JOINT EVENT

# NEUROLOGY AND NEUROLOGICAL DISORDERS

# ADVANCES IN ADDICTION MEDICINE AND MENTAL HEALTH

## JUNE 23-24, 2025 | BERLIN, GERMANY

# SCIENTIFIC PROGRAM DAY 01
## MONDAY

### JUNE 23, 2025

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|---|---|
| 08:00-08:30 | **Registrations** |
| 08:30-08:40 | **Inaugural Ceremony** |
| **Moderator:** | **Eric Strong,** *Board Certified Pediatric Neurologist, USA* |

**Sessions: Neurology | Neurosurgery | Neuroscience | Behavioral Neurology | Alzheimer's Disease and Dementia | Neurological Disorders | Sleep Disorders | Parkinson's Disease | Epilepsy | Addiction Medicine | ADHD | Addiction Psychiatry and Mental Health | Depression and Anxiety | Addiction Treatment**

### Distinguished Speaker Talks

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|---|---|
| **Session Chair:** | **Neal Horen,** *Georgetown University, USA* |
| **Session Chair:** | **Kirsten Callesen,** *Psychological Resource Centre, Denmark* |
| 08:40-09:00 | Title: HG204 CRISPR/Cas13 RNA-Editing Therapy for *MECP2* Duplication Syndrome: Preclinical and Early Clinical Findings |
| | **Alvin Luk,** *HuidaGene Therapeutics, USA* |
| 09:00-09:20 | Title: Infant and Early Childhood Mental Health (IECMH) and Early Childhood Intervention: Intentional Integration |
| | **Neal Horen,** *Georgetown University, USA*<br>**Kirsten Sippel-Klug,** *Self-Employed, Germany* |
| 09:20-09:40 | Title: Diagnosis and Management of Pediatric Migraine |
| | **Eric Strong,** *Board Certified Pediatric Neurologist, USA* |
| 09:40-10:00 | Title: Validity of the Systemizer Profile Questionnaire: A New Tool to Identify Cognitive, Mentalizing, Sensory, Social and Systemizing Abilities in Adults with Autism-Spectrum-Disorders with and without Comorbid ADHD |
| | **Kirsten Callesen,** *Psychological Resource Centre, Denmark* |
| 10:00-10:20 | Title: Clubhouse Partnerships with Clinical Services: Current Status and Barriers to Integration |
| | **Jeanie Tse,** *Fountain House, USA*<br>**John Delman,** *Fountain House, USA* |

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| **GROUP PHOTO 10:20-10:30** | |
| **REFRESHMENT BREAK 10:30-10:50** | |
| 10:50-11:10 | Title: Our Experience of Surgical Treatment of Ectropion in Patients with Facial Palsy and Paralysis |
| | **Marlen Sulamanidze,** *Aesthetic Plastic Surgery, Georgia* |
| 11:10-11:30 | Title: Imaging Findings of Vertebral Collapse: Is it Benign or Malignant? |
| | **Nuran Sabir,** *Pamukkale University Hospital, Turkey* |
| 11:30-11:50 | Title: Clinical Evaluation and Biomedical Research: The Janus-Faced Testability of Medicine as a Human Science |
| | **Marco Buzzoni,** *University of Macerata, Italy* |
| 11:50-12:10 | Title: Prayers Applied in Separation of Craniopagus Twins (Medical Innovation and Distress Elimination by Contemplation) |
| | **András Csókay,** *St.Lazareus Hospital, Hungary* |
| 12:10-12:30 | Title: A New Focus on Face Paralysis with Mini-Invasive Methods |
| | **Mariam Tsivtsivadze,** *Clinic Total Charm, Georgia* |
| 12:30-12:50 | Title: 20S Proteasome Activation *via* NMDAR Antagonists: A Promising Strategy against Neurodegenerative Diseases |
| | **Fikret Sahin,** *Ankara University School of Medicine, Turkey* |
| **GROUP PHOTO 12:50-13:00** | |
| **LUNCH BREAK 13:00-13:40** | |
| 13:40-14:00 | Title: From Subviral Pathogens to the Prion Concept for the Diagnosis and Therapy of Alzheimer and Parkinson |
| | **Detlev Riesner,** *Heinrich-Heine-Universität Düsseldorf, Germany* |
| 14:00-14:20 | Title: Cognitive and Neuroscientific Aspects of Maladaptive use of the Internet |
| | **Vittorio Buzzoni,** *Independent Researcher, Germany* |
| 14:20-14:40 | Title: The Impact of Corporal Punishment on Executive Functioning in African American Men: Implications for ADHD and Brain Health |
| | **Kahlil Green,** *University of the District of Columbia, USA* |
| 14:40-15:00 | Title: Uncontrolled Neural Stem Cell Division in Neurogenesis and Glioma Genesis |
| | **Fadel Tissir,** *Hamad Bin Khalifa University, College of Health and Life Sciences, Qatar* |

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| 15:00-15:20 | Title: Cognitive Aspects of Pragmatic Abilities in Diagnostics of Individuals with ADHD |
| | **Elena Even-Simkin,** *SCE Sami Shamoon College of Engineering, Israel* |
| 15:20-15:40 | Title: Safety and Preliminary Efficacy of SHED-CM in the Treatment of Amyotrophic Lateral Sclerosis (ALS) |
| | **Yasuhiro Seta,** *Hitonowa Medical Clinic, Japan* |
| 15:40-16:00 | Title: Pattern of Recurrence in Carcinoma Oral Cavity: Prospective Longitudinal Study |
| | **Ashok Kumar Singh,** *Kalyan Singh Super Speciality Cancer Institute & Hospital, India* |
| | REFRESHMENT BREAK 16:00-16:20 |
| 16:20-16:40 | Title: Vector Image Fusion-Based Alzheimer Disease Identification |
| | **Siddheshwari Dutt Mishra,** *Manav Rachna International Institute of Research and Studies, India* |
| 16:40-17:00 | Title: Intramuscular Nerve Tracing for Botulinum Toxin Applications |
| | **Melisa Gulcan,** *Ege University, Turkey* |
| 17:00-17:20 | Title: Terminal Myelocystocele |
| | **Abdullah A A Alsayedomar,** *University of Malta, Malta* |
| 17:20-17:40 | Title: Associations Between Academic Motivation, Academic Stress and Mobile Phone Addiction: Mediating Roles of Wisdom |
| | **Sahar Mohammadi,** *Bu-Ali Sina University, Iran* |
| 17:40-18:00 | Title: Neuro-Cognitive Insights on True Love and Relationships |
| | **Augustine Thomas Pamplany,** *Loyola College of Social Sciences, India* |
| 18:00-18:20 | Title: Biophoton Quantum Physical Medicine: A Breakthrough Approach for Chronic Stroke and Neurodegenerative Disorder |
| | **James Z. Liu,** *First Institute of All Medicines, USA* |
| 18:20-18:40 | Title: Pneumocephalus After Surgical Correction of Degenerative Scoliosis: A Case Report |
| | **Radwan Abu Romman,** *King Hussein Medical Center, Jordan* |
| | **NETWORKING** |
| | END OF DAY 1 |

## JUNE 24, 2025

| 08:30-08:40 | **Introduction** |
|---|---|
| **Moderator:** | **Mario Rosero-Pahi,** *Cognitive and Translational Neuroscience Lab, Universidad Autónoma de Bucaramanga, Colombia* |

**Sessions: Neurology | Neurosurgery | Neuroscience | Behavioral Neurology | Alzheimer's Disease and Dementia | Neurological Disorders | Sleep Disorders | Parkinson's Disease | Epilepsy | Addiction Medicine | ADHD | Addiction Psychiatry and Mental Health | Depression and Anxiety | Addiction Treatment**

**Distinguished Speaker Talks**

| **Session Chair:** | **James Z. Liu,** *First Institute of All Medicines, USA* |
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| **Session Chair:** | **Gabriela Salvador,** *INIBIBB-CONICET-Universidad Nacional del Sur (UNS), Argentina* |
| 08:40-09:00 | Title: Non-Invasive Biophoton Therapy Significantly Reduces Chronic Pain: A Novel Alternative to Opioid Dependence<br><br>**James Z. Liu,** *First Institute of All Medicines, USA* |
| 09:00-09:20 | Title: Ferroptosis in Midbrain: Cross-Talk with Lipid Metabolic Disturbances and Movement Impairment<br><br>**Gabriela Salvador,** *INIBIBB-CONICET-Universidad Nacional del Sur (UNS), Argentina* |
| 09:20-09:40 | Title: Predictive Coding: The Role Beta- and Gamma-Band Oscillatory Activity in Learning and Active Inference<br><br>**Mario Rosero-Pahi,** *Cognitive and Translational Neuroscience Lab, Universidad Autónoma de Bucaramanga, Colombia* |
| 09:40-10:00 | Title: Treatment of Panic Attack with Mastoid Acupuncture and Psychotherapy<br><br>**Naomie Cayemitte-Rückner,** *Ganzheitliche Schmerztherapie Hamburg, Germany* |

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| 10:00-10:20 | Title: Effects of a 12-Week Mixed-Method Physical Exercise Program on Physical Fitness, Stress, Anxiety and Quality of Life in Adolescents with Cerebral Palsy: A Case Series Study |
| | **Alexandrina Cavalcante Rodrigues Nitz,** *Sarah Network of Hospitals of Rehabilitation, Brazil* |
| | **Juliana Albuquerque da Rocha,** *Sarah Network of Hospitals of Rehabilitation, Brazil* |

**GROUP PHOTO 10:20-10:30**

**REFRESHMENT BREAK 10:30-10:50**

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| 10:50-11:10 | Title: Targeting the Prevention of Parkinson's Disease: The Role of *Ecklonia Cava* Polyphenols in Nrf2-ARE Pathway Activation |
| | **Akiko Kojima-Yuasa,** *Osaka Metropolitan University, Japan* |
| 11:10-11:30 | Title: The Microsurgical Infratentorial Supracerebellar Approach for Lesions of the Pineal Gland: Feasibility, Morbidity and Functional Outcomes from a Single-Center Experience |
| | **Niels Nordin,** *Sana Kliniken Duisburg, Academic Teaching Hospital of University Duisburg-Essen, Germany* |
| 11:30-11:50 | Title: The Impact of GABA Deficiency on the Ventral Tegmental Area |
| | **Erika Ortiz Stanton,** *The University of Queensland, Australia* |
| 11:50-12:10 | Title: Mobile-Friendly Solution for COVID-19 Detection from Computed Tomography Images |
| | **Kenan Morani,** *Izmir Democracy University, Turkey* |
| 12:10-12:35 | Title: Human Intelligence versus Artificial "Machine Intelligence" |
| | **E. W. Udo Küppers,** *Küppers-Systemdenken, Deutschland* |
| 12:35-12:55 | Title: Recognition of Mental Workload across Different Professional Fields Based on Physiological Signals |
| | **Rajesh Singla,** *Dr. B.R. Ambedkar NIT Jalandhar, India* |

**GROUP PHOTO 12:55-13:05**

**LUNCH BREAK 13:05-13:45**

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|---|---|
| 13:45-14:05 | Title: A Mobile Robot with an Autonomous and Custom-Designed Control System |
| | **Brwa Abdulrahman Abubaker,** *Bayan University, Iraq* |

| 14:05-14:25 | Title: Mental Health: Multi-Modal Personality Detection using MS-LSTM Prediction Framework |
| | **V. S. Bakkialakshmi,** *SRM Institute of Science and Technology, India* |
| 14:25-14:45 | Title: The Intersection of Dentistry and Neurology: BPPV Following Dental Surgeries |
| | **Mohammadamin Damsaz,** *iFACE Oral and Maxillofacial Surgery Academy, Turkey* |
| 14:45-15:05 | Title: Differentiation of Stroke Type by Supervised Classification |
| | **Zoila Esther Morales Tabares,** *Universidad Abierta Para Adultos, Dominican Republic* |
| 15:05-15:25 | Title: Sustained Therapeutic Effect of Spinal Cord Stimulation on Improving Severe Neurogenic Orthostatic Hypotension in a Patient with Pure Autonomic Failure Converting to Multiple System Atrophy |
| | **Zhirong Wan,** *Aerospace Center Hospital, China*<br>**Jing Zhao,** *Aerospace Center Hospital, China* |

## PANEL DISCUSSION

### END OF DAY 2

NEURO CONCLAVE 2025

ADV. AMMH 2025

DAY 01

JOINT EVENT

# NEUROLOGY AND NEUROLOGICAL DISORDERS

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# ADVANCES IN ADDICTION MEDICINE AND MENTAL HEALTH

BERLIN, GERMANY

JUNE 23-24, 2025

# SPEAKER TALKS

# HG204 CRISPR/Cas13 RNA-Editing Therapy for *MECP2* Duplication Syndrome: Preclinical and Early Clinical Findings

**Alvin Luk[2,3], Dong Yang[1], Yiqun Yuan[1], Xin Zhang[1], Hui Yang[1,4]** and **Linyu Shi[1]**

[1]HuidaGene Therapeutics Co. Ltd., China
[2]HuidaGene Therapeutics, USA
[3]Cholgene Therapeutics, USA
[4]Shanghai Institute of Materia Medica, Chinese Academy of Sciences, China

**Objective:** *MECP2* duplication syndrome (MDS) is a fatal neurodevelopment disorder characterized by intellectual disability, seizures, and motor dysfunction due to excessive *MECP2* expression. Current treatments provide only symptomatic relief. HG204, a CRISPR/Cas13 RNA-editing therapy, was developed to selectively reduce *MECP2* mRNA levels, mitigating disease phenotypes. Preclinical studies in *MECP2* transgenic mice demonstrated long-term safety, reduced MeCP2 protein levels, disease reversal, and lifespan extension. This study evaluates HG202's preclinical safety and efficacy in wild-type (WT) non-human primates (NHPs) and presents early clinical findings from the first-in-human H.E.R.O. trial (NCT06615206) in MDS patients.

**Scope:** We assessed HG204'a therapeutic potential in NHPs and initiated clinical evaluation in MDS patients. The study focuses on RNA-editing efficiency, protein reduction, safety assessments, and early clinical observations.

**Methods:** In adult WT NHPs, intracerebroventricular (ICV) administration of HG204 was evaluated for *MECP2* mRNA reduction, MeCP2 and GDF11 protein levels (CSF), and long-term safety through MRI, histopathology, and immunological markers. The H.E.R.O. trial enrolls six MDS boys (2-18 years) with stable seizure patterns to assess safety, tolerability, and adaptive/motor function over 52 weeks post-treatment.

**Results:** In preclinical studies, HG204 efficiently reduced *MECP2* mRNA and protein in NHP brains at low and high doses, with sustained effects up to 26 weeks. MRI scans confirmed no brain injury. Safety evaluations showed no major histopathological or systemic toxicities.

In the clinical trial, the first MDS patient treated with HG204 exhibited favorable safety and tolerability, with no liver enzyme evaluations, thrombotic microangiopathy, or MRI abnormalities. Early adaptive behavior improvements were observed in the low-dose cohort.

**Conclusion:** Pre-clinical and early clinical findings support HG204 as a safe and promising CRISPR/Cas13 RNA-editing therapy for MDS. Its orphan drug designations by the U.S. FDA and EMA highlight its potential as a transformative treatment for this fatal disorder.

### Biography

Dr. Alvin Luk, the co-founder and CEO at HuidaGene, is a seasoned professional with 32+ years of global drug development experience, specializing in rare diseases and gene therapy. His career spans Shanghai-Henlius/Fosun-Pharma, Spark Therapeutics (*acquired by Roche*), Biogen (*Hemophilia Business-Unit acquired by Sanofi*), Bayer, Avigen (*acquired by Sanofi Genzyme*), and Tularik (*acquired by Amgen*). As Chief Medical Officer at Henlius, he led 5 biologics to approval in China, U.S., and Europe. He co-led LUXTURNA (first FDA-approved gene therapy) and BEQVEZ (*co-developed with Pfizer*) at Spark Therapeutics. A former U.S. FDA Rare Disease Clinical Design Committee member (2006-2009), Alvin has contributed to 22 approved drugs and 250+ global regulatory submissions. He has 100+ publications in the *New England Journal of Medicine, Nature Medicine, Cell,* and *Science*. Dr. Luk holds an MBA from Harvard, a Ph.D. in Neuroscience, and a clinical research certification from the University of California San Francisco Medical School.

# Infant and Early Childhood Mental Health (IECMH) and Early Childhood Intervention: Intentional Integration

**Neal Horen[1], Kirsten Sippel-Klug[2], Julia Sayles[1], Kelli McDermott[1], Jennifer Drake-Croft[1]** and **Toby Long[1]**

[1]Thrive Center for Children, Families and Communities, Georgetown University, USA
[2]Self-employed, Germany

Infant and Early Childhood Mental Health (IECMH) is a multidisciplinary field of inquiry, practice and policy concerned with enhancing the social-emotional competence of infants and young children. Early Childhood Intervention (ECI) is a system of services that supports infants and toddlers with disabilities and their families. ECI providers promote a child's development in all domains, including social-emotional. The purpose of this paper is to describe how two systems, Early Childhood Intervention and Infant Early Childhood Mental Health, collaborate when serving children who have developmental delays or disabilities and their families and other caregivers. We will discuss two models used to promote social-emotional development, the Pyramid Model and IECMH Consultation, and provide three examples that demonstrate how ECI and IECMH intersect at both the family, classroom, and system levels.

## Biography

**Neal Horen**

Dr. Neal Horen is a clinical psychologist who has focused on early childhood mental health for the last twenty years. He is Director of the Early Childhood Division for the Georgetown University Center for Child and Human. Dr. Horen has worked closely with all 50 states, numerous tribes, territories and communities in supporting their development of systems of care for young children and their families. He co-leads work on developing early childhood systems in the Middle East and is currently leading a scan of early childhood mental health across Latin America and the Caribbean. He is the co-Director of the Head Start National Center on Health, Behavioral Health and Safety, Director of the Center of Excellence for Infant and Early Childhood Mental Health Consultation, the Infant Early Childhood Mental Health TA Center, co-Director of the National Training and Technical Assistance Center for Children's Mental Health and Georgetown lead for the MIECHV TA Center, the

HRSA Evidence to Impact Center, and the Early Childhood Comprehensive Systems TA Center. In that capacity he has delivered hundreds of trainings across the country and has co-led development of nationally recognized materials. He leads Georgetown's Early Childhood Mental Health Certificate programs and has helped to developed innumerable materials related to infant and early childhood mental health including books, training guides, evaluation guides, policy documents, and monographs. In addition, Dr. Horen's primary interest is in early childhood mental health and he has lectured extensively on infant and early childhood mental health, challenging behaviors in young children, social skills development, as well as the impact of substance use disorders and trauma on child development.

**Kirsten Sippel-Klug**

Kirsten Sippel-Klug is an early intervention physical therapist. For over 30 years, she has been partnering with caregivers to facilitate their children's development so that every child can live a life filled with love, friendship, and academic success. Kirsten is certified in Early Intervention, Infant and Early Childhood Mental Health, Circle of Security, Facilitating Attuned Interactions (FAN) Level I & II, and Newborn Behavioral Observations. She is a member of the American Physical Therapy Association, the Infant Mental Health Alliance of Maryland and DC and the Massachusetts Alliance of Infant Mental Health. She holds a BS in physical therapy from Simmons University, an MPP from Georgetown University and two certificates in Infant and Early Childhood Mental Health from University of Massachusetts and Georgetown University.

# Diagnosis and Management of Pediatric Migraine

## Eric Strong

Board Certified Pediatric Neurologist, Associate Program Director, Child Neurology Residency
Clinical Assistant Professor, Geisinger Commonwealth School of Medicine, USA

Migraine is a major cause of disability worldwide, including within the pediatric population. Its prevalence increases throughout childhood and in particular during adolescence, peaking at approximately 5 percent by age 10. This presentation aims to provide an overview of the complex pathophysiology of this disorder. as well as provide an evidence-based framework by which to diagnose and treat pediatric migraine patients.

## Biography

Dr. Eric Strong, MD specializes in pediatric neurologic disorders. He has specific clinical interests in treating headache, as well neurodevelopmental conditions. His is the associate program director for Geisinger Health System's Child Neurology residency program. He has also overseen the creation and optimization of his health system's Pediatric Headache program which offers state of the art treatments including CGRP inhibitors, Botox injections and nerve blocks to treat headache. Dr. Strong has contributed to journal articles and book chapters, and has given many presentations in his role as a medical educator. Dr. Strong grew up in Maryland but was born in Washington D.C., where he completed his Neurology fellowship at Children's National Medical Center. In his spare time, he enjoys spending time with his wife and three children.

# Validity of the Systemizer Profile Questionnaire: A New Tool to Identify Cognitive, Mentalizing, Sensory, Social and Systemizing Abilities in Adults with Autism-Spectrum-Disorders with and without Comorbid ADHD

**Kirsten Callesen[2], Klaus D. Jakobsen[1], Ejnar B. Larsen[3], Ole B. V. Pedersen[4,5], Maria Didriksen[6,7], Sisse R. Ostrowski[6,7]** and **Karl B. Christensen[8]**

[1]Institute of Biological Psychiatry, Mental Health Centre St. Hans, Mental Health Services of the Capital Region of Copenhagen, Denmark
[2]Psychological Resource Centre, Denmark
[3]Psychiatric Private Practice, Denmark
[4]Department of Clinical Immunology, Zealand University Hospital, Denmark
[5]Department of Clinical Medicine, Faculty of Health and Medical Sciences, University of Copenhagen, Denmark
[6]Department of Clinical Immunology, Rigshospitalet, University of Copenhagen, Denmark
[7]Department of Neuroscience, Faculty of Health and Medical Sciences, University of Copenhagen, Denmark
[8]Section of Biostatistics, Department of Public Health, University of Copenhagen, Denmark

The aim of the Systemizer Profile Questionnaire (SPQ) was to create a single questionnaire addressing all Simon Baron-Cohen's checklists AQ, EQ and SQ sensitive autism items and to address the sensory vulnerability of ASD, using items from Sensory Scales of Dunn and Aron. The SPQ investigates difficulties in mentalization, sensory- and/or social sensitivity and social cognition (MSSSC) in subjects with Autism-Spectrum-Disorders (ASD) with and without Attention-Deficit-Hyperactivity-Disorder (ADHD). The aim of this study was to evaluate the reliability and validity of the four SPQ domains, and to assess the predictive validity of the SPQ against the Ritvo Autism Asperger Diagnostic Scale (RAADS).

**Methods:** Three-hundred-fifty-four study subjects with ICD-10 verified ASD confirmed by RAADS and 354 controls matched on age group and gender were recruited and evaluated systematically with SPQ, standardized questions about demographic and clinical data. Hypothesized SPQ subscales formed from 85 items were evaluated using confirmatory factor analysis (CFA). Resulting revised sub-scales were confirmed using item response

theory (IRT) and the predictive validity of the SPQ scores was evaluated using RAADS scores above 64 as the standard.

**Results:** Twenty-two of the original 85 items were removed, resulting in an instrument with 63 items across nine psycho¬metrically valid domains. These domains had high sensitivity (range: 0.64 to 0.84), and high specificity (range: 0.73 to 0.90). Positive predictive values (range: 0.76 to 0.89) and negative predictive values (range: 0.69 to 0.90) were also high. For the total SPQ score the sensitivity was 0.95, the specificity was 0.87, the positive predictive value was 0.88 and the negative predictive value was 0.95.

**Conclusion:** SPQ domains are valid descriptions/profiles of MSSSC given that ASD is confirmed by RAADS.

## Biography

Kirsten Callesen is a highly respected clinical psychologist with expertise in autism, ADHD, and neurodivergence. She holds degrees from Liberty University, Virginia, and the Danish School of Education (DPU).

As the founder of the **Psychological Resource Centre**, Kirsten has pioneered innovative approaches to understanding and supporting neurodivergent individuals. Her work with Systemizer Profile Questionnaire (SPQ) has been instrumental in improving the identification of autistic profiles in adults within clinical psychiatric practices, advancing diagnostic accuracy and understanding.

In 2023, Kirsten received the Autism Prize in Denmark for her significant contributions to the field. With expertise spanning diagnostics, education, and advocacy, Kirsten is a sought-after speaker and educator. Her work continues to transform clinical practices, championing a more inclusive and equitable society for neurodivergent individuals, paving the way for a future where every individual's potential is recognized, valued, and celebrated.

# Clubhouse Partnerships with Clinical Services: Current Status and Barriers to Integration

**Jeanie Tse[1,2], John Delman[1], Kevin Rice[1], Christopher D. Landry[1,3], Mackenzie Jenuwine[4], Kinga Jedrzejczak[1], Lori D'Angelo[5], Daniel Skaggs[1], Craig Bayer[1], Gytis Simaitis[1], Kali Rickertsen[4], Elizabeth Ballard[1] and Francesca Pernice[4]**

[1]Fountain House, USA
[2]Department of Psychiatry, NYU Grossman School of Medicine, USA
[3]Columbia University Medical Center, New York State Psychiatric Institute, Division of Behavioral Health Services and Policy Research, USA
[4]Department of Psychology, Wayne State University, USA
[5]Magnolia Clubhouse, USA

**Background/ Objectives:** The Clubhouse model of psychosocial rehabilitation has supported the recovery of people with serious mental illness for over 75 years, but many of the roughly 350 Clubhouses are not well-integrated into the larger health care system, limiting their reach. Meanwhile, the social drivers of health outcomes, including housing, food access and community relationships, have long been the focus of Clubhouses, but are only recently being recognized as targets of health system changes. This article examines Clubhouses' and psychiatric providers' attitudes and experiences to understand the status of and barriers to partnerships between Clubhouses and providers.

**Methods:** The directors of all Clubhouses affiliated with Clubhouse International were outreached with a survey to examine their attitudes and practices around collaboration with psychiatric providers. To provide context, a convenience sample of psychiatric providers was also surveyed regarding their understanding of and experiences with Clubhouses. Descriptive and comparative statistics were used to analyze quantitative data, while qualitative data underwent consensus coding and thematic analysis.

**Results:** Findings reveal broad support among both Clubhouse directors and psychiatrists for enhancing partnerships, despite current barriers, limited interactions, and the need for greater mutual understanding. Key considerations that emerged include the importance of

maintaining the Clubhouse model's distinct non-clinical, community-based, and member-directed identity in any integration efforts. Clubhouses under auspice health care agencies expressed more reservations about closer clinical partnerships compared to freestanding Clubhouses. Barriers for psychiatric providers in working with Clubhouse programs include geographic accessibility and gaps in understanding of the Clubhouse model.

**Conclusions:** The potential for Clubhouses to partner more closely with psychiatrists and other healthcare providers to support the full recovery of people with SMI remains largely untapped. Further research is needed to develop and test successful models for integrating Clubhouses with clinical services in ways that preserve the model's core values, effectiveness, and align with each Clubhouse community's interests.

## Biography

**Jeanie Tse**

Jeanie Tse, MD, is the Senior Medical Director at Fountain House and an Associate Professor of Psychiatry at the NYU School of Medicine. She brings to Fountain House her expertise in integrated health care for people with serious mental illnesses, developed in the course of her work as the former Chief Medical Officer at the Institute for Community Living. She has a special interest in disrupting the impact of trauma on health outcomes, with an overarching aim to bridge the gap between academic psychiatry and the clinical challenges of under-resourced communities.

**John Delman**

John Delman has been a member of Fountain House for fifty years, and was on the staff for thirty-five years. As a member he engaged in all aspects of the recovery process, and as a staff worker he undertook responsibilities in areas of education, housing, and training and evaluation. He is currently part of the Partners in Care team, doing reach out to the psychiatric community.has been a member of Fountain House for fifty years, and was on the staff for thirty-five years. As a member he engaged in all aspects of the recovery process, and as a staff worker he undertook responsibilities in areas of education, housing, and training and evaluation. He is currently part of the Partners in Care team, doing reach out to the psychiatric community.

# Our Experience of Surgical Treatment of Ectropion in Patients with Facial Palsy and Paralysis

**Marlen Sulamanidze** and **Mariam Tsivtsivadze**

Aesthetic Plastic Surgery, Georgia

In some diseases of the periorbital region, there are manifestations of retraction of the edge of the lower eyelid, its separation from the eyeball, hypotension, lagophthalmos and ectropion. Such deformities are most often treated by patients who have undergone paresis or paralysis of the facial nerve, trauma, or unsuccessful lower blepharoplasty.

In this case, operations such as reconstruction, canthopexy and canthoplasty, shortening of the length of the lower eyelid margin, cartilage, or tendon transplantation, as well as lifting the margin of the eyelid with plastic spacers or spacers from autologous tissues are usually used. We have developed bridge-like spacers which is made from polypropylene thread. This spacer is used for the lower eyelids of various designs, which allow performing lateral and medial canthopexy, strengthening of the lower eyelid margin, lifting and support of the lower eyelid margin throughout.

Bridge-like spacers are used for such pathologies of the lower eyelids as ectropion, sunken eyelids, their retraction, "round eye" syndrome... The proposed methods for using spacers are quite effective: the edge of the lower eyelid is strengthened, cranially lifted to the required level, its sagging and scleral clearance. 16 years of experience with the use of bridge thread spacers has shown that this technique is quite effective in obtaining good aesthetic and therapeutic results. In some cases, it may well replace the classical methods.

## Biography

Dr. Marlen Sulamanidze is a Georgian plastic, reconstructive, and aesthetic surgeon born in 1947. He graduated from the Medical University in Irkutsk in 1972 and initially specialized in maxillofacial surgery from 1974 to 1984. Later, he transitioned to plastic and aesthetic surgery, practicing in Georgia and, from 1993, in Moscow. Dr. Sulamanidze is renowned for developing the Aptos Threads technique, a minimally invasive method for facial rejuvenation. Throughout his career, he has performed over 20,000 surgical operations, including more than 7,000 procedures utilizing Aptos methods. He holds 16 patents in plastic surgery and has published over 70 scientific works. Currently, he practices at the Total Charm Clinic in Tbilisi, Georgia.

# Imaging Findings of Vertebral Collapse: Is it Benign or Malignant?

## Nuran Sabir

Department of Radiology, Pamukkale University Hospital, Turkey

Vertebral collapse (VC) is a frequently encountered entity in clinical practice. It is mostly associated with increased morbidity and mortality and so, has a significant impact on patient's life quality and expectancy. Vertebral collapse can have a variety of etiologies, including trauma, osteoporosis, or neoplastic infiltration. Osteoporotic VC have a prevalence among all postmenopausal women and occur less frequently in similarly aged men.

Trauma is the most common etiology in young age patients. However, many cancers, as breast, prostate, thyroid, and lung, have a propensity to metastasize to bone and specifically to the spine, which can lead to malignant vertebral collapse. In addition, primary tumors of bone and lymphoproliferative diseases such as lymphoma and multiple myeloma can be the cause of malignant vertebral collapse. Differentiating benign and malignant VCFs can present a diagnostic dilemma, particularly in the elderly, with considerable management and prognostic implications. Diagnosing of acute, benign traumatic types is usually not complicated however, difficulties arise in determining the etiology of VC when there is no history of significant trauma, especially in older populations. Understanding the findings of the imaging of VC can help in the accurate diagnosis and in differentiation between benign and malignant causes. The multimodality imaging features and common pitfalls will be discussed.

## Biography

Dr. Sabir, is a member of European Society of Radiology (ESR), European Society of Musculoskeletal Radiology (ESSR), International skeletal Society (ISS), Turkish Society of Radiology and Turkish Society of Magnetic Resonance (TSMR). In ESSR, also is a member of both tumor and metabolism subcommittees.

She is the author of 49 scientific papers published in peer-reviewed journals and more than 100 presentations at international and Turkish congresses. Her scientific papers have more than 1300 citations. Dr. Sabir has invited many times as a lecturer to many international conferences like ESSR; ISS and Balkan congress of radiology (BCR) and too many different national conferences and meetings. In June, 2018, she presented (The Development of the MSK Radiology in Turkey) in the national MSK Societies meeting held in ESSR congress in Amsterdam. She is a reviewer in may journals like European radiology, European spine Journal (ESJO), diagnostic and interventional radiology (DIR) and Eurorad.

# Clinical Evaluation and Biomedical Research: The Janus-Faced Testability of Medicine as a Human Science

## Marco Buzzoni

Department of Humanistic Studies, University of Macerata, Italy

Karl Jaspers already fully understood, as early as 1919, the importance of reconciling the two "souls" of medicine (Jaspers, 1919: 59), i.e., the analytical-reductionist and the holistic-normative, the scientific-technological and the clinical. This demand is as (or more) urgent today as it was in Jaspers's time and in the literature of the last decades about the status of medicine a new awareness has grown that an adequate notion of medical praxis requires an integrative position, which combines the analytic-reductionist with the normative and holistic perspective on medicine. While accepting in its generality Jasper's thesis of the necessary integration of analytic-naturalistic and phenomenological-existential point of view to understand medicine, we will try to justify the need for such an integration not by albeit important ethical-existential reasons, but by epistemological and methodological reasons, intrinsically related to the specific status of medicine as a human science. The peculiarity of the "laws" of medicine as a human science demands a synergistic, reciprocal and continuous interaction of clinical and extraclinical testing. The resulting spiral movement is one of the most general epistemological and methodological conditions for the possibility of realizing, at least in part and in an ongoing process, an ideal of medicine in which objective, biomedical and extraclinical knowledge, on the one hand, and the personal and clinical knowledge, on the other, can work together to reliably counter disease and illness or, which is the same, to reliably promote the goal of health in its two main meanings of the term, the analytic-naturalistic and the phenomenological-existential, ideally opposed but always intimately intertwined in real personal life.

## Biography

Marco Buzzoni was born in Italy (Genoa-Bargagli) on the 9rd of October 1956. From 2001 he is full professor of Philosophy of Science in the Department of Humanistic Studies at the University of Macerata. He was Alexander von Humboldt-Fellowship at the Universities of Würzburg, Marburg, Duisburg-Essen and Berlin (TU), Ordinary member and assessor of the Académie Internationale de Philosophie des Sciences (Bruxelles), President of the Institut International de Philosophie (Paris/Nancy), and co-editor of "Epistemology", special issue published annually by the journal Global Philosophy. Fields of research: Popper's and Kuhn's philosophy of science, science and technology, epistemology and methodology of human sciences (especially psychoanalysis and medicine), philosophy of biology and thought experiments.

# Prayers Applied in Separation of Craniopagus Twins (Medical Innovation and Distress Elimination by Contemplation)

**András Csókay**

St.Lazareus Hospital, Hungary

**Purpose:** Challenging cases in neurosurgery require experience, which is gained by operating on a number of similarly difficult cases. However, even in large population centers, there are extremely rare cases, such as craniopagus twins. In these instances, other case-specific solutions are required which were improved in the course of fresh cadaver practice on daily base.

**Methods:** During a 20-month preparation period by fresh cadavers the surgical strategy was developed step by step, comprising five neurosurgical ideas, facilitated by deep Jesus prayers as a spiritual source.

**Results:** During surgery, these nuances proved to be useful, which is also reflected by the postoperative clinical results. One of the twins advanced to a GOS score of 5 three months after the surgery. The other twin, despite nonsurgical septic complications, continued to progress well, but on postoperative day 33 for seemingly unknown reasons, she suffered a severe cerebral hemorrhage, which significantly delayed her rehabilitation.

**Conclusions:** The Jesus Prayer written in the title was the greatest help and spiritual strength during our preparation (300 autopsy exercises) and during the 24 hours of surgery. It was a real experience that the scientific ideas were born during Jesus prayers and also the serious professional decisions during surgery. This was the truth, and it is precisely in science that we must not deny the facts, because science, including psychology, is also searching for the truth, for the movements of the soul and its role in intellectual, even scientific, decisions.

**Before operation**          **After operation**

## Biography

András Csókay has completed his PhD at the age of 48 years from Semmelweis University, Hungary. He was the head of neurosurgical departments in Hungary. He has innovations that have been cited over 250 times in the field of neurosurgery.

# A New Focus on Face Paralysis with Mini-Invasive Methods

**Mariam Tsivtsivadze** and **Marlen Sulamanidze**

Clinic Total Charm, Georgia

**Introduction:** Facial synkinesis is a devastating consequence of facial nerve palsy associated with significant disabilities and social stigmatism. Challenges associated with this condition can vary from difficulty with social integration to emotional state of the patients. Facial paralysis is a distressing condition, both aesthetically and functionally, for those afflicted. Patients may suffer from: Facial asymmetry, Impaired emotional expression, Drooling, Speech impediments, Difficulty eating, and incomplete eye closure. Such disabilities present challenges for integration into a society and can negatively affect a patient's self-worth, emotional state and possibly even an employment capacity/opportunity. There are currently several surgical methods for the management of a drooping face after facial paralysis, although these procedures are considered to be potentially aggressive and hence, not recommended for some patients. For example, among the older patients, a complication of drooping face is commonly observed, after the facial paralysis, due to lose superficial muscular aponeurotic system (SMAS) layers in the face. Such patients may not be eligible for aggressive surgery for facial rejuvenation as their condition is not fatal. Moreover, patients may not wish for any more invasive therapy based on previous experiences. Often some surgical procedures are not successful which in turn leads to more expenses for a patient, the unwillingness to further seek ways to resolve the issue after trying so many procedures or even complete loss of hope for the improvement of their condition.

**Material and methods:** Fortunately, the number of minimal invasive aesthetic procedures has grown significantly over the past two decades. Among these procedures thread lifting methods and botulinum toxin injection has more possibility to achieve simultaneous symmetrical balance between healthy and paralytics side and lifting effects and give a chance to patients look young and beautiful, A lifting procedure using thread has been widely used for several years to correct drooping face or an excessively wrinkled face due to

the natural aging process. Moreover, this method has also been used for cosmetic purposes to elevate or eliminate sagging skin and furrows. Furthermore, in some cases, it has been used cosmetically to produce a slender and slimmer face, especially in women. Unlike disease-free facial musculature, wherein the thread would break down over time due to muscle movement, a paralyzed face or weakened face has the advantage of maintenance of facial elevation for a longer period due to the limited muscle movement possible after thread lifting. We propose the use of thread lifting on the involved side to elevate facial skin/musculature as well as botulinum toxin injection on the contralateral side to reduce muscle volume as an alternative therapy for facial rejuvenation with a minimally invasive technique.

**Results:** Following the threading procedure, all patients displayed improved facial symmetry. The patients were able to improve their facial expressions using actions involving their mouth. The results may vary according to the severity of facial paralysis and development of facial musculature. Patients were reportedly satisfied with their elevated facial changes following the procedure. The recent introduction of absorbable barbed sutures to achieve a lifting action to resolve the aged appearance has been shown to be a viable alternative to more invasive procedures.

**Conclusion:** It appears that absorbable barb thread, in conjunction with botulinum toxin A to optimize facial rejuvenation of the contralateral side, constitutes an efficient and safe procedure for face lifting and rejuvenation of a drooping face as a result of long-lasting facial paralysis. We highly recommend this procedure for patients who do not wish to undergo any further invasive treatment after a major surgery due to the fear of additional surgery based on previous experiences, and also for middle-aged women who would like to elevate or eliminate the sagging skin and furrows to yield a slender and slimmer face regardless of whether facial paralysis was the cause.

## Biography

Dr. Mariam Tsivtsivadze, MD is a plastic surgeon with a specialized focus on facial surgery, particularly periorbital rejuvenation. Based in Georgia, she co-founded the Georgian Women Surgeons Association, contributing to the advancement of women in the surgical field. Dr. Tsivtsivadze is a certified general surgeon and serves as an invited lecturer in regional anatomy at Caucasian International University (CIU), where she educates future medical professionals.

She plays a significant role as a scientific supervisor in cadaveric studies at Total Charm School Georgia. Dr. Tsivtsivadze is known for her expertise in the scientific and medical aspects of aesthetic surgery, particularly in her advisory role with Aptos Thread Company. With 8 years of experience in thread lifting methods and regenerative medicine, she is actively involved in scientific research and publications.

Since 2019, Dr. Tsivtsivadze has been leading training courses around the world, educating doctors in aesthetic plastic surgery and minimally invasive treatments. She is a member of several prestigious plastic surgery associations, including the International Society of Aesthetic Plastic Surgery (ISAPS). For the past three years, she has also led the ISAPS symposium in Georgia.

Dr. Tsivtsivadze is one of the organizers of the plastic surgery sessions at the Kolkhida Congress, a leading event that draws professionals from around the world to discuss advancements in plastic surgery. Her influence extends globally as a frequent speaker at international congresses, where she shares her knowledge on the latest developments in aesthetic and reconstructive surgery.

# 20S Proteasome Activation *via* NMDAR Antagonists: A Promising Strategy Against Neurodegenerative Diseases

**Fikret Sahin[1], Aslihan Gunel[2], Buse Turegun Atasoy[1], Ulku Guler[3], Bekir Salih[3], Isınsu Kuzu[4], Mehmet Taspinar[5], Ozgur Cinar[6]** and **Selda Kahveci[7]**

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[5]Department of Medical Biology, Aksaray University School of Medicine, Turkey
[6]Department of Histology and Embryology, Ankara University School of Medicine, Turkey
[7]Yozgat Bozok Üniversitesi Tıp Fakültesi Histoloji ve Embriyoloji AD, Turkey

Neurodegenerative diseases are marked by a variety of complex causes, with deficiencies in the proteasome systems emerging as a significant contributing factor to their onset. Proteasome function declines with age, leading to the accumulation of oxidized and misfolded proteins, which are implicated in these diseases. Modulating proteolytic activity to regulate intracellular protein levels shows promise for treating age-related diseases, particularly neurodegeneration. The 20S proteasome is responsible for degrading approximately 90% of all intracellular oxidation-damaged proteins, as well as misfolded and intrinsically disordered region containing proteins, partly due to its greater resistance to oxidative stress compared to the 26S proteasome system. This has generated interest in enhancing the 20S proteasome's activity as a therapeutic strategy for neurodegenerative disorders.

NMDAR antagonists, such as memantine, have been used for decades to effectively treat protein misfolding disorders like Alzheimer's, vascular dementia, and Parkinson's disease, though their mechanisms have remained unclear. Recently, we demonstrated that NMDAR antagonists can enhance proteasome activity *via* ubiquitin/ATP-independent pathways directly through the 20S proteasome.

Our study demonstrates that ketamine administration significantly alters synaptic protein profiles in mouse brains, leading to the downregulation of 372 known synaptic proteins. Changes in synaptic structure and synapse-associated proteins are linked to various brain diseases. Our proteomic analysis of these proteins revealed that ketamine markedly modifies the synaptic protein profile, predominantly affecting factors associated with neurodegenerative diseases, including Alzheimer's and Parkinson's diseases.

Considering our findings that single dose of NMDAR antagonist increases proteasome activity for only 6-8 hours, alongside the current use of memantine at a dosage of 1x20mg or 2x10, and the fact that the 20S proteasome primarily exists in a latent form in aged individuals and is affected by the accumulation of misfolded proteins, there is potential to explore new therapeutic uses for these drugs.

## Biography

Fikret Sahin is a medical doctor and scientist with a medical degree from Istanbul, Turkey, and a PhD in Immunology from Rosalind Franklin University of Health Sciences, USA. He spent three years as a postdoctoral scientist at Johns Hopkins Sol Goldman Center for Pancreatic Cancer Research. Despite a professorship offer from the same department at Johns Hopkins, he returned to the Department of Microbiology, Ankara University, where he had been previously affiliated. Although all his scientific training focused on cancer biology, for over a decade, his research has centered on understanding the dramatic effects and consequences of NMDA antagonists on cellular proteins. His findings related to NMDAR antagonists have since redirected his focus toward aging-related diseases. He has submitted over 15 patent applications, and parts of his findings on NMDAR antagonists have been published recently.

# From Subviral Pathogens to the Prion Concept for the Diagnosis and Therapy of Alzheimer and Parkinson

**Detlev Riesner, Alexandra Dybala, Oliver Bannach** and **Erdem Tamgyney**

Institute of Physical Biology, Heinrich-Heine-Universität Düsseldorf, Germany

A subvital pathogen was discovered first in plants by T.Diener; it consists of about 350 ribonucleotides and was named as Viroid. It served for some time also as model for small non-detected pathogens in mammals like the Scrapie disease in sheep and Creutzfeldt-Jakob disease in humans. However, S.Prusiner showed that the agents of those diseases were proteinaceous particles, named Prions. Prions consist of the host-encoded PrionProtein PrP which can exist in a cellular, non-pathological isoform PrPc and a pathological, infectious isoform PrPSc (from Scrapie). PrpSc is highly aggregated. PrPSc can induce in contact with PrPc the transformation to PrPSc thereby amplifying like an infection the pathological PrPSc. A similar mechanism underlies the extension of pathological protein aggregates in other diseases, Aß-peptides in Alzheimer, alpha-synuclein in Parkinson and others. The concept of induced misfolding and aggregation can be applied for therapy as well for diagnosis. The transformation into the pathological aggregated isoform can be blocked by well adapted small molecules. For diagnosis the pathological isoforms serve as seeds for further aggregation of synthetic, fluoresce-labelled monomers thereby raising the sensitivity of detection. For Parkinson, a sensitive test could be developed, i.e. very low concentration of seeds and high concentration of labelled monomers. For AD, however, the high tendency of self-aggregation of Aß-peptides so far has prevented detection of very low concentration of seeds.

## Biography

University Professor Emeritus Dr. Dr. h.c. Detlev Riesner, born 1941.
Studied Physics and Biophysics at Hannover Inst. of Technology. Ph.D. with Prof. Manfred Eigen, Max Planck Inst. Göttingen. Postdoc. at Princeton University. Two times Sabbatical at UCSF with Prof. Stanley Prusiner. Associate Professor at Darmstadt Inst. of Technology. Chair of Biophysics and Director of the Inst. of Physical Biology at Heinrich-Heine-Universität Düsseldorf. Advisory board of several scientific institutes in Germany, Tschechia, and Canada. Founder and Co-founder of several Biotec-companies with Qiagen as best-known company.

# Cognitive and Neuroscientific Aspects of Maladaptive use of the Internet

## Vittorio Buzzoni

Independent Researcher, Germany

The Internet has spread very rapidly and has become an indispensable tool of contemporary society. In parallel with its diffusion, the maladaptive use of the Internet has naturally increased, and this article aims to examine some aspects of it in depth: the contributions of cognitive psychology (especially the development of Davis's model), those of neuroscientific investigations, the main therapeutic approaches (especially cognitive-behavioural therapy) and their results. The studies of recent years have led to a certain consensus in the literature, especially in favour of cognitive-behavioural models and therapy, but the agreement on the general definition of the phenomenon is not yet completely satisfactory, which reflects both on the theoretical validation of the models and on the evaluation of therapeutic efficacy. To this end, a multidisciplinary approach to maladaptive Internet use remains desirable.

## Biography

Vittorio Buzzoni was born in Genoa, Italy, in the year 2000. He got his bachelor degree in 2021, by writing an article about the maladaptive use of Internet (internet addiction). Later he published an article on the same topic, in the June 2022 issue of the journal "Nuova Secondaria". After that, he continued his studies in Berlin, being a student in the master's degree programme "Human Factors".

# The Impact of Corporal Punishment on Executive Functioning in African American Men: Implications for ADHD and Brain Health

**Kahlil Green**

University of the District of Columbia, USA
Morgan State University, USA

Corporal punishment is a prevalent form of discipline in the United States, particularly among African American families, where cultural norms and historical factors often support its use. However, repeated exposure to corporal punishment is linked to a range of long-term psychological and neurological consequences. This presentation investigates how corporal punishment may affect executive functioning in African American men, focusing on the development of cognitive processes such as attention, problem-solving, planning, emotional regulation, and working memory. These skills are critical for academic and career success, as well as mental and physical health. Chronic corporal punishment has been hypothesized to disrupt the development of these executive functions, contributing to conditions such as Attention Deficit Hyperactivity Disorder (ADHD), brain damage, and even degenerative brain diseases. This presentation uses a literature review and theoretical analysis to examine how physical and psychological stress from corporal punishment may interfere with cognitive and emotional regulation. Further, it explores the compounded challenges faced by African American men, including racial disparities in health, education, and mental health. By understanding the neurological and cognitive effects of corporal punishment, this research emphasizes the importance of developing targeted interventions within social work, psychology, and public health to address these issues and encourage healthier, non-violent disciplinary practices.

## Biography

Originally from Dallas, Texas, Kahlil Green earned his Bachelor of Science in Psychology in 2012 and his Master of Social Work from Howard University in 2017. He is currently pursuing his doctorate at Morgan State University's School of Social Work, where his research focuses on the long-term effects of corporal punishment on African American men. Recently, Kahlil expanded his research to explore how corporal punishment impacts executive functioning in this population. Professionally, Kahlil serves as a Professor in the Social Work Department at the University of the District of Columbia and works as a Licensed Therapist in the DMV area, specializing in the mental health and well-being of Black youth and men.

# Uncontrolled Neural Stem Cell Division in Neurogenesis and Glioma Genesis

**Fadel Tissir**

College of Health and Life Sciences, Hamad Bin Khalifa University, Qatar
University of Louvain, Institute of Neuroscience, Belgium

Neurogenesis and brain tumorigenesis share signaling molecules that regulate cell proliferation, differentiation, migration, and survival. Self-renewal of neural stem cells (NSCs) and their differentiation are tightly regulated processes that secure accuracy of cell division accuracy and production of correct numbers of neurons and glial cells. Abnormalities in the molecular mechanisms that control these processes lead to devastating neurodevelopmental diseases (e.g., microcephaly, intellectual disability, autism, attention deficit hyperactivity disorder, and epilepsy) with considerable economic and societal impact. They also cause aneuploidy and genome instability leading to neoplastic transformation and emergence of cancer stem cells. We reported that Diaphanous 3 (DIAPH3) is expressed in NSCs and safeguards their division. I will talk on how the loss of DIAPH3 affects cell division and weakens the mitotic checkpoint leading to aneuploidy and depletion of NSCs. I will also show how ablation of DIAPH3 in cerebral cortex impairs neurogenesis, causes microcephaly and behavioral deficits, and exacerbates glioma genesis and recurrence in mice and humans.

## Biography

Fadel Tissir is a professor at the College of Health and Life Sciences, Hamad Bin Kahlifa University, Doha, Qatar. His research focusses on the cellular and molecular mechanisms implicated in development, function, and diseases of the nervous system. His team discovered core components of PCP signaling and engineered mutant mouse models for all PCP genes. His work moved the field of PCP from a purely observational phenomenon related to the stereotypic organization of hairs and sensory bristles in insects to concepts that govern the blueprint of the mammalian nervous system wiring. This paved the way to important developments in the fields of neurogenesis, neuronal migration, wiring of the nervous system and ependymal ciliogenesis. This series of original findings were published in high impact journals (e. g. Tissir et al. Nature Neuroscience 2005, Zhou et al. Science 2008, Tissir et al. Nature Neuroscience 2010, Boutin et al. PNAS 2014, Qu et al. PNAS 2014, Chai et al., Nature Neuroscience 2014; Wang et al. Nature Communications 2016, Damiani et al. Nature Communications 2016, Aragona et al. Nature 2020...).

# Cognitive Aspects of Pragmatic Abilities in Diagnostics of Individuals with ADHD

**Elena Even-Simkin**

SCE Sami Shamoon College of Engineering, Israel

Although ADHD is most frequently diagnosed in children (Wolraich et al., 2019), in many cases, the diagnosis is not provided until adulthood, leading to different problems in career identity construction and daily functioning, that might cause social isolation and lower quality of life (Green, Johnson & Bretherton, 2014). However, the pragmatic domain is unreasonably overlooked in the clinical assessment, probably due to the lack of standardized diagnostic instruments. In these cases, clinicians face severe assessment challenges due to the limited standardized tools designed for this age group.

This study proposes a comprehensive approach to assessing cognitive pragmatic abilities in neuro-atypical individuals with ADHD. This approach includes cognitive substrates, including the pragmatic domain, in the diagnostic tool for identifying significant pragmatic difficulties in the ADHD population in clinical settings. This assessment tool puts a particular emphasis on verbal pragmatic abilities in social communication, including discourse and non-literal language interpretation. This approach combines advanced theoretical principles in discourse analysis and psycholinguistics. Key features include the ease and brevity of administration, making it suitable for clinical use.

The results presented in this study highlight the utility of the assessment tool of the cognitive substrates including the pragmatic domain as a valuable instrument for identifying pragmatic deficits in ADHD and determining the impact of different pragmatic processes involved across different types of cognitive tasks, which can provide a diagnostic instrument that allows a practical, systematic, and standardized evaluation of ADHD symptoms at the pragmatic level. This innovative approach provides additional essential insights into ADHD's complex nature and offers a Practical, standardized tool for improved assessment and intervention program planning targeting pragmatics.

## Biography

Dr. Elena Even-Simkin is a psycholinguist, behavioral analyst in psychiatry, and diagnostician with a background in neuroscience. She holds positions at SCE, Shamoon College of Engineering, and Bar-Ilan University. She is a member of the Brain and Language Lab at Bar-Ilan University, a fellow of the Columbia School Linguistics Society (CSLS), and a fellow of the Autism Research Community in the National Center for Autism and Neurodevelopmental Research. She is the author of scientific publications, including academic articles, book chapters, books, and encyclopedic entries in the fields of linguistics, discourse and text analysis, semiotics, language disorders, language acquisition and development in neurotypical individuals and children, adolescents, and adults with learning disabilities and neurodevelopmental disorders.

**PEERS ALLEY MEDIA**

# Safety and Preliminary Efficacy of SHED-CM in the Treatment of Amyotrophic Lateral Sclerosis (ALS)

**Yasuhiro Seta**

Hitonowa Medical Clinic, Japan

Amyotrophic lateral sclerosis (ALS) is a progressive, incurable disease characterized by the selective degeneration and loss of both upper and lower motor neurons. Currently, effective treatments are limited, highlighting the urgent need for new therapeutic approaches. Advances in regenerative medicine have opened up new possibilities, including the use of Stem Cells from Human Exfoliated Deciduous Teeth (SHED), which are known for their neuroprotective and immunomodulatory properties. Conditioned medium from SHED (SHED-CM) contains a range of bioactive factors, including neurotrophic factors, that may slow the progression of ALS.

This presentation will cover the findings of a retrospective cohort study conducted to assess the safety and preliminary efficacy of SHED-CM in ALS patients. A total of 24 patients (mean age: 55.2 years) received SHED-CM therapy, and safety was evaluated by monitoring adverse events, vital signs, and laboratory results. Efficacy was measured through changes in ALS Functional Rating Scale-Revised (ALSFRS-R) scores.

Our results show that SHED-CM treatment was well-tolerated, with adverse events observed in only 3% of patients, none of which were serious. Importantly, patients in this cohort showed a slower decline in ALSFRS-R scores compared to typical ALS progression, suggesting a potential delay in disease progression. Some patients either maintained their scores or showed improvements in muscle strength, providing early indications of efficacy.

While these results are promising, it is important to note that they are preliminary. Further research, including larger, controlled clinical trials, is needed to fully validate the efficacy of SHED-CM and explore its mechanisms of action. This study represents a potential new avenue for ALS treatment, offering hope to patients who currently have limited options.

## Biography

Yasuhiro Seta is a regenerative medicine physician based in Japan. He is the director of the Hitonowa Medical Clinic, where he is conducting pioneering research on the analysis and application of SHED-CM (Stem Cells from Human Exfoliated Deciduous Teeth-Conditioned Medium). Dr. Seta's work focuses on exploring the potential of regenerative therapies, particularly in the treatment of amyotrophic lateral sclerosis (ALS) and stroke. His dedication to advancing regenerative medicine aims to bring new hope to patients suffering from these intractable diseases.

# Pattern of Recurrence in Carcinoma Oral Cavity: Prospective Longitudinal Study

**Ashok Kumar Singh[1], Durgesh Kumar[1], Ankur Verma[1], Mohit Sharma[2], Abhigyan Kumar[1]** and **Santosh Kumar Yadav[3]**

[1]Kalyan Singh Super Speciality Cancer Institute & Hospital (Lucknow), India
[2]Gujarat Cancer and Research Institute (Ahmedabad), India
[3]Prasad Institute of Medical Sciences (Lucknow), India

**Aim:** The aim of this prospective longitudinal study was to assess the pattern of recurrence in operated oral squamous cell carcinoma with clinical stage T1-T4a, N1-2, M0 who completed their adjuvant treatment as per standard guidelines.

**Materials and Method:** This prospective longitudinal study was performed from August 2016–December 2018 to analyze the recurrence pattern and factors affecting it in 100 patients operated in time period of August 2016–December 2018 who developed recurrence in a defined time period till December 2018. All patients were followed post-surgery every three month in OPD, recurrences were detected by history, physical examination, imaging and were confirmed by tissue biopsy/FNAC.

**Results:** A total 840 patients of SCC oral cavity operated in time period of August 2016–December 2018. These patients were regularly followed up till December 2018 in head and neck unit, total 100 patients who developed recurrence in the defined time period were included in the study. 82 patients were male and 18 females (M: F=4.5:1), 40–60 year being most common age group. Most common site of primary tumor was Buccal mucosa in 40% of cases followed by oral tongue in 24% of cases in the present study, local recurrence was most common pattern of failure in 65% of patient, while 29% patients fails regionally and 6% patients developed distant failure.

**Conclusion:** This study indicates that more than half of patients presented mostly in the advanced stage. Most recurrences were local. Close margins were the most common factor predisposing both the total and local recurrence. Perineural spread was more in patients

with local recurrence but the p value was not significant. Lymphovascular invasion and extra capsular spread contributes to nodal recurrences. Operated patients of carcinoma buccal mucosa need intensive surveillance, since most recurrences occur within 12 months.

## Biography

Dr. Ashok Kumar Singh, MBBS and MS (King George Medical University, Lucknow, India), M. Ch Surgical Oncology (Gujarat Cancer & Research Institute, India), ATLS training from AIIMS (New Delhi, India) with 8-year experience in the field of oncology now working as Assistant professor (Surgical Oncology) at Kalyan Singh Super Speciality Cancer Institute India. He has more than 10 national and international publications including original articles and systemic review. He has participated in various national conferences as a panelist and chairperson and also presented paper and posters in various national conferences.

# Vector Image Fusion-Based Alzheimer Disease Identification

**Siddheshwari Dutt Mishra[1]** and **Juhi Pruthi[2]**

[1]Department of CSE MRIIRS, India
[2]Department of Computer Engineering, J. C. Bose UST, YMCA, India

In the age of clever intelligence, a machine effectively and intelligently visualizes a given input and generates a valuable output. Alzheimer's disease and other metabolic disorders are profoundly analyzed with functional imaging. A conventional image evaluation depends on manual reorientation, semi-quantitative exploration, and visual reading in the sections of the brain. As a result, for faster findings and greater accuracy, researchers are turning to intelligently trained models. A simple and practical idea is to obtain recognized confirmation and characterization of AD from ordinary mental images captured using clinical modalities. Neurological image feature extraction and multi-modality fusion analysis have enhanced performance compared to single-modality.

The vector image fusion method has emerged as a powerful tool in multimodal data analysis that captures the higher-order interactions between modalities. This study explores the application of tensor fusion in the analysis of Alzheimer's disease that extracts the complimentary features from two different modalities namely DTI and PET. Imaging modalities such as MRI and PET are integrated to construct a unified representation of structural and functional brain images followed by Machine Learning techniques to analyze the fused data. Traditional machine learning models are evaluated and compared for their effectiveness in the detection of Alzheimer's disease. The performance matrix such as accuracy, specificity, ROC curve, and F1 core are used for evaluating the model performance. The study demonstrates how tensor fusion facilitates the discovery of subtle patterns and interactions among modalities, improving diagnostic reliability. This study highlights the potential of integrating tensor fusion with advanced machine learning techniques to enhance diagnostic reliability. The findings demonstrate the significance of the vector image fusion technique in the identification of subtle patterns and interactions

among modalities to enhance Alzheimer's disease classification.

## Biography

Siddheshwari Dutt Mishra is working as an Assistant Professor in the Department of Computer Science, Manav Rachna International Institute of Research and Studies, Faridabad, India. He completed his Ph.D from Punjab University, Chandigarh, and his Master's from NITTTR, Chandigarh, India. His research interests include Machine Learning, Deep Learning, and Bio-informatics. His Ph.D. thesis focuses on the identification of Alzheimer's disease using intelligently trained models. He has rich teaching and research experience spanning over 15 years.

# Intramuscular Nerve Tracing for Botulinum Toxin Applications

## Melisa Gulcan and Servet Celik

Department of Anatomy, Faculty of Medicine, Ege University, Turkey

It is important to know the course of the intramuscular nerve when applying botulinum toxin (BTx) to the muscle for therapeutic purposes. Because making the injections to zones where nerve endings are dense provides maximum efficiency from the treatment. For myofascial pain syndrome, neuropathic pain or focal spasticity following a stroke, BTx is applied to the rhomboideus major (RhMa) and minor (RhMi) muscles. In the study, the nerve entry points of these muscles were localized according to the landmarks determined in 10 cadavers. Usually, the nerve enters the muscle between the first and second thoracic vertebrae (T1-T2) for RhMi and between the second and fourth thoracic vertebrae (T2-T4) for RhMa. Intramuscular nerves are below these levels. Making the muscles transparent and showing the intramuscular nerves with the modified Sihler's staining technique is in the preliminary phase. The thickness of the skin, subcutaneous fat tissue and trapezius muscle overlying the RhMi and RhMa were measured for the depth of the injections to be made. Although it varied according to the levels, the average thickness of these structures between T2 and T6, where the intramuscular nerves run, was measured to be 4.99 mm. Between T3 and T4, the vessels that supply the trapezius muscle run over RhMa and RhMi. Injecting outside of this range will minimize complications.

## Biography

Melisa Gülcan is a research assistant in the Ege University Faculty of Medicine Department of Anatomy and a PhD student in the Ege University Health Sciences Institute Department of Anatomy. She received her bachelor's degree in Physical Therapy and Rehabilitation from Acıbadem University and her master's degree from Ege University Health Sciences Institute Department of Anatomy. Her master's thesis titled "Determination of the Possible Innervation Zone and Intramuscle Nerve Distribution of the Neck Muscles with the Modified Sihler's Staining Technique" was supported by Ege University Scientific Research Projects Coordination. The technique she used in her thesis was applied to an adult cadaver for the first time in Turkey. His doctoral thesis is in the preparation phase.

# Terminal Myelocystocele

**Abdullah Alsayedomar** and **Mahdi Abdulhussain**

University of Malta, Malta

Terminal myelocystocele (TMC) is known to be a cystic lesion and one of the atypical congenital spine malformations that are created by central canal dilatation in the spine, particularly lumbosacral region, consisting of CNS tissues along with cerebrospinal fluid (CSF) and fat. This chapter is an in-depth explanation that revolves around embryological pathogenesis, observed clinical features and examination findings, investigations, and management of the disease.

Embryologically, TMC is sporadic rather than being familial or having sex preference. Indeed, some environmental factors contribute. Evidence indicates that it arises from an abnormal canalization or regression of the neural tube after the failure of the posterior neuropores at 27 weeks to be closed properly, leading to CSF accumulation in the ventriculus terminals and widening of the canal.

As TMC exhibits poor symptomatic outcomes if left untreated, it is essential to be diagnosed and surgically repaired. There are three parts involved in the diagnostic process: clinical observation, physical exam, and imaging. The swelling is noticeable in the lower back at birth. Symptomatically, patients with TMC could have motor dysfunction involving the lower limbs, sensory involvement, loss of bladder control, and abnormal foot structures. These findings are noted by physical examinations as well along with abnormal reflexes and scoliosis. Radiological-wise, an MRI of the lumbosacral spine is a recommended diagnostic approach and usually shows a dilated spinal canal that projects into the TMC along with other investigations, including ultrasound. The gold standard management of TMC is surgical repair. There are also preventive measures that pregnant women should undertake, including prenatal screening and taking folic acid.

## Biography

Dr. Abdullah Alsayedomar, a Kuwaiti citizen born in 1996 and raised by a family with strong values and principles. He has been profoundly fascinated by education, particularly biological science, since childhood. After completing his basic education in Kuwait, he traveled abroad to pursue his medical degree at the University of Malta and successfully graduated as a Doctor of Medicine and Surgery after 5 years of hard work. He extremely proud to co-author the chapter on terminal myelocystocele with his colleague Dr. Mahdi Abdulhussain as one of the congenital spine malformations. Meanwhile, he is an assistant neurosurgeon currently employed at Jaber AlAhmad Hospital in Kuwait. He has completed six months of experience so far in vascular and pediatric neurosurgery.

# Associations Between Academic Motivation, Academic Stress and Mobile Phone Addiction: Mediating Roles of Wisdom

**Sahar. Mohammadi, Abolghasem. Yaghoobi, Kambiz. Karimi** and **Maryam. Asoudeh**

Bu-Ali Sina University, Iran

**Objective:** This research aimed to examine the impact of academic motivation and academic stress on mobile phone addiction, with a focus on the mediating role of wisdom.

**Method:** Employing a descriptive-correlational approach within an applied research framework, the study surveyed 375 female high school students from two institutions in Hamedan district using convenience sampling. Utilizing instruments including Ardelt's wisdom questionnaire (2003), Gadzella's academic stress questionnaire (1991), Koo Hy's phone addiction scale (2009), and Harter's academic motivation questionnaire (1981), data were analyzed through structural equation modeling.

**Results:** The descriptive indices along with correlations between the variables are presented in Table 1.

**Table 1.** Mean, standard deviation and Correlation matrix of academic stress and motivation, wisdom, and mobile phone addiction

| Variable | Mean | Sd | 1 | 2 | 3 | 4 |
|---|---|---|---|---|---|---|
| 1. AS | 113.58 | 28.76 | - | | | |
| 2. AM | 120.08 | 31.01 | -0.28** | - | | |
| 3. Wisdom | 44.78 | 8.37 | -0.38** | 0.49** | - | |
| 4. MPA | 43.94 | 13.68 | 0.57** | -0.35** | -0.45** | - |

**Abbreviations:** *AS* academic stress, *AM* academic motivation, *MPA* mobile phone addiction. *$p<0.05$, **$p<0.01$

The results revealed that wisdom significantly mediated the relationships between academic stress, motivation, and mobile phone addiction. Notably, the direct effects of stress on wisdom and mobile phone addiction were statistically significant, as were the indirect effects of stress and motivation on mobile phone addiction. While the direct effect of motivation on mobile phone addiction was not significant, wisdom demonstrated a substantial direct influence on mobile phone addiction (Fig. 1).
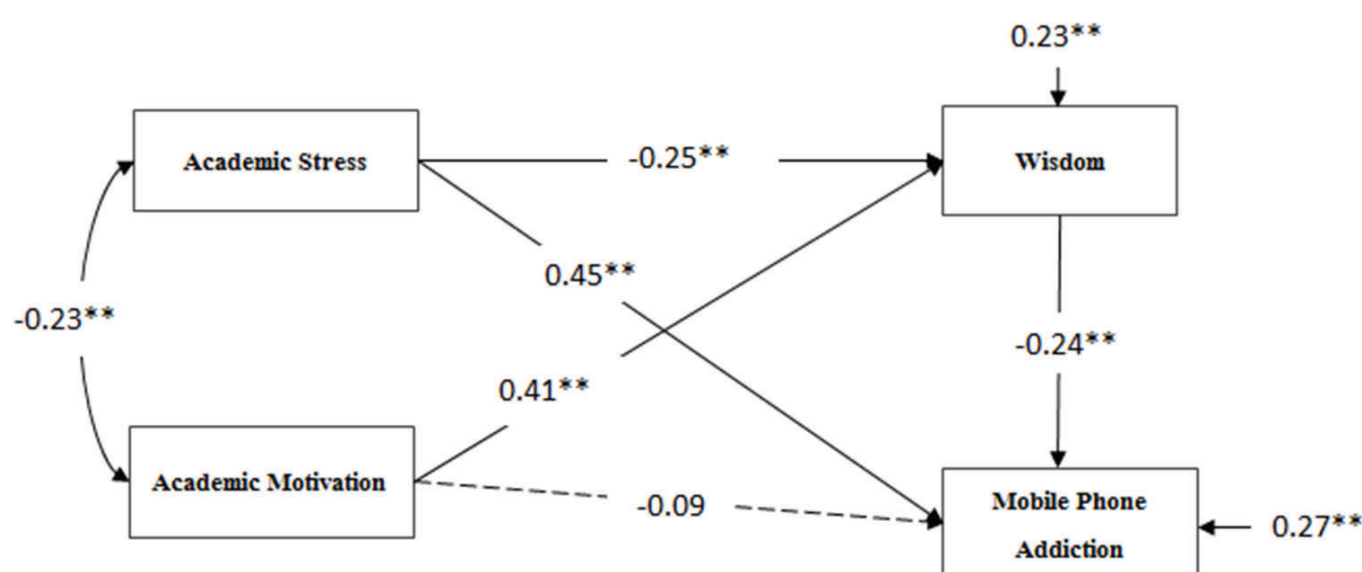


**Fig. 1** Proposed mediation model (*$p < 0.05$, **$p < 0.01$)

**Discussion and Conclusion:** Our study findings indicate that wisdom serves as a complete mediator in the correlation between academic stress and academic motivation concerning mobile phone addiction. This investigation sheds light on the intricate dynamics of these variables and underscores the vital role of wisdom in understanding and addressing mobile phone addiction.

## Biography

Sahar Mohammadi is a third-year educational psychology Ph.D. student at the Bu-Ali Sina University of Hamedan, Iran. She received a bachelor's degree in general psychology from Bu-Ali Sina University and a master's degree in educational psychology from Bu-Ali Sina University in Hamedan, Iran. Her current field placement is with the Sahel Counseling Center in Hamedan, Iran. She has written articles about prosocial behavior, loneliness, wisdom, and behavioral addiction. She is actively interested in behavioral addiction include addiction to smart phones, social media, network site, online game and the impact of these tools on the academic issues of children and adolescents.

# Neuro-Cognitive Insights on True Love and Relationships

## Augustine Thomas Pamplany

Loyola College of Social Sciences, Institute of Science and Religion, Little Flower Seminary, India

Today, thus neurological research is intersecting with various interdisciplinary studies on love and relationships. For decades, relationship researchers have studied intimate relationships – particularly romantic relationships and parent-child relationships – to uncover the key relational aspects that lead to satisfying and healthy relationships. Several researchers in the psychological and social sciences see an opportunity to engage with the complex, multifaceted conversations on love that theologians and philosophers have been having for thousands of years. This paper mainly explores the neurological and psychological dynamics that generate and sustain long standing interpersonal relationships and commitments. *True Love: How to Use Science to Understand Love* (2017) by Neurologist Fred Nour provides an insightful look at love through both neurological lenses, explaining how love takes shape in the brain, uncovering the biological processes and four unique stages of love. Neurologically speaking, the special purposes for every stage of romance and love as bestowed by nature help understand the complexities of falling in and out of love. Excitement neurotransmitters dominant in brain the initial years of romance will be replaced with stabilization hormones that demand commitment. Researches explain why honey moon ends and how love evolves through higher and higher levels of commitment, and mutual bond. Studies about the expressed gratitude between romantic lovers suggest that gratitude and its various expressions help to develop behavioral and psychological glue that can bind persons closer together. The oxytocin system is associated with solidifying the glue that binds adults into meaningful relationships. Researches have established the relationship between love and various aspects of human flourishing and well-being shedding light on the causal factors contributing to the progress of love and its impact on health and well-being.

## Biography

Augustine Pamplany is the Research Dean of the Institute of Interdisciplinary Studies (iaiss.com) at Loyola College of Social Sciences, Trivandrum, India. He holds Master's in Psychology and PhD in Philosophy from Dublin City University, Ireland. He did special research on the Cognitive and Neurological Aspects of Belief in Oxford University. He has been a Fellow of the International Society for Science and Religion, Cambridge, England. He is a recipient of the Erasmus Mundus Fellowship from the European Commission; Science-Religion Course Award from the Centre for Theology and Natural Sciences, Berkeley; Global Perspectives on Science and Spirituality (GPSS) Fellowship from Elon University, USA. Author of 9 books, he is a member of the UNESCO Forum of Teachers in Bioethics offering classes in Neuroethics. He is the Academic Dean of the Masters and Doctoral Degree in Religion and Science under the Global Ministries University, California.

# Biophoton Quantum Physical Medicine: A Breakthrough Approach for Chronic Stroke and Neurodegenerative Disorders

**James Z. Liu** and **Helen Y. Gu**

First Institute of All Medicines, USA

**Objective:** Chronic stroke and neurodegenerative disorders such as Alzheimer's disease, Parkinson's disease, and traumatic brain injury represent a major global health burden, with limited effective treatment options. Addressing this critical unmet need, our research introduces a novel, non-invasive therapeutic modality—Automatic Biophoton Generators (ABGs)—that utilize biophoton quantum physical medicine to stimulate healing and functional recovery.

**Scope and Method:** A randomized, triple-blind, placebo-controlled clinical trial involving 46 participants. ABGs emit trans-metal biophotons within the 500–1000 nm wavelength range. Unlike metabolic biophotons, these quantum emissions are uniquely stable, persisting for over three years without any external power source, and have demonstrated the ability to penetrate metal barriers. Their properties have been validated through four highly sensitive detection methods, confirming the presence and biological relevance of these emissions.

**Results:** A randomized, triple-blind, placebo-controlled clinical trial enrolled 46 chronic stroke patients who received ABG treatment for four weeks using 14 ABG devices. Results showed statistically significant improvement in patient outcomes as measured by the Stroke Impact Scale and overall quality of life, compared to the placebo group. No adverse effects were reported. Beyond the clinical trial, real-world data from over 40,000 ABG users support its therapeutic potential across a wide range of chronic conditions, including Lyme disease, long COVID, and certain cancers. These findings highlight ABGs as a safe, drug-free, and energy-independent tool capable of modulating cellular function, likely through restoration of mitochondrial dynamics and reduction of chronic inflammation.

**Conclusion:** This work positions biophoton quantum physical medicine as a transformative platform in neurological rehabilitation and regenerative medicine. The successful application in chronic stroke provides a promising foundation for broader implementation in treating other complex, degenerative disorders.

## Biography

Dr. James Z. Liu is a renowned physician-scientist with over 40 years of experience in medical and pharmaceutical research. Holding both an MD and a PhD in Biomedical Sciences, he brings a unique blend of clinical insight and scientific rigor. Dr. Liu has led the development of groundbreaking therapeutics across drug discovery, pharmacology, and biotechnology, contributing to treatments that have improved lives worldwide. His work has been widely published and presented at global conferences. As a mentor and leader, he continues to inspire innovation and excellence in healthcare.

Dr. Liu pioneered the development of biophoton quantum physical medicine, applying advanced biophoton quantum biology to treat over 100 disorders. His groundbreaking work integrates bio- light-based therapy with cellular healing, offering non-invasive, drug-free solutions. This innovation is to transform patient care by restoring mitochondrial function, improving microcirculation, reducing inflammation, and promoting tissue regeneration across a wide range of chronic conditions.

# Pneumocephalus After Surgical Correction of Degenerative Scoliosis: A Case Report

**Radwan Abu Romman[2], Anas Al Abdallat[1], Amjad Al Rashdan[1], Monther Alessa[1], Ahmad Almigdad[1]** and **Ramzi Yosef[3]**

[1]Department of Orthopedic Surgery, King Hussein Medical Center, Jordan
[2]Department of Internal Medicine, King Hussein Medical Center, Jordan
[3]Department of Orthopedic, Krankenhaus Barmherzige Brüder Regensburg, Germany

**Background:** Pneumocephalus is a rare but dangerous side effect of spine surgery. It is quite uncommon for it to occur following degenerative scoliosis correction surgery; however, it is usually linked to trauma or cranial surgery and infection.

**Case Presentation:** A 41-year-old woman developed a tension pneumocephalus after back surgical decompression and instrumentation in degenerative scoliosis. The postoperative CT scan showed the typical Mount Fuji sign indicating tension pneumocephalus. An incidental finding of a bony deficit through the base of the skull in the clivus was made, however, CSF leak or rhinorrhea and signs of infection were not observed. The patient had received conservative treat- ment for a clivus deformity and bilateral burr hole drainage. Two years later, a follow-up showed that the symptoms had completely resolved and were no longer present.

**Conclusion:** This case illustrates the value of multidisciplinary approaches to therapy and postoperative care and the need for early detection and management of pneumocephalus, an uncommon but dangerous complication.

## Biography

Dr. Radwan Abu Romman is a Critical Care Medicine Specialist currently serving in the Jordan Armed Forces Royal Medical Services. With a background in internal medicine and a foundation in surgical training, he combines evidence-based clinical practice with extensive field experience in humanitarian and peacekeeping missions across the Middle East. He has a strong interest in translational medicine and medical education, having served as an instructor in ECG interpretation since 2013. Dr. Abu Romman was awarded Medals of Honor for medical leadership in Jordanian field hospitals during international missions in 2015 and 2016.

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# Non-Invasive Biophoton Therapy Significantly Reduces Chronic Pain: A Novel Alternative to Opioid Dependence

**James Z. Liu** and **Helen Y. Gu**

First Institute of All Medicines, USA

**Objectives:** Chronic pain is a leading driver of long-term opioid use and dependency. Given the public health crisis surrounding opioid overuse, there is a critical need for safe, effective, and non-addictive pain relief options. This study evaluates the clinical and real-world effectiveness of biophoton therapy, a non-invasive, drug-free modality developed by Tesla BioHealing Inc., in reducing moderate to severe chronic pain in patients with neurological and systemic conditions.

**Scope and Methods:** Strong biophotons generated by medical devices are hypothesized to enhance cellular communication, stimulate tissue repair, and modulate neuroimmune responses involved in pain perception. Data on severe pain changes were collected from 1467 chronic pain patients across multiple studies. Pain reduction mechanisms were documented through functional infrared imaging and meridian energy mapping, which revealed reduced inflammation and increased bioenergetic flow post-treatment.

**Results:** Across seven clinical studies (N=194) involving patients with Parkinson's disease, stroke, traumatic brain injury, post-COVID condition, Lyme disease, and Alzheimer's disease, 76% of participants with moderate to severe pain reported meaningful pain reduction after 4 weeks of biophoton therapy, with no adverse events. In a separate real- world analysis of 1,017 user testimonials, individuals with arthritis, migraines, neuropathy, sciatica, and cancer-related pain consistently reported significant relief. A post-marketing survey (N=256) further confirmed that patients with severe to "worst possible" pain reduced their scores to mild or moderate levels after one month of at-home biophoton use.

**Conclusion:** These findings suggest that biophoton therapy may provide a safe, scalable, and side-effect-free solution for chronic pain management, with strong potential to reduce patient reliance on addictive opioids. Given the urgent need outlined by the FDA

to combat opioid misuse, biophoton therapy represents a promising frontier in addressing the addiction crisis through non-pharmacologic innovation.

## Biography

Dr. James Z. Liu is a renowned physician-scientist with over 40 years of experience in medical and pharmaceutical research. Holding both an MD and a PhD in Biomedical Sciences, he brings a unique blend of clinical insight and scientific rigor. Dr. Liu has led the development of groundbreaking therapeutics across drug discovery, pharmacology, and biotechnology, contributing to treatments that have improved lives worldwide. His work has been widely published and presented at global conferences. As a mentor and leader, he continues to inspire innovation and excellence in healthcare.

Dr. Liu pioneered the development of biophoton quantum physical medicine, applying advanced biophoton quantum biology to treat over 100 disorders. His groundbreaking work integrates bio- light-based therapy with cellular healing, offering non-invasive, drug-free solutions. This innovation is to transform patient care by restoring mitochondrial function, improving microcirculation, reducing inflammation, and promoting tissue regeneration across a wide range of chronic conditions.

# Ferroptosis in Midbrain: Cross-Talk with Lipid Metabolic Disturbances and Movement Impairment

**Gabriela Salvador[1,2], Athina Maniscalchi[1,2], Oriana Benzi Juncos[1,2], Melisa Conde[1,2], Melania Funk[1,2], Mariel Bonjour[1]** and **Natalia Alza[1,2]**

[1]Instituto de Investigaciones Bioquímicas de Bahía Blanca (INIBIBB-UNS-CONICET), Argentina
[2]Departamento de Biología, Bioquímica y Farmacia, Universidad Nacional del Sur (UNS), Argentina

The loss of dopaminergic neurons in the midbrain is a pathognomonic feature of Parkinson´s disease (PD). Ferroptosis has been proposed as a central mechanism in neurodegeneration associated with Parkinson´s disease. Some neurotoxic factors such as α-synuclein aggregation, iron overload, and chronic pesticide exposure have been recently associated as pro-ferroptotic challenges that trigger the death of dopaminergic neurons. We found that neurons challenged with the above mentioned neurotoxicants undergo metabolic disturbances related to specific lipid classes. This lipid rewiring was differential and dependent on the level of neuronal injury. In the case of dopaminergic neurons, an imbalance in polyunsaturated fatty acid content related to lipid droplet accumulation was linked with neuroprotective responses against ferroptosis. In mice midbrain, ferroptosis markers were accompanied by neuroinflammation signs and active lipolysis. Exacerbated lipid hydrolysis and free cholesterol increase were associated with massive midbrain neuronal death. This metabolic reprogramming was led by movement disorders. Our results lead us to hypothesize that lipid metabolic disturbances act as biomarkers of several stages of neurodegeneration associated with the loss of dopaminergic neurons.

## Biography

Gabriela Salvador is a biochemist and neuroscientist with >20 years of training and research experience in the fields of neurobiology of lipids and oxidative stress and their role in neurodegenerative diseases. Her work has led to the identification of lipid signaling and metabolic dysfunction triggered by oxidative stress, α-synuclein overexpression, and pesticide neurotoxicity associated with neurodegeneration in Parkinson´s disease-This line of research has contributed to several PhD thesis and publications in the field. In year 2023, she was recognized as one of the top 6 women researchers in Argentina by the L´Óreal-UNESCO fund for Women in Science.

# Predictive Coding: The Role Beta- and Gamma-Band Oscillatory Activity in Learning and Active Inference

## Mario Rosero-Pahi

Cognitive and Translational Neuroscience Lab, Faculty of Health Sciences, Universidad Autónoma de Bucaramanga, Colombia
Department of Cognitive and Clinical Neuroscience, Central Institute of Mental Health, Medical Faculty Mannheim, Heidelberg University, Germany

In active inference and predictive coding frameworks, the brain constructs probabilistic models of the environment to actively generate predictions. In this setting, predictions are conveyed by top-down or descending messages among cortical hierarchies, whereas bottom-up or ascending signals convey prediction errors— that is, the difference between sensory inputs and predictions. Notably, recent findings indicate that beta and gamma band oscillatory activity play a crucial role in regulating reciprocal message passing, where beta activity is closely related to the precision of feedback predictive signals, while gamma activity reflects prediction errors. Specifically, it has been suggested that prediction-related beta-band oscillatory activity inhibits the processing of predicted sensory inputs in the superficial layer of sensory cortex by reducing gamma-band oscillatory activity and spiking. In consequence, unpredicted sensory inputs give rise to ascending prediction errors because their pathways have not been inhibited. Since the modulation of beta- and gamma-band oscillatory activity reflects the precision of predictive signals and the precision of incoming sensory prediction error signals, respectively, analysis of beta and gamma power has the potential to help shed light on the neurophysiological mechanisms of inference, learning, and neuropsychiatric disorders related to altered synaptic gain. Here, we provide evidence that gamma-band oscillatory activity is involved in the active processing of sensory inputs, whereas prediction-related beta-band oscillatory activity modulates sensory processing. We then show that top-down beta-band oscillatory activity can interfere with associative learning of new visual information. Finally, we discuss these results in the context of predictive coding, where the aberrant encoding of precision may

help to explain the etiology of some neuropsychiatric disorders. Taken together, our results provide relevant evidence for the role of beta- and gamma-band oscillatory activity in regulating both inference and learning.

## Biography

Mario Rosero-Pahi received his PhD in Cognitive Neuroscience from Heidelberg University in 2018, and his MSc. in Neuroscience from the University of Chile in 2010. Presently, Mario is professor of Cognitive Neuroscience at Universidad Autónoma de Bucaramanga since 2016. In 2019 Mario established the Cognitive and Translational Laboratory within Faculty of Health Sciences. The focus of his laboratory is understanding the brain mechanisms underlying learning and memory in the healthy brain and how these are affected by neuropsychiatric disorders, neurodegenerative diseases and developmental disorders. This includes experimental-approaches as well as neuroimaging, electrophysiology and computational modeling techniques.

# Treatment of Panic Attack with Mastoid Acupuncture and Psychotherapy

**Naomie Cayemitte-Rückner** and **Uta Mühlichen**

Ganzheitliche Schmerztherapie Hamburg, Germany

Panic disorders are relatively common. Worldwide, up to 25 percent of people experience a panic attack once in their lifetime. Up to 12 percent develop anxiety disorder over a one-year period.

Women are more frequently affected than men.

The tendency of mental disorders in the modern world is rather increasing.

The effectiveness of mastoid acupuncture in the treatment of patients suffering from panic disorder has been proven in recent years.

After a short presentation of mastoid acupuncture, the results of a "single arm" observational study will be presented.

Patients receive treatment with mastoid acupuncture once or twice a week for a maximum of 10 weeks.

The prerequisite for participating in this study is ongoing psychotherapy.

## Biography

Dr. Naomie Cayemitte-Rückner is a specialist in anesthesia. She heads a center for holistic pain management and spine pain management in Hamburg.

She was born in Port-au-Prince. Since her childhood, she was exposed to various naturopathic treatments in her parents' home. Working with her father in his yoga studio and naturopathic practice set her professional direction very early on.

**Vita:**

· In Germany since 1980

· She has been running a practice for pain management since 1989

· She added a spine center to her practice in 2007

**Focal points:**

- Chiropractic
- Osteopathy
- Traditional Chinese medicine
- Posturology
- Hypnotherapy
- Special pain therapy
- Acupuncture
- Naturopathy

In 1997, she invented and developed Mastoid Acupuncture. Since 2000, she has been teaching at the International Society for Chinese Medicine, at the Technical University of Munich (Germany) and at the University of Witten Herdecke (Germany).

An important aspect of Mastoid Acupuncture is the possibility of treating the brain reflexively. This opens up new possibilities for successfully eliminating functional disorders in specific areas of the brain.

# Effects of a 12-Week Mixed-Method Physical Exercise Program on Physical Fitness, Stress, Anxiety and Quality of Life in Adolescents with Cerebral Palsy: A Case Series Study

**Alexandrina Cavalcante Rodrigues Nitz[1,2], Juliana Albuquerque da Rocha[2], Elaine Maria Ribeiro[2], José Pedro Ferreira[1], Chrystiane Vasconcelos Andrade Toscano[3]** and **Maria João Campos[1]**

[1]University of Coimbra, Portugal
[2]Sarah Network of Hospitals of Rehabilitation, Brazil
[3]University of Alagoas, Brazil

**Background/ Objectives:** Although the health benefits related to physical exercise for adolescents with cerebral palsy have been recognized, studies indicate that individuals with cerebral palsy at school age are less involved in physical activities than their typical peers and are twice as likely to engage in sedentary behaviors. Therefore, our study aims to investigate the effects of a physical exercise program on physical fitness, stress, anxiety, and quality-of-life variables.

**Methods:** A total of 15 teenagers with ambulatory cerebral palsy ($n$ = 8 boys, $n$ = 7 girls, between 12 and 18 years old; M = 14.35; SD = 1.76) completed a 12-week program based on a mixed-method approach with face-to-face and live online activities. The outcome measures were physical fitness, stress, anxiety, and quality of life.

**Results:** The 12-week exercise program resulted in gains in muscular strength, flexibility, and aerobic endurance tests, characterized by an increase in average walking speed and average VO2 max. There was also a significant change in the perception of emotional states of depression, anxiety, and stress reported by the participants.

**Conclusions:** The program proved to be effective in physical fitness tests and perception of emotional states. Given the positive effects produced by the program, its design appears to meet the demands of adolescents with cerebral palsy.

**Table 1.** Overview of the physical exercise program.

| Exercise Type/(Duration) | Workout | Description | Category |
|---|---|---|---|
| Warm-up (Three minutes) | March on the spot | The teen raises each foot alternately two inches off the ground. Teens may need support. | Face-to-face and online |
| Warm-up (One minute) | Shoulder rolls | Teens should shrug and raise both shoulders without bending their head or neck then rotate their shoulders in a circle, bringing their shoulder blades together and releasing them to propel themselves forward. This should be repeated in the other direction. | |
| Warm-up (One minute) | Torso rotation | The teenager should place their hands in front of them with their elbows bent and turn their upper body to the left and right, keeping their knees forward without twisting their legs. Their cadence should be adjusted according to their preference. | |
| Warm-up (Five minutes) | Stationary cycling | Stationary cycling. | Face-to-face |
| Aerobic Exercise (Five minutes) | Step box with target | The teenager should climb one step, perform plantar flexion of the ankle, and try to reach the target fixed to the wall above their head to score points. Teens may need support. | Face-to-face and Online |
| Aerobic Exercise (Five minutes) | Circuit with basketball | The teenager will walk as fast as possible, deviating from five cones and through five bars on the floor. At the end of the circuit, they will receive a ball and try to throw it into the basket, earning a point if they get it in the basket. | |
| Aerobic Exercise (Ten minutes) | "Burned" | This is a popular local game. To play, it is necessary to divide the group into two teams. The player with the ball must throw it, trying to hit (burn) a person on the other team. Whoever is burned leaves the game. The team that manages to burn the entire opposing team first wins. | Face-to-face |
| Strength Training | Elastic band workout | Leg extesion (seated), glute bridge, clamshell, plantar flexion, lateral band walk, seated abduction, standing bicep curl, overhead tricep extension, pull apart, lying pull over, forward raise, and lateral raise (2 sets of 10 repetitions, progressively increased by changing the elastic band). | Face-to-face and online |
| Strength Training | Strength training | Plank, low squat, wall sit, isometric push-up, bridge, and calf stretch against the wall (1 to 3 sets of 10 to 15 repetitions of each of the exercises (progressively increased)). | |
| Flexibility/Relaxation (Ten minutes) | Yoga class | Downward dog on a chair (Uttana Shishosana), child's pose (Balasana), bound angle pose (Baddha Konasana), and cat–cow (Marjaryasana-Bitilasana). | Face-to-face and online |
| Flexibility/Relaxation (Ten minutes) | Stretching | Triceps stretch, arms and abs stretch, standing quad stretch, hamstring and calf stretch, and figure four stretch. | |
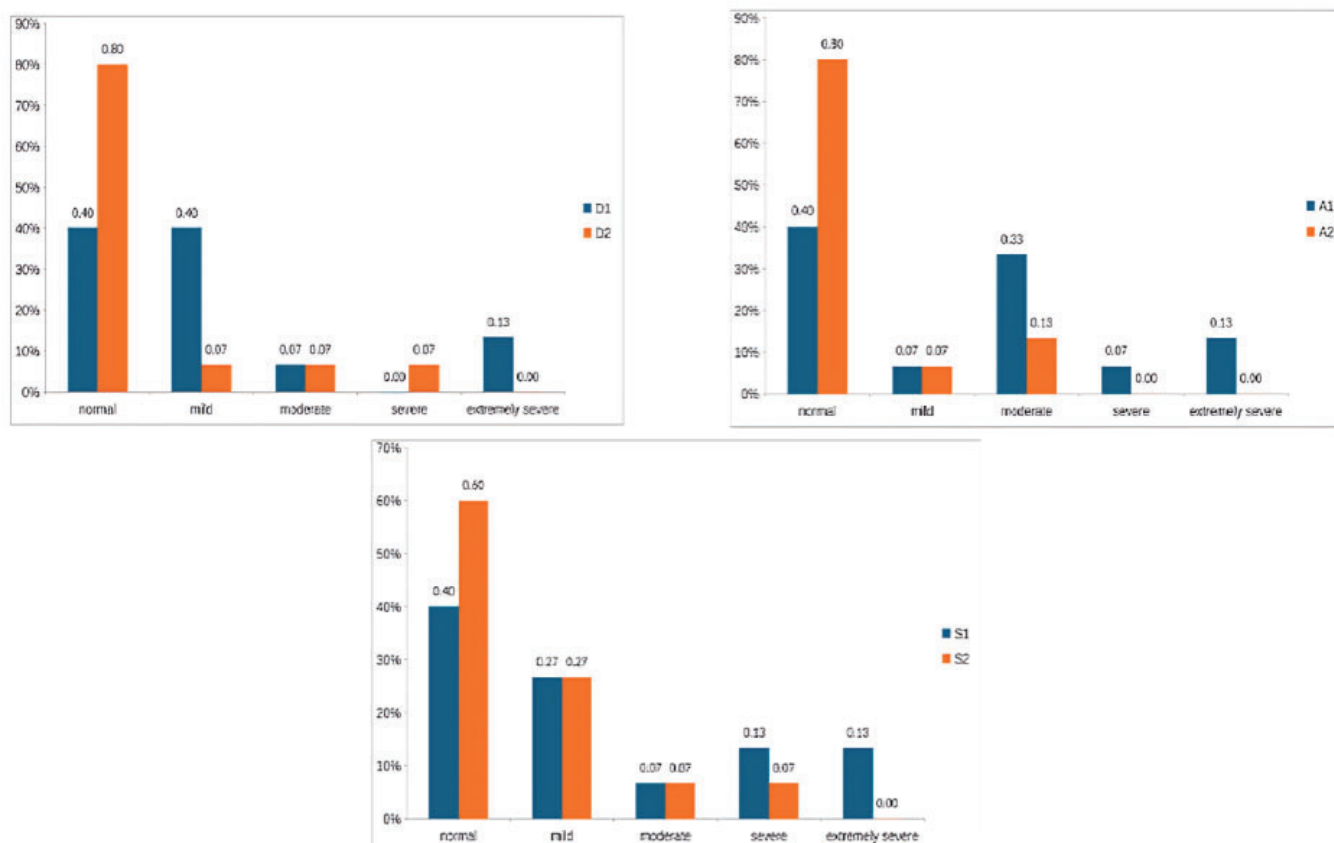
**Figure1.** Participants' values for depression, anxiety, and stress from DASS-21 scale. D1, A1, and S1 correspond to the values of the first assessment on the depression, anxiety, and stress scales, respectively. D2, A2, and S2 correspond to the values of the second assessment, after 3 months of intervention, on the depression, anxiety, and stress scales, respectively.

## Biography

**Alexandrina Nitz**
- PhD student at the University of Coimbra (FCDEF).
- Master's degree in Rehabilitation Sciences at UFMG (2019).
- Graduated in Physiotherapy at Unifor (1996).
- Physiotherapist at the Sarah Network of Rehabilitation Hospitals since 1997, with extensive experience in child rehabilitation.

**Juliana da Rocha**
- Graduated in Medicine at Federal Fluminense University (UFF).
- Residence in Pediatrics at Federal Fluminense University (UFF).
- Developmental Pediatrician at Sarah Network of Rehabilitation Hospitals since 2005.
- Twenty years of experience in neurological conditions and rehabilitation.

**Elaine Maria Ribeiro**
- Master's degree in Bioengineering at UFMG (2006).
- Graduated in Physiotherapy at Unifenas (2002).
- Physiotherapist at the Sarah Network of Rehabilitation Hospitals since 2011, with experience in child rehabilitation.

# Targeting the Prevention of Parkinson's Disease: The Role of *Ecklonia Cava* Polyphenols in Nrf2-ARE Pathway Activation

**Akiko Kojima-Yuasa, Yuri Yasuda, Manami Sakai, Tamami Tokumatsu, Chiharu Ueda** and **Isao Matsui-Yuasa**

Department of Nutrition, Graduate School of Human Life and Ecology, Osaka Metropolitan University, Japan

Parkinson's disease (PD) is a progressive neurodegenerative disorder characterized by the degeneration of dopamine-producing neurons in the substantia nigra, leading to motor impairments, cognitive dysfunction, and a range of non-motor symptoms. Although the precise mechanisms behind this neurodegeneration remain unclear, oxidative stress is known to be a major contributing factor in the pathogenesis of PD. This study explores the neuroprotective effects of *Ecklonia cava* polyphenols (ECPs), rich in the antioxidant phlorotannin, in preventing neuronal damage induced by rotenone *via* the Nrf2–antioxidant response element (ARE) pathway. *In vitro*, ECP treatment enhanced the expression and activity of the antioxidant enzyme NAD(P)H quinone oxidoreductase-1 (NQO1), while promoting the nuclear translocation of Nrf2 and upregulating p62 expression, which contributes to the sustained activation of Nrf2 through a positive feedback loop. The neuroprotective effects of ECPs were significantly attenuated by Compound C, an AMPK inhibitor, suggesting that AMPK is involved in the activation of Nrf2. *In vivo*, ECPs improved motor function in rotenone-induced PD model mice, as measured by the pole test and wire-hanging test. Additionally, ECP treatment restored intestinal motility, preserved colon tissue morphology, and increased tyrosine hydroxylase expression in the substantia nigra, indicating protection of dopaminergic neurons. These findings demonstrate that ECPs activate the Nrf2-ARE pathway to mitigate oxidative stress and protect against neuronal damage, suggesting that ECPs may provide a promising preventive strategy for PD and other neurodegenerative diseases.

Neuroprotection by ECPs
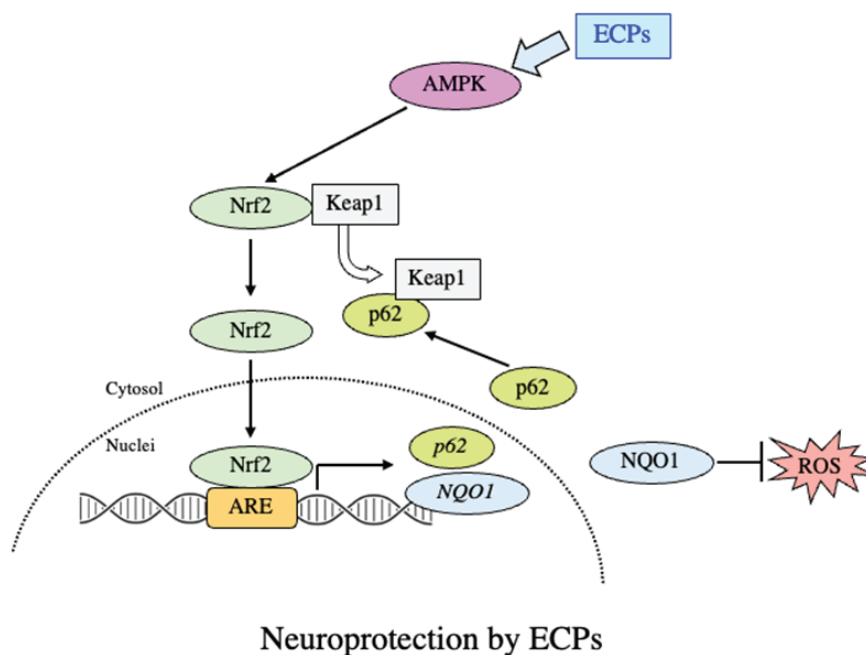
## Biography

- Associate Professor. Department of Nutrition, Graduate School of Human Life and Ecology, Osaka Metropolitan University, Japan.

- Research theme: Preventive effects of food components on lifestyle-related diseases and elucidation of their mechanisms.

- 1984-1988: Department of Food and Nutrition, Faculty of Human Life Science, Osaka City University (B. Sc.).

- 1988-1990: Department of Food and Nutrition, Graduate School of Human Life Science, Osaka City University (M. Sc.).

- 1990-1993: Department of Food and Nutrition, Graduate School of Human Life Science, Osaka City University (Ph.D.).

- 1997-present: Research associate, Lecturer and Associate Professor at the Department of Food and Human Life Sciences, Graduate School of Human Life Science, Osaka City University (now, Osaka Metropolitan University).

- Member: American Society for Nutritional Sciences, American Association for Cancer Research, European Association for the Study of the Liver, The Nutrition Society, Japanese Society of Nutrition and Food Science and Japanese Society of Biochemistry.

# The Microsurgical Infratentorial Supracerebellar Approach for Lesions of the Pineal Gland: Feasibility, Morbidity and Functional Outcomes from a Single-Center Experience

**Niels Nordin[1], Mamoun Ahmed[1], Roman Arend[1], Martin Scholz[1], Bogdana Suchorska[2], Robert Lucaciu[1]** and **Suzin Jung[1]**

[1]Department of Neurosurgery, Sana Kliniken Duisburg, Academic Teaching Hospital of University Duisburg-Essen, Germany
[2]Department of Neurosurgery, Heidelberg University Hospital, Ruprecht-Karls-University Heidelberg, Germany

**Objective:** Pineal gland lesions pose a significant surgical challenge due to the deep-seated nature of the pineal gland, as well as the limited field of view, and the complex vascular anatomy. The mainstay of surgical treatment, when necessary, is always histopathological clarity and gross total resection (GTR). We evaluate the surgical outcomes for pineal gland lesions, shedding light on functional outcomes, histological findings, and surgical complications.

**Methods:** We analyzed patients with pineal gland lesions who underwent surgical treatment in our institution between September 2013 and May 2022. Patient demographics, clinical symptoms, surgical approaches, resection extent, surgery-related complications, and histopathological diagnosis were studied. Pre- and postoperative functional outcomes were assessed using the modified Rankin Scale (mRS) and were compared using the Student´s t-test.

**Results:** 32 patients (13 males, 19 females) were included. The mean age was 39 years old. We adopted the infratentorial supracerebellarapproach (ITSC) in a semi-sitting position. 2 of these patients received preoperatively an endoscopic third ventriculocisternostomy (ETV) combined with endoscopic biopsy. The mean operating time for the ITSC approach was 170 minutes, whereas 53 minutes for the ETV with endoscopic biopsy. The mean length of stay was 13 days. The most common histopathological diagnosis was pineal cysts (38%). Surgical mortality was 0%, and morbidity was 28%. GTR was possible in 72% of patients

treated using the ITSC approach. There was a functional outcome improvement, with a statistical significance measured *via* the Student´s t-test (p = 0.047).

**Conclusion:** The ITSC approach remains safe and feasible when performed by an experienced surgical team, yielding a histopathological diagnosis and improvement of functional status.

## Biography

Niels Nordin was born on March 17, 1994, in Antwerp, Belgium. From an early age, he showed a keen interest in the sciences, which ultimately led him to pursue a degree in medicine at the University of Ghent. He graduated in 2019, marking the beginning of an exciting medical career.

Initially, Niels began his professional journey as a resident in radiology. However, his passion for neurosurgery soon took center stage, prompting him to seek further opportunities in this specialized field. In pursuit of his passion, he moved to Sana Kliniken Duisburg in Germany, where he is currently in his fifth year of residency in neurosurgery.

# The Impact of GABA Deficiency on the Ventral Tegmental Area

**E. Stanton[1], M. Bellingham[2], S. Cheung[3], P. Noakes[4]** and **M. Ridder[5]**

[1]School of Biomedical Sciences, The University of Queensland, Australia
[2]Queensland Brain Institute, Australia

To gauge the impact of down-regulated inhibitory signalling on cognitive function in the context of neurological disease, and behaviour of the organism at large, we must study the role of gamma amino butyric acid (GABA) in the nervous system. The GABAergic system is important in normal neurodevelopment and plays a critical role in maintaining an excitatory–inhibitory (E-I) signalling balance. Atypical GABAergic signalling can lead to pathophysiology of synaptic inhibition disorders, with neurological diseases ranging from developmental to neuropsychiatric, substance abuse, and neurodegeneration. Our research focuses on the impact of GABA deficiency on the Ventral Tegmental Area (VTA), and its role in the pathophysiology of neuropsychiatric diseases and addiction. Situated in the midbrain, the VTA is the major site of dopamine synthesis by dopaminergic neurons and is core to the functioning of the mesolimbic system - a division of the brain that governs complex human emotion and behaviours including reward, motivation, mood regulation, and addiction. The VTA was originally recognised as a dopaminergic nucleus; however, recent discoveries reveal heterogeneity, in both neuron subtype and the respective neurotransmitters each neuron releases. The finding of a significant GABAergic neuron population within the VTA (approximately 30% of total VTA neurons) led researchers to hypothesise that GABA plays an important modulatory role on dopamine release. Our investigations use a GAD67+/- mouse model which synthesizes approximately 50% of normal GABA levels, to identify mechanisms that underpin neurological diseases caused by aberrant synaptic inhibitory signalling. We compared GAD67+/- and wild type mice using whole-cell electrophysiology and found the GAD67+/- VTA neurons to show evidence of neuronal hyperexcitability.

## Biography

Erika Ortiz Stanton a third year PhD student at the University of Queensland. She has dedicated her entire career to helping people achieve mental and physical health. After spending a few years in the fitness industry as a personal trainer, she noticed many clients' goals were to reduce stress levels and improve mental health. She decided to challenge herself by undertaking a Bachelor of Biomedical Science at Queensland's University of Technology, and discovered she had a natural inclination towards the life sciences, particularly the field of neuroscience. Neuropsychiatric disorders directly and indirectly contribute to burdens of disease across all chronic health conditions including cardiovascular disease, cancer, and diabetes. She continues her devotion towards better health outcomes by focusing on mental health research.

# Mobile-Friendly Solution for COVID-19 Detection from Computed Tomography Images

**Kenan Morani[1], Esra Kaya Ayana[2], Dimitrios Kollias[3]** and **Devrim Unay[1]**

[1]Izmir Democracy University, Turkiye
[2]Yildiz Technical University, Turkiye
[3]Queen Mary University of London, UK

We propose a mobile-friendly, modern, and accurate solution for COVID-19 diagnosis using Computed Tomography (CT) images. In our proposed solution, we leveraged state-of-the-art Transformer models in computer vision, namely "mobile ViT xxs Transformer", to reach our goal. Two key steps of image processing were employed to decrease model misclassifications. Firstly, the uppermost and lowermost slices of each CT scan were removed, preserving sixty percent in each scan. Secondly, all slices underwent rectangular manual cropping to bring focus on the lung areas or Region of Interest (ROI) of the slices.

Subsequently, resized CT scans (384 by 384) were input into the transformer. The transformer model is suited for grayscale input images and a binary classification task. To determine the overall diagnosis for each patient, the majority voting was deployed for each CT scan to make predictions for each patient. To verify the efficiency of our method, a big and rigorously annotated database of CT images, named COV19-CT-DB, was used.

Verification was made on both the validation partition and the test partition of unseen images of the database. The model's performance exceeded the base on the given dataset. These results present our solution as accurate and suitable for clinical and personal usage. The code can be found at https://github.com/IDU-CVLab/COV19D_4th.

## Biography

Kenan Morani received a B.S. degree in Electrical and Electronics Engineering from Al-Baath University, Syria, in 2014. He completed a master's degree in control and automation at Yıldız Technical University, Turkey, in 2018. Currently, he is a Ph.D. student at Izmir Democracy University, Turkey. Kenan's research primarily focuses on signal and image processing, data manipulation, and machine learning techniques. While his work extends to different domains within artificial intelligence, he predominantly conducts research in the medical field. Additionally, he explores model deployment through plugins and web apps.

# Human Intelligence versus Artificial "Machine Intelligence"

## E. W. Udo Küppers

Küppers-Systemdenken, Deutschland

What helps us to better understand our networked, crisis-ridden environment full of complexity and dynamics and to make it more future-proof?

Today's Homo sapiens, the wise, intelligent, rational human being, is the result of millions of years of development. At the same time, our neural network in the brain has expanded with around 86 billion neurons and trillions of neural connections, enabling us to perform outstanding feats in almost all areas of our planet.

Paradoxically, however, we hardly use our highly complex neural network for system-dynamic, far-sighted problem solving in our complex and dynamic environment. On the contrary!

It is undisputed that we solve complex social, ecological and economic problems to a large extent with short-sighted and misguided strategies of (mono)causal thinking and action. The anthropocene consequences can be seen in the loss of biodiversity, climate catastrophes and plastic waste from the summit of the Himalayas to the depths of the Mariana Trench.

It is a necessary evolutionary development process in our childhood to explore the environment through knowledge gained from experience by means of (mono)causal thinking.

As adults, we often still seem to be prisoners of this "childlike" thinking, although we are aware that far-sighted and error-tolerant solutions to problems in a complex dynamic inevitably leads to more effective and efficient adapted solutions.

The demand on us is clear and unmistakable:

In view of the recognizable complex crises on our only basis of life, the earth, it is urgent

to train our neuronal intelligence for system-dynamic, cybernetic and adapted problem solving. Evolutionary nature is a forward-looking model for this!

How intelligent are we to transform the dominant, misguided, short-sighted developments into far-sighted, sustainable strategies for progress? Can the information technology of "artificial intelligence" with its "artificial neural networks" help us in our fight for survival? Or are we "breeding" or programming machines that will one day - self-determinedly - make decisions for us to shape their artificial future?

## Biography

After scientific activities in the field of solar energy (Hahn-Meitner-Institut Berlin), bionic production technology (Fraunhofer-Institut Bremen, IFAM) and R&D stays in Brazil, Japan, Namibia, independent head of the Küppers-Systemdenken working group since 2000.

Networked thinking and acting beyond specialist boundaries have been the guiding principle of his professional activity since his doctorate (1983) with a bionic aerodynamic topic. This includes bionic product and process solutions in various industries as well as system-dynamic solutions for the sustainable improvement of entrepreneurial socio-technical organizational processes.

In addition, lectures are given in German and English at various colleges and universities in Germany on the following topics: - System Bionics - Bionic Architecture - System Thinking plus System Modeling - Cybernetics plus Artificial Intelligence.

Books and specialist articles on topics such as bionics, cybernetics, humanoids, AI, and ingenious natural principles round off his scientific and technical work.

Web: https://udokueppers.de

Web: https://www.researchgate.net/profile/E-W-Udo-Kueppers

# Recognition of Mental Workload across Different Professional Fields Based on Physiological Signals

**Rajesh Singla, Yamini Gogna** and **Sheela Tiwari**

Dr. B.R. Ambedkar NIT Jalandhar, India

Cognitive processes in professional tasks depend on the effective allocation of cognitive resources, while factors such as fatigue, boredom, and mental overload hinder performance. Electroencephalography (EEG) has demonstrated potential in mental workload (MWL) analysis, though precision remains challenging in certain domains.

**Objective:** This study investigates the impact of MWL on cognitive performance for workers across two different fields, analyzing how MWL influences their task efficiency.

**Method:** Participants performed two distinct cognitive tasks relevant to each field, with three levels of difficulty. EEG signals were recorded from the frontal lobes to capture MWL variations. Support Vector Machine (SVM) models were used to classify cognitive performance during these tasks.

**Conclusion:** The low accuracy in cognitive workload classification highlights the need for adaptive systems to manage MWL. The findings underscore the importance of tailoring cognitive resource allocation strategies to enhance skill development for workers in different professional environments.

## Biography

Rajesh Singla is working as an Associate Professor at Dr B.R. Ambedkar National Institute of Technology Jalandhar, India. His areas of interest are Brain-Computer Interface, Rehabilitation Engineering, and Process Control.

Yamini Gogna has completed her PhD from Dr B.R. Ambedkar National Institute of Technology in Jalandhar, Punjab, India. Her areas of interest are soft computing, Brain-computer Interfacing, Biomedical Engineering, and Robotics.

Sheela Tiwari is currently working as an Associate Professor at Dr B.R. Ambedkar National Institute of Technology Jalandhar, Punjab, India. Her research interests are artificial intelligence and its application in power systems.

# A Mobile Robot with an Autonomous and Custom-Designed Control System

**Brwa Abdulrahman Abubaker[1], Jafar Razmara[2]** and **Jaber Karimpour[2]**

[1]Bayan University, Iraq
[2]University of Tabriz, Iran

Teaching autonomous mobile robots (AMRs) to acquire knowledge independently has been a formidable challenge, characterized by protracted convergence times and computational intensity within traditional methods. This research introduces an innovative paradigm employing a customized spiking neural network (SNN) to address these challenges, fostering autonomous learning and control of AMRs within unfamiliar environments. The proposed model amalgamates spike-timing-dependent plasticity (STDP) with dopamine modulation to augment the learning process. Incorporating the biologically inspired Izhikevich neuron model imparts adaptability and computational efficiency to the control systems, particularly in response to dynamic environmental alterations. Evaluation through simulations elucidates initial challenges during the training phase, where the infusion of brain-inspired learning, dopamine modulation, and the Izhikevich neuron model introduces intricacies, notably manifesting in difficulties adapting to diverse obstacle scenarios. Initial performance metrics reveal a 73% accuracy rate in reaching the target with a 27% collision rate in single obstacle scenarios. However, progressing to the testing phase demonstrates substantial enhancement, culminating in a remarkable 98% accuracy in reaching the target and a marked reduction in collisions to 2% in single obstacle scenarios. These outcomes underscore the model's adaptive prowess and proficiency in navigating complex environments with varied obstacles. The innovative application of the customized SNN, integrating STDP and dopamine modulation, showcases promising potential in surmounting the challenges associated with reinforcement learning in AMRs. Furthermore, the proposed methodology paves the way for future advancements in autonomous robotics by leveraging biologically inspired mechanisms, thereby enhancing the robots' ability to learn and adapt in

real-world settings. This research not only addresses the computational and convergence issues but also opens new avenues for integrating neurobiological principles into artificial intelligence, fostering more efficient and effective autonomous systems.

## Biography

Dr. Brwa Abdulrahman Abubaker is a loyal scientist in computer science. He holds a PhD from Tabriz University and a master's degree in computer engineering from Van YYU University. Before studying his master's degree, he obtained a bachelor's degree in computer science from Salahaddin University. His academic trip is determined as a strong basis in computer science, which is mostly added with specialized expertise in computer engineering. His interests include AI, instrumental learning, deep learning, SNN, robotics, data science and large data. Currently, the head of the Department of Computer Science at Bayan University, Dr. Abubaker has played a variety of roles, including the head of the department, teacher and programmer AI. He has participated in several educational and professional activities, such as the management of e-learning systems in Iraq and participation in international conferences. The main skills include excellent IT, communication, team work, and organizational abilities. Dr. Abubaker's prominent contributions include studying mobile robot control by using SNN and creating smart robot systems. In addition, he has written several books, including "artificial intelligence Sciences Part 1" in both Kurdish and English, and "promotion of automotive mechanics".

# Mental Health: Multi-Modal Personality Detection using Ms-LSTM Prediction Framework

**Bakkialakshmi V S[1]** and **Lenin Mookiah[2]**

[1]Department of Computing Technologies, SRM Institute of Science and Technology, India
[2]Independent Researcher, USA

In recent years, there has been a growing recognition of the importance of mental well-being and environmental sustainability. Planetary mental health, also called as green mental health, which emphasizes the therapeutic benefits of interaction with nature, has gained attention as a promising approach to improve psychological well-being. Concurrently, affective computing, a field that combines psychology, computer science, and artificial intelligence to recognize and process human emotions, has seen advancements in multi-modal personality detection. Affective computing is a burgeoning interdisciplinary field that is increasingly attracting the attention of professionals in psychology, statistics, and computer science due to its potential for transformative impact. The capacity of a machine to deduce human affective states, specifically emotions and moods, holds significant promise for enhancing human-machine interaction within the context of our progressively digitized society. This study presents a methodology for detecting human emotions or their effectiveness in improving predictive performance by combining multiple models in an ensemble model approach. The system presented in this study employs the multi-sequence Long Short-Term Memory (LSTM) approach to develop a new predictive algorithm based on the AMIGOS dataset. The dataset under consideration encompasses physiological signals, including but not limited to Electrocardiography (ECG), Electroencephalography (EEG), and Galvanic Skin Response (GSR). The statistical outcome after data processing, which comprises quantifiable outcomes on emotional labels, is significantly influenced by the degree of coincidence between the responses and training samples. This proposal aims to investigate the potential intersection between green mental health and affective computing for enhancing multi-modal personality detection. The proposed multimodal personality detection model outperforms other models, boasting superior scores across key evaluation

metrics. With accuracy, precision, sensitivity, specificity, and F1 score values of 91.59, 95.05, 96.00, 28.57, and 95.52 respectively. Furthermore, it demonstrates reduced computational complexity, indicating its efficiency in terms of computation time. Achieving accuracy, precision, sensitivity, specificity, and F1 score values above 90% indicates robustness and reliability in the model's predictions.

**Methodology:** Module – EMO-MMPD:
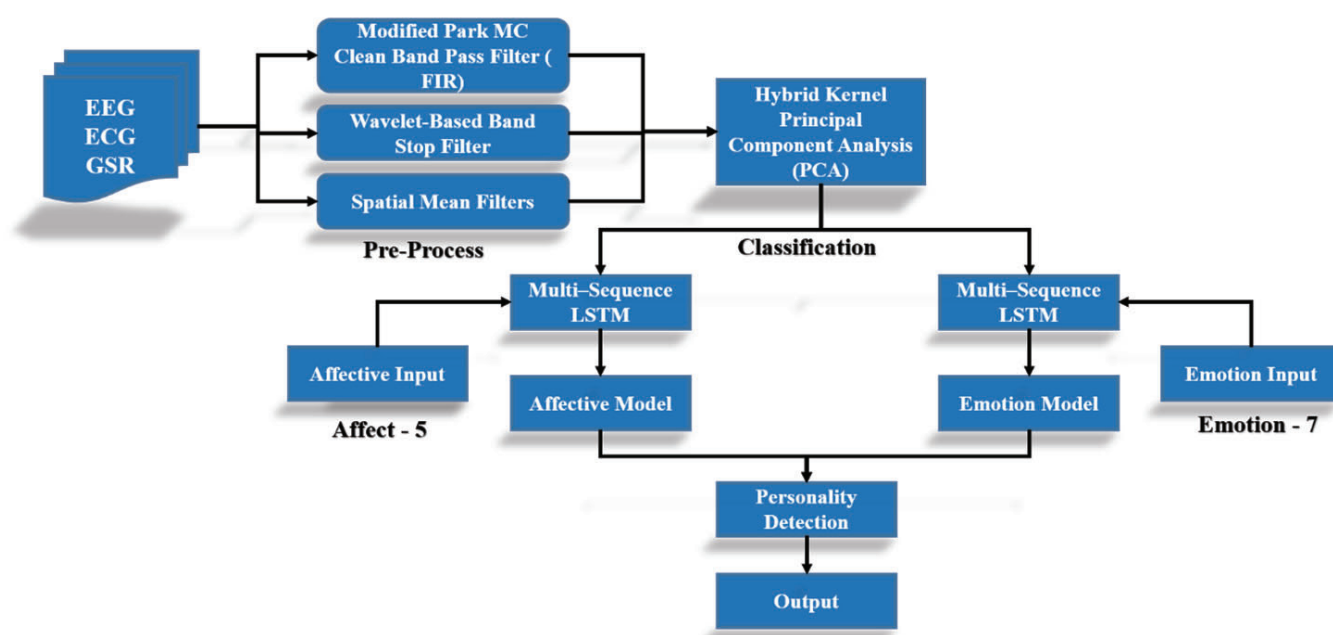


**Fig 1** - Emotion–Multi–Modality Personality Detection [ EMO-MMPD]

## Biography

Dr. V. S. Bakkialakshmi is a distinguished academic and researcher with an extensive background in computing technologies and a passion for advancing the frontiers of machine learning, deep learning, and affective computing. With over 16 years of academic and professional experience, she has made significant contributions to the field through teaching, research, and knowledge dissemination.

She holds a strong academic foundation, evidenced by her advanced degrees: M.Sc., M.Phil., M.E., Ph.D., PDF.

Currently, Dr. V. S. Bakkialakshmi serves as an Assistant Professor in the Department of Computing Technologies at SRM Institute of Science and Technology (SRMIST), Kattankulathur, Tamil Nadu, India. In this role, she Teaches undergraduate and postgraduate courses. Guides students and scholars in innovative research projects. Collaborates with academic and industry partners to explore cutting-edge solutions in computing.

Dr. V. S. Bakkialakshmi's research focuses on Affective Computing, where Developing systems capable of recognizing, interpreting, and processing human emotions. Her work has been published in numerous peer-reviewed journals and conferences, earning her a reputation as a thought leader in her field.

Dr. V. S. Bakkialakshmi dedication, expertise, and passion make her an invaluable asset to the global computing community. She continues to push boundaries, contributing to the advancement of technology and its application in improving lives worldwide.

Key Achievements of Dr. V S Bakkialakshmi's career is adorned with prestigious awards and certifications,

including: "Best Research Scholar Award" by Hindustan University (2023). "Best Research Scholar Excellence Award Certification" by GMRAF (2022). Certification from JCR - Journal Citation Reports, Web of Science – Clarivate (2022). Recognition as an IBM Certified Deep Learning and Machine Learning Trained Tutor.

In Innovations and Intellectual Property Dr. Bakkialakshmi has developed groundbreaking technologies that reflect her innovative thinking with 2 Design patent Grants and 1 Patent Filed.

Her Global Contributions and Engagements Recognized as an **International Research Traveler** in Austria, Europe. Explored research opportunities at the **University of Bradford, UK** under the **WTUN Program **.

Reviewer for **IEEE Transactions on Affective Computing**, contributing expert reviews for seminal works. Also serves many conferences and Journals Reviewer and part of many editorial boards.

Her awards, patents, and international engagements solidify her position as a global leader in computing technologies, with a lasting impact on the academic and technological landscape.

# The Intersection of Dentistry and Neurology: BPPV Following Dental Surgeries

**Mohammadamin Damsaz[1,2,3], Ricardo Grillo[4]** and **Sahand Samieirad[3]**

[1]iFACE Oral and Maxillofacial Surgery Academy, Turkey
[2]Maxillogram Maxillofacial Surgery, Implantology, and Biomaterial Research Foundation, Turkey
[3]Department of Oral and Maxillofacial Surgery, Oral and Maxillofacial Diseases Research Center, Mashhad Dental School, Mashhad University of Medical Sciences, University Campus, Iran
[4]Department of Oral and Maxillofacial Surgery, Traumatology and Prosthesis – Faculty of Dentistry of the University of São Paulo, Brazil

## Assessment of Benign Paroxysmal Positional Vertigo (BPPV) Incidence Following Closed Sinus Lift and Ridge Splitting Surgeries: A Cohort Study

**Background**: With a notable increase in demand for implant placement in atrophic cases, this study aimed to evaluate the occurrence of benign paroxysmal positional vertigo (BPPV) following closed sinus lift and ridge splitting surgeries.

**Materials and Methods**: Healthy patients requiring posterior maxillary closed sinus lift or ridge split surgeries at Mashhad Dental School from September 2021 to September 2022 were enrolled in this cohort study. A single surgeon performed all surgeries under standard protocols. The intervention groups consisted of closed sinus lift and ridge splitting procedures. The primary outcome variable was BPPV, and the Dix-Hallpike maneuver was used before and after the operation to diagnose BPPV. The data were statistically analyzed using SPSS 23, and the significance level was set at 0.05.

**Results:** A total of 112 patients (51 women and 61 men) with a mean age of $48.4 \pm 9.5$ years participated in the study. The average BMI was $21.5 \pm 2.4$, and the mean duration of surgery was $31.9 \pm 6.6$ min. Of the patients, 10.7, 36.6, 27.7, 12.5, and 1.8% presented with hypertension, headache, dizziness, nausea, and BPPV, respectively. Two patients (3.1%) in the closed sinus lift group were diagnosed with BPPV, whereas no patients in the ridge split group were diagnosed. However, there was no significant difference ($P = 0.509$). No statistically

significant difference in the occurrence of certain symptoms between two groups was found. There was a significant association between certain health conditions and the onset of BPPV.

**Conclusion:** The study suggests closed sinus lift surgery may have a higher risk of BPPV than ridge split surgery, but further studies with larger sample are needed to confirm this association.

### Biography

Dr. Mohammadamin Damsaz, a Doctor of Dental Surgery, serves as a Research Fellow at the iFACE Oral and Maxillofacial Surgery Academy in Istanbul, Turkey and is affiliated with the Maxillogram Maxillofacial Surgery, Implantology, and Biomaterial Research Foundation. He obtained his Doctor of Dental Surgery degree from Mashhad University of Medical Sciences and is an alumnus of the National Organization for Development of Exceptional Talents (NODET). As a researcher and inventor, Dr. Damsaz has contributed to the field of oral and maxillofacial surgery through his authorship and editorial work on reference books, collaborating with publishers such as Springer Nature.

# Differentiation of Stroke Type by Supervised Classification

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

[1]Universidad Abierta para Adultos, Dominican Republic
[2]Neuroscience Department Corominas Clinic, Dominican Republic
[3]Information Technology Department, Ministerio de Educación Superior, Havana, Cuba

The health units continually receive patients with clinical pictures that point to a stroke, however, these health institutions do not always have at their disposal specialists in neurology and computerized axial tomographs that allow timely differentiation of the type of stroke. In this case, the speed of diagnosis is decisive in the conduct to be followed by medical and paramedical personnel, in order to reduce the risks that lead to deterioration of health or a fatal outcome for the patient.

In support of the action protocols for stroke, which have been described internationally in medicine, a group of researchers decided to identify a classification method to develop a computer system to differentiate ischemic and hemorrhagic strokes using intelligent algorithms in the event of inconclusive cases. The basis of the proposal is based on the rules. NNge algorithm, a supervised classification algorithm, by means of which 1165 production rules were defined, which have more than one antecedent and a single consequent for each rule. This consequent is the type of stroke or cerebrovascular accident presented by the patient.

## Biography

Zoila Esther Morales Tabares holds a Ph.D. in Technical Sciences, a Computer Science Engineering, and currently serves as Director of the School of Engineering and Technology at the Universidad Abierta para Adultos (UAPA). With over 15 years of experience in research and higher education, she has led innovative projects in artificial intelligence, notably in the differentiation of stroke types through supervised classification algorithms. Her scientific work has been published by high-impact publishers such as Springer and Scopus, and she has contributed to the development of technological solutions registered in intellectual property. As a principal

investigator and postgraduate professor, she has played a key role in training professionals in Big Data, clinical data mining, and intelligent process management. Her career reflects a combination of academic rigor, passion for science applied to healthcare, and a strong commitment to shaping ethical and innovative leaders for the knowledge society.

## Sustained Therapeutic Effect of Spinal Cord Stimulation on Improving Severe Neurogenic Orthostatic Hypotension in a Patient with Pure Autonomic Failure Converting to Multiple System Atrophy

**Zhirong Wan[1], Jing Zhao[1], Mingming Zhao[2], Jiaqi Chen[3], Chong Shi[4], Shaochen Ma[1], Peifu Wang[1], Jilai Li[1], Jichen Du[1]** and **Feng Yin[2]**

[1]Department of Neurology, Aerospace Center Hospital, People's Republic of China
[2]Department of Neurosurgery, Aerospace Center Hospital, People's Republic of China
[3]Department of Geriatrics, Aerospace Center Hospital, People's Republic of China
[4]Department of Traditional Chinese Medicine, Aerospace Center Hospital, People's Republic of China

**Background:** Pure autonomic failure (PAF) is a rare neurodegenerative disorder characterized by orthostatic hypotension (OH). Some PAF patients may progress to multiple system atrophy (MSA). While spinal cord stimulation (SCS) has been used for OH in spinal cord injury or MSA, its application in PAF-to-MSA conversion remains unreported.

**Case Presentation:** A 67-year-old man was admitted to our hospital because of episodic amaurosis fugax and dizziness for 20 years that was aggravated over the past 2.5 year. He gradually developed urinary frequency, urgency, nocturia, erectile dysfunction, constipation and hypohidrosis. OH was confirmed by head-up tilt test. The patient was diagnosed with PAF. The supine plasma norepinephrine level of the patient was ≥213.85 pg/mL. Cranial MRI suggested cerebellar atrophy and hot cross bun sign in the pons. The patient was considered to have a conversion from PAF to MSA. After two year of conversion to MSA, the patient experienced frequent syncopal episodes, he was unable to stand for more than half a minute and could not walk independently, that seriously affected his quality of life. Subsequently, the patient received SCS therapy. After SCS intervention, patient's orthostatic tolerance improved dramatically, with improvement in walking ability and the absence of syncopal episodes during positional change. The patient was followed up for 2 years. Therapeutic effects of SCS were sustained at 9 months of follow up. The patient began to have frequent syncopal episodes at 10 months of follow up. And he showed difficulty in standing and walking, and was semi-bedridden after 12 months of follow up.

**Conclusion:** This first-reported case suggests SCS may be a safe, adjustable option for severe

OH in PAF-to-MSA conversion, offering transient functional improvement. Further studies are needed to optimize patient selection and long-term efficacy.

**Table 1** Patient's functional status of the patients assessed before and after SCS implantation and the setting of stimulation parameters

| | Baseline | 1-month follow-up | 3-month follow-up | 7-month follow-up | 9-month follow-up | 12-month follow-up | 24-month follow-up |
|---|---|---|---|---|---|---|---|
| SBP in the supine, standing positions and 3 min in standing position (mmHg) | 126-2-65 | 107-94-90 | 106-86-80 | 97-88-86 | 84-68-53 | 79-46 | Being bedridden |
| Average number of syncopal episodes per week | 21 | 0 | 0 | 0 | 7 | 14 | Being bedridden |
| Average walking time per week (min) | 35 | 210 | 210 | 100 | 65 | 50 | Being bedridden |
| SCS parameter settings: frequency (Hz), pulse width (μs), amplitude (mA) | / | 40 Hz/180 μs/1.5 MA | 40 Hz/180 μs/1.4 MA | 40 Hz/175 μs/1.3 MA | 40 Hz/175 μs/0.9 MA | 40 Hz/175 μs/0.9 MA | 40 Hz/300 μs/1.2 MA |

*SBP* systolic blood pressure, *SCS* spinal cord stimulation stimulation parameter settings
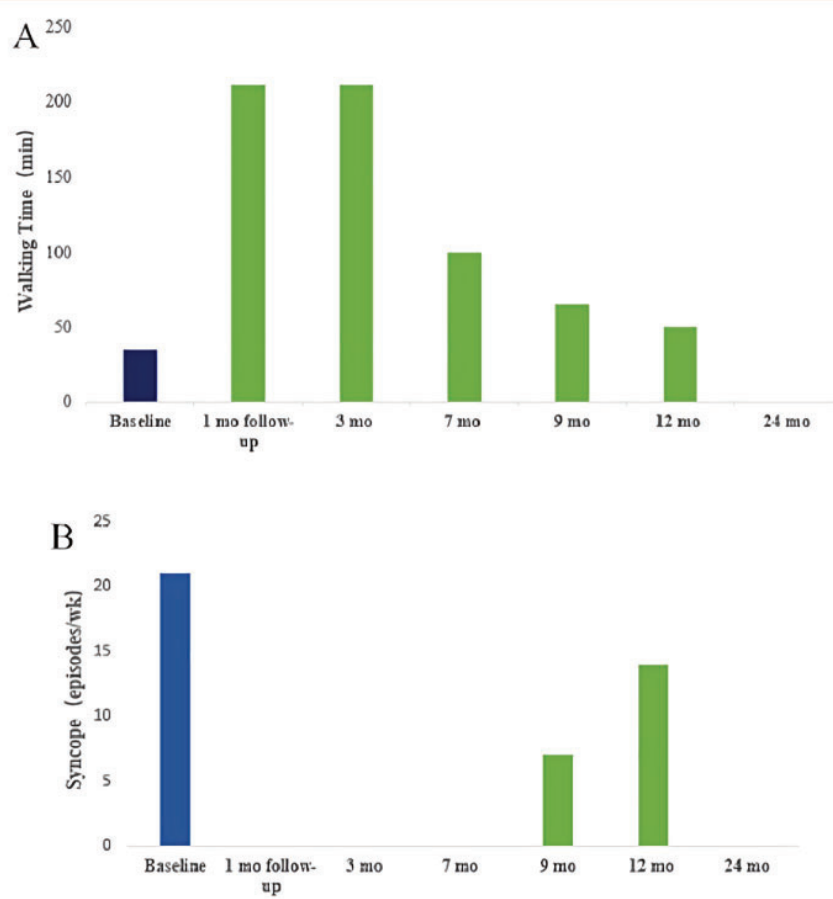
Fig: Effects of spinal cord stimulation (SCS) on walking ability and standing function of the patient. **A** Bar graph showing the average walking time per week before SCS implantation and during the follow-up period after SCS implantation. **B** Bar graph showing the average number of syncopal episodes per week before SCS implantation and during the follow-up period after SCS implantation.

## Biography

Dr. Zhirong Wan, Male, 47y (January 1978), With 20 years of expertise in neurology, specializing in neurodegenerative diseases including PD and other movement disorders.

- Chair, Aerospace Medical Geriatrics Alliance.
- Director of Geriatrics Department I, Aerospace Center Hospital.
- Chief Physician, MD, PhD, Associate Professor at Peking University Health Science Center.
- Subspecialty Leader in Parkinson's Disease & Movement Disorders, Aerospace Center Hospital.

### Professional Affiliations

- Member, Neuromodulation Working Group, Chinese Society of Neurology.
- Committee Member, Beijing Society for Parkinson's Disease & Movement Disorders.
- Secretary, National Parkinson's Disease & Movement Disorders Quality Control Expert Group.
- Executive Director, Geriatric Diseases Branch, Chinese Association of Gerontology and Geriatrics.
- Committee Member & Vice Chair of Young Investigators Committee, Chinese Society of Microcirculation.
- Vice Chair, Movement Disorders & Neuromodulation Committee, Beijing Society of Neurodegenerative Diseases.

### Academic Contributions

- Co-author and lecturer for *China Parkinson's Disease Medical Quality Training Curriculum*.
- Expert panel member for *Chinese Multidisciplinary Consensus on Diagnosis and Management of Orthostatic Hypotension*.

### Jing Zhao

Aerospace Center Hospital, Department of Neurology, Beijing, China

Deputy Chief Physician, MD, PhD

Visiting Scholar at Antonio Cardarelli Hospital, Italy

### Professional Affiliations:

- Member, Beijing Women Doctors Association.
- Standing Committee Member, Beijing Youth Committee on Neurodegenerative Diseases.
- Standing Committee Member, Beijing Neurology Association – Cognitive Impairment & Related Disorders.
- Member, Beijing Neurology Association – Neurodegenerative Diseases.
- Member, Brain-Gut Axis Committee, Beijing Society of Neuroscience.
- Member, Health & Wellness Medicine Branch, China Elderly Health Association.
- Executive Director, Chronic Disease Prevention Branch, National Health Industry Enterprise Management Association.

### Clinical Expertise:

Extensive experience in neurodegenerative and cerebrovascular diseases, specializing in Parkinson's disease, normal pressure hydrocephalus, atypical parkinsonian syndromes, and other movement disorders. Proficient in cerebrovascular diseases, headache, dizziness, and ischemic stroke management. Published nearly 30 peer-reviewed papers in domestic and international journals.

# INDEX

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