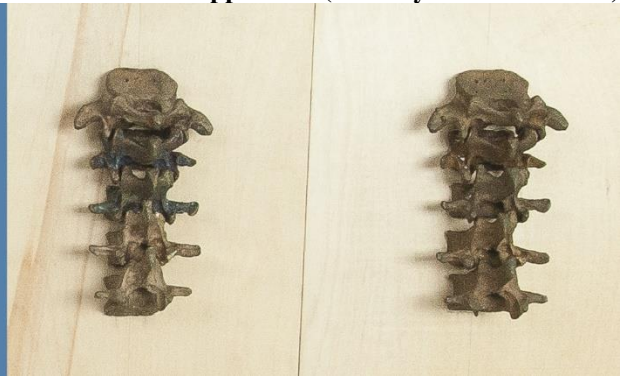


ATSU Research

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



“One finger cannot lift a pebble.” ~Hopi proverb

2023 A.T. Still University research symposiums

Several research symposiums were held at A.T. Still University (ATSU) this year where faculty and students shared their research with the ATSU community through a combination of virtual, in-person, or hybrid events. 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 on the Kirksville campus. The A.T. Still Research Institute (ATSRI) hosted its annual symposium in Kirksville. Because this newsletter highlights on-campus research symposiums, only presentations and posters of ATSU researchers are reported below.

ATSU-ASDOH Research Week and Student Research Day

From Feb. 13-17, ATSU-ASDOH held a research week in conjunction with the 16th annual Student Research Day. The purpose of this event is to share original research conducted at ATSU-ASDOH with the ATSU community. Specifically, research projects investigated clinical problems of importance to dentistry and described how study findings can be applied to dental practice. The hybrid event began on Feb. 13 with a keynote address, “Periodontal and Systemic Diseases: Making Clinical Sense of the Connections,” by ATSU-ASDOH faculty member Satish S. Kumar, DMD, MDSc, MS. During the rest of the week, 18 second-year, third-year, and fourth-year students; five orthodontics residents; and 19 faculty and staff presented results of their research in virtual oral presentations and during an in-person scientific poster session. Over 200 students and faculty from ATSU attended the presentations.

2023 ATSU-ASDOH Research Day presentations and posters

*indicates presenter

Abrams J*, Kaur H*, Makin IRS, Gettleman B, Jabs H. Effect of apical patency on hypochlorite extrusion in a closed system.

Barakat H*, Levine R, Shlossman M. Hemangioma of the lips treatment.

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Presentations and posters, continued

Betancur L*, El-Gendy T. Consistency of shade detection for color matching using multiple devices.

Fallone K*, Metcalf A, Ilchak D, Sadler J, Zola G. Developing a sex education and healthy relationships program for people with intellectual and developmental disabilities.

Frank E*, Olmos M*, Shlossman M. Effects of adjunctive diode laser treatment on patients undergoing non-surgical periodontal therapy.

Garlick C*, Howell S. Assessment of the Arizona School of Dentistry & Oral Health's Advanced Care Clinic teledentistry program.

Ghadia K*, Patel S. Effectiveness of Botox injections as adjunctive treatment for refractory post-traumatic trigeminal neuropathy.

Gohlwar T*, Howell S, Trombly C, Shlossman M. A periodontal needs assessment of the gingival health status of adolescent juvenile offenders and at-risk youth.

Green VG*, Lovell K*, Spolarich A. Incorporating dental local anesthesia simulator software into the curriculum.

Ha D*, Goldstein LB. The current applications and efficacy of stem cells in dentistry.

Han HJ*, Do M*, Tompkins A, Brungo A, Kim J, Park JH. Assessing the accuracy, reliability, and clinical feasibility of artificial intelligence-assisted remote monitoring of orthodontic root movement.

Hochschuler J*, Howell S, Zhang X. Oral health and orthodontic needs among foster care children and adolescents: an opportunity for policy change.

Krueger K*, Chang KCJ. Xenograft morphology impact on hard and soft tissue growth in site preservation: a case report.

Kumar P*, Howell S. Analyzing the use of teledentistry in Arizona.

Mahrous A*, Elgreatly A*, Schneider G, Qian F, Botsko D. The use of artificial intelligence and game-based learning in removable partial denture design: a comparative study.

Nowamooz N*, Shlossman M, Spolarich A. Dental students' perceptions and preparedness to counsel patients about e-cigarette use and vaping.

Patel S*, Spolarich A*, Perry M*. Compliance with fluoride therapy and caries rate in cancer patients.

Perry M*, Spolarich A. Health care integration: a PA in the dental clinic.

Shahsavari S*, Howell S. Understanding unmet needs of underserved clients at the Phoenix Rescue Mission.

Shlossman M*, Spolarich A, Brady J. Efficacy of ClōSYS[®] sensitive toothpaste and rinse on gingival bleeding.

Song C*, Khotanifar F, Zhang J, Park JH. Effectiveness of clear aligner therapy in treating patients with anterior open bite: a systematic review.

Speer J, Conley Q, Thurber D, Williams B, Wasden M*, Jackson B. A mixed-methods study of the effectiveness and perceptions of a course design institute for health science educators.

Tommarello G*, Beckett M, Leibow W. Where's MB2?

ATSU-MOSDOH D3 Research Day

ATSU-MOSDOH held its fifth annual D3 Research Day as an in-person and virtual event on April 13. Eight presentations were included from the research projects of 62 third-year students and 13 faculty. Over 300 faculty, staff, and students from ATSU-MOSDOH and the ATSU community attended the in-person event. Over 100 attended the event virtually. The [Kubify](https://my.ltb.io/#/showcase/mosdoh) (<https://my.ltb.io/#/showcase/mosdoh>) platform was used to share posters, presentation slides and videos, abstracts, and other support material for the day's event. The student project mentored by Romana Muller, EdD, MSDH, RDH, was selected as the winner of the D3 Research Day. From that research team, Parisa Ebrahimi, D3, was selected to represent ATSU-MOSDOH at the Dentsply Sirona Student Competition for Advancing Dental Research at the International Association for Dental, Oral, and Craniofacial Research meeting in New Orleans, Louisiana, in March 2024.

2023 ATSU-MOSDOH D3 Research Day presentations

*indicates presenter

Ebrahimi P*, Majbuleh P*, Trevino S, Kainth J, Tanovic L, Karas N. Development of educational components for a chairside multilingual oral health literacy assessment tool. Research mentor: Muller R. *First Place Award*

Enriquez Y*, Eastburn C, Bui H, Fratesi R. Missouri School of Dentistry & Oral Health (MOSDOH) Veterans program assessment. Research mentor: Greaves D.

Haste W*, Leung J, Ruddell K, Patel P, McQuay L, Jones H, Olson T. Presence of xerostomia and management protocols amongst MOSDOH patients: cross sectional study. Research mentors: Zarrough A, Vij A.

Mills D*, Ranpura R, Patel N. Factors affecting nutrition choices in dental students. Research mentor: Jain P. *Third Place Award*

Patel R*, Salinas A, Haadsma J, Newman J, Merritt R. Emotional health of dental and medical students at A.T. Still University. Research mentor: Abels M.

Pearson T*, Rueb E*, Seo JH, Silvers N, Nguyen J. Non-surgical periodontal therapy and its effects on HbA1C in type II diabetic patients. Research mentor: Marquez C.

Spier T*, Hoerning P*, Palmer J*, Irwin H*, Eckland C*. Oral manifestations among patients self-disclosing cannabis use at the St. Louis Dental Center. Additional student researchers: Abdulwahab R, Adams T, Burpo J, Cecil T, Fauble K, Faulkner R, Francies J, French K, Gallup M, Jamshidi B, Khan F, Nizamuddin N, Patel N, Ross MG, Sajid S, Sigler G, Stidham T, Tadros S, Vu B, Wadhwa T, Willman T. Research mentors: Greaves M, Haribabu P, Vargo RJ, Dunivan D, Greaves M.

Stark C*, Emara S. Digital assessment of biological width and exploration of influencing factors. Research mentor: Abdulkarim HH. *Second Place Award*

ATSU-ASHS Occupational Therapy Evidence-based Practice Research Day

The Occupational Therapy department held an evidence-based practice research poster day on May 24. Posters were a culmination of a two-semester research project for second-year master's level students. For the project, students created an answerable evidence-based practice research question, searched through relevant literature, and found the best applicable evidence to appropriately answer their question. Brandi Fulwider, PhD, OTR/L, was the faculty advisor for all projects. Eight posters were presented by 29 second-year occupational therapy students. The event was attended by about 60 students, faculty, and staff from the Occupational Therapy department and the ATSU community.

2023 ATSU-ASHS Occupational Therapy Evidence-based Practice Research Day posters

Baker B, Charski C, Carlon C. How can occupational therapists intervene with women who have experienced domestic violence?

Black D, Diaz D, Eustaquio J. Which interventions are most effective for addressing dysfunction of the upper extremity in adults with cervicobrachial disorders?

Bowen D, Guerrero M, Mardini K, McCreary A, Stoddard F. Occupational therapy's role with LGBTQ+ mental health.

Colyar T, Nicoll C, Smith E. Virtual reality to improve occupational performance among adolescents with neurocognitive disorders.

Footo B, Berg N, Matherly J, Meyer C, Periman A. How can occupational therapists intervene in clients with fibromyalgia syndrome (FMS) to reduce pain and increase quality of life?

Johnson B, Nicoll J, Poulter P. Interventions for improving hand function in children with cerebral palsy.

Johnson M, Lemere A, Miller M, Nunez-Arellano R. How can occupational therapy intervene with student athletes to improve mental health?

Kilman J, Kornick E, Thiel K. How can movement therapy improve quality of life in adult patients with cancer?

ATSU-ASHS Occupational Therapy Doctoral Student Capstone Presentations

The Occupational Therapy department held its annual Doctoral Student Capstone Poster Presentations on May 31. The doctoral capstone is an integral part of the curriculum and the culminating experience of the program. It allows students to demonstrate synthesis and application of their acquired knowledge and achieve advanced knowledge and skills in specific areas of practice. Throughout the project, individualized mentorship in a specific setting helps students assimilate contextual knowledge and learning into a unique experience that prepares future leaders in the profession. This year, topic areas involved revisioning play, pediatric program development, emerging practice areas of occupational therapy, and pre/postpartum and family programs. Sixteen students presented their posters and oral presentations during the event, and it was attended by approximately 125 participants representing students, faculty, and alumni from ATSU, family members, and community-based clinicians. The clinicians who attended the event received continuing education credits.

2023 ATSU-ASHS Occupational Therapy Doctoral Student Capstone Presentations

Arndt A. Effects of physical activity, play and mindfulness-based interventions on emotional regulation and emotional awareness skills in adults with developmental disabilities at a day-time assistance program. Faculty advisors: Delbridge M, Fulwider B. Community mentor: Watzke A.

Bauer K. Effect of a wilderness rafting trip on disability identity with those who have physical disabilities. Faculty advisors: Glenn A, Story A. Community mentor: LaZear G.

Bellum D. Life skills interventions for formerly incarcerated populations at Maricopa Reentry Center. Faculty advisors: Glenn A, Wolf R. Community mentor: Nash L.

Crawford L. Empowering parents through collaboration. Faculty advisors: Fulwider B, Jones K. Community mentor: Perry S.

DeCastro A. Reducing pain in pregnancy and postpartum: the development of an occupational therapy based program in a doula practice. Faculty advisors: Radziak J, Shearon T. Community mentor: Magnano J.

Duarte Y. Occupational therapy's impact on the professional development of staff working in a community-based non-profit. Faculty advisors: Radziak J, Wolf R. Community mentor: Coronel A.

Presentations, continued

Edelbrock A. Well-played: a group protocol to increase parenting self-efficacy and caregiver-infant bonding. Faculty advisors: Jones K, Wolf R. Community mentor: Gray S.

Guess S. An exploratory survey to assess and combat the burnout levels of UC Davis' therapy staff. Faculty advisor: Shearon T. Community mentor: Jose K.

Hong T. Increasing quality of life and social interactions through adaptive gaming. Faculty advisors: Andrews L, Radziak J. Community mentor: Guffey C.

Hrubes M. Enhancing formal caregiver education to improve health management for patients receiving hospice care. Faculty advisor: Glenn A. Community mentor: Roat K.

Miller L. Improving behavioral health outcomes for pediatric residents in a congregate care setting with an occupational therapy approach. Faculty advisors: Jones K, Radziak J. Community mentor: Strickland M.

Moes S. Effects of an occupation-based social and life skills session on the strength of intimate partner violence victims' generalized self-efficacy beliefs. Faculty advisors: Glenn A, Shearon T. Community mentor: Goodson M.

Morrison J. Providing support and guidance to teachers in Haiti, Kenya, and Jamaica through the use of a pediatric therapeutic resource guide. Faculty advisors: Radziak J, Shearon T. Community mentor: Matous A.

Siksnus A. Identifying the scope of occupational therapy in addressing challenging behaviors in the pediatric setting. Faculty advisors: Glenn A, Jones K. Community mentor: Piller A.

Skafgaard L. Effects of a trauma and sensory-based program for mental health practitioners through an occupational therapy lens. Faculty advisors: Andrews L, Jones K. Community mentor: Strothkamp M.

Yoon H. Evaluating side by side through retrospective review. Faculty advisors: Jones K, Andrews L. Community mentor: Barnes E.

ATSU-ASHS Physical Therapy Student Research Capstone Poster Day

The Physical Therapy department held its annual Student Research Capstone Poster Day as a hybrid event on May 31. Seventeen posters involving 63 students were presented in person during two concurrent sessions and were also streamed virtually for remote viewing. The [Kubify](https://my.ltb.io/#/showcase/atsudpt) (<https://my.ltb.io/#/showcase/atsudpt>) platform was used to archive all presentations. Each research poster is the outcome of a two-year capstone project for doctor of physical therapy students. Projects typically involve multiple students and are mentored by full-time physical therapy faculty. With the support of the Department of Research Support and of Academic Technologies, the poster day was attended by over 100 participants representing students and faculty from ATSU, alumni, community-based clinicians, and families. One presentation received the Outstanding Applied Research Capstone Award and two received an honorable mention. The Physical Therapy department is looking forward to the 2024 Capstone Poster Day on June 5.

2023 ATSU-ASHS Physical Therapy Poster Day presentations

*indicates presenter

Ah Nee T, Cruz R*, Nesbitt A. Prescribing therapeutic exercise for quadriceps muscle performance following ACL reconstruction: seated knee extension, squats, and lunges. Faculty mentor: Manton C.

Bains J, Devine C*, Greer P. The effect of chronic edema on limits of stability in total knee arthroplasty. Faculty mentor: Doublestein D.

Bates K, Koren K*. Patient-perceived provider compassion and quality of life for individuals with chronic pelvic pain. Faculty mentors: Kays P, Roehling T.

Presentations, continued

Blaney M, Garnett A, Martin C, Navarro J, Patel M*. Quantitative measurement of sensation in clinical practice and research: a review. Faculty mentor: Little V.

Boak C, Wujek J*. The effect of breast cancer related lymphedema on grasping reaction time. Faculty mentor: Doublestein D.

Boehm S, Bridges K, Rummage JT*, Nelson T. Observations of social determinants of health by physical therapy students at the point-of-care. Faculty mentor: Picha K. *Honorable Mention*

Branshaw J, Edson S, Johnson A*, Rodriguez A, Schmillen L. Relationship between sensory impairment and gait performance in healthy individuals: a quantitative assessment. Faculty mentor: Little V.

Brinkman S, Dang K, Huisinga C, Patel R*. Healthcare experiences of males and females with pelvic pain described on Reddit: qualitative study. Faculty mentors: Kays P, Roehling T.

Brunner R, Pensivy C, Ramsey B, Sima A, Tatsumi E, Westbrook J, Wiles B, Young K*. Reference values in individuals without disabilities for activity limitation tests used in para-athletics classification. Faculty mentor: Fay D. *Honorable Mention*

Carr T*, Elms N. Effects of a single pain education session on pain self-efficacy and fear of movement with individuals attending recovery meetings. Faculty mentors: Hodges C, McIsaac T. *Outstanding Applied Research Capstone Award*

Christensen L, Crozier M, Johnson E*. Professional behaviors that negatively impact a clinical experience: the DPT student perspective. Faculty mentor: Ellison T.

Davis S, Sharp A*, Walsh C. Student healthcare professionals knowledge of caregiving. Faculty mentors: Bordenave L, Bordenave E.

Dunlavy B, Duronslet B, Greenhalgh M*, Johnston T, Plath D, Watson N. Predicting future leaders in physical therapy. Faculty mentors: Kuettel J, Bordenave L.

Henderson P, Jama A, Majerus J, Robinson C*. The impact of evidence-based practice (EBP) curriculum on implementation of EBP behaviors in clinical practice. Faculty mentor: Bordenave L.

Lunt DJ*, Oakey G, Sinfuego F. The impact of statewide physical therapy supervision regulations on patient board complaints. Faculty mentor: Ellison T.

McCabe A, Mumford B*, Payamipour S, Underwood D. The experience of difficult conversations in physical therapy. Faculty mentors: Bordenave L, Robinson C, Wilkinson T.

Perez J*, Quarrell N. Implementing a diagnostic ultrasound based protocol for the diagnosis of scapular detachment. Faculty mentor: Huxel Bliven KC.

ATSU-ASHS Athletic Training Applied Research Projects

In June and December, the Athletic Training department hosted its annual Applied Research Project (ARP) presentations for its doctor of athletic training students. The goal of the ARP is to advance practical knowledge in athletic training based on applied research and analysis. Students identify a project of interest that is applicable to their work setting and learn the process of identifying a problem, researching solutions, implementing change, and measuring outcomes. Students can engage in original research, case reports, quality improvement initiatives, or special projects. Using the [Kubify](https://my.ltb.io/#/showcase/atsudat) (<https://my.ltb.io/#/showcase/atsudat>) platform, 30 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.

2023 ATSU-ASHS Athletic Training Applied Research Project presentations

- Alvarez J. The benefits of physical literacy used as a health enhancing tool in youth. Faculty advisor: Valovich McLeod TC.
- Amjad M. Collegiate student athletes' experiences with fasting during Ramadan. Faculty advisors: Welch Bacon CE, Harris N.
- Averett RS. Development of a return to learn protocol for the junior college setting. Faculty advisor: Valovich McLeod TC.
- Brady S. Injury histories and injury characteristics of college basketball referees: survey development. Faculty advisor: Lam KC.
- Chapel LL. Prescribed aerobic exercise and sport-related concussion recovery: a validation case series. Faculty advisor: Valovich McLeod TC.
- Clark CL. Improving best practices for athletic training documentation through social media. Faculty advisor: Harris N.
- Daniels E. Advocating for athletic trainers in the Department of Defense Education Activity (DoDEA). Faculty advisor: Anderson BE.
- Davies V. Implementation of an electronic medical record system in the secondary school setting. Faculty advisor: Anderson BE.
- Dubas RL. Athletic training educators' experiences teaching concepts of negotiation in professional programs. Faculty advisor: Welch Bacon CE.
- Fagan A. Athletic trainers' experiences with orthopaedic residency training. Faculty advisor: Welch Bacon CE.
- Fanning CL. The management of knee osteoarthritis in women's collegiate basketball: an exploratory case. Faculty advisor: Lam KC.
- Garcia Gutierrez L. Incorporation of self-efficacy measures in rehabilitation. Faculty advisor: Valovich McLeod TC.
- Hill J. Athletic trainers' knowledge, confidence, and use of strength and conditioning principles. Faculty advisors: Anderson BE, Falsone S.
- Ickes M. Referral system implementation between physical therapy and local YMCA. Faculty advisor: Harris N.
- Kurzec M. Exercises to improve thoracic spine mobility, stability and strength: an evidence to practice review. Faculty advisor: Anderson BE.
- Lester CJ. Employment and clinical practice characteristics of secondary school athletic trainers in the CCS of California. Faculty advisors: Snyder Valier AR, Anderson BE.
- Lukers J. The development of active learning modules to address third party reimbursement. Faculty advisor: Welch Bacon CE.
- Moreno D. A review of patient-reported outcome measures for mental health in adolescent athletes. Faculty advisor: Lam KC.
- Ruiz M. A proposal for a shift from coverage to care at an urban secondary school. Faculty advisor: Harris N.
- Salazar JS. NCAA D1 athletic trainer's perceptions regarding the medical model of care. Faculty advisors: Welch Bacon CE, Anderson BE.
- Saldana E. Enhanced competency based assignments for athletic training clinical education. Faculty advisors: Jones B, Anderson BE.
- Shaffer A. Implementation of a screening and exercise protocol for reducing medial tibial stress syndrome. Faculty advisor: Anderson BE.
- Simok M. Quality improvement initiative implementing tonometric measurements into concussion management. Faculty advisor: Valovich McLeod TC.
- Straley B. Implementation of a burnout screen into a collegiate athletic department. Faculty advisor: Valovich McLeod TC.
- Stuckey DM. Satisfaction with athletic healthcare services survey: a content validation index assessment. Faculty advisor: Snyder Valier AR.

Presentations, continued

Swain AT. Implementation of a return to learn protocol following a concussion. Faculty advisor: Valovich McLeod TC.

Vermette M. Development and implementation of a mental health EAP. Faculty advisor: Valovich McLeod TC.

Walker C. The relationship between patient-reported outcome measures and return-to-play assessments in patients post-anterior cruciate ligament surgical reconstruction. Faculty advisor: Snyder Valier AR.

Williams A. Athletic trainers' perceptions of diversity among leadership in athletic training. Faculty advisors: Welch Bacon CE, Harris N.

Zamora-Williams MA. Quality improvement of wildland firefighter physical training to prevent low back pain. Faculty advisor: Snyder Valier AR.

ATSU-ASDOH Fall Research Day Scientific Poster Session

On Sept. 30, ATSU-ASDOH held an in-person fall Student Research Day. Fourteen posters from student and faculty research were presented during the session. The event was open to the Mesa, Arizona, campus, and over 200 people attended. Christian McSweeney, D3, was selected to represent ATSU-ASDOH at the Dentsply Sirona Student Competition for Advancing Dental Research at the International Association for Dental, Oral, and Craniofacial Research meeting in New Orleans, Louisiana, in March 2024.

2023 ATSU-ASDOH Fall Research Day poster presentations

*indicates presenter

Abrams J, Kaur H*, Veiseh H*, Gettleman B, Makin IRS. Relationship between apical patency and irrigant fluid extrusion.

Alnabulsi A*, Wasden M. Parental acceptance of silver diamine fluoride in pediatric patients.

Andrade J*, Kumar S, Shlossman M, Spolarich A. Using AI to improve dental students' ability to estimate radiographic bone loss.

Betancur L*, El-Gendy T. Consistency of shade detection for color matching using multiple devices.

Cohen JR, Spolarich A, Modiri N*. Effect of LaughMD app use on head and neck shoulder pain.

Groth G*, Spolarich A. Oral health behaviors associated with anxiety conditions.

Ha D*, Spolarich A, Patel S. Post-op complications following hematopoietic stem cell therapy (HSCT).

Lee H*, Spolarich A, Wasden M, Karlin S. Assessing blood pressure and BMI in pediatric dental patients.

Lu L*, Velasquez T, Fallone K, Shlossman M, Spolarich A. Oral health status of athletes at the Special Olympics World Games Berlin 2023.

Mahmoodi D*, Mahrous A, Tsujimoto A, Elgreatly A, El-Gendy T. The effect of shade of zirconia on sintering of zirconia.

McSweeney C*, Makin I, Spolarich A. Nicotine pouch effects on salivary and phosphate buffered saline pH.

Shahparast S*, Mahrous A. Zirconia and lithium-disilicate marginal gap evaluation: an in-vitro study.

Vian N*, Kerr MA. Endodontic testing in patients with Down syndrome: response pattern and efficacy.

Yu M*, Kaufman C*, Velasquez T, Spolarich A. The relationship between food insecurity and oral health in Arizona.

Interdisciplinary Biomedical Research Symposium

On Nov. 11, the 15th annual Interdisciplinary Biomedical Research Symposium was held on the Kirksville, Missouri, campus as an in-person and virtual event. The theme of this year's event, "Reignite the Spark," focused on nurturing the passion for advancing biomedical knowledge and enhancing the well-being of individuals worldwide. The event was hosted by ATSRI, and Dennis Black, MD, scientific director of the Children's Foundation Research Institute and vice president of research at Le Bonheur Children's Hospital, was the keynote speaker. Over 170 people attended the symposium in person or virtually. Students, faculty, alumni, residents, and staff from ATSU, Still OPTI, Northeast Regional Medical Center, Rocky Vista University, Truman State University, and Kirksville High School were involved with 90 oral and poster presentations during the event; about 70 were in person and about 20 were virtual. Eighty-two of the presentations involved researchers from ATSU. Of those, over 50 students and eight faculty and staff from various schools and programs were the primary presenters. The oral presentations and posters from ATSU researchers are reported below.

Fifteenth annual Interdisciplinary Biomedical Research Symposium oral presentations

* indicates presenter

Biju N*, Rinkus M, Jerabek J, DeLuca S*, Bailey M, Fiscus V. Improving rural access to health with community health needs assessments. *Best Oral Presentation*

Cork D*, Mamoag L*, Bradbury M. Modelling early gene expression changes in alcoholic fatty liver disease.

Goldenstein A*, Cleaver D, Cleaver J. A cutaneous presentation of eosinophilic granulomatosis with polyangiitis.

Pedapati C*, Keane J, Durr T, Heath DM, Mast TD, Bay C, Makin IR. Multi-modal assessment of osteopathic manipulative treatment in the arm.

Wasfie T, Lange M*. Emotional intelligence of medical and surgical residents: three year study.

Fifteenth annual Interdisciplinary Biomedical Research Symposium posters

* indicates presenter

Avina J*, Hassan M, Vecchio A, ElKadi F, Akhtar S. LPS causes an increase in proliferation and necroptosis in Caco-2 cells.

Baielli M*, Bloebaum L, Ramaraj P. In-vitro combo treatment of human liver cancer cell (Hep-G2) line.

Banker M*, Hunter B*, Loyet L*, Phillips PL. Growth, survival, and persistence characteristics of *P. gingivalis* W83.

Bashir S*, Yassine N, Hussain D*, Park A*, Holbrook K. Kirksville Family Medicine continuity of care and patient retention.

Beeler T*, Seemann E, Alfarra M, Cosio M, Chan C, Chang Y. Role of nebigolol in bFGF-induced effects on rat aortic smooth muscle cells.

Billizon AR*, Billizon-Johnson AJ, Matthews E*. Prenatal oral health for Black women.

Bloebaum L*, Baielli M, Ramaraj P. In-vitro combo treatments of human liver cancer cell (Hep-G2) line.

Brown A*, Jain P. A survey of dental students regarding factors affecting dietary choices.

Carter W*, Lane J*, Cleaver D. Treatment of cutaneous warts with single therapy versus combination therapy.

Chamberlain NR*. Using spaced retrieval to improve medical students' mean exam grades in infectious diseases.

Chandra S*, Maidana D. Contrasting cellular response in transscleral and transvitreal models of retinal detachment: a comprehensive literature review.

Posters, continued

- Chandra S*, Quraishi F, Keane J, Goldstein LB. Neurological insights and modern interventions in strabismus.
- Chellman CJ*, Hennessy C, Shotwell M, Billings FT IV. Oxygen treatment, oxygen delivery, and organ injury after cardiac surgery.
- Cho GE*, Makda A, Nihan K, Ijaz N, Barjaktarovic N. A rare case of acute recurrent stroke in a young adult: Moyamoya disease.
- Comstock N*, Millhouse R, Thompson M, Doyel S, Kinney K, Abbas M, Lesh E. Improving the quality of diabetes management in a resident clinic setting.
- Cook C*, Heller E, Hamidi R, Oropeza N, Ihling C, Kim-Han JS, Han BH. The effects of amentoflavone on intracellular A β clearance via autophagy.
- Coppa A, Schwartz C*, Cleaver D. What's more of a PEST? Psoriatic arthritis or these questions?
- Davis B*, Cleaver D. Unique visual progression of palliative treatment of scalp SCC. *Max Gutensohn Award*
- Doublestein D*. Development of a core outcome set for breast cancer-related lymphedema: a Delphi study.
- Dwyer Z*, Shields T, Parks J*, Byler B, Houser JJ. Genital involvement in erythema multiforme major: a case report.
- Evans L*, Kim-Han J, Elmslie KS. Verification of delta opioid receptor expression in group IV neurons.
- Farrell JN*, Donjoian I*, Stuart MK. A potential role for *T. tenax* MIF in neutrophil recruitment.
- Geisler S*, Banno F, Sandy R. Myocarditis presenting as NSTEMI: a case report.
- Gibson E*, Will M*, Garcia CJ, Johnson R, Kirsch J, Spencer D, Wang YF, Rehman Y, Snider K. OMT in headache management: systematic review and meta analysis protocol.
- Graber A*, Hofmann G, Kline D, Hasser E, Ostrowski D. Vagotomy alters NMDA-type glutamate receptor expression in the nTS.
- Groth G*, Spolarich A. Oral health behaviors associated with anxiety conditions.
- Gutierrez JS, Han BH, Theobald RJ Jr*. Memantine dose-response relationship to cognition.
- Harris S*, Watt R. Inhibitors of matrix metalloproteinases and their effects on liver fibrosis.
- Heller E*, Han H. The role of NADPH oxidases in endothelial dysfunction associated with Alzheimer's disease.
- Hillis E*, Danielsen R. Public health determinants contributing to diabetes rates and access to treatments.
- Huhn M*, Starks Z, Degenhardt B, Bay C. The just noticeable difference of tissue stiffness: a pilot study.
- Isemann H*, Harris S*, Starks Z, Wang YF, Degenhardt B. Improvement made with practice from the dominant eye side of the examination table.
- Jacobs J*, Cox J. Overcoming drug-resistant melanoma: exploring B16F10 necroptosis induction.
- Johnson B*, Headlee J, Lams A, Bosley L, Pulsifer N, Houser JJ. Colorectal polyps: where are they hiding?
- Khmoro C*, Puzey T, Ahmad Z. Effect of date phenolics on *Escherichia coli* ATP synthase.
- Klinner A*, Middlemas D. Dissociative effects of ketamine in juvenile rats: dose impact and duration.
- Koenig E*, Silliman E*, Hu J. Fatal outcome of pediatric immune thrombocytopenia: an autopsy case report. *First Place Overall Student Competition*
- Koogler A*, Mosher A*, Ostrowski T, Ostrowski D. Increased oxidative stress in streptozotocin-induced Alzheimer's disease model.

Posters, continued

- Liang V*, Renshaw C*, Degenhardt B, Starks Z, Wang MYF. Analysis of symmetrical force generation and implications of training.
- Lodato P*, Wang YF. Supplementary teaching aids improve medical students' outcomes.
- Manikandan V*, Miller C, Sharma S, Batinic I, Miriyala S. Effects of SOD2 mimetic (BMX-001) on myocardial ischemia reperfusion injury.
- Millhouse R*, Brendle N, Canuteson N, Patel S, Lowes S, Chambers L, Clark L, Jacobs J, Khan S, Glykos S, Vance J, Duskey N, Barthman B, Lantz M, Wright D. Identification and management of sepsis in the emergency department.
- Nelson H, Moberley L*, Hyde E, Reed M, Cox J, Baer R. CD271 expression and LM-Mel-71 viability during chemotherapeutic MAPK inhibition.
- Newell S*, Houser J, Brechue WF, Jorn L, Arabas J, Mayhew JL. Comparison of muscle, fat, and bone masses between backs and linemen in NCAA Division-II college football players.
- Nguyen N*, Bhatta S. Abnormal fetal heart rate that led to diagnosis of tuberous sclerosis: a case report.
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