledge and confidence about competency-based education. College athletic trainers' use of Recommendations for Acute Care of Spine Injured patients. Competitive gymnasts' perceptions of activity limitations using the Patient Specific Functional Scale following orthopedic injury. Compliance with and effectiveness of return-to-activity progressions following concussion: a systematic review of the literature. Concussion education associated with teachers' increased familiarity with and recommendation of academic adjustments for adolescents post-concussion. Concussion knowledge among professional youth Italian soccer players. Critically appraising evidence within the literature: perceptions of athletic training preceptors. Developing cognitive skills through active learning: a systematic review of healthcare professions. Educating students to function as health care providers in the current medical landscape. Employability of individuals in academe who hold the Doctor of Athletic Training degree. Engaging students in scholarly activities at the point of care. Evidence-informed care: educational and practice implications. Influence of prior concussion education on club swim coaches' perceived importance, knowledge, and confidence regarding sport-related concussion. Knowledge perception and confidence regarding sport-related concussion among school personnel. Perceptions of scholarship requirements in professional athletic training programs: a report from the Athletic Training Clinical Education Network. Preceptors' frequency and supervision of athletic training students' medical documentation during clinical education. Professional athletic training program administrators' experiences with the preparation and development of preceptors. Professional masters level athletic training program administrators' experiences with the preparation and development of preceptors. Program directors' perceived barriers and resources necessary to conduct student scholarship within a professional athletic training program: a report from the Athletic Training Clinical Education Network. Recreational and competitive athletes' perceptions of functional activity limitations using the Patient Specific Functional Scale following orthopedic injury. Roles and responsibilities of individuals within the academic setting who hold the Doctor of Athletic Training degree. Secondary school athletic trainers' influential factors and barriers to implementation of the Executive Summary Consensus Recommendations on the Appropriate Care of Spine Injured Athletes. Student perceptions of standardized patient use in athletic training education. The comparison of educators', preceptors', and professional athletic training students' perceptions of student preparation within the six healthcare competency areas. The future of health care education: considerations for the competency-based education model in athletic training. The impact of athletic trainer access on school

counselors' perceptions of academic adjustments for concussed student-athletes in the secondary school setting. The influence of prior concussion history on teachers' knowledge and confidence in the secondary school setting. The use of academic adjustments following concussion among adolescent athletes. Understanding the athletic trainers' role in the return-to-learn process at NCAA Division II and Division III institutions. Using active and student-centered learning techniques to promote higher-order thinking in athletic training students. Using outcomes for educational research.

**Whelihan, K.** Publications: Rest and return to activity after sport-related concussion: a systematic review of the literature, *Journal of Athletic Training*. Presentations/abstracts: Addressing health disparities in medical education. Addressing nutrition education with cultural competence using a novel approach: "my traffic light plate." Attitudes toward people experiencing homelessness among ATSU-SOMA students, physicians, faculty, and staff. Attitudes towards people experiencing homelessness among students, preceptors, and faculty. Bridging the gap: providing health education to victims of intimate partner violence. Compliance with and effectiveness of return-to-activity progressions following concussion: a systematic review of the literature. Determining efficacy of dental educational interventions in Ohio adolescents. Evaluation of patient-provider communication. Evaluation of the Nutrition and Health Awareness program and changes in physical activity on health and wellness education. Examination of passive and active nutrition education on health eating habits. Exodus from the classroom: student perceptions, lecture capture technology, and the inception of on-demand preclinical medical education. Improving knowledge of hepatitis C virus in community members who have regular contact with populations at high risk for infection. Lecture capture technology, study attendance and academic performance. Using resilience training curriculum in high school students to reduce the consequences of adversity. An EHR approach to addressing the social determinants of health. Beyond clinical experience: engaging students in community oriented primary care. Examination of the teach-back method in nutrition education with eighth grade middle school students. Opioid excess – educating Portland citizens on the importance of proper disposal of excess opioid prescriptions. Determining the effect of musical therapy and basic hygiene education on improving mental health and well-being of Bhutanese refugees. Improving knowledge of hepatitis C virus in community members who have regular contact with populations at higher risk for infection. Efficacy of a healthcare career workshop with underrepresented minority college students. Bridging the patient-provider gap: using multimedia to enhance the quality of advanced care planning discussions. Mentors in Medicine program:

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## FACULTY and STAFF SCHOLARLY ACTIVITY (December 2016–August 2018)

improving health education in Woodlake Unified School District and surrounding community. Park Rx: increasing physician prescription of outdoor physical activity to promote long-term health and well-being. Kūlia i ka Nu'u (Strive for the Highest) health education project. Applying osteopathic manipulation techniques to decrease stress and anxiety in patients with hypertension. Nutritional barriers experienced by people with type-II diabetes mellitus in the Seattle, King County area.

**White, EJ.** Publications: Gaming science innovations to integrate health systems science into medical education and practice, *Advanced Medical Education Practice*. The impact of pediatric pressure injury prevention bundle on pediatric injury rates: a secondary analysis, *Journal of Wound Ostomy & Continence Nursing*. Presentations/abstracts: An EHR approach to addressing the social determinants of health.

**Wilkinson, T.** Publications: Effect of group setting on gross motor performance in children 3-5 years old with motor delays, *Physical & Occupational Therapy in Pediatrics*. Presentations/abstracts: Developing interest in rural physical therapy practice through clinical and community service experiences. Reshaping PT clinical education: what if.

**Williams, L.** Publications: Exploring hospitals CEOs' perceptions of health administration graduates' leadership competencies, *Journal of Health Administration Education*. Face-to-face versus online training for the interpretation of findings in the fiberoptic endoscopic exam of the swallow procedure, *Advances in Medical Education and Practice*. Presentations/abstracts: How do U.S. hospital CEOs perceive leadership competencies of health administration graduates? Leadership-competency gaps of health administration graduates: what does the industry tell us? One tale from two surveys: how do hospital CEOs in Midwestern region perceive leadership competencies of health administration graduates?

**Williams, RM.** Publications: A cross-sectional study of age differences and postural control using the Stability Evaluation Test (SET), *International Journal of Athletic Therapy & Training*. Brain network activation technology does not assist with concussion diagnosis and return to play in football athletes, *Frontiers in Neurology*. No seasonal changes in cognitive functioning among high school athletes: implementation of a novel electrophysiological measure and standard clinical measures, *Clinical Journal of Sports Medicine*. Parents' and child's concussion history as predictors of parental attitudes and knowledge of concussion recognition and response, *Orthopaedic Journal of Sports*

*Medicine*. Reports of concussion history and newly diagnosed concussions are higher among students with self-reported learning disabilities and attention deficit hyperactivity disorder, *Athletic Training and Sports Health Care*. Presentations/abstracts: Adolescent athletes' perceptions of activity limitations following sport-related concussion. Clinical evaluation findings in patients diagnosed with impingement or shoulder pain: a report from the Athletic Training Practice-Based Research Network. Clinical presentation, concussion management and return-to-play practices of secondary school athletic trainers between 2013-2015. Clinical presentations at the point-of-care of common sport-related injuries: a report from the Athletic Training Practice-Based Research Network. Competitive gymnasts' perceptions of activity limitations using the Patient Specific Functional Scale following orthopedic injury. Epidemiology of low back injuries sustained by secondary school athletes: a report from the National Athletic Treatment, Injury, and Outcomes Network. Epidemiology of secondary school boys' and girls' basketball injuries: a report from the National Athletic Treatment, Injury, and Outcomes Network. Influence of parent and child concussion history on parental knowledge and attitudes regarding concussion. Recreational and competitive athletes' perceptions of functional activity limitations using the Patient Specific Functional Scale following orthopedic injury. The impact of concussion on health-related quality of life as measured by the Patient Reported Outcome Measures Information Systems in adolescent athletes. The use of academic adjustments following concussion among adolescent athletes.

**Wilson, MA.** Publications: Research at A.T. Still University's Kirksville College of Osteopathic Medicine, *Missouri Medicine*.

**Young, BA.** Publications: Biophysical heterogeneity in the tympanic membrane of the Asian water monitor lizard, *Varanus salvato*, *Zoomorphology*. Endless forms most beautiful: the evolution of ophidian oral glands, including the venom system, and the use of appropriate terminology for homologous structures, *Zoomorphology*. The defensive behaviour of *Naja oxiana*, with comments on the visual displays of cobras, *The Herpetological Bulletin*. The rhinoceros among serpents: comparative anatomy and experimental biophysics of Calabar burrowing python (*Calabaria reinhardtii*) skin, *Journal of Morphology*. Presentations/abstracts: Alterations of systemic blood flow produces tonic immobility in alligators. Tonic immobility in alligators is caused by changes in carotid artery blood flow as identified by Doppler ultrasonography.

**Young, JL.** Publications: Leveraging healthcare utilization to explore outcomes from musculoskeletal disorders: methodology for defining relevant variables from a health services data repository, *BMC Medical Informatics and Decision Making*. The influence of dosing on effect size of exercise therapy for musculoskeletal foot and ankle disorders: a systematic review, *Brazilian Journal of Physical Therapy*. The influence of exercise dosing on effect sizes for knee disorders: a systematic review. *Journal of Orthopaedic and Sports Physical Therapy*. Presentations/abstracts: Do specific exercise dosing variables impact the effect of exercise therapy for knee disorders?

**Zawada, WM.** Publications: JNK2 regulates vascular remodeling in pulmonary hypertension, *Pulmonary Circulation*.

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## STUDENT SCHOLARLY ACTIVITY

December 2016-August 2018

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**Amini, A.** Publications: Safranal and its analogs inhibit *Escherichia coli* ATP synthase and cell growth, *International Journal of Biological Macromolecules*.

**Anderson, EL.** Publications: Oxidative stress serves as a key checkpoint for IL-33 release by airway epithelium, *Allergy*.

**Anderson, J.** Presentations/abstracts: Content analysis of student manuals in federally funded secondary teen pregnancy prevention programs.

**Aragon, A.** Presentations/abstracts: Brain injuries and helmets.

**Assani, K.** Presentations/abstracts: ATSU-SOMA mentors in medicine program: improving health education in Woodlake Unified school district and surrounding community.

**Avigliano, JD.** Presentations/abstracts: A new method to measure diaphragm function before and after neuromuscular blockade in rats. Diaphragm function before and after neuromuscular blockade in rats.

**Azim, S.** Publications: A therapeutic connection between dietary phytochemicals and ATP synthase, *Current Medicinal Chemistry*.

**Bachus, V.** Presentations/abstracts: Employee engagement and organizational performance.

**Bahr, B.** Presentations/abstracts: Evaluating the impact of the Nutrition and Health Awareness program on physical activity and health awareness.

**Bahrani, M.** Presentations/abstracts: The Mentors in Medicine program: improving health education in the Woodlake community.

**Bansal, S.** Presentations/abstracts: Improving knowledge of hepatitis C virus in community members who have regular contact with populations at high risk for infection.

**Banuelos, R.** Presentations/abstracts: Effects of aerobic, non-aerobic, and resistive training on insulin resistance in subjects with type II diabetes: a case series design.

**Belant, A.** Publications: Current evidence does not support the accuracy of aural thermometry for core body temperature as compared to rectal thermometry, *Athletic Training and Sports Health Care*.

**Bender, A.** Presentations/abstracts: The acute effects of robot-assisted ankle rehabilitation and tDCS on corticospinal excitability in chronic stroke survivors.

**Bennett, A.** Presentations/abstracts: Opioid excess: educating Portland citizens on the importance of proper disposal of excess opioid prescriptions.

**Berthet, B.** Presentations/abstracts: Using resilience training curriculum in high school students to reduce the consequences of adversity.

**Bhatia, A.** Presentations/abstracts: ATSU-SOMA mentors in medicine program: improving health education in Woodlake Unified school district and surrounding community.

**Bhutwala, N.** Presentations/abstracts: Bridging the gap: providing health education to victims of intimate partner violence.

**Bisson, N.** Presentations/abstracts: Effect of the A Matter of Balance program on balance confidence in older adults.

**Black, K.** Presentations/abstracts: A descriptive study of foot posture and lower extremity function in firefighter recruits.

**Blaisdell, A.** Presentations/abstracts: Characteristics of human sexuality educators in Vermont high schools.

**Bleything, J.** Presentations/abstracts: Determination of the relative cariogenic potential of breastmilk, bovine milk, and infant formula.

**Boatman, D.** Presentations/abstracts: A multifaceted, intensive approach to facilitate system change for colorectal cancer screening. Increasing colorectal cancer screening using an enhanced call reminder program. Leveraging electronic health records to enhance systems of care for increased colorectal cancer screening. Mammo/FIT: a project to assess the effectiveness of combining breast cancer screening with colorectal screening on a mobile health unit.

**Bodam, J.** Presentations/abstracts: The effect of instruction and context on multi-limb dual task control in Parkinson disease.

**Boguspour, N.** Publications: Oral cancer diagnosis: from biopsy to metabolomics, *EC Dental Science*.

**Book, O.** Presentations/abstracts: Determining the effect of musical therapy and basic hygiene education on improving mental health and well-being of Bhutanese refugees.



**Bosch, L.** Presentations/abstracts: Determination of the relative cariogenic potential of breastmilk, bovine milk, and infant formula.

**Brannen, D.** Presentations/abstracts: Is there an independent anatomical definition of metatarsus atavicus?

**Braungardt, HJ.** Presentations/abstracts: Characterizing the effects of staphyloxanthin and branched chain fatty acid deficiencies in *Staphylococcus aureus*.

**Brooks, A.** Presentations/abstracts: The effects of vibrotactile feedback on locomotor function in individuals with lower limb amputation.

**Brown, AG.** Presentations/abstracts: Activation pattern of nucleus tractus solitarius neurons in response to acute hypoxia in the STZ-induced rat model of Alzheimer's disease: a preliminary study. Impaired chemoreflex response to acute hypoxia correlates with decreased activation of the medial nucleus tractus solitarius in the STZ-induced rat model of Alzheimer's disease.

**Brown, K.** Presentations/abstracts: Effect of atorvastatin on interstitial PO<sub>2</sub> in skeletal muscle of rats.

**Buckner, B.** Presentations/abstracts: Evaluation of patient-provider communication.

**Buell, JH.** Presentations/abstracts: A new method to measure diaphragm function before and after neuromuscular blockade in rats. Diaphragm function before and after neuromuscular blockade in rats.

**Buendia, M.** Presentations/abstracts: Opioid excess: educating Portland citizens on the importance of proper disposal of excess opioid prescriptions.

**Bui, T.** Presentations/abstracts: The Mentors in Medicine program: improving health education in the Woodlake community.

**Caddigan, SC.** Publications: Competitive growth, energy allocation, and host modification in the acanthocephalan *Acanthocephalus dirus*: field data, *Parasitology Research*.

**Calvelage, V.** Presentations/abstracts: Examination of passive and active nutrition education on health eating habits.

**Cammack, SA.** Presentations/abstracts: Inonotus obliquus polysaccharide extract (IOP) does not enhance exercise duration or alter interstitial oxygen kinetics in rat skeletal muscle. Measurement of myocardial microvascular PO<sub>2</sub>: impact of sumatriptan.

**Chalanycz, J.** Presentations/abstracts: I am an athlete: the lived experience of athletes with a physical disability participating on school-based sports teams. The lived experience of athletes with a physical disability participating on school-based sports teams.

**Chang, G.** Presentations/abstracts: Bridging the gap: providing health education to victims of intimate partner violence. Effects of IPE on early exposure to clinical experience within ATSU-SOMA's unique curriculum.

**Chang, M.** Presentations/abstracts: Addressing nutrition education with cultural competence using a novel approach: "my traffic light plate."

**Chapman, C.** Presentations/abstracts: The use of a kinetic lower extremity orthosis to improve locomotor function.

**Chatta, P.** Presentations/abstracts: Evaluation of the Nutrition and Health Awareness program and changes in physical activity on health and wellness education.

**Chaurasia, N.** Presentations/abstracts: Bridging the patient-provider gap: using multimedia to enhance the quality of advanced care planning discussions.

**Chen, RA.** Presentations/abstracts: Role of MCP1P1 in high insulin-related endothelial cell dysfunction.

**Choudhry, M.** Publications: Multiplex real-time PCR detection and relative quantification of periodontal pathogens, *Clinical and Experimental Dental Research*.

**Christ, A.** Presentations/abstracts: The effect of instruction and context on multi-limb dual task control in Parkinson disease.

**Chuang, J.** Presentations/abstracts: Nutritional barriers experienced by people with Type II DM of the Seattle/King County area.

**Chung, R.** Presentations/abstracts: Characterizing the effects of staphyloxanthin and branched chain fatty acid deficiencies in *Staphylococcus aureus*.

**Clouse, J.** Presentations/abstracts: The inclusion of athletes with a physical disability in school-based sports teams: the coach's perspective.

**Coaston, A.** Presentations/abstracts: Examination of passive and active nutrition education on health eating habits.

**Coffey, J.** Publications: Multiplex real-time PCR detection and relative quantification of periodontal pathogens, *Clinical and Experimental Dental Research*.

**Coleman, C.** Publications: Enhancing learning experience using ultrasound simulation in undergraduate medical education: student perception, *Medical Science Educator*.

**Cook, G.** Presentations/abstracts: Evaluating the impact of the Nutrition and Health Awareness program on physical activity and health awareness.

**Cornell, E.** Presentations/abstracts: Examination of passive and active nutrition education on health eating habits.

## STUDENT SCHOLARLY ACTIVITY (December 2016-August 2018)

**Cozzi, AL.** Presentations/abstracts: Recreational and competitive athletes' perceptions of functional activity limitations using the Patient Specific Functional Scale following orthopedic injury.

**Curry, EC.** Presentations/abstracts: Initial characterization of persistence inducing factor in *Staphylococcus aureus* SH1000.

**Deaton, E.** Presentations/abstracts: Age-related lipid profile changes in MCP1 deficient mice.

**DeChant, A.** Publications: Eye changes after recent international travel, *American Family Physician*.

**Dee, T.** Presentations/abstracts: Opioid excess: educating Portland citizens on the importance of proper disposal of excess opioid prescriptions.

**Denisova, E.** Presentations/abstracts: Kulia i ka Nu'u (strive for the highest) health education project.

**Derthick, D.** Presentations/abstracts: A descriptive study of foot posture and lower extremity function in firefighter recruits.

**Devi, T.** Presentations/abstracts: Evaluation of the Nutrition and Health Awareness program and changes in physical activity on health and wellness education.

**Dhaliwal, J.** Presentations/abstracts: ATSU-SOMA mentors in medicine program: improving health education in Woodlake Unified school district and surrounding community.

**Diaz, AM.** Publications: TGF $\beta$  engages MEK/ERK to differentially regulate benign and malignant pancreas cell function, *Oncogene*.

**Dillon, J.** Presentations/abstracts: Outcome measures to assess for baseline testing of concussions in high school football players.

**Dobard, SE.** Presentations/abstracts: Inonotus obliquus polysaccharide extract (IOP) does not enhance exercise duration or alter interstitial oxygen kinetics in rat skeletal muscle. Measurement of myocardial microvascular PO<sub>2</sub>: impact of sumatriptan.

**Dock, P.** Presentations/abstracts: Biochemical basis of protection by progesterone in melanoma based on curcumin pre-treatment of human melanoma cells models.

**Doerstling, F.** Presentations/abstracts: Evaluation of patient-provider communication.

**Dominick, K.** Publications: Histological characteristics of knee menisci in patients with osteoarthritis, *Clinical Anatomy*. Introduction of a combined gastrointestinal histopathology laboratory exercise into an undergraduate medical school curriculum, *Missouri Medicine*.

**Dorr, K.** Presentations/abstracts: Determining the effect of musical therapy and basic hygiene education on improving mental health and well-being of Bhutanese refugees.

**Doucet, A.** Presentations/abstracts: Examination of passive and active nutrition education on health eating habits.

**Drew, S.** Presentations/abstracts: The effects of vibrotactile feedback on locomotor function in individuals with lower limb amputation.

**du Pont, J.** Presentations/abstracts: Evaluation of the Nutrition and Health Awareness program and changes in physical activity on health and wellness education.

**DuBose, J.** Presentations/abstracts: The inclusion of athletes with a physical disability in school-based sports teams: the parent's perspective.

**Dukuly, M.** Presentations/abstracts: The efficacy of physical therapy intervention in the treatment of male urinary incontinence: a pilot study.

**Dunaway, K.** Presentations/abstracts: Using resilience training curriculum in high school students to reduce the consequences of adversity.

**Dunnington, T.** Presentations/abstracts: The use of a kinetic lower extremity orthosis to improve locomotor function.

**Eagen, B.** Presentations/abstracts: Effects of diaphragmatic breathing on decreasing symptoms of urinary urge incontinence.

**Ebel, DL.** Publications: Blunted respiratory responses in the streptozotocin-induced Alzheimer's disease rat model, *Journal of Alzheimer's Disease*. Presentations/abstracts: Blunted respiratory responses in the STZ-induced rat model of Alzheimer's disease.

**Eberhard, S.** Presentations/abstracts: Evaluation of the Nutrition and Health Awareness program and changes in physical activity on health and wellness education.

**Eck, E.** Presentations/abstracts: Addressing nutrition education with cultural competence using a novel approach: "my traffic light plate."

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**Edwards, C.** Presentations/abstracts: Feasibility and benefits of an adapted Pilates program for individuals with Parkinson's disease.

**Edwards, CR.** Publications: Ultrasonographic evaluation of the effect of osteopathic manipulative treatment on sacral base asymmetry, *Journal of the American Osteopathic Association*.

**Egan, J.** Presentations/abstracts: Lower extremity robotic rehabilitation for stroke survivors.

**Elmer, C.** Publications: Premorbid diagnosis of attention deficit hyperactivity disorder and the association of concussion risk and prolonged recovery: an evidence-based report, *Athletic Training and Sports Health Care*. Presentations/abstracts: Competitive gymnasts' perceptions of activity limitations using the Patient Specific Functional Scale following orthopedic injury.

**Elmslie, KL.** Presentations/abstracts: Expression of Na<sub>v</sub> 1.9 channels in Group III and Group IV muscle afferents.

**Erbe, B.** Presentations/abstracts: The association of the Functional Movement Screen™ and single leg hop tests with musculoskeletal injury in firefighter recruits.

**Erickson, CD.** Publications: School nurses' perceptions and experiences with an interprofessional concussion management team in the secondary school setting, *Journal of Interprofessional Care*.

**Ernest, TL.** Presentations/abstracts: Use of contralateral knee as control in the destabilization of medial meniscus osteoarthritis rat model.

**Espindola-Camacho, C.** Presentations/abstracts: Evaluating the impact of the Nutrition and Health Awareness program on physical activity and health awareness.

**Estess, R.** Presentations/abstracts: Evaluating the impact of the Nutrition and Health Awareness program on physical activity and health awareness.

**Etemadi, K.** Presentations/abstracts: ATSU-SOMA mentors in medicine program: improving health education in Woodlake Unified school district and surrounding community.

**Evans, A.** Presentations/abstracts: A descriptive study of FMS and physical fitness scores in firefighter recruits.

**Feng, W.** Presentations/abstracts: Improving knowledge of hepatitis C virus in community members who have regular contact with populations at high risk for infection.

**Fernandes, S.** Presentations/abstracts: Effect of the A Matter of Balance program on balance confidence in older adults.

**Finney, J.** Presentations/abstracts: A descriptive study of FMS and physical fitness scores in firefighter recruits.

**Flood, K.** Presentations/abstracts: A descriptive study of lower extremity outcome measures in high school female basketball players.

**Flory, K.** Publications: Histological characteristics of knee menisci in patients with osteoarthritis, *Clinical Anatomy*. Introduction of a combined gastrointestinal histopathology laboratory exercise into an undergraduate medical school curriculum, *Missouri Medicine*.

**Freeman, M.** Presentations/abstracts: I am an athlete: the lived experience of athletes with a physical disability participating on school-based sports teams. The lived experience of athletes with a physical disability participating on school-based sports teams.

**Frommer, BA.** Presentations/abstracts: Effect of MTA3 overexpression on B16 melanoma cells.

**Fulcher, A.** Presentations/abstracts: Biochemical basis of protection by progesterone in melanoma based on curcumin pre-treatment of human melanoma cells models. In-vitro study to determine the biochemical basis of protection by progesterone in melanoma based on human melanoma cell models.

**Fullmer, TM.** Presentations/abstracts: Cardiac structure-function and aerobic capacity in young adults with a history of competitive sports.

**Genovese, J.** Presentations/abstracts: Should kinetic energy be included with potential energy in determining power when performing stair climbing in males between 21 and 35 years?

**George, B.** Presentations/abstracts: Addressing nutrition education with cultural competence using a novel approach: "my traffic light plate."

**Gombold, K.** Presentations/abstracts: Normative grip strength values in males and females, ages 50-89 years old.

**Gomez, B.** Presentations/abstracts: A descriptive study of lower extremity outcome measures in high school female basketball players.

**Gosky, B.** Presentations/abstracts: Determining efficacy of dental educational interventions in Ohio adolescents.

**Gousman, J.** Presentations/abstracts: Mandibular symphysis bone density and its effect on mandibular growth and morphology in adolescent patients.

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## STUDENT SCHOLARLY ACTIVITY (December 2016-August 2018)

**Greene, R.** Presentations/abstracts: Use of compression garment in a child with neuromotor deficits: differences in posture and functional mobility.

**Griffin, L.** Presentations/abstracts: Interrater reliability for physical therapy students using the Functional Movement Screen.

**Hansen, G.** Publications: Being hungry affects oral size perception, *lperception*.

**Harder, T.** Presentations/abstracts: Improving knowledge of hepatitis C virus in community members who have regular contact with populations at high risk for infection.

**Haworth, C.** Publications: Early fundoplication is associated with slower decline in lung function after lung transplantation in patients with gastro-esophageal reflux disease, *Journal of Thoracic and Cardiovascular Surgery*. Transabdominal robot-assisted diaphragmatic plication: a 3.5-year experience, *European Journal of Cardio-Thoracic Surgery*.

**Hayes, P.** Presentations/abstracts: Outcome measures to assess for baseline testing of concussions in high school football players.

**Heier, A.** Presentations/abstracts: Expression of Na<sub>v</sub> 1.9 channels in Group III and Group IV muscle afferents.

**Hernandez, B.** Presentations/abstracts: Determining the effect of musical therapy and basic hygiene education on improving mental health and well-being of Bhutanese refugees.

**Hernandez, D.** Presentations/abstracts: Use of compression garment in a child with neuromotor deficits: differences in posture and functional mobility.

**Higgins, K.** Presentations/abstracts: The use of a kinetic lower extremity orthosis to improve locomotor function.

**Hintz, M.** Presentations/abstracts: Use of contralateral knee as control in the destabilization of medial meniscus osteoarthritis rat model.

**Ho, S.** Presentations/abstracts: Addressing nutrition education with cultural competence using a novel approach: "my traffic light plate." Effects of IPE on early exposure to clinical experience within ATSU-SOMA's unique curriculum.

**Hoang, T.** Presentations/abstracts: The Mentors in Medicine program: improving health education in the Woodlake community.

**Hohenbery, T.** Presentations/abstracts: In-vitro anti-cancer actions of androgens (androstenedione and testosterone) based on human melanoma rescued and recovered cell growth, adhesion and migration functions. In-vitro study to determine the protective functions of progesterone in melanoma based on mouse and human melanoma cell models.

**Holladay, C.** Presentations/abstracts: Direct oral anticoagulants (DOACs) and postoperative bleeding complications after dental extractions. Direct oral anticoagulants (DOACs) and postoperative bleeding complications after dental procedures.

**Horris, HB.** Publications: Premorbid diagnosis of attention deficit hyperactivity disorder and the association of concussion risk and prolonged recovery: an evidence-based report, *Athletic Training and Sports Health Care*.

**Howe, J.** Presentations/abstracts: Effects of diaphragmatic breathing on decreasing symptoms of urinary urge incontinence.

**Hussey, M.** Presentations/abstracts: Clinical presentations at the point-of-care of common sport-related injuries: a report from the Athletic Training Practice-Based Research Network.

**Huynh, A.** Presentations/abstracts: Evaluation of the Nutrition and Health Awareness program and changes in physical activity on health and wellness education.

**Ingle, S.** Presentations/abstracts: Examination of passive and active nutrition education on health eating habits.

**Iyo, JS.** Presentations/abstracts: The association of the Functional Movement Screen™ and single leg hop tests with musculoskeletal injury in firefighter recruits.

**Jackson, TM.** Presentations/abstracts: Ghrelin, a potential antidepressant in adult rats, does not reduce depressive-like symptoms in juvenile rats. Intracerebroventricular peptide administration for antidepressant studies in juvenile rats. Modified tail suspension as an indication of depression in adolescent rats.

**Jakobsson, A.** Presentations/abstracts: Improving knowledge of hepatitis C virus in community members who have regular contact with populations at high risk for infection.

**Johnson, M.** Presentations/abstracts: Addressing individual barriers to physical activity.

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**Johnson, P.** Presentations/abstracts: Electrocardiograph changes associated with a 24-hour footrace.

**Kalla, P.** Presentations/abstracts: Addressing nutrition education with cultural competence using a novel approach: "my traffic light plate."

**Kane, A.** Presentations/abstracts: Feasibility and benefits of an adapted Pilates program for individuals with Parkinson's disease.

**Kanumalla, R.** Publications: Getting at the root of opioid-induced constipation with an osteopathic approach, *Practical Pain Management*. Plantar fasciitis: diagnosis and management, *EC Orthopaedics*.

**Karstens, J.** Presentations/abstracts: A descriptive study of foot posture and lower extremity function in firefighter recruits.

**Kenworthy, D.** Presentations/abstracts: Evaluation of patient-provider communication.

**Khalid, S.** Presentations/abstracts: Evaluation of the Nutrition and Health Awareness program and changes in physical activity on health and wellness education.

**Khay, S.** Presentations/abstracts: Nutritional barriers experienced by people with Type II DM of the Seattle/King County area.

**Kim, A.** Presentations/abstracts: Bridging the gap: providing health education to victims of intimate partner violence.

**Kim, E.** Presentations/abstracts: Determining efficacy of dental educational interventions in Ohio adolescents.

**Kim, G.** Publications: Spiritual factors impacting a patient's ability to cope with uncertainty (part 3), *Practical Pain Management*. The effects of religion and spirituality on coping efficacy for death and dying, *Practical Pain Management*. Theory of motivated information management and coping with death, *Practical Pain Management*. Presentations/abstracts: Efficacy of a health care career workshop with underrepresented minority college students.

**Kim, J.** Presentations/abstracts: Evaluation of the Nutrition and Health Awareness program and changes in physical activity on health and wellness education.

**Kim, S.** Presentations/abstracts: Evaluation of the Nutrition and Health Awareness program and changes in physical activity on health and wellness education.

**Kinne, D.** Presentations/abstracts: Evaluating the impact of the Nutrition and Health Awareness program on physical activity and health awareness.

**Kinney, KE.** Presentations/abstracts: Carbonic anhydrase inhibition does not impact force generation or fatigue following sustained MVICs. Carbonic anhydrase inhibition does not impact force generation or fatigue following sustained voluntary maximal isometric contractions. Impact of music on suppression of the autonomic stress response and central motor drive of sustained isometric muscle contractions.

**Kissel, J.** Presentations/abstracts: Using resilience training curriculum in high school students to reduce the consequences of adversity.

**Klotz, T.** Presentations/abstracts: Outcome measures to assess for baseline testing of concussions in high school football players.

**Koerber, C.** Presentations/abstracts: Bridging the patient-provider gap: using multimedia to enhance the quality of advanced care planning discussions.

**Kopale, K.** Presentations/abstracts: Use of compression garment in a child with neuromotor deficits: differences in posture and functional mobility.

**Kramer, D.** Presentations/abstracts: Effects of aerobic, non-aerobic, and resistive training on insulin resistance in subjects with type II diabetes: a case series design.

**Kristensen, V.** Presentations/abstracts: Assisted pet therapy in the dental setting. Evaluating the effectiveness of animal assisted therapy in a dental setting.

**Krob, J.** Presentations/abstracts: A way with words: using tailored provider-patient communication to advance oral health literacy and equity.

**Kurashima, K.** Presentations/abstracts: Should kinetic energy be included with potential energy in determining power when performing stair climbing in males between 21 and 35 years?

**Lafans, K.** Presentations/abstracts: Determining efficacy of dental educational interventions in Ohio adolescents.

**Lafleur, CB.** Publications: Cold storage of platelets in platelet additive solution: an in vitro comparison of two Food and Drug Administration-approved collection and storage systems, *Transfusion*.

**Lambson, BW.** Presentations/abstracts: Cardiac structure-function and aerobic capacity in young adults with a history of competitive sports. Osteopathic muscle energy treatment, pulmonary function and exercise tolerance. Specific modification of cardiac structure-function associated with intense training in NCAA D-II college athletes.

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## STUDENT SCHOLARLY ACTIVITY (December 2016-August 2018)

**Larson, M.** Presentations/abstracts: Reliability and smallest worthwhile difference in reactive strength index modified in male and female athletes.

**LaRue, A.** Presentations/abstracts: Community forums for engagement and prevention in response to the opioid epidemic.

**Latvis, L.** Presentations/abstracts: What are the attributes of U.S. hospitals' financial performance?

**Lawrence, T.** Presentations/abstracts: A descriptive study of foot posture and lower extremity function in firefighter recruits.

**Le, P.** Presentations/abstracts: Using resilience training curriculum in high school students to reduce the consequences of adversity.

**Leach, J.** Presentations/abstracts: Feasibility and benefits of an adapted Pilates program for individuals with Parkinson's disease.

**LeBaron, T.** Presentations/abstracts: Should kinetic energy be included with potential energy in determining power when performing stair climbing in females between 21 and 35 years?

**Leibrich, M.** Presentations/abstracts: Lower extremity robotic rehabilitation for stroke survivors.

**Lemieux, DJ.** Presentations/abstracts: Direct oral anticoagulants (DOACs) and postoperative bleeding complications after dental extractions. Direct oral anticoagulants (DOACs) and postoperative bleeding complications after invasive dental procedures.

**Lenzmeier, S.** Presentations/abstracts: The effects of vibrotactile feedback on locomotor function in individuals with lower limb amputation.

**Lesh, MB.** Presentations/abstracts: Adenoma detection rates at Northeast Regional Medical Center: a retrospective study.

**Liou, C.** Presentations/abstracts: ATSU-SOMA mentors in medicine program: improving health education in Woodlake Unified school district and surrounding community.

**Liu, M.** Publications: Safranal and its analogs inhibit *Escherichia coli* ATP synthase and cell growth, *International Journal of Biological Macromolecules*.

**Liwanag, L.** Presentations/abstracts: Examination of the teach-back method in nutrition education with eighth grade middle school students.

**Lodhi, O.** Presentations/abstracts: Examination of passive and active nutrition education on health eating habits.

**Lorbeck, K.** Presentations/abstracts: Effects of diaphragmatic breathing on decreasing symptoms of urinary urge incontinence.

**Lowry, A.** Presentations/abstracts: Improving knowledge of hepatitis C virus in community members who have regular contact with populations at high risk for infection.

**Lyman, J.** Presentations/abstracts: Dental implants: cross sectional study to determine risk factors associated with implant failure.

**Lymberopoulos, G.** Publications: Changing opioid prescribing patterns for post-extraction dental pain, *Practical Pain Management*. Integrative management of acute and post-operative dental pain, *Advances in Dentistry & Oral Health*.

**MacDonald, RL.** Presentations/abstracts: Experiences of athletic trainers who have worked with athletes with a physical disability in school-based sports.

**Mahabadi, N.** Presentations/abstracts: Examination of passive and active nutrition education on health eating habits.

**Malone, J.** Publications: Being hungry affects oral size perception, *Iperception*.

**Manese, J.** Presentations/abstracts: Determining the effect of musical therapy and basic hygiene education on improving mental health and well-being of Bhutanese refugees.

**Marler, A.** Presentations/abstracts: Evaluating the impact of the Nutrition and Health Awareness program on physical activity and health awareness.

**Marler, T.** Presentations/abstracts: Expression of Na<sub>v</sub> 1.9 channels in Group III and Group IV muscle afferents.

**Marsh, A.** Publications: Examining interprofessional collaboration: there is no "I" in "healthcare team," *Otolaryngology*. Integrative management of acute and post-operative dental pain, *Advances in Dentistry & Oral Health*.

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**Marshall, AN.** Presentations/abstracts: A comparison of estimated direct costs of care provided by athletic trainers between mild and severe lower extremity disorders: a report from the Athletic Training Practice-Based Research Network. Changes in health-related quality of life in adolescent athletes following a lower extremity injury: a report from the Athletic Training Practice-Based Research Network. Clinical presentation of patients following sport-related elbow injuries: a report from the Athletic Training Practice-Based Research Network. Concussion management among NCAA swim programs. Cost and treatment characteristics for sport-related knee injuries managed by athletic trainers: a report from the Athletic Training Practice-Based Research Network. Impairment-based rehabilitation with patterned electrical neuromuscular stimulation improves lower extremity function in individuals with patellofemoral pain. The management and estimated direct costs of care of ankle sprain injuries at the point-of-care: a report from the Athletic Training Practice-Based Research Network. Ultrasound assessment of transverse abdominis function in various positions in individuals with patellofemoral pain following impairment-based rehabilitation.

**Marzvanian, A.** Presentations/abstracts: Improving knowledge of hepatitis C virus in community members who have regular contact with populations at high risk for infection.

**Mascarenas, F.** Presentations/abstracts: Improved non-surgical treatment of chronic periodontitis with 980 nm diode laser.

**Matsushita, S.** Publications: Getting at the root of opioid-induced constipation with an osteopathic approach, *Practical Pain Management*. Plantar fasciitis: diagnosis and management, *EC Orthopaedics*.

**Maxfield, R.** Presentations/abstracts: The inclusion of athletes with a physical disability in school-based sports teams: the coach's perspective.

**McAllister, S.** Publications: Integration of 3-dimensional/4-dimensional ultrasound technology into undergraduate medical education: student perception of innovative obstetrics education, *Missouri Medicine*. Presentations/abstracts: 3D/4D Ultrasound technology in medically underserved communities: a survey of second-year medical students. Improving obstetrical care in medically underserved communities using modern technology: medical student perception. Integration of 3D/4D ultrasound technology into undergraduate medical education: student perception.

**McCain, R.** Presentations/abstracts: Evaluation of patient-provider communication.

**McClain, K.** Presentations/abstracts: What are the attributes of U.S. hospitals' financial performance?

**McDaniel, D.** Publications: Histological characteristics of knee menisci in patients with osteoarthritis, *Clinical Anatomy*. Introduction of a combined gastrointestinal histopathology laboratory exercise into an undergraduate medical school curriculum, *Missouri Medicine*. Premedical anatomy experience and student performance in medical gross anatomy, *Clinical Anatomy*.

**McIntire, S.** Publications: Integration of 3-dimensional/4-dimensional ultrasound technology into undergraduate medical education: student perception of innovative obstetrics education, *Missouri Medicine*. Presentations/abstracts: 3D/4D Ultrasound technology in medically underserved communities: a survey of second-year medical students. Improving obstetrical care in medically underserved communities using modern technology: medical student perception. Integration of 3D/4D ultrasound technology into undergraduate medical education: student perception.

**Mengarelli, M.** Publications: A comparison of point-of-care ultrasonography use in rural versus urban emergency departments throughout Missouri, *Missouri Medicine*. A behavioral survey of the effects of kavalactones on *Caenorhabditis elegans* neuromuscular transmission, *Journal of Experimental Neuroscience*.

**Miller, A.** Presentations/abstracts: Biochemical basis of protection by progesterone in melanoma based on curcumin pre-treatment of human melanoma cells models. In-vitro study to determine the biochemical basis of protection by progesterone in melanoma based on human melanoma cell models. In-vitro study to determine the protective functions of progesterone in melanoma based on mouse and human melanoma cell models.

**Mishra, S.** Presentations/abstracts: Evaluation of the Nutrition and Health Awareness program and changes in physical activity on health and wellness education.

**Mitrovich, C.** Publications: Quality of care in rural youth with type 1 diabetes: a cross-sectional pilot assessment, *BMJ Open Diabetes Research & Care*.

**Mohan, A.** Presentations/abstracts: Determining efficacy of dental educational interventions in Ohio adolescents.

**Moore, J.** Presentations/abstracts: The Mentors in Medicine program: improving health education in the Woodlake community.

**Mori, V.** Presentations/abstracts: Using resilience training curriculum in high school students to reduce the consequences of adversity.

**Mudunuri, S.** Presentations/abstracts: Using resilience training curriculum in high school students to reduce the consequences of adversity.

**Muench, MR.** Publications: Ability of postoperative delirium to predict intermediate-term postoperative cognitive function in patients undergoing elective surgery at an academic medical centre: protocol for a prospective cohort study, *BMJ Open*.

**Mustafa, T.** Presentations/abstracts: Determining efficacy of dental educational interventions in Ohio adolescents.

**Nachtrab, SN.** Presentations/abstracts: Fine epitope mapping of monoclonal antibodies to the DNA repair protein, RadA.

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## STUDENT SCHOLARLY ACTIVITY (December 2016-August 2018)

**Nagy, O.** Presentations/abstracts: The Mentors in Medicine program: improving health education in the Woodlake community.

**Nassar, D.** Presentations/abstracts: SPROUT: a qualitative evaluation of a nutrition-based intervention encouraging vegetable consumption in low-income populations served in an FQHC. Thematic analysis of barriers to treatment of hepatitis C at a federally qualified health center (FQHC).

**Nepusz, A.** Publications: A comparison of point-of-care ultrasonography use in rural versus urban emergency departments throughout Missouri, *Missouri Medicine*.

**Nguyen, V.** Presentations/abstracts: Using resilience training curriculum in high school students to reduce the consequences of adversity.

**Ni, A.** Presentations/abstracts: Applying osteopathic manipulation techniques to decrease stress and anxiety in patients with hypertension.

**Nwambouno, A.** Presentations/abstracts: Effects of aerobic, non-aerobic, and resistive training on insulin resistance in subjects with type II diabetes: a case series design.

**Obler, J.** Presentations/abstracts: Evaluating the impact of the Nutrition and Health Awareness program on physical activity and health awareness.

**Ohmler, L.** Presentations/abstracts: Effects of aerobic, non-aerobic, and resistive training on insulin resistance in subjects with type II diabetes: a case series design.

**Olivetto, A.** Presentations/abstracts: Changing the attitudes, behaviors, and perceptions of driving and texting by teen drivers through awareness and education.

**Oster, J.** Presentations/abstracts: Evaluating the impact of the Nutrition and Health Awareness program on physical activity and health awareness.

**Pandya, A.** Presentations/abstracts: Evaluating the impact of the Nutrition and Health Awareness program on physical activity and health awareness.

**Parikh, V.** Presentations/abstracts: Output characterization of clinically applied diode laser systems for management of chronic periodontal disease.

**Park, H.** Presentations/abstracts: Evaluation of patient-provider communication.

**Patel, J.** Presentations/abstracts: Improving knowledge of hepatitis C virus in community members who have regular contact with populations at high risk for infection. The Mentors in Medicine program: improving health education in the Woodlake community.

**Patel, T.** Presentations/abstracts: Outcome measures to assess for baseline testing of concussions in high school football players.

**Petty, JL.** Publications: Performance assessment in medical school curricula: an innovative method of evaluating sonographic skills using ultrasound practical examinations, *Medical Science Educator*.

**Philbrick, S.** Publications: Seeking and accepting: US clergy theological and moral perspectives informing decision making at the end of life, *Journal of Palliative Medicine*.

**Porter, B.** Presentations/abstracts: Dental implants: cross sectional study to determine risk factors associated with implant failure.

**Potter, M.** Presentations/abstracts: Using resilience training curriculum in high school students to reduce the consequences of adversity.

**Priest, SM.** Publications: Cardioprotective effect of hydroxysafflor yellow A via the cardiac permeability transition pore, *Planta Medica*.

**Pucci, A.** Presentations/abstracts: A submaximal step test used to predict peak aerobic capacity in healthy children ages 7-11 years old.

**Queen, T.** Presentations/abstracts: Protecting LGBTQ youth from cyberbullying through health interventions.

**Radfar, A.** Publications: Global, regional, and national cancer incidence, mortality, years of life lost, years lived with disability, and disability-adjusted life-years for 32 cancer groups, 1990 to 2015: a systematic analysis for the Global Burden of Disease Study, *JAMA Oncology*.

**Rana, B.** Presentations/abstracts: Exposure of pre-clinical dental students to patients with special needs.

**Randau, K.** Presentations/abstracts: The association of the Functional Movement Screen™ and single leg hop tests with musculoskeletal injury in fire-fighter recruits.

**Ray, D.** Presentations/abstracts: Evaluating the impact of the Nutrition and Health Awareness program on physical activity and health awareness.

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**Razzaque, A.** Publications: Does posttreatment thymoquinone reverse high-dose atorvastatin-induced hepatic oxidative injury in rats? *Canadian Journal of Physiology and Pharmacology*.

**Redpath, C.** Presentations/abstracts: Using resilience training curriculum in high school students to reduce the consequences of adversity.

**Renaud, B.** Presentations/abstracts: The effect of Matter of Balance classes on dual-task abilities during the Timed Up and Go in community-dwelling elders.

**Richter, SD.** Presentations/abstracts: Clinical presentation of patients following sport-related elbow injuries: a report from the Athletic Training Practice-Based Research Network. Epidemiology of gymnastic injuries sustained by female secondary school athletes: a report from the National Athletic Treatment, Injury, and Outcomes Network. Perceptions and utilization of three-dimensional printing in human anatomy courses: a pilot study.

**Ring, RP.** Publications: Roles of pyruvate dehydrogenase and branched-chain  $\alpha$ -keto acid dehydrogenase in branched-chain membrane fatty acid levels and associated functions in *Staphylococcus aureus*, *Journal of Medical Microbiology*.

**Ritter, KG.** Presentations/abstracts: Influence of prior concussion education on club swim coaches' perceived importance, knowledge, and confidence regarding sport-related concussion.

**Rogers, M.** Presentations/abstracts: Adenoma detection rates at Northeast Regional Medical Center: a retrospective study.

**Roof, K.** Presentations/abstracts: Interrater reliability for physical therapy students using the Functional Movement Screen.

**Root, HJ.** Presentations/abstracts: Arizona athletic trainers' awareness and knowledge of the Executive Summary Consensus Recommendations on the Appropriate Care of Spine Injured Athletes. Preseason Star Excursion Balance Test identifies adolescent female basketball athletes with a history of ankle sprain.

**Rosenberg, J.** Presentations/abstracts: Examination of passive and active nutrition education on health eating habits.

**Royter, E.** Presentations/abstracts: ATSU-SOMA mentors in medicine program: improving health education in Woodlake Unified school district and surrounding community.

**Ruoff, P.** Presentations/abstracts: Non-surgical periodontal therapy using scaling and root planing (SRP) in combination with diode laser.

**Sam, T.** Presentations/abstracts: The Mentors in Medicine program: improving health education in the Woodlake community.

**Sanchez, K.** Presentations/abstracts: Evaluation of patient-provider communication.

**Sandefur, K.** Publications: Increasing self-awareness of medical students through the use of ultrasonography, *Journal of the American Osteopathic Association*.

**Santiago, C.** Presentations/abstracts: Interrater reliability for physical therapy students using the Functional Movement Screen.

**Sawyer, Q.** Publications: Physical activity and intermittent postconcussion symptoms after a period of symptom-limited physical and cognitive rest, *Journal of Athletic Training*.

**Scarpna, J.** Presentations/abstracts: The effects of a four-week mindful breathing meditation intervention on stress levels of registered nurses in an East Coast acute care nursing facility.

**Seamans, K.** Presentations/abstracts: A submaximal step test used to predict peak aerobic capacity in healthy children ages 7-11 years old.

**Semanek, B.** Presentations/abstracts: Determining efficacy of dental educational interventions in Ohio adolescents.

**Seo, JW.** Presentations/abstracts: Mandibular symphysis bone density and its effect on mandibular growth and morphology in adolescent patients.

**Sessions, A.** Presentations/abstracts: Determining efficacy of dental educational interventions in Ohio adolescents.

**Sessions, T.** Presentations/abstracts: Determining efficacy of dental educational interventions in Ohio adolescents.

**Sethi, H.** Presentations/abstracts: Nasal lining flaps for closure of the nasal floor in unilateral and bilateral cleft lip and palate repairs reduces the rate of alveolar fistula formation. The Mentors in Medicine program: improving health education in the Woodlake community. Coccidioidomycosis meningitis: more than just a headache.

**Shackelford, AJ.** Presentations/abstracts: Ketones alleviate neuroinflammation through modulation of metabolic sensors. The effect of ketones on inflammation in an in vitro periodontal disease model.

**Shah, N.** Presentations/abstracts: The inclusion of athletes with a physical disability in school-based sports teams: the athlete's perspective.

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## STUDENT SCHOLARLY ACTIVITY (December 2016-August 2018)

**Shalom, S.** Presentations/abstracts: Trisomy 13 mosaicism with ring chromosome 13: a case study.

**Shankar, AK.** Presentations/abstracts: Evaluation of patient-provider communication.

**Sher, E.** Publications: A snapshot of health information exchange across five nations: an investigation of frontline clinician experiences in emergency care, *Journal of the American Medical Informatics Association*.

**Shin, L.** Presentations/abstracts: PIPS vs. standard treatment for endodontic bacterial decontamination. Decontamination of the root canal system during endodontic therapy.

**Sidhom, D.** Presentations/abstracts: Bridging the gap: providing health education to victims of intimate partner violence.

**Sidhu, M.** Presentations/abstracts: Kulia i ka Nu'u (strive for the highest) health education project.

**Sires, ZT.** Presentations/abstracts: Changes in the oral microbiome in response to *Porphyromonas gingivalis* inoculation and pregnancy in rats. Development of *fim* operon knockouts in select *Porphyromonas gingivalis* strains. Epigenetic reprogramming of host genes in response to oral *Porphyromonas gingivalis* infection.

**Slater, A.** Presentations/abstracts: The effect of Matter of Balance classes on dual-task abilities during the Timed Up and Go in community-dwelling elders.

**Slaughter, NJ.** Publications: Current evidence does not support the accuracy of aural thermometry for core body temperature as compared to rectal thermometry, *Athletic Training and Sports Health Care*.

**Smith, CM.** Publications: GAPO syndrome: a rare genodermatosis presenting with unique features, *International Journal of Dermatology*.

**Smith, S.** Presentations/abstracts: What are the attributes of U.S. hospitals' financial performance?

**Smithson, C.** Presentations/abstracts: The inclusion of athletes with a physical disability in school-based sports teams: the athlete's perspective.

**Sotoudeh, C.** Presentations/abstracts: ATSU-SOMA mentors in medicine program: improving health education in Woodlake Unified school district and surrounding community.

**Srivastava, S.** Presentations/abstracts: Determining the effect of musical therapy and basic hygiene education on improving mental health and well-being of Bhutanese refugees.

**St. Laurent, E.** Presentations/abstracts: Efficacy of a health care career workshop with underrepresented minority college students.

**Stohr, M.** Presentations/abstracts: The acute effects of robot-assisted ankle rehabilitation and tDCS on corticospinal excitability in chronic stroke survivors.

**Stokke, JM.** Presentations/abstracts: Osteopathic muscle energy treatment, pulmonary function and exercise tolerance.

**Stolsig, J.** Presentations/abstracts: Opioid excess: educating Portland citizens on the importance of proper disposal of excess opioid prescriptions.

**Street, L.** Presentations/abstracts: The association of the Functional Movement Screen™ and single leg hop tests with musculoskeletal injury in fire-fighter recruits.

**Studley, J.** Presentations/abstracts: What are the attributes of U.S. hospitals' financial performance?

**Subramanian, P.** Publications: Heat shock-induced phosphorylation of TAR DNA-binding protein 43 (TDP-43) by MAPK/ERK kinase regulates TDP-43 function, *Journal of Biological Chemistry*.

**Sukumar, S.** Presentations/abstracts: Determining efficacy of dental educational interventions in Ohio adolescents.

**Swamy, S.** Presentations/abstracts: Park Rx: increasing provider prescription of outdoor physical activity to promote long-term health and well-being.

**Swan, J.** Publications: Initially missed diagnosis of quadriceps partial tendon tear, *Journal of Urgent Care Medicine*.

**Swartzendruber, A.** Presentations/abstracts: Exploration of daily sit time among university athletes.

**Swofford, DP.** Publications: Management of hypothenar hammer syndrome: a case report, *American Journal of Case Reports*.

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**Syed, H.** Presentations/abstracts: Connection between antimicrobial venom peptides and bacterial ATP synthase. Exploring the link between antimicrobial properties of venom peptides and microbial ATP synthase.

**Szczublewski, S.** Presentations/abstracts: Feasibility and benefits of an adapted Pilates program for individuals with Parkinson's disease.

**Takach, K.** Presentations/abstracts: Are oral health and access to dental care major issues for incarcerated women?

**Tang, K.** Presentations/abstracts: Determining the effect of musical therapy and basic hygiene education on improving mental health and well-being of Bhutanese refugees.

**Taylor, C.** Presentations/abstracts: Defining synthetic heparan sulfate structures that increase progenitor cell expansion. Heparan sulfate 3-O-sulfation increases progenitor cell expansion.

**Thomas, K.** Presentations/abstracts: Examining the relationship among hospitalist continuing education, hospitalist communication competency, and stroke patient outcomes.

**Tidus, I.** Presentations/abstracts: Improving knowledge of hepatitis C virus in community members who have regular contact with populations at high risk for infection.

**Tierney, KA.** Presentations/abstracts: The inclusion of athletes with a physical disability in school-based sports teams: the parent's perspective.

**Tilton, E.** Publications: Histological characteristics of knee menisci in patients with osteoarthritis, *Clinical Anatomy*. Introduction of a combined gastrointestinal histopathology laboratory exercise into an undergraduate medical school curriculum, *Missouri Medicine*.

**Tomchuk, D.** Publications: Diagnosing exertional rhabdomyolysis across athletic training practice settings: clinical bottom line, *NATA News*.

**Toprani, B.** Presentations/abstracts: Interrater reliability for physical therapy students using the Functional Movement Screen.

**Torkilsen, CG.** Publications: Blunted respiratory responses in the streptozotocin-induced Alzheimer's disease rat model, *Journal of Alzheimer's Disease*. Presentations/abstracts: Blunted respiratory responses in the STZ-induced rat model of Alzheimer's disease.

**Trivedi, H.** Presentations/abstracts: Determining the effect of musical therapy and basic hygiene education on improving mental health and well-being of Bhutanese refugees.

**Turner, A.** Presentations/abstracts: A submaximal step test used to predict peak aerobic capacity in healthy children ages 7-11 years old.

**Tuttle, K.** Presentations/abstracts: Molar intrusion capabilities of Invisalign with or without miniscrew anchorage in the open bite patient: a pilot study.

**Ulhaque, M.** Presentations/abstracts: Evaluation of the Nutrition and Health Awareness program and changes in physical activity on health and wellness education.

**Vahdatinia, R.** Publications: Gum bacteria now linked to RA, *Practical Pain Management*. Lumbar lordosis and back pain, *Practical Pain Management*. Myofascial pain: overview of treatment options, *Practical Pain Management*. Osteopathic treatment considerations for head, neck, and facial pain, *Practical Pain Management*. Tinnitus: diagnosis and treatment options, *Heighpubs Otolaryngology and Rhinology*. Presentations/abstracts: Improving whole person healthcare through IPE. Ultrasound imaging based medical education for first- and second-year osteopathic medical students.

**Veeranki, S.** Publications: A current review of asymmetry, *Journal of Clinical Orthodontics*.

**Velasquez, T.** Presentations/abstracts: Exposure of pre-clinical dental students to patients with special needs. Recall of oral hygiene education among patients with special needs and their caregivers.

**Vesci, B.** Publications: Physical activity and intermittent postconcussion symptoms after a period of symptom-limited physical and cognitive rest, *Journal of Athletic Training*.

**Vetter, HM.** Presentations/abstracts: Association of vitamin D and abnormal uterine bleeding.

**Vincel, GW.** Publications: Complete sagittal root fracture: case report, *Dental Today*.

**Virk, H.** Presentations/abstracts: ATSU-SOMA mentors in medicine program: improving health education in Woodlake Unified school district and surrounding community.

**Vu, J.** Presentations/abstracts: A submaximal step test used to predict peak aerobic capacity in healthy children ages 7-11 years old.

**Vu, V.** Presentations/abstracts: Improving knowledge of hepatitis C virus in community members who have regular contact with populations at high risk for infection.

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**Wachter, B.** Publications: Access to dental care for people with bleeding disorders: survey results of hemophilia treatment centers in the U.S., *Special Care in Dentistry*.

**Wagenknecht, M.** Publications: Being hungry affects oral size perception, *Perception*.

**Walia, H.** Presentations/abstracts: The Mentors in Medicine program: improving health education in the Woodlake community.

**Walkenhorst, M.** Publications: *Porphyromonas gingivalis* and adverse pregnancy outcome, *Journal of Oral Microbiology*. Presentations/abstracts: Changes in the oral microbiome in response to *Porphyromonas gingivalis* inoculation and pregnancy in rats. Epigenetic reprogramming of host genes in response to oral *Porphyromonas gingivalis* infection.

**Wankier, A.** Presentations/abstracts: Analysis of authorship in the *Journal of Physical Therapy*: a preliminary report.

**Wasinger, NA.** Presentations/abstracts: Carbonic anhydrase inhibition alters the Starling, but not the Anrep contractile responses in the isolated heart in vitro. Carbonic anhydrase inhibition: effect on rat hearts in vitro with and without pH perturbations. Cardiac structure-function and aerobic capacity in young adults with a history of competitive sports.

**Weis, JL.** Publications: Medical tourism: the role of the primary care provider, *BJGP Open*.

**Wilbers, J.** Presentations/abstracts: Electronic health records and stroke patients' experience: a case study of an award-winning Midwestern acute care hospital.

**Williams, AS.** Publications: Is state anxiety, trait anxiety, or anxiety sensitivity a clinical predictor of symptoms in those presenting with mild traumatic brain injury or concussion? *Journal of Sport Rehabilitation*.

**Wong, J.** Presentations/abstracts: The Mini Doc program: oral health, nutrition, and physical activity education at Adventist Malama Elementary School.

**Wong, L.** Presentations/abstracts: The Mentors in Medicine program: improving health education in the Woodlake community.

**Yamamoto, A.** Presentations/abstracts: The use of a kinetic lower extremity orthosis to improve locomotor function.

**Yang, C.** Presentations/abstracts: Age-related lipid profile changes in MCPIP1 deficient mice.

**Yarrington, D.** Presentations/abstracts: Should kinetic energy be included with potential energy in determining power when performing stair climbing in females between 21 and 35 years?

**Yellin, RM.** Presentations/abstracts: ATSU-SOMA mentors in medicine program: improving health education in Woodlake Unified school district and surrounding community.

**Zachariasch, D.** Presentations/abstracts: ATSU-SOMA mentors in medicine program: improving health education in Woodlake Unified school district and surrounding community.

**Zawada, D.** Presentations/abstracts: The effects of vibrotactile feedback on locomotor function in individuals with lower limb amputation.

**Zaza, R.** Presentations/abstracts: Implementation of interprofessional collaboration in a dental service setting.

**Zellner, J.** Presentations/abstracts: Improved non-surgical treatment of chronic periodontitis with 980 nm diode laser.

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# Remembering Dr. Neil Sargentini

1947-2017

The University honors Neil Sargentini, PhD, who served as a faculty member in ATSU-KCOM's Department of Microbiology and Immunology from 1991-2017. He served as chair of the department for many years and was a beloved professor, respected colleague, and dedicated researcher. He enjoyed mentoring students and loved playing racquetball.

"Dr. Sargentini showed unwavering love and dedication to his students and our institution during his years of service. He always strived for excellence and gave tirelessly of himself through his work."

– Margaret Wilson, DO, '82, dean, ATSU-KCOM

"If the saying, 'The early bird gets the worm,' is true, then Dr. Sargentini would have an office full of worms. He was a hardworking person who went the extra mile for ATSU-KCOM."

– Neal Chamberlain, PhD, FNAOME, professor, microbiology & immunology, ATSU-KCOM

"Three and a half years ago I was accepted to ATSU-KCOM as a first-year biomed. I was thrilled to be a part of ATSU-KCOM, and Dr. Sargentini was one of the people who interviewed me. I have gone through many other interviews before, but my interview with Dr. Sargentini is one I won't forget. The level of humanism and compassion he showed me during my interview made me feel truly welcome at ATSU-KCOM, and he is one of the many reasons I fell in love with this school."

– Amon Amini, OMS II

"Dr. Sargentini was a humble man who quietly accomplished great things at ATSU. As a colleague, he was a master at solving problems, hardworking, fair-minded, selfless, cheerful, and happy to see those around him succeed."

– Melissa Stuart, PhD, professor and chair, microbiology & immunology, ATSU-KCOM

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## ***Flashback***

In 1976, Richard J. Cenedella, PhD, became the first faculty member in ATSU-KCOM's history to have National Institutes of Health (NIH) funding at ATSU after transferring his NIH grant from his prior employer. Shortly after transferring his previous grant, Dr. Cenedella received funding from the National Eye Institute of NIH for cataract research. This began his 30-year investigation of the role of cholesterol metabolism in maintaining the ocular lens and the danger of taking drugs like U18666A and the statins, which inhibit lens cholesterol biosynthesis. His research led to the discovery that the lens creates its own cholesterol. Dr. Cenedella maintained uninterrupted NIH grant support for nearly 30 years.