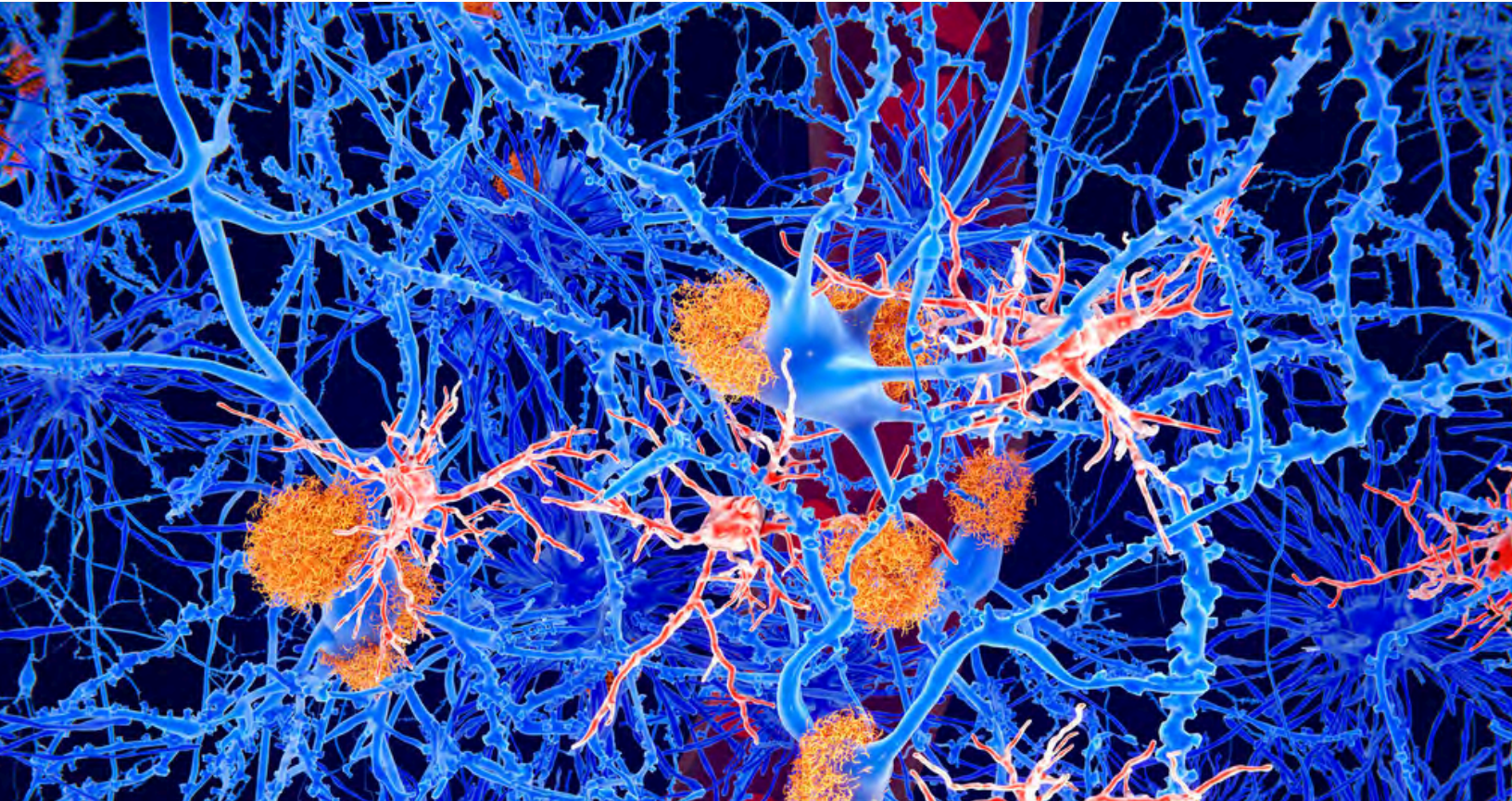


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THE GEORGE WASHINGTON UNIVERSITY

WASHINGTON, DC

The Clinical Neurosciences Newsletter



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A WELCOME MESSAGE

Dear Colleagues,

As we step into a new year, I am delighted to reflect on the remarkable achievements of our department. I am thrilled to announce that our stroke center has received Advanced Comprehensive Stroke Center certification from the Joint Commission! This recognition is a testament to the exceptional work of our stroke team, whose dedication continues to inspire and elevate the reputation of our institution on both national and international stages.

Additionally, it was incredibly rewarding to witness the outstanding scientific and clinical research contributions from our faculty at GWU and Children's National during the recent American Epilepsy Society meeting in Los Angeles this December. Your innovative work serves as an emblem of excellence in our field.

I would also like to express my heartfelt gratitude to our dedicated faculty and trainees. Your tireless commitment to delivering the highest standard of care to our patients is truly extraordinary. Your passion and perseverance enable us to advance the frontiers of neurology and rehabilitation medicine while providing exemplary patient care.

Let us continue to build on this momentum as we embark on 2025, with its promise of new opportunities and challenges. Thank you all for your incredible efforts, and I wish you a productive and fulfilling year ahead!

Warm regards,

M. Z. Koubeissi, MD
Professor and Interim Chair
GW Department of Neurology & Rehabilitation Medicine



OUR NEWS



Dr. Henry Kaminski et al. published a paper titled: “Application of digital tools and artificial intelligence in the Myasthenia Gravis Core Examination”; *Frontiers in Neurology*, December 2024.



Dr. Henry Kaminski et al. published a paper titled: “Improving care for amyotrophic lateral sclerosis with artificial intelligence and affective computing”; *Neurological Sciences*, November 2024.

Researchers at the George Washington University are looking for interested volunteers for a healthy control study to better understand an autoimmune, neuromuscular (disease affecting nerves and muscles) known as Myasthenia Gravis.

Faculty and staff are welcome to participate.

PARTICIPATION INVOLVES:

One-time blood draw (You will have either 4 teaspoons (20 milliliters) or 10 teaspoons (50 milliliters) from an arm vein.

YOU MAY QUALIFY IF YOU:

- Don't have any autoimmune diseases
- No prednisone or corticosteroid use
- No vaccinations within a month

For more information, contact goztosun@mfa.gwu.edu

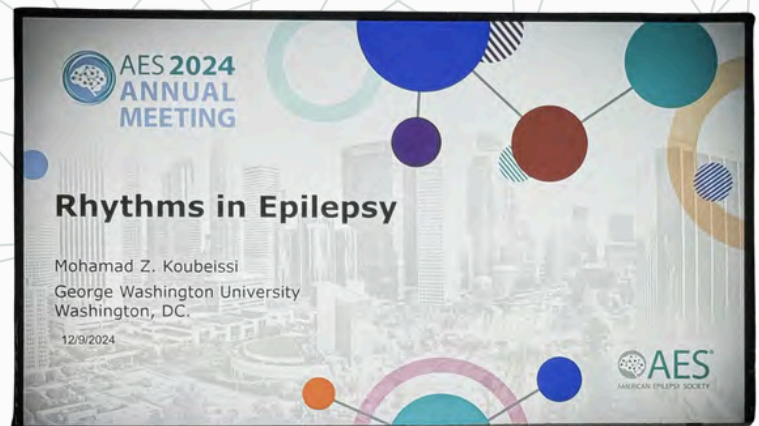


OUR NEWS



During the Annual American Epilepsy Society Meeting held in Los Angeles in December 2024, The George Washington University and Children's National demonstrated a strong presence. Collectively, the institutions presented 13 abstract posters, showcasing their impactful contributions to the field.

- Dr. Mohamad Koubeissi was the Chair of the Scientific Program Committee and delivered a lecture on “Rhythms in Epilepsy” during the Scientific Symposium.
- Drs. John Schreiber and Laura Tochen spoke about “Moving Forward: Epilepsies with Concomitant Movement Disorders.”
- Dr. Gardiner Lapham participated in the panel discussion following the documentary film screening, “The Curse of Stigma & An Open Conversation Around Dispelling Misconceptions, At Home and Abroad.”
- Dr. William D. Gaillard delivered the Lombroso Lecture on “US Health Care Inequities for People with Epilepsy” and was recognized as a Clinical Research Awardee.
 - Nathan Cohen: Moderated the “Neuroimaging” platform session.
- Dr. Leigh Sepeta co-chaired the Neuropsychology SIG on “Integrating Technology into Epilepsy Neuropsychology.” and spoke about “Neuroimaging Biomarkers of Cognitive and Therapeutic Outcomes in Focal Epilepsy.”
- Dr. Chima Oluigbo presented a module on “Extra-temporal Epilepsy Scenario” as part of the Epilepsy Surgery Skills Workshop and spoke about “Epilepsy Surgery: Thalamic Stimulation for Epilepsy – A Patient-centric Network-based Approach.”



WHAT'S NEW IN NEUROLOGY

WHAT'S NEW

Reducing air pollution may help reduce the risk of Parkinson's disease.

WHY IT MATTERS

The incidence of Parkinson's disease (PD) is expected to rise over the coming decades due to the complex interaction between one's genetic predisposition and environmental factors that may pose a "second hit" to those who are genetically predisposed. Several environmental toxins including certain pesticides, commonly used industrial solvents like trichloroethylene (TCE) or air pollutants have been linked to a higher incidence of PD, possibly because these pollutants can cross the blood-brain barrier and trigger oxidative stress, microglial activation and inflammation in the brain.

This population-based, case-control study examined 346 patients with PD from metropolitan areas of Olmstead County, MN and 4813 age- and sex-matched controls from 1998-2014. The authors sought to investigate the link between air pollution in the form of ultrafine particulate matter (PM2.5) and nitric oxide (NO2) with the risk of PD. In a subsequent cohort analysis of the group with PD, they also explored the phenotypic characteristics of patients with PD (such as tremor-predominant, akinetic-rigid, and the development of dyskinesias) with higher air pollution exposure. Air pollution estimates were obtained from the Washington University Air Composition Analysis group. The study results showed that greater PM2.5 exposure and great NO2 exposure was associated with a higher risk of PD (PM2: odds ration [OR] 1.23, 95 CI 1.11-1.35; NO2: OR (1.13; CI 1.07-1.19). Those with PD with higher exposure to air pollution appeared to have a 36% increased risk of developing an akinetic-rigid phenotype of PD (OR 1.36, 95% CI 1.02-1.80 per 1 microgram increase in PM2.5) and had an increased risk of developing dyskinesias (per 1 microgram/m3 increase in PM2.5, HR 1.42; 95% CI 1.17-1.73 and per 1 microgram/m3 increase in NO2, HR 1.13; 95% CI 1.06-1.19). There was no significant association between the level of exposure to air pollution and mortality risk.

The findings of this study suggest that exposure to air pollution in metropolitan areas may increase the risk of developing PD and possibly influence the phenotypic presentation of PD. It underscores the potential impact of climate factors on neurodegenerative disease. Additional studies are needed to further investigate the link between air pollution and the risk of Parkinson's disease.

Reference: Krzyzanowski B, Mullan AF, Turcano P, Camerucci E, Bower JH, Savica R. Air Pollution and Parkinson Disease in a Population-Based Study. *JAMA Netw Open*. 2024 Sep 3;7(9):e2433602. doi: 10.1001/jamanetworkopen.2024.33602. PMID: 39283636; PMCID: PMC11406396.

WHAT'S NEW

Irisin, a myokine released after exercise, may slow the progression of Parkinson's Disease

WHY IT MATTERS

Physical exercise is a key component of the treatment plan for Parkinson's disease (PD). In addition to the cardiovascular and motor benefits, mounting evidence suggests improved functional connectivity in frontoparietal regions of the brain, enhanced dopaminergic neurotransmission in the basal ganglia and potential neuroprotective benefits through the release of neurotrophic factors after aerobic exercise. While several possible molecular mechanisms likely contribute to beneficial effects of exercise, one factor, the release of Irisin from skeletal muscles after exercise, has been getting increased attention in recent years due to its potential neuroprotective benefit and translational promise. Irisin is a myokine that plays a key role in modulating metabolism. It can also cross the blood brain barrier and influence neuronal differentiation and synaptic plasticity through mechanisms that continue to be explored.

In a study by Kam et al, investigators used a mouse model of PD (an alpha-synuclein (a-syn) preformed fibril model) and directly injected irisin within a viral vector via the mice tail vein to study irisin's influence on PD pathology and motor outcomes in vivo. After 6 months, irisin reduced the loss of dopaminergic neurons by 35% compared to untreated mice as measured by stereologic counts of tyrosine hydroxylase and Nissl-stained neurons. Additionally, irisin-treated mice demonstrated reduced accumulation of misfolded a-syn, the pathologic hallmark of PD that spreads in a "prion-like" manner throughout the brain in PD. Irisin-treated mice also showed improved motor performance on vertical pole tests and tests of grip strength.

The findings of this study highlight another possible explanation for the benefits of exercise in PD. They also show that exogenously administered irisin may have clinical and disease-modifying effects in PD and holds translational promise as a potential therapeutic target for people with PD.

Reference: Kam TI, Park H, Chou SC, Van Vranken JC, Mittenbühler MJ, Kim H, A M, Choi YR, Biswas D, Wang J, Shin Y, Loder A, Karuppagounder SS, Wrann CD, Dawson VL, Spiegelman BM, Dawson TM. Amelioration of pathologic α -synuclein-induced Parkinson's disease by irisin. *Proc Natl Acad Sci U S A*. 2022 Sep 6;119(36):e2204835119.





HOLIDAY GREETINGS

SEASON'S GREETINGS FROM THE DEPARTMENT OF NEUROLOGY

AS THE YEAR DRAWS TO A CLOSE, WE EXTEND OUR WARMEST WISHES TO YOU AND YOUR LOVED ONES FOR A JOYFUL HOLIDAY SEASON AND A HAPPY, HEALTHY NEW YEAR. THE HOLIDAY SEASON IS A TIME TO REFLECT ON THE ACCOMPLISHMENTS AND MILESTONES OF THE PAST YEAR, AND WE ARE PROUD OF THE DEDICATION AND ACHIEVEMENTS OF OUR TEAM IN ADVANCING PATIENT CARE, EDUCATION, AND RESEARCH IN NEUROLOGY.

AS WE WELCOME THE NEW YEAR, WE LOOK FORWARD TO BUILDING ON THIS MOMENTUM, EMBRACING NEW OPPORTUNITIES, AND CONTINUING TO WORK TOGETHER TO IMPROVE THE LIVES OF OUR PATIENTS AND COMMUNITIES. MAY THIS SEASON BRING PEACE, RENEWAL, AND INSPIRATION TO ALL.

HAPPY HOLIDAYS AND BEST WISHES FOR 2025!



January 7, 2025
Carlos Sanchez, MD
 The George Washington University
 Title: Cellular Engineering of Autologous
 Glioblastoma Specific T cells

January 14, 2025
Mark J. Edwards, MD
 King's College London, United Kingdom
 Title: TBD

January 21, 2025
Ahmed Abdelmoity, MD
 University of Missouri
 Title: Algorithmic approach to Drug-
 Resistant Epilepsy treatments. What do
 we do when medications fail to stop
 seizures

January 28, 2025
Victor Wang, MD
 Sutter East Bay Medical Group
 Title: Headache Medicine in the
 LGBTQIA Community: Sex, Drugs, and
 Everything in Between

February 4, 2025
Saleem Abdulrauf, MD
 The George Washington University
 Title: TBD

February 11, 2025
Cheryl Bushnell, MD
 Atrium Wake Forest Baptist Health
 Title: TBD

February 18, 2025
Aline Herlopan, MD
 Yale University
 Title: HFO and the Epilepsy Networks

February 25, 2025
David Hafler, MD
 Yale University
 Title: The Underlying Cause of Multiple
 Sclerosis

March 4, 2025
Dimitri Sigounas, MD
 The George Washington University
 Title: TBD

March 11, 2025
Erik St. Louis, MD
 Mayo Clinic
 Title: TBD

March 18, 2025
Raman Sankar, MD, PhD
 UCLA
 Title: TBD

March 25, 2025
James Grotta, MD
 UT Houston/Memorial Hermann
 Title: TBD

April 1, 2025
Justin Kwan, MD
 National Institute of Health
 Title: TBD

April 8, 2025
Chase Foster, MD
 Johns Hopkins University
 Title: TBD

April 15, 2025
Pierre Fayad, MD
 University of Nebraska
 Title: TBD

April 22, 2025
David Auerbach, PhD
 Upstate Medical University
 Title: Looking Beyond the Classically
 Studied Organ: Bedside-to-Bench
 Approaches to Study Electrical
 Disturbances in the Brain and Heart

April 29, 2025
Simon Little, PhD
 UCSF
 Title: Closed Loop/adaptive DBS

May 6, 2025
Donald Shields, MD
 Spartanburg Regional Healthcare
 Title: TBD

May 13, 2025
Casey Albin, MD
 Emory School of Medicine
 Title: Interesting Subjects within NCC

May 20, 2025
John Schreiber, MD
 Children's National
 Title: TBD

May 27, 2025
James Mastrianni, MD, PhD
 University of Chicago
 Title: TBD

June 3, 2025
Chima Oluigbo, MD
 Children's National
 Title: TBD

June 10, 2025
Steven Zeiler, MD, PhD
 John's Hopkins University
 Title: TBD

June 17, 2025
John Stern, MD
 UCLA
 Title: TBD

June 24, 2025
Alberto Espay, MD
 University of Cincinnati
 Title: TBD



Connect with us



Thank you

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