“The lightning spark of thought generated in the solitary mind awakens its likeness in another mind.” ~Thomas Carlyle

2016 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 two departments from the Arizona School of Health Sciences (ATSU-ASHS) hosted symposiums. On the Missouri campus, the A.T. Still Research Institute hosted its annual symposium.

ATSU-ASDOH Student Research Day

ATSU-ASDOH held its annual research day on Feb. 5. Fifteen third-year students and one second-year student presented results of their research. The research projects were conducted at multiple sites in England, Indonesia, New Zealand, and the United States and involved collaborations with researchers from Harvard University, the National Institute of Dental and Craniofacial Research, Queen Mary University of London, Sir John Walsh Research Institute, Trisaki University, University of California-San Francisco, and University of Central Lancashire. Over 200 students and faculty from ATSU-ASDOH attended the presentations. This year, one orthodontic resident and four faculty members presented original research posters as part of the research day. Austin Shackelford, the second-year student, was awarded the American Dental Association (ADA)/DENTSPLY Student Clinician Research award. As a result, he presented his research at the ADA Annual Session in October as part of their Student Clinician/American Dental Association (SCADA) competition. Student researchers from ATSU-ASDOH have been participating in this prestigious national research program since 2006. Chase Taylor, a third-year student, won the student American Association for Dental Research (AADR) award, which included free registration and a $500 travel award to present his research at the AADR meeting in March 2017.

2016 ATSU-ASDOH Research Day student oral presentations

*indicates presenter


Halim IA*, Halim H. The effect of facemask therapy for correction of Class III malocclusion among Indonesian pediatric patients.


Patel NK, Shlossman M, Bay C, Park JH, Abramowitz RA*. A parallel arm study comparing the effectiveness of oral hygiene devices on plaque accumulation and bleeding in an adolescent orthodontic population with fixed appliances.


Shackelford A*, Kim D, Oh H, Mettler T, Singh A. The protective effects of ketone bodies during neuro-inflammation. [ADA/DENTSPLY Student Clinician Research award winner]

Taylor CA*, Patel VN, Smith SA, Hoffman MP. Heparan sulfate 3-O-sulfation increases progenitor cell expansion. [AADR award winner]


**2016 ATSU-ASDOH Research Day resident and faculty poster presentations**

*C* indicates presenter


Ellis B*, Pruzansky D, Park JH. Survey of orthodontic residents and recent graduates on the influence of student loan debt.


Spolarich A*, Fisher D. Interprofessional educational training improves pharmacists’ ability to counsel older adults.

Woldt JL*. Student portfolios: toward more authentic assessment.

**ATSU-ASHS Physical Therapy Poster Days**

This year, the Physical Therapy department held two student poster days on May 6 and July 8. Twenty-three posters were presented, involving 59 students. Poster topics arose from student capstone projects, and the posters covered a variety of physical therapy topics. The poster days were attended by students and faculty from ATSU-ASHS, ATSU-ASDOH, and ATSU’s School of Osteopathic Medicine in Arizona. Representatives from the Mesa Fire Department, ATSU alumni, and community-based clinicians also attended.

**2016 Physical Therapy Poster Day posters**

*C* indicates poster competition winners

Alejo T, Shilanek C, McGrath M. The effects of AquaStretch on recreational athletes with lower extremity injuries.


Beagle C, Negrete K, Patel J. Effect of the Matter of Balance program on avoidance behavior due to fear of falling in older adults.


Christakos K, Cohee D, Dowling W, Winters M. A prosthesis to train the proprioceptive capabilities of the residual limb of military personnel recovering from lower limb amputation.
Posters, continued

Cocciardi A, Collins K, Hicks Staffa A, Hicks S, Kelsey A. The effects of an exotendon orthosis on locomotor function in individuals with lower extremity weakness.

Crain C, McCollough A. Effects of diaphragmatic breathing on symptoms of urge urinary incontinence.


Erbe B, Street L. The association of hop tests and musculoskeletal injury in firefighter recruits.

*Funk D, Hunke E. ACL injury prevention programs: a systematic review.

Hakim B. The effects of a plantar flexion assist brace on muscle activity in the tibialis anterior and lateral gastrocnemius during walking and running in healthy individuals.

Heywood M, Reed T. The effectiveness of a novel ACL prevention program for female soccer players between 13 and 19 years of age.

Iyo J, Randau K. The association of the FMS component score and musculoskeletal injury in firefighter recruits.

James P. Examining the internal consistency of the WOMAC for patients receiving a total joint arthroplasty.


Leigh-Yong T. Diabetes prevention program in native Hawaiian women.

Madsen C, Workman W. Musculoskeletal injury in a firefighter population: a systematic review.

*Short J, Hayes D, Manzo C. The effect of accuracy and priority on multi-limb dual task control in Parkinson disease.

Urling S, Nhieu E. The reliability of measures of the iliopsoas and rectus femurs tightness, using digital photography, goniometry, and inclinometry in the modified Thomas test position.


Williams T. The effects of AlterG treadmill training on gait biomechanics in an individual diagnosed with Miller-Fisher syndrome.

Woodland C, Fischer M. Correction interventions for Functional Movement Screen in fire academy trainees.

ATSU-ASHS Occupational Therapy Research Day

The Occupational Therapy department held its annual student research day on Sept. 13. Five oral presentations and five poster presentations of research projects were given by third-year occupational therapy students. About 100 occupational therapy students attended the research day. Eight occupational therapy faculty and several local occupational therapy clinicians attended the oral presentations. The poster presentations were open to all students and faculty of the Arizona campus and were well attended.

2016 Occupational Therapy Research Day presentations

* indicates presenter


Presentations, continued


Samad Y*, Price D*, Tran LT*, Christensen S*, Domgaard E, Leonen M. Beliefs and practices of Arizona fieldwork educators toward Level I and Level II Fieldwork. Faculty adviser: Greer M.

2016 Occupational Therapy Research Day posters
*only authors who presented the poster are listed

Cao S, Walker D, Wenger F. The relationships between visual-perceptual-motor skills, sensory processing behaviors, and handwriting in school-age children with autism.


Domgaard E, Leonen M. Beliefs and practices of Arizona fieldwork educators toward Level I and Level II Fieldwork.


Eighth annual Interdisciplinary Biomedical Research Symposium

On Nov. 5, the eighth annual Interdisciplinary Biomedical Research Symposium was held on the Missouri campus. The symposium included several oral presentations given by students from ATSU and Truman State University and a poster session that included research by faculty and students from both universities. One hundred fourteen people attended the symposium: 34 faculty members and 52 students from ATSU attended, and six faculty members and 21 students from Truman State University attended.

Eighth annual Interdisciplinary Biomedical Research Symposium oral presentations
* indicates presenter

Amini A*, Ahmad Z. Antimicrobial properties of tyrosol can be linked to the inhibition of microbial ATP synthase.

Darkwa LO*, Norimatsu Y. Investigating modulators of the protein kinase R-like ER kinase (PERK) pathway of the ER stress response.


Ernest TL*, Kondrashov P. The role of obesity and meniscal instability in the progression of osteoarthritis.

Fullmer TM*, Lambson BW, Wasinger NA, Kondrashova TV, Brechue WF. Cardiac structure-function and aerobic capacity in a cross-section of college athletes.

Mengarelli MS*, Nepusz AJ, Kondrashova T. Comparison of ultrasonography utilization in rural versus urban emergency departments across the state of Missouri.


Taylor CA*, Patel VN, Smith SA, Hoffman MP. Heparan sulfate 3-O-sulfation increases progenitor cell expansion.

**Eighth annual Interdisciplinary Biomedical Research Symposium posters**

*indicates poster competition winners

Amini A, Ahmad Z. Antimicrobial properties of tyrosol can be linked to the inhibition of microbial ATP synthase.

*Bischoff C, Gorman NT, Mayhew JL, Brechue WF. Squat jump performance is not related to bilateral asymmetry or training state in college-aged men.

Blanchard AN, Morgan CH, Theobald RJ Jr. Anti-muscarinic drug effects on murine cognition.

Braungardt HJ, Chung R, Singh VK. Characterizing the effects of carotenoid and branched chain fatty acid deficiencies in Staphylococcus aureus.

Cammack SA, Dobard SE, Sexton WL. Interstitial oxygen kinetics in the rat extensor digitorum longus and soleus muscles after IOP supplementation.

Chen RA, Chang Y. Role of MCPIP1 in high insulin-related endothelial cell dysfunction.

*Choi EY, Han BH. Effects of amentoflavone on the aggregation and disaggregation of amyloid β.

Darkwa LO, Norimatsu Y. Investigating modulators of the protein kinase R-like ER kinase (PERK) pathway of the ER stress response.


Dobard SE, Cammack SA, Batten SM, Buell JH, Sexton WL. Measurement of myocardial microvascular PO₂: impact of sumatriptan.


Ernest TL, Kondrashov P. The role of obesity and meniscal instability in the progression of osteoarthritis.

Fullmer TM, Lambson BW, Wasinger NA, Kondrashova TV, Brechue WF. Cardiac structure-function and aerobic capacity in a cross-section of college athletes.

Giles D, Bouchier J, Pazdernik V, Degenhardt B. Quantitative analysis of the SA201 concerning tissue distinction.

Han D, Young BA. Biophysics of the varanid tympanic membrane.


Hohenbery T, Miller A, Ramaraj P. In-vitro determination of the biological bases for increased male mortality in melanoma based on mouse and human melanoma cell models.


Hussain MB, Hudman DA, Sargentini NJ. *Escherichia coli* Fis protein impact on radiation survival, mutagenesis and DNA recombination.

Jackson TM, Stanley EM, Ostrowski TD, Middlemas DS. Does ghrelin effectively reduce depressive-like symptoms in juvenile rats?

Kinney KE, Brechue WF. Time-dependency of fatigue is independent of blood pressure and heart rate variability response.

Kinsey SS, Baer RW. Cav-1 upregulation slows migration velocity in BLM melanoma.


Liu M, Ahmad Z. Inhibition of *Escherichia coli* ATP synthase and cell growth by safranal and its analogs.


Marolt CJ, Rachakatla RS. Preliminary evaluation of pancreatic cancer in SCID mice models treated with rabbit umbilical cord stem cells loaded with interferon-β.

Mengarelli MS, Nepusz AJ, Kondrashova T. Comparison of ultrasonography utilization in rural versus urban emergency departments across the state of Missouri.


Ploudre A, Arabas JL, Mayhew JL, Brechue WF. Comparison of techniques for tracking body composition changes across a basketball season.


Ring RP, Sirobhushanam S, Singh S, Gatto C, Wilkinson BJ, Singh VK. Opposing roles of pyruvate dehydrogenase and branched-chain α-keto acid dehydrogenase in branched-chain membrane fatty acids in *Staphylococcus aureus*.

*Shackelford AJ, Oh H, Ma SC, Kim DY. Ketones alleviate neuroinflammation through modulation of metabolic sensors.

Shahab AA, Singh V. Effect of synergistic action of oxidants and cell wall inhibitors on *Staphylococcus aureus* with and without methionine sulfoxide reductases.

*Swift MM, Brechue WF. Biological variation and bilateral asymmetry of human gait.


*Taylor CA, Patel VN, Smith SA, Hoffman MP. Heparan sulfate 3-O-sulfation increases progenitor cell expansion.

Udall D, Vause B, Brechue WF. Gait transition not related to kinematic or metabolic input in humans.

Walkenhorst MS, Siress ZT, Reyes L, Phillips PL. Oral microbiome analysis using Ion Torrent next-gen sequencing technology.

Welker K, Arabas JL, Mayhew JL, Brechue WF. Improvement in upper-body strength is independent of initial fat-free mass and strength level in college men and women.

Yang C, Chang Y. Age-related lipid profiles changes in MCPIP1 deficient mice.