

2024 NEWS AND UPDATES



We are pleased to present the 2024 KU Diabetes Institute (KUDI) newsletter. My name is Dr. John Thyfault, and it has been my pleasure to serve as the Director of KUDI since July 2022. As a Professor at KU Medical Center (KUMC) who has focused on obesity and diabetes research throughout my career, I have witnessed firsthand the challenges faced by those who have diabetes-related complications. My father and several family members have also suffered adverse outcomes from diabetes. These experiences motivate me to make an impact on this harmful disease. I am excited to lead the institute and collaborate with colleagues like yourself on efforts aimed at preventing, treating and curing Type 1 and Type 2 diabetes.

In 2023, we formed a new leadership team, recruited exceptional senior and junior faculty researchers, hired skilled research and administrative staff and took measures to enhance diabetes-focused research here at KUMC. We have recruited outstanding faculty researchers who are on the cutting edge of discovery – looking at cell biology and its role in Type 1 Diabetes prevention and treatment, interactions between adipose and liver metabolism in obesity and diabetes, lipid management to reduce cardiovascular disease risk in patients with diabetes, and much more. Our excellent team offers a strong foundation for the growth of the KU Diabetes Institute.

Additionally, this newsletter features initiatives introduced by members of our team and updates on community outreach efforts to establish partnerships with local public health organizations. We also highlight recently funded NIH programs advancing metabolism and obesity research at KUMC.

It is an exciting time for growth and expansion, and we are happy to share it with you. Efforts are being made to enhance research capabilities, engage with the community and implement clinical and public health initiatives. We hope you consider collaborating with us, participating in research or making a financial contribution to bolster our efforts in preventing and treating diabetes.

**John P. Thyfault, Ph.D., FACSM, FTOS**  
*Director, KU Diabetes Institute*

LEADERSHIP TEAM



**Paige Geiger, Ph.D.**  
*Director, Scientific Research*



**Kristin Grdinovac, M.D.**  
*Director, Cray Diabetes Self Management Center*



**Felicia Steger, Ph.D., RD**  
*Director, Nutrition Research*



**Hubert Tse, Ph.D.**  
*Associate Director, Type 1 Diabetes Research*

## NEW MEMBERS

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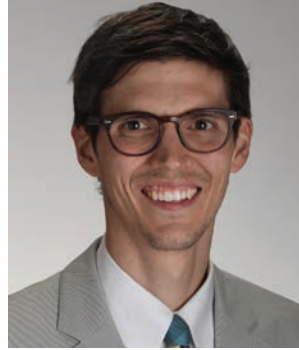
**Andrew Lutkewitte, Ph.D.**  
*Assistant Professor*

Researches the interactions between adipose and liver metabolism in obesity and diabetes



**Kristy Brown, Ph.D.**  
*Associate Professor*

Studies the molecular relationship between obesity and breast cancer and how hormones found in breast far drive cancer development and progression



**Dan Tilden, M.D.**  
*Assistant Professor and clinician-scientist*

Focuses primarily on treating patients with Type 1 diabetes during the transition period from pediatric to adult diabetes care and health disparities in diabetes care



**Ethan Alexander, M.D.**  
*Assistant Professor and clinician-scientist*

Studies lipid management to reduce cardiovascular disease risk in patients with diabetes

## ADMINISTRATIVE AND RESEARCH TEAM

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**Lindon Giesen**  
*Administrative Assistant*



**Michelle Vitztum, MPH**  
*Project Manager*



**Ana Kugler**  
*Clinical Research Coordinator*



**Annie Eller, RD**  
*Clinical Research Coordinator*



**Erica Lower, MA, CCRP**  
*Clinical Research Coordinator*



**Frieda Tresvan**  
*Clinical Research Coordinator*

## INTERMITTENT FASTING FOR THE TREATMENT OF TYPE 2 DIABETES (IFAST)

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**PI: Felicia Steger, Ph.D.**

Intermittent fasting (IF) is an alternative to daily calorie restriction for producing clinically relevant weight loss. Intermittent energy restriction (IER) and time-restricted eating (TRE), two forms of intermittent fasting, may provide a pronounced benefit to glycemic control relative to conventional calorie-restricted diets. However, these two IF approaches have not been thoroughly tested in patients with Type 2 diabetes (T2D). Our primary objective is to determine whether weight loss programs featuring intermittent energy restriction or time-restricted eating can feasibly and effectively improve glycemia in patients with T2D. We are also evaluating potential mechanisms of benefit for two IF approaches on glycemic control.

## FEASIBILITY OF IMPROVING GLYCEMIA TO PREVENT ALZHEIMER'S DISEASE (FIGHT-AD)

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**PI: Paige Geiger, Ph.D. and Jill Morris, Ph.D.**

It is well established that fasting glucose levels increase with aging, and that impaired glucose metabolism is a risk factor for Alzheimer's Disease. Heat therapy has been independently shown to improve blood glucose regulation, insulin resistance, and inflammation. This project will provide a comprehensive understanding of the impact of heat therapy on glucose homeostasis and brain health.

## ISLET ENCAPSULATION TO ELICIT LOCALIZED IMMUNOSUPPRESSION AND IMMUNE MODULATION FOLLOWING TRANSPLANTATION

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**PI: Hubert Tse, Ph.D.**

Islet transplantation is a promising treatment for Type 1 diabetes (T1D), but numerous hurdles including immune-mediated rejection, adverse effects of immunosuppression on islet function, ideal sites for transplantation, and declining allograft survival impede human translatability. Our hypothesis is that (PVPON/TA/CTLA-4-Ig) encapsulation of islets can elicit localized immunosuppression and preserve islet function following transplantation into a pre-vascularized device-less site without stimulated deleterious fibrosis.

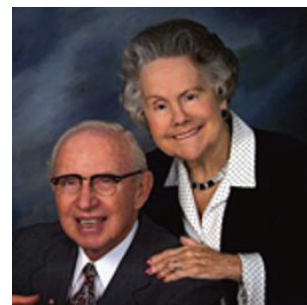


Dr. Kristin Grdinovac, M.D., serves as the Director of the Cray Diabetes Self-Management Center, where she dedicates her efforts to enhancing the expertise of her team in diabetes care. Her enthusiasm lies in extending the clinic's services to a broader demographic of individuals with diabetes in Kansas and beyond.

Dr. Grdinovac specializes in diabetes management and stays abreast of the latest advancements in diabetes technology. Her research pursuits center around refining care delivery methods for patients with diabetes. In 2023, she spearheaded the development of the Fresh Start Program, a comprehensive 24-week curriculum blending medication optimization, diabetes education, and social support to enhance outcomes for individuals with uncontrolled diabetes.

Dr. Grdinovac's vision is to position Cray Diabetes at KUMC as a leading institution in regional diabetes healthcare, characterized by cutting-edge technology and exceptional patient experiences.

The Cray Diabetes Self-Management Center, founded on the patient-centered beliefs of Bud and Sally Cray, provides comprehensive diabetes care, supported by the Cray family of Atchison, Kansas. Their mission is to empower patients, healthcare providers, families and communities through education, research, and skill-building for successful diabetes management.



Recognized by the American Diabetes Association, the Cray Diabetes Self-Management Center upholds the highest standards of evidence-based medicine and innovation. The center, staffed by board-certified physicians, advanced practice providers and nursing specialists annually cares for over 10,000 patients with diabetes across Kansas and Missouri.

The Cray Diabetes Self-Management Center offers both in-person and telemedicine visits at multiple clinic locations throughout the Kansas City metropolitan area, ranking among the top **10% of institutions** evaluated by U.S. News & World Report for Diabetes and Endocrinology.

The center's Education Program, an ADA-recognized initiative since 2008, provides a wide range of services including personalized consultations and comprehensive group classes led by expert educators. Community outreach efforts aim to address health equity issues, offering no-cost diabetes classes and support groups to those with limited access to education.

Innovative programs such as the rural health initiative and the Type 1 Transition Clinic cater to diverse patient needs, while the Fresh Start Program provides intensive support for patients with uncontrolled diabetes.



The Cray Diabetes Self-Management Center is committed to fostering a supportive and inclusive environment for patients and their families. Through various initiatives, including patient support groups and family education sessions, the center aims to enhance the overall well-being and quality of life for individuals living with diabetes and their loved ones. Additionally, the center is actively engaged in community outreach programs aimed at promoting diabetes awareness and prevention. By partnering with local schools, community centers, and healthcare organizations, the center strives to educate the public about the importance of early detection and proactive management of diabetes.

The Cray Diabetes Self-Management Center collaborates closely with the KU Diabetes Institute and many other departments within KUMC to advance research and bring novel approaches to diabetes management from bench to bedside.



## CRAY DIABETES SELF-MANAGEMENT CENTER EDUCATION TEAM



**Pattie Lueyot,**  
MS, RD, LD, CDCES  
*Program Coordinator*



**Kayla Graves, MS, RD, LD,**  
CHC, CDCES



**Anna Newby, MS, RD, LD,**  
CDCES



**Aubrey Hall, RD, CDCES**



**Race Shepherd, MS, RD, LD**

Services are available at 3 locations:

**KUMC Main Campus**  
2000 Olathe Blvd, Kansas City, Kansas

**College Square Medical Pavilion**  
12000 W 110th, Overland Park, Kansas

**Englewood Center**  
101 NW Englewood Rd, Gladstone, Missouri



One of the missions of the KU Diabetes Institute is to foster novel research projects and collaborations within our research community, and to enhance training opportunities for students on campus. To achieve these goals, we fund pilot research projects, small equipment grants, summer research fellowships for medical students and provide professional development awards to attend the American Diabetes Association annual meeting.

A new funding cycle has just been announced for 2024! We encourage all members of the KUDI community, particularly those from underrepresented groups and diverse backgrounds, to apply for next year's award. To learn more about these grants and how to apply, please email Michelle Vitztum, program manager, at [mvitztum@kumc.edu](mailto:mvitztum@kumc.edu). Any inquiries or questions about these awards can be directed to Paige Geiger, Scientific Director, at [pgeiger@kumc.edu](mailto:pgeiger@kumc.edu).

**Paige Geiger, Ph.D.**  
Scientific Research Director

## PILOT GRANT

The pilot program supports new and innovative research in basic, translational, clinical or community-based research.

### 2023 PILOT GRANT AWARDEE



**Mary Markiewicz, Ph.D.**  
*Developing novel immunotherapy for type 1 diabetes*

Type 1 diabetes is an autoimmune disease in which the  $\beta$  cells in pancreatic islets are destroyed. Rather than treatment of overt diabetes, halting the progression of  $\beta$  cell destruction would provide a higher quality of life for people suffering from Type 1 diabetes. The main drivers of Type 1 diabetes are islet-specific conventional T cells. These cells must escape a myriad of tolerance mechanisms that control their activation in healthy individuals. Regulatory T cells, which inhibit the function of the T cells that destroy islet cells, play a critical role in this tolerance. There are multiple challenges with trying to expand an individual's own regulatory T cells, and clinical trials using natural regulatory T cells have been only moderately successful in modulating disease. In collaboration with Tom Yankee (KUMC) and Ryan Fischer (CMH), the Markiewicz Lab developed and patented a new way to engineer Tregs from primary, conventional human T cells. The Markiewicz Lab is using the funds awarded by the Diabetes Institute to set up an in vitro system to test whether engineered regulatory T cells generated by this new method can limit the destruction of human islet-specific T cells.

### PAST PILOT GRANT AWARDEES

**2021**  
**Matthew Morris, Ph.D.**  
*Hepatocyte membrane potential modulates systemic energy homeostasis and diet-induced weight gain*

**Michelle Redmond, Ph.D., M.S.**  
*eDECIDE: Using Novel Technology to Deliver Diabetes Problem-Solving Skills Training to Community Members Living with Type 2 Diabetes*

**2020**  
**Mary Markiewicz, Ph.D.**  
*The mechanism of autoimmune diabetes protection mediated by NKG2D-induced CD8+ Tcm*

**Doug Wright, Ph.D.**  
*Protective Mechanisms of a Ketogenic Diet on Neural Complications in Type 1 Diabetes*

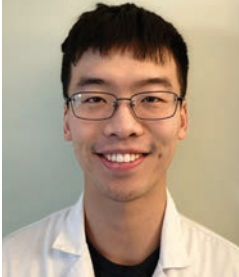
**Hao Zhu, Ph.D.**  
*Modulating iron redox status in pancreatic beta-cells for diabetes intervention*

## SUMMER FELLOWS

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This initiative encourages research training opportunities for medical students interested in biomedical, behavioral or clinical research. Our goal is to provide training for students to obtain necessary diabetes, metabolism and genetics research experience and technical expertise.

### 2023 SUMMER FELLOWS



**Bennie Dai**  
*iAmHealthy's Effects on Stigma and Bullying Perpetration*

Mentor: Ann Davis, Ph.D., MPH, ABPP



**Isabel Epstein**  
*Family functioning as a moderator for the efficacy of a community-based obesity intervention for low-income families*

Mentor: Helena LaRoche, M.D., FAAP, ABOM

### SUMMER FELLOWS

2021

**Mackenzie Penny**

*The mechanism of autoimmune diabetes protection mediated by NKG2D-induced CD8+ Tcm*

**Hannah Powers**

*Ncb5or deficiency and pioglitazone intervention on metabolic function in  $\beta$ -cells*

## PROFESSIONAL DEVELOPMENT AWARDS

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The award helps support travel to the American Diabetes Association Scientific Meeting and other diabetes-related professional development.

### 2023 PROFESSIONAL DEVELOPMENT AWARDS



**Mary Markiewicz, Ph.D.**



**Chun-Kai Huang, Ph.D.**



**Anna Newby,  
MS, RD, CDCES**



**Pattie Lueyot,  
MS, RD, CDCES**

## STRENGTHENING COMMUNITY BONDS AND PROMOTING DIABETES AWARENESS

### BUILDING PARTNERSHIPS AND FOSTERING ENGAGEMENT IN THE KC METRO AREA

by Frieda Tresvan

In the past year, KUDI has embarked on a transformative journey, focused on deepening its ties with the local community while advocating for diabetes awareness and education. KUDI has taken significant strides in fulfilling its mission through collaborative efforts, impactful meetings and dedicated outreach initiatives.

A cornerstone of KUDI's success has been the establishment of valuable relationships with community partners. Recognizing the importance of strong collaborations, we have proactively engaged with local organizations and leaders to better understand the needs of the community we serve. By fostering these connections, we pave the way for impactful and meaningful initiatives to follow.

One of our goals was to enhance community outreach efforts throughout the Kansas City Metro area. This past year saw a remarkable expansion of KUDI's presence at critical collaborative meetings, further solidifying our commitment to working alongside community partners. Notable engagements included participation in the KUMC Breast Cancer Health Equity Taskforce, the Wyandotte Community & Health Leaders Subcommittee, the UKHS Care Collaborative Spring Summit, and the Frontiers Multidisciplinary Advocates and Research Group (MARG).

In line with our vision of promoting diabetes awareness and education, KUDI actively organized and participated in a series of informational sessions. These sessions served as a vital platform for engaging with various outreach groups, including KUMC Juntos, Sunflower Health Plan, and the Wyandotte County Health Council. By fostering open dialogues and sharing knowledge, we hope to play a pivotal role in empowering the community with the information needed to combat diabetes effectively.

As KUDI celebrates a year of significant achievements, our gaze is firmly fixed on an exciting future marked by innovative initiatives that promise to bring about positive change within the community.

An exciting focal point in the coming year is a new endeavor to reach more people in Kansas City by hosting Community A1C Screening Events, in partnership with the Wyandotte County Health Equity Task Force Neighborhood-based Clinics. These screenings represent a profound step toward enhancing community health outcomes by equipping individuals with valuable insight into their health status and enabling proactive diabetes management. This project also underscores KUDI's dedication to promoting diversity in research study participation. Through this initiative, KUDI seeks to create an inclusive research environment, fostering a broader understanding of diabetes across different demographics. We hope to host the first event in January 2024.

As KUDI sets its sights on the forthcoming year, our vision is clear: to empower the community with knowledge, resources, and the diverse insights derived from research. With these transformative initiatives at the forefront and a wealth of others in development, KUDI is eagerly poised for a future that embodies health, awareness and inclusivity for all.





## FACULTY AWARDS

### JOHN THYFAULT, Ph.D., FACSM, FTOS

KU Department of Health Sports and Exercise Science  
Distinguished Alumni Award, 2023

## FACULTY PUBLICATIONS

### PAIGE GEIGER, Ph.D.

**Forelimb resistance exercise protects against neuromuscular junction denervation in the SOD1-G93A rat model of ALS.** Nishimune H, Stanford KG, Chen J, Odum JD, Rorie AD, Rogers RS, Wheatley JL, **Geiger PC**, et al. *Degener Neurol Neuromuscul Dis*. 2022 Nov 22;12:145-55. doi: 10.2147/dnnd.S388455. PMID: 36444378.

Proceedings from the Albert Charitable Trust Inaugural Workshop on '**Understanding the Acute Effects of Exercise on the Brain**'. Barnes JN, Burns JM, Bamman MM, Billinger SA, Bodine SC, Booth FW, Brassard P, Clemons TA, Fadel PJ, **Geiger PC**, et al. *Brain Plast*. 2022 Dec 20;8(2):153-68. doi: 10.3233/bpl-220146. PMID: 36721393.

**Exomap1 mouse: a transgenic model for in vivo studies of exosome biology.** Fordjour FK, Abuelreich S, Hong X, Chatterjee E, Lallai V, Ng M, Saftics A, Deng F, Carnel-Amar N, Wakimoto H, Shimizu K, Bautista M, Phu TA, Vu NK, **Geiger PC**, et al. *bioRxiv* [Preprint]. 2023 May 29:2023.05.29.542707. doi: 10.1101/2023.05.29.542707. PMID: 37398219.

**Relationship of Muscle Apolipoprotein E Expression with Markers of Cellular Stress, Metabolism, and Blood Biomarkers in Cognitively Healthy and Impaired Older Adults.** Johnson CN, McCoin CS, Kueck PJ, Hawley AG, John CS, Thyfault JP, Swerdlow RH, **Geiger PC**, et al. *J Alzheimers Dis*. 2023;92(3):1027-35. doi: 10.3233/jad-221192. PMID: 36847010.

**Extracellular vesicles respond to acute exercise in older adults.** Kemna RE, Deng F, Vidoni EV, Billinger SA, Christenson LK, Morris JK and **Geiger PC**. *Am J Physiol Regul Integr Comp Physiol*. Submitted; in review.

### KRISTIN GRDINOVAC, M.D.

**Indices of Hepatic Steatosis and Fibrosis in Prediabetes and Association with diabetes Development in the Vitamin D and Type 2 Diabetes Study.** Corbin KD, Pittas AG, Desouza C, **Grdinovac KK**, Herzig KH, Kashyap SR, Kim SH, Nelson J, Rasouli N, Vickery EM, Knowler WC, Pratley RE. *J Diabetes Complications*. 2023 Jun;37(6):108475. doi: 10.1016/j.jdiacomp.2023.108475. PMID: 37104979.

### SETH HOLWERDA, Ph.D.

**Concomitantly higher resting arterial blood pressure and transduction of sympathetic neural activity in human obesity without hypertension.** **Holwerda SW**, Gangwish ME, Luehrs RE, Nuckols VR, Thyfault JP, Miles JM, Pierce GL. *J Hypertens*. 2023 Feb 1;41(2):326-335. PMID: 36583358.

**Sex-specific associations of reservoir-excess pressure parameters with age and subclinical vascular remodeling.** Gimblet CJ, Armstrong MK, Nuckols VR, Dubose LE, **Holwerda SW**, Luehrs RE, Lane AD, Voss MW, Pierce GL. *J Hypertens*. 2023 Apr 1;14(4):624-631. PMID: 36723472.

**Low- and high-frequency spinal cord stimulation and arterial blood pressure in patients with chronic pain and hypertension: a retrospective study.** Memar K, Varghese SN, Morrison AG, Clonch DA, Lam CM, **Holwerda SW**. *Clin Auton Res*. 2023 Aug;33(4):443-449. PMID: 37171770.

**Relation of forward and backward traveling pressure waves with subclinical carotid artery wall remodeling and central pulse pressure.** Armstrong MK, Nuckols VR, Gimblet CJ, **Holwerda SW**, DuBose LE, Luehrs RE, et al. *J Appl Physiol (1985)*. 2023 Oct 1;135(4):943-9. Epub 20230831. doi: 10.1152/jappphysiol.00286.2023. PMID: 37650141.

## FACULTY PUBLICATIONS

ANDREW LUTKEWITTE, Ph.D.

**Adipocyte lipin 1 is positively associated with metabolic health in humans and regulates systemic metabolism in mice.** LaPoint A, Singer JM, Ferguson D, Shew TM, Renkemeyer MK, Palacios H, Field R, Shankaran M, Smith GI, Yoshino J, He M, Patti GJ, Hellerstein MK, Klein S, Brestoff JR, Finck BN, **Lutkewitte AJ.** *bioRxiv* [Preprint]. 2023 Feb 3;2023.02.01.526676. doi: 10.1101/2023.02.01.526676. PMID: 36778276.

FELICIA STEGER, Ph.D., RD

**The impact of a group based, remotely delivered weight loss intervention in women with polycystic ovary syndrome on ovulation, quality of life and body composition.** Gorczyca AM, **Steger FL**, et. al. *Front Reprod Health.* 2022 Jul 22;4:940945. doi: 10.3389/frph.2022.940945. PMID: 36303658.

**Effectiveness of Early Time-Restricted Eating for Weight Loss, Fat Loss, and Cardiometabolic Health in Adults With Obesity: A Randomized Clinical Trial.** Jamshed H, **Steger FL\***, Bryan DR, et al. *JAMA Intern Med.* 2022 Sept 1;182(9):953-962. doi:10.1001/jamainternmed.2022.3050. PMID: 35939311.

**Impact of early time-restricted eating on diet quality, meal frequency, appetite, and eating behaviors: A randomized trial.** **Steger FL**, Jamshed H, Martin CK, et al. *Obesity (Silver Spring).* 2023 Feb;31 Suppl 1(Suppl 1):127-138. doi: 10.1002/oby.23642. PMID: 36575143.

**Early time-restricted eating affects weight, metabolic health, mood, and sleep in adherent completers: A secondary analysis.** **Steger FL**, Jamshed H\*, Bryan DR, et al. *Obesity (Silver Spring).* 2023 Feb;31 Suppl 1(Suppl 1):96-107. doi: 10.1002/oby.23614. PMID: 36518092.

**Increasing diversity, equity, and inclusion in the fields of nutrition and obesity: A roadmap to equity in academia.** Martin SL, Cardel MI, Carson TL, **Steger FL**, et al. *Am J Clin Nutr.* 2023 Apr;117(4):659-671. doi: 10.1016/j.ajcnut.2023.02.001. PMID: 36907515.

JOHN THYFAULT, Ph.D., FACSM, FTOS

**Acute exercise dynamically modulates the hepatic mitochondrial proteome.** McCoin CS, Franczak E, Washburn MP, Sardiu ME, **Thyfault JP.** *Mol Omics.* 2022 Oct 31;18(9):840-52. doi: 10.1039/d2mo00143h. PMID: 35929479.

**Rats with high aerobic capacity display enhanced transcriptional adaptability and upregulation of bile acid metabolism in response to an acute high-fat diet.** Stierwalt HD, Morris EM, Maurer A, Apte U, Phillips K, Li T, et al. *Physiol Rep.* 2022 Oct 31;10(15):e15405. doi: 10.14814/phy2.15405. PMID: 35923133.

**Statin contribution to middle cerebral artery blood flow velocity in older adults at risk for dementia.** Aaron SE, Tomoto T, Zhang R, **Thyfault JP**, Vidoni ED, Montgomery RN, et al. *Eur J Appl Physiol.* 2022 Nov;122(11):2417-26. doi: 10.1007/s00421-022-05022-1. PMID: 35960268.

**Oral combined contraceptives induce liver mitochondrial reactive oxygen species and whole-body metabolic adaptations in female mice.** Fuller KNZ, McCoin CS, Stierwalt H, Allen J, Gandhi S, Perry CGR, et al. *J Physiol.* 2022 Dec;600(24):5215-45. doi: 10.1113/jp283733. PMID: 36326014.

**Understanding heterogeneity of responses to, and optimizing clinical efficacy of, exercise training in older adults: NIH NIA Workshop summary.** Erickson ML, Allen JM, Beavers DP, Collins LM, Davidson KW, Erickson KI, et al. *Geroscience.* 2023 Feb;45(1):569-89. doi: 10.1007/s11357-022-00668-3. PMID: 36242693.

**Resting energy expenditure in adolescents with Down syndrome: a comparison of commonly used predictive equations.** Helsel BC, Shook RP, Forseth B, Dreyer Gillette ML, Polfuss M, Miller B, Posson P, Steele R, **Thyfault JP**, et al. *J Intellect Disabil Res.* 2023 Feb;67(2):112-22. doi: 10.1111/jir.12995. PMID: 36423896.

**Concomitantly higher resting arterial blood pressure and transduction of sympathetic neural activity in human obesity without hypertension.** Holwerda SW, Gangwish ME, Luehrs RE, Nuckols VR, **Thyfault JP**, Miles JM, Pierce GL. *J Hypertens.* 2023 Feb 1;41(2):326-35. doi: 10.1097/hjh.0000000000003335. PMID: 36583358.

## FACULTY PUBLICATIONS

**High-fat/high-sucrose diet worsens metabolic outcomes and widespread hypersensitivity following early-life stress exposure in female mice.** Frick JM, Eller OC, Foright RM, Levasseur BM, Yang X, Wang R, Winter MK, O'Neil MF, Morris EM, **Thyfault JP**, et al. *Am J Physiol Regul Integr Comp Physiol.* 2023 Mar 1;324(3):R353-R67. doi: 10.1152/ajpregu.00216.2022. PMID: 36693166.

**Sexually dimorphic hepatic mitochondrial adaptations to exercise: a mini-review.** Kugler BA, **Thyfault JP**, McCoin CS. *J Appl Physiol (1985).* 2023 Mar 1;134(3):685-91. doi: 10.1152/jappphysiol.00711.2022. PMID: 36701482.

**Exercise and inactivity as modifiers of cell function and type 2 diabetes risk.** Hall LG, **Thyfault JP**, Johnson JD. *J Appl Physiol (1985).* 2023 Apr 1;134(4):823-39. doi: 10.1152/jappphysiol.00472.2022. PMID: 36759159.

**Pre- and Post-Sexual Maturity Liver-specific ER Knockout Does Not Impact Hepatic Mitochondrial Function.** Fuller KNZ, Allen J, Kumari R, Akakpo JY, Ruebel M, Shankar K, **Thyfault JP**. *J Endocr Soc.* 2023 May 5;7(6):bvad053. doi: 10.1210/jendso/bvad053. PMID: 37197409.

**Editorial: Systemic implications of Alzheimer's disease.** Cortes CJ, **Thyfault JP**, Wilkins HM. *Front Aging Neurosci.* 2023 May 23;15:1219987. doi: 10.3389/fnagi.2023.1219987. PMID: 37287872.

**Exercise drives metabolic integration between muscle, adipose and liver metabolism and protects against aging-related diseases.** Cao X, **Thyfault JP**. *Exp Gerontol.* 2023 Jun 1;176:112178. doi: 10.1016/j.exger.2023.112178. PMID: 37085127.

**Ketolysis is required for the proper development and function of the somatosensory nervous system.** Enders J, Jack J, Thomas S, Lynch P, Lasnier S, Cao X, Swanson MT, Ryals JM, **Thyfault JP**, et al. *Exp Neurol.* 2023 Jul;365:114428. doi: 10.1016/j.expneurol.2023.114428. PMID: 37100111.

**Exposure to early life stress impairs weight loss maintenance success in mice.** Foright RM, McQuillan TE, Frick JM, Minchella PM, Levasseur BM, Tinoco O, Birmingham L, Blankenship AE, **Thyfault JP**, Christianson JA. *bioRxiv* [Preprint]. 2023 Jul 20:2023.07.19.549724. doi: 10.1101/2023.07.19.549724. PMID: 37503190.

**Early-life stress perturbs the epigenetics of Cd36 concurrent with adult onset of NAFLD in mice.** Fu Q, Frick JM, O'Neil MF, Eller OC, Morris EM, **Thyfault JP**, et al. *Pediatr Res.* 2023 July 21. doi: 10.1038/s41390-023-02714-y. PMID: 37479748.

**Disruption of Hepatic Mitochondrial Pyruvate and Amino Acid Metabolism Impairs Gluconeogenesis and Endurance Exercise Capacity in Mice.** Martino MR, Habibi M, Ferguson D, Brookheart RT, **Thyfault JP**, Meyer GA, et al. *bioRxiv* [Preprint]. 2023 Aug 23:2023.08.22.554345. doi: 10.1101/2023.08.22.554345. PMID: 37662392.

**Relationship of Muscle Apolipoprotein E Expression with Markers of Cellular Stress, Metabolism, and Blood Biomarkers in Cognitively Healthy and Impaired Older Adults.** Johnson CN, McCoin CS, Kueck PJ, Hawley AG, John CS, **Thyfault JP**, et al. *J Alzheimers Dis.* 2023;92(3):1027-35. doi: 10.3233/jad-221192. PMID: 36847010.

**Divergence in aerobic capacity influences hepatic and systemic metabolic adaptations to bile acid sequestrant and short-term high fat/sucrose feeding in rats.** Kugler BA, Cao X, Wenger M, Franczak E, McCoin CS, Von Schulze A, Morris EM, **Thyfault JP**. *Am J Physiol Regul Integr Comp Physiol.* 2023. doi: 10.1152/ajpregu.00133.2023. PMID: 37811712.

**DANIEL TILDEN, M.D.**

**Sedentary Behavior and Physical Activity Associated with Psychosocial Outcomes in Adolescents with Type 1 Diabetes.** Tilden DR, Noser AE, Jaser SS. *Pediatr Diabetes.* 2023:2023:1395466. doi: 10.1155/2023/1395466. Epub 2023 Apr 5. PMID: 37614407.

**HUBERT TSE, Ph.D.**

**Nanothin Conformal Coating with Poly(N-vinylpyrrolidone) and Tannic Acid (PVPON/TA) Preserves Murine and Human Pancreatic Islets Function.** Polishevskaya K, Kelly S, Kuppam P, Seeberger KL, Aggarwal S, Paramor J, Unsworth LD, **Tse HM**, Korbitt GS, Pepper AR. *Pharmaceutics.* 2023;15(4). doi: 10.3390/pharmaceutics15041137. PMID: 37111623.

## RECENT GRANTS AND CONTRACTS

Source: NIH, NIDDK; K01 DK126990  
 Title: Adipose-specific Phosphatidic Acid Phosphatase Activity of Lipin 1 Regulates Systemic Insulin Sensitivity  
 Total cost: \$519,813  
 Length: 08/04/2021-07/31/2025  
 Role: **Andrew Lutkewitte, Ph.D. (PI)**

Source: NIH, NIGMS COBRE; P20GM144269-02  
 Title: Dysfunctional Adipose Tissue's role in Hepatic Metabolism  
 Total cost: \$150,000 per year  
 Length: 2024 – 2027  
 Role: **Andrew Lutkewitte, Ph.D. (PI)**

Source: NIH, NIDDK; K12DK133995  
 Title: National Physician-Scientist Career Development Award  
 Total cost: \$192,996  
 Length: 8/2022 – Present  
 Role: **Daniel Tilden, M.D. (PI)**; David Maahs, Linda DiMeglio (Multi-Center PD's)

Source: American Diabetes Association Junior Faculty Development Award  
 Title: Intermittent Fasting for the Treatment of Type 2 Diabetes.  
 Total cost: \$138,000 per year  
 Length: 2022 – 2025  
 Role: **Felicia Steger, Ph.D., RD (PI)**

Source: NIH, NIGMS COBRE; P20GM144269-02 8116  
 Title: Glycemic effects of intermittent fasting for patients with type 2 diabetes  
 Total cost: \$234,981 per year  
 Length: 2023 – 2026  
 Role: **Felicia Steger, Ph.D., RD (PI)**

Source: NIH, NIDDK; R01 DK131716  
 Title: Islet encapsulation to elicit localized immunosuppression and immune modulation following transplantation  
 Total cost: \$3,674,155  
 Length: 4/1/23 – 3/31/28  
 Role: **Hubert Tse, Ph.D. (PI)**

Source: Juvenile Diabetes Research Foundation; 3-SRA-2023-1392-S-B  
 Title: Repurposing LRRK2 inhibitors for beta-cell protection in T1D  
 Total cost: \$184,684  
 Length: 7/01/23 – 6/30/26  
 Role: **Hubert Tse, Ph.D. (Co-I)**; Scott Soleimanpour (PI)

Source: NIH, NIGMS COBRE; P20GM144269  
 Title: Kansas Center for Metabolism and Obesity REsearch (KC-MORE)  
 Total cost: \$11,905,339  
 Length: April 1, 2022 to February 28, 2027  
 Role: **JP Thyfault, Ph.D., FACSM, FTOS (MPI)**; S Weinman (MPI)  
 \*Metabolic Core with an annual budget of \$180,000 will be conducted in lab

Source: NIH, NIDDK; T32DK128770  
 Title: Translating Obesity, Metabolic Dysfunction, and Comorbid Disease States  
 Total cost: \$1,345,232  
 Length: June 1, 2022 to May 31, 2027  
 Role: **JP Thyfault Ph.D., FACSM, FTOS (MPI)**; DE Wright (MPI)

Source: NIH, NIA; R01 AG081304  
 Title: Feasibility of Improving Glycemia to Prevent Alzheimer's Disease  
 Total cost: \$1,559,397  
 Length: 2022-2027  
 Role: **Paige Geiger, Ph.D. (PI)**, **Jill Morris, Ph.D. (PI)**