

ATSU RESEARCH

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



*“The most powerful force ever known on this planet is human cooperation.”
~Jonathan Haidt*

2020 A.T. Still University research symposiums

Several research symposiums were held at A.T. Still University (ATSU) this year. Despite the logistical challenges of the COVID-19 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 one department from the Arizona School of Health Sciences (ATSU-ASHS) hosted symposiums. 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. 10 through Feb. 14, ATSU-ASDOH held a research week in conjunction with its annual Student Research Day. For Research Week activities, lunchtime presentations were given by ATSU faculty. On Feb. 10, Ann Spolarich, PhD, RDH, presented, “Tips and Tools to Translate Your Idea into a Successful Research Project.” On Feb. 11, Curt Bay, PhD, and Brigit Ciccarello, MA, presented, “A Guide to Interacting with the IRB: You Won’t Even Feel a Pinch.” On Feb. 12, Brian Degenhardt, DO, Dr. Spolarich, Joan Davis, PhD, RDH, and Joy Lewis, DO, PhD, FACP, presented, “Meet and Greet with the ATSU Still Research Institute.” On Feb. 13, Dr. Davis presented, “Oral Health and Cannabis.”

Thirteen third-year and fourth-year students presented results of their research at the 13th annual ATSU-ASDOH Student Research Day on Feb. 14. Seven oral presentations and five posters were presented on the day. Over 150 students and faculty from ATSU attended the presentations. Katelyn Kleutsch, D3, was selected as the winner of the Dentsply Sirona Student Clinician Researcher Award. Jessica Suhardjo, D3, was selected as the winner of the American Association for Dental Research (AADR) Student Award. The 2019-2020 ATSU-ASDOH Alumni Board Student Research Travel Awards were presented to Chloe Tsang, D4, and Quyen Bach, D4.

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2020 ATSU-ASDOH Research Day student oral presentations

*indicates presenter

Chandok N*, Leibow WB, Erickson T. Location of the MB2 canal in relation to MB1 in maxillary first molars using CBCT imaging.

Kleutsch K*, Abdelrahim A, Shimpi N. Feasibility assessment of a teledentistry approach to address non-traumatic dental condition (NTDC) visits in emergency departments (EDs).

Nguyen C*, Spolarich A, Nenad M. Investigation of stress provoking factors in undergraduate dental education.

Suhardjo J*, Makin I, Akintorin Y, Cohen J. Deployment of high-resolution ultrasound for oral musculoskeletal structures.

Tsang C*, Spolarich A. Redundant prescriptions and drug misuse among older adults.

Williams A*, Spolarich A. Direct to consumer orthodontics.

Yineman S*, Chokdee D, Choi L, Perry M, Duong ML. Dental student behavioral intent following exposure to special care dentistry.

2020 ATSU-ASDOH Research Day poster presentations

*indicates presenter

Dawisha D*, Spolarich A, Kahn M, Shlossman M, Kaleinikova Z. Efficacy of GLO Science professional whitening product offerings in adults.

Heal M*, Spolarich A. Stimulant medication-induced hyposalivation in adolescents.

Hezarkhani A*, Shlossman M, Spolarich A. Dental students' perceived knowledge pertaining to e-cigarette oral health effects.

Sapwell J*, Shlossman M, Howell S, Trombly C. Periodontal health of juvenile offenders.

Wood J*, Wennerholm C*, Creech J. Ten minutes saves a life.

ATSRI Center for Oral Health Research Scientific Symposium

On Feb. 15, ATSRI's Center for Oral Health Research and the Arizona chapter of AADR co-hosted the fourth annual scientific symposium of the AZ AADR. The symposium was designed to bring together the oral healthcare, academic, clinical, and research communities of Arizona to share new knowledge obtained through original research, translate current findings from research to support best practices, increase and diversify the number of individuals engaged in oral health research, and cultivate collaborative partnerships to improve the oral health of the community. The morning program included a keynote address, "Advances in Precision Medicine," by Maria E. Ryan, DDS, PhD, immediate past president of the AADR and chief scientific officer of the Colgate-Palmolive Company, and a distinguished lecture, "Understanding and Managing Periodontal Disease: An Impressive Century of Progress," by Ray C. Williams, DMD, past president of the American Academy of Periodontology and adjunct professor of periodontology at the University of North Carolina-Chapel Hill. The afternoon program included an oral medicine lecture, "HPV-Associated Cancers: The Dentist's Role in Vaccination," by Alexis Koskan, PhD, assistant professor of public health at Arizona State University, and Seena Patel, DMD, MPH, associate director of oral medicine at ATSU-ASDOH, and a scientific poster session. Approximately 70 faculty, students, and clinicians attended the symposium, including participants from three dental schools. Nineteen posters were presented. Four student posters and five faculty posters were presented by ATSU-ASDOH attendees. One faculty member from ATSU-MOSDOH and one from Kirksville College of Osteopathic Medicine (ATSU-KCOM) served as judges for the student poster competition.

ATSRI Center for Oral Health Research Scientific Symposium posters

Ghattan S, Tran H, Perry M, Duong ML. Train the trainer model: oral care for special education teachers.

Gohlke E, Fallone K, Spolarich A. Training dental hygiene students to treat individuals with special needs.

Howell S, Burkholder W, Huges L, Cottam W. Teledentistry and interprofessional care: oral health within a medical clinic.

Kleutsch K, Abdelrahim A, Shimpi N. Feasibility assessment of a teledentistry approach to address non-traumatic dental condition (NTDC) visits in emergency departments (ED). *Third place*

Nenad MW, Harper H. Assessing dental hygiene applicant "soft skills" through a multiple mini-interview (MMI).

Perry M, Yineman S, Chokdee D, Choi L, Duong ML. Dental student behavioral intent following exposure to special care dentistry.

Shlossman M, Levine R, Bay C, Gillece J, Engelthaler D, Makin IRS. Non-surgical treatment of chronic periodontitis with 980nm diode laser: clinical and microbiomic results.

Suhardjo J, Makin I, Akintorin Y, Cohen J. Deployment of high-resolution ultrasound for oral musculoskeletal structures.

Tsang C, Spolarich A. Redundant prescriptions and drug misuse among older adults.

2020 ATSU-MOSDOH D3 Research Day

ATSU-MOSDOH held its D3 Research Day as a Zoom event on April 7. At ATSU-MOSDOH, full-time clinical faculty at the St. Louis Dental Center collaborate with a team of two or three 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. Seventeen presentations were included from the work of 42 students and 19 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. By using this platform, the poster links are archived and accessible for a year. The project from the research team mentored by Richard Vargo, DMD, was selected as the winner of the ATSU-MOSDOH Research Day. Sarah Cork, D3, was selected as the winner of the Student Competition for Advancing Dental Research and its Application.

2020 ATSU-MOSDOH D3 Research Day presentations and posters

*indicates presenter

Akmakjian J, Macedo L, Haggard I*. Assessing comfort of patients with special needs in preparation for effective oral care. Faculty mentors: Lymberopoulos G, Shanker K, Schmidt R.

Ashenbrenner J*, Little T. Use of digital technology in enhancing comprehension and application of clinical dental occlusion concepts in undergraduate dental school. Faculty mentor: Kosel E.

Cork S, Vercruyse S*. Emotional health of MOSDOH students. Faculty mentor: Abels M. *Third place*

Fehrman K, Kirkpatrick B*, Frenz A. Evaluation of the relationship between type II diabetes mellitus and dental caries in adults. Faculty mentor: Jain P. *Second place*

Friess L, Madison M, Higginbotham R, Wood E*. The effects of social determinants of health on caries status of pediatric dental patients at the St. Louis Dental Center. Faculty mentor: Reddy A.

Gerling A, Mauban L*. Determining potential barriers to recommended oral hygiene treatment following a comprehensive examination at an FQHC. Faculty mentor: Marden M.

Guito N*, Crutcher J. Evaluating the accuracy of intraoral scanners. Faculty mentor: Vij A.

Kajer M, Mohanial B*. Creating a prototype typodont of real-world patient scenarios to aid in dental school education/training. Faculty mentor: Krueger G.

Maurath B, Strupp C*. Assessing the possible correlation between tactile sensation and CBCT evaluation of bone density in the presence and absence of bone grafting for edentulous dental implant sites. Faculty mentor: Abdulkarim H.

Myers S*, Strong D, Neeley S. Delivery of dental care and perceived quality of life in older adults. Faculty mentor: Inks P.

Otto A*, Gaignat C, Howard K. Prevalence of carotid artery calcifications on digital panoramic radiographs of military veteran patients treated in a dental school clinic. Faculty mentor: Vargo R. *First place*

Presentations and posters, continued

Patel K, Stotts A*. A retrospective study looking at the correlation between type of dental insurance and timeline of definitive restoration completion following endodontic treatment. Faculty mentor: Adams S.

Ramos Claros D, Stufflebean L*, Asaad P. A review of dental services and demographics of H&N cancer patients referred for dental treatment. Faculty mentor: Greaves M.

Rosemann C*, Freise C, Meng T. Oral hygiene alteration protocols. Faculty mentor: Dunivan D.

Sayage S, Vuong P*. Periodontal considerations in selection of partial denture materials and designs in a dental school setting. Faculty mentors: Muller R, Aubry P.

Singh I, Freihofer M*. Determining factors in accessing care for emergent dental treatment. Faculty mentor: Crivello B.

Williamson D*, Hull B. Misdiagnosis of jaw pain. Faculty mentor: Haribabu P.

ATSU-ASHS Physical Therapy Student Research Capstone Poster Day

This year, the Physical Therapy department held its annual Student Research Capstone Poster Day virtually on June 3 using the [Kubify ePoster](https://atsu.edu/dpt-posters) (atsu.edu/dpt-posters) platform. Twenty-one posters involving 61 students were presented. By using the virtual format, the event was accessible to a larger audience, and the ePosters are available to view for a year. The ePoster platform allows others to communicate with the authors about their projects and includes a video recording of the presentation. 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. Three presentations tied for the Outstanding Research Capstone Award.

2020 Physical Therapy Poster Day presentations and posters

*indicates presenter

Caudill K*, Garcia J. Manual therapy interventions for hip conditions: a systematic review. Faculty mentor: Young J.

Ellis K*. Grip, balance, and walking speed fail to provide validity for predicting falls in older adults. Faculty mentor: Roush J. *Honorable mention*

Gable E*, Chagnon B, Kennedy J. Spatial and temporal parameter performance measures in para athletes classified as T33 or T34. Faculty mentor: Fay D.

Hamann B*, Carpenter M. Efficacy of hippotherapy as a treatment approach to improve axial rigidity and functional mobility in an individual with Parkinson's disease: a case study. Faculty mentor: McIsaac TL.

Haun A*, Horton K, Marcolina S, Rodenbostel D. Spatial and temporal parameter performance measures in para athletes classified as T37 or T38. Faculty mentor: Fay D. *Outstanding Research Capstone Award*

Presentations and posters, continued

Hughes B*, Huynh D, Honn H, Gomez S. A protocol for dynamic body-weight support gait training to improve walking parameters after chronic stroke: preliminary findings. Faculty mentor: Sartor-Glittenberg C.

Hunt J*, Bodine L, McCombs B. For those with Parkinson's disease, does the number of turns matter during the six-minute walk test? Faculty mentors: Kuettel J, McIsaac TL.

John L*, Hasquet A, Nguyen S. Validation of a novel floor transfer test for people with Parkinson's disease. Faculty mentor: McIsaac TL.

Johnston N*, Becenti K, Eppley S. PT students' perceptions of older adults before, during, and following a ten week geriatrics course. Faculty mentor: Kuettel J.

Kindle K*, Brauning J. A time series survey (2007, 2013, and 2019) of physical therapist assessment of SIJD in the US. Faculty mentors: Hodges C, Maxwell B.

Peterson J*, Davis M, Repko K, Whitehead M. Factors associated with upper extremity recovery in chronic stroke survivors. Faculty mentor: Lynskey J.

Porterfield A*, Freeman K, Winter C. Feasibility and effects of whole-body drumming to music in people with Parkinson's disease: a case series. Faculty mentor: McIsaac TL. *Outstanding Research Capstone Award*

Romanowski A*, Antonio C, Berumen B, Parkinson Z. Analysis of authorship in the *Physical Therapy* journal 2015 and 2016. Faculty mentors: Bordenave L, McIsaac TL. *Outstanding Research Capstone Award*

Schermerhorn N*, Lee J, Reynolds T. A qualitative study: parents perspective on inclusion of adolescents with a physical disability in school-based sports. Faculty mentor: Fay D.

Schuchardt K*, Ahearn S, Chandler J, Dotas Z. Quantitative EEG analysis in post-concussive graduate health science students. Faculty mentor: Lynskey J.

Simeon A*, Miskin T. Analysis of authorship in the *Journal of Geriatric Physical Therapy*: a preliminary report. Faculty mentor: Bordenave L.

Steinken K*, Dassinger J. Manual therapy interventions for the elbow, wrist and hand: a systematic review. Faculty mentor: Young J.

Sullivan K*, Eldridge D, Nicoll R. Self-reported driving habits and measures of cognition, attention and dual task mobility in PD. Faculty mentors: McIsaac TL, Gupta J, McFadden E.

Townsend E*, Ranaraja A, Santiago S. Benefits of PRE and modified yoga for an individual with multiple sclerosis. Faculty mentor: Sartor-Glittenberg C.

Traver M*, Astgen M, Schwab J, Silver D. Student leadership development: exploration of student's perception. Faculty mentor: Bordenave L.

Wray D*, Stowe R. Manual therapy interventions for foot/ankle conditions: a systematic review. Faculty mentor: Young J.

Twelfth annual Interdisciplinary Biomedical Research Symposium

On Nov. 7, the 12th annual Interdisciplinary Biomedical Research Symposium was held virtually on the Kirksville, Missouri, campus. Hosted by ATSRI, this year's theme was "Science, Society, and Advancing Health." The morning program included a keynote address, "Scientific Research Benefits Us All, So Why the Skeptics?" by Donald Altman, DDS, DHSc, EdD, MPH, MBA, MA, '12, dean of ATSU's College of Graduate Health Studies. The afternoon program included a keynote address, "Black Man in a White Coat: A Doctor's Reflections on Race and Medicine," by Damon Tweedy, MD, associate professor of psychiatry at Duke University School of Medicine. Over 250 people registered for the symposium, and almost 150 participants were online for various parts of the program. Students, faculty, and staff from ATSU, Northeast Regional Medical Center, and Truman State University presented 81 posters during the event. Sixty-five posters were presented by attendees from ATSU: 31 students from various schools and programs, 20 residents, and 14 faculty and staff. Three attendees gave two presentations.

Twelfth annual Interdisciplinary Biomedical Research Symposium poster presentations

* indicates presenter

Abrams A*, Starks Z, McCluskey I, Degenhardt B. Objectifying changes of the human trunk after OMT.

Ahmad S*, Raheem S*, Ahmad Z. Importance of α VISITDG sequence in ATP synthase.

Alvarez-Corona A*, Appikatla S, Anderson E, Ellsworth M, Lewis JH. The impact of provider stress on retention.

Anderson M*, Naik R, Garman A, Han BH. Role of NR4A1 in brain injury following HI in mice.

Appikatla S*, Whisenant E, Roy D, Ellsworth M, Lewis JH. Using pediatric visits to improve access to care.

Arabas A*, Titus W*, Arabas J, Mayhew J, Brechue W. Effect of resistance training on upper body.

Ball K*, Kraft D*, Snider K. Effects of osteopathic manipulation and other manual therapies on cystic fibrosis.

Barnhart M*, Valovich McLeod T, Bay C. Delayed reporting and concussion recovery.

Bingham J*, Senger B, Degenhardt B, Bhatia S. Student determined pelvic dysfunction prevalence.

Bradbury M*. Protein interactions in fatty acid uptake.

Chandok N*, Leibow W, Erickson T. CBCT imaging to locate MB2 in maxillary 1st molars.

Clark LM*, Jagodzinski JJ, Brechue WF, Sexton WL. Nitrate ingestion does not reduce muscle fatigue.

Cramberg M*, Greer S, Young BA. Experimental morphology of the alligator diaphragm.

Dennison A*, Lacy Pike A, Welch Bacon C. Grit in professional athletic training students.

Ebrahim E*, Appikatla S, Whisenant E, Roy D, Ellsworth M, Lewis JH. Opioid prescribing and monitoring practices.

Poster presentations, continued

Fernandez S*, Ostrowski TD. Pilot data on brainstem responses in Alzheimer's disease.

Fong M*, Wilkes D, Cleaver L. Regression of Merkel cell carcinoma after biopsy.

Foster J*, Degenhardt BF, Johnson JC. Stress severity in first year medical students.

Frantzis A*. Ozonized oxygen: an adjuvant therapy for COVID-19.

Frommer B*, Cox J. Role of MTA3 expression on B16 mouse melanoma.

Garrison D*, Johnson JC, Degenhardt BF. OMT comparison of tension headaches vs migraines.

Greer S*, Cramberg M, Young BA. A tale of the alligator tail.

Grewal H*, Nasre K. Atlas burst fracture and fusion: a case report.

Grewal H*, Roy D. Physiotherapy and Ehlers Danlos syndrome: a review.

Grindstaff AS*, Baer RW. CCR5 activation and melanoma progression.

Hall A*, Ring R, Hatch J, Degenhardt B. Examination of sacral motion using ultrasound.

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

Hilton B*, Demaree E, Cleaver L, Cleaver D. Metastatic breast cancer in a zosteriform pattern.

Huffman J*. Literature review on OMM and post-operative ileus.

Hughes T*, Azim S, Ahmad Z. *Escherichia coli* ATP synthase inhibition by DGPs. *Neil Sargentini Memorial Award for Best Graduate Research*

Jepson S*, LaBaere RJ, Snider K. Increasing GME programs' scholarship with webinars.

Johnson S*, Brechue W, Russell A, Kondrashov P. CPII, C2C biomarkers favor cartilage degradation. *Best Graduate Research Presentation in Clinical and/or Educational Research*

Jones J*, Cleaver D, Cleaver J, Cleaver N, Cleaver L. Cryosurgery as a novel treatment for Sweet's syndrome: a case report.

Jones K*, Howell M. Adenoma detection rate at NMRC.

Kahlon J*, Perez K, Bruno M, Chen J, Garcia R, Imbrogno K, Kono K, Krakora M, Mun R, Lam K, Adams C, Whelihan K, Lewis JH. Mini docs: empowering Waianae Coast adolescents.

Kim-Han J*, Elmslie KS. Modulators of Cav1 channel activity in Conus venom.

Lakhani M*, Hughes T, Azim S, Ahmad Z. Pomegranate phenolics as inhibitors of ATPase.

Lesh M*, Danks R, Caine J, McIntire P. Cholecystectomy for biliary hyperkinesia. *Best Overall Research*

Poster presentations, continued

Lodato P*, Ortega F, Castillo H, Sundararajan A, Ramaraj T, Schilkey F. Transcriptome analysis of pathogenic *E. coli*.

McCluskey I*, Abrams A, Starks Z, Degenhardt B. Consistency in recreating a virtual 3D human trunk. *Best Undergraduate Research*

McCluskey I*, Brennan A, Deprospero D, Jorn L, Mayhew JL, Brechue WF. Comparisons of skinfold prediction equations.

Memar S*, Gunn B, Markand S, Abeyrathna P. Genome hypomethylation in IPAH plexiform lesions.

Moody J*, Yanga C, Sedinkina J, Chang Y. Inflammation and lipid homeostasis.

Mudd J*, Oligschlaeger A, Arabas JL, Mayhew JL, Brechue WF. Comparison of muscular endurance between sexes.

Nenad MW*. Letter grades vs pass/fail evaluation.

Nesvik J*, Cleaver D, Cleaver J, Marshall L, Cleaver L. Apremilast in granuloma annulare: a case series. *Best Resident Research*

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

Oligschlaeger A*, Hunter M, Arabas JL, Mayhew JL, Brechue WF. Comparisons of lean mass proportionalities.

Olsen C*. Brushing shoulders with glioblastoma.

Oney K*, Oney E*, Lesh M, Danks R. Ectopic colonic varices in chronic alcoholic.

Plachno C*. Effects of OMT in pregnancy: a literature review.

Quebodeaux Q*, Schneider R, Orskog M, Aspelund M, Buchan J, Holbrook K, Wright D. Atrial fibrillation: optimization in the clinic.

Ramaraj P*. Effects of vitamins D3 and A on BLM cell growth.

Roberts EM, Needham N*, Cooper JJ, Easterwood JD. Comparison of opioid use in post-partum patients receiving transversus abdominis plane blocks.

Scott K*. Physician-in-training burnout and patient care.

Senger B*, Bingham J, Degenhardt B, Bhatia S. Assessing documentation of spinal dysfunctions.

Senger B*, Memar S, Pazdernik V, Goldenstein A, Grogg S, Grogg B. Survey analysis of vaccine rates in Masbate, PH.

Shah K*, Giessinger J, Habib E, Brockman M, Pham N, Vo M, Chaudhry H, Tran B, Nguyen K, Reid C, Raab S, Bansal S, Whelihan K, Lewis J. Fit kids: improving exercise participation.

Poster presentations, continued

Steffen J*, Kliethermes S*, Arabas JL, Mayhew JL, Brechue WF. Comparison of free weights and machine weights.

Steiner A*, Ahmad Z. β Leu and β Ser in the β DELSEED-loop of ATP synthase.

Stout L*, Pedulla M. 16S vs shotgun DNA sequencing for bacterial phyla.

Stuart M*. A do-it-at-home immunology laboratory exercise.

Sukhanova K*, Kim-Han J, Elmslie KS. Nav channel subtypes in muscle afferent neurons.

Trivedi M*, Fanega IL, Castellanos C, Han BH, Ostrowski TD. Amyloid beta and breathing in Alzheimer's disease.

Troxell T*, Goldenstein A, Cleaver D. Levamisole-adulterated cocaine vasculopathy.

Visconti R*, Kittle N. Low-barrier MAT in primary care: a one year review. *Best Graduate Research Presentation in Clinical and/or Educational Research*

Wang Y*, Kirsch J, Starks Z, Degenhardt B. Tracking postural change after heel lift and OMT.

Whisenant E*, Appikatla S, Roy D, Ellsworth M, Lewis JH. Utilizing a team-based approach for improving colorectal cancer screening in vulnerable populations. *Best Faculty Research*

Yineman S*, Chokdee D, Choi L, Perry M, Duong ML. Dental student behavioral intent following exposure to both a didactic and clinical curriculum.

Zahriya Y*, Chang Y. Role of β 3-ARs in endothelial cell function.

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