University of Nebraska Medical Center
BREAKTHROUGHS FOR LIFE.

WINTER 2024

NeuroNExT

from the Departments of Neurological Sciences & Neurosurgery

Welcome to the New Year!

With 2023 in the ledgers and 2024 ahead, we wish you, your families, and colleagues the greatest health, happiness, love, and opportunities throughout the new year. In these chaotic times, we maintain our focus on delivering superlative health care for our patients, scientific discovery that can change lives, comprehensive training of our next generations of much-needed academic clinicians, educators and researchers, and ever-better healthcare access and outcomes for all, across the broad communities we serve.

This winter newsletter features upcoming research and treatment for dementia. Kuan-Hua Chen, PhD, and lab, focus on care for dementia patients and their often-overlooked caregivers. DONS adjunct faculty, Mary Perkinson, DMA, an award-winning musician, professor, and community leader, sheds light on the importance of music especially for patients with dementia and getting students engaged in the power of music for these individuals.

Olga Taraschenko, MD, PhD, spoke at the American Epilepsy Society on providing epilepsy aid to people in Ukraine wrenched by the war, and supporting our colleagues there to overcome major disruptions in patient care.

The Great Plains IDeA-CTR 7th annual meeting was a rousing success attended by a diverse group of researchers, educators, clinicians, and students across our CTR partner network. Neurosurgery welcomed new staff and held its inaugural fall visiting professorship lecture.

You'll also read updates from our accomplished faculty and their personal endeavors, along with conferences, hospital and personal awards, highlighted publications, and grants.

We hope you enjoy our NeuroNExT Newsletter!

Matthew Rizzo, MD, FAAN
Frances and Edgar Reynolds Professor and Chair
Department of Neurological Sciences

Aviva Abosch, MD, PhD
Nancy A. Keegan & Donald R. Voelte, Jr. Professor and Chair
Department of Neurosurgery

Howard Fox, MD, PhD
Senior Associate Dean, Research and Development, College of Medicine
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In This Issue

CHEN Lab Investigates Synchrony in Positive Emotion Between Dementia Patients and Caregivers

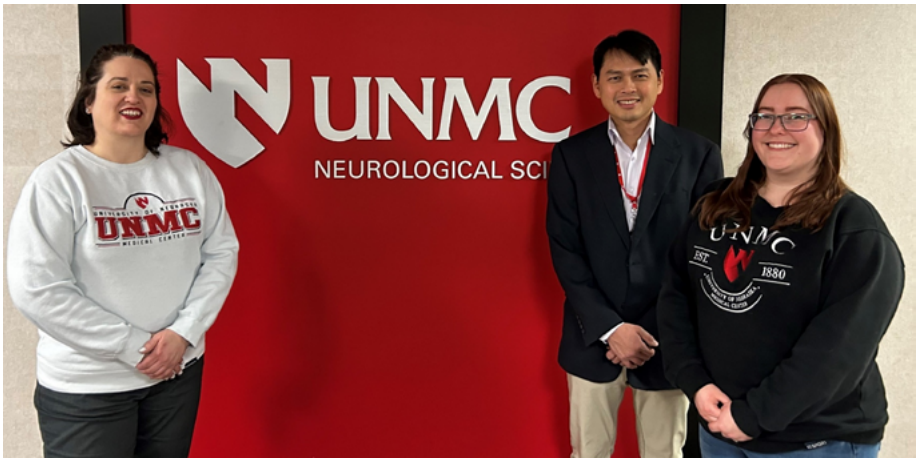
by Kuan-Hua Chen and lab

Dementia is associated with profound atrophy in large-scale brain networks and declines in cognitive, social, and emotional functioning.

In recent work by the CHEN lab, researchers found that dementia patients and spousal caregivers are less synchronized in their positive emotions, and this effect is further linked to worse caregiver mental health.

In the Clinical Health, Emotion, and Neuroscience (CHEN) laboratory, we explore how human brains, emotions, and social functioning change in dementia and how these changes affect the health and well-being of patients and family caregivers.

Dementia affects not only the patients but also their family caregivers. However, past research and clinical work have focused on only one person in the dyads — the patient. To investigate how dementia produces negative effects on patients and caregivers at the dyadic level, the CHEN lab studied "emotional synchrony," or the degrees to which the dyad's emotional behaviors are synchronized to each other (increase and decrease at the same time) during face-to-face interactions.



Chen Lab: From left to right: Research Coordinator Kat Moss, Assistant Professor Kuan-Hua Chen, PhD, and Clinical Research Associate Ahria Dominguez

Twenty-three patients with frontotemporal dementia (FTD) and 22 patients with Alzheimer's disease (AD) were invited to the laboratory to have a 10-minute conversation with their spousal caregivers about a topic of disagreement in their relationship. Additionally, 14 healthy control couples were invited as comparisons and performed the same tasks. Researchers video-recorded the conversations, and based on the recording, coded positive emotions and negative emotions of patients and caregivers, and computed synchrony in the dyad's positive and negative emotions.

The researchers first found that compared to healthy control dyads, both FTD and AD dyads had lower synchrony in their positive emotions. Interestingly, there were no group differences for synchrony in negative emotions. These findings shed light on how dementia may specifically disrupt the experience and sharing of positive emotions during dyadic interactions between the patients and family caregivers.

cont. pg. 3

Kuan-Hua Chen, PhD, is an assistant professor in the DONS. He received his PhD in neuroscience at the University of Iowa, and then completed postdoc training at University of California, Berkeley, and University of California San Francisco. Dr. Chen's program of research seeks to optimize brain, emotional, and social health in rural and urban aging Americans in their homes and other healthcare settings. He also develops innovative technologies to conduct real-world assessments and interventions.

CHEN Lab from pg. 2

The researchers also found individual differences within patient-caregiver dyads. Caregivers with greater positive emotional synchrony with the patients under their care reported higher emotional well-being. Importantly, these effects are specific to the dyadic level, as the caregiver's emotional well-being was not significantly associated with their own or the patient's positive emotions during the conversation.

These findings support theories in close relationships that sharing and connecting our positive emotions with others are critical for health and well-being. When patients do not recognize or respond to positive emotions, caregivers may feel increasingly interpersonally distanced and socially isolated, which may lead to declines in their emotional well-being and mental health.

There are currently over 55 million individuals worldwide living with dementia, and the number is projected to increase dramatically in the near future. The findings of this research advance the understanding of how dementia affects patients and caregivers at the dyadic level and the identification of risk factors for caregiver health declines. Together, these may inform future interventions that target these interpersonal processes to help protect caregivers and the people in their care from adverse health outcomes.

More on these findings can be found here: **https://bit.ly/3Uf2AF8**

Welcome New Staff!

Izzabella Wentz joined the Department of Neurosurgery as a clinical research assistant. She will be supporting efforts of the vascular neurosurgery faculty and augmenting current efforts within the department.

A native of Fremont, Neb., Izzabella is currently studying medical anthropology and behavioral psychology at Creighton University. She is interested in how the mind works, specifically the behavioral and social aspects that facilitate how people interact, learn, and develop. She loves the combination of anthropology and psychology because it allows synergistic understanding of the whole person, along with internal mental processes.

We are excited to announce our neurosurgery chief resident, **Joseph Menousek, MD**, recently matched to the University of Pittsburgh's Pediatric Neurosurgery Fellowship and will start July 1, 2024. Congratulations Joe. We wish you the best!

Dr. Mendel, center front row, along with Department of Neurosurgery faculty members.

On Friday, December 15, the Department of Neurosurgery welcomed Ehud Mendel, MD, as the Inaugural Fall Visiting Professorship Lecturer.

Dr. Mendel is the Nixdorff-German Professor of Neurosurgery, Executive Vice-Chair, and Spine Division Chief of Neurosurgery at the Yale School of Medicine. The faculty and residents of the Department of Neurosurgery attended Dr. Mendel's extraordinary presentation "Surgical Management of Spine Tumors" with an exquisite dinner followed at Gallery 1516 in Omaha.

Digital Health and the Exposome

In October, the NIH-funded Great Plains IDeA-Clinical Translational Research (CTR) Network held its seventh annual scientific meeting.

This year's meeting focused on Digital Health and the Exposome. The hybrid event welcomed not only UNMC faculty, staff, and students interested in translational research but also engaged external partners and the public. The reach of the meeting was impressive, with 205 individuals registering for in-person attendance and an additional 111 unique virtual participants over the two-day period.

Setting the stage for the conference, Dr. Linda Ng Boyle, Vice Dean for Research, Professor of Civil and Urban Engineering, Tandon School of Engineering, New York University, delivered a captivating keynote address on pedestrian-vehicle interactions using on-road and wearable technology. The session laid the foundation for a series of presentations delving into the realm of digital health. Topics ranged from natural language processing of patient information for clinical decision-making to leveraging artificial intelligence for integrating multi-source data streams and facilitating patient and population health triangulation, including insights into the environmental exposures that one encounters throughout life or exposome.

A noteworthy panel presentation shared best practices for assembling interdisciplinary teams, emphasizing the pivotal role of team science in advancing health outcomes.

Day two of the event featured an interactive networking session, fostering collaborations across clinical and translational research on diverse topics such as climate change, the microbiome, social determinants of health, and various diseases.

Jingwei Xie, PhD, was the winner of the ever-popular CTR Superstar competition. This competition, aimed at raising awareness of CTR, recognizes promising scholars developing innovative tools for healthcare applications. Dr. Xie was awarded $35,000 to catalyze cutting-edge research, fostering the translation of groundbreaking ideas into tangible

cont. pg. 5

Great Plains IDeA-CTR from pg. 4

From left to right: Keynote speaker, Linda Ng Boyle, PhD, from NYU-Tandon, Matt Rizzo, MD, DONS Chair, and Phil Polgreen, MD, from University of Iowa

outcomes with market and federal support. His award-winning title was "Nanofiber Capsules for Minimally Invasive Diagnosis of Esophageal Cancer."

Marisa Rosen, PhD, MPH, was named the Community Collaborator of the Year in recognition of her commitment to engaging the community in the noble pursuit of improving health in the community through research. Dr. Rosen leads the community systems core of Diabetes On Track, a rural community demonstration project funded by the Diabetes Care Foundation of Nebraska. Through her work, she contributes to an NIH National Cancer Institute-funded rural whole-of-community youth population physical activity randomized effectiveness-implementation trial evaluating the Wellscapes intervention.

The Annual Scientific Meeting brought together a diverse array of stakeholders, providing a platform to learn, exchange ideas, and identify new opportunities to propel CTR forward. This collaborative effort aligns with the noble health missions of the institution, the region, NIH, and the communities we serve. The event's success echoes the commitment to advancing translational research for the betterment of healthcare and well-being.

DONS Professor, Howard Fox, MD, PhD

Olga Taraschenko, MD, PhD, received Fellowship of the American Epilepsy Society (AES)

Olga Taraschenko, MD, PhD, was elected as a Fellow of the American Epilepsy Society. This is an honor that recognizes professional accomplishment and deep commitment to the field of epilepsy.

FAES members were recognized in the Awards and Honors booklet at the 2023 AES annual conference in Orlando, Florida, and on the AES' website.

At this annual meeting, Dr. Taraschenko also gave the talk "Epilepsy in conflict zones and war affected regions" during the Hot Topics Symposium. She presented on the delivery of anti-seizure medications that are in short supply due to the war in Ukraine.

Marco Gonzalez-Castellon, MD, and UNMC/Nebraska Medicine recognized for efforts to better manage chronic diseases and reduce cardiovascular disease

The American Heart Association has recognized UNMC/Nebraska Medicine for their efforts to pilot test a new Outpatient Quality Improvement Registry to improve chronic disease management and reduce the prevalence of cardiovascular disease.

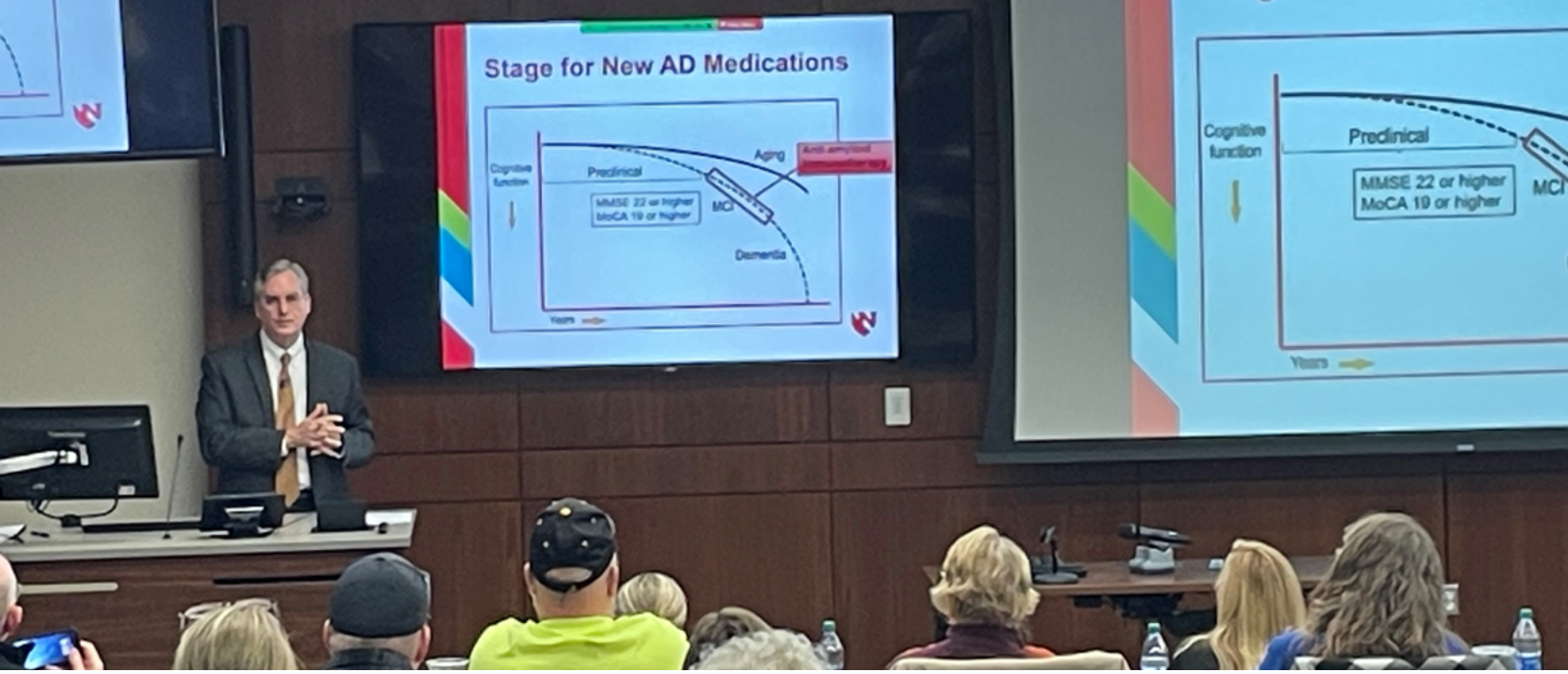
Marco Gonzalez-Castellon, MD

Denise Gorski

This pilot test is part of participation of UNMC/Nebraska Medicine in the Atherosclerotic Cardiovascular Disease (ASCVD) initiative, which aims to understand and improve the patient journey by identifying lipid management best practices that can be leveraged nationally across care settings.

The Outpatient Quality Improvement Registry harnesses the expertise of the American Heart Association, the world's leading voluntary organization focused on heart and brain health, to advance prevention and chronic disease management in the outpatient setting. The Association's commitment to registry technology is core to driving optimization of guideline-based care. Using this technology, organizations can drill into care processes and outcomes to drive mission-based outpatient care.

"Coordinated, science-guided outpatient care is a key piece of the heart health puzzle," said Howard Haft, MD, MMM, CPE, FACPE, American Heart Association volunteer; consultant, senior medical advisor, and adjunct professor of medicine at the University of Maryland School of Medicine; and former executive director of the Maryland Primary Care Program with the Maryland Department of Health. "By helping to fine tune this new valuable quality improvement tool, UNMC/Nebraska Medicine have been vital in setting a solid foundation for future quality improvement efforts at outpatient organizations across the country." This accomplishment would not have been possible without the hard work of Marco Gonzalez-Castellon, MD, and manager of the Nebraska Medicine Neurosciences Clinical Program, Denise Gorski.



Michael S. Heller Memorial Young-Onset Alzheimer's Conference

Above: Daniel Murman, MD, presenting an overview of young-onset AD.

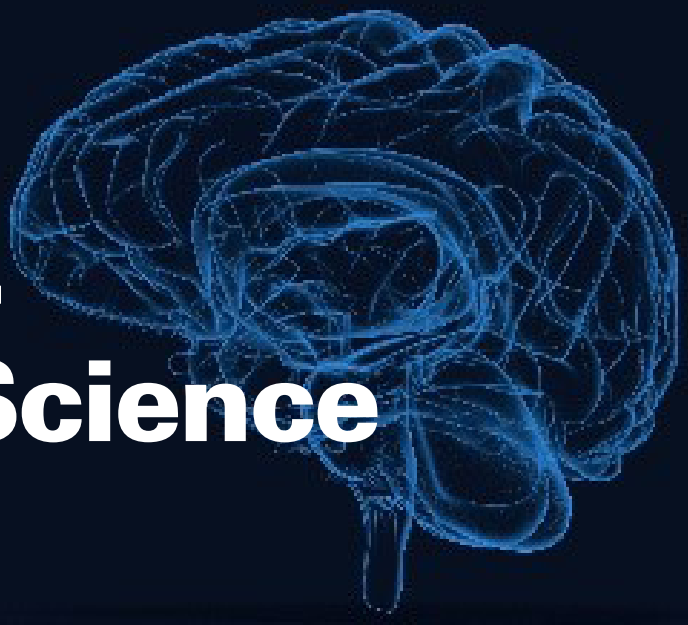
Below: Panel discussion.

The Michael S. Heller Memorial Young-Onset Alzheimer's Conference was held on November 4 in the Fred & Pamela Buffett Cancer Center on the UNMC campus. This event was made possible by a donation from Cassy Heller and the Michael S. Heller Early-Onset Alzheimer's Excellence Fund at the University of Nebraska Foundation.

Over 90 attendees gathered at this sold-out event in hopes to better understand and cope with the challenges that Young-Onset Alzheimer's disease (AD) presents to families.

Cassy Heller welcomed guests and spoke on her late husband and their experiences during Michael's battle with young-onset AD. UNMC/Nebraska Medicine faculty and staff presented on the disease and included Daniel Murman, MD, Julie Pavelka, APRN-NP, Collen Hoarty, LCSW, Diane Hendricks, LCSW, and David Thompson, Esq. of Burnett Wilson Law, LLP. Presenters gave an overview of young-onset AD and discussed psychosocial issues, navigating the healthcare system, financial planning, and navigating community resources. The presenters also held a panel discussion, which included event donor Cassy Heller.

Michael "Mike" Heller died at the age of 56 in April of 2022 after a courageous battle with early-onset, Alzheimer's disease. Mike was married to his wife Cassy for 31 years, and they had four children together. Mike had an expansive advertising career serving both local clients and national brands. His most impactful role was that of executive director of "Because People Matter," an organization that connected people in need to donated goods and services. It was in this spirit that Cassy Heller decided to donate money to the University of Nebraska Foundation to make this and similar conferences possible, with the goal of connecting young onset, Alzheimer's disease patients and their families to important individuals, information, and services.



CoNDA Center Receives Two Science Supplements

In March 2023, the National Institute of General Medical Sciences (NIGMS) released a Notice of Special Interest to support the development of team science projects that bring together two or more investigators from Great Plains IDeA-CTR states with different perspectives and expertise to address complex basic, behavioral, clinical and/or translational research questions with complementary approaches.

Led by director and DONS Professor, Anna Dunaevsky, PhD, the Cognitive Neuroscience of Development and Aging (CoNDA) Center was the only Center of Biomedical Research Excellence (COBRE) "parent grant" awarded two team science supplement awards in response to the notice.

"Elucidating the effects of polygenic AD risk on brain, cognitive, socioemotional, and behavioral outcomes in development and aging using a novel multimodal approach and a multigenerational sample" PRANK Generations Study is the first team project led by DONS faculty David Warren, PhD, Jieqiong Wang, PhD, Kuan-Hua Chen, PhD, and University of UNO's Janelle Beadle, PhD. The team was awarded $1,204,873 to complement and extend the ongoing NIH-funded Polygenic Risk of Alzheimer's disease in the Nebraska Kids (PRANK) study, which has enrolled more than 180 child participants. The central premise of the project is that lifespan development effects of genetic AD risk factors can be assessed with increased speed, rigor, and validity by enriching child samples with a matched, multigenerational sample of familial elders.

"TREM1 as a Novel Therapeutic Target for Global Ischemia Induced Neuroinflammation, Neuronal Death and Cognitive Deficits" is the second team science project awarded to CoNDA investigators based at Creighton University: Jee-Yeon Hwang, PhD, Holly Feser Stessman, PhD, and Gopal Jadhav, PhD. Their project brings together scientists with different expertise, who together can address questions that could not be addressed individually. Their team was awarded $939,079 to examine the ability of novel small molecule TREM1 inhibitors to prevent global ischemia-induced neuronal death and cognitive deficits and provide transcriptome profiles in post-ischemic hippocampal CA1 at the level of specific neural cell populations or single cells. This project will address the gap for an effective treatment for the ~200,000 Americans who experience global cerebral ischemia and the associated neurodegeneration and cognitive deficits as a consequence of cardiac arrest each year.

Under the parent grant of the Richard J. Bellucci Translational Hearing Center COBRE based at Creighton University, UNMC's Padmashri Ragunathan, PhD, along with Jordan Rowley, PhD, were also awarded a team science supplement. The goal of the study is to provide a molecular basis for the altered auditory processing observed in Fetal Alcohol Spectrum Disorders. The team will use a mouse model of prenatal alcohol exposure to examine how changes to the chromatin landscape contribute to the changes in neuronal plasticity in the primary auditory cortex. Along with the mechanistic insights, these studies will also identify key molecular markers of prenatal alcohol exposure at the chromatin level.

2023 Event Recaps

DONS Holiday Party

A celebration of department accomplishments

Faculty, staff, and friends of the DONS gathered on December 14 at the German-American Society in Omaha for the annual holiday party. Over 240 guests enjoyed a night of holiday music, camaraderie, delicious food and drinks, along with karaoke and dancing. DONS Francis and Edgar Reynolds Chair, Matt Rizzo, MD, welcomed guests and spoke of the accomplishments from 2023.

Nebraska Medicine among top providers in the U.S.

From Becker's Hospital review article: "As the most comprehensive provider of neurology and neurosurgery for all of Nebraska and western Iowa, Nebraska Medicine's neurosciences center is a leader in providing some of the most advanced patient care. The multidisciplinary team uses advanced surgical and treatment therapies including MRI-guided laser ablation and robotic technology, video electroencephalogram, robot-guided spinal surgery and adaptive spine intelligence technology, deep brain stimulation, infusion therapies, and new treatments for hemorrhagic stroke. The center is recognized as a center of excellence for ALS (amyotrophic lateral sclerosis) and Huntington's Disease, a level 4 epilepsy center, a center for comprehensive multiple sclerosis care as designated by the National Multiple Sclerosis Society, and the only Joint Commission certified comprehensive stroke center in the state."

For the full article, visit **https://bit.ly/499Dz2y**

Nebraska heartbeats
and the healing power of music

by Samantha Pastorino, University of Nebraska at Omaha Maverick Public Relations

Mary Perkinson, DMA, an award-winning artist, professor, and community leader, brings together the power of music, service, and research to contribute to greater good through the program Nebraska Heartbeats.

Perkinson's inspiration comes from the Madison Symphony Orchestra's HeartStringsÒ program, a music therapy-informed program that brings live, interactive presentations to healthcare and residential facilities.

"I thought, how cool would it be to model that program in Omaha," Perkinson says, "I wanted to focus on one group of culturally underserved individuals and get to the heart of a best practice by working with experts in the field."

Perkinson, a University of Nebraska at Omaha (UNO) music professor and courtesy adjunct faculty in UNMC's Department of Neurological Sciences, founded Nebraska Heartbeats in 2018. "Our mission is to engage individuals with dementia in meaningful ways through music that's joyous," Perkinson says. "The music listening and engagement brings about a sense of well-being for the listeners and caregivers alike."

Nebraska Heartbeats is a platform for musicians to engage with their community in ways that build relationships and make a difference. The curriculum was developed by Vaishali Phatak, PhD, ABPP-CN (neuropsychologist/UNMC), Steven Wengel, MD (geriatric psychiatrist, UNMC), the UNO Maverick Quartet (Gregory Clinton, Mary Perkinson, DMA, Brian Sherwood, and Olga Smola, DMA), and Bridget Shevlin, MT-BC (music therapist).

Dementia deteriorates the mind in stages; it can develop to the point of patients becoming non-verbal. Nebraska Heartbeats seeks to connect with patients through all stages of dementia, which makes music a vital stimulant.

"Music has a unique durability that individuals at all stages of dementia are able to enjoy," Perkinson says.

Through the power of music, patients with dementia become more energetic and active when they hear their favorite songs from the past.

"Someone will be relatively non-verbal; but when they hear a song that they

cont. pg. 10

The UNO Maverick Quartet performs in the lobby at the Nebraska Medicine's Fred & Pamela Buffett Cancer Center most Tuesdays at 12:15 p.m., and Sound Health performances occur once a month at the same time and location. An up-to-date schedule can be found at **https://tockify.com/uno.music/agenda**.

For more information on Mary Perkinson, DMA visit **unomaha.edu/college-of-communication-fine-arts-and-media/about-us/faculty/music/mary-perkinson**

Ukrainian delegation visits at UNMC

The Center of Global Engagement at UNMC and Friendship Force of Greater Omaha welcomed six guests from Ukraine in November. The delegation included Natalia Chuzhykova, a young combat medic and armed forces volunteer; Tetiana Romaniuk, Anantasiia Ozhemiakina, and Halyna Kaluzhna, three officials from the Veteran Administration of Ukraine; and Oleksandr Chamorsov and Nina Tronenko two psychologists who specialize in the treatment of patients with posttraumatic stress disorder.

The members of the delegation discussed innovative approaches for the treatment of war-related psychological trauma and related mood disorders. The guests also attended several seminars on the disaster preparedness at UNMC and met with UNMC psychiatrists. There were also heart-warming social gatherings with

American host families, community partners, and UNMC physicians. Each member shared their incredible story and explained how the war has touched their personal and professional lives. The delegation was greeted (see photo) by DONS Chair & Professor, Matt Rizzo, MD, and the Ukrainian DONS members: Valentina Gumenyuk, PhD, Oleg Korzyukov, PhD, Olga Taraschenko, MD, PhD, and Lubov Butsyak, APRN.

Nebraska Heartbeats pg. 10

remember from their 20s or 30s, all of a sudden their eyes will just light up, they become more energetic and alert," Perkinson says. "Music has the ability to tap at the tip of the iceberg of exploring music and memory research."

Thanks to support from the UNO School of Music, Office of Research and Creative Activity, the Great Plains IDeA Clinical & Translational Research Pilot Grant, Nebraska Arts Council, and the NU Collaborative Initiative Grant, Perkinson, and her colleagues have collaborated on research with Dr. Vaishali Phatak, a neuropsychologist in the Department of Neurological Sciences at UNMC.

Nebraska Heartbeats launched their pilot program via Zoom in 2020 with Hillcrest Health Services; and in January 2024, they will begin their in-person programming. During sessions, UNMC researchers will study music and memory while UNO faculty and students engage with participants through music-making, listening, and reminiscing.

"The Zoom program was so much work, but it was also so rewarding to see the benefit the program was having," Perkinson says. "Seeing the joy it brought the individuals involved was the impetus to keep us pushing forward with the project.

"Long-term, I would love to see students in our School of Music engaging more with individuals with dementia through music," Perkinson says.

In addition to Nebraska Heartbeats, Perkinson founded Sound Health: Bringing Music to Medicine in 2009, a program that gives music majors the opportunity to contribute to the environment of care through live music. Hundreds of UNO Sound Health students have given dozens of performances throughout Omaha health care facilities since 2015.

Perkinson remains steadfast in her passion for service and research, and Nebraska Heartbeats demonstrates that passion.

"I want musicians to be educated about the dementia community so they can work with individuals in ways that are joyful and effective," Perkinson says. "What Nebraska Heartbeats comes down to is contributing to the greater good in meaningful ways through music and research."

2023 Faculty Publications

Neurological Sciences

Scott Diesing, MD

Diesing TS. Neurologic Manifestations of Gastrointestinal and Nutritional Disorders. Continuum (Minneap Minn). 2023 Jun 1;29(3):708-733. doi: 10.1212/CON.0000000000001235. PMID: 37341328.

Anna Dunaevsky, PhD

Suresh A, **Dunaevsky A**. (2023) Impaired AMPARs Translocation into Dendritic Spines with Motor Skill Learning in the Fragile X Mouse Model. *eNeuro.* doi: 10.1523/ENEURO.0364-22.2023.

Ren B, Burkovetskaya M, Jung Y, Bergdolt L, Totusek S, Martinez-Cerdeno V, Stauch K, Korade Z, **Dunaevsky A**. (2023) Dysregulated cholesterol metabolism, aberrant excitability and altered cell cycle of astrocyte in fragile X syndrome. *Glia.* doi: 10.1002/glia.24331.

Howard S Fox, MD, PhD

Mukerji SS, Petersen KJ, Pohl KM, Dastgheyb RM, **Fox HS**, Bilder RM, Brouillette MJ, Gross AL, Scott-Sheldon LAJ, Paul RH, Gabuzda D. Machine Learning Approaches to Understand Cognitive Phenotypes in People With HIV. *J Infect Dis.* 2023 Mar 17;227(Suppl 1):S48-S57. doi: 10.1093/infdis/jiac293.

Lichter EZ, Trease AJ, Cooper K, Stauch KL, **Fox HS**. Effects of Parkin on the Mitochondrial Genome in the Heart and Brain of Mitochondrial Mutator Mice. *Adv Biol (Weinh).* 2023 Aug;7(8):e2300154. doi: 10.1002/adbi.202300154.

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Bernd Fritzsch, PhD

Yamoah EN, Pavlinkova G, **Fritzsch B**. The Development of Speaking and Singing in Infants May Play a Role in Genomics and Dementia in Humans. *Brain Sci.* 2023 Aug 11;13(8):1190. doi: 10.3390/brainsci13081190. PMID: 37626546; PMCID: PMC10452560.

Zine A, **Fritzsch B**. Early Steps towards Hearing: Placodes and Sensory Development. *Int J Mol Sci.* 2023 Apr 10;24(8):6994. doi: 10.3390/ijms24086994. PMID: 37108158; PMCID: PMC10139157.

Sensing Sound - Evolutionary Neurobiology of a Novel Sense of Hearing. **Bernd Fritzsch**.

Valentina Gumenyuk, PhD

Zhou DJ, **Gumenyuk V**, Taraschenko, O, Bartosz T. Grobelny, Steven M. Stufflebeam, Noam Peled (2023) Visualization of the Spatiotemporal Propagation of Interictal Spikes in Temporal Lobe Epilepsy: A MEG Pilot Study in Brain Topography. https://doi.org/10.1007/s10548-023-01017-z

Elizabeth Hartman, MD

Dennis E, **Hartman E**, Piccione E, Cortes-Penfield N, Thaisetthawatkul P. Acute and chronic demyelinating neuropathies following COVID-19 vaccination: a report of four cases. *Journal of Clinical Neuromuscular Disease*, March 2023.

Gupta N, Shirani A, Jayagopal LA, Piccione E, **Hartman E**, Zabad RK. Anti-Neurofascin Antibodies Associated with White Matter Diseases of the Central Nervous System: A Red Flag or a Red Herring? *Brain Sci.* 2022, 12, x. https://doi.org/10.3390/xxxxx

Pamela May-Weeks, PhD

May PE, Phatak V. In press. Survivors of COVID-19 and clinical neuropsychological domain characteristics. In R. Rajendram, V.R. Preedy, V. Patel, & C.R. Martin (Eds.). *Linking Neuroscience and Behavior in COVID-19.* Elsevier.

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Daniel Murman, MD, MS

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Padmashri Ragunathan, PhD

Chaudoin TR, Bonasera SJ, Dunaevsky A, **Padmashri R**. (2023). Exploring behavioral phenotypes in a mouse model of Fetal Alcohol Spectrum Disorders. *Developmental Neurobiology,* 83(5-6): 184-204. PubMed PMID: 37433012; PubMed Central PMCID: PMC10546278. DOI: 10.1002/dneu.22922

Afsaneh Shirani, MD, MSCI

Shirani A, Stuve O, Cross A. Role of B-cells in relapsing and progressive forms of multiple sclerosis and long-term effects of B-cell depletion. In: Hersh C. Neurologic Clinics: Multiple Sclerosis. Elsevier. 2023.

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Kelly L. Stauch, PhD

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Stauch KL, Totusek S, Trease AJ, Estrella LD, Emanuel K, Fangmeier A, Fox HS. (2023). Longitudinal in vivo metabolic labeling reveals tissue-specific mitochondrial proteome turnover rates and proteins selectively altered by parkin deficiency. *Sci Rep.* 13(1):11414. https://pubmed.ncbi.nlm.nih.gov/37452120/

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Olga Taraschenko, MD, PhD

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Neurosurgery

Aviva Abosch, MD, PhD

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Michele Aizenberg, MD

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2023 Research Grants

Neurological Sciences

Award Year(s): 2023
PI: Kuan-Hua Chen, PhD
Funding Source: DHHS/NIH
Title: Behavioral and physiological linkage in people with frontotemporal dementia and spousal caregivers

Award Year(s): 2023 – 2024
PI: Kuan-Hua Chen, PhD
Funding Source: NE Bankers Assn (Equipment grant)
Title: Enhancing UNMC's Neuroimaging Core for Magnetoencephalography (MEG) and autonomic nervous system monitoring

Award Year(s): 2023
PI: Anna Dunaevsky, PhD
Funding Source: DHHS/NIH
Title: CONDA Supplement

Award Year(s): 2023 – 2024
PI: Anna Dunaevsky, PhD
Funding Source: FRAXA (Year 2)
Title: Astrocyte contribution to sensory hypersensitivity in FXS

Award Year(s): 2023 – 2025
PI: Pierre Fayad, MD
Funding Source: Janssen
Title: A Phase 3, Randomized, Double-Blind, Parallel-Group, Placebo-Controlled Study to Demonstrate the Efficacy and Safety of Milvexian

PI: J Americo Fernandes, MD
Funding Source: PTC Therapeutics
Title: A Phase 2, Randomized, Double-Blind, Placebo-controlled, Parallel Study to Assess the Efficacy, Safety, Tolerability, PK, and Biomarker Effects of PTC857 in Adult Subjects with Amyotrophic Lateral Sclerosis (CARDINALS)

Award Year(s): 2023
PI: J. Americo Fernandes, MD
Funding Source: MASS Gen
Title: Task Order #11 - Regimen-Specific Appendix (RSA) F to Master Protocol ABBV-CLS-7262

Award Year(s): 2023
PI: J. Americo Fernandes, MD
Funding Source: MASS Gen
Title: Task Order #12 - Regimen-Specific Appendix (RSA) G to Master Protocol DNL343

Award Year(s): 2023 – 2025
PI: J. Americo Fernandes, MD
Funding Source: Clene Nanomedicine Inc
Title: Intermediate Expanded Access Protocol

Award Year(s): 2023 – 2026
PI: Marco Gonzalez Castellon, MD
Funding Source: U of Cincinnati
Title: New contract for StrokeNet trial - Comparison of Anti-coagulation and anti-Platelet Therapies for Intracranial Vascular Atherostenosis

Award Year(s): 2023 – 2024
PI: Howard Fox, MD, PhD

Funding Source: Drexel University
Title: Defining the mechanistic synergies between stimulants and HIV driving neuroinflammation the ART-treated CNS

Award Year(s): 2023 – 2027
PI: Howard Fox, MD, PhD
Funding Source: Drexel University
Title: Benzodiazepine mediated mechanisms of transcriptional semi-quiescence in discrete myeloid populations

Award Year(s): 2023 – 2024
PI: Bernd Fritzsch, PhD
Funding Source: University of Nevada Reno
Title: Mechanisms of Growth Factor Responsiveness in the Aging Auditory System

Award Year(s): 2023 – 2024
PI: Bernd Fritzsch, PhD
Funding Source: University of Nevada Reno
Title: Determinants of age-induced hearing loss and reversal strategies

Award Year(s): 2023 – 2025
PI: Daniel Murman, MD
Funding Source: EIP Pharma
Title: A Phase 2b Clinical Study of the P38 Alpha Kinase Inhibitor Neflamapimod in Patients with Dementia with Lewy Bodies (DLB)

Award Year(s): 2023 – 2025
PI: Ezequiel Piccione
Funding Source: Abcuro, Inc.
Title: A Phase II/III Randomized, Double-blind, Placebo-controlled, Multicenter Study to Determine the Efficacy and Safety of ABC008 in the Treatment of Subjects with Inclusion Body Myositis (Abcuro IBM)

Award Year(s): 2023 – 2024
PI: Padmashri Ragunathan, PhD
Funding Source: Abcuro, Inc.
Title: Translational Hearing Center - Supplement

Award Year(s): 2023 – 2024
PI: Matthew Rizzo, MD
Funding Source: DHHS/NIH
Title: GP IDeA-CTR - Supplement 1 Advancing use of electronic health records for research in rural NE

Award Year(s): 2023 – 2024
PI: Matthew Rizzo, MD
Funding Source: DHHS/NIH
Title: GP IDeA-CTR - Supplement 2

Award Year(s): 2023 – 2024
PI: Matthew Rizzo, MD
Funding Source: DHHS/NIH
Title: GP IDeA-CTR - Supplement 3

Award Year(s): 2023 – 2024
PI: Jieqiong Wang, PhD
Funding Source: Nebraska EPSCoR
Title: A machine learning framework to identify biomarkers of intrinsic brain networks across different psychiatric and neurological disorders

Award Year(s): 2023
PI: Jieqiong Wang, PhD
Funding Source: DHHS/NIH
Title: CONDA Supplement - TEAM Science

Award Year(s): 2023 – 2024
PI: David Warren, PhD
Funding Source: DHHS/NIH
Title: Diversity Supplement - Measuring neurodevelopmental effects of polygenic risk for Alzheimer's disease via longitudinal study of brain and cognitive variables in periadolescent children

Award Year(s): 2023
PI: David Warren, PhD
Funding Source: DHHS/NIH
Title: CONDA Supplement - TEAM Science

Award Year(s): 2023
PI: Rana Zabad, MD
Funding Source: Genentech
Title: A Multicenter, SINGLE-ARM, OPEN-LABEL, EXTENSION, ROLLOVER STUDY TO EVALUATE THE LONG-TERM SAFETY AND EFFICACY OF OCRELIZUMAB IN PATIENTS WITH MULTIPLE SCLEROSIS (OLERO)

Award Year(s): 2022-2025
PI: Rana Zabad, MD
Funding Source: EMD Serono
Title: The MS Leadership and Innovation Network (MS-LINK) Outcomes Study: A Comprehensive Prospective Longitudinal Assessment of Patient and Clinical Reported Outcomes in Multiple Sclerosis Patients across North America - Study Addendum #1

Award Year(s): 2022-2024
PI: Rana Zabad, MD
Funding Source: Johns Hopkins
Title: Traditional Versus Early Aggressive Therapy For Multiple Sclerosis (TREAT-MS) Trial

Award Year(s): 2023
PI: Peng Zhong, PhD
Funding Source: DHHS/NIH
Title: REM sleep control by the sublaterodorsal tegmental nucleus glutamatergic neurons

Neurosurgery

Award Year(s): 2023 – 2024
PI: Michele Aizenberg, MD
Funding Source: CoNDA
Title: Determining effects of high-grade glioma growth and treatment on brain connectivity and neurocognition

Award Year(s): 2023 – 2024
PI: Michele Aizenberg, MD
Funding Source: GT Medical Technologies
Title: A Multicenter Observational Study of GammaTile Surgically Targeted Radiation Therapy (STaRT) in Intracranial Brain Neoplasms

Award Year(s): 2023 – 2025
PI: Josue Avecillas-Chasin, MD, PhD
Funding Source: DHHS/NIH/NIMH
Title: Intracranial Neurophysiological Signatures of Fear and Anxiety in Humans

Award Year(s): 2023 – 2025
PI: Josue Avecillas-Chasin, MD, PhD
Funding Source: Great Plains IDeA-CTR
Title: Personalized Mapping of Brain Networks to Identify Responsive Neurostimulation Targets in Patients with Drug-Resistant Epilepsy

Award Year(s): 2023 – 2024
PI: Stephen Gliske, PhD
Funding Source: Great Plains IDeA-CTR
Title: Validation testing of a novel state of vigilance monitor prototype for hospitalized neonates

Award Year(s): 2023 – 2025
PI: Miki Katzir, MD
Funding Source: CarboFix Orthopedics
Title: Safety and effectiveness of carbon fiber reinforced polyetheretherketone (CFR PEEK) implants in patients with bone tumors: an international multicenter retrospective registry

Award Year(s): 2023 – 2025
PI: Mithun Sattur, MD
Funding Source: Medical University of South Carolina
Title: STAR: Stroke Thrombectomy and Aneurysm Registry

Award Year(s): 2023 – 2025
PI: Daniel Surdell, MD
Funding Source: Microvention
Title: RESTORE- REal-World Analyses of Stroke-Thrombus Occlusion Retrieval

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