

Research Symposium

THURSDAY, DECEMBER 5

Poster Presentations

| | Poster |
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| Presenting Author(s) in Bold. | |
| G = Graduate | UG = Undergraduate |
| ANATOMY/PALEONTOLOGY | |
| Literature review on fracture patterns in motor vehicle accidents Christopher Parrill, DO'22 and Heather M. Garvin, PhD | 1 G |
| Sex estimation from the greater sciatic notch shape of subadult human pelvis Merna Mohamed and Heather M. Garvin, PhD | 2 UG |
| Preliminary analyses in sexual dimorphism in the subadult os coxae using landmark data Katherine A. Marciniac, DO'22 , Tanner S. Pulsipher, DO'22, Heather M. Garvin, PhD | 3 G |
| Developing OSTEOID: A new forensic tool for faunal species identification Noah Skantz, DO'22 , Heather M. Garvin, PhD, Rachel Dunn, PhD, Sabrina Sholts, M. Schuyler Litten, Andrea Clendaniel, Elizabeth Dougher | 4 G |
| A radiographic analysis of ontogenetic shape changes in the frontal sinus Kristine Zimmerman, DO'22 , Heather M. Garvin, PhD, Lauren Butaric, PhD | 5 G |
| Inter and intra-rater reliability rates in human frontal sinus outlines Marijo Botten, DO'22 , Lauren Butaric, PhD, Heather M. Garvin, PhD | 6 G |
| Cranial modification's effect on maxillary sinus volume and surface area Jaron Fowers, DO'22 and Lauren Butaric, PhD | 7 G |
| Prevalence of the aberrant obturator artery in the study of a body donor program Katelyn Bejes, MSA'20 , Jessica Stumpner, MSA'20, Lauren Butaric, PhD | 8 G |
| The prevalence of the psoas minor in DMU's Body Donor Program..... Jessica Stumpner, MSA'20 , Katelyn Bejes, MSA'20, Lauren Butaric, PhD | 9 G |
| Preliminary three-dimensional sulcal extraction data from the canid cortical surface..... Jagmeet Singh Grewal, DO'22 , Cheuk Tang, Simon Geletta, PhD, Bridget Wicinski, Rogier Mars, Patrick R. Hof, Paul R. Manger, Chet C. Sherwood, Muhammad A. Spocter, PhD | 10 G |

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| The brain of the Siberian Tiger (<i>Panthera tigris altaica</i>): 3D reconstructions and preliminary volumetric and sulcal data | 11 G |
| Ken Oba, DO'20 , Jagmeet Singh Grewal, DO'22, June E. Olds, Rachel Derscheid, Cheuk Tang, Bridget Wicinski, Patrick R. Hof, Muhammad A. Spocter, PhD | |
| The gyrification index in canids | 12 G |
| Tyler Gloe, DO'22 , Jagmeet Singh Grewal, DO'22, Joseph Hegedus, DO'22, Cheuk Tang, Simon Geletta, PhD, Bridget Wicinski, Rogier Mars, Geoffrey K. Aguirre, Clare Rusbridge, Patrick R. Hof, Paul R. Manger, Chet C. Sherwood, Muhammad A. Spocter, PhD | |
| A stereological analysis of hemispheric differences within the chimpanzee amygdala | 13 G |
| Brittany Danielle Wilson, DO'22, MBS'24 , Michael Conte, MPH'21, Cheryl Stimpson, Patrick R. Hof, Chet C. Sherwood, Muhammad A. Spocter, PhD | |
| A preliminary study of the neuropil space in the Felidae | 14 G |
| Jacob Nelson, DO'22 , Erin Mary Woeste, DO'22, Kathleen Bitterman, Paul R. Manger, Chet C. Sherwood, Muhammad A. Spocter, PhD | |
| Comparative dissections of white matter fiber pathways in the sheep, domestic dog and human | 15 G |
| Faris Najdawi, DO'22 , Donald G. Matz, PhD, Muhammad A. Spocter, PhD | |
| The canid hippocampus: Preliminary 3D reconstructions and volumetrics | 16 G |
| Cameron Slife, DO'22, MSA'24 and Muhammad A. Spocter, PhD | |
| BIOMEDICAL SCIENCE | |
| Characterization of glycogen branching enzyme from the parasitic protist <i>Trichomonas vaginalis</i> | 17 G |
| Karoline Dittmer, MBS'23 , Andrew Brittingham, PhD, Wayne A. Wilson, PhD | |
| Identification of a glycogen debranching enzyme in <i>Trichomonas vaginalis</i> | 18 G |
| Quentin C. Tompkins, DO'22 , Karoline E. Dittmer, MBS'23, Wayne A. Wilson, PhD, Andrew Brittingham, PhD | |
| Utilizing BASIL modules to characterize putative kinases of unknown function | 19 UG |
| Baleigh R. Wheeler , Nejla Memic, Julia Dollen, Amanda Duplan, Bonnie L. Hall | |
| NMDA receptors in rat nucleus accumbens are dynamically regulated during withdrawal from cocaine self-administration | 20 |
| Daniel T. Christian, PhD , Michael T. Stefanik, PhD, Linda A. Bean, Amanda M. Wunsch, PhD, Jonathan R. Funke, Clark A. Briggs, PhD, Joseph Lyons, Mike Milovanovic, Grace E. Stutzmann, PhD, Dan Nicholson, PhD, Kuei Y. Tseng, PhD, Marina E. Wolf, PhD | |
| c-Myc oncogene targets BCKDH-E1 α promoter in lymphoma cells | 21 G |
| Morgan Perrett, DO'22 , David Merkley, DO'22, Michael Boyer, Elitsa Ananieva, PhD | |
| Generation of mice with a combined deletion of the branched chain aminotransferases BCATc and BCATm in T lymphocytes as a tool to improve T cell immunity | 22 G |
| Caden Hullin, DO'22 , Michael Boyer, Elitsa Ananieva, PhD | |

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| The sterol regulatory element-binding proteins (SREBP) 1 and 2 activate branched chain amino acid metabolism in lymphoma cells | 23 G |
| Matthew Todd, DO'22 , David Merkley, DO'22, Danielle Nack, DPM'22, Abbie Youngwirth, Michael Boyer, Elitsa Ananieva, PhD | |
| Pharmacologic regulation of AMPK and mTORC1 by Metformin and Rapamycin targets BCATc and BCATm in lymphoma cells | 24 G |
| Eliza R. Plummer, DO'22 , Ashley Torres, Michael Boyer, Elitsa Ananieva, PhD | |
| The calcineurin homologous protein 2 induces acidification of extracellular pH in human osteoblast cells | 25 G |
| Tiffany Chang, DO'22, MBS'24 , Serena S. Luong, DO, Victor Babich, PhD, Francesca Di Sole, PhD | |
| Influence of the carotid body chemoreflex on renal oxygen flux during intermittent hypoxia in chronic heart failure | 26 G |
| Jayson P. Kemble, DO'22 , Kiefer W. Kious, MBS, Luke J. Smith, DO'22, Sarah E. Neidermann, Jacob J. Dirkman, DO'21, Noah J. Marcus, PhD | |
| Effect of chronic intermittent hypoxia on neuronal nitric oxide synthase expression and microglial activation in autonomic nuclei of the brain | 27 G |
| Erica J. Loon, DO'22 , Sarah C. Clayton, PhD, Noah J. Marcus, PhD | |
| The expression profile of vasodilatory genes in male and female rats subjected to sensitization-induced hypertension..... | 28 G |
| Peter Ma, DO'22 , Jay Wegman, Lucas Blumenschein, DO'21, MHA'21, Lori Semke, Sarah Clayton, PhD | |
| Effects of chronic sympathetic nervous stimulation on cardiac autophagy | 29 UG |
| Stephanie Twohey , Derick Tan, MBS'23, Quang-Kim Tran, MD, PhD, Sarah Clayton, PhD, Eric Wauson, PhD | |
| Novel regulatory inputs for the cardiac beta-1 adrenergic receptor | 30 G |
| Christina Bloomfield, MBS'22 and Quang-Kim Tran, MD, PhD | |
| Role of lipocalin-2 (Lcn2) in the limbic pain processing | 31 G |
| Ellesavette Kokkinos, MBS'23 , Allison Ash, MBS'23, Nisha Mandla, DO'22, Dakota Nerland, DO'22, MBS, Gabriel Berenbeim, DO'21, Benjamin Wilke, DO'21, Lori Semke, Lauren Points, Vanja Duric, PhD | |
| Gene expression profiling of rat hippocampus during chronic pain..... | 32 G |
| Allison Ash, MBS'23 , Ellesavette Kokkinos, MBS'23, Trevor Tersigni, DO'22, Dakota Nerland, DO'22, MBS, Gabriel Berenbeim, DO'21, Benjamin Wilke, DO'21, Lori Semke, Lauren Points, Matthew Girgenti, Ronald Duman, Vanja Duric, PhD | |
| Corticosterone as a confounding factor in delineating mechanisms underlying ketamine's rapid antidepressant actions..... | 33 |
| Lauren Points , Brock Pope, Lori Semke, Allison M. Zobel, MBS'22, Eric Wauson, PhD, Vanja Duric, PhD, LiLian Yuan, PhD | |
| Molecular correlates of individual differences in voluntary running behavior | 34 |
| Brock Pope , Lauren Points, Allison Zobel, MBS'22, Sai Saichellappa, MBS'21, Suzanne Elliott, MBS'24, LiLian Yuan, PhD | |

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| Effects of chronic corticosterone exposure on gut microbiome diversity in rats..... William E. Kivlin, DO'22 , Calvin Fung, DO'22, Shreya Bansal, DO'22, Matthew Rusling, DO'21, Zarin Rehman, Brock Pope, LiLian Yuan, PhD | 35 G |
| MST-312 inhibits human cytomegalovirus replication Emily Merchen, MBS'23 , Marie Nguyen, PhD, Prajakta Pradhan | 36 G |
| Characterization of lytic bacteriophages that target <i>Acinetobacter baumannii</i> Bailey Pehde, MBS'23, Devon Niewohner, DPM'22 , Michael Carruthers, PhD | 37 G |
| Liposome-based combination therapy for overcoming multidrug-resistant cancer Hakyung Yeo, PharmD'21 and Nihal Mulla, PhD | 38 |
| The role of DNA methylation in craniofacial malformations..... Caden M. Ulschmid, Miranda R. Sun, Alexander A. Martin, DO'23 , Dustin M. Fink, Austin Steward, Robert J. Lipinski | 39 G |
| Mechanisms of adenovirus-induced barrier permeability Paige McCaslin and Shauna Kaplan | 40 UG |
| Clinical and laboratory objective strength measurement of the plantar intrinsic foot muscles..... Avery Mason, DPM'21 , Ashley Spacek, DPM'21, Robert Yoho, DPM, MS, FACFAS, David Stapleton, Vassilios Vardaxis, PhD | 41 G |
| Acute <i>Plasmodium</i> infection promotes resistance to Ebola virus via type 1 immunity..... Kai Rogers, Rahul Vijay, Olena Shtanko, Laura Mallinger, DO'23 , Chester Joyner, Mary Galinski, Noah Butler, Wendy Maury | 42 G |
| Kiwifruit: Superfruit for management of melanoma Leon Kou, DO'21 , Ziwen Zhu, Chase Redington, Qian Bai, Noah Signaigor, Mark R. Wakefield, Yujiang Fang, MD, PhD | 43 G |
| Effect of IL-38 on expression of PD1, PDL1 and PDL2 in colon cancer Quinton A. Barnes, DO'22 , Qian Bai, Huaping Xiao, Mark R. Wakefield, Yujiang Fang, MD, PhD | 44 G |
| IL-32: An immunotherapeutic foe to ovarian cancer..... Mallika A. Jai, DO'22 , Lei Zhao, Ziwen Zhu, Noah Signaigo, Michael Sarris, PA'20, Huaping Xiao, Zachary E. Hunzeker, Mark R. Wakefield, Qian Bai, Brian N. Lifschutz, DO'22, MBS'23, Yujiang Fang, MD, PhD | 45 G |
| The differential effect of IL-41 on expression of PD1, PDL1 and PDL2 in melanoma and cervical cancer Mario Padron, DO'22, JD, MPH , Ziwen Zhu, Qian Bai, Huaping Xiao, Mark R. Wakefield, Yujiang Fang, MD, PhD | 46 G |
| Cranberry extract as a possible adjuvant in radiation treatment of prostate cancer Lukas A. Ohnemus, DO'22 , Ziwen Zhu, Noah J. Signaigo, Qian Bai, Huaping Xiao, Mark R. Wakefield, Yujiang Fang, MD, PhD | 47 G |
| The role of IL-38 in the growth of bladder cancer: Evidence as a cancer growth inhibitor Brian Lifschutz, DO'22, MBS'23 , Ziwen Zhu, Huaping Xiao, Qian Bai, Jacob Dunlap, Mark R. Wakefield, Yujiang Fang, MD, PhD | 48 G |

CLINICAL

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| A bulky problem: Diagnosing bile cast nephropathy in anabolic steroid induced liver injury..... Nico Gotera, DO'20, MPH'20 , Daniela Frankova, MD, PhD, FACP, Teresa Aoki, MD, Aaron Jaemyeong Sohn, MD, Naveed Sarmast, Robert Rahimi | 49 G |
| Gabapentin hits a nerve with opioid use in rib fracture patients..... Claire E. Monzel, PharmD'21 , Darla K. Eastman, PharmD, Danielle L. Dowell, DO'22, Richard A. Powell, DO'22, Sarah K. Spilman, MA, Carlos A. Pelaez, MD, FACS | 50 G |
| Evaluation of chest trauma using three rib severity scoring systems..... Danielle L. Dowell, DO'22 , Richard A. Powell, DO'22, Claire E. Monzel, PharmD'21, Sarah K. Spilman, MA, Darla K. Eastman, PharmD, Carlos A. Pelaez, MD, FACS | 51 G |
| The effect of abdominal aortic aneurysm size on endoleak, secondary intervention and overall survival following endovascular aortic aneurysm repair..... Benjamin Ferrel, DO, Shiv Patel, DO, Antonio Castillo, DO'20, Oscar Gryn, DO'21 , Jan Franko, MD, PhD, David Chew, MD | 52 G |
| Evaluation of surgeon education on opioid prescribing practice in an orthopedic ASC..... Jake Rodgers, DO'23 , Simran Aulakh, Jeffrey Rodgers, MD | 53 G |
| Contextual effects and health outcomes: A systematic review of reviews..... Linda Chun, DO'22 and Jeritt Tucker, PhD | 54 G |
| Enhanced myometrial vascularity with retained products of conception following cesarean delivery Noori Al Kadhim, DO'21 and Jill K. Burke, DO | 55 G |
| A pilot study of the sequelae of partial and full 5th ray amputation..... Katherine Frush, DPM, FACFAS, Jay Lechner, DPM'21 , Huan Khong, DO'22, Chufna Jie, PhD, Nadia Nikoueiha, DPM'20 | 56 G |
| The immediate effect of osteopathic manipulative treatment (OMT) on proprioception: A pilot study..... Thomas Mehner, DO'21 , Krista Hoevermeyer, DO'21, MPH'22, Ryan McMunn, DO'21, Kai Yuan Teng, DO'21, Jose Figueroa, DO, Chunfa Jie, PhD | 57 G |
| The immediate, intermediate, and long-term effects of osteopathic manipulative treatment on pulmonary function in adults with asthma..... Samantha K. Tyler, DO'20 , Anna Johnson, DO'20, Kody Kasten, DO'20, Erika Kolakowski, DO'20, Katherine Heineman, DO | 58 G |
| Optimizing the use of Oncotype DX® in breast cancer: Using histology to further refine selection criteria for testing..... Rebekah A. Betar, DO'23 and Matthew R. Foster, MD | 59 G |
| Evaluation of push dose vasopressors during surgical procedures with induction anesthesia in patients receiving home antihypertensive therapy..... Matt Hubble, PharmD and Natalie Ake, PharmD'21 | 60 G |
| Cost effectiveness of physical therapy in addition to podiatry management of plantar heel pain..... Andrew Ferguson, DPM'22 and Shane McClinton, PT, DPT, PhD | 61 G |

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| UTI diagnosis and treatment of asymptomatic bacteriuria within the rehabilitation population..... Elliot Berger, DO'22 , Ami Hughes, PhD, Chris Putler, PharmD, Janna Williams, MD | 62 G |
| Incidence of mental health disorders in Burmese refugees in central Iowa, pre- and post-resettlement Blaire Nasstrom, DO'20, Ali Moradi, DO'20, Sasirekha Pandravada, DO'20, Blake Savage, DPM, Noreen O'Shea, DO, FAAFP | 63 |
| Comparison of 25-gauge and 27-gauge pars plana vitrectomy for vitreoretinal diseases .. Cory Christensen, DO'22 and Jared S. Nielsen, MD, MBA | 64 G |
| The effects of repeat Remote Ischemic Conditioning on the healing of diabetic foot ulcers James Mahoney, DPM, FACFAS, Collin Pehde, DPM, FACFAS, Amar Alkhafaji, DPM'22 | 65 G |
| An anatomical description of the lateral column in the context of Charcot midfoot collapse Taylor Hale, DPM'22 , Collin Pehde, DPM, FACFAS, Rachel Dunn, PhD | 66 G |
| 3-D printing for surgical planning of complex foot and ankle deformity..... Joseph Brown, DPM'21 , Ryan Larsen, DPM'21, Jonathan Nigro, DPM'21, Connor Reed, DPM'22, Travis Anderson, DPM'22, Tobee Gunter, DPM'22, Anthony Smaldino, DPM'22 | 67 G |
| The effect of foot flexibility on pressure distribution around the proximal fifth metatarsal and the relationship to the Jones fracture Michaela Heys, DPM'22 , Jasmine Strozier, DPM'22, Nathanael Seaberg, Robert Yoho, DPM, MS, FACFAS, Vassilios Vardaxis, PhD, David Stapleton | 68 G |
| MOVEMENT SCIENCE | |
| The effects of load on different foot angles that contribute to fractures along the 5th metatarsal base Robert Yoho, DPM, MS, FACFAS, Jasmine Strozier, DPM'22 , David Stapleton, Vassilios Vardaxis, PhD | 69 G |
| Foot intrinsic muscle morphological characteristics in weight bearing using ultrasound Ashley Spacek, DPM'21 , Avery Mason, DPM'21, Robert Yoho, DPM, MS, FACFAS, David Stapleton, Panagiotis Chatzistergos, Vassilios Vardaxis, PhD | 70 G |
| Foot mobility, intrinsic foot musculature, and speed effect on foot arch kinematics during gait Isaac Wilmot, DPM'22 , David Stapleton, Robert Yoho, DPM, MS, FACFAS, Vassilios Vardaxis, PhD | 71 G |
| The effects of body position on scapulohumeral rhythm in the frontal and sagittal planes. Matt Petersen, DO'22 , Traci Bush, DPT, OTR/L, DHS, David Stapleton, Vassilios Vardaxis, PhD | 72 G |
| Validation of glenohumeral joint center localization methods against 3D CT imaging..... David Stapleton , Daniel Kasman, DO'21, Nirmal Maxwell, DO'21, Steven Halvorson, DO'22, Traci Bush, DPT, OTR/L, DHS, James Choi, Vassilios Vardaxis, PhD | 73 |
| Age-related deficits in bilateral motor synergies and force coordination..... Nyeonju Kang, Lisa M. Roberts, Clara Aziz, DO'22 , James H. Cauraugh | 74 G |

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| Age-related decline of curved path walking: Evidence for the loss of adaptability..... Taylor Woods, DPT'20 , Britney Williams, DPT'20, Kristin Lowry, PhD, Jessie VanSwearingen, PT, PhD | 75 G |
| Age-related differences in the energy cost of walking while thinking Britney Williams, DPT'20 , Taylor Woods, DPT'20, James Lang, PhD, Jessie VanSwearingen, PT, PhD, Kristin Lowry, PT, PhD | 76 G |
| EDUCATION | |
| Medical student coping and performance..... Matthew Rusling, DO'21 , Daniel Masin, DO'21, Marcus Voss, DO'21, Pooja Gottumukkala, DO'21, Corey Keenan, DO'21, Marijo Botten, DO'22, Davis Chambers, DO'22, Chris Parrill, DO'22, Emily Willmann, DO'22, John Dube, DO'22, Jeritt Tucker, PhD | 77 G |
| Effects of back-to-back testing on student well-being and exam performance – preliminary data Martin Schmidt, PhD , Sarah Werning, PhD, Brian Pinney, PhD | 78 |
| Using a mixed methods approach to support development of student career planning and advising support..... Leslie Wimsatt, PhD, Martin Schmidt, PhD, Matt Henry, PhD | 79 |
| Classroom attendance has a positive impact on student ECG interpretation skills Matt Henry, PhD and Sarah Clayton, PhD | 80 |
| Development of an individual and team assessment tool: A pilot study Julie Ronnebaum, DPT, PhD, GCS , Teri Stumbo, PhD, PT, Laura Delaney, MPAS, PA-C, Chunfa Jie, PhD, Julie Wiener, DPT | 81 |
| Identification of a cultural competence assessment tool for Des Moines University's Doctor of Physical Therapy Program Jacob Wesselink, DPT'21 and Tracy Porter, PT, DPT | 82 |
| PUBLIC HEALTH | |
| Measurement of tobacco and nicotine use..... Natasha Hutchens , Rachel Reimer, PhD, Allan Anderson, Ashley Becker, Shannon Hampton, Robert Philibert | 83 |
| The challenges of healthcare disparities in cancer screening among minority adults Hayley Schuchard, DO'22 and Darren Liu, DrPH | 84 G |
| HPV vaccination among young adults in Minnesota: Findings from a cross-sectional statewide survey Rida Shaikh, DO'22 , Rachel I. Vogel, PhD, Rebekah H. Nagler, PhD, Abigail Schnaith, Emil Lou, MD, PhD, Annie-Laurie McRee, DrPH, Deanna Teoh, MD, MS | 85 G |
| The incidence rates of bone and joint cancer in Iowa have increased over the years and are higher than the national bone cancer rates..... Jonathan Nilles, DO'22 and Elitsa Ananieva, PhD | 86 G |

Poster

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| A systematic literature review of disability among sexual and gender minorities: Defining a gap in intersectionality research | 87 G |
| Anna Avidan, DO'22 and Elizabeth Baker, PhD, MPH, CPH | |
| Perceptions of breast development and breastfeeding among women living with polycystic ovary syndrome | 88 G |
| Elizabeth Baker, PhD, MPH, CPH, Neely Atamaniuk, DO'22, Alexander Johnson, DO'22 | |
| Barriers to early childhood developmental screening: Providers' perspectives | 89 G |
| Wajiha Moen, MPH'21 and Jeneane Moody, MPH | |
| Genetic factors have less influence on obesity in adult male twins - the longitudinal National Heart, Lung, and Blood Institute Twin Study | 90 G |
| Joseph Andrade, DO'22 and Jun Dai, MD, MSc, PhD | |
| A systematic review of climate change, vector niche, and infectious disease | 91 G |
| Aubrey Massmann, DO'21, MPH'23 and John Balbus, MD, MPH | |