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]
Features

ATSU firsts
With a legacy of leadership in healthcare and education, the University continues to achieve scholarly activity firsts.

Scope of scholarship
ATSU recognizes Boyer’s definition of scholarly activity as discovery, application, integration, teaching, and engagement.

The burning question
As tick-borne diseases reach record numbers, a Missouri-based researcher seeks strategies to control tick populations.

Culture and diet
A faculty member and former student learn the importance of understanding a population’s culture to influence diet.

Dental care at a distance
An Arizona-based teledentistry program is improving access to dental care while providing unique learning experiences.

Bright ideas

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8 Q&A: Radiation effects on oral health
9 Think fast: FAST assessment

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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
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Your feedback is welcome.
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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 clinicians 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.
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 ATSRI’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

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.

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

“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 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 McIsaac, PT, PhD, associate professor, physical therapy, ATSU-ASHS, and 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.

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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 International 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 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.

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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 TAAR1 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 (TAAR1) 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 TAAR1, 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 award3 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. ■
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, Debo-rah 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 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

[https://tickencounter.org](https://tickencounter.org)
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 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.
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.
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-
community 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 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 prosthetic 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.
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 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.

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

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.

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 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 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.
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.
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.
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.

**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.

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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.


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.


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


Baer, RW. 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.

extremity region-specific and population-specific patient-reported outcome scale for throwing athletes, *Orthopaedic Journal of Sports Medicine.* Presentation/abstracts: Correlation between pelvic index, as measured on lateral postural radiograph, and chronic low back pain.


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


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Please note: Publications, presentations, and abstracts are included as reported in the Winter 2017 through Summer 2018 ATSU Research newsletters, prepared by the Department of Research Support. Individuals listed were full-time and part-time ATSU faculty and staff members at the time publications, presentations, or abstracts were reported to the Department of Research Support.
Brooks, WI. Publications: Characterizing adverse events reported immediately after osteopathic manipulative treatment, *Journal of the American Osteopathic Association*.


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.


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.


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 teledentistry 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.


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


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

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


Elmslie, KS. Publications: Inhibition of α9α10 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+1.9 channels in Group III and Group IV muscle afferents.


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.


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


**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.


**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.


**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.
Headman, Z. Publications/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*.


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*.


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.


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.


Kellan, 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 vodcast 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.


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.

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


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.


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


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


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


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.
presentations, or abstracts were reported to the Department of Research Support.

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


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


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.


Characteristics of human sexuality educators in Vermont high schools.


Characteristics of human sexuality educators in Vermont high schools.


Please note: Publications, presentations, and abstracts are included as reported in the Winter 2017 through Summer 2018 ATSU Research newsletters, prepared by the Department of Research Support. Individuals listed were full-time and part-time ATSU faculty and staff members at the time publications, presentations, or abstracts were reported to the Department of Research Support.


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.


Prepared by the Department of Research Support. Individuals listed were full-time and part-time ATSU faculty and staff members at the time publications, presentations, and abstracts were reported to the Department of Research Support.


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.


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


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


Please note: Publications, presentations, and abstracts are included as reported in the Winter 2017 through Summer 2018 ATSU Research newsletters, prepared by the Department of Research Support. Individuals listed were full-time and part-time ATSU faculty and staff members at the time publications, presentations, or abstracts were reported to the Department of Research Support.
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.


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.


**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.


**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.


**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.


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.


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. Kùlù 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-2 diabetes mellitus in the Seattle, King County area.


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: Developing interest in rural physical therapy practice through clinical and community service experiences. Reshaping PT clinical education: what if.


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


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

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<td>Oxidative stress serves as a key checkpoint for IL-33 release by airway epithelium, <em>Allergy</em>.</td>
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<td>Anderson, J.</td>
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<td>Book, O.</td>
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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, K. Presentations/abstracts: Effect of atorvastatin on interstitial PO2 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. Presentations/abstracts: 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 PO2; 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 MCPIP1 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.


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.
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<td>Presentations/abstracts: The effects of vibrotactile feedback on locomotor function in individuals with lower limb amputation.</td>
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<tr>
<td>du Pont, J.</td>
<td>Presentations/abstracts: Evaluation of the Nutrition and Health Awareness program and changes in physical activity on health and wellness education.</td>
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<tr>
<td>DuBose, J.</td>
<td>Presentations/abstracts: The inclusion of athletes with a physical disability in school-based sports teams: the parent’s perspective.</td>
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<tr>
<td>Dunaway, K.</td>
<td>Presentations/abstracts: Using resilience training curriculum in high school students to reduce the consequences of adversity.</td>
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<tr>
<td>Dunnington, T.</td>
<td>Presentations/abstracts: The use of a kinetic lower extremity orthosis to improve locomotor function.</td>
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<td>Eagen, B.</td>
<td>Presentations/abstracts: Effects of diaphragmatic breathing on decreasing symptoms of urinary urge incontinence.</td>
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<tr>
<td>Eberhard, S.</td>
<td>Presentations/abstracts: Evaluation of the Nutrition and Health Awareness program and changes in physical activity on health and wellness education.</td>
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<tr>
<td>Eck, E.</td>
<td>Presentations/abstracts: Addressing nutrition education with cultural competence using a novel approach: “my traffic light plate.”</td>
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Please note: Publications, presentations, and abstracts are included as reported in the Winter 2017 through Summer 2018 ATSU Research newsletters, prepared by the Department of Research Support. Individuals listed were ATSU students, fellows, and residents at the time publications, presentations, or abstracts were reported to the Department of Research Support.
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<thead>
<tr>
<th>Name</th>
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<tr>
<td>Egan, J.</td>
<td>Presentations/abstracts: Lower extremity robotic rehabilitation for stroke survivors.</td>
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<td>Elmslie, KL.</td>
<td>Presentations/abstracts: Expression of Na, 1.9 channels in Group III and Group IV muscle afferents.</td>
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<tr>
<td>Erbe, B.</td>
<td>Presentations/abstracts: The association of the Functional Movement Screen™ and single leg hop tests with musculoskeletal injury in firefighter recruits.</td>
</tr>
<tr>
<td>Erickson, CD.</td>
<td>Publications: School nurses’ perceptions and experiences with an interprofessional concussion management team in the secondary school setting, <em>Journal of Interprofessional Care</em>.</td>
</tr>
<tr>
<td>Ernest, TL.</td>
<td>Presentations/abstracts: Use of contralateral knee as control in the destabilization of medial meniscus osteoarthritis rat model.</td>
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<tr>
<td>Espindola-Camacho, C.</td>
<td>Presentations/abstracts: Evaluating the impact of the Nutrition and Health Awareness program on physical activity and health awareness.</td>
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<tr>
<td>Estess, R.</td>
<td>Presentations/abstracts: Evaluating the impact of the Nutrition and Health Awareness program on physical activity and health awareness.</td>
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<td>Etemadi, K.</td>
<td>Presentations/abstracts: ATSU-SOMA mentors in medicine program: improving health education in Woodlake Unified school district and surrounding community.</td>
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<tr>
<td>Evans, A.</td>
<td>Presentations/abstracts: A descriptive study of FMS and physical fitness scores in firefighter recruits.</td>
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<tr>
<td>Feng, W.</td>
<td>Presentations/abstracts: Improving knowledge of hepatitis C virus in community members who have regular contact with populations at high risk for infection.</td>
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<tr>
<td>Finney, J.</td>
<td>Presentations/abstracts: A descriptive study of FMS and physical fitness scores in firefighter recruits.</td>
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<tr>
<td>Flood, K.</td>
<td>Presentations/abstracts: A descriptive study of lower extremity outcome measures in high school female basketball players.</td>
</tr>
<tr>
<td>Freeman, M.</td>
<td>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.</td>
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<tr>
<td>Frommer, BA.</td>
<td>Presentations/abstracts: Effect of MTA3 overexpression on B16 melanoma cells.</td>
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<tr>
<td>Fulcher, A.</td>
<td>Presentations/abstracts: Biochemical basis of protection by progesterone in melanoma based on curcumin pre-treatment of human melanoma cell models. In-vitro study to determine the biochemical basis of protection by progesterone in melanoma based on human melanoma cell models.</td>
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<tr>
<td>Fullmer, TM.</td>
<td>Presentations/abstracts: Cardiac structure-function and aerobic capacity in young adults with a history of competitive sports.</td>
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<tr>
<td>Genovese, J.</td>
<td>Presentations/abstracts: Should kinetic energy be included with potential energy in determining power when performing stair climbing in males between 21 and 35 years?</td>
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<tr>
<td>George, B.</td>
<td>Presentations/abstracts: Addressing nutrition education with cultural competence using a novel approach: “my traffic light plate.”</td>
</tr>
<tr>
<td>Gombold, K.</td>
<td>Presentations/abstracts: Normative grip strength values in males and females, ages 50-89 years old.</td>
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<tr>
<td>Gomez, B.</td>
<td>Presentations/abstracts: A descriptive study of lower extremity outcome measures in high school female basketball players.</td>
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<td>Gosky, B.</td>
<td>Presentations/abstracts: Determining efficacy of dental educational interventions in Ohio adolescents.</td>
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<td>Gousman, J.</td>
<td>Presentations/abstracts: Mandibular symphysis bone density and its effect on mandibular growth and morphology in adolescent patients.</td>
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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, *Perception*.

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


- **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 (+) 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.


- **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.


- **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.

Please note: Publications, presentations, and abstracts are included as reported in the Winter 2017 through Summer 2018 ATSU Research newsletters, prepared by the Department of Research Support. Individuals listed were ATSU students, fellows, and residents at the time publications, presentations, or abstracts were reported to the Department of Research Support.
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.


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


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, 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.


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.
- **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.
- **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 NaV1.9 channels in Group III and Group IV muscle afferents.

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<td>Nachtrab, SN</td>
<td>Presentations/abstracts: Fine epitope mapping of monoclonal antibodies to the DNA repair protein, RadA.</td>
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<td>Mustafa, T</td>
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<td>Mori, V</td>
<td>Presentations/abstracts: Using resilience training curriculum in high school students to reduce the consequences of adversity.</td>
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<tr>
<td>Mudunuri, S</td>
<td>Presentations/abstracts: Using resilience training curriculum in high school students to reduce the consequences of adversity.</td>
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<td>McClain, K</td>
<td>Presentations/abstracts: The inclusion of athletes with a physical disability in school-based sports teams: the coach’s perspective.</td>
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<tr>
<td>Maxfield, R</td>
<td>Presentations/abstracts: The inclusion of athletes with a physical disability in school-based sports teams: the coach’s perspective.</td>
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<tr>
<td>Marzvanyan, A</td>
<td>Presentations/abstracts: Improving knowledge of hepatitis C virus in community members who have regular contact with populations at high risk for infection.</td>
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<tr>
<td>Mascarenas, F</td>
<td>Presentations/abstracts: Improved non-surgical treatment of chronic periodontitis with 980 nm diode laser.</td>
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Redpath, C. Presentations/abstracts: Using resilience training curriculum in high school students to reduce the consequences of adversity.


Ring, RP. Publications: Roles of pyruvate dehydrogenase and branched-chain α-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.


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

Sanchez, K. 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.*

Scarpa, 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.


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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<td>Shalom, S.</td>
<td>Presentations/abstracts: Trisomy 13 mosaicism with ring chromosome 13: a case study.</td>
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<td>Sher, E.</td>
<td>Publications: A snapshot of health information exchange across five nations: an investigation of frontline clinician experiences in emergency care, <em>Journal of the American Medical Informatics Association</em>.</td>
</tr>
<tr>
<td>Sidhom, D.</td>
<td>Presentations/abstracts: Bridging the gap: providing health education to victims of intimate partner violence.</td>
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<tr>
<td>Sidhu, M.</td>
<td>Presentations/abstracts: Kulia i ka Nu’u (strive for the highest) health education project.</td>
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<tr>
<td>Slaughter, NJ.</td>
<td>Publications: Current evidence does not support the accuracy of aural thermometry for core body temperature as compared to rectal thermometry, <em>Athletic Training and Sports Health Care</em>.</td>
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<tr>
<td>Smith, S.</td>
<td>Presentations/abstracts: What are the attributes of U.S. hospitals’ financial performance?</td>
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<tr>
<td>Smithson, C.</td>
<td>Presentations/abstracts: The inclusion of athletes with a physical disability in school-based sports teams: the athlete’s perspective.</td>
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<td>Sotoudeh, C.</td>
<td>Presentations/abstracts: ATSU-SOMA mentors in medicine program: improving health education in Woodlake Unified school district and surrounding community.</td>
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<td>Srivastava, S.</td>
<td>Presentations/abstracts: Determining the effect of musical therapy and basic hygiene education on improving mental health and well-being of Bhutanese refugees.</td>
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<tr>
<td>St. Laurent, E.</td>
<td>Presentations/abstracts: Efficacy of a health care career workshop with underrepresented minority college students.</td>
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<tr>
<td>Stohr, M.</td>
<td>Presentations/abstracts: The acute effects of robot-assisted ankle rehabilitation and tDCS on corticospinal excitability in chronic stroke survivors.</td>
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<tr>
<td>Stokke, JM.</td>
<td>Presentations/abstracts: Osteopathic muscle energy treatment, pulmonary function and exercise tolerance.</td>
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<td>Stolsig, J.</td>
<td>Presentations/abstracts: Opioid excess: educating Portland citizens on the importance of proper disposal of excess opioid prescriptions.</td>
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<td>Street, L.</td>
<td>Presentations/abstracts: The association of the Functional Movement Screen™ and single leg hop tests with musculoskeletal injury in firefighter recruits.</td>
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<tr>
<td>Studley, J.</td>
<td>Presentations/abstracts: What are the attributes of U.S. hospitals’ financial performance?</td>
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<tr>
<td>Sukumar, S.</td>
<td>Presentations/abstracts: Determining efficacy of dental educational interventions in Ohio adolescents.</td>
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<tr>
<td>Swamy, S.</td>
<td>Presentations/abstracts: Park Rx: increasing provider prescription of outdoor physical activity to promote long-term health and well-being.</td>
</tr>
<tr>
<td>Swartzendruber, A.</td>
<td>Presentations/abstracts: Exploration of daily sit time among university athletes.</td>
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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.


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


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.


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.


Vetter, HM. Presentations/abstracts: Association of vitamin D and abnormal uterine bleeding.


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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<td><strong>Wasinger, NA.</strong> 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.</td>
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<td><strong>Weis, JL.</strong> Publications: Medical tourism: the role of the primary care provider, <em>BJGP Open.</em></td>
</tr>
<tr>
<td><strong>Wilbers, J.</strong> Presentations/abstracts: Electronic health records and stroke patients’ experience: a case study of an award-winning Midwestern acute care hospital.</td>
</tr>
<tr>
<td><strong>Williams, AS.</strong> Publications: Is state anxiety, trait anxiety, or anxiety sensitivity a clinical predictor of symptoms in those presenting with mild traumatic brain injury or concussion? <em>Journal of Sport Rehabilitation.</em></td>
</tr>
<tr>
<td><strong>Wong, L.</strong> Presentations/abstracts: The Mentors in Medicine program: improving health education in the Woodlake community.</td>
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<tr>
<td><strong>Yamamoto, A.</strong> Presentations/abstracts: The use of a kinetic lower extremity orthosis to improve locomotor function.</td>
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<td><strong>Yang, C.</strong> Presentations/abstracts: Age-related lipid profile changes in <em>MCPIP1</em> deficient mice.</td>
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<tr>
<td><strong>Yarrington, D.</strong> Presentations/abstracts: Should kinetic energy be included with potential energy in determining power when performing stair climbing in females between 21 and 35 years?</td>
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<td><strong>Yellin, RM.</strong> Presentations/abstracts: ATSU-SOMA mentors in medicine program: improving health education in Woodlake Unified school district and surrounding community.</td>
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<td><strong>Zachariasch, D.</strong> Presentations/abstracts: ATSU-SOMA mentors in medicine program: improving health education in Woodlake Unified school district and surrounding community.</td>
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<tr>
<td><strong>Zawada, D.</strong> Presentations/abstracts: The effects of vibrotactile feedback on locomotor function in individuals with lower limb amputation.</td>
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<td><strong>Zaza, R.</strong> Presentations/abstracts: Implementation of interprofessional collaboration in a dental service setting.</td>
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<tr>
<td><strong>Zellner, J.</strong> Presentations/abstracts: Improved non-surgical treatment of chronic periodontitis with 980 nm diode laser.</td>
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Please note: Publications, presentations, and abstracts are included as reported in the Winter 2017 through Summer 2018 ATSU Research newsletters, prepared by the Department of Research Support. Individuals listed were ATSU students, fellows, and residents at the time publications, presentations, or abstracts were reported to the Department of Research Support.
Established in 2001, A.T. Still Research Institute’s (ATSRI) purpose is to advance whole person healthcare and wellness through the development and support of premier clinical and translational research.

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atsu.edu/research

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Arizona campus:
J. Michael Menke, DC, PhD, MA
Associate Director
jmenke@atsu.edu
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.

Remembering Dr. Neil Sargentini
1947-2017

“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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• Funded project close-out services

Number of grant awards received
2017-18
38 external grant awards totaling $3,284,226
20 internal grant awards totaling $613,155

2016-17
39 external grant awards totaling $2,442,600
15 internal grant awards totaling $546,116

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Associate Vice President
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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.