

# ATSU Research

A newsletter produced by the Department of Research Support

Image (lumbar spine models) courtesy of Dr. Brian Degenhardt, Dr. Eric Snider, Ken Pamperin, and Kelly Rogers



*“Teamwork is the fuel that allows common people to attain uncommon results.”*  
~Andrew Carnegie

## 2021 A.T. Still University research symposiums

Several research symposiums were held at A.T. Still University (ATSU) this year. Despite continuing logistical challenges related to the pandemic, faculty and students were able to share their research with the ATSU community. On the Mesa, Arizona, campus, the Arizona School of Dentistry & Oral Health (ATSU-ASDOH) and three departments from the Arizona School of Health Sciences (ATSU-ASHS) hosted student research days. In Missouri, the Missouri School of Dentistry & Oral Health (ATSU-MOSDOH) held a research day at its St. Louis clinic, and the A.T. Still Research Institute (ATSRI) hosted its annual symposium in Kirksville.

## ATSU-ASDOH Research Week and Student Research Day

From Feb. 8 through Feb. 12, ATSU-ASDOH held a research week in conjunction with its annual Student Research Day. The online Zoom event began on Feb. 8 with a presentation, “The Surgeon General’s Spotlight on Oral Health: Healthy People 2030 Oral Health Objectives,” by Timothy L. Ricks, DMD, MPH, FICD, rear admiral, assistant surgeon general, chief dental officer, United States Public Health Service, Indian Health Service Headquarters Division of Oral Health. During the rest of the week, 13 third-year and fourth-year students presented results of their research at the 14th annual ATSU-ASDOH Student Research Day. Over 150 students and faculty from ATSU attended the presentations. Jared Hyer, D3, was selected as the winner of the Student Research Day for his presentation, “Color Stability of Novel Lithium Disilicate CAD/CAM Ceramics After Additional Sintering Processes,” and will represent ATSU-ASDOH at the Dentsply Sirona Student Clinician Research Competition at the American Association for Dental, Oral, and Craniofacial Research (AADOCR) meeting in Atlanta, Georgia, in March 2022. Quotasze Williams, D3, was awarded second place and received the American Association for Dental Research Student Research Travel Award, which will be used to present his research at the AADOCR meeting in March 2022.

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## 2021 ATSU-ASDOH Research Day student presentations

\*indicates presenter

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Chandok N\*, Leibow W, Erickson T. CBCT imaging to locate MB2 in maxillary first molars.

Donato MV\*, Jurado C, Lee D, Cortes D, Kaleinikova Z, Hernandez A, Sayed M, Tsujimoto A. Fracture resistance of CAD/CAM crowns fabricated with novel lithium disilicate combinations.

Hang J\*, Kumar S. Reporting quality of randomized controlled trials.

Hyer J\*, Jurado C, El-Gendy T. Color stability of novel lithium disilicate CAD/CAM ceramics after additional sintering processes.

Hyer J\*, Jurado C, Machado-Gouveia D, Seghi R. Fracture strength of crownlay restorations fabricated out of two CAD/CAM leucite ceramics.

Kleutsch K\*, Spolarich A. Assessing patient perceptions about dental experiences and teledentistry in the emergency department.

Le C\*, Jurado C, Nurrohman H, Latta M, Bakmeier W, Tsujimoto A. Effect of novel over-the-counter LED whitening products on CAD/CAM lithium disilicate ceramics.

Nguyen C\*, Spolarich A, Nenad M. Dental student stress and coping.

Sapwell J\*, Howell S, Shlossman M. Gingival health status of children and adolescent juvenile offenders: a periodontal needs assessment.

Sutherland C\*, Howell S. The economic and hourly impacts of teledentistry on patients.

Williams A\*, Spolarich A. Do-it-yourself (DIY) orthodontics consumer survey.

Williams Q\*, Jurado C, Lee D, Cortes D, Kaleinikova Z, Hernandez A, Sayed M, Tsujimoto A. Fracture strength of CAD/CAM lithium disilicate crowns fabricated with different thicknesses.

Wood J\*, Wennerholm C\*, Creech J. Emergency preparedness in the dental office survey: report on the use of the Ten Minutes Saves a Life! app.

## ATSU-MOSDOH D3 Research Day

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ATSU-MOSDOH held its third annual D3 Research Day as a Zoom event on May 4. At ATSU-MOSDOH, full-time clinical faculty at the St. Louis Dental Center collaborate with a team of two to four third-year dental students over two semesters to complete a clinical research project. This model is collaborative and teaches students to be part of a research team. These research teams conduct clinical research projects culminating in a professional poster presentation on Research Day. Fourteen presentations were included from the work of 58 students and 15 faculty. About 250 faculty, staff, and students from ATSU-MOSDOH and the ATSU community attended the Zoom event. The [Kubify](https://atsu.edu/mosdoh-posters) (atsu.edu/mosdoh-posters) platform was used to share posters, presentation slides and videos, abstracts, and other support material for the day's event. The project from the research team mentored by Patricia Inks, RDH, MS, was selected as the winner of the ATSU-MOSDOH Excellence in Research category, and the research team mentored by Avaniya Reddy, DMD, MPH, was selected as the winner of the Outstanding Progress in Clinical Research and Development category. Noah Barnes, D3, was selected as the winner of the Student Competition for Advancing Dental Research and its Application.

### 2021 ATSU-MOSDOH D3 Research Day presentations and posters

\*indicates presenter

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Barnes N\*, Carter L. Customized 3D printed mask fitter improves the fit of KN95 respirators. Faculty mentor: Vij A.

Chang N, Jent J\*, Guzman Elias R. Medicaid coverage of pregnant women and youth: return to complete care following endodontic treatment. Faculty mentor: Adams S.

Cummins T\*, Klutcharch K, Keller-Chavez M. Patient database and applications with 3-D printing. Faculty mentor: Krueger G.

Dransfield J\*, Wainwright B. The incidence of jaw pain referrals to OMS due to impacted asymptomatic third molars. Faculty mentor: Haribabu P.

Dubina N\*, Tran N. Implant angulation differences in the 1st and 2nd mandibular molar region. Faculty mentor: Abdulkarim H.

Fulk C\*, Patel A, Mehta M. Parent perceptions on minimally invasive dentistry during the Covid-19 pandemic. Faculty mentor: Reddy A. *Outstanding Progress in Clinical Research and Development*

Greer A\*, Bradley C, Patel P, Litchfield M. Emotional health of ATSU medical and dental students in the era of COVID-19. Faculty mentor: Abels M.

Lincicum J, Do W\*, Boules F. Clinical assessment of OHI and disclosing solution: which order is best? Faculty mentor: Dunivan S.

Morris Z, Pearson P, Miles C\*. Prevalence of carotid artery calcifications on digital panoramic radiographs of military veterans. Faculty mentor: Vargo R.

Murphy S, Patterson S\*, Powell S. Improving the oral health of cancer patients through interprofessional education. Faculty mentor: Greaves M.

## **Presentations and posters, continued**

Phan J, La R\*, Coleman G. The impact of confounding factors on periodontal health of patients with removable partial dentures. Faculty mentors: Muller R, Aubrey P.

Santoro Z\*, Wehner P, Henry C, Gaddy H. Assessment of cannabis use among dental urgent care patients. Faculty mentor: Crivello B.

Simmons J\*, Vimawala Z, Kayali H. Assessing barriers: why tobacco dependence treatment does not occur in the dental clinic. Faculty mentor: Davis J.

Speck H\*, Leslie L. Delivery of dental care and quality of life for older adults. Faculty mentor: Inks P.  
*Excellence in Research*

## **ATSU-ASHS Athletic Training Applied Research Projects**

In May and December, the Athletic Training department hosted its annual Applied Research Project presentations for its doctor of athletic training students. Using the [Kubify ePoster](https://guides.atsu.edu/c.php?g=556434&p=7919144) (<https://guides.atsu.edu/c.php?g=556434&p=7919144>) platform, 13 students presented results of their research projects. The benefit of this virtual platform allows ATSU students and faculty to access the projects at any time.

## **2021 ATSU-ASHS Athletic Training Applied Research Project presentations**

Agena K. Correlations between FMS scores, breathing mechanics, and core stability endurance tests. Faculty advisor: Anderson BE.

Bowen L. Developing a movement screen protocol for assessing injury risk in tactical athletes. Faculty advisor: Anderson BE.

Briones N. Development and implementation of a movement screening assessment and corrective exercises for women's soccer. Faculty advisor: Anderson BE.

Carlisle T. Epidemiology of football-related injuries presenting to emergency departments in the US. Faculty advisors: Bay RC, Lam KC.

Cimino G. Epidemiology of wrestling-related injuries treated in US emergency departments, 2007-2020. Faculty advisor: Lam KC.

Fromhoff B. Foundations of emotional intelligence in communication: building empathy and personal resiliency. Faculty advisor: Welch Bacon CE.

Harrison E. Perceptions of athletic training in the US Virgin Islands. Faculty advisor: Valovich McLeod TC.

Hawkes A. Implementing the collection of patient reported outcomes in an athletic training healthcare setting. Faculty advisor: Snyder Valier AR.

## **Presentations, continued**

Kennedy C. Developing and implementing a balance training program for women's basketball. Faculty advisor: Anderson BE.

Philpot N. Preceptors' perceptions of contemporary expertise. Faculty advisors: Welch Bacon CE, Cavallario JM (external).

Smith R. Including multi-item patient-reported outcome measures in the management of patients: a quality improvement project: Faculty advisor: Snyder Valier AR.

Timlin J. Descriptive analysis of injuries and treatments during a single high school football season. Faculty advisor: Snyder Valier AR.

Whiteman T. Incorporating entrustable professional activities in AT education. Faculty advisors: Welch Bacon CE, Anderson BE.

## **ATSU-ASHS Occupational Therapy Faculty-directed Research Day**

The Occupational Therapy department held a faculty-directed research presentation day virtually on May 27. Eight posters were presented by occupational therapy students. Projects arose from scholarly activity directed by faculty. The event was attended by students and faculty from the Occupational Therapy department and advisors from other ATSU departments.

## **2021 ATSU-ASHS Occupational Therapy Faculty-directed Research Day presentations**

Cregar K, Rivera L. Sensory programming with Piller Child Development. Faculty advisor: Diamant R.

Cunningham S, Penning J. How maternal employment affects duration of breastfeeding: a systematic review. Faculty advisor: Wolf R.

Ferrer K, Kouts T. Parental stress related to autism spectrum disorder feeding difficulties. Faculty advisor: Bonsall A.

Haselsteiner A, Previti K. A parental dyad experience of having a child diagnosed with autism. Faculty advisor: Bonsall A.

Materu L, Ybarra Y. How simulated auditory hallucinations impact occupational performance and learning among OT students. Faculty advisor: Muriithi B.

Mills K. Occupational therapists assessment of patient barriers to rehabilitation adherence. Faculty advisor: Picha K.

## **Presentations, continued**

Morales S, White C. CTS using ultrasound diagnostic measures. Faculty mentor: Bliven K.

Reaser A, Rivas A, Wojcik A, Silver R. Evidence-based interventions for cognitive rehabilitation post-stroke: a mapping review. Faculty advisor: Gupta J.

## **ATSU-ASHS Occupational Therapy Student Research Capstone Poster Day**

The Occupational Therapy department held its annual Student Research Capstone Poster Day virtually on June 2 and Nov. 9. Seventeen posters were presented during the events. The research presentations arose from student capstone projects that are mentored by faculty and community partners. Overall, both events were attended by about 100 participants representing students, faculty, and alumni from ATSU, family members, and community-based clinicians.

## **2021 ATSU-ASHS Occupational Therapy Poster Day posters**

Cregar K. The Fostering Healthy Parents Program: a specialized program developed for the foster care community. Faculty advisor: Diamant R. Community mentors: Esquibel W, Doty T.

Cunningham S. "Playing together": outcomes of an online telehealth sensory-motor development program for parents with children between the ages of 1.0-6.11 years. Faculty advisor: Diamant R.

Ferrer K. Occupational therapy in an outpatient multidisciplinary intensive feeding therapy program: food protein induced enterocolitis. Faculty advisors: Gupta J, Jones K. Community mentor: Urich J.

Haselsteiner A. Parent education and creative art interventions for foster families. Faculty advisor: Wolf R. Community mentor: Esquibel W.

Kouts T. The use of ManageMed Screening tool for directing occupational therapy intervention in the home health setting. Faculty advisor: Shearon T, Bonsall A. Community mentor: Lindstrom J.

Materu L. Using sensory-based approaches to manage the effects of adverse childhood experiences among children in an acute behavioral health center. Faculty advisor: Muriithi B. Community mentor: Gurule C.

Mills K. OT in neurological rehabilitation: hemiplegic shoulder pain post-stroke. Faculty advisors: Shearon T, Bonsall A. Community mentor: Finley K.

Morales S. Distal radius fractures: comparing surgical approaches to identify functional outcomes. Faculty advisor: Radziak J. Community mentors: Aaronson R, Wright K.

Penning J. Pediatric feeding interventions across a variety of diagnoses. Faculty advisor: Bonsall A. Community mentor: Piller A.

## **Posters, continued**

Previti K. Encouraging self-regulation and resilience through yoga and mindfulness. Faculty advisor: Bonsall A. Community mentor: Espinoza K.

Reaser A. Attention and multi-limb dual-task control during simulated driving in Parkinson's disease. Faculty advisor: Gupta J. Community mentor: McIsaac T.

Rivas A. The role of occupational therapy within primary care: a multidisciplinary weight management program. Faculty advisor: Gupta J. Community mentor: Clark M.

Rivera L. The role of occupational therapy in an outpatient multidisciplinary concussion clinic: persistent post concussion symptoms. Faculty advisor: Gupta J. Community mentors: Harris M, Giza C, McArthur DL.

Silver R. Clinical practice guideline development for chemotherapy-induced peripheral neuropathy rehabilitation. Faculty advisors: Shearon T, Bonsall A. Community mentors: Fortunato-Tamayo N, Pergolotti M, Kendig T.

White C. Scoping review of female sex workers risk factors and interventions. Faculty advisor: Gupta J.

Wojcik A. An exploratory study of rehabilitation services available for soft tissue sarcoma patients in the outpatient setting. Faculty advisor: Gupta J. Community mentors: Cooper K, Pergolotti M.

Ybarra Y. Developing an occupational therapy program for Hispanic adults diagnosed with cancer. Faculty advisor: Muriithi B.

## **ATSU-ASHS Physical Therapy Student Research Capstone Poster Day**

The Physical Therapy department held its annual Student Research Capstone Poster Day virtually on June 2 using the [Kubify ePoster](https://my.ltb.io/#/showcase/atsudpt) (https://my.ltb.io/#/showcase/atsudpt) platform. Twenty-one posters involving 64 students were presented. By using the virtual format, the event was accessible to a larger audience. The platform also allows others to communicate with the authors about their projects. Poster topics arose from student capstone projects that are mentored by faculty, and the posters covered a variety of physical therapy topics. The poster day was attended by over 100 participants representing students and faculty from ATSU, alumni, and community-based clinicians. One presentation received the Outstanding Research Capstone Award and one received an honorable mention.

### **2021 ATSU-ASHS Physical Therapy Poster Day presentations and posters**

\*indicates presenter

Akins M\*, Barrantes B, Slim T. PT student supervision: overview of supervision definitions and ratios by state and territories. Faculty mentor: Farris J.

Ashraf S\*, Cooper A, Klatt C. Comparison of two submaximal aerobic exercise tests in the estimation of aerobic capacity: methodology. Faculty mentor: Farris J.

## **Presentations and posters, continued**

Becerra R\*, Madich H, Deckert C. Spatial and temporal parameters in para athletes with hypertonia, ataxia, and athetosis. Faculty mentor: Fay D.

Christie B\*, Marske E, Smith C. Reliability and validity of measuring cervical range of motion with dual inclinometry. Faculty mentors: Cuka C, McIsaac TL.

Croswell J\*, Durrani O, Spearman M. Reliability and validity of a new floor transfer test for people with Parkinson's disease. Faculty mentor: McIsaac TL.

Duncan CJ\*, Banschbach Z. The use of text messages to increase patient adherence to a physical therapy home exercise program. Faculty mentor: Bordenave L.

Grover J\*, Bartell B, Sears K. An evidence-based recommendation for developing an early phase hip rehabilitation research design. Faculty mentors: Robinson C, Bliven K.

Heyer B\*, Skerry K. Effect of haptic feedback with single and dual tasks on gait in people with Parkinson's disease. Faculty mentor: McIsaac TL. *Outstanding Research Capstone Award*

Hoffman J\*, Uribe M, Fuentebella FT, Soest A, Truong K, Yergensen A. Outcome measures: knowledge translation of APTA clinical practice guidelines to practicing physical therapists. Faculty mentors: Ellison T, Wilkinson T, Bordenave L.

Keltner M\*, Sharp S, Temnyk K. Spatial and temporal parameters in para athletes competing in classes T53 and T54. Faculty mentor: Fay D.

Link L\*, Gleason K. Prevalence of physical therapy screening for urinary incontinence in Arizona. Faculty mentors: Roehling T, Kays P, Bordenave L.

Masters H\*, Berry A, Clauser T, Lenz S. Effects of whole-body drumming for people with Parkinson's disease: mobility and quality of life. Faculty mentors: McIsaac TL, Hodges C.

Nettlow R\*, D'Angelo E, Sutton H, Hernandez D, Sanchez I, Roberts C. Participation in adaptive sports programs: perceptions of the parent and child. Faculty mentor: Fay D. *Honorable Mention*

Nguyen J\*, Gonzalez Medina K, Moran R, Joseph J. The modified Thomas test: a narrative review. Faculty mentor: Manton C.

Pace P\*, Ortiz AM, Dao K. A protocol for dynamic body-weight support gait training to improve walking parameters after chronic stroke. Faculty mentor: Sartor-Glittenberg C.

Schmitz E\*, Buzzell L, Woytek H. Clinical variability of six-minute walk test protocols by licensed physical therapists: a survey. Faculty mentors: Kuettel J, McIsaac TL.

Short C\*, Klaassen K, Blair B. Do different configurations of the 6MWT impact distance traveled in people with Parkinson's disease? Faculty mentors: Kuettel J, McIsaac TL.

Todd B\*, Klynstra J. Using horses in physical therapy for people with Parkinson's disease: effects on mobility and quality of life. Faculty mentors: McIsaac TL, Hayes J.



## **Presentations and posters, continued**

Williams M\*. Analysis of authorship in the *Journal of Aquatic Physical Therapy*. Faculty mentor: Bordenave L.

Worsham J\*, Huson C, Reaser A. Relationship of self-reported driving habits with attention and cognition in people with Parkinson's disease. Faculty mentors: McIsaac TL, Gupta J, McFadden E.

Zinn S\*, Siarov J. Prediction of balance and gait recovery six months and beyond stroke. Faculty mentor: Lynskey J.

## **Interdisciplinary Biomedical Research Symposium**

On Nov. 13, the 13th annual Interdisciplinary Biomedical Research Symposium was held on the Kirksville, Missouri, campus as an in-person and virtual event. Hosted by ATSRI, this year's theme was "Science in Healthcare: The Clinician's Role." Keynote speakers were Quynh Duong, PhD, and Kent Simmonds, DO, PhD, MPH. Both speakers participated in the ATSRI's Clinician Researcher Development Program as undergraduates. Over 130 people attended the symposium in person, and approximately 30 people attended virtually. Students, faculty, residents, and staff from ATSU, Northeast Regional Medical Center, and Truman State University were involved with 73 oral and poster presentations during the event; 59 were in person and 14 were virtual. Sixty-three presentations involved researchers from ATSU, and 28 students from various schools and programs and six faculty and staff were the presenters.

## **Thirteenth annual Interdisciplinary Biomedical Research Symposium oral presentations**

\* indicates presenter

Engsberg C\*, Abrams A, Rogers A, Starks Z, Degenhardt B. Correlation of surface topography volume and spirometry tidal volume.

Hilfer A\*, Oligschlaeger A, Henderson M, Whitehead M, Arabas J. Accuracy of BIA devices to estimate body fat in college women athletes.

Lakhani M\*, Azim S, Ahmad Z. Potent inhibition of *Escherichia coli* ATP synthase by pomegranate phenolics: *E. coli* ATP synthase, enzyme inhibition, punicalagin, and ellagic acid.

McGinnis M\*, Whisenant E, Appikatla S, Anderson E, Ellsworth M, Sheridan V, Lewis JH. Supporting student learning and transformational change in health care.

Rieth K\*, Berrios M, Phillips P. Anti-biofilm efficacy of 4 agents: a comparative study between 2 approaches.

Van Ness C\*, Assadi A, Balch W, Di Nizio J, Olsen C, George E, Huffman J, Arcib LM, Frommer B, Sammis T. Retrospective analysis of NRMC SARS-COV2 inpatient hospitalizations.

Williams Q\*, Jurado C, Gouveia DNM, Cortes DA. Fracture strength of chair-side CAD/CAM lithium disilicate crowns fabricated with different thicknesses.

## Thirteenth annual Interdisciplinary Biomedical Research Symposium posters

\* indicates presenter

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Abrams A\*, Rogers A, Engsborg C, Starks Z, Degenhardt B. Improvements in volume measurements with the DIERS formetric 4D.

Ahmad H\*, Cox JL. Effect of shikonin treatment on B16 melanoma cells.

Akhtar S\*, Skinner AG, Tucker C, Singh V. Inulin protects intestine from LPS induced gut barrier damage.

Aspelund M\*, Buchan J, Comstock N, Priest Wood S, Quebodeaux Q, Thompson M, Wright D, Gray R, Hammer M. Improving the quality of diabetes management in a resident clinic setting.

Aspelund M\*, Buchan J, Comstock N, Priest Wood S, Quebodeaux Q, Thompson M, Wright D, Gray R, Hammer M. Optimizing diabetes management in an outpatient setting.

Berg V\*. Diagnostic palpatory force asymmetries persist throughout OMM training.

Bird H\*, Siddeek E. Ketamine assisted OMT for the treatment of chronic low back pain.

Bouton M\*. A bibliometric analysis of scholarly activity of authors of JPAE 2011-2020. *Overall Competition Winner*

Broderick A\*, Cleaver D, Cleaver N. Porocarcinoma.

Chaney L\*, Terrell S, Higgins A. Expression of SARS-CoV-2-RBD in melanoma cells with messenger RNA.

Chang Y, Canuteson N\*, Messieha V\*. Regulation of bFGF-induced effects on rat aortic smooth muscle cells by  $\beta$ 3-ARs.

Chiu A\*, Ramaraj P. Effects of combo treatments of curcumin, vitamins and steroids.

Cofell B\*. The role of amentoflavone on extracellular A $\beta$  clearance in N2A cells.

Cravens E\*, Yesudas R. Ferulic acid specific inhibition of angiotensin type 1 receptor expression.

Datario AV\*, Degenhardt B, Starks Z. Objective force palpation feedback using force pad technology.

Donato MV\*, Jurado CA, Lee D, Cortes D, Kaleninikova Z, Hernandez A, Sayed M, Tsujimoto A. Fracture resistance of chair-side CAD/CAM lithium disilicate molar crowns. *First Runner-up*

Ebel D\*, Bowers AN, Gassman M, Handlin L. Malignant anomalous coronary artery with bicuspid aortic valve: case report.

Everhart E\*. The effects of amentoflavone on A $\beta$ 40-induced cerebrovascular dysfunction. *Neil J. Sargentini, PhD, Memorial Award*

Fong M\*, Cleaver D, Cleaver L. What a headache: ertenumab induced urticarial drug eruption.

Frommer B\*, Cox J. Role of MTA3 on growth, migration, and invasion in B16 melanoma cells.

## Posters, continued

- Goldenstein A\*, Nesvik J, Cleaver J, Beary J. Sweet syndrome secondary to azathioprine use for myasthenia gravis.
- Grindstaff A\*, Stuart CD, Sexton WL. Measurement of intravascular PO<sub>2</sub> in the rat kidney: proof of concept.
- Grondel P\*, VanSickle C. Effects of parturition and life stage on obstetric pelvic dimensions.
- Handlin L\*, Norimatsu Y. Effects of mitragynine on the mu-opioid receptor in *Xenopus* oocytes.
- Higgins A\*, Norimatsu Y. MD simulation of the interaction between SARS-CoV-2 RBD and human ACE2.
- Hilton B\*, Cleaver L, Cleaver D, Cleaver J. Foreign body formation due to transepithelial elimination of hernia mesh. *Max Gutensohn Award*
- Holt C\*, Sukhanova KY, Heier AK, Kim-Han JS, Elmslie KS. Muscle metabolite receptors to Nav1.9 channels in muscle afferent neurons.
- Hudman D\*, Jones RS, Combes MD. Effects of prescribed burns on the tick abundance and associated pathogens.
- Hudman D\*, Linker NS, Combes MD. Statewide survey of ticks and tick-borne pathogens.
- Jacobs L\*, Hutchins J, Houser JJ. Clinically significant morphology of the internal thoracic artery branches.
- Jones JL\*, Cleaver D, Cleaver N. Interstitial granulomatous dermatitis as a paraneoplastic syndrome: a case.
- Lodato P\*. Role of two ribonucleases in the virulence of pathogenic *Escherichia coli*.
- MacSwords J\*, Skiba G, Quebodeaux Q, Holbrook K, Bashir S, Gonzales S. KFM continuity of care and patient retention QI project.
- McLaughlin S\*, Stanfield B, Middlemas D. Variability in researcher dependent data collection, rat behavioral testing.
- Memar S\*, VanSickle C, Funk S, Houser JJ, Markand S. Variations of the cystohepatic blood supply in American Midwestern cadavers.
- Meyer J\*, Baer RW. Does macrophage stimulation by CCL5 alter melanoma migratory behavior?
- Millhouse R\*, Strait B. Review on stretching post exercise.
- Moody J\*, Kennedy R. Post rib fracture opioid use thoracic epidural or erector spinae block.
- Mudd J\*, Piper FC, Arabas JL, Mayhew JL, Brechue WF. Sprint and acceleration profiles of adolescent male and female athletes.
- Oligschlaeger A\*, Hunter M, Hilfer A, Arabas JL, Mayhew JL, Brechue WF. Comparison of upper- and lower-body power tests in college female athletes.

## **Posters, continued**

Patel A\*, Sanders H\*, Norimatsu Y. Effect of zinc on beta2-adrenergic receptor signal transduction.

Phan L\*, Silkey C\*, Land M, Azim S, Singh V. Lack of DnaK and MsrA1 proteins and reduced stress tolerance in the bacterium.

Raheem S\*, Raheem S\*, Ahmad S\*, Ahmad Z. The compensatory effects of  $\alpha$ Val-345 in the catalytic sites of ATP synthase.

Rogers A\*, Starks Z, Degenhardt B, Abrams A, Engsborg C. Advancing the measurement of rib cage excursion in females.

Schwartz C\*, Cleaver D, Cleaver L. Primary cutaneous anaplastic large cell lymphoma in an adolescent female.

Seymour J\*. Peroneus quartus muscle causing lateral ankle pain.

Stanfield B\*, McLaughlin S, Middlemas D. Dose-response to ketamine as an antidepressant in juvenile rats.

Steiner A\*, Lange M\*, Lange KA. Potential SARS-CoV-2 sequelae: new onset atrial fibrillation.

Stogner E\*, Wang J. A rare complication of HELLP in a pregnant homeless woman: a case report. *Best in Case Study and Educational Research*

Stuart MK\*, Staputyte K, Cox JL, Baer RW. Characterization of polarized macrophage-melanoma cell interactions.

Stull C\*, Degenhardt B, Elkiss M, Starks Z. Effects of osteopathic manual treatment and acupuncture on TBI symptoms.

Tipton R\*, Scales DM, Humphrey CM, Ostrowski D, Ostrowski TD. nTS glutamatergic signaling in a rat model of Alzheimer's disease. *Neil J. Sargentini, PhD, Memorial Award*

Tran H\*, Bruning G, Lesh E. Supraclavicular lymphadenitis in a child with COVID-19 infection.

Wang Y\*, Kirsch J. Effect of osteopathic manipulative treatment on infant insomnia.

Wong A\*, Creech J, Wasden M, Spolarich A. Correlation between BMI and caries risk.

Zhu Y\*, Mayhew JL, Brechue WF. Relationship of anthropometry and barbell kinematics in weightlifters.