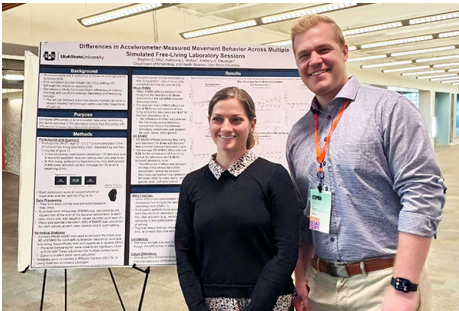


CEHS Undergrads Share Their Research Findings at the Fall Student Research Symposium

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Professor Kimberly Clevenger with undergraduate researcher Stephen May at the 2024 Undergraduate Research Fair

USU is celebrating a remarkable milestone in 2025 as it commemorates 50 years of groundbreaking undergraduate research. One key feature of that milestone is the annual Fall Student Research Symposium, an event sponsored by the USU Office of Research, which offers a unique opportunity for undergraduates to present their own research findings.

"We are delighted to see so many CEHS undergraduate students engaged in research at USU," says Shawn Whiteman, associate dean for research and innovation in the Emma Eccles Jones College of Education and Human Services (CEHS). "Undergraduate research has long been a cornerstone of the academic experience at USU, with participation providing experiential opportunities to advance critical thinking, problem solving, and creativity. By partnering with their faculty and graduate student mentors, these students also help further the discovery mission of the university."

"The Fall Student Research Symposium celebrates the dynamic role that undergraduates play in USU's R-1 research enterprise," adds Alexa Sand, associate vice president for research. "Participating in undergraduate research has proven benefits for students, such as higher GPA and better graduation rates, but at the symposium you get to see our amazing undergrads talking confidently to faculty and graduate students about the cutting-edge

work they've been doing and the ways they're already changing the world."

Comparing Free-Living Versus Laboratory Movement Data

Stephen May, an undergraduate student in the Department of Kinesiology, has presented his research at the symposium for the past two years. Last year, May compared activity monitor data collected in a laboratory setting to free-living, where participants do activities of their choice, on their own time, and without researchers observing them. Participants performed some activities differently depending on the setting, and there were many activities they did in free-living which couldn't be done in the lab, such as rock climbing or piloting an airplane. He also presented his findings at the American College of Sports Medicine conference in Boston, Massachusetts in May 2024.

The USU Office of Research awarded May an Undergraduate Research and Creative Opportunities (URCO) grant to expand on his work, so this year, May has taken the study a step further. He wanted to be sure the movement differences between the lab and free-living were greater than the difference between two lab visits. "Essentially," says May, "we want to be sure the amount of variability is due to the setting and not how much difference there is in movement across time."

"My goal is to verify that free-living data is more representative of how people move, so that in validation studies, we will get a better representation of how people really behave," May explains. "Theoretically, researchers could mail accelerometers around the world to people to get much larger and more diverse sample size and activities. It opens up the type of people, type of activities, and sample sizes used in validation studies in the future."

Kimberly Clevenger, May's mentor and an assistant professor in the Department of Kinesiology, explains, "This project can fundamentally change how we measure physical activity. Research takes a long time, so it is impressive that Stephen has seen this project through the entire process—from data collection, to acquiring funding, and disseminating the results."

Examining Misophonia for Inclusion in Academic Literature



Hailey Johnson

Hailey Johnson, an undergraduate student in the Department of Psychology and research assistant for Professor Michael Twohig in the ACT (Acceptance and Commitment Therapy) Research Lab, presented a poster at the fair that details the research she has done on understanding and characterizing misophonia.

According to Johnson, the disorder has not been established in any diagnostic classification system nor have experts reached consensus on whether it should be classified as purely a neurological, audiological, or psychological problem. People who suffer from misophonia often experience avoidance, anger, isolation, or anxiety when exposed to sometimes ordinary sounds such as chewing, breathing, and tapping. In her study, Johnson reviewed interviews of 60 individuals with clinically significant misophonia.

"For the project, I watched interviews the ACT lab had conducted with participants to analyze their experiences with misophonia," explains Johnson. "I transcribed the video interviews and categorized participant responses into cognitive, emotional, and behavioral characteristics, then analyzed the responses to see the most frequently reported responses."

Mercedes Woolley, doctoral student in the ACT Research Lab and mentor to Johnson, remarked, "It is inspiring to witness an undergraduate take charge of such a large and ambitious project. A qualitative study involving 60 individuals is a significant undertaking for any researcher,

particularly for an undergraduate. Hailey's interest in this under-researched population and her initiative in designing and executing her own project are remarkable and highlight her potential for a promising research career."

Johnson plans to publish her findings in a scientific bulletin where she will recommend that misophonia be classified as a multidisciplinary disorder with significant psychological symptoms, as it affects conditions, emotions, and behaviors. She will graduate in May 2025 and plans to work as a research assistant while she decides her area of research and prepares for her PhD.

Determining Whether a Child's Sex Impacts Parenting Alliance and Brain Activation



Anna Bailey and Matthew Cook

Anna Bailey, who graduated with her bachelor's degree in psychology with a minor in chemistry last May, presented her research at the symposium under the guidance of faculty mentor, HDFS Professor Lisa Boyce and HDFS doctoral student, Matthew Cook. "Anna was giving so much to the project that I was very invested in making sure she got the best experience possible," explains Boyce. "She is bright and went above and beyond to ensure our study was going forward. We worked together to find something we could embed into our larger study."

Bailey's research examined whether a child's sex impacts the association between parenting alliance—parents who incorporate positive parenting practices in raising their children—and the child's brain activation. The study was conducted in Boyce's lab under the supervision of Cook. It examined oxygen levels of hemoglobin in the brain and its correlation to parenting alliance. Bailey explains that she was interested in looking at if a child's sex made a difference in their overall brain activation. "The measure examined whether there was a difference in male activation and female activation dependent on the parenting alliance," said Bailey. "We found that the higher the male activation or the higher the parenting alliance was in male children's brain activation, it would lower their prefrontal cortex activation levels."

Bailey concluded that when males were able to develop their autonomy, their executive functioning skills were more robust, unlike females. Her measures on parenting practices and the difference between male and female children determined that the desired outcome is for parents to foster positive parenting practices while increasing their child's autonomy.

Overall, Bailey felt the experience provided her with research experience for graduate school. "Working in Dr. Boyce's lab is the reason I want to get a PhD and look at children through the lens of neuroscience. I think that being able to answer questions I haven't been asked is always a good pursuit and is a good use of time and energy," said Bailey.

As a graduate student mentor, Cook recognizes the benefit of Bailey presenting her research in the event. "I wanted Anna to gain presenting and public speaking experience. It's important for her to learn about first author research and conduct a quality project," says Cook. "Learning how to take a presentation from start to finish but also looking at the process—how we design a study, how we look at the study, what the statistics are, and how we know what to expect."

Bailey is currently applying for graduate schools. She hopes to be accepted into a PhD program in neuropsychology. "After I graduate, I want to do pediatric neuropsychological testing in hospitals. I initially went into psychology knowing I wanted to help children, but this research and some of my classes sparked my interest in neuroscience. I found out that I also love research, so I want to get a research-based degree with an emphasis in clinical assessment," said Bailey.