

PHYSIOLOGY NEWS

JANUARY 1-MARCH 31 2026



The Department of Physiology is celebrating three highly decorated young scientists who are receiving their PhD degrees - **Stephanie Lee, Nicholas Harris, and Eden Gallegos**. All of them earned their PhDs as part of the MD/PhD Program. We especially celebrate their representation of the collaborative strengths between the School of Graduate Studies and School of Medicine to produce the next generation of stellar physician-scientists to meet the challenging needs of Louisiana and the nation.

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Dear All,

We are at that time of year, when the skies are blue, the sun shines bright, the breeze moves the leaves, flowers are blooming, and life seems to be a bit happier, lighter, and full of promise. Until we read the news and are faced with real life events around us. I understand how difficult it is to keep a positive attitude and remain optimistic when there is so much turmoil in our world and it seems that everything that we know is constantly changing. From funding priorities to guidelines for grant submissions, schedules for reviews, and what feels like an eternal wait for funding decisions. As if our environment at large, going through significant changes was not enough, we have experienced recent leadership changes within our institution that took many of us by surprise. Change elicits fear and uncertainty. As Physiologists we know there is an acute stress response to change that with normal counterregulatory mechanisms we can terminate and adjust to a new set point. When the change is repeated and unexpected it makes adapting challenging. Our behavioral physiologists would recognize that it leads to social defeat. When going through a constant adjustment in response to change, it becomes challenging to focus, be productive, and make progress.

Finding solace and inspiration that is effective for each one of us takes different shapes and forms. For some it is exercise, for others it is comfort food, for some (hopefully not many) it is alcohol. I believe in reflection, and in seeking parallels to our challenges and learning from how others have faced those challenges. In some cases, I have found inspiration from predictable figures. Other times from the least expected person. One of my all-time heroes is Winston Churchill. His spirit, tenacity, and resilience were critical during some of the most difficult times in our history. I am not as brave as Winston. But I think we can try to use his words to inspire us during these challenging times.

"Have no fear of the future. Let us go forward into its mysteries, tear away the veils which hide it from our eyes, and move onwards with confidence and courage". Winston Churchill, September 28, 1943. National Conference on Women

As Dr. Karam told us last week. *We are good enough to be in the game.* It is up to us to reach that excellence that we all strive for. Now more than ever, we need each other's strengths, inspiration, and support to navigate the uncertain times we face with confidence and courage.

Sincerely,

Patricia

Best wishes for 2026!



Inside this edition Editor, Liz Simon

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REFLECTIONS BY PHD GRADUATES- DRS. EDEN GALLEGOS, NICHOLAS HARRIS, STEPHANIE LEE

The PhD graduates secured independent NIH F30 fellowship funding to launch their early careers as translational physiologists. They were supported earlier by our institutional NIH/NIAAA T32 Biomedical Alcohol Research Training Program, Director Dr. Patricia Molina. Their work exemplifies the highly innovative nature of biomedical sciences research on campus and spans from molecular and cellular modeling of complex biological systems to psychosocial drivers of how alcohol and other drugs of abuse impact the most vulnerable individuals in our community. Their early scientific achievements are highlighted by over a dozen combined research publications, and numerous symposia presentations.

Graduate school is rarely a straight line. It is marked by long experiments, unexpected findings, moments of self-doubt, and breakthroughs that make all of it worthwhile. For the three of us, pursuing our graduate training in the Department of Physiology as part of the MD/PhD program meant navigating that winding path together, shaped by mentors who believed in our potential, colleagues who challenged and supported us, and a community that reminded us, again and again, why this work matters. Though our projects, questions, and labs differed, we shared a common experience: one defined by rigorous science, genuine collaboration, and the kind of growth that extends far beyond the bench.

Eden Gallegos:

My graduate school experience has been defined by an environment that truly encouraged scientific discovery and the freedom to explore. Early on, I had a pivotal conversation with my PI, Dr. Liz Simon, who set the tone for the next four years. I had brought her some manuscripts showing that HepaRG cells could metabolize alcohol, which was a critical feature since many hepatocyte cell lines lack that capability. As I was reviewing the literature to support choosing HepaRG for our work, I noticed something exciting in those papers: organoid and spheroid models outperformed traditional monolayer cultures. It was a cool observation I mentioned, though I did not push it given that HepaRG already had the alcohol metabolism we needed, and hepatocyte studies were already a new approach in the lab. But when I brought it up, Dr. Simon looked at me with genuine excitement and asked, “Why can’t we do the organoids as well?” In that moment, a collaborative spirit of pushing limits was established, a sense that we could dream bigger together. She believed in the work and in me, and that partnership became the foundation for how we approached decisions over the next four years. We were not afraid to try new things, to take strategic risks informed by the literature, and to understand that not every experiment would pan out. But when we stayed thoughtful and intentional, those explorations led to discoveries that strengthened our understanding of the system we were developing. That work eventually culminated in a first-author paper on hepatocyte metabolic and mitochondrial function that came out at a fortuitous moment: right as new diagnostic criteria for alcohol-associated and metabolic liver disease were being established, giving our findings heightened clinical relevance. Beyond Dr. Simon’s mentorship, this environment was built by everyone around me. The PIs in the lab would shoot me a smile when they would see me rushing down the hallway between experiments and classes, giving me encouraging words that made the long days feel purposeful. My peers and close lab mates created something equally essential. We built a space where we worked hard and challenged each other’s ideas but also made time for movie nights, camping trips, and genuine friendship. We have celebrated each other’s wins, supported each other through setbacks, and never tried to pull anyone down. We have all tried to lift each other up, pursuing excellence while also protecting a

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work-life balance that kept us sane. That camaraderie and sense of mutual investment in each other's success is something I could not have succeeded without. As I transition back to medical school, I hope to carry that spirit forward and continue lifting up those around me the way this community lifted me.

Nicholas Harris

My time in the Department of Physiology has been the most challenging and rewarding experience of my life. It began even before I set foot in the lab, shortly after being accepted to the MD/PhD program, Dr. Gardner sat down with me to share his vision for his research and the role I had in the lab, and from that conversation, I knew this was where I was meant to train. Under his mentorship, I grew from a student learning techniques into an independent scientist capable of designing and defending my own research, a transformation I could not have achieved without his guidance. But Dr. Gardner was not alone in shaping that growth. The department's faculty invested in me well beyond the walls of my own project, challenging me in areas outside my expertise, supporting my work, and modeling what it means to be a rigorous scientist and educator. That spirit of education extended to my own teaching as well, the opportunity to help instruct future classes of nursing students was daunting at first, but it is one of the most genuinely rewarding parts of my graduate experience. I also found an unexpected but invaluable classroom in our Student Work in Progress seminars, where the low-pressure, peer-driven format created space to think critically, ask honest questions, and learn from science across the department in a way that formal coursework simply cannot replicate. Perhaps most importantly, I found a collaborative environment where my own expertise was welcomed on projects beyond my dissertation, and where I could contribute to the scientific thinking of others. And through all of it, the long experiments, the hard classes, the moments of doubt, my fellow graduate students were there, offering support that extended far beyond the lab. I leave this department deeply grateful and carrying forward everything it gave me.

Stephanie Lee

My time as a graduate student in the Department of Physiology has been both intellectually demanding and deeply formative. I have had the tremendous opportunity to engage in research that bridges human studies, non-human primates, and rodent models. This translational approach has not only sharpened my scientific thinking but also reinforced the importance of connecting findings across models in a way that feels meaningful. Under the guidance of my mentor Dr. Scott Edwards, whose insight and rigor continuously pushed me to refine my ideas, I learned how to think critically and communicate clearly as a scientist. Even outside the lab, he was always there for me whenever I needed guidance or someone to listen. Equally meaningful, if not more, has been the community that surrounded me throughout this journey. The friendships I built made even the most difficult moments manageable and the successes more rewarding. Whether it was troubleshooting experiments, preparing for presentations, or simply sharing everyday life, these relationships grounded me and reminded me that science is never done in isolation. Together, these experiences have shaped not only the scientist I am becoming, but also the person I hope to be moving forward.

Looking back, what strikes us most is not any single experiment or publication, but the people. The mentors who asked us bigger questions than we thought to ask ourselves. The fellow students who showed up during the hard stretches and celebrated the good ones. The department that invested in us as scientists and as human beings. Each of us is leaving with a dissertation, but also with something harder to quantify: a way of thinking, a standard for collaboration, and a deep appreciation for what it means to be part of a scientific community. As we return to the clinical side of our training and eventually into careers that bridge medicine and research, we carry this department with us. We are better physicians and scientists for having been here, and we are grateful.

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Awards

Dr. Stephanie Lee was awarded the Paul S. Roheim Award of Excellence in Research, given annually to the physiology department's most accomplished graduate student over the past calendar year. Stephanie receives a \$500 travel award to attend a scientific conference of her choice.

Grants

Meagan Donovan was awarded the American Physiological Society's 2026 Porter Physiology Development Fellowship. The Fellowship includes a stipend for one year of the PhD program, and Meagan will participate in APS' professional development activities.

Professional services

Dr. Scott Edwards served on the NIH/CSR Molecular and Cellular Neuropharmacology (MCNP) study section in March 2026.

Dr. Eden Gallegos organized the Specialty Interest Breakfast for the AAP/SCI/APSA Joint Meeting for physician Scientist at Chicago II. The symposium coordinated efforts of over 30 physician-scientist mentors to interact with potential future trainees and for the trainees to gain career insights. **Dr. Gallegos** also presented a poster titled "Chronic binge alcohol and simian immunodeficiency virus differentially alter

hepatic lipid and mitochondrial processes in the context of a high fat and sucrose diet"

Publications

Chapa-Dubocq, X.R., Vita, S.M., Guzmán-Hernández, R., **Molina, P.E.** (2026) Traumatic brain injury and alcohol: A narrative review of the role of mitochondrial dysfunction and ferroptosis in neurocognitive outcomes. *Alcohol: Clinical & Experimental Research*. DOI: 10.1111/acer.70267

Chapa-Dubocq XR, Edwards S. (2026) Mitochondrial Dysfunction at the Intersection of Alcohol Use Disorder and Chronic Pain. *Function*. 7(2): e0912025

Chapa-Dubocq XR, Jacotte-Simancas A, Martinez-Santana A, Simon L, Edwards S, Molina PE. (2026) Alcohol-Mediated Cognitive Impairment Following Traumatic Brain Injury: Evidence for Cortical Mitochondrial Dysfunction. *Neurotrauma Reports*. 2026 7.1

Klinefelter SB, **Johnson L**, Cruise SC, **Vita S**, Weeden C, **Secci ME, Gilpin NW, Avegno EM.** (2026) CeA-projecting VTA neurons contribute to alcohol withdrawal-induced anxiety-like behavior in male and female rats. *Alcohol*. 2026 131:46-51. doi: 10.1016/j.alcohol.2026.02.001.

Secci ME, Johnson L, Lobell T, Long S, Shepherd L, **Gilpin NW, Avegno EM.** (2026) Chronic alcohol exposure parametric effects on anxiety- and pain-related behaviors in adult rats. *Alcohol*. 131:21-28. doi: 10.1016/j.alcohol.2026.01.157.

Molina PE, Simon L (2026). Alcohol and the endocrine system: A critical review of disruptions, potential mechanisms, and health implications. *Alcohol Clinical Experimental Research* 50(1): e70221. PMID: 41527255.



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Presentations

Dr. Elizabeth Avegno presented the talk "Mesoamygdala contributions to anxiety-like behavior in rats" at RSA Gordis Awardees: Where are they now webinar.

Dr. Ilse Pamela Alonso-Vazquez presented the seminar titled "Neural circuit adaptations in alcohol withdrawal: from sleep disruption to chronic pain vulnerability" at the Physiology Seminar Series.

Dr. Scott Edwards presented an update of future aims of our Comprehensive Alcohol-HIV/AIDS Research Center (CARC) at the International URBAN ARCH Center Annual Meeting in March 2026.

Dr. Eden Gallegos presented the dissertation seminar at the Physiology Seminar Series titled "Interactions of alcohol and dietary metabolic stressors on hepatic lipid and bioenergetic adaptations: implications for people with HIV."

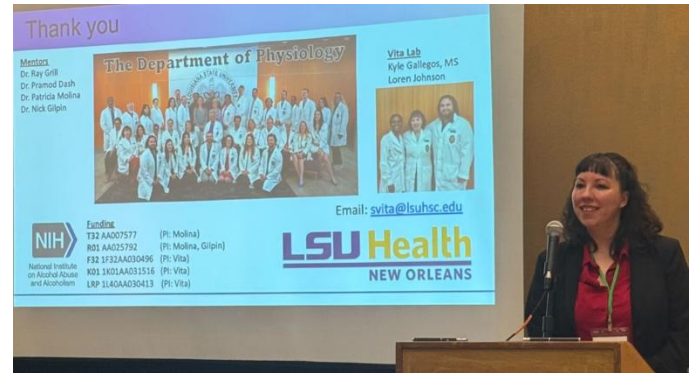
Dr. Nicholas Harris presented the dissertation seminar at the Physiology Seminar Series titled "Cardiovascular consequences of polysubstance use: dual chronic plus binge alcohol and nicotine vape."

Dr. Stephanie Lee presented the dissertation seminar at the Physiology Seminar Series titled "Alcohol and cannabinoid system interactions in the context of pain and alcohol use disorder."

Dr. Janos Paloczi presented the seminar titled "The interplay of endocannabinoids and alcohol drinking in cardiovascular physiology" at the Physiology Seminar Series.

Dr. Sydney Vita gave an invited seminar "Blood-Brain Barrier Disruption as a Driver of Neurodegenerative Disease" at the LSU School of Veterinary Medicine, Comparative Biomedical Sciences Department Seminar Series. Baton Rouge, in January.

Dr. Sydney Vita was the Keynote Speaker at the Mississippi Academy of Sciences (MAS) 85th Annual Meeting. Biloxi, MS. March 19, 2026. Dr. Vita presented the talk titled "Neurodegenerative Consequences of Blood-Brain Barrier Injury"



Notable Events

Kaitlin Couvillion, Meagan Donovan, and MC DeMatteo represented the Department of Physiology and ADACE at Fitness Friday in February 2026. Later in February, **Nicholas Harris, Stephanie Lee, and Kathryn Reaux** organized outreach efforts at the Peer Advocate Liaison (PAL) Resource Fair.

Dr. Janos Paloczi had the opportunity to meet with the Hungarian President (Dr. Tamas Sulyok), who visited New Orleans and the Hungarian diaspora for the Hungary national holiday in March.



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Congratulations to John Lammons (\$100) and **Dr. Taylor Fitzpatrick-Schmidt** (\$60) on securing first and second place in the School of Graduate Studies 2025-26 College Football Bowl Pick 'Em Challenge!

Congratulations to **Dr. Taylor Fitzpatrick-Schmidt** (\$20), **Meagan Donovan** (\$20), **Kyle Gallegos** (\$20), and **Kaitlin Couvillion** (\$40) for winning the Physiology Graduate Student Super Bowl Squares Contest!

Congratulations to **Dr. Taylor Fitzpatrick-Schmidt** (Best Bracket, \$100) and **T35 Fellow Emmanuel Levy** (Worst Bracket, \$100) for winning the 2026 Physiology March Madness Tournament Pool! We hope to see everyone in a couple of months for our FIFA World Cup 2026 Pool featuring exquisite watch parties in the new MEB Faculty Club!

The Association for Women in Science South Louisiana Chapter (AWIS-SL) hosted a science education outreach event at the Metairie Academy for Advanced Studies, Science Magnet School, February 26, 2026. Volunteers from the department included: **Dr. Elizabeth Avegno**, **Kaitlin Couvillion**, **Zaidmara Diaz**, **Meagan Donovan**, **Dr. Lisa Harrison-Bernard**, and **Dr. Keishla Rodriguez-Graciani**.



Dr. Sydney Vita and **Dr. Rajani Maiya** celebrated Holi at the NOLA Holi Festival.