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NEUROLOGY AND NEUROLOGICAL DISORDERS & ADVANCES IN MENTAL HEALTH AND PSYCHIATRY

2026

SINGAPORE

JUNE 22 23

SCIENTIFIC PROGRAM

SCIENTIFIC PROGRAM

DAY 01
MONDAY

JUNE 22, 2026

08:00-08:30	**Registrations**
08:30-08:40	**Inaugural Ceremony**
Moderator	**Hassan M. Heshmati,** *Endocrinology Metabolism Consulting, LLC, Hassan Heshmati and Valerie Shaw Endocrine Research, USA*

Sessions: Neurology | Neurosurgery | Neuroscience | Alzheimer's Disease and Dementia | Parkinson's Disease | Epilepsy | Sleep Disorders | Central Nervous System | Neurological Disorders | Mental Health | Autism | Addiction and Addiction Medicine | Clinical Psychology | Stress, Anxiety and Depression | Pain Medicine

Distinguished Speaker Talks

Session Chair	**Sasanka Chakrabarti,** *Maharishi Markandeshwar Institute of Medical Sciences & Research, Maharishi Markandeshwar (Deemed to be University), India*
Session Chair	**David Kashani,** *Psychiatrist, USA*
08:40-09:00	Title: Contribution of Lifestyle, Gut Microbiome, and Hormones to the Pathogenesis and Prevention of Alzheimer's Disease **Hassan M. Heshmati,** *Endocrinology Metabolism Consulting, LLC, Hassan Heshmati and Valerie Shaw Endocrine Research, USA*
09:00-09:20	Title: Movies & Mental Illness **Danny Wedding,** *Chiang Mai University, Thailand*
09:20-09:40	Title: HIV and Omega-3 May Influence Sex Differences in Hippocampal Volume and its Subfields **Shenghan Lai,** *University of Maryland, USA*

09:40-10:00	Title: Glymphatic Pathway-Independent Circulating Bloodbrain Barrier Cells (cBBBCs) are Superior to Molecular Biomarkers for Detection of Brain Injury
	Sheng-He Huang, *University of Southern California (USC), USA* *Guangdong Nanshan Medicine Innovation Institute (NSMI), China*
10:00-10:20	Title: Oculomics Approach to Study the Effect of Yoga Exercise in Patients with Parkinson's Disease
	Jianhua (Jay) Wang, *University of Miami Miller School of Medicine, USA*
GROUP PHOTO 10:20-10:30	
REFRESHMENT BREAK 10:30-10:50	
Talk by BrainCase Biotech Co., Ltd 10:50-11:10	Title: Focusing on Viral Vectors
	Peng Su, *Brain Case Biotech Co., Ltd, China*
11:10-11:30	Title: Effect of Epicatechin on Learning, Short- and Long-Term Memory, Proinflammatory Cytokines, and Oxidative Stress in Proteins in the Hippocampus and Cortex in Aged Rats
	Verónica Salas Gutiérrez, *Hospital Español, México*
11:30-11:50	Title: Retinal Mitochondrial Function in Patients with Relapsing-Remitting Multiple Sclerosis with and without Optic Neuritis
	Hong Jiang, *University of Miami Miller School of Medicine, USA*
11:50-12:10	Title: Trauma and the Brain: Effects of Incarceration on Women's Neurological Health and Psychological Wellbeing
	Jessica K. Williams, *Director of International Network for Incarcerated Girls and Women, Independent Scholar, Australia*

12:10-12:30	Title: Pan-GLUT Inhibitors Trigger Mitochondrial Dysfunction, Altered Amyloid Beta Homeostasis and Neural Cell Degeneration: Implications in Alzheimer's Disease
	Sasanka Chakrabarti, *Maharishi Markandeshwar Institute of Medical Sciences & Research, Maharishi Markandeshwar (Deemed to be University), India*
12:30-12:50	Title: Hydrogen Sulfide and Neurodegenerative Diseases
	Constantin Munteanu, *"Grigore T. Popa" University of Medicine and Pharmacy Iași, Romania*
GROUP PHOTO 12:50-13:00	
LUNCH BREAK 13:00-13:40	
Session Chair	**Sasanka Chakrabarti,** *Maharishi Markandeshwar Institute of Medical Sciences & Research, Maharishi Markandeshwar (Deemed to be University), India*
Session Chair	**David Kashani,** *Psychiatrist, USA*
13:40-14:00	Title: MBCARE, a Mindfulness- and Self-Compassion-Based Intervention to Decrease Burnout and Promote Self-Compassion in Health Care Providers
	Corinne ISNARD BAGNIS, *APHP-Sorbonne University, France*
14:00-14:20	Title: Mental Health Benefits Communication in Foods and Supplements in Brazil
	Helena Fernandes Martins Tavares, *University of Sao Paulo, Brazil*
14:20-14:40	Title: Pathway-Specific Contributions of Frontoparietal Networks to Online Reach-to-Grasp Adjustments under Visual and Mechanical Perturbations
	Mariusz Furmanek, *University of Rhode Island, USA*
14:40-15:00	Title: Hypothesis of Mind
	David Kashani, *Psychiatrist, USA*
15:00-15:20	Title: SITH-1 is a Potential Biomarker of Mental Stress in Patients with Intracranial Aneurysms
	Hirokazu Koseki, *The Jikei University School of Medicine, Japan*

15:20-15:40	Title: 3TFL-XLnet-CP: A Novel Transformer-Based Crop Yield Prediction Framework with Weighted Loss Based 3-Tier Feature Learning Model **C. Nandini,** *Dayananda Sagar Academy of Technology and Management, India*
REFRESHMENT BREAK 15:40-16:00	
16:00-16:20	Title: Harnessing GeoAI and Social Media Data for Mental Health Surveillance **Yan Liu,** *The Chinese University of Hong Kong Hong Kong*
16:20-16:40	Title: Fetal Brain Injury in the Pump Twin: Insights from the TRAP Sequence Case **Wirada Dulyaphat,** *Mahidol University, Thailand*
16:40-17:00	Title: Development of Pulse Arrival Time Based System to Derive Beat-to-Beat Blood Pressure Variability **Chaitali Aditya Deshmukh,** *University of Mumbai, India*
17:00-17:20	Title: Parental Self-Efficacy and Parent-Child Relationship: The Mediating Role of Parental Stress **Shamanthri Voralu,** *Wawasan Open University, Malaysia*
17:20-17:40	Title: Comparing Self-Construal Scales: Cultural Implications for the United States, East Asia, Southeast Asia, Latin America, and the Middle East **Jon Lim,** *San Jose State University, USA*
17:40-18:00	Title: Balloon-Assisted Retrieval of Detached Microwire Tip During Mechanical Thrombectomy **Ariharan K,** *Father Muller Medical College Hosptial, India*
18:00-18:20	Title: Automated Quantitative Analysis of Lumbar Spine: A Comprehensive Approach **Purushottam Kumar,** *All India Institute of Medical Sciences, Raebareli, India*
NETWORKING	
END OF DAY 1	

SCIENTIFIC PROGRAM

DAY 02
TUESDAY

JUNE 23, 2026

HALL-01

08:30-08:40	**Introduction**

Sessions: Neurology | Neurosurgery | Neuroscience | Alzheimer's Disease and Dementia | Parkinson's Disease | Epilepsy | Sleep Disorders | Central Nervous System | Neurological Disorders | Mental Health | Autism | Addiction and Addiction Medicine | Clinical Psychology | Stress, Anxiety and Depression | Pain Medicine

Distinguished Speaker Talks	
Session Chair	**Israel Liberzon,** *Texas A&M College of Medicine, USA*
Session Chair	**Maria Poulou,** *University of Patras, Greece*
Session Chair	**Jamuna Rajeswaran,** *National Institute of Mental Health and Neurosciences (NIMHANS), Bengaluru, India*
08:40-09:00	Title: Context Processing in PTSD **Israel Liberzon,** *Texas A&M College of Medicine, USA*
09:00-09:20	Title: A Digital and Neuroaffirmative, Person-Centered Approach to Adult Autism Diagnosis: The SPQ 2.0 Platform **Kirsten Callesen,** *Systemizer International, Denmark*
09:20-09:40	Title: Regulation of NLRP3-Dependent Pyroptosis by Vimentin-NF-kB Signaling is Critical for Decoding of HIV-Associated Neurocognitive Disorders (HAND) **Sheng-He Huang,** *University of Southern California (USC), USA* *Guangdong Nanshan Medicine Innovation Institute (NSMI), China*
09:40-10:00	Title: Community-Based Mental Health through Caregiver Support Groups: Reducing Stigma, Promoting Early Screening, and Improving Treatment Adherence **Bollineni Keerthi,** *President, Vasavya Mahila Mandali, India*

10:00-10:20	Title: MISDEF3: Evolution of a Consensus-Based Decision-Support Algorithm for Minimally Invasive Adult Spinal Deformity Surgery **Praveen V. Mummaneni,** *University of California, USA*
GROUP PHOTO 10:20-10:30	
REFRESHMENT BREAK 10:30-10:50	
10:50-11:10	Title: ECRG4 is a Potential Initiator for Amyloid Pathology in Alzheimer's Disease through Interacting with APP/Aβ **Toru Kondo,** *Hokkaido University, Japan*
11:10-11:30	Title: Translating Neuro-Technology into Practice: Overcoming Adoption Barriers in Dementia Care with "eMemory Kits" **Florence Fong,** *Lingnan University, Hong Kong* **Lily Lee,** *Hong Kong Chinese Women's Club, Hong Kong*
11:30-11:50	Title: Emotion Recognition Based on Brain Signals **Tetsuya Shimamura,** *Saitama University, Japan*
11:50-12:10	Title: Wellbeing and Mental Health in Schools: The Case of Greece **Maria Poulou,** *University of Patras, Greece*
12:10-12:30	Title: Multigenerational Narratives of Healing: Brokada Filipino Men's Healing Circle **Wayne Jopanda,** *San Jose State University, USA*
12:30-12:50	Title: Neuropsychological Rehabilitation in Stroke: EEG Neurofeedback and Brainwave Entrainment **Jamuna Rajeswaran,** *National Institute of Mental Health and Neurosciences (NIMHANS), Bengaluru, India*
GROUP PHOTO 12:50-13:00	
LUNCH BREAK 13:00-13:40	
Session Chair	**Israel Liberzon,** *Texas A&M College of Medicine, USA*
Session Chair	**Maria Poulou,** *University of Patras, Greece*
Session Chair	**Jamuna Rajeswaran,** *National Institute of Mental Health and Neurosciences (NIMHANS), Bengaluru, India*

13:40-14:00	Title: Encephalocele: Operated Cases and Literature Review **Gustavo González Torrealba,** *Hospital Regional de Talca, Chile*
14:00-14:20	Title: Psychological Health & Wellness Care (PHWC): A Case Study in Building a Stigma-Free, Sustainable Mental Healthcare Model in Bangladesh **Md. Nomanuzzaman,** *Psychological Health & Wellness Care Ltd (PHWC), Social Enterprise of SAJIDA Foundation, Bangladesh*
14:20-14:40	Title: Medial Preoptic CCKAR Mediates Anxiety and Aggression Induced by Chronic Emotional Stress in Male Mice **Hong Lian,** *Zhejiang University School of Medicine, China*
14:40-15:00	Title: The State of Being a Woman: A Global Neurological Crisis **Jessica K. Williams,** *Director of International Network for Incarcerated Girls and Women, Independent Scholar, Australia*
15:00-15:20	Title: From Neurons to Norms: Neuroethics as the Neurology of Ethics **Augustine Thomas Pamplany,** *Loyola College of Social Sciences, India*
15:20-15:40	Title: Swallowing Problems in Individuals with Parkinson's Disease – A Self-Perception Study **P. Prasitha,** *SRM Institute of Science and Technology, India*

REFRESHMENT BREAK WITH POSTERS 15:40-16:30

15:40-16:30 Posters	Title: Association between Coping of the Primary Caregiver and the Adolescent Patient with Cancer
	Leonel Jaramillo Villanueva, *IMSS, XXI Century National Medical Center, México*
	Title: Integrating Sustainable Development Goals (SDGs) and Generative AI to Enhance Language Digital Literacy and Creativity in EFL Learning Environments
	Syeda Rabia Tahir, *UNITAR International University, Malaysia*
	Title: The KEAP1-Cullin3-RBX1-Nrf2 Axis in Redox Homeostasis: Molecular Mechanisms, Pathophysiological Roles, and Precision Therapeutic Opportunities
	Mayank Attri, *Global Group of Institutes, India*
	Title: Molecular Insights into the P2X7–NLRP3 Inflammasome in Diabetic Neuropathy: Integrating CRISPR–Cas9 Concepts into Future Stem Cell Therapies
	Sandip Tejpal, *Guru Nanak Dev University, India*
	Title: XClinic Sensors: Validating Accuracy in Measuring Range of Motion Across Trauma Conditions
	Gianpietro Volonnino, *Saint Camillus International University of Health Sciences, Italy*
	Title: Bruton's Tyrosine Kinase Inhibitors and Autologous Hematopoietic Stem Cell Transplantation in Multiple Sclerosis: A Review of Complementary Paradigms for a Divergent Disease
	Jeshua Nathaniel Devan, *Selayang Hospital, Malaysia*
16:30-16:50	Title: The Practical and Legal Realities of Women's Mental Health in the Era of the VBG and PMA in Mali
	COULIBALY Mariam MAIGA, *Teacher-Researcher at Law Schools of Kurukanfuga University of Bamako (UKB) (Bamako-Mali)*

16:50-17:10	Title: Treatment of Fixed Knee Deformity in Cerebral Palsy, Using Distal Femoral Extension Osteotomy with Patellar Tendon Shortening **Reciniello Silvia,** *Hospital Italiano de Buenos Aires, Argentina*
17:10-17:30	Title: Deciphering the Spatiotemporal Development of the Human Amygdaloid Complex **Shuxia Cao,** *Zhejiang University School of Medicine, China*
17:30-17:50	Title: Cytokine Gene Expression and Treatment Impact on MRI Outcomes in Jordanian MS Patients **Sawsan Ibrahim Khdair,** *Al-Zaytoonah University of Jordan, Jordan*
17:50-18:10	Title: Anxiety-Like Behavior in Rats During Periods of Abstinence Following E-Cigarette Vapor and Cigarette Smoke Exposure: Role of Inflammatory Cytokines and Glutamate Receptors **Alaa M Hammad,** *Al-Zaytoonah University of Jordan, Jordan*
NETWORKING	
END OF DAY 2	

HALL - 02	
INTRODUCTION	
Session Chair	**Kirsten Callesen,** *Systemizer International, Denmark*
10:50-11:10	Title: Lived Experiences of Imprisoned Lives of Women in Conflict with Law: Social Work with an Empowerment Approach **Neena Pandey,** *University of Delhi, India*
11:10-11:30	Title: Communicating Psychiatry Knowledge to the Chinese Public: Analyzing Predictive Factors of User Engagement on Chinese TikTok (Douyin) **Tong Yang,** *Anhui Medical University, China*
11:30-11:50	Title: A Correlational Study of Social Loneliness, Coping Mechanisms and Homesickness among College Students **Kanmani Sree Gowri,** *JAIN (Deemed-to-be University), India*
11:50-12:10	Title: Mental Health in Yemen: Cultural, Social, and Systemic Challenges in Times of Crisis **Mohammed Hussein Aljalei,** *Mental Health Research Network of Yemen, Yemen*
12:10-12:30	Title: Pharmacogenomics and Opioid Efficacy in Sickle **Rabab Hassan Elshaikh Mahmoud,** *A' Sharqiyah University, Oman*
12:30-12:50	Title: A Pedagogical Typology of Generative AI Use in Non-Formal Education **Anastasia Vitvitskaya,** *Kazan Federal University, Russia*
GROUP PHOTO 12:50-13:00	
LUNCH BREAK 13:00-13:40	
Session Chair	**Kirsten Callesen,** *Systemizer International, Denmark*
13:40-14:00	Title: Letter to Editor: Changes in Circulating Proinflammatory Lymphocytes and Cortical Excitability with Extended-Interval Natalizumab Dosing in Multiple Sclerosis **Sadia Siddique Ansari,** *Faisalabad Medical University, Pakistan*

14:00-14:20	Title: SIC-ACV: Computer System for Differentiating Between Ischemic and Hemorrhagic Cerebrovascular Accidents Using Intelligent Algorithms **Zoila Esther Morales Tabares,** *Universidad Abierta Para Adultos, Dominican Republic*
14:20-14:40	Title: Parkinson's Disease: Conventional Pharmacotherapy, Drug Delivery Innovations, and Emerging Therapeutic Targets **Chirag Marwah,** *Chitkara University, India*
14:40-15:00	Title: Neuroprotective Effect of Hericium Erinaceus Alone and in Combination with Piperine in Rotenone-Induced Parkinsonism in Experimental Rats **Ankit Chaudhary,** *Meerut Institute of Engineering and Technology (MIET), India*
15:00-15:20	Title: Clinical Benefit of Invasive Vagus Nerve Stimulation in Intractable Epilepsy **Prudence Wirajaya,** *Pelita Harapan University, Indonesia*
15:20-15:40	Title: Virtual Reality Integration in Telangana Government Schools: Enhancing Student Learning Outcomes **Ushakiran Mangalagiri,** *Indian Institute of Technology, Hyderabad, India*
REFRESHMENT BREAK 15:40-16:00	
16:00-16:20	Title: Decoding Molecular Determinants of Cochlear Implant Outcomes Using Patient Specific Neurovascular Models: A Pilot Study **Alka Bhardwaj,** *Postgraduate Institute of Medical Education and Research (PGIMER), India*
16:20-16:40	Title: Effectiveness of a Parent-Implemented Intervention for Improving Balance in a Child with Autism Spectrum Disorder **Sungeun (Joy) Lee,** *Baekseok University, South Korea*

VIDEO PRESENTATION	
V001	Title: A Link Between Circadian Disruption and Diseases
	Xiaoyue Pan, *NYU Grossman Long Island School of Medicine, USA*

NETWORKING

END OF DAY 2

BOOKMARK YOUR DATES

8TH GLOBAL CONCLAVE ON

NEUROLOGY AND NEUROLOGICAL DISORDERS

&

5TH GLOBAL SUMMIT ON

ADVANCES IN MENTAL HEALTH AND PSYCHIATRY: SCIENCE, CARE AND INNOVATION

JUNE 2027 | SINGAPORE

PEERS ALLEY MEDIA

DAY 01

JOINT EVENT

NEUROLOGY AND NEUROLOGICAL DISORDERS

&

ADVANCES IN MENTAL HEALTH AND PSYCHIATRY

JUNE 22-23, 2026 | SINGAPORE

SPEAKER TALKS

Contribution of Lifestyle, Gut Microbiome, and Hormones to the Pathogenesis and Prevention of Alzheimer's Disease

Hassan M. Heshmati

Endocrinology Metabolism Consulting, LLC
Hassan Heshmati and Valerie Shaw Endocrine Research, USA

Alzheimer's disease (AD) is a progressive neurodegenerative disease affecting cognitive function and behavior. It is the most common type of dementia (60 to 80% of the cases) and a major public health challenge. There are approximately 39 million people with AD worldwide, many of them being older than 65 years. Japan has the highest prevalence of AD, while Niger has the lowest prevalence. Two-thirds of the cases of AD are women. The disease seriously impacts life at individual, familial, and societal levels and is responsible for high cost and increased mortality, especially in the elderly population. The features of AD pathology are β-amyloid plaques and neurofibrillary tangles of hyperphosphorylated tau protein. AD is a multifactorial disease caused by a combination of several factors including genetics, aging, air pollution, lifestyle, gut microbiome, and hormones. Lifestyle (e.g., diet, exercise, and mental and social activities) plays an important role in the pathogenesis and prevention of AD. High caloric intake, saturated fatty acids, and vitamin deficiencies increase the risk of AD. In contrast, unsaturated fatty acids, antioxidants, and fiber decrease the risk of AD. Of particular interest, spermidine, a naturally occurring polyamine present in food but also available as food supplement, has been reported to protect against AD. Sedentary lifestyle (e.g., physical inactivity) is a risk factor for AD while regular exercise can be protective. Low mental and social activities are also risk factors for developing AD. Imbalance in gut microbiome (dysbiosis) is another risk factor for AD. Several hormones are implicated in the promotion or prevention of AD. Estrogen, progesterone, and testosterone have neuroprotective effect, but data on AD risk reduction of hormone replacement therapy (estrogen alone or estrogen + progesterone in post-menopausal women and testosterone in hypogonadal men) have been controversial. Chronic elevation of cortisol following chronic stress, low thyroid hormones, and insulin deficiency are risk factors for AD. In conclusion, unhealthy lifestyle (e.g., Western diet, physical inactivity, and social isolation), dysbiosis, and several hormonal changes (deficiency or excess) are risk factors for developing AD while the corrective actions (e.g., Mediterranean diet, regular exercise, social activity, and hormonal control) can help preventing or delaying the progression of the disease.

Presenter:

Hassan M. Heshmati
Endocrinology Metabolism Consulting, LLC
Hassan Heshmati and Valerie Shaw Endocrine Research, USA

Movies & Mental Illness

Danny Wedding

Chiang Mai University, Thailand

Movies shape public perceptions of mental illness, people with mental illness, and those professionals who treat these disorders. Likewise, public attitudes about alcoholism, drug addiction and developmental disabilities are all profoundly influenced by the portrayal of these conditions on television and in contemporary cinema. This influence can be positive or negative. For example, Dustin Hoffman's portrayal of a man with autism in the film *Rain Man* had the positive effect of educating millions of Americans about this condition, while Gus van Sant's recent remake of *Psycho* had the very negative effect of perpetuating the myth that mental illness is closely linked with violence. The ways in which mental illness, addictions, and developmental disabilities are presented in films are detailed in the book *Movies and Mental Illness* (Wedding, 2025).

Films often can serve a pedagogical purpose and may be helpful in the psychology classroom as a way of introducing students to mental illness (e.g., Richard Gere's character in *Mr. Jones* presents an accurate portrayal of the behavior of a patient with bipolar disorder, while *Shine* demonstrates that people with profound psychological problems can still make important societal contributions). Movies can be used in a similar way as tools to educate patients about the nature of their illness.

This presentation will overview the most important films dealing with psychologists, psychiatrists, other mental health professionals, as well as those films that focus on major mental illness. Although primarily focused on the book *Movies and Mental Illness*, the presentation will introduce participants to two other books by Danny Wedding: *Positive Psychology at the Movies* and *Movies, Mini-series and Multiculturalism*.

Presenter:
Danny Wedding
Chiang Mai University, Thailand

HIV and Omega-3 May Influence Sex Differences in Hippocampal Volume and its Subfields

Lai S[1], Lai H[1], Gerstenblith G[2] and **Treisman G[2]**

[1]University of Maryland, USA
[2]Johns Hopkins School of Medicine, USA

Objectives: (1) To examine sex differences in hippocampal volumes and whether HIV modifies these differences; and (2) to assess whether omega-3 fatty acids, particularly eicosapentaenoic acid (EPA) and docosahexaenoic acid (DHA), mitigate the associations between sex differences in hippocampal volumes and HIV.

Scope: The study was conducted in an underserved Baltimore population disproportionately affected by HIV and drug use.

Results: (1) Among HIV-negative participants, sex differences were minimal (females had smaller volumes than males in only 1 of 26 subfields). In contrast, HIV-positive females exhibited smaller volumes in 13 of 26 subfields ($p<0.006$).

(2) In HIV-positive participants with EPA ≤0.40%, females had smaller volumes in 11 of 26 subfields, whereas no significant sex differences were observed when EPA >0.40% ($p=0.0003$).

(3) Among adults with lower episodic memory, higher log-transformed EPA levels were independently associated with greater hippocampal volume. However, this association was not observed in those with higher episodic memory.

Methods: We analyzed 166 participants aged >45 years from a Baltimore cohort. Brain MRIs were acquired on a 3.0-T Siemens scanner, and 26 hippocampal subfields were segmented using FreeSurfer v6.0, adjusting for intracranial volume. Plasma EPA and DHA were quantified, and episodic memory was assessed.

Conclusions: HIV may amplify sex differences in hippocampal volumes, disproportionately affecting women. Higher EPA and DHA levels attenuated these differences, suggesting a protective role of omega-3 fatty acids against HIV-related hippocampal atrophy. These findings highlight omega-3s as a

potential nutritional resilience factor in neuroHIV, warranting replication in larger, longitudinal studies.

Funding: Research reported in this publication was supported by grants from the US National Institute on Drug Abuse, National Institutes of Health (NIH R01DA12777, R01DA15020, R01DA25524, R01DA035632, R21DA048780, and U01DA040325).

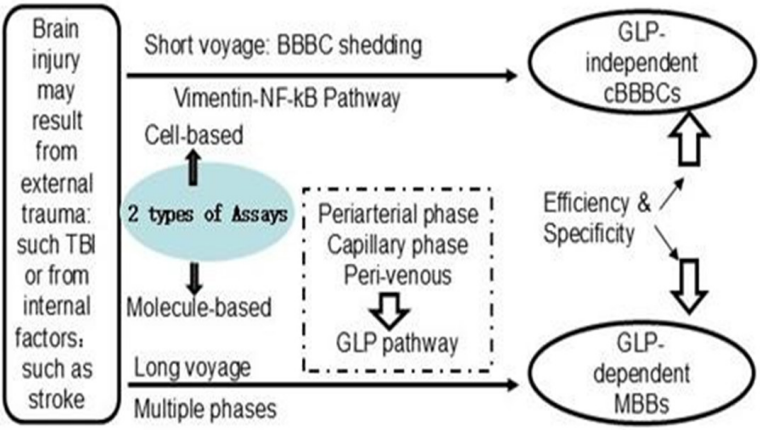
Presenter:
Shenghan Lai
University of Maryland, USA

Glymphatic Pathway-Independent Circulating Blood-Brain Barrier Cells (cBBBCs) are Superior to Molecular Biomarkers for Detection of Brain Injury

Sheng-He Huang[1,2], Chunhua Wu[2] and **Rong Zhou[2]**

[1]University of Southern California (USC), USA
[2]Guangdong Nanshan Medicine Innovation Institute (NSMI), China

Brain injury may result from external trauma, or from internal factors. Traumatic brain injury (TBI) is the most common type of brain injury, which is the leading cause of death and disability in children and young adults. TBI has been the most misunderstood and misdiagnosed problem among the central nervous system (CNS) disorders. Although molecule-based biomarkers (BBMs) such as GFAP may help detection of acute TBI (0-24 h), but there is no evidence to support a role of BBMs in chronic TBI (>30 days). A big challenge issue behind this inefficiency is that even small changes in the glymphatic pathway (GLP) can significantly modulate the brain's ability to move BBMs from the brain interstitium into the bloodstream. There is an urgent need to call for a concerted effort to search for sensitive and reliable biomarkers of TBI, especially mild TBI. There is a growing consensus that TBI, no matter what the cause, leads to dysfunction of the BBB, which is mainly constituted by brain microvascular endothelial cells (BMEC). Our recent preclinical studies have shown that circulating BMEC (cBMEC), one of cBBBCs, in the peripheral blood, which are independent of the GLP, could be used as cell-based biomarkers for quantitative assessment of brain injury caused by various pathogenic insults, including trauma. The vimentin-NF-kB pathway significantly contributes to cBBBC shedding during the pathogenesis of BBB injury and other CNS disorders. The cell-based biomarkers cBBBCs along with advanced neuroimaging will overcome the limitations of BBMs mentioned above and make the early diagnosis of TBI.



Presenter:
Sheng-He Huang
University of Southern California (USC), USA
Guangdong Nanshan Medicine Innovation Institute (NSMI), China

Oculomics Approach to Study the Effect of Yoga Exercise in Patients with Parkinson's Disease

Jianhua Wang[1], Andrew Hoover[1,2], Amanda Virgets[3], Kylie J. Martinez[3], Bonnie Levin[4], Ihtsham Haq[4], Joseph F. Signorile[3] and **Hong Jiang[1,4]**

[1]Department of Ophthalmology, Bascom Palmer Eye Institute, University of Miami Miller School of Medicine, USA
[2]Duke University School of Medicine, USA
[3]Department of Kinesiology and Sports Sciences, University of Miami, USA
[4]Department of Neurology, University of Miami Miller School of Medicine, USA

Objectives: To characterize retinal neurovascular signatures following a 24-week yoga intervention in patients with Parkinson's disease (PD).

Scope: Seventeen patients with PD (mean age 71.4 ± 6.7 years; 8 females) completed three 1-hour yoga sessions weekly for 24 weeks.

Methods: Retinal neurovascular parameters were assessed at baseline and 6 months. Retinal blood flow (RBF) was measured with a Retinal Function Imager, while retinal vessel density (RVD), vessel length density (RVLD), and retinal tissue volume (RTV) were quantified by OCT angiography. Retinal capillary function (RCF) and tissue perfusion (RTP) were calculated from these measures.

Results: RBF significantly increased after yoga training ($P = 0.049$). RVD changes were inversely correlated with disease duration ($r = –0.67$, $P = 0.007$) and Hoehn and Yahr (H&Y) stage ($r = –0.77$, $P < 0.001$). Patients with disease duration < 5 years or H&Y stage 1 showed greater RVD improvements than those with longer disease duration or H&Y stage ≥ 2 ($P = 0.004$ and $P = 0.002$, respectively). Increased RBF was strongly related to changes in capillary perfusion density (CPD) across superficial and deep plexuses ($r = 0.58–0.83$, $P < 0.05$). Improvements in RBF and CPD of the superficial plexus correlated with better cognitive performance, including shorter trail-making A times ($r = –0.66$, $P < 0.01$; $r = –0.58$, $P < 0.05$). CPD changes in the vascular network were also associated with improved Hopkins verbal delayed recall ($r = 0.50$, $P < 0.05$).

Conclusion: This first study of yoga in PD demonstrates that retinal neurovascular measures respond to aerobic exercise. RBF increased, and RVD im-

provements were influenced by disease stage and duration. These findings support RBF and RVD as potential biomarkers for monitoring PD progression and intervention efficacy.

Presenter:
Jianhua (Jay) Wang
University of Miami Miller School of Medicine, USA

Effect of Epicatechin on Learning, Short- and Long-Term Memory, Proinflammatory Cytokines, and Oxidative Stress in Proteins in the Hippocampus and Cortex in Aged Rats

Salas Gutiérrez Verónica[1] and **Ramírez Sánchez Israel**[2]

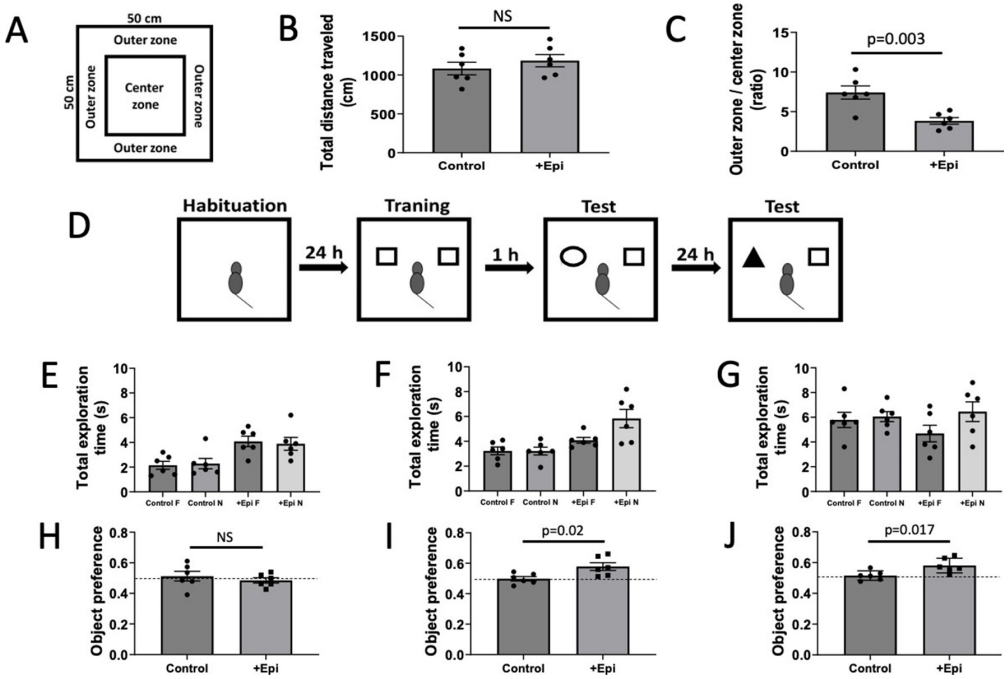
[1]Hospital Español, México
[2]Cardio-Metabolic Research Laboratory of the Graduate School of the Higher School of Medicine of the National Polytechnic Institute, México

Background/Objetives: One of the most common concerns in older adults is memory loss and neurobiological alterations. A promising experimental *in-vivo* neurobiological therapeutic compound derived from cocoa is the flavonol epicatechin (Epi). Experimental studies with mice have shown that (-)-Epi has neuroprotective potential, as it effectively mitigates oxidative stress, inflammation, and promoters of neuronal cell degeneration. It also promotes the growth of neurons, leading to functional improvements, but (+)-Epi is more effective, as it upregulates neurogenesis markers. Based on these studies, it was determined that it was important to investigate the effect of (+)-epicatechin on learning, short- and long-term memory, oxidative stress, and proinflammatory cytokines in aged rats.

Method: This was done through a simple randomized experimental study (pre-phase *in vivo-ex vivo*) with simple randomization in 12 naturally aged 3-month-old male Sprague Dawley rats that evolved to 23 months, divided into 2 groups (control group n=6) provided with vehicle and (experimental group n=6) administered (+)-Epi 1mg/kg orally. The *in vivo* phase was performed using the open field test, with three independent measurements (habituation, short-term and long-term memory), and the *ex vivo* phase isolated the frontal cortex and hippocampus for the quantification of cytokines (IL-1β, Il-6, and TNF) and carbonylated proteins.

Results: Positive effects of +epicatechin (+Epi) in treated aged rats on open field, total exploration time and object recognition tests. Panel (A) is the representation of an open field test. Panel (B) is the total distance traveled in the open field and (C), the time in outer vs. center zone ratio. Panel (D) is the image representation of the object recognition test. The schematic include empty arena for habituation, 2 identical objects, cubes, cylinder and cube for short-term memory and pyramid and cube for long-term memory. Panel (E) reports on the total exploration time measured during the training, (F) on

short-term memory, and (G) on long-term memory sessions of the object recognition test. Panel (H) is the graphic representation of the object preference test and scores obtained during training, short-term and long-term memory tests (H–J) respectively). Values reported compare chance score for object preference as = 0.5, (n= 6/group, mean ± SEM, $p < 0.05$ vs. controls).



Conclusions: The results demonstrate that +Epi reduces oxidative stress and inflammation in the hippocampus and cortex, leading to improved short- and long-term memory in aged animals, providing evidence for possible mechanisms of action.

Presenter:
Verónica Salas Gutiérrez
Hospital Español, México

Retinal Mitochondrial Function in Patients with Relapsing-Remitting Multiple Sclerosis with and without Optic Neuritis

Hong Jiang[1,2], Giovana Rosa Gameiro[1,3], Andrew Hoover[1,4], Paulo Schor[3], Collin Rich[5] and **Jianhua Wang[1]**

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[4]Duke University School of Medicine, USA
[5]OcuSciences, Inc., USA

Objectives: To evaluate retinal and optic nerve head (ONH) mitochondrial dysfunction in patients with relapsing–remitting multiple sclerosis (RRMS) using flavoprotein fluorescence (FPF), and to examine its relationship with retinal structure and microvascular density.

Scope: This cross-sectional study included 24 RRMS patients (21 females, 3 males; mean age 41.7 ± 10.0 years) and 43 healthy controls (19 females, 24 males; mean age 37.8 ± 13.6 years).

Methods: FPF was measured at the macula and ONH using the OcuMet Beacon. Retinal nerve fiber layer (RNFL), ganglion cell–inner plexiform layer (GCIPL), and superficial/deep vascular plexus (SVP, DVP) densities were assessed by optical coherence tomography (OCT) and OCT angiography. Analyses included t-tests, ANOVA, linear regression, and Pearson or Spearman correlations ($p < 0.05$).

Results: Macular FPF was significantly higher in RRMS than in controls (24.64 ± 5.35 vs. 19.40 ± 5.51; $p = 0.001$). ONH FPF was similarly elevated (27.53 ± 5.84 vs. 22.15 ± 5.88; $p = 0.002$). Subgroup analyses showed that non-ON eyes had significantly higher FPF at both macula (25.03 ± 4.51; $p < 0.001$) and ONH (28.22 ± 4.97; $p < 0.001$) compared with controls, whereas ON eyes did not differ significantly. FPF did not correlate with RNFL, GCIPL, or perfusion density, though a moderate inverse trend was observed between ONH FPF and SVP density ($r = –0.436$, $p = 0.092$). Age was a significant predictor of FPF at both macula ($R^2 = 0.296$, $p < 0.001$) and ONH ($R^2 = 0.369$, $p < 0.001$).

Conclusions: Retinal and ONH FPF are elevated in RRMS, particularly in eyes without prior optic neuritis, suggesting subclinical mitochondrial dysfunction. These changes occur without significant structural or vascular abnormalities, indicating that FPF imaging may serve as an early metabolic biomarker for MS.

Presenter:
Hong Jiang
University of Miami Miller School of Medicine, USA

Trauma and the Brain: Effects of Incarceration on Women's Neurological Health and Psychological Wellbeing

Jessica K. Williams

Director of International Network for Incarcerated Girls and Women, Independent Scholar, Australia

Background

The extent to which specific aspects of incarceration negatively affect the neurological health and psychological wellbeing of women was examined through an interdisciplinary analysis grounded in human rights law, empirical evidence, and medical and criminal justice literature review, with an aim to help address the scarcity of information specifically pertaining to the effects of incarceration on female prisoners with brain injury.

Method

Review of Human Rights Instruments and Carceral Legislation

Carceral legislation, policies, and practices from different states and countries were analysed, and numerous international human rights instruments were reviewed, including the *International Covenant on Civil and Political Rights* (ICCPR), *International Covenant on Economic, Social and Cultural Rights* (ICESCR), *Convention on the Elimination of All Forms of Discrimination against Women* (CEDAW), *Convention against Torture and Other Cruel, Inhuman or Degrading Treatment or Punishment* (CAT), *Universal Declaration on Human Rights* (UDHR), *United Nations Standard Minimum Rules for the Treatment of Prisoners (the Nelson Mandela Rules), United Nations Rules for the Treatment of Women Prisoners and Non-custodial Measures for Women Offenders (the Bangkok Rules), United Nations Standard Minimum Rules for Non-custodial Measures (the Tokyo Rules)*, and the third and fourth Geneva Conventions in relation to women deprived of their liberty.

Review of Scholarly Literature and Data

Research on the effects on women of male violence, incarceration, Brain Injury and other Neurological Damage (BIND), and other forms of physical, sexual, and psychological trauma, was reviewed, including O'Donnell, et al., (2025); O'Rourke, et al. (2018); Woolhouse, et al. (2017); Baranyi, et al. (2018);

Stathopoulos, et al. (2012); Theodoratou et al., (2023); Woods (2023); Walsh & Blaber (2023); McDaniels-Wilson & Belknap (2008); and McMillan, et al. (2021). Articles examining which prison system ("open" or "closed") is more or less humane, and to what degree of failure or success the system has in relation to recidivism and rehabilitation have been reviewed, including Crewe, et al., (2023); Crewe, Hulley, & Wright (2017); and Mjåland, et al., (2023). Further literature review was conducted on the abuses that women are exposed to while incarcerated including the work of George (1993), of Quandt (2024), Crewe (2011; 2015), and of Swavola, et al., (2016). Other relevant reports, surveys and articles were reviewed including from McCampbell (2005), United Nations Women (2024; 2025), and the United Nations Office on Drugs and Crime.

Presenter:

Jessica K. Williams
Director of International Network for Incarcerated Girls and Women,
Independent Scholar, Australia

Pan-GLUT Inhibitors Trigger Mitochondrial Dysfunction, Altered Amyloid Beta Homeostasis and Neural Cell Degeneration: Implications in Alzheimer's Disease

Sasanka Chakrabarti[1], Aman Chauhan[1], Arindam Ghosh[2], Karanpreet Bhutani[1] and **Sankha Shubhra Chakrabarti[3]**

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[3]Department of Geriatric Medicine, Institute of Medical Sciences, Banaras Hindu University, India

The neurodegeneration associated with Alzheimer's disease (AD) is conventionally explained by the multiple cytotoxic effects of amyloid beta protein (predominantly Aβ42) which is called the Amyloid Cascade Hypothesis. However, there are many criticisms of this hypothesis which have gained further support from multiple failures in clinical trials of anti-amyloid therapeutics. This has given rise to many alternative hypotheses of AD pathogenesis indicating new drug targets for AD.

Decreased cerebral glucose utilization is characteristic of AD from very early to advanced phases of the disease as measured *in vivo* by ^{18}F-2-deoxyglucose uptake using PET- scan. This prompted us to explore in a model system how glucose hypometabolism may drive the known pathogenic signatures of AD such as mitochondrial dysfunction, increased oxidative stress, altered Aβ42 metabolism and finally neurodegeneration.

In our study SH-SY5Y cells (human neuroblastoma cell line widely used in exploring AD pathogenesis) were exposed to pan-GLUT inhibitors like WZB117 or DRB 18 for up to 48 h; a very significant mitochondrial impairment, increases in ROS production, BACE1 activity, levels of intracellular and released Aβ42 and altered expression levels of APP and pronounced cell death were noticed. Antioxidants like ferrostatin-1, liproxstatin-1 and N-acetylcysteine could not prevent these effects of GLUT inhibitors on SH-SY5Y cells. However, alternative energy substrates like β-hydroxybutyrate and dimethyl-2-oxoglutarate markedly prevented glucose hypometabolism induced mitochondrial

dysfunction, altered amyloid beta homeostasis and neural cell death. Further, in order to ascertain the role of increased Aβ42 in this model of glucose hypometabolic stress, the effects of silencing of APP protein expression by specific siRNA treatment are being examined currently.

Presenter:
Sasanka Chakrabarti
Maharishi Markandeshwar Institute of Medical Sciences & Research
Maharishi Markandeshwar (Deemed to be University), India

Hydrogen Sulfide and Neurodegenerative Diseases

Constantin Munteanu

"Grigore T. Popa" University of Medicine and Pharmacy Iași, Romania
"Bagdasar-Arseni" Emergency Clinical Hospital, Romania

Hydrogen sulfide (H_2S), once regarded solely as a toxic gas, is now recognized as a pivotal endogenous gasotransmitter with multifaceted physiological functions, including neuromodulation, cytoprotection, and immunoregulation. Increasing evidence highlights its intricate interplay with the gut microbiota, a dynamic and metabolically active ecosystem that profoundly influences host homeostasis. This bidirectional axis, centered on microbiota-derived and host-generated H_2S, emerges as a crucial determinant in the pathophysiology and potential treatment strategies of neurodegenerative diseases (NDs), particularly Parkinson's disease (PD), Alzheimer's disease (AD), and amyotrophic lateral sclerosis (ALS). The gut-brain axis, mediated through microbial metabolites such as short-chain fatty acids, tryptophan catabolites, and gaseous messengers including H_2S, facilitates a complex neuroimmune dialogue that modulates neuroinflammatory cascades, oxidative stress, mitochondrial dysfunction, and synaptic integrity—core pathological features of NDs. This review outlines current mechanistic insights into H_2S biosynthesis, both enzymatic (CBS, CSE, 3-MST) and microbial, within the gastrointestinal tract, as well as its systemic and central nervous system effects. We systematically examine preclinical and clinical data supporting the role of dysbiotic microbiota-H_2S interactions in the onset and progression of non-dermatological diseases (NDs), highlighting microbial shifts in sulfate-reducing bacteria (e.g., *Desulfovibrio*) and H_2S-regulated signaling pathways, including Nrf2/ARE, NF-κB, and SIRT1. Furthermore, we explore therapeutic innovations leveraging microbiota modulation and H_2S-donor compounds, including slow-releasing prodrugs and dietary precursors, as novel interventions in neurodegeneration.

Presenter:
Constantin Munteanu
"Grigore T. Popa" University of Medicine and Pharmacy Iași, Romania

MBCARE, a Mindfulness- and Self-Compassion-Based Intervention to Decrease Burnout and Promote Self-Compassion in Health Care Providers

Corinne Isnard Bagnis[1], Laurent Charvin[1], Alexis Akinyemi[2], Jean-Yves Mariette[3], Claire Mizzi[4], Thierry Cardoso[5], Ciaran Grufeille[2] and **Clémence Brun[6]**

[1]Nephrology Department, APHP-Sorbonne University, France
[2]Adhoc Lab, France
[3]INSEAD-Sorbonne University, Behavioral Lab, France
[4]Clinical Psychologist, Private Practice, France
[5]Santé Publique France, France
[6]Le Laboratoire Lorrain de Psychologie et Neurosciences de la Dynamique des Comportements (2LPN, EA 7489), France

Background: Mindfulness and compassion training have individually shown significant effects on health care professionals' (HCPs') skills, reducing stress, anxiety, and burnout. This study evaluated the impact of a combined mindfulness and self-compassion intervention on HCPs' wellness.

Methods: Seventeen nurses and doctors at a teaching university hospital in France volunteered for the Mindfulness-Based Compassion and Resilience Enhancement (MBCARE) program, a four-week mindfulness and self-compassion training delivered in eight three-hour sessions over four days (one day per week), with 100% attendance. We collected primary data (mindfulness skills, burnout scores, self-compassion, and emotional coping *via* face-reader evaluations) before and after the intervention.

Results: MBCARE was associated with reduced burnout, with emotional exhaustion scores decreasing ($M\Delta = -4.27$, $t = 1.95$, $p = .04$) and personal accomplishment scores increasing ($M\Delta = 2.73$, $z = 2.48$, $p = .007$) among 12 health care professionals. Patient-perceived centeredness of care showed a ceiling effect, with no significant changes. In a socio-affective video task ($n = 7$), positive affect increased post-training ($p < .05$), while negative affect remained stable. Time and availability constraints limited participation, but the program was feasible. Professional contextualization may support skill application, potentially improving emotional regulation and self-compassion, though further research is needed to confirm these effects.

Conclusions: Implementing mindfulness and compassion training for HCPs faces time and availability constraints but meets their needs. Contextualizing the training to professional settings enhances HCPs' ability to apply new skills, yielding benefits in emotional stability and self-compassion.

Presenter:
Corinne ISNARD BAGNIS
APHP-Sorbonne University, France

Mental Health Benefits Communication in Foods and Supplements in Brazil

Helena F. M. Tavares, Geni R. Sampaio and **Elizabeth A. F. S. Torres**

University of Sao Paulo, Brazil

The intersection between the mental health landscape and the market for functional foods and dietary supplements highlights how health claims are formulated, communicated, and interpreted, as well as their potential influence on consumer behavior. The present study hypothesizes that discrepancies exist between current regulatory frameworks and market practices, which may result in legal uncertainty and increase the risk of consumer misinformation.

To address this, we conducted a comparative analysis of regulatory requirements and market practices, aiming to identify inconsistencies and propose strategies to mitigate these gaps. A semi-quantitative approach was employed, including a systematic review of national regulations and a market analysis of products registered in the Mintel Global New Products Database (GNPD) between July 2018 and August 2024.

The findings indicate the presence of misalignment between regulatory standards and the communication of mental health-related benefits in the marketplace. These results underscore the need for enhanced dialogue among regulatory agencies, the food industry, and the scientific community to refine guidelines and strengthen regulatory compliance.

In parallel, we recently published the article entitled “The Role of Health Claims on Consumer Behavior and Food Choice: A Narrative Review”, which further examines the relationship between health-related communication and consumer decision-making.

Presenter:
Helena Fernandes Martins Tavares
University of Sao Paulo, Brazil

Pathway-Specific Contributions of Frontoparietal Networks to Online Reach-to-Grasp Adjustments under Visual and Mechanical Perturbations

Mariusz P. Furmanek[1,2,3], Luis F. Schettino[4], Sergei V. Adamovich[5,6], Mathew Yarossi[2,5] and **Eugene Tunik[2,5]**

[1]Department of Physical Therapy, University of Rhode Island, USA
[2]Department of Physical Therapy, Movement and Rehabilitation Sciences, Northeastern University, USA
[3]Institute of Sport Sciences, The Jerzy Kukuczka Academy of Physical Education in Katowice, Poland
[4]Psychology Department and Neuroscience Program, Lafayette College, USA
[5]Department of Electrical and Computer Engineering, Northeastern University, USA
[6]Department of Biomedical Engineering, NJIT, USA

Humans adjust their movement to changing environments effortlessly *via* multisensory integration of the effector's state, motor commands, and sensory feedback. It is postulated that frontoparietal (FP) networks are involved in the control of prehension, with dorsomedial (DM) and dorsolateral (DL) regions processing the reach and the grasp, respectively. We investigated (5F, 5M) the differential involvement of FP nodes (ventral premotor cortex - PMv, dorsal premotor cortex - PMd, anterior intraparietal sulcus - aIPS, and anterior superior parieto-occipital cortex - aSPOC in online adjustments of reach-to-grasp coordination to mechanical perturbations that disrupted arm transport, and visual perturbations of target object size and position. We used event-related transcranial magnetic stimulation (TMS) to test whether the nodes of these pathways causally contribute to the processing of proprioceptive and visual information when reaching for a virtual visual target at two different perturbation latencies (100 and 300 ms after movement onset). Our results support the involvement of the DL pathway when quick modifications including complex digit control are required. Against our expectations, sudden changes in target position did not elicit activity in the DM pathway. TMS over aSPOC selectively altered the correction magnitude of arm transport during late perturbations, demonstrating that aSPOC processes proprioceptive inputs related to mechanical perturbations in a movement phase-dependent manner. Our studies support the notion that virtual reality can be successfully employed for the study of the neural substrates of motor control.

Presenter:
Mariusz Furmanek
University of Rhode Island, USA

Hypothesis of Mind

David Kashani

Psychiatrist, USA

A physical model of consciousness is proposed wherein the 'mental', as distinct and separate from its brain under structure, exists as an epiphenomenal part of it, fully explainable by the physics of special relativity and quantum mechanics. A methodology based on the "auditory rabbit" and the "cutaneous rabbit", sound wave physics, the visual saltation illusion of Kanisza triangles, and the principles of time dilation is then outlined to either support or falsify this conclusion. Specifically, a quasi-inequality or test is created the satisfaction of which would falsify the hypothesis.

This booklet crafts a hypothesis regarding consciousness that would be amenable to the scientific method, while taking care not to veer off into metaphysics except where it be possible to incorporate same into reasonable scientific certainty or, at minimum, render it moot herein. Since the advancement of our scientific understanding of the mind continues to be dependent in no small measure upon authentically incorporating as much philosophy into science as possible, I begin with some background in philosophy of mind.

Presenter:
David Kashani
Psychiatrist, USA

SITH-1 is a Potential Biomarker of Mental Stress in Patients with Intracranial Aneurysms

Hirokazu Koseki[1], Michiyasu Fuga[1], Toshihiro Ishibashi[1], Naomi Oka[2], Kazuhiro Kondo[2] and **Yuichi Murayama[1]**

[1]Department of Neurosurgery, The Jikei University School of Medicine, Japan
[2]Department of Virology, The Jikei University School of Medicine, Japan

Objectives: Mental stress has been proposed as a risk factor for subarachnoid hemorrhage (SAH), yet objective biomarkers to quantify stress have been lacking. SITH-1, a latent protein of human herpesvirus 6B (HHV-6B), is expressed in response to stress and fatigue; elevated serum anti-SITH-1 antibody titers have been reported in patients with depression. We hypothesized that chronic mental stress, reflected by anti-SITH-1 antibody titers, is associated with intracranial aneurysm rupture.

Methods: In this prospective multicenter cross-sectional study three groups were enrolled across five institutions between June, 2021 and September, 2023: patients with ruptured intracranial aneurysms (RIA, n=24; blood sampled within 24 h of SAH onset), patients with unruptured intracranial aneurysms <5 mm (UIA, n=26; sampled within 1 month of enrollment), and healthy controls (n=23). Serum anti-SITH-1 antibody titers were measured by fluorescent antibody technique. Group comparisons used the Kruskal-Wallis test with Bonferroni-corrected post hoc analyses. Correlation between antibody titer and duration from UIA diagnosis to enrollment was assessed by Spearman's rank correlation.

Results & Discussion: Baseline characteristics were comparable across groups except for higher statin use in the UIA group (p=0.012). Anti-SITH-1 antibody titers differed significantly among groups (p=0.008), with the UIA group showing the highest titers, followed by RIA and controls (Figure). Post hoc analysis demonstrated significant differences between UIA vs. RIA (p = 0.017) and UIA vs. control (p=0.029), but not between RIA and control groups. In the UIA group, antibody titer correlated positively with time from diagnosis to enrollment (r = 0.43, p = 0.028), suggesting a cumulative stress burden. These findings indicate that chronic psychological stress—likely arising from awareness of an unruptured aneurysm under surveillance—may accumulate over time but does not appear to be a direct trigger of rupture.

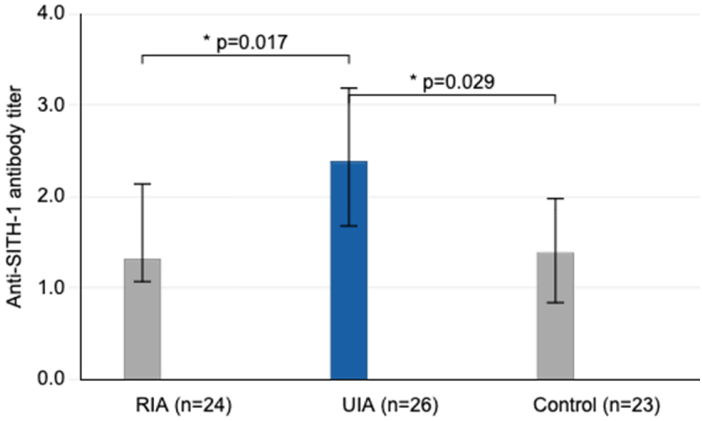

Figure: Serum anti-SITH-1 antibody titers among the three groups.

Conclusion: Anti-SITH-1 antibody titers were significantly elevated in UIA patients compared to those with RIAs or healthy controls, with higher titers correlating with longer time under aneurysm surveillance. These findings suggest that chronic mental stress is unlikely to directly trigger aneurysm rupture but may accumulate in individuals living with undiagnosed-to-treated UIAs. Anti-SITH-1 antibody may serve as a candidate objective biomarker of chronic mental stress in non-psychiatric populations.

Presenter:
Hirokazu Koseki
The Jikei University School of Medicine, Japan

3TFL-XLnet-CP: A Novel Transformer-Based Crop Yield Prediction Framework with Weighted Loss Based 3-Tier Feature Learning Model

C . Nandini

Dayananda Sagar Academy of Technology and Management, India

The advancement of crop yield prediction through artificial intelligence (AI) has gained significant attention. However, the existing AI-based approaches for maximizing agricultural productivity, specifically in crop yield prediction, have not consistently delivered satisfactory results. In response to this challenge, we propose a novel framework named as Three Tier Feature Learning with XLnet based Crop Prediction (3TFL-XLnet-CP) that enhances agricultural productivity by accurately predicting crop yield. The 3TFL-XLnet-CP framework employs a three-tier feature learning approach in combination with the powerful XLnet transformer-based crop prediction model. The three-tier feature learning involves the integration of Spiking Neural Network (SNN), Graphical Neural Network (GNN), and Convolutional Neural Network (CNN) to extract distinct feature vectors from the pre-processed data. These feature vectors are then concatenated using Jaccard Similarity to measure their similarity score. Additionally, a weighted Loss function is introduced to optimize feature learning, further enhanced by a novel self-adaptive Spider Monkey Optimization algorithm (SASMO). The concatenated features are subsequently fed into the classification layer for making precise crop yield predictions. The proposed model is implemented using the Python platform and evaluated against existing models such as ANN, RNN, DNN, and BiLSTM. The comparison demonstrates the superiority of our proposed 3TFL-XLnet-CP framework in accurately predicting crop yield.

Presenter:
C. Nandini
Dayananda Sagar Academy of Technology and Management, India

Harnessing GeoAI and Social Media Data for Mental Health Surveillance

Yan Liu

Dean of General Education, Lee Woo Sing College,
The Chinese University of Hong Kong, Hong Kong

Mental health conditions are a leading cause of global disability, profoundly impacting hundreds of millions of lives. An evidence-based understanding of population-level mental health is therefore essential for building healthier, more productive, and equitable societies. To advance this understanding, our research introduces an innovative methodology that integrates GeoAI (Geospatial Artificial Intelligence) with social media data, adding a critical spatial dimension to public health surveillance.

In this talk, I will demonstrate how we employ GeoAI to analyze large-scale, anonymized, and geotagged social media and environmental data. This geospatial approach enables the detection of population-wide psychological signals—such as stress, anxiety, depression, and suicidal ideation—and links them to geographic and temporal contexts. Our work illustrates how GeoAI-powered surveillance can generate a robust evidence base to guide proactive, geographically targeted interventions in public mental health.

Presenter:
Yan Liu
The Chinese University of Hong Kong, Hong Kong

Fetal Brain Injury in the Pump Twin: Insights from the TRAP Sequence Case

Wirada Dulyaphat[1], Chaniga Jiratchayamaethasakul[1], Supakorn Chaiyakarn[1], Waranyu Lertrat[1], Chayada Tangshewinsirikul[1] and **Chaiyos Khongkhatithum[2]**

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[2]Division of Neurology, Department of Pediatrics, Faculty of Medicine Ramathibodi Hospital, Mahidol University, Thailand

Twin reversed arterial perfusion (TRAP) sequence is a rare but severe complication of monochorionic twin pregnancies. While the acardiac twin typically exhibits significant malformations, the pump twin is usually assumed to be structurally normal. Prenatal brain abnormalities in the pump twin are exceedingly rare, with only three cases reported to date—and none documenting postnatal outcomes.

We report a monochorionic diamniotic twin pregnancy with TRAP sequence. The pump twin initially showed normal growth and anatomy; however, at 25 weeks, bilateral ventriculomegaly was detected (right: 11.0 mm; left: 13.0 mm). Subsequent transvaginal neurosonography and fetal MRI suggested destructive brain lesions, raising suspicion for cortical malformation. After multidisciplinary counseling, conservative management was chosen. At 32 weeks, the patient delivered spontaneously preterm; the pump twin weighed 1,900 g with reassuring Apgar scores. At three weeks, cranial 2D and 3D ultrasounds showed ongoing gyral development, restored cingulate sulcus, stable bilateral ventriculomegaly, and partial regrowth of affected brain tissue. Now at 18 months, the child demonstrates normal growth and continues to achieve her age-appropriate gross motor and neurological milestones.

Our findings underscore the potential for brain injury in the pump twin of a TRAP sequence, while highlighting postnatal neurodevelopmental resilience, emphasizing the need for both detailed prenatal assessment and long-term postnatal follow-up, as brain development continues beyond infancy.

This abstract is a modified version of the article published by the same author(s) in the following journal: BMC Pregnancy Childbirth 25, 705 (2025). https://doi.org/10.1186/s12884-025-07825-4.

Presenter:
Wirada Dulyaphat
Mahidol University, Thailand

Development of Pulse Arrival Time Based System to Derive Beat-to-Beat Blood Pressure Variability

Chaitali Aditya Deshmukh[1], G. D. Nagare[2] and **G. D. Jindal[1]**

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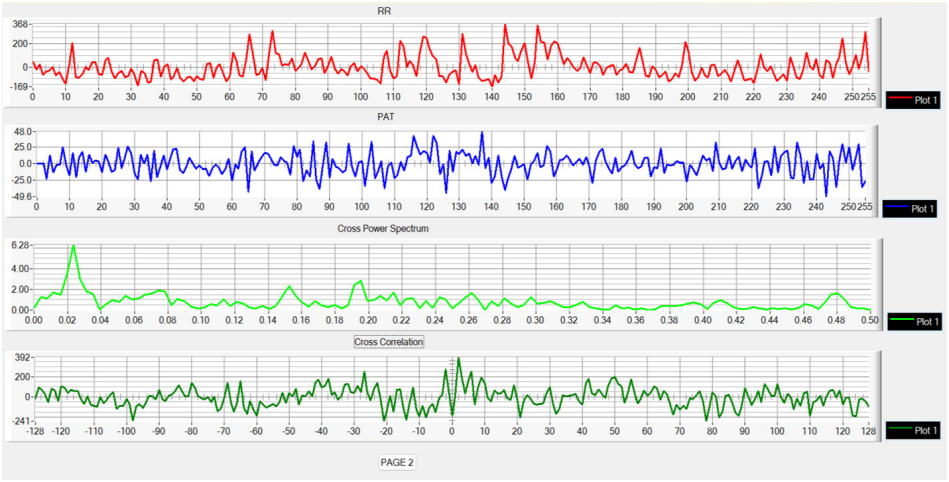
[2]Department of Biomedical Engineering, Vidyalankar Institute of Technology, University of Mumbai, India

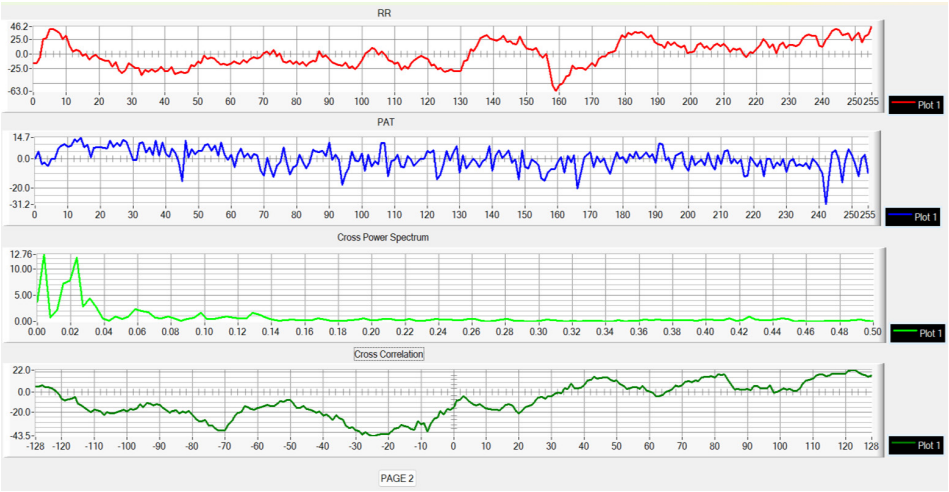
The objective of this study is to develop a non-invasive, cost-effective, and user-friendly system to monitor beat-to-beat blood pressure variability (BPV) using Pulse Arrival Time (PAT). Blood pressure variability is a significant indicator of autonomic cardiovascular control, and conventional non-invasive techniques like Finapres are limited by high cost and calibration interruptions. In this research, a PAT-based system was developed using ECG (AD8232) and PPG (MAX30102) sensors interfaced with Arduino Due at a sampling rate of 1000 samples per second. RR intervals and PAT signals were acquired from 60 subjects (18–75 years, both normotensive and hypertensive) and processed using LabWindows software. Fourier transformation and cross-spectral analysis were performed to derive Heart Rate Variability (HRV) and PAT Variability (PATV) spectra. Results demonstrated that in control subjects, HRV and PATV spectra showed peaks in very low (VLF), low (LF), and high (HF) frequency bands, whereas in hypertensive subjects, LF and HF components were diminished. The coherence and cross-correlation analyses revealed that baroreflex sensitivity was reduced in hypertensive subjects, indicating compensatory activation of the Renin-Angiotensin-Aldosterone System (RAAS). Comparison with Finapres-based measurements validated the developed system's accuracy. The proposed system provides a reliable, cost-effective wearable solution for real-time cardiovascular monitoring and may serve as a valuable tool in hypertension management and autonomic dysfunction assessment.

Parameters of interest are as follows:

Cross Power Spectrum (Control)			Cross Power Spectrum (Hypertensive)		
VLF	LF	HF	VLF	LF	HF
22.4187	36.5363	30.8353	57.0497	26.3801	10.7143



(a)



(b)

Figure 1: Typical Cross Power Spectrum and Correlation obtained in (a) control subject and (b) hypertensive subject

Chaitali Aditya Deshmukh
University of Mumbai, India

Parental Self-Efficacy and Parent-Child Relationship: The Mediating Role of Parental Stress

Shamanthri Voralu

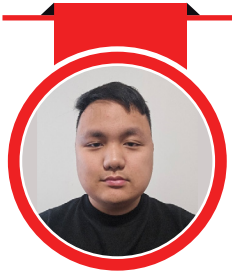
Wawasan Open University, Malaysia

This research proposal investigates the dynamic relationship between parental self-efficacy, parental stress, and the quality of parent-child relationships, emphasizing the mediating role of parental stress. Parental self-efficacy refers to a parent's belief in their ability to effectively manage parenting responsibilities, which is crucial for fostering positive interactions with children. In contrast, parental stress, arising from the demands of parenting, can adversely affect these relationships. This study aims to explore whether parental stress mediates the relationship between parental self-efficacy and parent-child dynamics.

Utilizing a correlational cross-sectional design, the research will involve a sample of 200 Malaysian participants, recruited through purposive sampling. Data will be collected *via* an online survey using validated instruments, including the Parent Empowerment & Efficacy Measure (PEEM), the Parental Stress Scale (PSS), and the Pianta Child-Parent Relationship Scale-Short Form (CPRS-SF), alongside demographic questionnaires.

The anticipated findings are expected to fill a significant gap in the existing literature by providing empirical evidence on the mediating effects of parental stress. Ultimately, this research aims to inform the development of targeted interventions that enhance parental self-efficacy, reduce parental stress, and improve the quality of parent-child relationships in modern family contexts.

Presenter:
Shamanthri Voralu
Wawasan Open University, Malaysia



Comparing Self-Construal Scales: Cultural Implications for the United States, East Asia, Southeast Asia, Latin America, and the Middle East

Jon Lim and **Christine Ma-Kellams**

San Jose State University, USA

Contemporary self-construal research indicates that people define themselves either as independent or interdependent. We review self-construal scales across the United States, East Asia, Southeast Asia, Latin America, and the Middle East to compare/contrast their operationalizations of interdependence (or independence). Taken together, this body of research suggests that, consistent with findings on American and East Asian selves, Southeast Asian cultures also exhibit interdependent self-construal. Latin Americans, however, display independent self-construal despite their long-standing characterization as a collectivist culture, while Arabs display both independence and interdependence. Future directions—including the improved validity of multidimensional measures of the self over dichotomous scales, cultural differences on distinctiveness, research on bicultural individuals, within-cultural comparisons, and the role of polyculturalism—are discussed.

Presenter:
Jon Lim
San Jose State University, USA

Balloon-Assisted Retrieval of Detached Microwire Tip During Mechanical Thrombectomy

Ariharan K[1], Padhi R[2] and **Manna S[3]**

[1]Father Muller Medical College Hospital, India
[2]GKNMH, India
[3]Kanachur Institute of Medical Science, India

Mechanical thrombectomy is the standard of care of acute ischemic stroke due to large vessel occlusion. The reported intraprocedural complication rate is approximately 8%, including emboli to new territory, perforations and dissections. Rarely technical device failures such as microwire tip detachment can occur during neurointerventional procedures. Previously reported cases of guidewire detachment have utilized micro snares or stent retrievers for retrieval. In this report, we describe one such complication of microwire tip detachment and its successful retrieval. In our case, the proximal end of the detached microwire was initially pinned within the aspiration catheter using a compliant balloon and retrieved up to the cervical segment of the internal carotid artery (ICA), where the detached tip slipped out of the aspiration catheter. From the cervical ICA, the detached tip was successfully retrieved using a stent retriever. This Balloon-Anchored Retrieval (BAR) technique may also be useful in managing a detached microcatheter tip.

Presenter:
Ariharan K
Father Muller Medical College Hospital, India

Automated Quantitative Analysis of Lumbar Spine: A Comprehensive Approach

Purushottam Kumar[1], Suyash Singh[1] and **Bunil K. Balabantaray[2]**

[1]All India Institute of Medical Sciences, Raebareli, India
[2]National Institute of Technology, Meghalaya, India

Background: Low back pain poses a major global health burden affecting approximately 540 million individuals globally, significantly affecting productivity and quality of life. MRI is the primary tool for assessing lumbar spine disorders, but manual analysis of lumbar spine images is both labor-intensive and susceptible to subjective, inconsistent interpretations.

Objective: To develop and validate an automated system for segmenting lumbo-sacral spinal MRI and extracting quantitative anatomical geometrical metrics - aiming to enhance diagnostic accuracy, reduce clinician workload, and support personalized treatment planning.

Methods: We designed an expert-verified dataset to overcome the limitations of subjectivity and variability in manual annotations. Employing a DeepLabV3+ model built with a ResNet-50 backbone (encoder) and attention gate, we segmented key lumbar structures - including vertebrae, intervertebral discs (IVDs), and the spinal canal. Subsequently, the system computes geometric characteristics such as vertebral and IVD height and width, canal diameter, IVD height index, along with signal intensity metrics.

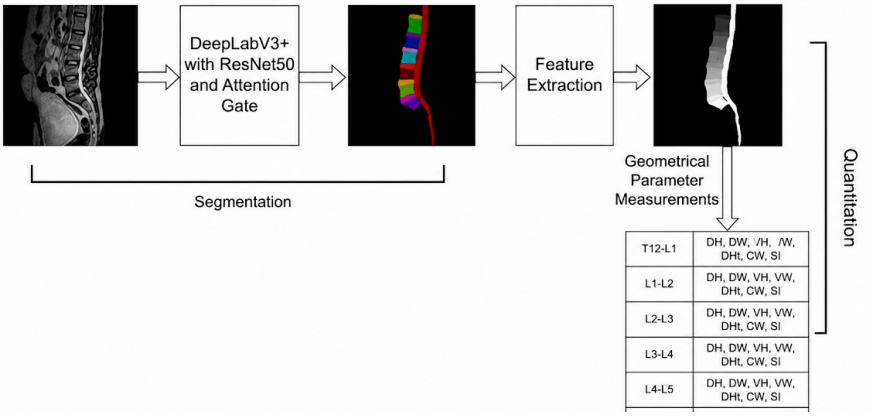


Figure 1. Workflow Diagram of Proposed Methodology

Results: Our proposed segmentation model achieved 98.7% accuracy, 97.1% precision, recall as 97.5%, 97.2% Dice Coefficient, and 95.4% IoU with 8-fold cross validation. Further methods or approach to automate the calculation of geometrical parameters like IVD height, and width, vertebral height, and width, canal diameter, signal intensity has been introduced and validated using Mean Squared Error (MSE).

Conclusion: Our automated framework for quantitative lumbar spine MRI analysis offers a compelling step forward in spinal health management. By improving clinical efficiency, diagnostic accuracy, and patient care quality, this approach has the potential to significantly impact the diagnosis and treatment of low back pain.

Scope: The clinical practice relies on spinal geometrical parameters including disc height and vertebral alignment and canal width for diagnosing conditions such as degenerative disc disease, spinal stenosis and spondylolisthesis.

Acknowledgement: This work was approved by Indian Council of Medical Research (ICMR) and funded by DHR-MRU, and done in the collaboration of All India Institute of Medical Sciences, Raebareli and National Institute of Meghalaya.

Presenter:
Purushottam Kumar
All India Institute of Medical Sciences, Raebareli, India

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Context Processing in PTSD

Israel Liberzon

Texas A&M College of Medicine, USA

Background: Identifying neurocircuitry underlying psychiatric condition had been a "holy grail" of clinical neuroscience. It is especially challenging because even the neurocircuits responsible for complex brain function at health, are still largely unknown. We had hypothesized that abnormalities in contextual processing underlie the development of PTSD pathophysiology, which parsimoniously explains various, seemingly contradictory, symptoms of PTSD and set to rest our hypothesis using pharmaco-fMRI with novel task probing pattern completion in contextual processing.

Methods: 188 subject (97 with PTSD) had been studied using novel CDRT task to probe contextual neurocircuitry function under low cortisol (Metyrapone), placebo and high cortisol conditions (20 and 60 mg hydrocortisone). Pattern separation (PS) and pattern completion (PC) were calculated for each individual subjects and also used as a covariates of interest for fMRI data, in addition to Sx severity and other relevant variables. Diagnostic groups were compared on performance, BOLD activation, glucocorticoid levels and their interactions. Exploratory MVPA analysis was completed.

Results: Preliminary results demonstrated 1) hippocampal activations associated with CDRT task performance, 2) Subject performance on PC different as function of diagnostic status, glucocorticoids and the interaction between the two, 3) posterior hippocampal activation on CDRT was associated with PTSD symptom severity.

Discussion: Preliminary findings suggest that PTSD patients might exhibit altered PC and thus more errors in context processing and associated altered hippocampal activation during CDRT task. MVPA analysis will explore potential link to patterns of activation in hippocampus associated with “wrong” context and threat perception.

Presenter:
Israel Liberzon
Texas A&M College of Medicine, USA

A Digital and Neuroaffirmative, Person-Centered Approach to Adult Autism Diagnosis: The SPQ 2.0 Platform

Kirsten Callesen

Systemizer International, Denmark

The Systemizing Profile Questionnaire (SPQ 2.0) is a newly validated digital platform for adult autism assessment. It integrates standardized diagnostic instruments (RAADS and DIVA 2.0) with a dimensional neurocognitive profiling model based on **nine sub-domains**: *Attention to Detail, Attention Shifting, Social Interaction, Social Communication, Social Imagination, Social Sensitivity, Sensory Sensitivity, Empathy,* and *Systemizing Capacity.*

Building upon Simon Baron-Cohen's foundational constructs—the **Autism Quotient (AQ**), **Empathy Quotient (EQ)**, and **Systemizing Quotient (SQ)**—SPQ 2.0 expands these measures into a dynamic clinical tool. It allows practitioners to capture both autistic strengths and support needs across cognitive, social, and sensory dimensions, producing a personalized profile rather than a categorical score.

More than **24000** individuals worldwide have completed the original SPQ self-assessment on *systemizer.dk*. These population data informed refinement of the nine sub-domains and contributed to the construct validity of SPQ 2.0 across gender and ability profiles.

Preliminary pilot results from clinical settings show high reliability, improved differentiation between autism and comorbid presentations, and strong user satisfaction. The digital platform automatically generates individualized interpretive reports that can be integrated into diagnostic documentation or feedback sessions.

SPQ 2.0 thus represents an evolution of Baron-Cohen's AQ/EQ/SQ framework into a modern, neuroaffirmative, and data-driven platform—bridging psychometrics, clinical judgment, and digital innovation to enhance accuracy and person-centred understanding in adult autism diagnostics.

Figure 1. SPQ 2.0 Domains and Sub-Domains

Domain	Sub-Domains	Core Focus
Cognitive Processing	Attention to Detail, Attention Shifting, Systemizing Capacity	Pattern recognition, focus, and logical structure
Social Cognition	Social Interaction, Social Communication, Social Imagination	Reciprocal understanding and perspective-taking
Sensory & Emotional Integration	Sensory Sensitivity, Social Sensitivity, Empathy	Regulation of internal and external experiences

Table 1. Integration of SPQ 2.0 with RAADS and DIVA 2.0

Instrument	Primary Purpose	Complementary Value	Format
SPQ 2.0	Dimensional profile of autistic traits	Extends AQ/EQ/SQ into clinical practice	Digital (auto-report)
RAADS	Symptom confirmation	Corroborates autistic characteristics and severity	Digital / Clinical
DIVA 2.0	ADHD and autism comorbidity	Temporal and behavioural cross-analysis	Semi-structured interview

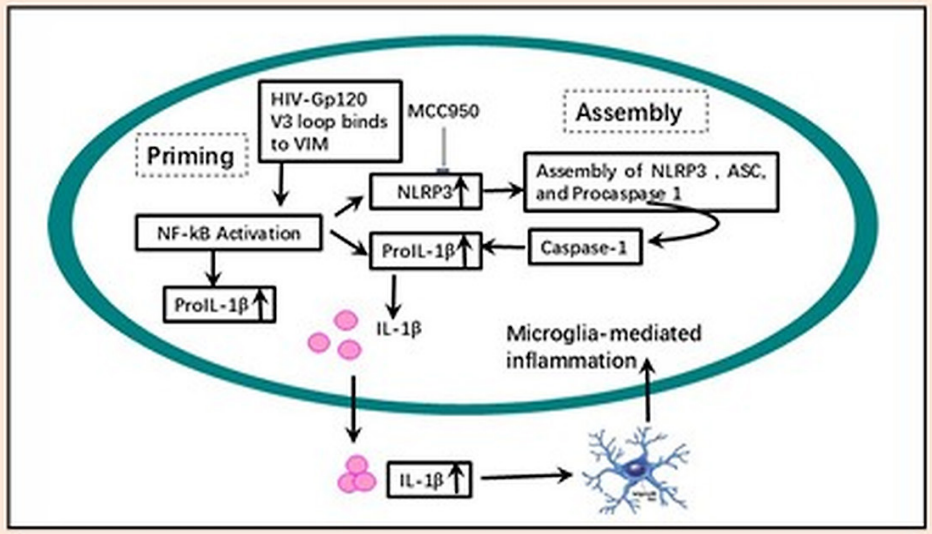
Presenter:
Kirsten Callesen
Systemizer International, Denmark

Regulation of NLRP3-Dependent Pyroptosis by Vimentin-NF-kB Signaling is Critical for Decoding of HIV-Associated Neurocognitive Disorders (HAND)

Sheng-He Huang[1,2], Chunhua Wu[2] and **Rong Zhou[2]**

[1]University of Southern California (USC), USA
[2]Guangdong Nanshan Medicine Innovation Institute (NSMI), China

Despite combined antiretroviral therapy, HAND remains one of the major challenges faced by up to 50% of people living with HIV. Pathogenesis of HAND is characterized by pyroptosis that is a key driver of neuroinflammation and neuronal loss. Our recent studies reveal that the NLRP3 inflammasome is required for gp120-induced neuropathogenesis, which is significantly blocked by a novel selective NLRP3 inhibitor MCC950 in transgenic (tg) mice. More interestingly, our studies showed that the V3 loop of gp120 specifically interacted with VIM to induce neuropathogenicity and VIM deficiency prevents neuronal damage and behavioral impairment in gp120 Tg mice. Our early studies show that VIM is an upstream NF-KB activator, which plays an important role in the host defense against microbial infections of the central nervous system by modulating signaling pathways through its head domain. The NLRP3 inflammasome pathway typically involves two steps: priming (NF-κB-dependent expression of NLRP3/IL-1β) and activation (assembly of NLRP3, ASC, and caspase-1). Here, we propose infectomics-based decoding of the neuropathological roles of VIM in HAND as follows: 1) how VIM increases expression of NLRP3/IL-1β by NF-KB (priming); 2) if VIM contributes to assembly of NLRP3/ASC/caspase-1; 3) how VIM could be used as a suitable target for development of drugs for both treatment and prevention of HIV-1 infection and HAND.



Presenter:
Sheng-He Huang
University of Southern California (USC), USA
Guangdong Nanshan Medicine Innovation Institute (NSMI), China

Community-Based Mental Health through Caregiver Support Groups: Reducing Stigma, Promoting Early Screening, and Improving Treatment Adherence

Bollineni Keerthi[1], Pillarisetty Deeksha[2], Rayapati Ramarao[3] and **Tokala Keshava[4]**

[1]President, Vasavya Mahila Mandali, India
[2]Medical Director, Vasavya Mahila Mandali
Consulting Medical Doctor, Meroz Clinic, India
[3]Project Director, Vasavya Mahila Mandali, India
[4]Programme Coordinator, Vasavya Mahila Mandali, India

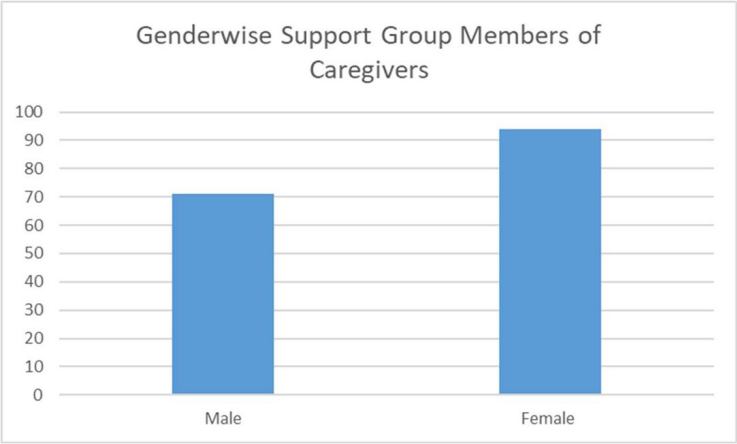
Background: Around 15% of India's population lives with mental health disorders, including anxiety, depression, bipolar disorder, schizophrenia, substance use, and neurodevelopmental conditions. Despite the National Mental Health Programme (2018) aiming to strengthen services from primary to tertiary care, stigma, low mental health literacy, and caregiver burnout hinder help-seeking, early screening, and treatment adherence. Vasavya Mahila Mandali, a women-led NGO, launched the Santwana community-based mental health project with support from The Live Love Laugh Foundation to bridge this treatment and care gap.

Methodology: Since April 2024, Santwana has been implemented in 17 rural villages of Ibrahimpatnam mandal, NTR district, Andhra Pradesh. The project focuses on empowering caregivers as change agents to enhance mental wellbeing. Trained outreach workers conduct community awareness meetings, home visits, and counselling for persons with mental illness and their families; facilitate caregiver support groups; and advocate with government stakeholders to strengthen primary and secondary mental health services. Data, including caregiver group minutes and service uptake, is collected manually and digitalised in MIS.

Results:

People with Mental Illeness Identified Gender wise		
Age in years	**Male**	**Female**
19-25	19	15
26-45	144	262
46 and above	118	180

Intervention of 20 months, with reduced stigma led to identification of 738 persons with mental illness in 17 villages; 82% (605) were referred for treatment, among them had about 50% documented adherence.



A total of 15 caregiver support groups with 165 members were established in 15 villages. The capacitated support groups enhanced referrals mechanism, treatment adherence, ensured continuum of care, enhanced caregivers' self-care. 46 caregivers became Mental Health Community Ambassadors. Capacity-building of 372 frontline public health workers strengthened mental health integration into routine service delivery and social inclusion.

WHO's "Doing What Matters in Times of Stress – Self-Help Plus" module was translated into the local language and contextualised for field use.

Conclusion: Scale-up to 30 additional villages in NTR and Visakhapatnam districts demonstrates that community-driven, caregiver-centred, and public–private–community partnerships are feasible, scalable strategies to advance SDG 3.4 on mental health by 2030.

Presenter:
Bollineni Keerthi
President, Vasavya Mahila Mandali, India

MISDEF3: Evolution of a Consensus-Based Decision-Support Algorithm for Minimally Invasive Adult Spinal Deformity Surgery

Praveen V Mummaneni[1], Jay Kumar[1], Paul Park[2], Christopher I Shaffrey[3], Michael Y Wang[4], Juan S Uribe[5], Jay Turner[5], Richard G Fessler[6], Adam S Kanter[7], Gregory M Mundis[8], Robert K Eastlack[8], Pierce D Nunley[9], Nima Alan[1], Jang Yoon[1], Neel Anand[10], Michael S Virk [11], Dean Chou[12], Andrew Chan[12], Vivian Le[12], Kai-Ming Fu[11], David O Okonkwo[13], Peter Passias[3], Ricardo Fontes[6], Lawrence Lenke[12] and **Shay Bess[14] ; International Spine Study Group (ISSG)**

[1]Department of Neurological Surgery, University of California, USA
[2]Semmes-Murphey Foundation, USA
[3]Department of Neurosurgery, Duke University, USA
[4]Department of Neurosurgery, University of Miami, USA
[5]Department of Neurological Surgery, Barrow Neurological Institute, St. Joseph's Hospital and Medical Center, USA
[6]Department of Neurological Surgery, Rush University Medical Center, USA
[7]Department of Neurosurgery, Hoag Hospital, USA
[8]Scripps Clinic, USA
[9]Spine Institute of Louisiana, USA
[10]Department of Orthopaedics, Cedars-Sinai Medical Center, USA
[11]Department of Neurosurgery, Cornell Medical Center, USA
[12]Columbia University Medical Center, USA
[13]Department of Neurological Surgery, University of Pittsburgh Medical Center, USA
[14]Colorado Scoliosis and Spine Specialist, USA

Introduction: The MISDEF3 algorithm is a decision-support tool to guide approach and fusion levels for minimally invasive surgery in adult spinal deformity (ASD). Since MISDEF2 was published in 2020, advances in the understanding of regional and global deformity alignment goals coupled with rapid evolution of minimally invasive surgical (MIS) technologies and techniques, have altered contemporary approaches to deformity correction. An updated algorithm was therefore needed.

Methods: A modified Delphi technique was employed by 19 senior, fellowship-trained surgeons. The surgeons identified key factors influencing con-

temporary surgical decision-making, and produced an initial MISDEF3draft. They then independently applied the draft algorithm to 16 real-world deformity case presentations. The algorithm then underwent further iterative refinement, and consensus was developed through four conference calls and two in-person meetings over three months.

Results: The initial application showed moderate interobserver agreement (k=0.43), prompting a revision. The four prior MISDEF classes were consolidated into three principal classes. Anterior column release (ACR) was removed due to its tendency to produce non-physiologic lordosis distribution. Class 2, representing multilevel MIS strategies, was subdivided based on alignment and stenosis symptoms. Class 2A addressed isolated fractional curve pathology, Class 2B targeted selective treatment of the main lumbar or thoracolumbar curve, and Class 2C encompassed treatment of both main and fractional curves requiring long-segment MIS fusion, typically extending from UIV of T10-L2 to the sacrum/pelvis. Coronal malalignment with C7-CSVL >4cm was determined to necessitate long-segment fusion.

Conclusion: MISDEF3 represents a consensus-driven evolution of the MISDEF framework, integrating contemporary alignment principles, symptoms of stenosis, and state of the art MIS techniques. This consensus-derived algorithm provides a practical guide for decision-making in ASD.

Presenter:
Praveen V. Mummaneni
University of California, USA

ECRG4 is a Potential Initiator for Amyloid Pathology in Alzheimer's Disease through Interacting with APP/Aβ

Toru Kondo

Division of Stem Cell Biology, Institute for Genetic Medicine, Hokkaido University, Japan

Alzheimer's disease (AD) is a progressive neurodegenerative disorder characterized by the accumulation of β-amyloid (Aβ) and the formation of neurofibrillary tangles. Although the amyloid cascade hypothesis underscores the centrality of Aβ accumulation, the precise initiators of this process remain unknown. In this study, we hypothesized that Esophageal Cancer-Related Gene 4 (ECRG4), which is associated with cognitive impairment and upregulated in AD, directly contributes to amyloid pathology. Using cell-based assays, co-immunoprecipitation, AD model mouse, and immunohistochemistry of human hippocampal sections, we demonstrated that ECRG4 interacts with the amyloid precursor protein (APP)/Aβ, leading to increased APP/Aβ accumulation. Furthermore, intracerebral injection of synthetic ECRG4 into AD model mice significantly augmented APP/Aβ deposition. Notably, the co-localization of ECRG4 with APP/Aβ increased with AD severity in human hippocampal tissue. Our findings establish that ECRG4 is a potential initiator of amyloid pathology in Alzheimer's disease through its interaction with APP/Aβ.

Presenter:
Toru Kondo
Hokkaido University, Japan

Translating Neuro-Technology into Practice: Overcoming Adoption Barriers in Dementia Care with "eMemory Kits"

Florence Fong[1] and **Lily Lee**[2]

[1]Senior Lecturer, Asia-Pacific Institute of Ageing Studies, Lingnan University, Hong Kong SAR, China
[2]Asssistant Social Work Officer, The Hong Kong Chinese Women's Club, Madam Wong Chan Sook Ying Care and Attention Home for the Aged, Hong Kong

Background: Despite the potential of assistive technologies (ATs) to support individuals with dementia, their adoption in care settings remains limited, often due to a disconnect between technology development and end-user needs. A significant research gap exists regarding effective, replicable models of multi-stakeholder collaboration for creating and implementing user-centred gerontechnology. This paper addresses this gap by presenting a collaborative framework and its evaluation through a case study.

Methods: The study centers on the "eMemory Kits" project, which digitized a validated cognitive tool ("Memory Treasure Hunt® ") into Mobile Application (APP) and Virtual Reality (VR) formats for individuals with Mild Cognitive Impairment (MCI) and dementia. A collaborative framework was established, uniting academic researchers (APIAS), a service provider (HKCWC), technology developers, and end-users (older adults, caregivers, and practitioners). A mixed-methods evaluation was then conducted across multiple care settings to rigorously assess the usability and institutional acceptability of the resulting AT, thereby validating the development model itself.

Results: The evaluation confirmed the efficacy of the collaborative approach. Both APP and VR formats received high ratings from end-users for perceived effectiveness, relevancy, and clarity. Professional staff identified the intuitive design and portability as key facilitators for institutional adoption. Crucially, the iterative feedback process inherent in the model also identified significant real-world implementation barriers, including the need for one-on-one staff support during training and interface adaptations for users with sensory impairments.

Conclusion: The "eMemory Kits" project validates a collaborative, evidence-based framework as a critical methodology for overcoming common barriers to AT adoption in dementia care. This model provides a practical and scalable template for practitioners and policymakers, demonstrating that integrating end-users and diverse stakeholders throughout the development and evaluation lifecycle is essential for creating institutionally adoptable and effective gerontechnology.

Note: The findings presented are derived from the study published in the book chapter 'Application of Assisted Technology to Facilitate Dementia Care —A Collaborative Model from the "eMemory Kits" (Fong et al., 2025; ethics approval EC123/2223)

Presenter:
Florence Meng Soi Fong
Lingnan University, Hong Kong

Lily Lee
Hong Kong Chinese Women's Club, Hong Kong

Emotion Recognition Based on Brain Signals

Tetsuya Shimamura

Saitama University, Japan

It is known that emotion changes are significantly correlated with the operations of the central nervous system in neuropsychology and cognitive psychology. In this sense, the signals from the brain should be reliable for emotion recognition (ER). The brain signals include electroencephalogram (EEG), magnetoencephalography (MEG), and functional magnetic resonance imaging (fMRI). Among them, this talk focuses mainly on the use of EEG due to its popularity in investigating ER. However, the crucial and challenging task is accurately extracting features from complex EEG signals using appropriate computational intelligence or machine learning techniques. Recent methods mostly use EEG channel connectivity features to identify the emotion. Specifically, to construct a connectivity feature map (CFM), Pearson correlation coefficient (PCC), mutual information (MI), normalized MI (NMI), and a few other techniques are used. Notably, in the existing related ER methods, CFMs are predominantly in the two-dimensional (2D) form, i.e., using the signals from two EEG channels. We propose an enhanced CFM that uses partial MI (PMI) by introducing an extra third channel to expose more information and strengthen the feature extraction ability of ER. The proposed technique calculates the PMI-based connectivity features for each pair of EEG channels and presents CFM in 2D and 3D forms. Convolutional neural network is used to classify the emotion using 2D and 3D CFMs. It is demonstrated that the proposed one outperforms the existing related methods. It is emphasized that the 3D form for CFM is very powerful for the ER task. The idea of the 3D form is devoted to ER in this talk, however, it would be expanded to a variety of applications.

Figure 1 Framework of Proposed Emotion Recognition System from EEG

Table 1 Performance Comparison of the Proposed Method with Other Studies on DEAP Dataset

Work. Ref.	CNN Method	CPM Size	Classifier	Train-Test Split / CV	Segmentation Time Window (Overlapping)	Test Set Accuracy (%)	
						Valence	Arousal
[22]	PCC	32 × 32	SVM	Leave 06 Trial One	No Segmentation	72.01	72.34
[13]		23 × 23	CNN	80% – 5% – 5%	3 s (0 s)	73.22	74.02
[12]		32 × 32 + 10	CNN	5 Fold CV	3 s (2.5 s)	94.44	-
[26]		32 × 32 + 4	CNN + SAE + RNN	80% – 20%	12 s (5 s)	82.16	85.47
					8 s (4 s)	69.49	92.86
			CNN		12 s (5 s)	78.13	76.12
					8 s (4 s)	79.00	82.29
[32]	PLV	32 × 32	SVM	Leave 06 Trial One	No Segmentation	73.75	71.80
[27]		32 × 32 + 10	CNN	5 Fold CV	3 s (2.5 s)	90.72	-
[17]		32 × 32	DARCNN	10 Fold CV		65.15	64.84
[32]	MI	32 × 32	SVM	Leave 06 Subject One	No Segmentation	68.28	87.60
[33]		32 × 32	SVM	Leave 06 Trial One		76.17	73.59
[20]	NMI	32 × 32	SVM		No Segmentation	60.10	63.50
Proposed Method	PMI	32 × 32	3D CNN	80% – 20%		75.16	74.41
		32 × 450	2D CNN	80% – 20%	8 s (4 s)	91.35	92.18
		32 × 32 + 32	3D CNN			91.71	91.99

Presenter:
Tetsuya Shimamura
Saitama University, Japan

Wellbeing and Mental Health in Schools: The Case of Greece

Maria Poulou

University of Patras, Greece

Changes in social construction, the growing tendency for globalization, and diverse cultural, linguistic, national and socio-economic characteristics which took place in the Greek society, coupled with the coronavirus disease (COVID-19) pandemic has led to dramatic changes in quality of life, bringing to the forefront of the debate the question of planning resilient societies. In this context, schools have become the key grounds for the formation of educational policies. Factors within the school environment have been found to have an impact on young people's mental health and wellbeing. Supportive teacher-student relationships, promotion of students' social and emotional competences, and teachers' own well-being are related with students' positive social relations and development of a healthy lifestyle. Therefore, it is important to promote factors which have an impact on young people's mental health and wellbeing at schools. Current presentation aims to outline a picture of theory, policy, research and practice of wellbeing in Greek schools. Drawing upon research findings, we discuss issues including the National Curriculum and frameworks for promoting wellbeing in schools, research on teachers', students' and parents' perceptions of wellbeing, adaptation of school mental health programs and suggestions for practice and teachers' professional development. The presentation concludes with the need to address factors to decrease students' mental health problems, teachers' stress and burnout and create safe learning environments for both teachers and students.

Presenter:
Maria Poulou
University of Patras, Greece

Multigenerational Narratives of Healing: Brokada Filipino Men's Healing Circle

Wayne Jopanda

San Jose State University, USA

This project examines the founding of the Brokada Filipino Men's Healing Circle, a grassroots liberated masculinity space addressing the multilayered process of healing among Filipino men. Brokada is a community organized and facilitated space, building a growing open network and trusted community of Filipino men, nonbinary individuals, and gender nonconforming individuals. Brokada members vary across generations and are located throughout the diaspora. This community-centered space meets online for biweekly healing circle talk story sessions, with members located across the United States, Canada, the U.K, and the Philippines and ranging from the age of 18 to 78. Many of Brokada's members are migrant workers and children of migrant workers, leading to important conversations centering the mental health challenges of Filipina/x/o migrants and the need to build multigenerational steps to unlearn patterns of toxic masculinity. This paper engages the Brokada Men's Healing Circle as a product of new connections and a (re) building of community care during and through the COVID-19 pandemic led by Filipino migrants and the children of Filipino migrant workers. This space was created also as an initiative to reframe masc-identified Filipinos from depending solely on their femme and nonbinary community members for emotional labor and care, a pattern that historically has led to the burn out and even harm of Filipino femme and gender nonbinary community members. Through participatory action research and one on one talk story interviews with Brokada members, I analyze the formation of this intricate intergenerational web of care that engages the evolving construct of masculinity within the Filipino context. These interviews describe how Brokada has created a safe and inclusive environment for Filipino men and nonbinary identified migrants to confront and transcend the challenges posed by societal cis-heteropatriarchal expectations, colonial legacies, and personal experiences with toxic masculinity.

Presenter:
Wayne Jopanda
San Jose State University, USA

Neuropsychological Rehabilitation in Stroke: EEG Neurofeedback and Brainwave Entrainment

Jamuna Rajeswaran[1], Rajnish Kumar Gupta[2], Madhavi Bongarala[1], Girish B. Kulkarni[1] and **Francisco J CidralFilho[3]**

[1]Department of Psychology, National Institute of Mental Health and Neuro Sciences (NIMHANS), Bengaluru, India
[2]Department of Psychology, Manipal University Jaipur, India
[3]Integrative Wellbeing Institute, USA Experimental Neuroscience Laboratory (LaNEx), University of Southern Santa Catarina (UNISUL), Brazil

Stroke has a deep impact on healthcare systems worldwide, ranking as the second leading cause of death and a significant contributor to long-standing disability. The present study explored the effects of two neuropsychological rehabilitation methods: EEG neurofeedback training (EEG-NFT) and Brainwave Entrainment (BWE) on cognitive outcomes, mood, and quality of life (QoL) in post-stroke survivors, compared to standard Treatment-as-Usual (TAU). Fifteen subacute stroke patients (aged 30–55 years) were randomly assigned to one of three groups: EEG-NFT, BWE, or TAU. Both intervention groups received twenty sessions of interventions over three weeks. Pre- and post-intervention assessment was carried out -NIMHANS Neuropsychological Battery (2004) to assess cognitive domains, the WHOQOL-BREF for Quality of life (QoL), and the Hospital Anxiety and Depression Scale (HADS) for mood symptoms. Results showed both intervention groups showed significant improvements in cognitive domains. Improvements was seen overall in QoL, mood also showed reduction in scores. Despite limited statistical power, the robust effect sizes was observed suggesting encouraging directions for future research using EEG-NFT and BWE post-stroke.

Presenter:
Jamuna Rajeswaran
National Institute of Mental Health and Neuro Sciences (NIMHANS), Bengaluru, India

Encephalocele: Operated Cases and Literature Review

Gustavo Gonzalez Torrealba

Hospital Regional de Talca, Chile

Encephalocele is a type of dysraphism characterized by a protrusion of the intracranial contents (meninges, brain and/or ventricles) due to a defect of the skull and dura mater. Its etiology is multifactorial. The diagnosis is made in the prenatal stage in almost all cases through an ultrasound. The treatment is surgical and the timing depends on the patient's own conditions. A compilation and synthesis of the literature on the subject was carried out and a series of 6 cases undergoing surgery at the Regional Hospital of Talca (Chile) was retrospectively reviewed. Several of these patients had another associated malformation coinciding with what was described in the literature. The objective of the surgery was to achieve a hermetic closure of both the dura mater and the skin that covered the defect, resecting the non-functional neurological tissue and the rest of the redundant tissue. Among the complications observed we can mention wound dehiscence and infection, hydrocephalus and structural epilepsy. The most indicated treatment for hydrocephalus is the installation of a shunt valve.

Presenter:
Gustavo Gonzalez Torrealba
Hospital Regional de Talca, Chile

Psychological Health & Wellness Care (PHWC): A Case Study in Building a Stigma-Free, Sustainable Mental Healthcare Model in Bangladesh

Md. Nomanuzzaman

Psychological Health & Wellness Care Ltd (PHWC)
A Social Enterprise of SAJIDA Foundation, Bangladesh

Bangladesh faces a profound mental health crisis, with a treatment gap exceeding 90% and deeply entrenched socio-cultural stigma that discourages help-seeking behaviour. Against this backdrop, Psychological Health & Wellness Care Ltd (PHWC) — a social enterprise of SAJIDA Foundation — was established with a clear mandate: to develop a clinically credible, accessible, and financially self-sustaining model of mental healthcare that could serve as a replicable standard for the country.

This presentation depicts PHWC as an organisational case study, examining how it was designed and operationalised to address systemic barriers in mental healthcare delivery. The objectives of this presentation are to: (1) describe the service architecture and multidisciplinary team model adopted by PHWC; (2) analyse the strategic approach to stigma reduction embedded in its clinical and community engagement practices; (3) evaluate the sustainability mechanisms employed to ensure financial viability without compromising clinical quality; and (4) identify key lessons for scaling person-centred mental health services in low- and middle-income country (LMIC) contexts.

PHWC integrated psychiatrists, clinical psychologists, and psychological counsellors under one roof from inception, offering diagnosis, individual, couples, and family therapy. The model was deliberately framed not as charity but as professional healthcare — a positioning critical to de-stigmatisation. Clinical governance protocols, data privacy standards, and ethical frameworks were developed with support from global experts, filling a regulatory vacuum in Bangladesh's mental health sector.

The presentation draws on organisational data, service delivery records, and practitioner insights to document both successes and challenges. Key findings suggest that a social enterprise model — combining mission-driven intent with market-based sustainability — is viable and impactful in the Bangladeshi mental health context. PHWC's experience demonstrates that

stigma reduction, quality care, and financial sustainability are not mutually exclusive goals but can be mutually reinforcing when the right structures are in place.

The paper concludes with policy implications and a framework that other organisations in LMICs may adapt to replicate this model.

Presenter:
Md. Nomanuzzaman
Psychological Health & Wellness Care Ltd (PHWC)
A Social Enterprise of SAJIDA Foundation, Bangladesh

Medial Preoptic CCKAR Mediates Anxiety and Aggression Induced by Chronic Emotional Stress in Male Mice

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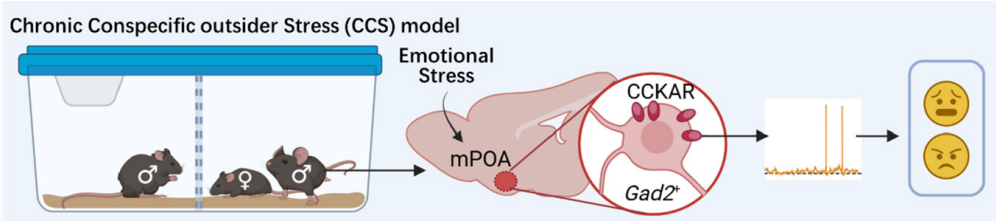
Anxiety disorders frequently accompany aggression, with their co-occurrence predicting greater functional impairment and poor prognosis. Nevertheless, the underlying neural mechanisms remain elusive, primarily due to a lack of appropriate animal models. Here, we designed a chronic conspecific outsider stress (CCS) model in which male mice underwent perceived social threats and exhibited increased anxiety-like behaviors accompanied by aggression. RNAscope and electrophysiological analysis revealed that CCS led to *Fos* activation and hyperexcitability of GABAergic neurons in the medial preoptic area (mPOA). Chemogenetic manipulation demonstrated that mPOA GABAergic (mPOA^{Gad2}) neurons bidirectionally regulate CCS-induced anxiety-like and aggressive behaviors. Moreover, CCS upregulated the expression of the cholecystokinin A receptor (CCKAR)-encoding *Cckar* gene in the mPOA. Importantly, viral-mediated gene expression manipulation showed that knock-down and overexpression of CCKAR in mPOA^{Gad2} neurons had alleviating and promoting effects on anxiety-like and aggressive behaviors, aligning with decreased and increased excitability by the anxiolytic CCKAR antagonist MK-329 and the anxiogenic CCKAR agonist A71623 in mPOA^{Gad2} neurons, respectively. Overall, our study characterizes a novel mouse model of anxiety disorders accompanied by aggression and the neuronal subpopulation and molecular mediator of the aberrant behaviors provide potential targets of intervention for anxiety disorders with aggression.



Presenter:
Hong Lian
Zhejiang University School of Medicine, China

The State of Being a Woman: A Global Neurological Crisis

Jessica K. Williams

Director of International Network for Incarcerated Girls and Women, Independent Scholar, Australia

Background: A new clinical category – "Brain Injury and other Neurological Damage" (BIND) - is presented as a more accurate way to encapsulate and classify the multifarious injuries that may arise for women victims of Intimate Partner Violence (IPV) and/or non-partner sexual violence (NPSV). A literature review was undertaken to collect and arrange information about multiple aspects of IPV/NPSV-related BIND. Findings from this review were combined with personal expertise to demonstrate the extent to which IPV/NPSV-related BIND permeates the health and well-being of women.

The terminology "intimate partner violence" and "non-partner sexual violence" has been used to remain consistent with research and reports in this sector.

Method: Numerous reports from the World Health Orgainzation were studied for this paper (Understanding and addressing violence against women: health consequences, 2012; Violence against women prevalence estimates, 2023; Violence against women - Key Facts, 2024). A review was conducted of scholarly literature pertaining to the nervous system, and regarding the prevalence of and consequences for women of traumatic brain injury (Anto-Ocrah et al., 2022; Haag et al., 2019; Manoranjan et al., 2022), acquired brain injury (Valera et al., 2022) neuropsychological and neurobiological damage (Theodoratou et al., 2023), Post Traumatic Stress Disorder (DeJonghe et al., 2008; Sherin & Nemeroff, 2011) and anxiety disorders (Hantsoo & Epperson, 2017), and chronic stress (Knezevic, et al., 2023).

Other reports and studies on chronic pain in women were reviewed (Casale et al., 2021; Karp and Stratton, 2023; Migraine & Headache Australia), as well as information on autoimmune diseases (Angum, et al., 2020; Invernizzi, et al., 2009), neuroinflammation and central sensizitation (Ji, et al., 2018). Material regarding prevalence rates of chronic disease in women was reviewed, including material from the Australian Institute of Health and Welfare and the American College of Gastroenterology. Information concerning barriers

to effective care and treatment for women subjected to IPV/NPSV was analysed for this paper (Chan et al., 2024; WHO; UN).

Presenter:
Jessica K. Williams
Director of International Network for Incarcerated Girls and Women,
Independent Scholar, Australia

From Neurons to Norms: Neuroethics as the Neurology of Ethics

Augustine Thomas Pamplany

Xavier-Loyola Institute of Interdisciplinary Research
Loyola College of Social Sciences (Autonomous), India

Neuroethics, an emerging interdisciplinary field, explores the intersection of neuroscience, ethics, and law, illuminating how brain processes influence moral and immoral behavior. In this sense, it may be viewed as a "neurology of ethics," examining the neural underpinnings of human choices, culpability, and responsibility. Recent advances in neuroimaging and clinical neuroscience have provided crucial insights into the biological basis of behaviours often associated with crime, violence, and social deviance.

Research highlights the role of the amygdala and prefrontal cortex in shaping moral decision-making and antisocial conduct. Functional differences in the amygdala, for instance, have been linked to unconscious racial biases, impaired responses to fear and sadness, and diminished empathy in psychopathy. Similarly, reduced prefrontal activity and heightened subcortical functioning have been observed in both affective and predatory murderers. Early-life trauma and neglect further exacerbate prefrontal dysfunction, potentially predisposing individuals to violent or antisocial behaviour. Damage to the orbitofrontal and ventromedial prefrontal cortex disrupts the integration of emotional information into cognitive reasoning, fostering short-term, impulsive decision-making over long-term ethical considerations.

Moreover, neuroimaging studies on sexual arousal and aggression suggest measurable neural correlates of deviant or violent sexual behaviour, opening discussions on early detection, risk assessment, and therapeutic interventions. These findings, while scientifically significant, raise profound ethical questions: To what extent should neurological predispositions mitigate legal responsibility? How might neuroscience inform restorative justice, rehabilitation, and policy-making without fostering deterministic or stigmatizing perspectives?

Neuroethics not only advances our understanding of the biological roots of morality and immorality but also challenges traditional frameworks of culpability, justice, and human agency. In the 21st century, it stands at the forefront of redefining ethical discourse, bridging neuroscience with law, philosophy,

and public policy to promote both accountability and empathy in addressing human behaviour.

Presenter:
Augustine Thomas Pamplany
Loyola College of Social Sciences (Autonomous), India

Swallowing Problems in Individuals with Parkinson's Disease – A Self-Perception Study

Prasitha. P[1], Harish Murali[2], Rajesh. H[3] Udhayakumar. R[1] and **Sudha Meiyappan[4]**

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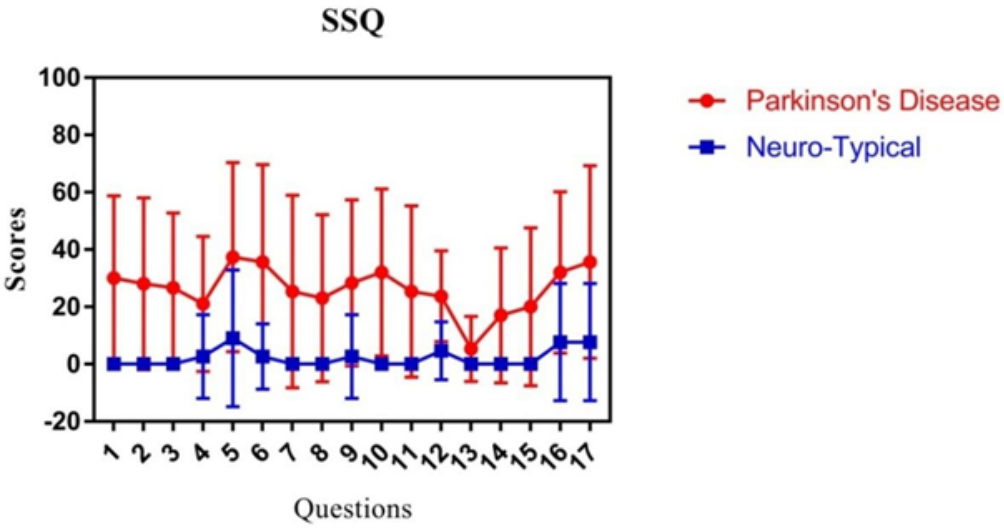
[2]Neuro Foundation Hospital, India
[3]Vinayaka Mission's Research Foundation (DU), India
[4]Parivarthan for Parkinson's Foundation, India

Objective: This study aimed to evaluate the prevalence and nature of swallowing difficulties in individuals with Parkinson's Disease (PD) using the Sydney Swallow Questionnaire (SSQ) and to compare the findings with an age-matched Neuro-Typical (NT) elderly population.

Methodology: The study included participants diagnosed with PD and a control group of NT elderly individuals. The SSQ, a validated patient-reported outcome measure, was administered to understand the presence, severity, and characteristics of dysphagia. Responses were analyzed to compare the frequency and patterns of swallowing problems between the two groups.

Results: A marked difference in the prevalence of dysphagia was observed between the groups, with 83% of individuals with PD reporting swallowing difficulties compared to only 13% of the NT group. Participants with PD most frequently reported difficulty swallowing thick liquids and hard foods, along with symptoms such as coughing or choking on solids and a persistent sensation of food sticking in the throat. These symptoms often resulted in prolonged and effortful mealtimes, affecting daily function and quality of life. In contrast, the NT group primarily described challenges with dry and hard foods, typically related to age-associated dental problems, and occasional difficulty swallowing the first bolus of the day. The figure displays the mean Sydney Swallow Questionnaire (SSQ) item scores for participants with Parkinson's disease (red line with circles) and neurotypical older adults (blue line with squares). Error bars represent standard deviations. Across all items, individuals with PD consistently reported higher perceived swallowing difficulty compared to the NT group, indicating a greater burden of dysphagia symptoms.



Conclusion: The findings confirm the SSQ as a reliable and effective tool for identifying oropharyngeal dysphagia across both clinical and non-clinical populations. Dysphagia in PD differs in its pattern and severity from age-related swallowing issues, underscoring the importance of targeted management strategies. Early recognition and intervention are crucial to minimizing health risks such as malnutrition, dehydration, and aspiration pneumonia while enhancing overall well-being in individuals with PD.

Presenter:
P. Prasitha
SRM Institute of Science and Technology, India

Association between Coping of the Primary Caregiver and the Adolescent Patient with Cancer

Leonel Jaramillo Villanueva[1], Mario Enrique Rendón Macías[2] and **Ana Ríos Covian[3]**

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[2]School of Medicine, Dental and Health Sciences Programs, National Autonomous University of México, Panamerican University, Colonia Insurgentes Mixcoac, Alcaldía Benito Juárez, México
[3]Department of Pediatric Oncology of the High Specialty Medical Unit, XXI Century National Medical Center Pediatric Hospital, Mexican Institute of Social Security, Colonia Doctores, Alcaldía Cuauhtémoc, México

Background: Coping mechanisms help individuals face adversity, remain stable over time, and can be generalized to various circumstances. Two types are typically distinguished: the active style, aimed at resolving problems, and the passive style, focused on emotional regulation. We hypothesized that passive coping of the primary caregiver (hereafter, primary caregiver [PC]) would affect the adaptive coping of his or her adolescent child with cancer (hereafter, adolescent with cancer [AC]).

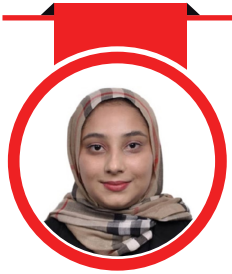
Objective: To analyze coping styles in adolescents with cancer (ACs) and their primary caregivers (PCs).

Materials and methods: This was an analytical cross-sectional study including 116 pairs of an adolescent with cancer (AC) and a primary caregiver (PC). The adolescents completed the Adolescent Coping Scale (ACS), applicable to those aged 9–17 years, while the caregivers completed the Coping Strategies Inventory (CSI).

Results: 49% (57/116) of the pairs both used the active coping style, and 14% showed the passive style in both members. No agreement was found between the coping styles of the AC and PC (Kappa = 0.15, 95% confidence interval [CI]: 0.13–0.14, p = 0.13). The multivariate analysis explained 61% of the variance (Nagelkerke pseudo R2 = 0.61; likelihood ratio = 191.4; p = 0.003).

Conclusions: Passive coping by the primary caregiver occurred with low frequency, and active coping was favored, similar to that of the adolescent with cancer.

Presenter:
Leonel Jaramillo Villanueva
XXI Century National Medical Center Pediatric Hospital, México



Integrating Sustainable Development Goals (SDGs) and Generative AI to Enhance Language Digital Literacy and Creativity in EFL Learning Environments

Syeda Rabia Tahir[1], Abdul Khalique Khoso[2], Wang Honggang[3], Aasia Nusrat[4] and **Muhammad Younas[5]**

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[5]College of Sciences and Humanities, Prince Sultan University, Saudi Arabia

This study investigates the integration of Sustainable Development Goals (SDGs) and generative AI, specifically ChatGPT, to enhance language digital literacy, creativity, and motivation in EFL learning environments. Adopting a quantitative, cross-sectional design, the data for this study were collected from n = 420 undergraduate EFL students at one public sector university in China, using validated scales to measure SDG integration (SDG), Use Generative AI like ChatGPT (UCGPT), digital literacy (DL) EFL Students' creativity (SC), EFL Students' motivation (SM) and language learning engagement (LLE). Partial least squares structural equation modeling (PLS-SEM) was employed to analyze direct, mediating, and moderating effects. Findings revealed that SDG integration and UCGPT were significantly associated with SM, which in turn predicted digital literacy and EFL students' creativity. Moreover, LLE moderated the relationship between DL and SC, while SM mediated the effects of SDG integration and UCGPT on digital literacy. These results highlight the transformative potential of integrating SDGs and AI tools in EFL education, providing scalable strategies to develop 21st-century skills. Additionally, the study provides concrete strategies for EFL teachers, such as tasking students with using ChatGPT to prepare for debates on SDG topics, like climate justice, or to co-create multilingual social media campaigns for sustainability awareness. These applications demonstrate how to operationalize SDG-AI integration in everyday lesson planning.

Presenter:
Syeda Rabia Tahir
UNITAR International University, Malaysia

The KEAP1-Cullin3-RBX1-Nrf2 Axis in Redox Homeostasis: Molecular Mechanisms, Pathophysiological Roles, and Precision Therapeutic Opportunities

Mayank Attri[1] and **Omkar Kumar Kuwar**[2]

[1]Assistant Professor, Department of Pharmacy, Global Group of Institutes, Amritsar, Punjab, India
[2]Bihar College of Pharmacy, India

The KEAP1-Cullin3-RBX1 E3 ubiquitin ligase complex plays a critical role in maintaining cellular redox homeostasis by controlling the stability of nuclear factor erythroid 2-related factor 2 (Nrf2), a key transcription factor regulating antioxidant and cytoprotective gene expression.

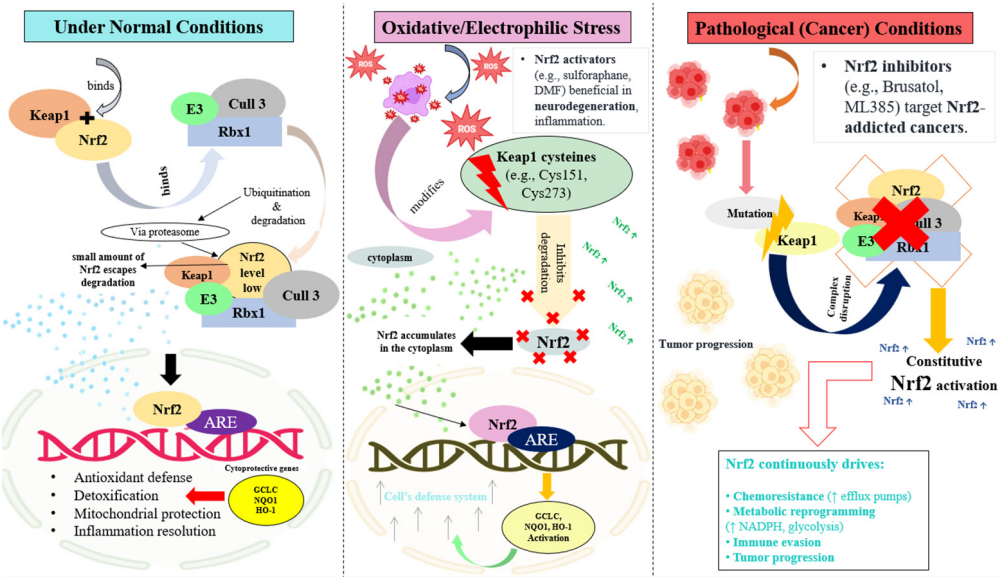
The objective of this work is to summarize the structural mechanism of this regulatory axis, outline its roles in oxidative stress responses and disease progression, and evaluate therapeutic opportunities arising from pathway modulation.

The scope of this review includes the molecular interaction between KEAP1, Cul3, and RBX1; redox-sensitive conformational changes in KEAP1; the regulation of Nrf2 activation; and the dual protective and pathological outcomes of Nrf2 signaling.

Methods used for this review include the collection and analysis of recent peer-reviewed literature, structural biology findings, and preclinical/clinical insights related to KEAP1-Nrf2 modulation.

Results from the evaluated studies indicate that under basal conditions, the KEAP1-Cul3-RBX1 complex ensures controlled degradation of Nrf2, preventing unnecessary antioxidant responses. During oxidative or electrophilic stress, modifications in KEAP1 cysteine residues inhibit Nrf2 ubiquitination, enabling nuclear translocation and activation of genes responsible for detoxification, metabolism, and cellular protection. While transient Nrf2 activation is beneficial in mitigating oxidative injury and degenerative disorders, persistent activation-such as through KEAP1 or NFE2L2 mutations-contributes to tumorigenesis, metabolic alterations, chemoresistance, and immune evasion.

The conclusion highlights that although significant progress has been made in understanding this pathway, major limitations remain in defining context-specific effects, identifying reliable biomarkers, and establishing long-term safety profiles of pharmacological Nrf2 modulators. Future directions include refining therapeutic windows, developing precision-based Nrf2 targeting strategies, and integrating pathway modulation into personalized medicine. A deeper mechanistic understanding of this axis could strengthen its potential as a cornerstone of redox-based therapeutic innovation.



Presenter:
Mayank Attri
Assistant Professor, Department of Pharmacy
Global Group of Institutes, Amritsar, Punjab, India

Molecular Insights into the P2X7–NLRP3 Inflammasome in Diabetic Neuropathy: Integrating CRISPR–Cas9 Concepts into Future Stem Cell Therapies

Sandip Tejpal[1,2] and **Samridhi Dogra**[2]

[1]Global Group of Institutes (Amritsar), India
[2]Guru Nanak Dev University (Amritsar), India

Diabetic neuropathy (DN) remains one of the most challenging and debilitating complications of diabetes, driven by chronic metabolic dysfunction and persistent neuroinflammation. This review examines the molecular significance of the P2X7–NLRP3 inflammasome pathway in DN and conceptually evaluates how CRISPR–Cas9 gene-editing strategies could be integrated into future stem cell - based therapies. Using a narrative review approach, current evidence on ATP-triggered P2X7 activation, subsequent NLRP3 inflammasome assembly, caspase-1 activation, and IL-1β/IL-18–mediated neuronal damage was synthesized alongside emerging insights into stem cell biology. The analysis highlights that hyper-glycemia-induced increases in extracellular ATP excessively stimulate P2X7 receptors, initiating NLRP3-driven inflammatory cascades that accelerate axonal degeneration and sensory impairment. Conceptual exploration suggests that CRISPR–Cas9 could be used to selectively modulate key molecular nodes such as P2X7 to reduce ATP-mediated activation, NLRP3 to prevent inflammasome assembly, or caspase-1 to block cytokine maturation—thereby decreasing neuroinflammation at its source. Genetically enhanced stem cells engineered to resist inflammasome activation or secrete neuroprotective factors may further complement this strategy by supporting neuro-regeneration and improving functional recovery. Although theoretical in scope, this review integrates established molecular insights with forward-looking gene-editing and cell-therapy concepts, outlining a novel framework that may guide future translational research. In conclusion, the P2X7–NLRP3 inflammasome emerges as a central driver of inflammatory neurodegeneration in DN, and its targeted modulation through CRISPR-based concepts combined with advanced stem cell strategies offers a promising foundation for next-generation therapeutic innovation.

Presenter:
Sandip Tejpal
Guru Nanak Dev University (Amritsar), India

XClinic Sensors: Validating Accuracy in Measuring Range of Motion Across Trauma Conditions

Gianpietro Volonnino[1], Raffaele La Russa[2], Paola Frati[3], Umberto Guidoni[4] and **Giovanni Galeoto[5]**

[1]Saint Camillus International University of Health Sciences, Italy
[2]Department of Life, Health and Environmental Sciences, University of L'Aquila, Italy
[3]Department of Anatomical, Histological, Forensic and Orthopaedical Sciences, Sapienza University of Rome, Italy
[4]ANIA National Association of Insurance Companies, Italy
[5]Department of Human Neurosciences, Sapienza University of Rome, Italy

Accidents and injuries are major causes of chronic disability, leading to a loss of healthy years. Accurate assessment is essential for planning personalized rehabilitation programs in order to get a better quality of life. In recent years, wearable sensors have been introduced into research for motion analysis. This study aimed to validate the Xclinic wearable sensors for ROM assessment in patients with trauma.

Methods: Participants were recruited from the Sapienza University of Rome (September 2023–November 2024) after road accident trauma involving osteo-muscular and nervous tissues. The active ROM of the hip, knee, and ankle was assessed bilaterally based on the injury. The SF-36 and other specific tools were also administered. Construct validity was tested using Pearson's correlation coefficient.

Results: A total of 44 participants (mean age 42.7 ± 17.3 years, 69% male) were included. Item-by-item analysis revealed significant correlations, with notable findings related to other outcome measures.

Conclusions: The correlation between joint restrictions, functional impairment, and psychosocial factors highlights the need to integrate physical and psychological care into rehabilitation. Further research is needed to refine assessment tools to improve patients' quality of life.

Presenter:
Gianpietro Volonnino
Saint Camillus International University of Health Sciences, Italy

Bruton's Tyrosine Kinase Inhibitors and Autologous Hematopoietic Stem Cell Transplantation in Multiple Sclerosis: A Review of Complementary Paradigms for a Divergent Disease

Jeshua Nathaniel Devan[1], Wilhelmina Hauwanga[2], Mariyam Fathima Salim[3], Maha Awan[4], Lynda Amaka Ezike[6], Ida Ann Veronica Fredrick Luther[3], Mustafa Suliman[6] and **Billy McBenedict[7]**

[1]Selayang Hospital, Ministry of Health Malaysia, Malaysia
[2]Internal Medicine, Gaffrée and Guinle University Hospital, Federal University of the State of Rio de Janeiro, Brazil
[3]Faculty of Medicine, Tbilisi State Medical University, Georgia
[4]College of Medicine, Sulaiman Al Rajhi University, Saudi Arabia
[5]Garki Hospital, Nigeria
[6]Internal Medicine, Faculty of Medicine, University of Science and Technology, Sudan
[7]Neurosurgery, Antônio Pedro University Hospital, Faculty of Medicine, Fluminense Federal University, Brazil

Multiple sclerosis (MS) is a heterogeneous autoimmune disease driven by peripheral immune dysregulation and compartmentalized central nervous system (CNS) inflammation. Despite the availability of numerous disease-modifying therapies, substantial unmet needs persist for individuals with highly active relapsing disease or progressive forms characterized by silent progression and smoldering neuroinflammation. This narrative review evaluates two emerging, mechanistically divergent therapeutic strategies that aim to overcome the limitations of conventional immunosuppression: Bruton's tyrosine kinase (BTK) inhibitors and autologous hematopoietic stem cell transplantation (HSCT). A comprehensive literature search was performed across PubMed, Scopus, Web of Science, and ClinicalTrials.gov for studies published between January 2010 and August 2025. Our synthesis reveals that these approaches serve distinct therapeutic niches. BTK inhibitors offer continuous, targeted immunomodulation by selectively targeting B-cell signaling and CNS-resident myeloid cells without broad lymphocyte depletion. Phase II-III trials demonstrate consistent suppression of MRI activity and the potential to slow disability accumulation in non-relapsing secondary progressive MS, although their effect on relapses has been variable. In contrast, HSCT delivers a one-time systemic immune reset through immunoablation and de novo reconstitution, effectively eradicating autoreactive immune clones. Randomized and real-world studies robustly support HSCT's unmatched efficacy in inducing long-term, treatment-free remission in patients with highly active relapsing-remitting MS, though it carries substantial procedural risks

requiring strict eligibility criteria and experienced centers. We conclude that BTK inhibitors and HSCT are complementary paradigms. HSCT functions as a systemic firebreak for explosive peripheral inflammation, whereas BTK inhibitors act as precision modulators of smoldering, microglia-driven CNS pathology, emphasizing biomarker-guided patient selection.

Table 1: Mechanistic comparison of BTK inhibitors and autologous HSCT in multiple sclerosis

Feature	BTK Inhibitors	Autologous HSCT
Core Philosophy	Continuous Precision Modulation	One-time Systemic Reset
Primary Mechanism	Inhibition of BTK signaling in B cells and myeloid cells (e.g., microglia)	Immunoablation followed by autologous stem cell reconstitution
Key Immune Targets	Peripheral B cells, CNS microglia, other innate immune cells	The entire autoreactive T and B cell repertoire
Therapeutic Goal	Suppress inflammation and neurodegeneration; control disease	Induce durable, treatment-free remission; "re-educate" immune system
Nature of Effect	Reversible; requires continuous dosing	Discontinuous; intended to be permanent after recovery
Theoretical Strength	Targets compartmentalized CNS inflammation; potential for neuroprotection; oral administration	Unmatched efficacy in halting inflammatory activity; potential for long-term treatment-free survival
Theoretical Limitation	Chronic, long-term safety unknown; may not fully abrogate all disease processes	Significant acute morbidity/mortality risk; limited efficacy in non-inflammatory progressive MS; infertility
Ideal Patient Profile	Patients with progressive disease features and active smoldering pathology	Young patients with highly active, inflammatory RRMS refractory to high-efficacy DMTs

Synthesized from Schneider and Oh, Atkins and Freedman, and McDonald et al. [5,11,13].

Presenter:
Jeshua Nathaniel Devan
Selayang Hospital, Malaysia

The Practical and Legal Realities of Women's Mental Health in the Era of the VBG and PMA In Mali

COULIBALY Mariam MAIGA

Teacher-Researcher at Law Schools of Kurukanfuga University of Bamako (UKB) (Bamako-Mali)

In Mali, mental health, an important part of human personal and social stability, is linked to socio-legal debates beyond the field of public health or medicine. This is explained by the rise of GBV, the advancement of science and technology, and their increased use. Information and communication technologies (ICT) and assisted reproductive technologies (ART), the subjects of this study, belong to the sectors that impact women's lives and their mental health. In the face of the shift from a natural environment to a society driven by globalization with a multifactorial transformation, it would be imperative to establish the link between mental health and these phenomena.

Sometimes displayed, often ignored or overlooked, emotional states such as anxiety, mental disorder and depression affect women's habits. While there is legally and institutionally a framework for health and specifically mental health, its effectiveness in terms of protecting women against the consequences of innovations like ICTs, VBG and ART raise questions. Especially since the Maputo Protocol (2003), an African instrument for the defense of women's rights, only mentions this health in relation to pregnancy and sexual violence.

Thus, is the factual link between these cited concepts and women's mental health sufficiently addressed by Malian law and society for an improvement in public health?

The answer to this question will be pursued through document analysis and interviews with resource persons.

It will allow for an understanding of the gaps between international instruments and national systems, as well as between texts and practices.

Presenter:
COULIBALY Mariam MAIGA
Teacher-Researcher at Law Schools of Kurukanfuga University of Bamako (UKB) (Bamako-Mali)

Treatment of Fixed Knee Deformity in Cerebral Palsy, Using Distal Femoral Extension Osteotomy with Patellar Tendon Shortening

Reciniello Silvia

Hospital Italiano de Buenos Aires, Argentina

Intro: In ambulatory children with cerebral palsy (CP), crouch gait is the most common gait pathology in older children. A recent systematic review reported that the natural history of crouch gait was for increasing knee flexion in children with spastic diplegia, over time. A large population–based study found that knee flexion deformity may significantly impair functional mobility, as measured using the Functional Mobility Scale (FMS). Contributing factors may include weakness of the antigravity muscles, especially the soleus, hamstring spasticity and contracture, contracture of the knee joint, and lever arm deformities in the lower limbs. Crouch gait is part of the natural history in some children with spastic diplegia but lengthening of the Achilles' tendons may also be a precipitating factor. The purpose of this study was to evaluate the effectiveness of distal femoral extension os.

Material & Methods: A retrospective, non randomized study was done, including a group of 25 surgeries between years 2004 and 2024, made in 42 consecutive patients, with cerebral palsy, (diplegia) mean age: 13 years (8-20) with diagnosis of fixed knee flexion deformity and crouched gait. Distal femoral extension osteotomy with patellar tendon shortening, using a soft tissue anchor system applied below the anterior tibial tuberosity. Analytical review of outcomes was performed in order to evaluate gait, function, images, and complications with a mean follow up of 29 months (6–56).

Conclusions: Patellar tendon shortening using soft tissue anchor systems, improves the outcome of distal femoral extension osteotomy. When this procedure is done alone or in combination with a distal femoral extension osteotomy (for the treatment of a knee flexion contracture), knee function in gait can be restored to values within typical limits, with gains in community function.

Presenter:
Reciniello Silvia
Hospital Italiano de Buenos Aires, Argentina

Deciphering the Spatiotemporal Development of the Human Amygdaloid Complex

Shu-Xia Cao[1,16], Haoyuan Chen[2,16], Yi-Feng Liu[3,16], Chun-Yue Li[4,16], Yufeng Lu[2,5,16], Yan-Ye Zhang[3,16], Yan-Hui Sun[6], Yi-Heng Xu[6], Tan- Xia Wu[1], Yi-Qing Wu[3], Mi-Xue Tu[3], Yao Chen[3], Rui-Xue Chen[3], Xuan Chen[7], Bin Yu[8], Zihan Wu[9], Jianhua Yao[9], Li-Heng Tan[6], Hao Wang[7, 10,11], Lei Han[12], Longqi Liu[12], Qian Wu[2], Dan Zhang[3], Xiaoqun Wang[2, 5, 13] and **Xiao-Ming Li[6, 10, 14, 15]**

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The amygdala, a core hub of emotional processing in the brain, consists of spatially discrete nuclei, yet the molecular mechanisms underlying its development—especially in humans— remain poorly characterized. Here, we integrated single-cell RNA sequencing and spatial transcriptomics to delineate the spatiotemporal landscape of cell fate specification and nuclear patterning during human amygdala ontogenesis. We show that molecularly distinct glutamatergic (Glu) and GABAergic (GABA) neurons emerge as early as 8–10 gestational weeks (GW). The 14–17 GW window marks a critical stage for Glu neuron development, coinciding with rapid expansion of the basolateral complex (BLC)—a region greatly enlarged in humans and primates relative to rodents. Glu subclusters with unique molecular signatures, showed conserved marker genes relative to the adult mouse amygdala. By contrast, GABA subclusters originate from multiple germinal niches and display divergent developmental trajectories. Moreover, we identified a human-specific population of PENK^{+} intermediate progenitor cells absent in mice, uncovering a species-restricted regulatory pathway in amygdala development. Collectively, this study establishes a comprehensive molecular and spatial framework for human amygdala ontogenesis, providing insights into the pathogenesis of neurodevelopmental and neuropsychiatric disorders linked to amygdala dysfunction.

Presenter:
Shuxia Cao
Zhejiang University School of Medicine, China

Cytokine Gene Expression and Treatment Impact on MRI Outcomes in Jordanian MS Patients

**Sawsan I. Khdair[1], Mohammed Waleed[1]
Alaa M. Hammad[1], Lubna Al-Khareisha[2], Tariq Jaber[3]
Majd Ayash[3]** and **Frank Scott Hall[4]**

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Central nervous system autoimmune disorders, like multiple sclerosis (MS), are chronic conditions, where cytokines contribute significantly to regulate inflammation. The diagnosis, progression, and treatment effectiveness of MS are assessed through laboratory tests, clinical evaluation as well as imaging.

Aims and method: This study included 40 healthy individuals as a control group and 75 MS patients, divided into two groups: 45 MS patients receiving Fingolimod treatment (MSW) and 30 patients taking other medications (MS). Blood samples (3 mL) were collected from all participants, and the mRNA relative expression of cytokine genes (*IL-1b, TNF-α, IL-6*, and *INF-γ*) was measured. Additionally, MRI images of MS patients undergoing Fingolimod or other treatments were analyzed.

Results: The MS patient group displayed higher mRNA relative expression levels of *IL-1b, TNF-α, IL-6*, and *INF-γ* compared to the control group. Furthermore, *TNF-α, IL-6*, and *INF-γ* expression levels were elevated in the MS group compared to the MSW group. MRI scans showed significant improvement in MS patients taking with Fingolimod compared to those receiving other medications.

Conclusion: Fingolimod demonstrated greater effectiveness in improving MS patients' conditions, possibly due to its impact on cytokine relative mRNA expression.

Presenter:
Sawsan Ibrahim Khdair
Al-Zaytoonah University of Jordan, Jordan

Anxiety-Like Behavior in Rats During Periods of Abstinence Following E-Cigarette Vapor and Cigarette Smoke Exposure: Role of Inflammatory Cytokines and Glutamate Receptors

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Prolonged exposure to cigarette smoke induces changes in the glutamatergic systems as well as neuroinflammation. We examined E-cigarette vapor and cigarette smoke effects on inflammatory cytokines and metabotropic glutamate receptors. Furthermore, we investigated the behavioral changes related to E-cigarette vapor and cigarette smoke exposure through utilizing open field (OF), elevated plus maze (EPM) and light/dark (LD) tests. Male Sprague-Dawley rats were randomly assigned to three experimental groups: Control, E-cigarette, and Cigarettes groups. Exposure to either E-cigarette vapor or cigarette smoke exposure was performed for 2 hr/day, 5 days/week, for 60 days. Behavioral tests were conducted every two weeks, 24 hr after exposure, during periods of abstinence. Anxiety-like behaviors were increased following repeated periods of abstinence from E-cigarette vapor or cigarette smoke. E-cigarette vapor and cigarette smoke elevated the relative mRNA expression of nuclear factor κB (Nf-κB), interleukin 6 (Il-6), and metabolic glutamate receptor 5 (mglur5) and reduced expression of interleukin 1β (Il-1β), tumor necrosis α (Tnf-α), and metabolic glutamate receptor 2 (mglur2) in prefrontal cortex (PFC) and nucleus accumbens (NAc). Moreover, no effect was observed on nuclear factor erythroid 2 (Nrf2), metabolic glutamate receptor 1 (mglur1), or metabolic glutamate receptor 3 (mglur3) expression. E-cigarette vapor and cigarette smoke exposure can lead to abstinence-induced anxiety-like behavior partially through molecular changes in the PFC and NAc.

Presenter:
Alaa M. Hammad
Al-Zaytoonah University of Jordan, Jordan

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Lived Experiences of Imprisoned Lives of Women in Conflict with Law: Social Work with an Empowerment Approach

Neena Pandey[1], Smriti Sikri[2] and **Shabeeba N. Noorainganakam[1]**

[1]Department of Social Work, University of Delhi, India
[2]Department of Law & Governance, Jawahar Lal Nehru University, India

Women in conflict with the law are an urgent topic to explore. The research studies have shown that the context of women in crime is different from that of other genders, especially men. The gendered space for women is a matter of concern in general. There is a plethora of studies revealing the gender-biased practices of almost all the social institutions, like education, marriage, religion, and law, to name a few. Confinement is an everyday reality for most women worldwide. The limited or near absence of freedom in women's lives makes survival a challenging endeavour. Women's issues are not given priority, resulting in hardships in their daily lives. This affects their overall social and mental well-being. According to the Institute for Crime and Justice Policy Research (ICPR) 2025, the global population of incarcerated women and girls is approximately 7,35,000. Further, the India Justice Report (IJR) 2024 records nearly 24,000 women living in Indian prisons. The special focus on incarcerated women will certainly reduce the number if empathetic and empowered approaches are adopted to tackle the situation. Women are harmed by imprisonment, whether it is for a long or short period of time. The impact is so intense that it affects not just the woman inmate but also her family and associates, who claim to have ties with her. There is a fear of social exclusion and discrimination against these women, as well as their families and other relations. Getting back to everyday life after having a history in prison often becomes a challenge that leads to these women cornering their identities, life choices, and experiences to make sense of their imprisonment. The confinement spaces are essentially designed for men, which further restricts the choices of women in jails.

The present paper focuses on the findings of two qualitative research studies conducted by Research scholars at the Department of Social Work, University of Delhi. The narratives of women who shared their lived experiences of incarceration in Delhi (the National Capital Territory of India) and Kerala (one of India's southern states) are captured through an empowerment lens. It implies that social work practice must not only focus on affected clients and

groups but also impact other stakeholders. Social work practice that focuses only on the marginalized, yet the cause of their marginalization lies in the hands of the oppressor. Hence, to effectively focus on empowerment, there is a greater need to work with structures and other stakeholders.

The key findings of the research have been that women expressed their anxieties, unrest, and learning within the prison's closed walls. The role of Civil Society Organisations (CSOs) and social workers involved in case management, training of prison staff, and skill training to the women has contributed to a sense of empowerment. The very catharsis of their life situation allowed them to value themselves. The current paper advocates for the possibilities and mechanisms to work with incarcerated women who are in conflict with the law, and proves to be a strong resource to contribute constructively to their personal, as well as social lives.

Presenter:
Neena Pandey
University of Delhi, India

Communicating Psychiatry Knowledge to the Chinese Public: Analyzing Predictive Factors of User Engagement on Chinese TikTok (Douyin)

Tong Yang[1,2,3] and **Kai Zhang**[1,2,3]

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Objectives: Short-form video platforms have become an important channel for mental health education, yet evidence on how specific content themes influence user engagement remains limited. This study aimed to examine the associations between mental health content themes, video characteristics, and user engagement metrics on a Chinese TikTok (Douyin) account dedicated to psychiatric health education.

Methods: We collected all videos published on our Chinese TikTok (Douyin) account, *Dr. Zhang Kai, Director of Psychiatry Postdoctoral Fellowship*, between 1 September 2023 and 1 December 2025. Among 347 videos initially identified, 288 original videos, exclusively created and managed by our team, were retained for analysis after excluding reposted, duplicated, or non–mental health–related content. Videos were classified into six predefined themes: mental health education and literacy; symptom recognition and self-awareness; coping strategies and emotional regulation; help-seeking, treatment, and recovery; family, parenting, and interpersonal relationships; and mental health stigma, myths, and public awareness. User engagement outcomes included number of views, likes, comments, and favorites. Negative binomial regression models were applied to estimate incidence rate ratios (IRRs) with 95% confidence intervals (CIs), adjusting for video length, time since upload, title length, medication mention, and clinical guideline mention.

Results: Compared with videos longer than 3 minutes, videos shorter than 1 minute were associated with significantly higher engagement, including views (IRR = 3.02, 95% CI: 1.80–5.06), likes (IRR = 1.90, 95% CI: 1.12–3.24), and comments (IRR = 7.22, 95% CI: 4.37–11.93). Content focused on mental health stigma, myths, and public awareness was associated with lower engagement across multiple metrics, whereas coping strategies and emotional regulation showed significantly higher comment counts (IRR = 1.68, 95% CI: 1.19–2.38). Longer title length was consistently associated with reduced en-

gagement across outcomes. Mentions of medications were associated with fewer views (IRR = 0.52, 95% CI: 0.29–0.96) and comments (IRR = 0.39, 95% CI: 0.21–0.72).

Conclusions: Mental health content theme and video design substantially influence user engagement on Douyin. Shorter videos and emotionally actionable content may enhance public interaction, while overly technical or stigmatization-focused messages may limit engagement. These findings provide empirical guidance for optimizing mental health communication on short-video platforms.

Table 1. Descriptive characteristics of included videos

Variable	Value
Total number of videos, n	288
Video length, n (%)	
< 1 min	198 (68.1)
1–3 min	71 (24.7)
≥ 3 min	21 (7.2)
Engagement metrics, median (IQR)	
Views	142776.50 (53379.50-643255.75)
Likes	2070.00 (903.50-9000.75)
Comments	157.50 (55.25-703.00)
Shares	376.00 (147.25-2151.00)
Favorites	401.50 (141.25-1320.75)
Content themes, n (%)	
Mental health education and literacy	148 (51.4)
Symptom recognition and self-awareness	16 (5.6)
Coping strategies and emotional regulation	21 (7.3)
Help-seeking, treatment, and recovery	15 (5.2)
Family, parenting, and interpersonal relationships	35 (12.2)

Mental health stigma, myths, and public awareness	53 (18.4)
Medicines mentioned, n (%)	
Yes	62 (21.5%)
No	222 (78.5%)
Clinical guideline mentioned, n (%)	
Yes	34 (11.8%)
No	254 (88.2%)

Presenter:
Tong Yang
Anhui Medical University, China

Corresponding Author
Kai Zhang
Anhui Medical University, China

A Correlational Study of Social Loneliness, Coping Mechanisms and Homesickness among College Students

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The transition from home to college life often exposes students to emotional challenges such as social loneliness and homesickness, which can affect their psychological well-being and academic adjustment. The present study aimed to examine the relationship between social loneliness, homesickness, and coping mechanisms among college students. The scope of the study was limited to undergraduate students enrolled in allied health care and science disciplines in Bangalore, India. A correlational research design was employed, and a total of 63 students participated in the study. Data were collected using standardized instruments, including the Emotional/Social Loneliness Scale, the Homesickness Scale (revised), and the Brief COPE Inventory. Descriptive statistics were used to assess the mean levels of homesickness, social loneliness, and coping mechanisms, while Pearson's correlation analysis was conducted to examine the relationships among the variables.

The results revealed a weak positive correlation between homesickness and social loneliness ($r = .168$), which was not statistically significant ($p = .188$), indicating that homesickness did not substantially contribute to social loneliness among the participants. However, a strong and statistically significant positive correlation was found between homesickness and coping mechanisms ($r = .529$, $p < .001$), suggesting that students experiencing higher levels of homesickness tend to actively engage in coping strategies to manage their emotional distress. These findings may be influenced by the urban context of Bangalore, which offers ample opportunities for social interaction and recreational engagement, thereby reducing feelings of social isolation. The study concludes that although homesickness is a common experience among college students, its negative impact can be mitigated through effective coping mechanisms and accessible social support systems. Promoting adaptive coping strategies and fostering supportive campus environments may play a crucial role in enhancing students' emotional well-being and academic success.

Presenter:
Kanmani Sree Gowri
JAIN (Deemed-to-be University), Bengaluru, India

Mental Health in Yemen: Cultural, Social, and Systemic Challenges in Times of Crisis

Mohammed Aljalei and **Ali Algamili**

Mental Health Research Network of Yemen, Yemen

Yemen is experiencing one of the most urgent mental health crises in the world, fueled by more than a decade of war, economic collapse, displacement, and the breakdown of its healthcare system. This analysis explores the scale of Yemen's mental health emergency, the cultural and social barriers that shape help-seeking behaviors, and the challenges and opportunities for strengthening care in a fragile setting.

Using a descriptive–analytical approach, the study draws on epidemiological research, WHO data, humanitarian reports, and health indicators. A cross-cultural perspective highlights how stigma, traditional beliefs, and social norms influence perceptions of mental illness and access to care.

The findings reveal a stark gap between mental health needs and available resources. With fewer than 60 psychiatrists serving over 40 million people, and more than half of the population lacking basic healthcare, Yemen's mental health infrastructure is critically underdeveloped. Research shows PTSD affects 79% of children exposed to conflict, with rising rates of depression, anxiety, and suicidal ideation among youth.

Table 1. System-Level Barriers to Mental Health Care in Yemen

Category	Key Barriers
Workforce	<60 psychiatrists; limited training pathways
Infrastructure	Facility destruction; medication shortages
Cultural Factors	High stigma; preference for traditional healing
Access	Geographic inequity; cost barriers
Governance	Absence of national mental health legislation

Barriers include a lack of trained professionals, damaged facilities, medication shortages, high levels of stigma, and the absence of national mental health legislation. While traditional healing remains culturally significant, it cannot substitute for clinical care. Innovations like telepsychiatry and the WHO's mhGAP model offer hope but remain small-scale and underfunded.

Yemen's mental health crisis is not only a medical issue, it's central to the nation's recovery. Addressing it requires urgent, coordinated reforms and investment to prevent lasting psychological harm.

Presenter:
Mohammed Hussein Aljalei
Mental Health Research Network of Yemen, Yemen

Pharmacogenomics and Opioid Efficacy in Sickle

Rabab H. Elshaikh[1], Ranjay Kumar Choudhary[1], Ayman Hussein Alfeel[2], Sanaa Elfatih Hussein[3], Khalid Abdelsamea Mohamed Ahmed[4] and **Ashok Kumar Sah[1]**

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[3]College of Health and Applied Sciences, Medical Laboratory Sciences Department, Jouf University KSA/Faculty of Medical Laboratory Sciences, University of Gezira, Sudan
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The impact of genetic variation in sickle cell patient's paly important role on Opioid therapy individual response, and pain management. Genetic Variation is very important in determining how Sickle Cell Disease Patients respond to Opioid Therapies. This comprehensive review aims to provide a comprehensive overview on the important of exploring genetic variability and its effect on pain management in sickle cell patients, also explore the Opioid Therapy Variability, and Opioid Safety. With respect to the literature, the polymorphisms in the key metabolic enzymes CYP2D6, UGT2B7, and COMT, as well as variations in the OPRM1, are important modifiers of the pharmacokinetics and pharmacodynamics of the Opioid. Patients with reduced-function and ultra-rapid CYP2D6 alleles have a modified metabolism of codeine and tramadol which presents with either a reduced analgesic response or a risk for increased toxicity. These observations support the case for the need of tailored opioid prescriptions in a population which is genetically diverse, as well as the risk of not having standardized pain measurement, and the absence of clinical implementation, there remains the risk of unrecognized pharmacogenomics, Lak of data, and personalized Opioids description persist. Future research should focus on integrating genetic testing into clinical practice to optimize opioid selection, personalized medicine, minimize adverse effects, ensuring each patient receives treatment that is both effective and safe to enhance quality of life for individuals with sickle cell disease.

Presenter:
Rabab Hassan Elshaikh Mahmoud
A' Sharqiyah University, Oman

A Pedagogical Typology of Generative AI Use in Non-Formal Education

Vitvitskaya Anastasia and **Galimov Almaz**

Kazan Federal University, Russia

This study addresses the rapid integration of generative artificial intelligence (Generative AI) into non-formal education, a process accelerated by digital transformation and the COVID-19 pandemic. While Generative AI tools like ChatGPT are widely adopted, their pedagogical implications remain understudied, particularly regarding the systematization of their applications and associated cognitive risks. The objective of this research is to identify, classify, and pedagogically interpret the primary purposes for which individuals utilize Generative AI within self-directed and lifelong learning contexts.

Employing a mixed-methods approach, the study combines a theoretical analysis of literature with an empirical survey of 750 participants from diverse groups in Russia, including students, educators, and professionals. Descriptive statistics and content analysis were used to process the data.

The results reveal near-universal Generative AI adoption (98%) and allow for the categorization of its uses into three macro-purposes: Creation (e.g., writing, designing), Search & Analysis (e.g., information retrieval), and Correction & Optimization (e.g., editing). A novel contribution is the mapping of these purposes onto core pedagogical components (Gnostic, Activity-based, Reflective), forming a two-dimensional typology (see Table 1). This framework highlights that the most common uses—rapid information search and content generation—primarily engage surface-level cognitive and operational skills.

Table 1. Pedagogical Typology of GAI Use in Non-Formal Education

Pedagogical Component	Example GAI Purposes	Key Risk
Gnostic (Knowledge)	Quick answer search, data analysis	Uncritical acceptance of misinformation
Activity-based (Skills)	Writing texts, coding, designing	Atrophy of independent problem-solving skills
Reflective (Self-regulation)	Creating learning plans	Erosion of self-assessment and strategic planning

The conclusion emphasizes that unguided Generative AI use poses significant risks, including the degradation of metacognitive abilities and the exacerbation of "educational helplessness." Therefore, the study argues for a pedagogically structured integration of Generative AI. This necessitates developing specific AI-literacy competencies, designing educational models where Generative AI acts as a cognitive partner rather than a substitute, and implementing supportive organizational roles to foster responsible and effective use, ensuring that technological augmentation does not come at the cost of fundamental human skill development.

Presenter:
Anastasia Vitvitskaya
Kazan Federal University, Russia

Letter to Editor: Changes in Circulating Pro-Inflammatory Lymphocytes and Cortical Excitability with Extended-Interval Natalizumab Dosing in Multiple Sclerosis

Sadia Siddique[1], Syed Ahmad Farooqi[2], Umair Ali[2], Adil Momand[2], Ali Sina Hajizada[2] and **Hari Vishal Nenwani[2]**

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[2]Liaquat University of Medical and Health Sciences Jamshoro, Pakistan

The article "Changes in circulating pro-inflammatory lymphocytes and cortical excitability with extended-interval natalizumab dosing in multiple sclerosis" presents valuable insights into the immunological and neurophysiological effects of extended-interval dosing (EID) in multiple sclerosis (MS). The study contributes to understanding how modifying natalizumab dosing intervals may influence immune cell dynamics and cortical excitability; however, several methodological limitations warrant attention to strengthen the reliability and generalizability of the results.

Firstly, the absence of direct central nervous system (CNS) sampling—such as cerebrospinal fluid (CSF) analysis—limits the ability to confirm immune cell migration into the CNS. Future investigations should incorporate CSF analysis or advanced neuroimaging modalities, such as TSPO-PET, to directly assess CNS inflammatory activity. Secondly, the lack of assessor blinding and randomization introduces potential observer and performance bias, particularly in subjective and neurophysiological outcome measures. Implementing blinded assessment and randomized visit sequencing could mitigate these biases in future trials. Thirdly, the study's focus on a highly selected, clinically stable relapsing-remitting MS (RRMS) cohort restricts generalizability to patients with progressive disease or active inflammation. To validate and broaden the findings, replication across diverse MS subtypes and disease stages is necessary.

In summary, while Pisa et al. provide important contributions to understanding EID natalizumab therapy, addressing these methodological limitations through CNS-specific analyses, randomized and blinded protocols, and inclusion of heterogeneous MS populations will enhance the study's clinical relevance and translational value.

Presenter:
Sadia Siddique Ansari
Faisalabad Medical University, Pakistan

SIC-ACV: Computer System for Differentiating Between Ischemic and Hemorrhagic Cerebrovascular Accidents Using Intelligent Algorithms

Zoila Esther Morales Tabares[1], Joel Antonio Ramos Fernández[2] and **Denys Buedo Hidalgo[3]**

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Healthcare facilities continuously receive emergency patients with clinical symptoms indicative of a stroke. However, these healthcare institutions do not always have neurologists and CT scanners available to enable timely differentiation of the type of stroke. In these cases, the speed of diagnosis is crucial in determining the course of action to be taken by medical and paramedical staff in order to reduce the risks of deterioration in the patient's health or a fatal outcome.

In support of stroke response protocols, which have been described internationally in medicine, a group of researchers decided to design a computer system to differentiate between ischemic and hemorrhagic strokes using intelligent algorithms.

The proposal is based on the Siriraj Scale and supervised classification algorithms for inconclusive cases. A total of 1,168 production rules were defined: three using the Siriraj Scale and the rest using the supervised classification algorithm rules.NNge.

This paper describes the process from the analysis stage to the design stage, including: the identification of indicators for classification, description of the processes, definition of the tools and technologies to be used, as well as the experiments developed with classification methods, both statistical and supervised machine learning, to identify the best performing algorithm used in the development of the proposed system.

It is important to emphasize that the SIC-ACV system developed is multiplatform and can be used by any specialist in the health unit, preferably on

mobile devices. The system allows for data acquisition and presentation, communication and integration with electronic medical records, management of stroke patient cases, diagnosis issuance, and information analysis.

Presenter:
Zoila Esther Morales Tabares
Universidad Abierta Para Adultos, Dominican Republic

Parkinson's Disease: Conventional Pharmacotherapy, Drug Delivery Innovations, and Emerging Therapeutic Targets

Chirag Marwah[1], Deepika Raina[2], Siddharth Singh[3] and **Ansab Akhtar[4]**

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Parkinson's disease (PD) is a progressive neurodegenerative disorder characterized by motor symptoms (bradykinesia, rigidity, resting tremor) and a wide range of non-motor features. The core pathological process is degeneration of dopaminergic neurons in the substantia nigra pars compacta, leading to striatal dopamine deficiency, while additional neurotransmitter systems contribute to non-motor symptoms. PD is a common age-related disorder; global estimates for 2019 indicate that more than 8.5 million people were living with PD, and prevalence increases steeply with age. Current pharmacological therapy is mainly symptomatic and is centered on levodopa and other dopaminergic strategies, but treatment response can be limited by motor fluctuations, dyskinesia, and adverse effects. Therefore, formulation and delivery innovations (e.g., dispersible preparations, intestinal gel, and continuous infusion approaches) aim to stabilize drug exposure and improve convenience, especially in patients with swallowing difficulties or advanced disease. Furthermore, oral levodopa undergoes extensive peripheral metabolism when used alone; therefore, it is typically co-administered with a peripheral dopa-decarboxylase inhibitor (e.g., carbidopa or benserazide) to increase the fraction available to cross the blood–brain barrier and to reduce peripheral adverse effects such as nausea. Patients who have swallowing difficulties or advanced motor fluctuations may benefit from formulation and delivery approaches such as dispersible preparations, intestinal gel infusion, and continuous infusion systems. At the same time, newer molecular targets are being explored for future therapies with better tolerability and potential disease-modifying effects. However, device-aided approaches may be invasive, and safety, tolerability, and feasibility remain important considerations.

Presenter:
Chirag Marwah
Chitkara University, India

Neuroprotective Effect of Hericium Erinaceus Alone and in Combination with Piperine in Rotenone-Induced Parkinsonism in Experimental Rats

Ankit Chaudhary

Assistant Professor, Department of Pharmaceutical Technology (Pharmacology), Meerut Institute of Engineering and Technology (MIET), India

Parkinson's disease is a progressive neurodegenerative disorder characterized by dopaminergic neuronal loss and oxidative stress. The present study investigates the neuroprotective potential of *Hericium erinaceus*, a medicinal mushroom known for its neurotrophic properties, alone and in combination with piperine, a bioavailability enhancer, in a rotenone-induced rat model of Parkinsonism. Experimental rats were evaluated for behavioral, biochemical, and neurochemical parameters following treatment. The findings demonstrate that *Hericium erinaceus*, particularly when combined with piperine, significantly attenuates motor deficits, reduces oxidative stress, and preserves dopaminergic function. These results suggest a synergistic neuroprotective effect and highlight the therapeutic promise of natural compound-based combination strategies in the management of Parkinson's disease.

Presenter:
Ankit Chaudhary
Department of Pharmaceutical Technology (Pharmacology), Meerut Institute of Engineering and Technology (MIET), India

Clinical Benefit of Invasive Vagus Nerve Stimulation in Intractable Epilepsy

Prudence Wirajaya[1], Made Agus Mahendra Inggas[2], Kennytha Yoesdyanto[2], Edeline Samudra[1] and **Nathan Muliawan[1]**

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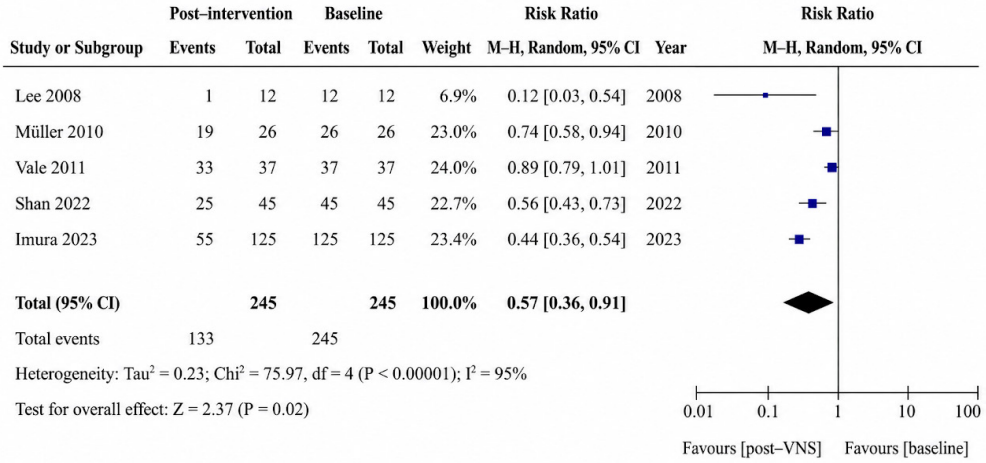
Intractable or drug-resistant epilepsy (DRE) is a condition in which seizures cannot be adequately controlled with antiepileptic medications. When resective surgery is not feasible or ineffective, neuromodulation therapy, such as the vagus nerve stimulation (VNS), represents a safe and approved treatment alternative. Nonetheless, the extent of its clinical benefit remains incompletely characterized. This systematic review and meta-analysis were conducted to evaluate the clinical benefit and treatment response of invasive VNS in reducing seizure frequency among patients with intractable epilepsy.

Four databases (PubMed/MEDLINE, Embase/Scopus, Cochrane, and Web of Science databases) were searched from database inception through November 2024. Data analysis was performed with Review Manager (RevMan 5.4), using a random-effect model based on heterogeneity. Five cohort studies (three prospective and two retrospective) were included in the quantitative analysis, involving 244 participants with intractable epilepsy. The pooled analysis revealed a statistically significant association between VNS and reduced seizure occurrence compared with baseline (RR = 0.57, 95% CI = 0.36–0.91). Adverse events, reported in three studies, were generally mild to moderate. Two studies assessing the relationship between seizure type and VNS response consistently demonstrated a more favorable response in patients with generalized epilepsy. One study reported a positive response to VNS therapy in patients with prior surgery in the focal resection group (>60%), followed by corpus callosotomy (33%). However, none of the studies reported a significant reduction in antiseizure medication (ASM) use following VNS therapy.



Study or Subgroup	Post–intervention Events	Total	Baseline Events	Total	Weight	Risk Ratio M–H, Random, 95% CI	Year
Lee 2008	1	12	12	12	6.9%	0.12 [0.03, 0.54]	2008
Müller 2010	19	26	26	26	23.0%	0.74 [0.58, 0.94]	2010
Vale 2011	33	37	37	37	24.0%	0.89 [0.79, 1.01]	2011
Shan 2022	25	45	45	45	22.7%	0.56 [0.43, 0.73]	2022
Imura 2023	55	125	125	125	23.4%	0.44 [0.36, 0.54]	2023
Total (95% CI)		**245**		**245**	**100.0%**	**0.57 [0.36, 0.91]**	
Total events	133		245				

Heterogeneity: $Tau^2 = 0.23$; $Chi^2 = 75.97$, df = 4 ($P < 0.00001$); $I^2 = 95\%$

Test for overall effect: $Z = 2.37$ ($P = 0.02$)

VNS was associated with reduced seizure occurrence in patients with intractable epilepsy, supporting its potential role as a neuromodulatory treatment option, notably in generalized epilepsy.

Presenter:
Prudence Wirajaya
Pelita Harapan University, Indonesia

Virtual Reality Integration in Telangana Government Schools: Enhancing Student Learning Outcomes

Ushakiran Mangalagiri and **Deepak John Mathew**

Indian Institute of Technology, Hyderabad, India

Objectives: This study investigates the effect of virtual reality (VR) integration on student learning outcomes in Telangana government secondary schools, with a focus on enhancing comprehension of Physics topics that demand conceptual visualisation and spatial reasoning.

Scope: The study examined virtual reality (VR) as a teaching aid in government classrooms where students typically struggle with abstract and complex scientific ideas. The study was carried out at the secondary level schools in Telangana Zilla Parishad High Schools which are linked with Telangana–aligned Zilla Parishad High Schools (ZPHS) at the secondary level, examining VR as an instructional tool in government classrooms where students traditionally struggle with abstract and mathematically dense scientific concepts.

Methods: The study was used a quantitative quasi-experimental pre-test–post-test control group design . Secondary students were divided int to two groups the experimental group receiving VR-supported Physics instruction while the control group received traditional chalk-and-talk instruction. Prior to and following intervention, Standardised achievement tests inline with the SCERT Telangana Physics curriculum were given. Cohen's d was computed to quantify the size of learning gains, and quantitative analyses included paired-sample and independent-sample t tests at a 0.05 significant level.

Results: When compared to the control condition,VR-integrated education resulted in statistically significant gains in post-test scores ($p<0.05$) with moderate to large effect sizes.

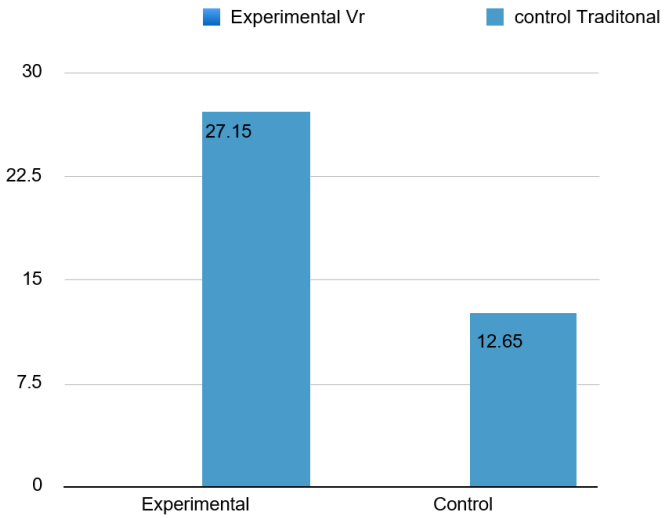


Figure 1: Physics Learning Gains for Experimental and Control Groups

Group	N	Pre-Test Mean (SD)	Post-Test Mean (SD)	Mean Gain	t value	p value	Comen's d
Experimental	60	42.10	69.25	27.15	10.21	< 0.001	0.72
VR		5.80	6.90				
Control	60	41.85	54.50	12.65	4.35	< 0.001	0.38
Traditional		5.95	6.20				

Table 1 : Comparison of Pre-Test and Post-Test Physics scores

(d = 0.62–0.78)showing significant academic progress in Physics subjects that a conceptually challenging. A single image illustrates the differences in learning gains between experimental and control groups, while a results table highlights pre-and post-test performance across groups.

Discussion: VR integration significantly improves student learning outcomes in Telangana government schools that are aligned with SCERT, especially for physics concepts that call for spatial and conceptual understanding. It also provides strong empirical evidence in favour of using VR as a useful teaching tool to improve conceptual learning and student engagement in secondary school science education.

Presenter:
Ushakiran Mangalagiri
Indian Institute of Technology, Hyderabad, India

Decoding Molecular Determinants of Cochlear Implant Outcomes Using Patient Specific Neurovascular Models: A Pilot Study

Alka Bhardwaj, Jaimanti Bakshi, Ramandeep Virk and **Maryada Sharma**

Department of Otolaryngology and Head & Neck Surgery, Postgraduate Institute of Medical Education and Research (PGIMER), India

Background: Despite comparable audiological profiles, post-lingually deaf individuals with sensory neural hearing loss (SNHL) consistently achieve superior auditory and speech outcomes following cochlear implantation (CI) compared to pre-lingual SNHL individuals. This long standing clinical observation is primarily attributed to differences in neuroplasticity and prior auditory exposure, however, the underlying molecular details remain elusive due to absence of patient-specific cellular models.

Methods: To address this gap, we established patient-specific neurons from autologous peripheral blood using the patented Plasma-Induced Trans differentiation and Tissue Reprogramming (PITTRep) technology (featured in press information bulletin by Ministry of science and technology https://www.pib.gov.in/PressReleaseIframePage.aspx?PRID=2008039&reg=3&lang=2) and examined their molecular and network characteristics *in vitro*. Peripheral blood samples were collected from pre-lingually deaf (n=12), post-lingually deaf (n=6), and normal-hearing control participants (n=18), with all deaf individuals exhibiting severe to profound sensory neural hearing loss on auditory brainstem response (ABR) testing. Immunofluorescence analysis evaluated neurotrophic signaling (BDNF and its receptor) and synaptic-neuroimmune architecture (Stargazin with Iba-1).

Results: Neuronal cultures from post-lingually deaf individuals demonstrated better network organization resembling normal hearing controls. While BDNF expression was comparable between the two deaf groups, Stargazin and Iba-1 levels were significantly elevated in post-lingual cultures, whereas pre-lingual cultures exhibited reduced expression, indicating impaired synaptic maturation and altered neuroimmune regulation.

Conclusion: These findings provide, to our knowledge, the first patient specific cellular evidence that CI outcome variability is driven by differences in synaptic and neuroimmune competence rather than neurotrophic deficien-

cy alone. By identifying biological determinants not captured by current clinical measures, this work offers a novel framework for improving CI success through biological stratification of candidates. Future studies integrating functional assays and longitudinal clinical correlations will be essential to determine predictive value. Nonetheless, this approach holds transformative potential for personalized rehabilitation, targeted adjunctive therapies and precision neuro-otology for improving long term success of cochlear implantation.

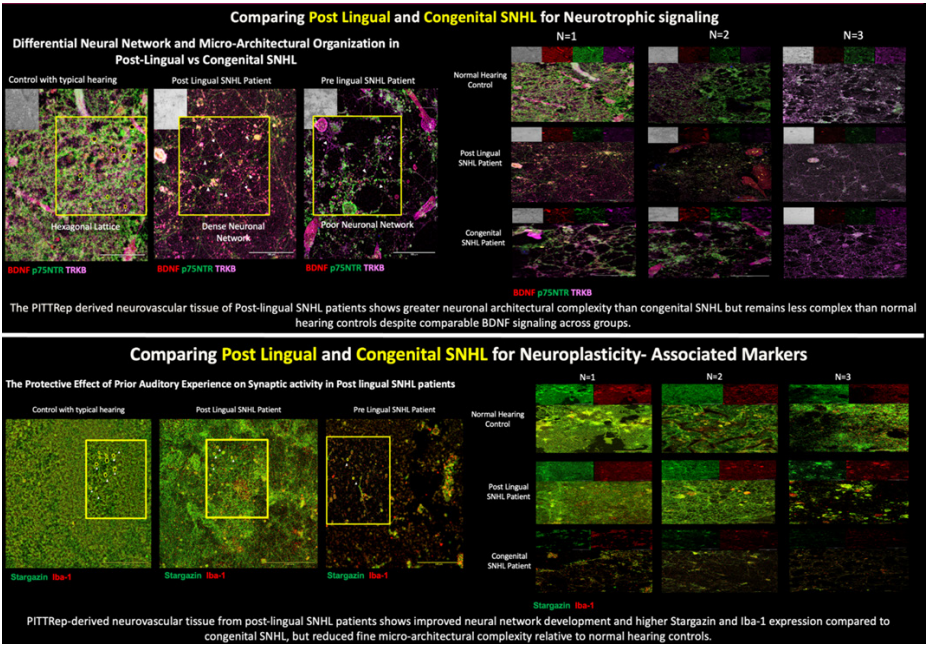


Figure-1: Comparative analysis of neurovascular tissues from normal hearing controls, post-lingual sensorineural hearing loss (SNHL), and congenital SNHL shows greater neuronal network organization in post-lingual SNHL compared to congenital SNHL, though both remain less complex than controls. Neurotrophic signaling markers (BDNF, p75NTR, TRKB) appear comparable across groups, while neuroplasticity markers (Stargazin, Iba-1) are relatively higher in post-lingual SNHL, suggesting preserved synaptic plasticity associated with prior auditory experience.

Presenter:
Alka Bhardwaj
Postgraduate Institute of Medical Education and Research (PGIMER), India

Effectiveness of a Parent-Implemented Intervention for Improving Balance in a Child with Autism Spectrum Disorder

Sungeun Lee and **Youngzie Lee**

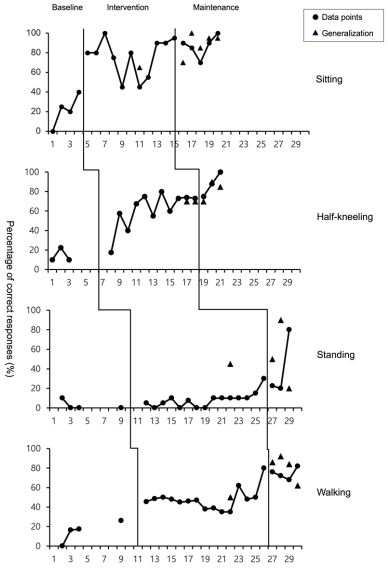
Baekseok University, South Korea

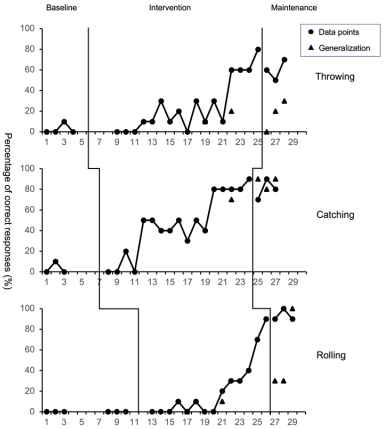
Introduction: Gross motor skills are important for children's daily activities; however, children with autism spectrum disorder (ASD) often have difficulties in these areas, limiting their participation in everyday life. Therefore, interventions targeting balance skills are crucial for children with ASD. This study examined whether a parent-implemented intervention could improve balance in a 4-year-old boy with ASD.

Methods: A multiple-probe design was employed to evaluate changes in gross motor skills (i.e. sitting, half-kneeling, standing, and walking) and object-control skills (i.e. throwing, catching, and rolling a ball). Parents received behavioral skills training, which included instructions, modeling, rehearsal, and feedback. Target behaviors were recorded as correct (+) or incorrect (-) according to predefined operational definitions. Statistical analyses were conducted using the percentage of non-overlapping data (PND) and Tau-U. Additionally, the study used the Pediatric Berg Balance Score.

Results: Improvements were observed in gross motor and object control skills and were retained at three weeks post-intervention. These functional gains were reflected in the Pediatric Berg Balance Score, which increased from 26 to 52, indicating a fall risk from the moderate-risk range to the low-risk range.

Conclusion: These findings suggest that a parent-implemented intervention incorporating behavioral skills training is effective in improving gross motor and object control skills in children with ASD, as evidenced by improvements in clinical balance assessment outcomes.





Presenter:
Sungeun (Joy) Lee
Baekseok University, South Korea

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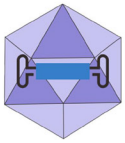
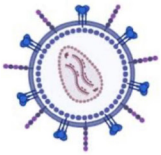


Lentiviral Vector Systems



Vector Cloning Service

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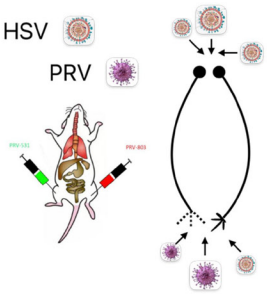
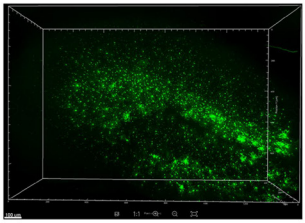
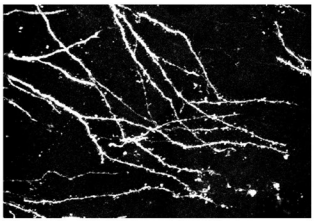


Microglia-Targeted Labeling Solutions



Single-Neuron Sparse Labling



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