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HYBRID EVENT

3rd International Congress on
Psychology & Behavioral Sciences

International Conference on
Healthcare and Advanced Nursing

3rd World Congress on Physical Medicine and Rehabilitation

26-27 MARCH 2026

OSAKA, JAPAN

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Table of Contents

Organizing Committee

Jing Gao
Rocky Vista University, USA

Wolfgang Laube
Martin-Luther-University Halle-Wittenberg, Austria

Jay Spector
American Academy of Podiatric Sports Medicine, USA

Miguel Angel Manas Rodriguez
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Sam Vaknin
CIAPS (Commonwealth Institute of Advanced Professional Studies), UK

Ashoke Bose
AGR Health, LLC, USA

Bernd Blobel
University of Regensburg, Germany

Noor Zaman Jhanjhi
Taylor's University, Malaysia

Andrey Belousov
Kharkiv National Medical University, Ukraine

Sergey V Suchkov
Sechenov University, Russia

Thank You All

WELCOME MESSAGE

Sandip Dhurat
SPD Innovative
India

Dear Colleagues and Friends,

It is my great pleasure to extend a warm welcome to all participants joining us for this important gathering. I am honoured to be part of an event that brings together innovators, researchers, leaders, and practitioners united by a shared vision of advancing meaningful progress in our field.

This platform offers a valuable opportunity to exchange ideas, showcase new developments, and build collaborations that can shape the next chapter of global innovation. The program ahead reflects a broad and forward-looking approach, covering emerging challenges, breakthrough technologies, and practical solutions that can contribute to real-world impact.

As we come together from different regions and disciplines, I hope this event becomes a space for inspiration, learning, and new partnerships. Each contribution—whether through research, dialogue, or shared experience—plays a vital role in strengthening our collective journey.

I look forward to meaningful discussions, constructive exchanges, and the chance to connect with many of you over the course of this event. May your participation be enriching, productive, and memorable.

With warm regards,

Dr. Sandip Dhurat

Inventor, Author and Hydrogen Innovation Researcher

WELCOME MESSAGE

Andrey Belousov
Kharkiv National Medical University
Ukraine

Dear Colleagues and Friends,

Welcome to the Healthcare and Advanced Nursing Conference in Osaka, Japan!

On behalf of the scientific committee, we are pleased to welcome you to this international forum bringing together healthcare professionals, nursing leaders, researchers, and educators dedicated to advancing clinical practice, patient care, and healthcare innovation.

Osaka, a city renowned for its rich culture and leadership in medical and technological development, provides an excellent setting for professional exchange and collaboration. The conference program offers a diverse range of topics spanning advanced nursing practice, healthcare management, clinical research, education, and emerging healthcare technologies.

We trust that this conference will foster meaningful dialogue, encourage interdisciplinary collaboration, and inspire new ideas that contribute to the future of healthcare and nursing worldwide.

Welcome to Osaka, and we wish you a productive, engaging, and rewarding conference experience.

Best regards,

Andrey Belousov

WELCOME MESSAGE

Ashoke Bose
AGR Health LLC
USA

Dear Colleagues and Friends,

Welcome to the International Conference on Healthcare and Advanced Nursing 2026 in Osaka, Japan. We are honored to gather healthcare professionals, nurses, researchers, policymakers, and innovators from across the globe at a time when the future of health and care truly depends on shared purpose and collective action. This conference is more than a forum for knowledge exchange—it is a space to reflect, to challenge assumptions, and to imagine healthcare systems that are more humane, resilient, and equitable. As you engage in discussions, presentations, and collaborations, we encourage you to draw inspiration not only from scientific evidence and clinical practice, but also from the human values that unite us in caring for others. May this conference spark new ideas, meaningful connections, and renewed commitment to improving health outcomes for communities worldwide. We wish you an inspiring and rewarding experience in Osaka.

Best regards,

Ashoke Bose

AGR Health LLC, USA

DAY- 01

KEYNOTE PRESENTATIONS

2026 26-27 MARCH

OSAKA, JAPAN

Jing Gao

Rocky Vista University
USA

Biography

Jing Gao, is the Professor and Director of Ultrasound at Rocky Vista University (RVU) and the Fellow at American Institute of Ultrasound in Medicine (AIUM). She completed her medical education and residency in 1984 and came to the US in 1989 after working as attending physician in diagnostic ultrasound. She worked in clinical ultrasound services and research at Weill Cornell Medicine for 27 years before joining the RVU. She has published one book and 100 articles. She is serving as an editorial board member for journals of Clinical Imaging, Journal of Ultrasound in Medicine, and Ultrasound in Medicine and Biology.

Quantitative Ultrasound In Rehabilitation

Abstract:

Quantitative ultrasound (QUS) is an emerging imaging technique that meets unmet clinical need in developing quantitative methods in rehabilitation. We performed QUS of muscles on adult healthy subjects and patients with post-stroke spasticity, Parkinson's rigidity, and non-specific chronic neck pain after obtaining IRB approval and informed consent. We measured QUS markers (backscatter intensity on B-mode image, shear wave velocity on shear wave elastography, and strain ratio on ultrasound strain imaging) in normal muscles and affected muscles with spasticity, rigidity, and hypertonicity before and after treatments (BoNT-A, Levodopa, or osteopathic manipulative treatment). Differences in QUS markers between normal and affected muscles, and those affected muscles before and after treatment were analyzed using two-tailed paired t-test. Intra- and inter-observer reliability of performing QUS was analyzed using intraclass correlation coefficient (ICC). We observed significant differences in QUS parameters between normal and affected muscles ($p < 0.01$). We also noted significant changes in QUS parameters after treatment compared to that measured before the treatment ($p < 0.01$). Intra- and inter-observer reliability of performing QUS was moderate to good (ICC >0.85). Study results suggest that QUS are feasible to assess changes in muscle mechanical properties associated with hypertonicity, rigidity, and spasticity in patients with neuromuscular disorders and chronic neck pain. QUS can also evaluate the effectiveness of treatment for those conditions. The affected muscles are stiffer in patients with stroke, Parkinson's disease, and pain than normal muscles. The affected muscles become softer after the treatment. QUS provides non-invasive and quantitative imaging biomarkers in rehabilitation.

Wolfgang Laube

Martin-Luther-University
Halle-Wittenberg
Austria

Biography

Wolfgang Laube, is a specialist in sports medicine, physiology, and rehabilitation medicine. He completed his PhD in 1990 on the topic of neurovegetative regulation and muscle fatigue at the Humboldt University of Berlin. He is intensively involved with the topics of the sensorimotor system, the resilience of the musculoskeletal system, the effects of training, the integration of sensorimotor function and pain, and lack of exercise as a cause of chronic degenerative diseases, with the primary goal of active prevention and treatment. Several textbooks on these topics he has been published by Thieme and Springer. He is a lecturer at the University of Krems and a visiting scholar at the Martin Luther University of Halle/S.

Lack Of Exercise: A Link Between Sensorimotor System, Behaviour, Cognition, Emotions And Nociplastic Pain

Abstract:

Children develop cognitive abilities through sensorimotor actions, because every movement is cognitive. Sensorimotor-based cerebral structure also promotes non-sensorimotor cognitive abilities. However, they require a specifically “extended” learning-related structuring. Physical activities provide the biological foundations for academic achievement, although physical activity and academic performance should not be equated. Overall, this results in a logical link between the development and maintenance of sensorimotor skills and movement-independent cognitive abilities, memory, emotional behaviour, attitudes and competencies.Because sensorimotor function and pain inhibition form a functional unit, healthy individuals can perform highly tiring and high-intensity sensorimotor activities pain-free. That means, training in sensorimotor skills also improves anti-nociceptive cerebral function. This includes pain tolerance, cognitive and emotional pain appraisal, and the resulting behaviour. These connections can be assumed to extend throughout the lifespan. It can be assumed that early childhood disorders or delays in sensorimotor development or sensorimotor deconditioning in early life and later in life alter cerebral structure and thus all functions with regard to personality, consciousness, emotions and memory, and pain inhibition, including cognitive-emotional pain management and behaviour.Impaired or chronically deconditioned sensorimotor function is a proven risk factor for chronic degenerative diseases, including nociceptive pain disorders. However, when considering the consequences for brain function resulting from physical inactivity without primary developmental sensorimotor impairments (sedentary behavior), it is also important to consider whether individuals are cognitively active or inactive. I suggest, to expand the 6 factors of a healthy life style by the factor “non physical- or non sensorimotor-related cognitive activities”.

Miguel Angel Manas Rodriguez

University of Almería
Spain

Biography

Miguel Ángel Mañas Rodríguez, is a Full Professor at the University of Almería, where he carries out teaching and research activities in the field of Social and Work Psychology. His research focuses on positive psychology, psychological well-being, and behavior in educational and organizational contexts. He has participated in several research projects and has published scientific articles in specialized journals, contributing to the advancement of applied knowledge aimed at improving human well-being and performance.

Strengthening Psychological Capital In University Students: Effects Of A Longitudinal Interventions

Abstract:

This study explores the benefits of a psychological intervention aimed at strengthening Psychological Capital (PsyCap) in university students. It examines whether the development of its four dimensions (self-efficacy, hope, optimism, and resilience) positively influences the completion of their final degree projects in key academic variables such as engagement, student-teacher relationships, and perceived stress. A quasi-experimental longitudinal interrupted time-series design was used, with an equivalent quasi-control group and three assessment points (baseline, one and a half months, and three months). The sample consisted of 52 students, divided into an experimental group (n=23), which participated in weekly sessions over three months, and a control group (n=29). The results showed significant improvements in the experimental group's PsyCap, particularly in resilience and optimism, as well as higher engagement compared to the control group, indicating that they enjoyed their academic work more. This supports the effectiveness of a PsyCap intervention in enhancing useful resources in university educational contexts.

Jay E. Spector

American Academy of Podiatric Sports Medicine, USA

Biography

Spector, studied Economics at-MGill University, Montreal, Canada and graduated in 1986. He went to the New York College of Podiatric Medicine and graduated in 1992. He completed a surgical residency at the Georgia Podiatric Surgical Residency in Atlanta, GA. He is a past president of the American Academy of Podiatric Sports Medicine and is the Scientific Director of their yearly Stand Alone Meeting in Sports Medicine. He has published several papers and is a frequent lecturer both in the United States and Europe. Dr Spector is in private practice at Atlanta Sports Podiatry in Johns Creek, GA, USA.

Treatment Of Medial Tibial Stress Syndrome (Shin Splints): What Is The Evidence-Based Medical Treatment?

Abstract:

To understand the treatment, you first must identify the cause of MTSS in that individual. Iontophoresis, phonophoresis, ice massage, ultrasound therapy, and extracorporeal shockwave therapy (ESWT) could be effective in treating MTSS when compared with control. Low-energy laser treatment, stretching and strengthening exercises, sports compression stockings, lower leg braces and pulsed electromagnetic fields have NOT been proven to be effective in treating MTSS.

What will audience learn from your presentation?

- They will learn how to use balance testing to identify weaknesses in the gluteus medius that can contribute to MTSS
- Changes in running form can help prevent MTSS
- Orthotics or arch supports can help prevent MTSS
- These changes and treatments can speed up the healing time for patients with MTSS and get them back to sport quicker.

Ashoke Bose
AGR Health, LLC
USA

Biography

Ashoke Bose, is a health economist, technologist, and social innovation entrepreneur. He is the Co-Founder & CEO of AGR Health, LLC, and the Founder of the M. L. Bose Memorial HealthFoundation, advancing community-driven health initiatives grounded in social responsibility and mutual aid. With more than three decades of experience spanning healthcare economics, data systems, and sustainable technology, Bose has worked across the United States, Europe, and Asia, including senior roles at IBM (USA and China). He is widely recognized for his work on peer-to-peer (P2P) healthcare payment models, social capital–based health financing, and alternative economic frameworks that challenge insurance-centric health systems. Bose holds a Master's degree in Health Administration from CornellUniversityand has presented his work at global forums including the World Congress on HealthEconomics and ISPOR. As a keynote speaker at **Healthcare 2026**, he brings a comparative, human-centered perspective on health systems reform.

Myth about Health Insurance: Commercial Insurance vs. Social Capital

Abstract:

Health insurance is widely regarded as a fundamental determinant of population health, with the prevailing belief that nations achieving high insurance coverage—through either government-sponsored or commercial mechanisms—inevitably realize superior health outcomes. This keynote paper challenges that assumption through a comparative analysis of health expenditure, insurance coverage, and health outcomes in the United States, the United Kingdom, and Bangladesh. The United States spends over USD 14,500 per capita annually on healthcare, driven largely by commercial insurance premiums and public insurance programs, yet life expectancy at birth remains approximately 75 years. In contrast, Bangladesh spends less than USD 70 per capita on healthcare while achieving a life expectancy exceeding 72 years, despite minimal insurance coverage and limited public health financing. The United Kingdom occupies an intermediate position, with substantially lower per-capita spending than the U.S. and predominantly tax-funded universal coverage. This paper argues that the foundational principle of insurance, transfer and replacement of risk—does not apply meaningfully to health, which represents a non-transferable biological state rather than a replaceable asset. Health insurance therefore functions less as true risk protection and more as a complex price-discount and payment mediation mechanism, often constrained by utilization controls such as prior authorization. Using cross-national public health indicators—including healthcare expenditure, insurance penetration, access to care, life expectancy, and maternal and child health metrics—the analysis highlights the underappreciated role of social capital, family networks, and community-based support systems in sustaining health outcomes, particularly in low-resource settings. The findings invite a re-examination of insurance-centric health policy frameworks and suggest that strengthening social capital may be as critical as expanding financial coverage in achieving sustainable population health.

DAY- 01

ORAL PRESENTATIONS

2026 26-27 MARCH

OSAKA, JAPAN

Sevda Hasanli
University of Ottawa
Canada

Biography

Sevda Hasanli, completed her master's in Clinical Psychology and is currently pursuing her PhD in the Neuropsychology Lab at the University of Ottawa. Her research spans from cognitive remediation in schizophrenia to exploring large language models and automated approaches for neuropsychological test scoring. Alongside academia, she has worked in government departments, applying psychological principles to enhance human–computer interaction and user experience in digital systems.

Can A Large Language Model (Llm) Match Humans In Describing And Rating Complexity Of Video Stimuli?

Abstract:

Many fields are incorporating computational tools to improve research efficiency. Large Language Models (LLMs) can now process video clips quickly and consistently, helping researchers handle exponentially more data. We explored whether LLMs can accurately describe and rate the complexity of video stimuli and match traditional human ratings of complexity. We compared the performance of three LLMs—LLaMA 3-8B, LLaVA 34B, and GPT-4o—in automatically describing 62 videos from the Database of Emotional Videos from Ottawa (DEVO-2). First, we ran Python scripts with structured prompts that fed each DEVO-2 video into the three LLMs. These scripts extracted frames from the videos and asked the models to identify objects, actions, and any critical details. We then manually checked each LLM description against actual video content. After this informal analysis, we chose the strongest model to continue processing the additional video clips. To our eyes, GPT-4o outperformed LLaMA and LLaVA, consistently generating the most detailed and contextually relevant descriptions of videos. Next, we prompted the LLMs to assess the visual complexity of each video. To validate the LLMs' assessment, we selected a previously published dataset with ratings of video complexity by 24 undergraduate participants which gave us a benchmark to compare LLM-generated complexity ratings. First, however, we examined reliability/consistency of the LLM ratings. We ran GPT-4o twice on the same video and compared the results. GPT-4o consistently reported similar complexity ratings from both runs (Spearman r=0.96, p=2.1e-11). Next, we compared LLM ratings with human judgments. The results show that GPT-4's scoring method aligns well with how people perceive complexity. (Spearman r=0.74, p=0.0002). This study provides strong evidence that LLMs, particularly GPT-4o, can describe and rate the complexity of video stimuli. As LLMs continue to advance, their role in psychological research will expand, offering new opportunities for innovation in the study of human cognition.

Pema Sangay
Regional Institute of Medical Sciences, India

Biography

Pema Sangay, completed his MBBS in 2018 from Ivano-Frankivsk National Medical University, Ukr -aine. He is currently a first-year postgraduate trainee in the De-partment of Physical Medicine and Rehabilitation at the Regional In-stitute of Medical Sciences. His in-terests include interventional pain management and musculoskeletal rehabilitation. He has presented a poster at the Mid-term CME of the Indian Association of Physical Medi-cine and Rehabilitation (IAPMR) and is presently working on his thesis, which focuses on fluoroscopy – and ultrasound guided cryoablation ver-sus intra-articular steroid injection for sacroiliitis in ankylosing spondy-litis patients.

Effectiveness Of Fluoroscopy Guided Cryoablation Of Genicular Nerves In Comparison With Steroid And Local Anaesthetic Block In Improving Pain And Function In Patients With Grade 3 And 4 Osteoarthritis Of The Knee: A Randomized Controlled Trial

Abstract:

Background: Knee osteoarthritis (OA) is a leading cause of pain and disability, with limited non-surgical treatment options in advanced stages. Fluoroscopy-guided cryoablation of genicular nerves is an emerging alternative for pain control and functional improvement.

Objective: To compare the effectiveness of fluoroscopy-guided cryoablation of genicular nerves with steroid and local anaesthetic block in improving pain and function in patients with Kellgren-Lawrence grade 3 and 4 knee OA. Methods: This single-blinded randomized controlled trial was conducted at the Department of PMR, RIMS, Imphal, involving 82 patients aged 50-75 years with chronic knee pain. Participants were randomized into two groups: Group A received fluoroscopy-guided cryoablation of the superomedial, superolateral and inferomedial genicular nerves; Group B received steroid (Triamcinolone 40mg) and local anaesthetic (Bupivacaine 0.5%) block. Both groups underwent a structured rehabilitation program. Pain and function were assessed using the Visual Analogue Scale (VAS) and Western Ontario and McMaster Universities Osteoarthritis Index (WOMAC) at baseline, 1, 4, 12 and 24 weeks.

Results: Both groups demonstrated significant improvement in VAS and WOMAC scores from baseline ($p<0.001$). However, cryoablation produced greater and sustained improvement. At 24 weeks, mean VAS reduction was 5.9 vs 4.0 and WOMAC improvement was 60.5 vs 34.6 in the cryoablation and steroid groups respectively ($p<0.005$). No major adverse events were reported.

Conclusion: Fluoroscopy-guided cryoablation of genicular nerves is more effective and longer-lasting than steroid and local anaesthetic block in reducing pain and improving function in advanced knee OA. It represents a promising minimally invasive alternative for patients unsuitable for surgery.

Lochie Timms McLean
Federation University
Australia

Biography

Lochie Timms McLean, is a second year PhD student with Federation University, in a translational research project in collaboration with Safer Care Victoria (Dept of Health), the Victorian Collaborative Centre for Mental Health and Wellbeing and Western Alliance. He has previously completed a Master of Public Health and aims to combine psychology, lived experience as someone with ADHD and public health knowledge to translate research directly to policy and practice with the help of governmental collaborators.

A Systematic Review Of The Prevalence Of ADHD And Autism Among Those Experiencing Gambling Harm

Abstract:

Background: Existing research finds that those with ADHD and autism are more susceptible to developing harmful gambling behaviour with more severe symptoms than neurotypical people (Brandt et al., 2017; Vintró-Alcaraz et al., 2024).

Objective: This systematic review aims to determine the prevalence of ADHD and autism in those who experience gambling harm globally, to establish an argument for a priority population needing specific intervention and prevention plans.

Methods: The methodology for the review was developed using frameworks by Munn et al. (2015) and using the PRISMA checklist to ensure structural soundness (Page et al., 2021). Search terms were developed with reference to each included database and individually tested by database for formatting accuracy.

Results: 558 studies were included for screening, with 245 duplicates removed automatically. 14 of those studies were included for extraction and analysis. R was used to conduct a meta-analysis on the included studies reporting ADHD data, while 2 included studies reported data on autism had a narrative summary of their results. The rate of prevalence for ADHD in gambling harm was 24%, with a high rate of heterogeneity suggesting a lower rate may be the true rate.

Conclusion: The results of this review confirm the presence of ADHD in those experiencing gambling harms and makes a compelling case for those with ADHD to be seen as a priority group for prevention and intervention efforts. The results suggest that while autism is likely to be as much of a priority as ADHD is, more research is needed in this area.

Sawsan Almomen

Imam Mohammad Ibn Saud Islamic University (IMSIU), Saudi Arabia

Biography

Sawsan Almomen, is an Associate Professor in the Department of Psychology, specializing in Cognitive Psychology, at Imam Muhammad ibn Saud Islamic University in Riyadh, Kingdom of Saudi Arabia. She has supervised and examined over 50 research theses at the master's and doctral levelsand has published numerous studies in the field of cognitive psychology.

The Relationship Between Psychological Empowerment And Emotional Creativity

Abstract:

Study Objectives:

- To examine the correlation between psychological empowerment and emotional creativity.
- To identify differences in the mean scores of psychological empowerment and emotional creativity according to age group.
- To identify differences in psychological empowerment and emotional creativity according to marital status.
- To determine the extent to which emotional creativity can be predicted through psychological empowerment.

Methodology:

The descriptive method (correlational/comparative) was employed, as it aligns with the objectives of the study.

Sample:

The sample was selected using stratified random sampling based on age group and marital status. The final sample consisted of 150 participants.

Instruments:

- Psychological Empowerment Scale developed by Aker (2013), consisting of 24 items distributed across four dimensions.
- Emotional Creativity Scale developed by Al-Hamdani (2014), consisting of 30 items distributed across three dimensions.
- The researcher verified the psychometric properties (validity and reliability) of the instruments using a pilot study before applying them to the final sample.

Key Findings:

- Significant positive correlations ($p < 0.01$) were found between all dimensions of psychological empowerment (meaning, autonomy, competence, influence) and the total score, on one hand, and all dimensions of emotional creativity (originality, flexibility, effectiveness) and the total score, on the other hand.
- Statistically significant differences ($p < 0.05$) were found in

the influence dimension and the total score of psychological empowerment according to age group.

- No statistically significant differences were found in the dimensions of psychological empowerment (meaning, autonomy, competence) or in emotional creativity dimensions and total score according to age group among special education teachers in Riyadh.
- No statistically significant differences were found in psychological empowerment or emotional creativity according to marital status.
- The dimensions of competence and influence significantly contributed to predicting emotional creativity, whereas meaning and autonomy did not.

Nalinee Cheryklinput
Navamindradhiraj University, Thailand

Biography

Nalinee Cheryklinput, has completed a Master of Science in Nursing, majoring in Adult Nursing. She is a Nurse Educator at the age of 27, with a specialist background in the Medicine department. She remains a Registered Nurse, practicing in her clinical setting, and is also a member of the Kuakarun Faculty of Nursing, Navamindradhiraj University, for 8 years. She has published in journals and has been part of several research projects. She is also a guest speaker on research processes and care for chronically ill patients in the community.

Empowering Stroke Survivors: Behavioral Strategies for Recurrence Prevention and the Support of Village Health Volunteers

Abstract:

Stroke is a major cause of death and long-term disability in Thailand. Stroke survivors often face physical, psychological and social impacts, including the risk of stroke recurrence. Empowerment of survivors is an important approach to promote appropriate health behavior changes, which will reduce the chance of stroke recurrence and improve the quality of life of patients. Behavioral strategies such as changing eating behaviors, increasing physical activity, smoking and alcohol consumption, controlling chronic diseases, and managing stress and mental adjustment play an important role in preventing stroke recurrence. In addition, Village Health Volunteers (VHVs) play an important role in supporting stroke survivors in the community through education, home visits, role models in health care, linking patients to other resources in the community, promoting group activities, and motivating them to take care of their own health. Integrating behavioral strategies with support from Village Health Volunteers is an effective approach to empower stroke survivors to prevent recurrence and promote sustainable quality of life.

Vivek Bafna

Indian Institute of Technology Madras, India

Biography

Vivek Bafna, has completed his B.Tech in Mechanical Engineering from National Institute of Technology Bhopal. He is currently pursuing MS in Mechanical Engineering from Indian Institute of Technology Madras and conducting research in the field of Assistive Health Technologies. His areas of research interest include Biomechanics, Design Optimisation, Dynamics and Control of mechanical systems.

Design Optimisation Of MR Fluid Based Damper For Transfemoral Prosthesis

Abstract:

For transfemoral amputees to mimic the natural swing kinematics of the human knee joint, especially at different walking speeds, various types of damping elements are used in the prosthetic knee. Among these are Magneto-Rheological(MR) fluid based dampers which can modulate the damping level in real time during walking as per the user requirement. MR fluid exhibits its dynamic viscosity characteristics and yield stress depending on the magnetic field applied to impede the flow. Existing work optimised the design of the damper with an objective to improve damper performance without considering the overall prosthesis and end user behavior. We propose a methodology to capture the behavior of the prosthesis user at the initial design stage and optimize the damper with an objective to enhance the user experience. We consider an MR damper with single-coil annular structure. The MR fluid behavior is modelled using Bingham model and magnetic circuit is analysed using Ampere circuital law. The Prosthetic limb is modelled as double pendulum wherein the ankle joint is assumed to be fixed. The optimization problem was formulated with multiple objectives and non-dominated sorting genetic algorithm - II (NSGA-II) was applied to optimize the design of the damper. When damper is optimised using conventional technique, the RMS (root mean square) error value of the actual knee angle trajectory with respect to desired trajectory is 5.44^{0}. Whereas by using proposed methodology of damper optimization, obtained RMS error is 0.57^{0} and there is comparatively 13% reduction in power consumed per gait cycle.

Khaled Mohamed Zaedi

Hamad Medical Corporation-WWRC, UK

Biography

Khaled Mohamed Zaedi, has be-en a Senior Consultant at Hamad Medical Corporation for eight years now. He first finished medical school at Tripoli University for Medical Sciences, then moved to the United Kingdome and completed his training in Obstetrics and Gynecology. In 2004, he got his MRCOG. Fast forward to 2016, and he earned his FRCOG. This highlights his long career, experience and all the work he's put into the field. All that training, expertise and years of hands-on practice make him a real expert in the field of Obstetrics and Gynecology.

MVA The Way Forward To Treat Miscarriage

Abstract:

Definition: Overview Manual vacuum aspiration (MVA) is a suction-based surgical technique that utilises a self-generated vacuum mechanism to aspirate products of conception from the uterine cavity. This procedure is performed under local anaesthesia in an outpatient setting, eliminating the need for general anaesthesia and operating theatre facilities.

Technique: MVA relies on a hand-held syringe paired with a flexible cannula. It creates the necessary vacuum through manual force. No electric pumps are needed. According to the World Health Organization, this approach is both safe and reliable for early pregnancy uterine evacuation. Its success rates match those of electric suction methods.

Advantages and Indications: Manual vacuum aspiration stands out because it is inexpensive, simple to use, and widely available. It works well. The technique is indicated for managing incomplete miscarriages as well as elective terminations within the first trimester.

Aims: Quality Assurance Operational excellence within the Women's Wellness and Research Centre mandates that every patient subjected to Manual Vacuum Aspiration receives interventions congruent with rigorous, evidence-derived clinical benchmarks. Standardization is paramount to enable the facility to facilitates a reduction in clinical heterogeneity, ensuring that therapeutic results remain uniform across the entirety of the departmental landscape.

Patient-Centred Care: Furthermore, to ensure that each patient receives individualized, compassionate care throughout their MVA experience. This encompasses comprehensive pre-procedural counselling, appropriate pain management strategies, emotional support during the procedure, and thorough post-procedural follow-up.

Emotional Support: The objective is to provide reassurance and maintain patient dignity at every stage of the care pathway within the WWRC environment.

Itschak Trachtengot
Hebrew University of Jerusalem, Israel

Biography

Itschak Trachtengot, is a Fellow at the Truman Institute and a post-doctoral fellow in the Department of Psychology at the Hebrew University. He serves as Head of the Tzavta Program for ultra-orthdox students at the Hebrew University, and Head of the Dean's Program for Outstanding Haredi Doctoral Students at the University. In addition, he leads both the Kedma Program and the Jewish Education Program at Herzog Academic College.

Diversifying Study Paths As A Way To Increase Motivation And Enable Greater Attention: The Case Of Adolescents With Adhd In Ultra-Orthodox Society In Israel

Abstract:

The Haredi community in Israel is an ultra-conservative religious community, which maintains a strict and modest lifestyle. According to the Haredi belief, men should only engage in religious studies their entire lives and not go out to work. As a result, the study paths for boys in high school are uniform and do not include electives, but only religious studies. Accordingly, the dropout rate in this community is 3 times higher than the average in Israel, with a large portion of them being boys diagnosed with ADHD. The study included 84 boys aged 14-17 diagnosed with ADHD. Over the course of a week, their ability to sit in religious classes at their high school was measured. After that, 52 of them were given lessons in other subjects, and 32 continued to study the regular classes. It was found that those who received varied lessons had a 65% higher ability to sit in classes than the control group. The results can be explained by the Self-Determination Theory (SDT) of Deci and Ryan (2012), which explains individual motivation through three factors: autonomy, competence, and relatedness. The ability to choose and diversify in lessons allows students autonomy, increases their competence and ability to express themselves, and thus strengthens their belonging to the material being studied. As a result, they are more motivated to invest in learning, and ADHD symptoms decrease. The study may help in dealing with ADHD symptoms in adolescence, through educational and proactive means, and reduction through pharmacological or disciplinary means.

DAY- 01

POSTER PRESENTATIONS

2026 26-27 MARCH

OSAKA, JAPAN

Stephanie Susinski
University of Ottawa
Heart Institute, Canada

Biography

Stephanie Susinski, is a clinical research coordinator in Dr. Heather Tulloch's Cardiovascular Health Psychology lab at the University of Ottawa Heart Institute and incoming graduate student in psychology. She coordinates a randomized controlled trial, Healing Hearts Together, evaluating a couples-based intervention to improve relationship quality and cardiac health outcomes. She has presented at behavioral medicine conferences covering topics on mental health interventions and neuropsychological outcomes following cardiac events. Stephanie authored a scoping review on psychological interventions for women with cardiac disease and led a meta-analysis on mental health interventions for this population.

Relationship Quality, Motivation and Health Behaviors Among Patients with Heart Disease

Abstract:

Background: Cardiac disease is the leading cause of global mortality. Social relationships may engender self-determined motivation for risk-reducing behaviors. The present study examines the association between couple relationship quality and cardiac health behaviors, and if it is mediated by motivation.

Methods: Participants completed validated questionnaires on motivation and health behaviors, including fruit and vegetable intake, alcohol use, and physical activity (Godin Leisure-Time Exercise Questionnaire). Relationship quality (RQ) was assessed using the Dyadic Adjustment Scale. Global motivation (adapted GMS-28) was calculated using the Relative Autonomy Index. PROCESS macro in SPSS was used to examine whether motivation mediated the association between relationship quality and health behaviors.

Results: A total of 263 patients (77% male; Mean age = 63 years; 91% White) participated; 75% were in satisfying relationships. Alcohol consumption was the only health behavior in which a direct effect of RQ was present. Higher RQ was associated with increased alcohol intake (b = .0457, p = .0366) albeit with low levels of consumption (M=3.4 drinks/week); motivation did not mediate this relationship. Motivation mediated small but significant indirect effects of RQ on fruit and vegetable intake (b = .0025, 95% BCa CI [.0003, .0056]; M=2.8 servings/day) and MVPA (b = .3282, 95% BCa CI [.0105, .8427]; M=198 minutes/week).

Conclusion: These findings suggest that RQ is related to alcohol consumption, while motivation may foster exercise and healthy eating. Future research with a diverse sample (e.g., ethnicity, relationship distress) is required to validate these findings.

Emily Akamine
Western University of Health Sciences, USA

Biography

Emily Akamine, is a third-year medical student at Western University of Health Sciences COMP-Northwest.Originally from Honolulu, Hawai'i, she earned a BS in Public Health from theUniversity of Washington and has a background in public health and environmental advocacy. AtWesternU, she is involved in headache research, including carotid artery dissections through theparotid gland and development of an OMT-based headache treatment protocol. She plans topursue a career in Physical Medicine and Rehabilitation. In her free time, she enjoys cooking,running, surfing, and hiking.

Isolated Thoracic Paraspinal Myopathy, Axial Myopathy, Cervicothoracic Pain, Postural Dysfunction, Back Pain

Abstract:

Cervical thoracic pain is a common chief complaint that presents to outpatientmusculoskeletal clinics.The differential diagnosis is vast, including trauma, arthritic, muscledysfunction/myofacial pain, central pain syndromes, infectious, radicular, and neuropathic painsyndromes and a multitude of spinal pathologies. This is a case of isolated thoracic paraspinalmyopathy presenting as exertional cervicothoracic pain in an otherwise healthy older adult.A 67-year-old male hiker presented with a two-year history of burning and aching pain in the leftparascapular region, precipitated by prolonged uphill hiking. Neurologic and musculoskeletalphysical exam showed rounded shoulders and a macular rash over the painful area, otherwiseunremarkable. Routine laboratory studies and cervical MRI were normal. Thoracic spine MRIrevealed marked bilateral paraspinal muscle atrophy confined to the thoracic region, with normalappearing cervical and thoracic musculature. Electromyography was consistent with a myopathicprocess.The patient's pain was attributed to postural fatigue due to reduced thoracic paraspinal support. Hissymptoms were managed with physical therapy focusing on building core musculature and posturalstabilization, which provided partial relief. Pharmacologic treatment with gabapentin wasineffective. Physio-taping helped the patient with postural support as well as activity modificationwith shorter hikes.This is a rare case of isolated thoracic paraspinal myopathy, a condition that should be consideredas a diagnosis of exclusion for axial pain syndromes. MRI and EMG findings are essential fordiagnosis and appropriate conservative management. The localization of atrophy to the thoracicparaspinals suggests a distinct myopathic process that warrants further investigation into itspathophysiology and long-term outcomes.

Peerada Eurcherdkul

Mahidol University
Thailand

Biography

Peerada Eurcherdkul, M.D. is a physiatrist at the Department of Rehabilitation Medicine, Ramathibodi Hospital, Mahidol University, Bangkok, Thailand. She completed her Thai Board of Rehabilitation Medicine training in 2021 and holds a Doctor of Medicine with first-class honors. Her clinical and research interests include neurological rehabilitation, stroke recovery, transcranial magnetic stimulation, and post-stroke spasticity. She has completed specialized training in TMS and ultrasound-guided botulinum toxin injection techniques, and has published research in ASEAN Journal of Rehabilitation Medicine. Dr. Peerada is an active member of national and international neurorehabilitation societies.

The Continuity Of The Corticomotor Pathway Assessed By Transcranial Magnetic Stimulation And Upper Extremity Recovery In Subacute Stroke Patients With Impaired Hand Function: A Preliminary Study

Abstract:

This study investigated the relationship between corticomotor pathway continuity, assessed using transcranial magnetic stimulation (TMS), and upper-extremity motor recovery in subacute stroke patients with impaired hand function. Adults 1–3 months after a first-ever stroke with upper-limb motor impairment were enrolled in a prospective cohort design. Single-pulse TMS was applied to the ipsilesional and contralesional primary motor cortices, and visible contraction of the affected hand was used to determine the presence or absence of a motor response (MR). Motor thresholds and MR findings were recorded bilaterally. Motor recovery was evaluated using the Fugl–Meyer Assessment for Upper Extremity (FMA-UE), Shoulder Abduction and Finger Extension (SAFE) score, Box-and-Block Test (BBT), Barthel Index (BI), and spasticity measures at baseline, 3 months, and 6 months post-stroke. Five participants completed at least two follow-up assessments. One participant demonstrated ipsilesional MR presence during the subacute phase, while four presented with MR absence. No clear association was observed between early ipsilesional MR presence and subsequent FMA-UE scores. Three participants with initial MR absence later demonstrated MR presence approximately 3–4 months after stroke; two of these individuals showed meaningful improvement in FMA-UE, SAFE, and BBT scores. Contralesional motor thresholds showed no clear relationship with motor recovery. All participants improved in BI over time. These findings suggest that ipsilesional MR absence in the subacute phase does not necessarily indicate poor upper-extremity recovery and that late MR appearance may reflect neuroplastic reorganization. Larger studies are needed to clarify the prognostic value of TMS in the subacute period.

Daiki Matsuda

Fukuoka International University of Health and Welfare, Japan

Biography

Daiki Matsuda, is a researcher specializing in motor imagery and neurorehabilitation. He holds an academic position at Fukuoka International University of Health and Welfare, Japan. His research focuses on the neural mechanisms underlying motor imagery and action observation, with particular emphasis on transcranial magnetic stimulation–based assessment of corticospinal excitability. He is also involved in developing neurofeedback approaches to support motor learning and rehabilitation. His work integrates neurophysiological measures with behavioral and subjective outcomes in rehabilitation sciences.

Dissociation Between Corticospinal Excitability Changes And Motor Performance Following Virtual Reality–Based Motor Imagery Training In Healthy Adults

Abstract:

Motor imagery training has been applied in physical medicine and rehabilitation to promote motor learning without physical movement. Virtual reality–based environments have been introduced to enhance motor imagery practice; however, how neurophysiological changes induced during such training relate to actual motor performance remains unclear. This study aimed to examine the relationship between corticospinal excitability changes during virtual reality–based motor imagery training and changes in motor task performance. Right-handed healthy adults performed repeated motor imagery training of a standardized chopstick manipulation task in a virtual reality environment. Corticospinal excitability was assessed during motor imagery using transcranial magnetic stimulation, and motor evoked potentials were recorded from the first dorsal interosseous muscle. Motor performance was evaluated by measuring task execution time before and after the training period. Motor evoked potential amplitudes showed significant changes over time during motor imagery practice, indicating modulation of corticospinal excitability associated with repeated training. In contrast, motor performance did not demonstrate a statistically significant change following the intervention, and no group-dependent differences were observed. These findings indicate a dissociation between neurophysiological modulation and short-term behavioral outcomes during motor imagery training. The present results suggest that changes in corticospinal excitability induced by virtual reality–based motor imagery training may not be directly reflected in immediate improvements in motor performance. Evaluating both neurophysiological and behavioral outcomes may be essential for understanding the mechanisms and limitations of motor imagery–based interventions in physical medicine and rehabilitation.

Yu Sheng Shen

University of Taipei
Taiwan

Biography

Yu Sheng Shen, is an assistant professor at the Department of Earth and Life Science, University of Taipei. He is also an assistant professor at Master's Program in Environmental Education and Resources, University of Taipei. His expertise and research interests focus on mental health, sustainability, and urban science. Additionally, he has demonstrated extensive experience in using new technologies and big data analysis. With these studies, Dr Shen has led more than 30 indexed publications.

A Bibliometric Review Of Mental Health And Green Space Planning In 15-Minute Cities

Abstract:

The integration of mental health promotion and green space planning has become increasingly central to the vision of 15-minute cities, which aim to create accessible, equitable, and health-supportive urban environments. This study conducts a comprehensive bibliometric review to map global research trends, intellectual structures, and emerging frontiers at the intersection of mental health, urban green spaces, and the 15-minute city concept. Using data retrieved from the Web of Science Core Collection, the analysis applies performance metrics, keyword co-occurrence mapping, co-citation networks, and thematic clustering to identify influential countries, institutions, authors, and research domains. Results reveal rapidly growing scholarly attention since 2015, driven by the increasing recognition of environmental determinants of mental well-being and the global shift toward compact, walkable, and sustainability-oriented urban models. High-income countries, particularly China, the United States, and the United Kingdom, dominate research outputs, though emerging contributions from developing regions are observed. Thematically, the literature converges on several core areas: the psychological benefits of green space exposure, spatial planning strategies that enhance proximity and accessibility, environmental justice and inequities in green infrastructure distribution, and the mediating roles of air quality, physical activity, and social cohesion. Despite the expanding evidence base, significant gaps remain, including inconsistent operationalization of green space metrics, limited longitudinal and experimental designs, and insufficient integration of 15-minute city principles into mental health research frameworks. Future studies should prioritize standardized indicators, cross-disciplinary models, and policy-relevant evaluations to support mental health-inclusive green space planning. This review advances a systematic understanding of how 15-minute city strategies can foster mental well-being through evidence-based green infrastructure planning.

DAY- 02

KEYNOTE PRESENTATIONS

2026 26-27 MARCH

OSAKA, JAPAN

Sandip P Dhurat

SPD Innovative
India

Biography

Sandip P. Dhurat, is an innovator, author, and researcher in the field of autism and neurodiversity. He is the founder of SPD Innovative and author of the book With Wings, We Will Fly. He has published widely on autism therapy, mirror neurons, and neurodivergent employment. He is the inventor of NeuroCodeFix, a patented programming framework designed for autistic coders.

Neuro-Inclusive Innovation: Developing Technological And Therapeutic Pathways For Autism Empowerment

Abstract:

The evolving landscape of autism research is shifting from awareness-based narratives to action- oriented, innovation-driven inclusion. Dr. Sandip P. Dhurat presents an interdisciplinary framework that integrates neuroscience, therapy, and technology to support autistic individuals as active contributors in society. His work spans three key pillars: mirror neuron research for advancing understanding of social cognition; culturally rooted music therapy modalities—such as ghazal therapy—for emotional and communicative development; and technological innovation for employment inclusion. At the forefront of this framework is NeuroCodeFix, a patented programming platform specifically designed for neurodivergent coders. This tool addresses the functional challenges faced by autistic individuals in the software industry by creating skill-based, structured pathways aligned with neurodivergent strengths. Unlike traditional approaches that rely on generalized inclusion training, NeuroCodeFix operationalizes ability-based integration. His authorship of With Wings, We Will Fly provides practical career frameworks for autistic individuals, shifting the perspective from dependency to empowerment. Dr. Dhurat's approach is deeply collaborative—engaging families, educators, clinicians, and corporate stakeholders—to develop systemic models of neuro-inclusive innovation. By combining psychological research, therapeutic insight, and technological application, this work demonstrates how neurodiversity can be recognized not as a challenge to be mitigated, but as a reservoir of potential. This presentation offers a new model for the future of autism support— actionable, scalable, and inclusive.

DAY- 02

POSTER PRESENTATIONS

2026 26-27 MARCH

OSAKA, JAPAN

LI Ho Long

Shatin Hospital
Hong Kong

Biography

LI Ho Long , has completed his BSc in Physiotherapy at the University of Birmingham and MSc in Stroke and Clinical Science at the Chinese University of Hong Kong. He is a dedicated Resident Physiotherapist at Shatin Hospital, Hospital Authority Hong Kong. With specialized expertise in pulmonary rehabilitation, he leads innovative initiatives in dyspnoea management for patients with chronic conditions. He is currently the project lead of a project that integrates Virtual Reality technology to enhance dyspnoea management and rehabilitation outcomes, aiming to improve symptom control and quality of life in pulmonary patients through immersive, non-pharmacological interventions."

Breathing Beyond Boundaries: When Immersive Virtual Reality Physiotherapy Training Meets Dyspnea in Next-Gen Cardiopulmonary Rehabilitation

Abstract:

Aims: Virtual Reality (VR) creates an immersive audio-visual environment that supports focused relaxation breathing, a crucial non-pharmacological strategy for alleviating dyspnea. VR offers an engaging, technology-assisted alternative to conventional rehabilitation for patients seeking enhanced symptom control. This pilot study evaluated the effectiveness and feasibility of integrating VR-guided breathing exercises with physical task training for dyspnea management in inpatient cardiopulmonary rehabilitation.

Methods: Twenty-five clinically stable patients admitted to designated Medical and Geriatrics medical wards in Shatin Hospital in July 2025 to March 2026, diagnosed with Chronic Obstructive Pulmonary Disease (COPD), heart failure, chest infection, or presenting with dyspnea which limited physical ability, were recruited. Participants received an average of 5.28 VR-guided relaxation breathing sessions, delivered both at rest and during physical tasks such as sit-to-stand, stepping, and standing tolerance training. Each session lasted for 10 minutes. Pre- and post-intervention assessments included the Chinese version of the Dyspnea-12 questionnaire, Modified Functional Ambulation Category (MFAC), Elderly Mobility Scale (EMS), Six-Minute Walk Test (6MWT), and the Rating of Perceived Exertion (RPE). Data were analyzed using the Paired Sample t-Test.

Results: All outcome measures showed normality in the Kolmogorov-Smirnov test. Statistically significant improvements were observed across all outcome measures following the intervention($p<0.05$) for Dyspnea-12 total score, MFAC, EMS, 6MWT distance, and RPE.

Conclusion: Immersive VR-based interventions may represent a valuable adjunctive tool in modern cardiopulmonary rehabilitation, particularly for patients who experience motivational or adherence challenges with standard breathing exercises

Suyeon Kim
Western University of Health Sciences, USA

Biography

Suyeon Kim , is a dedicated second-year medical student at Western University of Health Sciences, based in Pomona, USA. She is actively engaged in medical education and academic research, with a strong interest in advancing clinical knowledge and evidence-based practice. Through her academic training, Miss Kim is developing a solid foundation in patient care, clinical reasoning, and medical research. She is committed to contributing meaningfully to the healthcare field through continuous learning and professional development.

Suprascapular Nerve Block As An Adjunct To Physical Therapy For Adhesive Capsulitis: A Systematic Review

Abstract:

Introduction: Adhesive shoulder capsulitis is a pathological condition describing excessive scar tissue formation and adhesions within the glenohumeral joint. Recently, combining suprascapular nerve block (SSNB) with structured physical therapy (PT) has emerged as a strategy to reduce pain and facilitate more effective shoulder mobilization. This review aims to assess the current literature and compare clinical outcomes and range of motion (ROM) in SSNB as an adjunct to physical therapy.

Methods: This systematic review was conducted in accordance with the PRISMA guidelines to evaluate studies comparing suprascapular nerve block (SSNB) combined with physical therapy (PT) versus PT alone in patients with adhesive capsulitis. PubMed and Google Scholar were systematically searched for relevant studies. Pre- and post- treatment changes in SPADI pain and disability scores, as well as improvements in ROM, including external rotation, internal rotation, and abduction, were analyzed to determine the efficacy of SSNB as an adjunctive intervention. Mean differences, ranges, and p-values were extracted and analyzed to evaluate comparative trends between treatment groups.

Results: This review included 8 studies with 673 patients, 334 of whom were treated with SSNB + PT and 339 with PT alone. The follow-up durations ranged from 6 weeks to 9 months. External rotation improved by 9–42° with SSBT + PT versus 7–50° with PT. Among the six studies that evaluated abduction, increases ranged from 54–73° in SSBT + PT groups compared with 39–62° in PT groups. Four studies reported internal rotation gains of 14–33° with SSBT + PT and 8–26° with PT. Five studies assessing SPADI pain and disability demonstrated mean reductions of 9–26 and 7–15 points, respectively, favoring the combined approach. Overall, SSBT + PT yielded superior improvements in range of motion, pain, and functional disability for adhesive capsulitis compared with physiotherapy alone.

Conclusion: The findings of this review indicates that SSNB combined with PT provides greater pain relief and improved shoulder ROM compared to PT alone in patients with adhesive capsulitis. By reducing pain during mobilization, SSNB allows more effective participation in rehabilitation and supports functional recovery. Although results are promising, additional high-quality studies are needed to standardize treatment protocols and confirm long-term outcomes.

Sam Smith

University of Canberra Hospital, Australia

Biography

Sam Smith, is a Senior Rehabilitation Physiotherapist at the University of Canberra Hospital in Canberra, Australia with 6 years experience working in inpatient rehabilitation and 4 years experience working in professional sport. He is a graduate of the Bachelor of Physiotherapy program at the University of Canberra and is currently completing his Master of Sports Medicine at the University of Melbourne.

The Novel Use Of Robot-Assisted Gait Training In The Treatment Of Functional Neurological Disorder: A Case Report

Abstract:

Introduction: Functional Neurological Disorder (FND) is a condition defined by motor and sensory symptoms with clinical features that cannot be explained by other neurological or medical diagnoses but can result in significant functional impairment including total loss of mobility. There is evidence supporting the use of robotics in other neurological conditions such as stroke and spinal cord injury, but there is currently no published evidence for its use in the treatment of FND. This case using the Hocoma Lokomat robotic exoskeleton device represents the first known case of robot-assisted gait training in the treatment of FND.

Aim: To determine if robot-assisted gait training could be a viable treatment option to improve mobility for patients with FND.

Methods: Over 9 weeks, the 34-year-old patient completed 15 robot-assisted gait training sessions. Outcome measures included the Functional Ambulation Category (FAC), Functional Independence Measure (FIM), 10-metre walk test (10MWT) and Oxford manual muscle strength testing (MMT).

Results: At the conclusion of the robot-assisted gait training program the patient had achieved independent walking: FAC improved from 0/5 to 5/5, FIM Locomotion improved from 1/7 to 7/7, FIM Total had improved from 56 to 123 and the 10MWT was completed in 37.45 seconds. The patient's muscle strength improved from 0/5 to 5/5 in all lower limb muscle groups (MMT). At six months post intervention, the patient reported zero FND relapses or functional impairments.

Conclusions: Robot-assisted gait training can be considered a potential intervention option in FND, specifically in cases with gait impairments, and can be associated with dramatic improvements in strength and mobility.

Impact: This is the first case of a patient with FND successfully completing robot-assisted gait training in the treatment of gait-related impairments. Studies exploring feasibility and patient acceptability of this novel therapy in FND are now warranted.

Jessica Leoni

Airlangga University, Indonesia

Biography

Jessica Leoni, has completed her Medical Doctor Degree at the age of 24 years from Airlangga University. She is a resident in the Physical Medicine & Rehabilitation Department at Dr. Soetomo General Academic Hospital, Airlangga University, Indonesia. Currently, she manages various cases in outpatient clinics and inpatient wards in this tertiary hospital, including geriatric patients, post-operative cases, and those with multiple comorbidities. She is challenged by adapting rehabilitation programs for patients with limited hospital therapy access & financial limitations, ensuring continuity of care with modified home-based exercise plans.

Rehabilitation-Based Recovery After Arthroscopic Acromioplasty In Geriatric Frozen Shoulder With Supraspinatus Tear: A Case Report

Abstract:

Frozen shoulder with a partial supraspinatus tear significantly impacts the elderly, causing pain and restricted mobility. Arthroscopic debridement and acromioplasty can relieve symptoms, but recovery depends on structured rehabilitation, which is more challenging in patients with comorbidities such as diabetes and obesity. Diabetes may delay recovery by impairing microvascular circulation, reducing collagen quality, and prolonging inflammation, which can hinder tendon healing and joint mobility.

A 65-year-old female with type 2 diabetes and obesity presented 5 weeks after undergoing right shoulder arthroscopic debridement, acromioplasty, and manipulation under anesthesia. Intraoperative findings revealed partial supraspinatus tear and capsulitis. She reported persistent pain (WBS 5–8), difficulty lifting her arm, and partial dependence in ADL. Physical examination revealed tenderness around the surgical site, slight supraspinatus atrophy, limited shoulder ROM (flexion, abduction, extension 45°; internal rotation 30o, external rotation 20°, adduction 5o), and reduced strength (MMT 3 with pain). Comprehensive geriatric assessment indicated obesity (BMI 34.4), uncontrolled diabetes (HbA1c 6.5%), moderate frailty, fatigue, and kinesiophobia.

Rehabilitation program included pain management (Laser, High-TENS), gentle A/AROM, pendulum exercises, scapular mobilization, and isometric strengthening. Exercises progressed to isotonic strengthening using resistance bands and dumbbells, scapular stabilization, aerobic cycling and functional training. Weight management & and diabetes regulation were emphasized as part of the rehabilitation to optimize recovery. A major advantage of this program was that exercises could be performed independently at home, complementing in-clinic modalities. By 13 weeks, the patient achieved full ROM, was pain-free, independent in ADL, improved from moderate to mild frailty and fatigue, no kinesiophobia.

Sam Smith

University of Canberra Hospital, Australia

Biography

Sam Smith, is a Senior Rehabilitation Physiotherapist at the University of Canberra Hospital in Canberra, Australia with 6 years experience working in inpatient rehabilitation and 4 years experience working in professional sport. He is a graduate of the Bachelor of Physiotherapy program at the University of Canberra and is currently completing his Master of Sports Medicine at the University of Melbourne.

The Effects On Patient Therapy Times Following The Implementation Of Robotics Therapy In An Inpatient Neurological Rehabilitation Ward

Abstract:

Background: The Hocoma Lokomat is an electromechanical-assisted exoskeleton robotics device designed for intensive walking practice for patients with neurological conditions. It was installed at University of Canberra Hospital inpatient neurological rehabilitation ward in 2024. Lokomat robotics therapy requires two staff members to run each session whereas the inpatient neurological rehabilitation ward has typically used a semi-supervised structure for conventional gym-based physiotherapy.

Aim: To determine what effects the implementation of robotics therapy has on overall patient therapy time on an inpatient neurological rehabilitation ward.

Methods: Patient therapy times were tracked during pre-intervention and post-intervention blocks each consisting of 13 weeks. The pre-intervention period consisted of conventional gym-based physiotherapy only. The post-intervention period included the time spent completing both conventional gym-based physiotherapy and robotics therapy.

Results: There was a decrease in therapy time provided to patients following the implementation of robotics therapy. There was a reduction in therapy time provided per staff member between the pre-intervention period and the post-intervention period of 55 minutes per day (415 minutes vs 360 minutes), while 0.86 less patients were seen in the post-intervention period per staff member per day (5.12 vs 4.26).

Conclusions: When implementing new technology such as robotics therapy that requires a different staffing structure, appropriate staffing levels are required to ensure it does not adversely affect the therapy time for other patients on the ward. If there is no change in staffing structure, a reduction in patient therapy time can be expected.

Leonel Pinazzo Perez

University of the Republic
Uruguay

Biography

Leonel Pinazzo Perez, is a researcher and academic professional from Uruguay, affiliated with the Universidad de la Republica (UdelaR). He is actively engaged in advancing knowledge and contributing to academic and scientific communities through his work and collaborations.

Emotional Intelligence And Mental Health Promotion In Uruguayan Adolescents: Preliminary Findings From The "Ni Silencio Ni Tabú" Program

Abstract:

Background: Adolescence is a critical developmental stage marked by heightened emotional reactivity and vulnerability to mental health problems such as depression, anxiety, and stress. In Uruguay, national surveys have reported a worrying prevalence of internalizing symptoms among adolescents, especially in female students. Despite the growing need, systematic evaluations of school-based mental health interventions remain scarce in this context.

Objective: This study aims to evaluate the impact of the nationwide "Ni Silencio Ni Tabú" workshops on emotional intelligence (EI) and mental health indicators (depression, anxiety, stress) in adolescents aged 16–18.

Methods: A quasi-experimental design was applied with two groups: students who had already participated in the workshops (experimental group) and those who had not (control group). Instruments included the Bar-On Emotional Quotient Inventory: Youth Version (EQ-i:YV) and the Depression Anxiety Stress Scale–21 (DASS-21). Baseline assessments were conducted in both groups, followed by a second round of data collection after the intervention was implemented in the control group. Comparisons were made across gender and socioeconomic strata (school quintiles).

Preliminary Results: Initial analyses suggest that workshop participation is associated with higher scores in interpersonal and stress-management dimensions of EI, along with lower self-reported stress and anxiety. Gender differences were observed, with female students showing greater improvements in intrapersonal EI after intervention. Further multivariate analyses (ANOVA, MANOVA) are ongoing.

Conclusions: Findings support the effectiveness of community-based, school-embedded mental health workshops in enhancing EI and reducing psychological distress among adolescents. These results highlight the value of preventive, scalable interventions in middle-income countries and underline the importance of integrating positive psychology frameworks into national youth policies.

DAY- 02

ORAL PRESENTATIONS

2026 26-27 MARCH

OSAKA, JAPAN

Kadime Gogebakan Perez

Istanbul Technical University, Turkey

Biography

Kadime Gogebakan, completed her doctorate at Near East University at the age of 45. She is an Information Technologies Directorate Engineer at the Northern Cyprus campus of Istanbul Technical University, a leading university.

A Novel Fuzzy System For Predicting Drug Doses In Hypertensive Patients With Chronic Kidney Disease And Type 2 Diabetes Mellitus

Abstract:

Incorrect drug dosages can lead to side effects, complications, and even fatal outcomes for patients. Today, patients with multiple chronic diseases often receive prescriptions from different specialist physicians meanwhile and this increases the risk of dosage errors if proper care is not taken. In this work, we particularly focus on hyperintensive patients with Type-2 Diabetes Mellitus (T2DM) and Chronic Kidney Disease (CKD) since these two diseases are common and related to each other. We proposed a novel fuzzy rule-based system that uses Glomerular Filtration Rate (GFR) values of patients to accurately model CKD stages of patients with uncertainty. In the proposed system, first we received expert opinion from three independent physicians regrading to drugs and drug doses in hyperintensive patients depending on their CKD stages; (a) 18 drugs for T2DM treatment and (b) 66 drugs for CKD treatment. Subsequently, depending on fuzzified input GFR value of patients and fuzzy rules are designed based on the expert knowledge on drug doses. The proposed system, generates a total of 504 drug dose values for both diseases. Finally, drug doses for invidual patients are estimated for the treatment of both T2DM and CKD. To the best of our knowledge, none of the previous works use a fuzzy system to arrange drug doses for hyperintensive patients with T2DM and CKD, and this is the contribution of the proposed work.

Emine Dundar Ahi

Kocaeli Health and Technology University
Turkey

Biography

Emine Dundar Ahi, MD, is a Physical Medicine and Rehabilitation Specialist with over 10 years of clinical experience. She is currently an Assistant Professor in the Department of Physiotherapy and Rehabilitation at the Faculty of Health Sciences, Kocaeli Health and Technology University. Her academic and clinical interests focus on musculoskeletal disorders, chronic pain management, and comprehensive rehabilitation approaches. She has authored more than 20 national and international scientific publications and actively contributes to both clinical practice and academic education through evidence-based, patient-centered rehabilitation strategies.

The Frequency Of Thoracic Disc Herniation In Patients Presenting With Chronic Upper Back Pain And The Long-Term Follow-Up Results Of These Cases

Abstract:

Chronic upper back pain is a frequent clinical complaint with multifactorial etiologies and a substantial impact on quality of life. Thoracic disc herniation (TDH), although considered relatively uncommon, may be an underrecognized cause of persistent thoracic pain. This study aimed to determine the frequency of TDH in patients presenting with chronic upper back pain and to evaluate long-term clinical outcomes following conservative management. This retrospective study included patients who presented to the Physical Therapy and Rehabilitation outpatient clinic with chronic upper back pain and were followed for at least one year between 2016 and 2023. TDH was diagnosed using thoracic spine magnetic resonance imaging. Patients received medical treatment (analgesics and myorelaxants) alone or in combination with physical therapy. Gabapentin was added in patients with insufficient response and predominant neuropathic pain. Patients with persistent pain despite these interventions were referred to the algology department for transforaminal epidural injection. Demographic characteristics, treatment modalities, visual analog scale (VAS) pain scores before and after treatment, presence of neuropathic pain, and herniation stage were retrospectively recorded and statistically analyzed. The frequency of TDH among patients with chronic upper back pain was 39.67%. Neuropathic pain features were identified in 86 patients (44.32%). A statistically significant reduction in VAS pain scores was observed after treatment compared with baseline in all patients ($p < 0.001$). None of the patients required surgical intervention during follow-up. Conservative treatment approaches, including medical therapy, physical therapy, and interventional pain management, are effective in relieving pain in patients with chronic upper back pain associated with TDH, reducing the need for surgical treatment.

Omar Alqaisi

Al-Zaytoonah University of Jordon, Jordan

Biography

Omar Al-Qaisi, from Al-Zaytoonah University is a nursing expert in oncology and emergency medicine. He holds a master's degree in emergency and disaster medicine from Al-Zaytoonah University. He currently works as a part-time clinical instructor at Al-Zaytoonah University and also at the Military Oncology Center. He has experience using Preferred Reporting Items for Systematic Reviews and Meta-Analyses (PRISMA) and the Mixed Methods Appraisal Tool (MMAT) for research. His recent research focuses on sexual healthcare, selenium, orthopedics, sleep quality, pain management and patient satisfaction in oncology patients.

Managing Sexual Issues In Melanoma Patients: A Scoping Review

Abstract:

Background: Managing sexual issues in melanoma patients involves addressing both physical and psychological changes that may arise during or after treatment. Although melanoma itself may not directly affect sexual function, treatments such as radiotherapy, immunotherapy, targeted therapy, and surgery can lead to fatigue, change in body image/hormone levels and psychological issues, which can affect sexual health of patients.

Methods: A focused literature review was performed on this topic from 2020 to 2025, including case reports, case series, guidelines and other full research publications.

Results: We found 9 publications on this topic. Effective treatment begins with open dialog by encouraging patients and partners to discuss sexual concerns with their healthcare providers, though studies show both doctors and nurses often neglect to do this unless prompted and hence delay timely intervention. Health-care providers should be alert to subtle signs of relationship problems among patients.

Psychosocial support plays a vital role. Counseling, either individual or couples-based, can help patients navigate changes in desire, self-esteem, and relationship dynamics. Cognitive behavioral therapy (CBT) and sex therapy may be beneficial for addressing anxiety, depression, or trauma.

Medical interventions may include lubricants for vaginal dryness, medications/local injections/penile prostheses for erectile dysfunction, or hormone replacement therapy when appropriate. For patients experiencing premature menopause or hormonal shifts due to treatment, endocrine consult should be arranged.

Body image rehabilitation, especially after visible changes like surgical scars, can be supported through physical therapy, peer support groups, and reconstructive plastic surgery when feasible. The Look Good Feel Better programs in Can-

ada teaches ladies to wear cosmetics/wigs. They meet regularly in all major cancer centers like a support group.

Conclusion: A multidisciplinary approach involving oncologists, psychologists, psychiatrists, advanced nurses, sexual medicine specialists, and patient advocates ensures comprehensive care. Addressing sexual health is the key for a good quality of life among melanoma patients.

Pallavi Ravi Dhandore

LTMMC and General Hospital, India

Biography

Pallavi Ravi Dhandore, has completed master's in physical therapy (M.Sc. PT) from LTMG medical college, Mumbai University, India in the year 1997-1999. She has done DPT from Montana University, USA in December 2024. She has been working as a Senior Clinical Physical Therapist in LTMG Hospital, Sion, India for 25 years.

Tissue-Specific Sequential Thermal Therapy: A Conceptual Framework For Physical Therapy Intervention

Abstract:

In day-to-day physical therapy practice we see varieties of musculoskeletal cases like Cervical spondylosis, degenerative joint arthritis, tendon pathologies etc. There are many reasons for periarticular pain especially resulting from muscle overuse, overload. Sustained muscle spasm is frequently encountered in physical therapy practice. Thermal modalities such as heat therapy and cryotherapy are commonly used for symptom management; however, they are often applied uniformly across regions without consideration of tissue-specific structural and vascular characteristics. This paper presents a theoretical, hypothesis-generating conceptual framework proposing a sequential and region-specific thermal intervention, in which moist heat is applied around the muscle belly to facilitate muscle relaxation and circulation, followed by cryotherapy applied to tendinous insertions around joints to reduce inflammation. This sequential thermal application is based on physiological differences between muscle and tendon tissues, their vascular responses to thermal agents, and mechanism of pain modulation. This is useful for physical therapist in clinical decision making while treating musculoskeletal conditions.

DAY- 02

KEYNOTE PRESENTATIONS

2026 26-27 MARCH

OSAKA, JAPAN

Andrey Belousov

Kharkiv National Medical University, Ukraine

Biography

Andrey N. Belousov, MD, PhD, Professor - a Ukrainian medical scientist and pioneer in nanotechnology, who developed the world's first biocompatible nanomedical drugs (Micromage-B, MCS-B, ICNB), officially registered and introduced into clinical practice since 1998. His work established a translational foundation for medical nanotechnology, linking fundamental biophysics with clinical applications in detoxification, hemocorrection, and neuroprotection. The published more 360 scientific works on results application of nanotechnology preparation in experimental and practical medicine. At now Andrey Belousov - the Head of Laboratory Applied Nanotechnologies, Professor of Kharkiv National Medical University, Ukraine.

Modulation of Erythrocyte Mobility Using Magnetite Nanoparticles: A Nanomedical Perspective for Critical Care and Transfusion Therapy

Abstract:

A decrease in erythrocyte electrophoretic mobility serves as an important diagnostic marker of pathological conditions associated with impaired gas exchange, microcirculation, and tissue trophism, often leading to systemic hypoxia and deterioration of the patient's clinical status. This study investigates the potential of magnetite nanoparticles (MCS-B) to modulate these properties in a targeted and controlled manner. A novel approach is proposed to enhance erythrocyte electrophoretic mobility in patients with toxemia through treatment with magnetite nanoparticles. In vitro experiments demonstrated a statistically significant ($p < 0.001$) increase - nearly threefold - in erythrocyte mobility following exposure to MCS-B, compared to untreated controls. The optimal efficacy was observed at a blood-to-nanoparticle ratio of 2:1. Furthermore, application of a constant magnetic field with an intensity of 200–250 kA/m for 2-3 minutes resulted in effective removal of residual nanoparticles from blood samples ($p < 0.001$). The results highlight the biocompatibility and clinical potential of this nanomedical approach, which may serve as a basis for new therapeutic strategies in transfusion medicine, critical care, and regenerative therapy. The study addresses a pressing interdisciplinary challenge, bridging hematology, biophysics, and nanotechnology, with implications for both basic science and clinical implementation.

Sergey Suchkov

Sechenov University, Russia

Biography

Sergey Suchkov, was born in the City of Astrakhan, Russia, in a family of dynasty medical doctors. In 1980, graduated from Astrakhan State Medical University and was awarded with MD. In 1985, Suchkov maintained his PhD as a PhD student of the I.M. Sechenov Moscow Medical Academy and Institute of Medical Enzymology. In 2001, Suchkov maintained his Doctor Degree at the National Institute of Immunology, Russia. From 1989 through 1995, Dr Suchkov was being a Head of the Lab of Clinical Immunology, Helmholtz Eye Research Institute in Moscow. From 1995 through 2004 - a Chair of the Dept for Clinical Immunology, Moscow Clinical Research Institute (MONIKI). In 1993-1996, Dr Suchkov was a Secretary-in-Chief of the Editorial Board, Biomedical Science, an international journal published jointly by the USSR Academy of Sciences and the Royal Society of Chemistry, UK.

Personalized And Precision Medicine (Ppm) As A Unique Healthcare Model Through Biodesign-Inspired & Biotech-Driven Translational Applications And Upgraded Business Marketing To Secure Human Healthcare And Biosafety

Abstract:

Traditionally a disease has been defined by its clinical presentation and observable characteristics, not by the underlying molecular mechanisms, pathways and systems biology-related processes specific to a particular patient (ignoring persons-at-risk). A new systems approach to subclinical and/or diseased states and wellness resulted in a new trend in the healthcare services, namely, personalized and precision medicine (PPM). To achieve the implementation of PPM concept, it is necessary to create a fundamentally new strategy based upon the biomarkers and targets to have a unique impact for the implementation of PPM model into the daily clinical practice and pharma. In this sense, despite breakthroughs in research that have led to an increased understanding of PPM-based human disease, the translation of discoveries into therapies for patients has not kept pace with medical need. It would be extremely useful to integrate data harvesting from different databanks for applications such as prediction and personalization of further treatment to thus provide more tailored measures for the patients and persons-at-risk resulting in improved outcomes and more cost effective use of the latest health care resources including diagnostic (companion ones), preventive and therapeutic (targeted molecular and cellular) etc. Translational researchers, bio-designers and manufacturers are beginning to realize the promise of PPM, translating to direct benefit to patients or persons-at-risk. And thus both PPM and nanobiotechnologies are being integrated into diagnostic and therapeutic tools to manage an array of PPM-guided conditions to customize therapeutic management. Novel nanomedicines have been employed in PPM-driven treatment of several diseases, which can be adapted to each patient-specific case according to their genetic profiles. So, partnering and forming strategic alliances between researchers, bio-designers, clinicians, business, regulatory bodies and government can help ensure an opti-

mal development program that leverages the Academia and industry experience and FDA's new and evolving toolkit to speed our way to getting new tools into the innovative markets. Healthcare is undergoing a transformation, and it is imperative to leverage new technologies to support the advent of PPM. And it is urgently needed to to discover, to develop and to create new (targeted and/or smart/intelligent) drugs. And with the support of nanotechnology, new targeted therapeutic agents and biomaterials, or aid the development of assays for disease biomarkers and identification of potential biomarker-target-ligand (drug) tandems to be used for the targeting, PPM is making phenomenal steps in the future to come. This is the reason for developing global scientific, clinical, social, and educational projects in the area of PPM and design-driven translational medicine to elicit the content of the new trend. So, the Grand Change and Challenge to secure our Health and Wellness are rooted not in Medicine, and not even in Science! Just imagine WHERE?! In the upgraded Hi-Tech Culture!

Bernd Blobel

University of Regensburg
Germany

Biography

Bernd Blobel, received a multidisciplinary education, covering mathematics, physics, systems engineering, electronics, medicine, informatics and medical informatics, including habilitations in medicine and informatics. He was Head of the Institute for Biometrics and Medical Informatics at the University of Magdeburg, and then Head of the Health Telematics Project Group at the Fraunhofer IIS in Erlangen. Thereafter, he acted until his retirement as Head of the German National eHealth Competence Center as well as of the International Interdisciplinary PhD and PostDoc College at the University of Regensburg. He was leadingly involved in many countries' health digitalization as well as electronic health record strategy. He was and is still engaged in international standardization at ISO, CEN, HL7, OMG, IEEE etc. Furthermore, he still engaged in international higher education. He published more than 600 international papers and many books.

Designing And Managing Intelligent And Ethical 5p Medicine Health And Social Care Ecosystems

Abstract:

Healthcare systems around the world are undergoing an organizational, methodological and technological transformation towards personalized, preventive, predictive, participative precision (5P) medicine ecosystems. These ecosystems consider individual health status, conditions, genetic and genomic dispositions in personal social, occupational, environmental, and behavioral contexts. Thereby, we have to consider and fully understand the clinical case from the perspective of all involved disciplines from elementary particles up to the society. For designing and managing the resulting highly interdisciplinary, complex, distributed and dynamic ecosystem, we must formally and consistently represent the system and its components at necessary granularity levels from the perspective of all actors including the subject of care. As those actors from different domains have different education, skills, and experiences, using different methodologies, languages and terminologies, communication and cooperation, i.e. interoperability, must advance from the data level (data sharing) to the knowledge level (knowledge sharing). To understand the business system, it must formally represent each considered use case structurally and functionally. Therefore, the design, implementation and management of intelligent and ethical transformed ecosystems must be realized, using a system-theoretical, architecture-centered, ontology-based and policy-driven approach, developed by the author over the last 30 years. The related model and framework has been meanwhile standardized as the ISO 23903 Interoperability and Integration Reference Architecture, defined as mandatory for any specification or project at ISO, CEN, IEEE, OMG, etc., addressing more than one domain. Thereby, it manages also security, privacy and trust in detail. The Keynote introduces necessary standards and methodologies for designing and managing 5P medicine ecosystems as well as practical examples.

Michelle Lansdowne

ISEE, UK

Biography

Michelle Lansdowne, is Chair and Trustee of ISEE, a Scottish charity dedicated to raising awareness of visual stress. She holds an MBA in Sustainability, Innovation & Change Management from the University of Stirling, where her research explored the lived experiences of over 500 people with visual stress and compared the effectiveness of different interventions. With more than 25 years' experience in global marketing leadership across SaaS, AI, fintech, and consumer sectors, Michelle brings strong strategic, communications, and advocacy skills. She is passionate about equipping professionals with the knowledge to identify, understand, and support individuals affected by this under-recognised condition.

Seeing The Light: Lived Experiences Of People With Visual Stress And Implications For Professional Practice

Abstract:

Visual stress, also known as scotopic sensitivity syndrome or Irlen Syndrome, is a neurological visual processing disorder affecting an estimated 15–20% of the population. Despite this prevalence, awareness remains low among health, education, and social care professionals, often leading to delayed identification, misdiagnosis, and inadequate support.

This session draws on a UK-based study of over 500 participants, capturing lived experiences of visual stress respondents, who reported symptoms including print and environmental distortions, migraines, sensory overload, and anxiety—frequently compounded by feelings of dismissal when their perspectives were overlooked in assessments. Many described frustration with clinical approaches that focused solely on eyesight, failing to address perceptual distortions.

The presentation will highlight these first-hand accounts, identify gaps in professional practice, and provide evidence-informed recommendations for early screening, empathetic engagement, and effective intervention—empowering professionals to recognise and respond to the full sensory and emotional impact of visual stress, whilst also encouraging the opportunity for further research.

DAY- 02

ORAL PRESENTATIONS

2026 26-27 MARCH

OSAKA, JAPAN

Samar Nafis

Kingston Hospital NHS foundation Trust, UK

Biography

Samar Nafis, have been working in the NHS for the past 20 years in various respiratory settings, but exclusively in critical care for the past 6 years. I have a keen interest in treating patients with prolonged ventilation and ICU acquired weakness. At present I am a clinical lead physiotherapist in critical care but also provides support in complex respiratory patients in general.

The Role Of Physiotherapy In Facilitating Difficult Conversations In The Care Of A Critically Ill Patient: A Case Study

Abstract:

Background: Physiotherapists in critical care play a vital role beyond physical rehabilitation. They contribute to holistic multidisciplinary decision-making, including complex and emotionally heavy discussions about goals of care. Physiotherapy review and functional assessment perspective can provide clinical insights that shape shared understanding between the healthcare team, patient and family.

Case Description: 82 years old male patient was admitted to ITU post cardiac arrest and Sepsis. Patient required prolonged ventilation due to poor neurology and required tracheostomy insertion. Despite medical stabilisation, progress with rehabilitation and weaning was limited by profound ICU acquired weakness, poor neurology and cardiovascular instability. The physiotherapy assessment identified minimal meaningful functional recovery, prompting multidisciplinary discussions regarding prognosis. Although regular updates were given to the family, the family found it hard to accept the medical advice regarding the ceiling of care and possible palliation. The physiotherapy team along with MDT contributed objective, function-based assessment including formal response monitoring that helped in gaining family's insight and understanding of the patient's presentation and need of comfort-oriented care.

Discussion: This case highlights the essential role of physiotherapists in supporting ethically sensitive conversations within critical care. Critical care physiotherapists can help in building relationships with families and contribute effectively to discussions around recovery potential, quality of life and end of life decision making.

Uchenna Cosmas Ugwu

**University of Nigeria
Nsukka, Nigeria**

Biography

Uchenna Cosmas Ugwu, an Associate Professor at the University of Nigeria, Nsukka (UNN), holds a Ph.D., M.Ed., & B.Sc. in Public Health/Health Education. His research focuses on gerontology and geriatrics, chronic disease epidemiology, diabetes management, & mental health. Dr. Ugwu has authored over 65 peer-reviewed publications, with notable works appearing in the International Journal of Geriatric Psychiatry, Discover Medicine, and BMC Women's Health. His studies on osteoporosis, frailty, type 2 diabetes, and gestational diabetes have strengthened evidence-based practice in ageing and metabolic health. He is a member of several professional bodies including HEPRAN, NAHE, & TRCN.

Relationship Between Sleep Disorders And Geriatric Non-Communicable Diseases Among Elderly Nigerians

Abstract:

Sleep disturbance is a common but under-recognized comorbidity that exacerbates chronic disease outcomes, yet it remains poorly studied in aging African populations. This study examined the prevalence of sleep disorders, their association with geriatric NCDs, and key sociodemographic and behavioral predictors among elderly Nigerians. A hospital-based, cross-sectional study was conducted between April 2024 and September 2025 across twelve federally accredited tertiary hospitals representing Nigeria's six geopolitical zones. A total of 918 adults aged ≥60 years with clinician-confirmed NCDs completed culturally adapted, interviewer-administered questionnaires assessing sociodemographic factors, chronic disease status, and sleep health. Descriptive statistics, chi-square tests, and multivariate binary logistic regression were applied to identify significant associations and independent predictors of sleep disorder. Sleep disorder prevalence was high (89.7%). Hypertension, arthritis, and heart disease were significantly associated with sleep disturbance (all $p < 0.001$). Independent predictors included age ≥70 years (OR = 2.55), Christian religious affiliation (OR = 4.65), living with family members (OR = 3.90), and alcohol use (OR = 2.98). No independent associations were observed for sex, education, residence, smoking, or other chronic conditions. These findings highlight the pervasive burden of sleep disorders among elderly Nigerians with NCDs and underscore the importance of integrating routine sleep assessment into geriatric chronic disease management. Targeted interventions addressing both biological and sociocultural determinants of sleep may improve quality of life and health outcomes in Nigeria and similar resource-constrained settings.

Pirithika Kohilathas

Guy's and St Thomas' NHS Foundation Trust
UK

Biography

Pirithika Kohilathas, is a final year medical student at King's College London with interests in paediatrics, cardiology and medical education. She has completed a Bachelor of Science (Hons) in cardiology, where she explored the intersection of artificial intelligence and patient-centred care through her dissertation, alongside developing a strong foundation in cardiovascular science. She is currently involved in 'My Voice Matters', a project led by Dr Claire Stewart that aims to improve communication in paediatric consultations by integrating visual aids into clinical practice. Through this initiative, she has supported fellow medical students in developing more inclusive and effective approaches to communicating with children. As an aspiring clinician, she is interested in advocating for young patients and strengthening communication training within undergraduate medical education.

Every Child's Voice Matters: Embedding Inclusive Communication in Paediatric Care

Abstract:

Background: Article 12 of the UN Convention on the Rights of the Child (1989) guarantees every child's voice, but this must go beyond just hearing what a child says. All too often clinical communication relies on spoken language, excluding pre-verbal, non-speaking, non-English-speaking and silenced children. This project aimed to address these inequities by exploring applying established practices in speech and language of alternative communication methods to paediatrics

Methods: A systematic literature review identified more than 20,000 papers on the benefits of alternative communication but only 4 on its practical application in paediatric clinical conversations. A communication toolkit 'My Voice Matters' was co-designed with 126 London schools and safeguarding teams from 26 NHS trusts to promote accessible, child-centred participation in child protection assessments. Communication stations with co-designed tailored tools for clinical conversations were introduced across a children's hospital including emergency department, inpatient wards and 2 community child health clinics.

Results: Existing evidence and pilot data demonstrate visual communication tools empower children to share experiences and understand clinicians' perspectives. In the first three months, My Voice Matters enabled eight children to disclose previously unreported abuse and nearly doubled documentation of the child's voice. In hospital settings, children reporting not being heard fell from 9% to 0%, while staff use of alternative communication rose from 17% to 96%.

Conclusions: Child-centred communication tools make children's rights a clinical reality; improving safeguarding, equity and care quality. Having tailored communication aids readily available should be a universal standard in paediatric settings.

DAY- 02

ACCEPTED ABSTRACTS

2026 26-27 MARCH

OSAKA, JAPAN

Gabriela Tonato

Universidad de Salamanca,Spain

Biography

Gabriela Tonato, PT, holds a degree in Physical Therapy from the Pontificia Universidad Católica del Ecuador and a Master's in Respiratory and Cardiac Physiotherapy from the Universidad Autónoma de Madrid. She is a specialist in respiratory rehabilitation at the Hospital de Especialidades Eugenio. With over five years of experience in critical care, research, and teaching, she actively trains future respiratory physiotherapists at leading universities in Ecuador, promoting the application of evidence-based techniques. Her career combines innovative research, advanced clinical practice, and continuous education, leading to scientific publications aimed at optimizing outcomes for critically ill patients and strengthening the skills of healthcare professionals

Current state of respiratory physiotherapy in intensive care units of three ministry of public health hospitals in the city of quito, ecuador

Abstract:

Introduction: Respiratory therapy is essential for the management of critically ill patients in intensive care units. Despite the increase in the training of respiratory physiotherapists and the growing availability of hospital beds, the lack of official data makes it difficult to assess its development and compare current clinical practice with evidence-based recommendations issued by international organizations.

Objective: To analyze the current state of respiratory physiotherapy in the intensive care units of three hospitals belonging to the Ministry of Public Health, considering the availability of human and physical resources, the techniques employed, and the implementation of clinical protocols.

Methodology: This is an observational, cross-sectional, and descriptive study. The study population consists of respiratory physiotherapists working in the intensive care units of three Ministry of Public Health hospitals in Quito, Ecuador. The project was conducted through the application of two surveys, whose content validity was approved by a panel of experts. The first survey evaluates the Descriptive and Functions dimension, while the second evaluates the Academic and Labor dimension.

Expected results: It is expected to identify deficiencies that affect the performance of respiratory physiotherapists by evaluating the relationship between their number and the number of patients treated, as well as the techniques and procedures applied. This analysis will help identify areas requiring updates or additional training and, by comparing clinical practice with national and international standards, propose strategies to optimize care and improve clinical performance quality.

Keywords: respiratory therapy, hospital respiratory therapy service, respiratory physiotherapy, intensive care unit, ICU

Bavornpol Phuttasuatta

King Mongkut's Institute of Technology Ladkrabang, Thailand

Biography

Bavornpol Phuttasuatta, is a medical student at King Mongkut's Institute of Technology Ladkrabang (KMITL), Faculty of Medicine. He has a strong academic and research interest in the field of Physical Medicine and Rehabilitation, with particular focus on musculoskeletal rehabilitation, tele-rehabilitation, and innovations in patient-centered care. He has participated in research and academic activities at KMITL, including systematic reviews and collaborative projects related to rehabilitation medicine. His long-term goal is to contribute to advancing rehabilitation science and improving access to effective, evidence-based therapies

Tele-rehabilitation versus in-person rehabilitation after shoulder surgery: A systematic review of post-operative outcomes

Abstract:

Postoperative rehabilitation after shoulder surgery is essential, but access to in-person physiotherapy is often limited by cost, geography, and resources. Tele-rehabilitation has emerged as a potential alternative, but its comparative effectiveness, patient satisfaction, and cost-effectiveness remain uncertain. We systematically reviewed and synthesized evidence comparing tele-rehabilitation with

in-person rehabilitation following shoulder surgery, focusing on functional, pain, satisfaction, and economic outcomes. This review was conducted under a registered PROSPERO protocol (CRD420251133175) in line with PRISMA 2020 guidelines. Eligible studies included randomized controlled trials (RCTs) and controlled cohort studies comparing tele-rehabilitation with in-person rehabilitation. Two reviewers independently screened and extracted data, with a third resolving discrepancies. Risk of bias was assessed using Cochrane RoB2 and ROBINS-I, and certainty of evidence was graded using GRADE. Five studies (four RCTs, one prospective cohort; N=315) were included.

Functional outcomes were generally comparable, though one large RCT (n=115) showed significantly greater improvements in shoulder function and quality of life with an augmented-reality tele-rehabilitation system. Pain improvements were similar across groups. Patient satisfaction varied: one cohort (n=132) reported high acceptance (93% would recommend), while a small RCT was terminated due to attrition and crossover. Cost analysis (n=18) suggested 22–30% lower rehabilitation costs with tele-rehabilitation. No adverse events were reported. Risk of bias ranged from low to high, and certainty of evidence was moderate for pain, shoulder ROM, function, and cost-effectiveness, but low for satisfaction, adherence, quality of life, and adverse events. Tele-rehabilitation appears safe, effective, and cost-saving, but further high-quality RCTs are needed

Joshua Paul T. Verdillo

Silliman University Institute of Rehabilitative Sciences, Philippines

Biography

Joshua Paul T. Verdillo, A 4th year Physical Therapy Student in Silliman University, Joshua is the developer of the Software-Optimized Movement Assessment program this study is based on and was the leader of the team that conducted the study

Comparing the reliability of soma to traditional methods and video observation for functional movement screen scoring and compensatory movement identification

Abstract:

The Functional Movement Screen (FMS) is a seven-part movement assessment used to identify injury risks caused by faulty biomechanics. There are three barriers in traditional FMS assessments that could affect the tool's validity: the subjectivity of human scores that could cause bias, the need for in-person evaluations which limit access for remote patients, and the requirement of specialized training to use the tool, which makes it less accessible. This study investigates the effectiveness of Software Optimized Movement Assessment (SOMA), an AI-based web application that uses the MediaPipe framework to automatically assess FMS performances. This study employs a quantitative, cross-sectional, comparative design to evaluate SOMA's interrater reliability in a single-point analysis. Thirty three active adult students from Silliman University participated in the study, with assessments conducted by SOMA, a traditional rater, and a virtual rater. In comparing SOMA's scores and identified compensatory movements with human raters, the study found that there was generally fair to almost perfect agreement between SOMA and the human raters for the scores, while agreement ranged from substantial disagreement to almost perfect agreement across different compensatory movements. Future studies could be done to assess SOMA's validity compared to gold-standard technology and SOMA could be used to complement assessments performed by human raters of the FMS in the future

Alkarrar Haidar Al-Khalidi

Monash University, Australia

Biography

Alkarrar, is currently completing an Honours degree in Psychology at Monash University, building on his undergraduate studies in the same field. His research focuses on the relationship between anxiety, quality of life, and insomnia in older adults, with a particular interest in the moderating role of dispositional mindfulness. He is passionate about research that explores the intersection of mental health, ageing, and sleep, and he is particularly interested in how psychological resilience factors can inform more effective, person-centred interventions across the lifespan.

Dispositional mindfulness as a moderator of the relationships between anxiety, quality of life, and insomnia severity in older adults

Abstract:

Insomnia is prevalent in older adulthood and linked to adverse physical, emotional, and cognitive outcomes. While anxiety is a recognised risk factor, reduced quality of life (QoL) may also heighten vulnerability to sleep disturbances. Dispositional mindfulness has been proposed as a protective factor that may buffer the impact of anxiety and low QoL on insomnia; however, its moderating role in older adults remains underexplored. This study used baseline data from a larger randomised controlled trial evaluating a six-week online mindfulness intervention for insomnia. A total of 108 adults aged 55 and older completed standardised self-report measures of insomnia severity, anxiety, QoL, and dispositional mindfulness. Linear regression analyses tested main effects, while moderated multiple regression examined interaction effects, including exploratory analyses of mindfulness facets. Higher anxiety was associated with greater insomnia severity, and higher QoL predicted lower insomnia severity. Although overall mindfulness did not significantly moderate these relationships, significant interactions emerged between QoL and two mindfulness facets: acting with awareness and describing. These findings suggest that specific facets of mindfulness may interact with broader wellbeing indicators to influence sleep. Tailoring mindfulness-based interventions to strengthen dispositional traits may enhance their relevance and effectiveness for older adults experiencing insomnia.

Michelle Lansdowne

ISEE, UK

Biography

Michelle Lansdowne, is Chair and Trustee of ISEE, a Scottish charity dedicated to raising awareness of visual stress. She holds an MBA in Sustainability, Innovation & Change Management from the University of Stirling, where her research explored the lived experiences of over 500 people with visual stress and compared the effectiveness of different interventions. With more than 25 years' experience in global marketing leadership across SaaS, AI, fintech, and consumer sectors, Michelle brings strong strategic, communications, and advocacy skills. She is passionate about equipping professionals with the knowledge to identify, understand, and support individuals affected by this under-recognised condition

Seeing the light: Lived experiences of people with visual stress and implications for professional practice

Abstract:

Visual stress, also known as scotopic sensitivity syndrome or Irlen Syndrome, is a neurological visual processing disorder affecting an estimated 15–20% of the population. Despite this prevalence, awareness remains low among health, education, and social care professionals, often leading to delayed identification, misdiagnosis, and inadequate support.

This session draws on a UK-based study of over 500 participants, capturing lived experiences of visual stress respondents, who reported symptoms including print and environmental distortions, migraines, sensory overload, and anxiety—frequently compounded by feelings of dismissal when their perspectives were overlooked in assessments. Many described frustration with clinical approaches that focused solely on eyesight, failing to address perceptual distortions.

The presentation will highlight these first-hand accounts, identify gaps in professional practice, and provide evidence-informed recommendations for early screening, empathetic engagement, and effective intervention—empowering professionals to recognise and respond to the full sensory and emotional impact of visual stress, whilst also encouraging the opportunity for further research.

Katerina Flora

University of Western Macedonia
Greece

Biography

Katerina Flora, is an Assistant Professor of Clinical Psychology at University of Western Macedonia. She has studied Psychology and has postgraduate and PhD studies in Clinical and Social Psychology specializing in addictions and psychosocial problems, She has published scientific papers in international journals and she has conference presentations in the field of psychosocial problems and psychotherapy. Her research interests include the prevention and treatment of psychosocial problems, positive psychology, narrative approach and the study of the social factors of mental illness

A review of the factors affecting the course and outcome of the treatment of substance use disorders

Abstract:

This paper presents the findings from a systematic review of the literature on the factors that contribute to the treatment efficacy of substance use disorders. The introduction includes a clarifications of the terms factors, mediators and predictors, which are the most commonly used ones in research studies, as well as a description of the challenges faced in the context of this review. With regard to methodology, factors affecting addiction treatment have been looked for in the PsycInfo and MedInfo databases. The results suggested a variety of studies, which have been classified according to their focus on studies that put an emphasis on: a) treatment (psychological, personal) factors, b) factors related to the treatment process, c) various treatment methods, d) other factors, e.g. social factors and e) factors related to the system level (e.g. health care system). The results are discussed based on the combination of these factors with each other and clinical experience.

Radhika Khandelwal

Georgia Southern University, USA

Biography

Radhika, is a first-year clinical psychology doctoral student at Georgia Southern University. She completed her bachelor's degree in psychology at the University of Virginia. At the University of Virginia, she was the director of HELPLine, a crisis hotline that served her university and greater community. Her main research interests are in psychometrics and intervention development, with a focus on designing effective measurement tools and creating evidence-based strategies to improve mental health outcomes.

Development and validation of a scale to measure individual differences in the value of completion

Abstract:

When deciding which tasks to prioritize, people weigh the specific rewards of each activity. For example, students might consider their level of interest in different assignments, or the number of points at stake. Recent theorizing suggests that some individuals may also consider whether the activity offers the chance to finish something. Emerging research shows that people sometimes prioritize this dimension, choosing tasks as if the experience of completion is a reward in itself. We propose here that there is an individual-difference component to how people value completion, and we develop an instrument to detect dispositional variance. This paper introduces a scale to measure the generic value of completion, a two- dimensional latent variable manifesting as the degree to which people feel bothered by incomplete tasks and the degree to which they expect to feel satisfied by completing tasks. We developed items and conducted factor analyses, yielding a 20-item scale with a two-factor structure and high internal reliability. Testing the scale across multiple populations supported its generalizability. Furthermore, we began to assess the discriminant and convergent validity of our scale with respect to related measures. The value of completion has moderately strong positive associations with conscientiousness and the need for cognitive closure. Planned follow-up research will assess test-retest reliability, discriminant validity with additional constructs, and predictive validity with key behaviors. We discuss how, pending these additional tests, the scale may have applications in clinical and organizational settings.

Hasna Ait Said

Ibn zohr university, Morocco

Biography

Hasna Ait, Said is an academic and researcher affiliated with Ibn Zohr University, Morocco. She is actively involved in teaching and research in her area of specialization, contributing to higher education and scholarly development. Her work reflects a strong commitment to academic excellence, research innovation, and mentoring students in university-level programs.

Analysis of the gut microbiota in Moroccan children with celiac disease

Abstract:

Background and objective: Celiac disease is a major public health problem, and alterations in the gut microbiota appear to play an important role in its development. The main objective of this study, conducted in a Moroccan population, was to examine the gut microbiota in patients with celiac disease.

Methods: The study included 30 children, including 15 patients with celiac disease and 15 healthy controls, with a mean age of 9.87 ± 2.49 years. Data were collected using a structured form and microbiological analyses of stool samples. Statistical analyses were performed using SPSS software.

Results: No significant differences were observed between the two groups in terms of overall intestinal flora. Salmonella and Shigella bacteria were not detected. The total number of germs, as well as the number of Enterobacteriaceae, E. coli, Streptococcus, and Staphylococcus, did not differ significantly between patients and controls ($p > 0.05$). In contrast, Clostridium counts were significantly higher in celiac patients. A tendency toward higher Lactobacillus levels was noted in healthy controls compared to patients. Furthermore, the absence of eggs, vegetative forms, or worm larvae ruled out major parasitic infestations, although a slight presence of Blastocystis hominis cysts was observed in two celiac patients and one healthy control.

Conclusion: These results suggest relative stability of the intestinal flora in the children studied. However, the methods used provide a limited view of the microbiota. To better understand its role in celiac disease, more in-depth analyses, such as microbial DNA sequencing, are needed.

Nannapath Saramad

Praboromarajchanok Institute, Thailand

Biography

Nannapath Saramad, is currently a lecturer at Boromarajonani College of Nursing, Nakhon Si Thammarat, Faculty of Nursing, Praboromrajchanok Institute. She graduated with a Master of Nursing Science (M.N.S.) in Adult Nursing from Walailak University in 2018 and a Bachelor of Nursing Science from Boromarajonani College of Nursing, Nakhon Si Thammarat in 2013. And specializes in critical care nursing for adults and elderly and the science and art of nursing education. Her research interests include chronic illnesses in adults and the elderly, prevention and risk reduction management for cardiovascular diseases, stroke, and diabetes, as well SBL in nursing education.

Trajectory of self-care behaviors in patients with poorly controlled type 2 diabetes: the impact on clinical outcomes: A Longitudinal Study

Abstract:

This prospective longitudinal study examined self-care behavior trajectories among patients with poorly controlled type 2 diabetes after participation in a six-month self-care promotion program. It also explored relationships between trajectories and clinical outcomes, as well as factors influencing behavioral changes. A self-care trajectory analysis was employed with a sample of 40 patients. Research instruments included: (1) a general information questionnaire, (2) the Diabetes Self-Care Activity Index, (3) a self-care confidence questionnaire, and (4) fingertip blood glucose records. Instruments demonstrated content validity (CVI=0.89) and reliability (Cronbach's alpha=0.91). Data were analyzed using descriptive statistics and repeated-measures ANOVA to assess changes at three and six months. Results revealed self-care confidence trajectories of poor-poor (5.0%), poor-good (7.5%), good- poor (32.5%), and good-good (55.0%). For self-care maintenance: poor-good (2.5%), good-poor (22.5%), and good-good (75.0%). For self-care management: good-poor (30.0%) and good-good (70.0%). For self-care monitoring: good-poor (15.0%) and good-good (85.0%). Mean self-care maintenance and monitoring improved at six months, while self-care management declined initially before a slight recovery at six months. In conclusion, self-care trajectories among patients with type 2 diabetes are complex and diverse. Self-care confidence positively influenced clinical outcomes, whereas declining self-care management highlighted challenges in sustaining glycemic control. These findings underscore the importance of individualized self-care programs. Patients with regressive behaviors (good-poor) require additional support, while those maintaining good behaviors benefit from continuous reinforcement. Ongoing individualized support, health education, and regular symptom monitoring may enhance long-term glycemic control and reduce post-program behavioral decline.

Tinsae Abeya Geleta

National Yagn Ming Chiao Tung University, Ethiopia

Biography

Tinsae Abeya Geleta, is a PhD student at National Yang Ming Chiao Tung University (NYCU), Taiwan. He holds an MPH in Health Promotion and Health Behavior from Jimma University, Ethiopia. Tinsae has published 20 articles in reputable journals, utilizing diverse epidemiological study designs. He has also contributed as a qualitative and quantitative research consultant to an international project led by Wageningen University, the Netherlands.

Predictors of human papillomavirus vaccination intentions among female higher primary school students in Ethiopia: Application of the theory of planned behavior

Abstract:

Cervical cancer remains a significant global public health challenge, claiming over 350,000 lives each year and ranking as the fourth leading cause of cancer-related deaths among women. This study aims to use the Theory of Planned Behavior (TPB) to examine acceptance of the HPV vaccine and associated factors among female students in higher primary schools. A cross-sectional study was conducted among female students in higher primary schools in Fitche Town, Ethiopia, involving 424 participants. Data were collected using a self-administered questionnaire that included socio-demographic characteristics, knowledge, and TPB-based variables. Statistical analysis was performed using SPSS version 26, with Poisson regression analysis to identify factors associated with the intention to accept the HPV vaccine. A total of 400 female students aged between 13 and 14 years were included in this analysis. About 265 (66.3%) of participants showed a positive attitude toward the HPV vaccine, while 245 (61.3%) expressed an intention to receive it within the next six months. Additionally, 227 (56.8%) reported favorable subjective norms, and 228 (57.0%) indicated positive perceived behavioral control regarding the vaccine. Factors influencing HPV vaccination intention included knowledge levels (aPR 0.82, CI 0.72-0.92), attitudes (aPR 1.09, CI 1.03-1.20), subjective norms (aPR 1.09, CI 1.01-1.17), and perceived behavioral control (aPR 1.87, CI 1.72-2.04). Generally, the intention to vaccinate against HPV was low compared to the WHO 2030 HPV vaccination goals. Therefore, achieving these targets will require collaborative efforts from the Ethiopian Ministry of Health, the Oromia Regional Health Bureau, and non-governmental organizations.

Noor Zaman Jhanjhi

Taylor's University, Malaysia

Biography

Noor Zaman Jhanjhi, is a distinguished Senior Professor of Computer Science at Taylor's University, Malaysia, where he specializes in Artificial Intelligence and Cybersecurity. As the Director of the Research Center, Center for Intelligent Innovation CII, and Program Director for Postgraduate Research Degree Programmes, he plays a pivotal role in shaping academic excellence and driving cutting-edge research initiatives. Globally acclaimed for his scholarly contributions, Prof. Jhanjhi has been consistently ranked among the world's top 2% research scientists (2022–2025) and stands as one of Malaysia's top computer science researchers. His exceptional work has earned him prestigious accolades, including the Outstanding Faculty Member Award (MDEC Malaysia, 2022) and the Vice Chancellor's Best Research Citations Award (Taylor's University, 2023).

Smart Healthcare Systems: Empowering Nurses through Digital Transformation

Abstract:

The rapid development of digital technologies is transforming the healthcare landscape, placing nurses at the forefront of innovation and patient-centered care. This keynote examines how smart healthcare systems, powered by artificial intelligence (AI), Internet of Medical Things (IoMT), and data analytics, are changing nursing practice by improving decision-making, streamlining workflows, and enhancing patient outcomes. It emphasizes the essential role of nurses in adopting, managing, and ethically implementing these technologies while preserving the human touch that characterizes compassionate care. By embracing digital transformation, nurses are not just adjusting to the future of healthcare but actively leading it, bridging the gap between technology and compassion to provide safer, smarter, and more connected care.

Sushma Jaiswal

Guru Ghasidas Central University, Bilaspur, India

Biography

Sushma Jaiswal, is an Assistant Professor in the Department of Computer Science & IT at Guru Ghasidas Vishwavidyalaya, Bilaspur. She holds a Ph.D. from RGPV and a D.Sc. in Computer Science & Engineering (2024). With over 21 years of experience, her expertise includes AI, Machine Learning, and Digital Image Processing. A prolific inventor, she holds a world record for the highest number of patents and copyrights filed by an individual, grants across the UK, Australia, Germany, and South Africa. She has published 150+ research papers, authored 40 books, and mentored multiple Ph.D. scholars. Recognized as a "Best Women Scientist," she also serves as an International Educational Ambassador and reviewer for IEEE and Springer journals. Her leadership includes roles as NSS Program Officer and Alumni Coordinator. She was notably offered a Research Engineer role for Google's R&D projects in 2017.

AI-Optimized Topology for Reducing Periprosthetic Bone Loss in Total Joint Replacements

Abstract:

Objective: To design a femoral stem that mimics the mechanical properties of natural cortical bone using AI-driven topology optimization, thereby mitigating periprosthetic bone loss caused by stress shielding.

Methods: We utilized a Generative Adversarial Network (GAN) integrated with a Physics-Informed Neural Network (PINN) to evolve the internal lattice structure of a Titanium-alloy (Ti6Al4V) hip stem. The AI was tasked with maximizing the "Strain Energy Density" (SED) in the surrounding periprosthetic bone while maintaining a safety factor of 2.0 against fatigue failure. Over 10,000 "In Silico" loading cycles (simulating walking, climbing stairs, and stumbling) were processed to refine the topology.

Results: The AI-optimized "biomimetic" stem featured a functionally graded porous architecture, with higher porosity in the proximal region and a dense core. Compared to traditional solid stems, the optimized design increased load transfer to the proximal femur by 64%.

Conclusion: AI-optimized topology allows for a "mechanical match" between implant and bone, significantly reducing the risk of long-term aseptic loosening and the need for revision surgery.

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2026

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NOTES

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March 18–19, 2027 | Barcelona, Spain

https://www.scitechseries.com/physical-medicine

4th International Congress on Psychology & Behavioral Sciences

March 18–19, 2027 | Barcelona, Spain

https://www.scitechseries.com/psychology

2nd International Congress on Digital Health Innovations and Advanced Nursing Practice

April 22-23, 2027 | Amsterdam, Netherlands

https://www.scitechseries.com/healthcare

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