

ATSU RESEARCH

A newsletter produced by Research Support

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



“Cooperation is the thorough conviction that nobody can get there unless everybody gets there.” ~Virginia Burden

2018 A.T. Still University research symposiums

Several research symposiums were held at A.T. Still University (ATSU) this year. On the 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. On the Missouri campus, the A.T. Still Research Institute (ATSRI), in conjunction with Still OPTI, hosted its annual symposium.

ATSU-ASDOH Research Week and Student Research Day

From Feb. 5 through Feb. 9, ATSU-ASDOH held a research week in conjunction with its annual Student Research Day. For Research Week activities, three lunchtime presentations were given by ATSU-ASDOH, School of Osteopathic Medicine in Arizona (ATSU-SOMA), and ATSRI faculty and one by a dental professional from Colgate Palmolive Company. On Feb. 5, ATSU-ASDOH and ATSU-SOMA faculty presented “Research Speed Dating.” On Feb. 6, Mai-Ly Duong, DMD, MPH, MAEd, presented “Animal-Assisted Pet Therapy: Attitudes and Perceptions about Digital Dentistry for the Underserved.” On Feb. 7, Michael Menke, PhD, presented “More Accurate Oral Cancer Screening with Fewer Salivary Biomarkers.”

Seventeen third-year and fourth-year students presented results of their research at the 11th annual ATSU-ASDOH Student Research Day on Feb. 9. Over 150 students and faculty from ATSU attended the presentations. Andrew Dugum, D4, was selected as the winner of the ATSU-ASDOH Student Research Day and will represent ATSU-ASDOH at the upcoming Dentsply Sirona Student Clinician Research Competition at the International Association for Dental Research (IADR) meeting in June 2019. Jacob Zellner, D4, won the IADR student research award, which consists of a \$500 cash award to present his research at the IADR meeting in June 2019.

2018 ATSU-ASDOH Research Day student oral presentations

*indicates presenter

Choi L*, Chokdee D*, Perry M. Measuring the effects of didactic and clinical environments on behavioral intent among dental students in special care dentistry.

Presentations, continued

Chokdee D*, Feng J, Chai Y. Investigating the molecular mechanisms underlying craniofacial development: mesenchymal stem cells in tooth roots.

Dugum A*, Patel S, Perry M, Spolarich A. Impact of compliance with fluoride therapy on caries incidence after cancer therapy.

Hasasneh A*, Tasooji N*, Spolarich A, Makin I. Nasal MRSA colonization in dental students.

Kristensen V*, Duong ML, Perry M, Spolarich A. Evaluating the effectiveness of animal-assisted therapy in a dental setting.

Miller A*, Mohammadi M*, Motahari M, Howell S, Cottam W, Woldt J, Spolarich A. A survey of healthcare student attitudes towards interprofessional education.

Ollar P*, Spolarich A. Orthodontists' interests and behaviors with treating patients with ID/DD.

Ray C*, Creech J, Spolarich A. Influence of parental anxiety of expectations of child self-reported dental anxiety, expectations and dental services utilization.

Shackelford AJ*, Oh H, Ma SC, Kim DY. β -Hydroxybutyrate protects against oxidative insult and inflammation via Sirtuin1.

Shin L*, Levy A, Halket C, Ortman L, Moore B, Mitchell J, Spolarich A. PIPS vs. standard treatment for endodontic bacterial decontamination.

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

Velasquez T*, Perry M, Spolarich A. Recall of oral hygiene education among patients with special needs and their caregivers.

Zellner J*, Spolarich A, Prendergast V, Moran A. Oral hygiene status and risk for ventriculitis.

ATSU-ASHS Physical Therapy Poster Day

This year, the Physical Therapy department held a student poster day on May 30. Twenty-five posters were presented, involving 58 students. 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 students and faculty from ATSU, alumni, and community-based clinicians.

This year's poster day also included recognition of the Outstanding Capstone Project award for 2017. Students Mallory Freeman and Jennifer Chalanycz received this award for their poster titled "The Lived Experience of Athletes with a Physical Disability Participating on School-Based Sports Teams," which was presented during last year's poster days.

2018 Physical Therapy Poster Day posters

*indicates poster competition winners

Badr M. A brief intervention model of physical therapy within the community health center. Faculty mentors: Sartor-Glittenberg C, Hodges C.

Posters, continued

Banatao M, Infiesto B, Urseth R, Weisnicht W. The effect of instruction and context on multi-limb dual task control in Parkinson disease. Faculty mentor: McIsaac T.

*Bouressa B, Russo J. Configurations of the six-minute walk test for people with Parkinson's disease. Faculty mentors: Kuettel J, McIsaac T. *Outstanding Capstone Project Award*

Burrup J, Hamblin SK. CSM: the student experience. Faculty mentors: Bordenave L, Wilkinson T.

Butler B, Colangelo S, Perry S, Vermillion M. The effect of a specific Pilates exercise on hip mobility. Faculty mentors: Manton C, Klawonn A.

Carey C, Jones G. The impact of a 5 week seminar on the biopsychosocial model of self care on perceived levels of anxiety, self compassion, mindfulness, depression, and perceived stress in graduate healthcare students. Faculty mentors: Kernan D, Klawonn A, Lynskey J.

Cortina J, Kahler M, Shah M, Tomaszewski B. A submaximal step test to predict peak aerobic capacity in healthy children ages 7-12 years old. Faculty mentor: Imundi J.

DeRamos A, Holland J. The effect of Matter of Balance classes on dual-task abilities during the Timed Up and Go in community-dwelling elders. Faculty mentor: McIsaac T.

*Edwards C, Kane A, Leach J, Szczublewski S. Feasibility and benefits of an adapted program for individuals with Parkinson's disease. Faculty mentors: Klawonn A, McIsaac T. *Honorable Mention*

Fairbain J. Incidence of shoulder injury in elite wheelchair athletes differ between sports: a critically appraised topic. Faculty mentor: Huxel Bliven K.

Ganje D, Sayania S, Whitson C. The impact of educational intervention when combined with aerobic, non-aerobic, and resistive training on individuals with type II diabetes. Faculty mentor: Imundi J.

Gran J, Fann K, Southorn A, Tran M. Function Movement Screen results in female high school volleyball players. Faculty mentors: Kernan D, Manton C.

Gruca J, Iloka U. Analysis of authorship in the *Physical Therapy* journal: a preliminary report. Faculty mentors: Bordenave L, Lynskey J, McIsaac T, Fay D.

Harper J, Pickering C, Sitterud B. The association of the six minute walk test and VO2 in individuals with Parkinson's disease. Faculty mentors: Farris J, McIsaac T.

Harris K, Shoemaker M. Are demographic factors associated with responsiveness to therapy in subacute and chronic stroke survivors in a community based outpatient rehabilitation clinic? Faculty mentor: Lynskey J.

Hoover L, Moeller D. Reliability of Smart BCI QEEG in four conditions in healthy subjects. Faculty mentor: Lynskey J.

Jones A. The effect of diaphragmatic breathing exercise on women with urge urinary incontinence. Faculty mentors: Roehling T, Bordenave L.

Kleitsch K, Monteiro J, Strzelczyk A, Treysman M. Credentials and characteristics of authors contributing to the *Journal of Orthopaedic & Sports Physical Therapy*. Faculty mentor: Lynskey J, Bordenave L.

Ross A, Workman A. The effect of a specific Pilates exercise on lower extremity function. Faculty mentor: Manton C.

Posters, continued

Sanders KA, Tilson EA. Analysis of authorship in the *Pediatric Physical Therapy* journal and the *Journal of Neurologic Physical Therapy*: a preliminary report. Faculty mentor: Bordenave L.

Tan J. Who are we? The Arizona Physical Therapy Workforce: a snapshot. Faculty mentor: Roush J.

Tramelli O, Kelley E. Predicting fall risk in an acute in-patient rehabilitation setting: the Continuity Assessment Record and Evaluation (CARE) Item Set versus the Morse Fall Scale. Faculty mentor: Sartor-Glittenberg C.

Vidinha E. Clinician productivity: the effect of serving as a clinical instructor. Faculty mentor: Wilkinson T.

Wall R, Shaw N. Dynamic vs. static warm-up on performance: a pilot study. Faculty mentors: Farris J, Roush J.

Walsh B. Who are we? The Arizona Physical Therapy Workforce: now and the future. Faculty mentor: Roush J.

2018 ATSU-ASDOH Fall Research Day

On Sept. 14, ATSU-ASDOH held a fall research day for the first time. This research day was a dedicated scientific poster session. Sixteen posters were presented by ATSU-ASDOH student and faculty research teams. Two hundred students and faculty from ATSU attended the event.

2018 ATSU-ASDOH Fall Research Day posters

Choi L, Chokdee D, Perry M. Measuring the effects of didactic and clinical environments on behavioral intent among dental students in special care dentistry.

Chukwu C, Hanley J, Patel S, Spolarich A. Direct oral anticoagulants (DOACs) and postoperative bleeding complications after dental extractions.

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

Howell S, Trombly C, Cottam W. Using teledentistry to deliver oral health services to underserved populations in the Phoenix metro area.

Howell S, Trombly C, Keenan G. Managing dental pain in a medical setting: teaching dental anesthesia to medical providers.

Menke JM, Roy D. Bayesian meta-analysis for diachronic interpretation of oral cancer biomarkers.

Michaels VG. A 2 year review of the BRITE program.

Nenad MW. Assessing dental hygiene applicant “soft skills” through a multiple mini-interview (MMI).

Nichols T, Makin IRS, Cohen R, Larkin A, Lawler C. Deployment of high-resolution ultrasound for oral musculoskeletal structures and guidance of dental interventions.

Ollar P, Spolarich A. Orthodontists’ interests and behaviors with treating patients with intellectual and developmental disabilities (ID/DD).

Ray C, Spolarich A, Creech J. Influence of parental anxiety of expectations of child self-reported dental anxiety, expectations and dental services utilization.

Posters, continued

Shlossman M, Levine R, Bay C, Zellner J, Mascarenas F, Makin IRS. Improved non-surgical treatment of chronic periodontitis with 980nm diode laser.

Spolarich AE, Makin IRS. Nasal MRSA colonization in dental students.

Spolarich AE, Makin IRS. Nasal MRSE colonization in dental students.

Tsang C, Gutierrez KS, Lewis B, Huang D, Ronsin K, Bara A, Gurung S, Patel P, Bhatta A, Khadka N, Barkan H. Emerging threats to child nutrition in urban and rural Nepal.

Velasquez T, Perry M, Spolarich A. Recall of oral hygiene education among patients with special needs and their caregivers.

Tenth annual Interdisciplinary Biomedical Research Symposium

On Oct. 27, the 10th annual Interdisciplinary Biomedical Research Symposium was held on the Missouri campus. Hosted by ATSRI and Still OPTI, the symposium included 12 oral presentations given by students, faculty, and staff from ATSU, Truman State University, and Northeast Regional Medical Center and a poster session that included 64 poster presentations by faculty, staff, residents, and students from the three institutions. One hundred fifty people attended the symposium. Sixty-three faculty members and 46 students attended from ATSU's Kirksville College of Osteopathic Medicine and Missouri School of Dentistry & Oral Health and from Still OPTI. This year, Still OPTI sponsored the Outstanding Clinical Research poster award.

Tenth annual Interdisciplinary Biomedical Research Symposium oral presentations

* indicates presenter

Demaree D*, Sedinkin J, Blanke K, Danks R. Retrospective analysis of geriatric rib fracture management and 30 day complication in a rural hospital.

Howcroft E*, Burke MJ*, Gusciara CH*, Reyes L, Phillips PL. Rat placenta at gestational day 18 is colonized by bacteria in health and disease.

Kim-Han J*, Ramachandra R, Elmslie KS. Different activities of specific blockers on human and rat voltage-gated sodium channel subtypes in HEK cells and rat DRG afferent neurons.

Motzel B*, Nelson B, Gunn B, Brechue WF. Interaction between force and neural activation in determining blood pressure response to static contractions in men and women.

Ngo NK, Degenhardt BF*, Alvarez G. Assessment of sacral motion using palpation.

Proctor CJ*, Makar M, Bridgmon K, Kondrashova T. Evaluation of middle cerebral artery blood flow during inversion table therapy using transcranial Doppler ultrasonography in young healthy adults.

Raheem S*, Ahmad Z. VISITDG sequence residues and Pi binding in the catalytic sites of ATP synthase.

Roy D*, Menke JM. Capacity building in patient-centered outcomes research involving traumatic brain injury patients: lessons from a PCORI funded project.

Snyder C*, Singh V, Lasser B, Russell A, Land M, Johnson S. Mutation and characterization of methicillin resistant *Staphylococcus aureus*.

Presentations, continued

Taddei E*, Shima M. Coronary syndrome “X” in a patient with atypical chest pain.

Verzeaux N*, Thatcher S, Bird M. In quest of modifiable characteristics related to gender differences in ACL injuries.

Tenth annual Interdisciplinary Biomedical Research Symposium posters

*indicates poster competition winners

Allen C, Gullett K, Brechue WF. Impact of repeated bouts of maximal voluntary isometric contractions on somatic and autonomic activation.

Amini A, Ahmad Z. Inhibition of *Escherichia coli* ATP synthase by antimicrobial venom peptides.

Arnold M, Cleaver D, Cleaver N. Type II cutaneous meningioma: a case report and discussion.

Bailey E, Brooke B, Vermette N, Hunter M, Mayhew JL, Brechue W. Allometric scaling of strength performances by body mass and lean mass in college football players.

Bridgmon K, Makar M, Proctor C, Kondrashova T. Real-time monitoring of intracranial pressure during inversion table therapy using optic nerve ultrasonography in young healthy adults.

Burlis T, Taylor R, Piper FC, Mayhew JL, Brechue WF. Acceleration and velocity characteristics of college women athletes in a short sprint.

Chamberlain NR, Sexton PS, Hardee MR, Baer R. Use of physician mentored patient rounds to observe second year medical students’ treatment plans for a COPD patient.

Corpuz E, Huynh T, Shahid M, Faridi H, Newaz M, Ahmad Z, Tauseef M. High-glucose disrupts coronary artery endothelial barrier function and prevents wound healing process via dismantling of junctional protein, VE-cadherin.

Dalton D, Gatewood W, Lesh M, Archer L, Long R. “What was the intern thinking?” Improving intern rapid response competence through standardized human simulation training.

*Demaree D, Sedinkin J, Blanke K, Danks R. Retrospective analysis of geriatric rib fracture management and 30 day complication in a rural hospital. *Outstanding Faculty/Staff Research*

Demaree E, Cleaver D, Cleaver L. Paget disease of the breast.

De Wan D, Worsham T, Kondrashova T. Establishing normative values for temporomandibular joint measurements using ultrasonography.

*Ehlen JC, Ostrowski TD. Attenuated baroreflex regulation in the STZ-induced rat model of Alzheimer’s disease. *Neil J. Sargentini Memorial Award for Outstanding Biomedical Research*

Fulcher A, Johnson B, Ramaraj P. Could IL-8 be the target for melanoma treatment?

Gunn J, McCluskey I, Jorn L, Mayhew JL, Brechue WF. Comparison of methods for tracking body composition across a year training cycle in college soccer players.

Hansen N, Kinney KE, Kondrashova T, Robbins GB, Kim HJ, Brechue W. Blood flow limitation during sustained maximal voluntary isometric contractions associated with external compressive forces.

Heier A, Kim-Han JS, Elmslie K. Modulation of Nav1.9 current in muscle afferent neurons by muscle metabolites.

Posters, continued

Hilton B, Grindstaff A, Steimel A, Baer R. Preliminary characterization of cell surface markers and phagocytic behavior in M0 THP1-derived macrophages.

Hinz MD, Ernest TL, Kondrashov P. Destabilization of medial meniscus in a rat model: can the contralateral knee be used as a control?

*Howcroft E, Burke MJ, Gusciara CH, Reyes L, Phillips PL. Rat placenta at gestational day 18 is colonized by bacteria in health and disease. *Outstanding Student Research*

Howell WD, Shank SC, Glagoza AJ, Sexton WL. Dietary nitrate supplementation improves interstitial PO₂ kinetics and attenuates fatigue in the rat extensor digitorum longus muscle.

Hudman DA. Exposure to ticks and their pathogens in Northeast Missouri.

Hunter ML, Arabas JL, Mayhew JL, Brechue WF. Influence of baseline strength and fat-free mass on upper-body strength improvement following machine weight and free weight resistance training in young men.

Johnson P, Anderson C, Lovy A, Brechue WF. Electrocardiograph changes associated with a 55-hour footrace.

*Kim-Han J, Ramachandra R, Elmslie KS. Different activities of specific blockers on human and rat voltage-gated sodium channel subtypes in HEK cells and rat DRG afferent neurons. *Outstanding Faculty/Staff Research*

Knoche LW, Young BA, Kondrashova T. The influence of gravitational gradients on American alligators (*Alligator mississippiensis*).

*Lam J, Nguyen H, Kertels K, Phillips PL. Efficacy of commercial hand sanitizers in the clinic setting. *Outstanding Clinical Research*

Littlefield J, Schramm K, Mayhew JL, Brechue WF. Comparison of maximal strength and submaximal repetitions in bench press performed with barbell and dumbbells.

Makar M, Bridgmon K, Proctor CJ, Kondrashova T. Physiological effects of inversion table on cardiovascular hemodynamics using Doppler ultrasonography in young healthy adults.

Marshall L, Cleaver N, Cleaver D, Junkins-Hopkins JM. A deep fungal infection presenting as a histologic mimic of angioinvasive lymphomatoid papulosis.

Matson MC, Headman ZC, Schneider RP, Potter JL, Loguda-Summers DL, Kondrashova T. Innovative spine and pelvic models for the joint injection techniques training.

Mohamed B. Complication of peptic ulcer disease.

Mooney MC, Borst AM, Odom J, Thatcher S, Bird M. Relationship between lifting experience and lifting mechanics during ADL in women.

Morgan BR, Hunter ML, Arabas JL, Mayhew JL, Brechue WF. Comparison of bone density and bone mineral content between women athletes and sedentary controls.

Motes HC, Stuart MK. Human immune response to *Trichomonas tenax*.

Motzel B, Nelson B, Gunn B, Brechue WF. Interaction between force and neural activation in determining blood pressure response to static contractions in men and women.

Posters, continued

Naik R, Chang Y, Han H. Role of MCPIP1 on neurodegeneration following hypoxic-ischemia in neonatal mice.

Ngo NK, Degenhardt BF, Alvarez G. Assessment of sacral motion using palpation.

O'Brien ZT, Arabas JL, Mayhew JL, Brechue WF. There are no differences in upper-body muscular endurance at equivalent % 1RM in trained and untrained college-aged men.

*Proctor CJ, Makar M, Bridgmon K, Kondrashova T. Evaluation of middle cerebral artery blood flow during inversion table therapy using transcranial Doppler ultrasonography in young healthy adults. *Best Overall Research*

Raheem S, Ahmad Z. VISITDG sequence residues and Pi binding in the catalytic sites of ATP synthase.

*Ring RP, Singh VK, Aswani V, Stemper ME, Kislow J, Ye Z, Shukla SK. Phylogenetic distribution and expression of a penicillin-binding protein homologue, Ear and its significance in virulence of *Staphylococcus aureus*. *Outstanding Student Research*

Roy D, Menke JM. Capacity building in patient-centered outcomes research involving traumatic brain injury patients: lessons from a PCORI funded project.

Shenouda G. Acute on chronic renal failure secondary to chronic NSAID use.

Siress ZT, Phillips PL. *Porphyromonas gingivalis* strain dependent cytokine modulation of human villous mesenchymal fibroblasts.

Snyder C, Singh V, Lasser B, Russell A, Land M, Johnson S. Mutation and characterization of methicillin resistant *Staphylococcus aureus*.

Stanley E, Jackson T, Proctor CJ, Ostrowski TD, Middlemas DS. Is brain derived neurotrophic factor (BDNF) a rapid acting antidepressant in juvenile rats?

*Steiner A, Ahmad Z. Peptide binding and interaction at the β DELSEED-motif of ATP synthase. *Outstanding Student Research*

Stoffel ST, Ehlen J, Ostrowski TD. Change in baroreflex function with age.

Syed H. Electrolyte disorders amongst cancer patients.

Taddei E, Shima M. Coronary syndrome "X" in a patient with atypical chest pain.

*Troxell TN, Cleaver DW, Cleaver LJ, Cleaver JL, Drew GS. GAPO syndrome: a rare genodermatosis. *Outstanding Faculty/Staff Research*

Verzeaux N, Thatcher S, Bird M. In quest of modifiable characteristics related to gender differences in ACL injuries.

Vicente MC, Gargaglioni LH, Ostrowski TD. Excitability of LC neurons is reduced in the Streptozotocin-model of Alzheimer's disease.

*Windsor PK, Plassmeyer SP, Mattock D, Han BH, Miller BR III. Investigation of amyloid β biflavonoid inhibitors in Alzheimer's disease. *Outstanding Student Research*