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11th INCPT AIIMS 2025

शरीरमाद्यं खलु धर्मसाधनम्

DEPARTMENT OF BIOTECHNOLOGY
Ministry of Science & Technology
Government of India

11th INTERNATIONAL CONFERENCE OF PHYSICAL THERAPY AIIMS 2025

Theme

Physiotherapy to Physiopathy

SOUVENIR

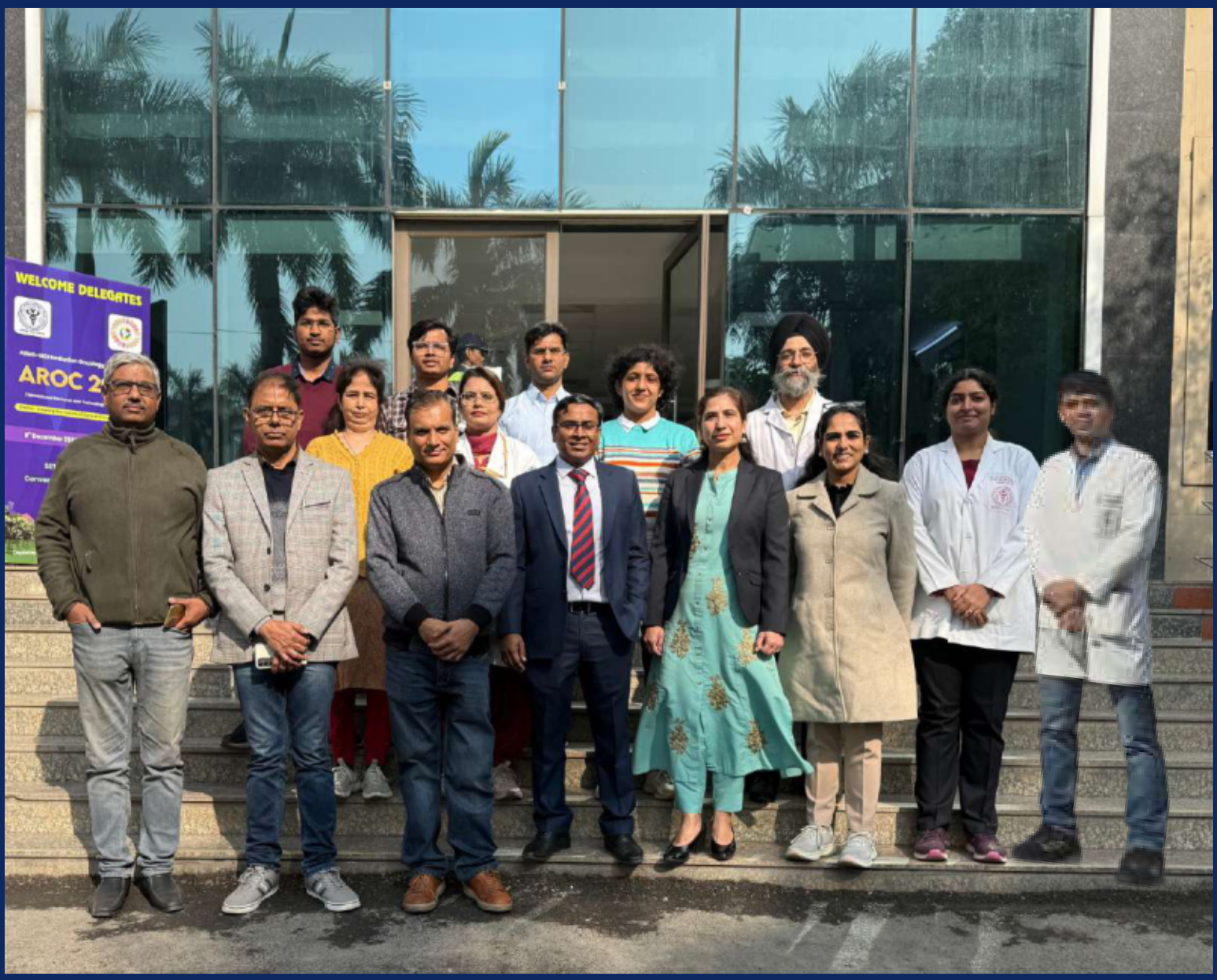
11th-15th DECEMBER, 2025

Organized By: **Physiotherapy Unit**

Department of Neurology, All India Institute of Medical Sciences New Delhi

Venue: **Jawaharlal Auditorium, AIIMS, New Delhi**

All India Institute of Medical Science, New Delhi



Organizing Committee

11th INTERNATIONAL CONFERENCE OF PHYSICAL THERAPY AIIMS 2025

Organized by Physiotherapy Unit, Department of Neurology

नाविका गुप्ता
NAVIKA GUPTA
भारत की राष्ट्रपति की उप प्रेस सचिव
Deputy Press Secretary
to the President of India

राष्ट्रपति सचिवालय,
राष्ट्रपति भवन,
नई दिल्ली–110004.
PRESIDENT'S SECRETARIAT,
RASHTRAPATI BHAVAN,
NEW DELHI - 110004.

MESSAGE

The President of India, Smt. Droupadi Murmu, is happy to know that the Neuro Physiotherapy Unit, Department of Neurology, AIIMS, New Delhi is organising the 11th International Conference on Physical therapy (INCPT AIIMS 2025) on the theme " Physiotherapy to Physiopathy" from 11th to 15th December, 2025. A souvenir is also being published to mark the occasion.

The President extends her warm greetings and felicitations to the organisers and the participants and sends her best wishes for the success of the event.

Dy. Press Secretary to the President

New Delhi
December 12, 2025

Tel. (O) : 91-11-23793528 (Direct), 91-11-23015321 Extn. 4442 , Fax : 91-11-23010252
E-mail : message-rb@rb.nic.in

सत्यमेव जयते

प्रधान मंत्री
Prime Minister

MESSAGE

It is a pleasure to learn about the 11th International Conference of Physical Therapy - AIIMS 2025, organised in New Delhi. The theme of the Conference, "Physiotherapy to Physiopathy" will provide new perspectives to the gathering of students, academics, researchers, experts and clinicians from across the globe.

Physiotherapy, grounded in a holistic approach to health, plays a crucial role in nurturing resilience in individuals. Beyond delivering clinical interventions, physiotherapists often extend their impact by guiding and supporting patients as mentors, effectively taking on the role of life coaches in their journey of recovery.

The extension of perspectives around physiotherapy to include even physiopathy represents a move from treating symptoms to addressing root causes of problems faced by people. This approach is a proactive, personalised model of care that can help reduce chronic conditions, improve outcomes and lower overall healthcare costs for the people.

India is building a strong, affordable and accessible healthcare ecosystem by strengthening primary care, prioritising prevention and early detection, expanding the medical workforce and leveraging technology and community-based services. Further, the number of AIIMS has also been tripled, showing an example of our approach to capacity building. This transformation ensures high-quality care reaches all populations, including those in remote areas, while creating a healthier future for both people and the planet.

I am confident that such conferences, with their vibrant idea exchanges will unlock newer pathways for our healthcare ecosystem.
As India takes confident steps towards building Viksit Bharat, its health journey is no longer just about treating illness but also about nurturing wellness and resilience in people.

Best wishes for fruitful deliberations at the conference that further good health and wellness for the benefit of humanity.

(Narendra Modi)

New Delhi
अग्रहायण 19, शक संवत् 1947
10 December, 2025

राजनाथ सिंह
RAJNATH SINGH

रक्षा मंत्री
भारत
DEFENCE MINISTER
INDIA

Date: 11.12.2025

Message

I am pleased to know that the physiotherapists of AIIMS, New Delhi, are organizing the 11th International Conference of Physical Therapy on the theme "Physiotherapy to Physiopathy", scheduled from 11th to 15th December 2025.

Physiotherapy plays a vital role in restoring movement,reducing pain, and improving quality of life across all ages, with the field now shifting from symptom-based care to understanding the underlying physiopathy for more precise, evidence-based management.

The physical and mental fitness of our armed forces is the foundation of national security. Physiotherapists contribute significantly to injury prevention, rapid recovery, and operational readiness of military personnel. India's defence sector has continued to place a strong emphasis on the health, safety, and holistic well-being of our brave servicemen and women. The collaboration between the armed forces' medical services and physiotherapy specialists stands as a testament to the government's unwavering commitment to comprehensive soldier care and national resilience.

I extend my heartfelt congratulations to all young physiotherapists and the organizing committee for hosting such a significant event for the advancement of the profession.

With good wishes,

(Rajnath Singh)

Office : Room No. 104, Ministry of Defence, South Block, New Delhi-110011
Tel. : +91 11 23012286, +91 11 23019030, Fax : +91 11 23015403
E-mail : rmo@mod.nic.in

NATIONAL HEALTH MISSION
राष्ट्रीय स्वास्थ्य मिशन

अनुप्रिया पटेल
ANUPRIYA PATEL

सत्यमेव जयते

Message

राज्य मंत्री
स्वास्थ्य एवं परिवार कल्याण
व रसायन एवं उर्वरक
भारत सरकार

MINISTER OF STATE
HEALTH & FAMILY WELFARE
AND CHEMICALS & FERTILISERS
GOVERNMENT OF INDIA

I am delighted to know that the 11th International Conference of Physical Therapy (INCPT) - AIIMS 2025 is being organized by Physiotherapy Unit, Department of Neurology at the All India Institute of Medical Sciences, New Delhi. I congratulate the organizing committee for curating a scientific platform that brings together global and national experts to discuss new developments in physiotherapy.

The theme for this year's conference, "Physiotherapy to Physiopathy," is forward-looking and well aligned with the future of healthcare. Physiotherapy today extends far beyond symptomatic pain relief it plays a critical role in understanding the pathology of movement disorders, functional decline, chronic systemic diseases, and disability. This shift from a purely therapeutic approach to a deeper focus on disease mechanisms reflects the growing scientific strength of the profession. It also highlights its expanding role in preventive, promotive, curative, and rehabilitative healthcare.

Physiotherapy is delivering efficient, evidence-based, and patient-centric care across the lifespan from neonates to the elderly. Its contribution has been particularly remarkable in post-operative recovery, non-communicable disease management, post-COVID rehabilitation, sports medicine, neurological and cardiopulmonary care, pain management, and the enhancement of physical and functional independence. As the burden of chronic diseases and disability increases globally, the role of physiotherapy in reducing long-term healthcare dependency and enabling better quality of life is becoming increasingly vital.

The Government of India is fully committed to strengthening the profession of physiotherapy and the broader allied and healthcare sectors. The establishment of the National Commission for Allied and Healthcare Professions (NCAHP) is a landmark step toward ensuring standardisation of education, professional regulation, quality practice, and career growth across allied and healthcare disciplines, including physiotherapy. This initiative reflects the government's vision to enhance patient. safety, professional excellence, and global recognition for physiotherapy practitioners in India.

I am confident that INCPT AIIMS 2025 will promote high-quality scientific exchange, stimulate innovation, and inspire young researchers and clinicians to contribute further to the advancement of physiotherapy. I extend my best wishes to all participants, faculty, and organizers for a successful and impactful conference.

December 8,
2025 New Delhi

(Anupriya Patel)

डॉ. विनोद कुमार पॉल
सदस्य
Dr. Vinod K. Paul
MEMBER

सत्यमेव जयते

भारत सरकार
नीति आयोग
संसद मार्ग, नई दिल्ली – 110001
Government of India
NATIONAL INSTITUTION FOR TRANSFORMING INDIA
NITI Aayog
Sansad Marg, New Delhi – 110001
Tele.: 23096809, 23096820
E-mail: vinodk.paul@gov.in

November 26, 2025

Message

I am truly delighted to learn that the All India Institute of Medical Sciences, New Delhi, is organizing the 11th International Conference of Physical Therapy — AIIMS 2025, to be held on 13th and 14th of December 2025. This event stands as a remarkable testament to AIIMS' continued leadership in advancing healthcare education, research, and innovation.

This year's theme, "Physiotherapy to Physiopathy," beautifully captures the evolution of the profession. It reflects how physiotherapy is moving beyond traditional hands-on therapeutic approaches to a deeper, science-driven exploration of the physiological and pathological mechanisms that underlie health, disease, and human movement. It symbolizes a shift toward rigorous scientific inquiry, advanced technology, and evidence-based practice.

In recent years, the field of physiotherapy has witnessed extraordinary transformation. The integration of artificial intelligence, robotics, biomechanics, virtual reality, tele-physiotherapy, and neuroplasticity-based rehabilitation has opened new frontiers in patient care. These advancements have not only enhanced precision and efficiency but have also expanded accessibility and improved outcomes for countless individuals.

I wholeheartedly commend the organisers for their vision, dedication, and tireless efforts in curating such a meaningful and impactful event. This conference is not only a forum for sharing knowledge but also an opportunity to build new partnerships, strengthen existing ones, and collectively shape the future of physiotherapy.

I extend my warmest wishes for the success of the conference and hope that it continues to inspire and empower professionals across the world.

Vinod Paul

(Vinod Paul)

अखिल भारतीय आयुर्विज्ञान संस्थान
अंसारी नगर, नई दिल्ली -११००२६ (भारत)
ALL INDIA INSTITUTE OF MEDICAL SCIENCES
ANSARI NAGAR, NEW DELHI - 110029, (INDIA)
Ph. 011-26594805/4800, Email: director@aiims.gov.in

05th December 2025

दिनांक/Dated :.....

MESSAGE

It gives me immense pleasure to note that the **11th International Conference of Physical Therapy (INCPT) – AIIMS 2025** is being organized at the All India Institute of Medical Sciences, New Delhi from 11th-15th December 2025. I congratulate the Physiotherapy Unit, Department of Neurology and the organizing committee for their dedicated efforts in creating this scholarly platform that brings together leading physiotherapists, scientists and healthcare professionals from across India and around the world.

The theme of this year's conference, **"Physiotherapy to Physiopathy"**, reflects an important paradigm shift in modern healthcare. Physiotherapy is no longer limited to alleviating musculoskeletal pain or aiding recovery — it now plays a pivotal role in understanding the science behind disease processes, functional impairment, and disability. This evolution from treatment to translational research underscores the profession's contribution not only to rehabilitation but to prevention, early diagnosis, long-term recovery, and quality-of-life enhancement.

In today's healthcare ecosystem, physiotherapy is delivering high-quality, evidence-based, and cost-effective care across acute, post-operative, chronic, geriatric, paediatric, neurological, cardiopulmonary, and sports-related conditions. The integration of physiotherapy into multidisciplinary clinical pathways has been vital in reducing hospital stay, accelerating return to functionality, and improving outcomes for patients with diverse and complex conditions. The profession continues to prove its worth as **an indispensable pillar of comprehensive healthcare delivery.**

At AIIMS New Delhi, we remain **firmly committed to strengthening the field of physiotherapy** through continuous support for education, clinical services, research, and professional development. We take pride in fostering an ecosystem that encourages innovation, ethical practice, advanced rehabilitation technologies, and collaborative learning. AIIMS will continue to support initiatives that empower physiotherapists to shape the future of patient-centric and preventive healthcare in India.

I extend my best wishes to all the delegates, faculty members, and students participating in INCPT AIIMS 2025. May this conference serve as a catalyst for new ideas, meaningful collaborations, and scientific breakthroughs that advance the discipline of physiotherapy and benefit society at large.

(Prof. M. Srinivas)
Director
Ph. 011-26594805/4800
director@aiims.gov.in

डॉ॰ यज्ञा उन्मेष शुक्ला, (पीएच.डी)
अध्यक्ष, एन सी ए एच पी

Dr.Yagna Unmesh Shukla,(Ph.D)
Chairperson, NCAHP

सत्यमेव जयते

राष्ट्रीय सहबद्ध और स्वास्थ्य
देख-रेख वृत्ति आयोग
स्वास्थ्य एवं परिवार कल्याण मंत्रालय
भारत सरकार
Government of India
Ministry of Health & Family Welfare
National Commission
for Allied and Healthcare Professions

Message

It is a matter of immense pleasure to learn that the **11th International Conference of Physical Therapy (INCPT) – AIIMS 2025** is being organized at the All India Institute of Medical Sciences, New Delhi. I extend my warmest congratulations to the organizing committee for bringing together clinicians, researchers, academicians, and students from India and across the globe on this outstanding platform.

The theme of this year's conference, **"Physiotherapy to Physiopathy,"** is both timely and progressive. As the global healthcare landscape evolves, the role of physiotherapy is expanding from symptomatic management to a deeper understanding of the underlying mechanisms of disease and disability. This theme highlights the profession's transition from *treatment to translational science*—from alleviating impairment to exploring the pathology, physiology, and biomechanics that shape human function. It truly embodies the future of rehabilitation sciences, where physiotherapists play a pivotal role in evidence-based, multidisciplinary, and technology-integrated patient care.

I am confident that **INCPT AIIMS 2025** will foster insightful discourse, meaningful collaboration, and innovative research directions that will significantly benefit the profession and the healthcare system. The exposure gained by young professionals and students from such academic engagements will further enhance the quality of rehabilitation services in the country.

I appreciate the continued commitment of AIIMS in advancing the discipline of physiotherapy and strengthening the vision of a robust, patient-centric allied health ecosystem. My best wishes to all the delegates, faculty, and participants for a successful and enriching conference.

May this year's INCPT create milestones in clinical practice, research, and global collaborations.

Warm regards,

Dr. Yagna Unmesh Shukla(PhD)
Chairperson
National Commission of Allied & Healthcare Professions (NCAHP)

2nd Floor, Office of NCAHP, Academic Block, NIHFW Campus, Baba Gang Nath Marg, Munirka,
New Delhi-110067
Tel.:.-011-26100352, Email: secretariat-secy@ncahp.mohfw.gov.in

तंत्रिका विज्ञान केन्द्र
अखिल भारतीय आयुर्विज्ञान संस्थान
अंसारी नगर, नई दिल्ली-११००२९

NEURO SCIENCES CENTRE
All India Institute of Medical Sciences
ANSARI NAGAR, NEW DELHI-110 029
TELEPHONES : 26588500, 26588700, 26589900
FAX : 91-11-26588663, 26588641
Website : www.aiims.ac.in, www.aiims.edu

DATE : .....

Message from Patron

It is with great pleasure that I extend my warmest greeting to all participant of the 11th nternational Conference of physical Therapy at AllMS Delhi, schedule from 11th to 15th December 2025 under the theme "Physiotherapy to Physiopathy."

This theme encapsulates the evolving emphasis on pathophysiological understanding as the foundation of precision-based physiotherapy. In recent years, physiotherapy has witnessed remarkable progress driven by technological innovation and interdisciplinary research. The integration of artificial intelligence, motion analysis, robotics, and virtual reality has transformed therapeutic practice. Approaches such as neuroplasticity-based therapy, regenerative rehabilitation using non-invasive brain stimulation therapies, and tele physiotherapy have enhanced accessibility, precision, and outcomes in patient care.

Furthermore, the increasing emphasis on preventive physiotherapy and community-based physiotherapy aligns seamlessly with India's public health vision of promoting wellness and reducing the burden of chronic and lifestyle-related diseases.

The conference offers a rich opportunity for researchers, clinicians, and academicians to share evidence-based practices, explore translational research, and strengthen inter-disciplinary dialogue.

I extend my best wishes for productive sessions and impactful outcomes that elevate the scientific fabric of physiotherapy.

Prof. (Dr.). Shailesh Gaikwad
Chief of Neuroscience Centre
Patron, 11th INCPT AIIMS 2025

तंत्रिका विज्ञान केन्द्र
अखिल भारतीय आयुर्विज्ञान संस्थान
अंसारी नगर, नई दिल्ली-११००२९

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DATE : .....

Message from Patron

On behalf of Department of Neurology, AIIMS New Delhi, I extend a warm welcome to all of you to the 11th International Conference of Physical Therapy AIIMS 2025 to be held from 11th to 15th December 2025, under the theme "Physiotherapy to Physiopathy."

Physiotherapy is no longer confined to the bedside or the therapy mat. It is expanding into laboratories, operating rooms, intensive care units, community health spaces, and digital platforms. It is increasingly informed by science, enriched by technology, and guided by innovation.

This theme is especially significant for the field of neurorehabilitation, where physiotherapy has evolved from traditional hands-on approaches to a deeper, scientific understanding of the physiological and pathological mechanisms that govern brain, nerve, and motor recovery. Today, neurorehabilitation stands at the forefront of innovation—powered by neuroplasticity-driven therapies, robotics, virtual reality, artificial intelligence, biomechanics, and advanced tele-rehabilitation platforms.

As we begin this conference, I encourage each of you to engage deeply—share your clinical experiences, explore new research, and collaborate across disciplines. Together, let us strengthen the scientific foundations of neurorehabilitation and push its boundaries even further.

May the ideas exchanged here lead to breakthroughs that restore independence, dignity, and quality of life for millions living with neurological challenges.

Thank you, and I wish you a meaningful and inspiring conference ahead.

Manjari Tripathi

Prof. (Dr.) Manjari Tripathi

Prof.& Head, Neurology

Patron, 11th INCPT AIIMS 2025

तंत्रिका विज्ञान केन्द्र
अखिल भारतीय आयुर्विज्ञान संस्थान
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FAX : 91-11-26588663, 26588641
Website : www.aiims.ac.in, www.aiims.edu

DATE : .....

Message from Chairperson

It gives me great pleasure to extend my greetings to all participants of the 11th International Conference of Physical Therapy, organized by Physiotherapy Unit, Dept. of Neurology,AllMS New Delhi.

Physiotherapists today play a crucial role in restoring optimal function, preventing disability, and enhancing physical fitness. The theme, "Physiotherapy to Physiopathy." reflects the ynamic evolution of physiotherapy as a science and profession moving beyond traditional therapeutic approach to a deeper exploration of the physiological and pathological mechanisms underlying human movement, recovery, and performance. This shift represents the growing integration of fundamental biomedical science with clinical expertise, paving the way for more precise, evidence-based, and personalized therapeutic interventions.

This conference stands as a platform to celebrate scientific progress, clinical excellence, and collaborative spirit. As physiotherapy continues to expand from symptom-based management to a deeper understanding of the underlying physiopathy, this gathering will undoubtedly inspire new pathways in education, research, and patient care.

I wish the conference grand success and hope that the deliberations contribute meaningfully to the advancement of the profession.

Prof. Achal Srivastava
Chairperson
11th INCPT AIIMS 2025

तंत्रिका विज्ञान केन्द्र
अखिल भारतीय आयुर्विज्ञान संस्थान
अंसारी नगर, नई दिल्ली-११००२९

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FAX : 91-11-26588663, 26588641
Website : www.aiims.ac.in, www.aiims.edu

DATE : .....

Dear Esteemed Colleagues and Fellow Physiotherapists,

It is with immense pride and pleasure that, as the Organizing Secretary of this esteemed gathering, I extend my warmest wishes to each one of you on the 11th International Conference of Physical Therapy, AIIMS 2025 with the theme "Physiotherapy to Physiopathy".

The progression from "Physiotherapy to Physiopathy" reflects a far-sighted vision with an emphasis on understanding disease mechanisms to deliver precise, evidence-based, and individualized care. Furthermore, the field of physiotherapy is progressing rapidly with emerging technologies— like robotic-assisted therapy, virtual reality–based rehabilitation, motion-capture systems, tele-physiotherapy, and regenerative rehabilitation including stem-cell applications—and thereby transforming the landscape of clinical practice.

We have made a sincere effort to incorporate all major and emerging topics into the conference sessions, ensuring that every area requiring advancement is effectively addressed. These sessions are led by pioneering experts from India and abroad, bringing together the finest minds in the field. The conference also features engaging events such as Quiz, Dance, Fashion show and Rangoli competitions, adding vibrancy and creativity to the academic atmosphere.

I extend my heartfelt appreciation to the organizing team and all participants for shaping a platform where knowledge meets purpose, and where physiotherapy continues to guide us toward a healthier and more inclusive future.

I also convey my deepest gratitude to our Director, the Chief of the Neurosciences Centre, and the Head of the Department of Neurology for their constant encouragement and invaluable support in making this conference a grand success.

We have worked hard to make this conference a grand success but there may be some shortcomings. I take responsibility for all those shortcomings and expect you will overlook those.

I wish you all a Merry Christmas and a very happy upcoming new year 2026.

Dr. Rajeev Aggrawal
Supt. Physiotherapist and In-charge, NSC
Organizing Secretary, 11th INCPT AIIMS 2025

ORGANIZING COMMITTEE

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PATRON
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Anil Kumar Oraon

11th INTERNATIONAL CONFERENCE OF PHYSICAL THERAPY AIIMS 2025

Scientific Program

DAY – 1			13TH DEC. 2025		
8.00-9.00	REGISTRATION		JAWAHAR LAL AUDITORIUM FOYER		
9.00-9.15	WELCOME ADDRESS		JAWAHAR LAL AUDITORIUM		
9.15-9.25	Message for INCPT AIIMS 2025 by Elizabeth Dean				
9.25-9.45	SESSION 1: JAWAHAR LAL AUDITORIUM CHAIRPERSON: Raju K Parasher, Rosario Bellia KEYNOTE ADDRESS: Priti George: Empowering Today's Physiotherapist: Paving the Path Forward				
	JL AUDITORIUM		CONFERENCE HALL		
9.50 -10.40	SESSION 2: Panel Discussion on NCAHP. Moderator: Sanjeev Gupta; Panelists: Yagna Unmesh Shukla, VP Gupta, Jitender Sharma, Ajay Foujdar, Binay Pandey, Narasimman Swaminathan		SESSION 3: Beyond Survival: Physiotherapy Science in Oncology Care Chairperson: Deepak Raghav, Deptee Warikoo singh, Niraj Kumar, Raju Kumar		
			10.00-10.15	Sandeep Babbar	Radiation to Rehabilitation: The Physiotherapist's Role in Post- WBRT Neuro-Oncology Recovery
			10.20-10.35	Shailendra Mehta	Physiotherapeutic management of complications of Head and Neck Cancer
10.40-11.40	INAUGURATION CEREMONY AUDITORIUM		JAWAHAR LAL		
	JL AUDITORIUM		CONFERENCE HALL		
	SESSION 4: Synapse & Strength: A symposium on Neuro-Physiotherapy CHAIRPERSON: Chitra Kataria, Raj Kumar Meena, Sharda Sharma		SESSION 5: Symposium on Pain Science to Pain Solutions: Evidence-Based Physiotherapy Approaches Chairperson: Jasmine Anandabhai, Vinod Kaushik, M. Suganthi		
11.40-11.55	Monalisa Pattnaik	Clinical Approach to Neurodynamics	11.40-11.55	Rinkle Malani	Breaking the Silence: Pain Education for the Hidden Epidemic of the Musculoskeletal Disorders
12.00-12.15	Manjari Tripathi	Is Physical rehabilitation required for People with Epilepsy?	12.00-12.15	Mamta Shankar	Biopsychosocial Assessment and Protectometer in Chronic Pain
12.20-12.35	Ashwini Kale	Neurogenic Bladder Dysfunction: Integrating Urodynamic Diagnostics with Advanced Rehabilitation	12.20-12.35	Asir John Samuel	Exploring the Unexplored Therapies in Managing Neonatal Pain
12.40-12.55	G. S. Balachandran	Recent Advancement in Spinal Cord Injury Rehabilitation	SESSION 6: Video sessions Chairperson: Anjali Bhatnagar, Parul Chauhan, Tarun Lala		
			12.4012.55	KRITI KHANNA	Not Scoliosis. Not Surgery. Just Skill-Based Therapy.
1.00-1.15	Sumit Asthana	Gut- Brain Health and Physiotherapy	1.00-1.15	Garima Gedamkar	ASTROCISE: Exploring the Frontier of Space Physiotherapy
JL AUDITORIUM			CONFERENCE HALL		

SESSION 7: Ortho-Motion: A symposium on Musculoskeletal Physiotherapy CHAIRPERSON: Renu Bhatia, Pradip Sarkar, Rakesh Tyagi, M. S. Mehra			SESSION 8: Human Touch Meets Tech Innovation: Harmonizing Physio-Practice & Technology Chairperson: Ajit Kumar, Karthi keyan, Atul Singh, Rinku Yadav		
1.20-1.35	Rupesh K Srivastava	Biotechnological principles, Stress, Bone Health and Physiotherapy: Connecting the Dots	1.20-1.35	Pushpa Dhote	AI powered Physiotherapy Rehabilitation in Neurological Conditions- An overview
1.40-1.55	AGK Sinha	Physiotherapy in Sports health: A key to nation's Glory	1.40 -1.55	Syed Waris	Rhythm: The cellular mode of Communication
2.00-2.15	P. P. Mohanty	Recent updates in physiotherapeutic management of osteoarthritis of Knee	2.00-2.15	Mahender Shende	Restoring Brain Function through Video Game Play: A New View to an Old Purview
JL AUDITORIUM			CONFERENCE HALL		
SESSION 9: Co-Creating the Future: Industry Solutions for Evolving Physiotherapy Needs Chairperson: Poonam Mishra, Altaf Hussain Mir, E. Shanmugananth, S Purna Chandra			SESSION 10: Symposium: Pelvic Health to WholeBody Health: Innovations in Women's Physiotherapy Chairperson: Stuti Khanna, Kalpana Zutshi, Aditi Singh, Richa Mahajan		
2.20-2.35	Tarun Lala	Role of rTMS in Neuro rehab: sharing experiences from Max super specialty hospital	2.20-2.35	Mandeep Kang	Clinical Insights into Menopause: Physiotherapy Approaches From Cause to care
2.40-2.50	Technogym		2.40-2.55	Shagufta Parveen	Physiotherapy Strategies for Empowering Natural Birth
2.50-3.00	Grand Slam Fitness Pvt Ltd				
3.00-3.05	CBS Book Release		3.00-3.15	Richa Goswami	Addressing Sarcopenia and Frailty in elderly women - Physiotherapeutic perspective
3.05 3.10	Baxter				
3.10-3.20	ABTS				
3.20-3.25	Physio Gyan				
3.25-3.30	Jogo				
JL AUDITORIUM			CONFERENCE HALL		
3.45-4.30	SESSION 11: Panel discussion; Physiotherapy to Physiopathy: Dharampani Pandey (Moderator), Dinesh Samujh, Pooja Sethi, Zubia Veqar, Narkeesh Arumugam A, Jayaprakash Jayavelu		SESSION 12: Educating the Next Generation of Physiotherapists: Science, Skills & Professionalism Chairperson: Gajanan Bhalerao, Harihara Prakash, Maliram Sharma		
			3.20-3.35	Harsh M Rajdeep	Physio Version 2.0 Newest Skill Advancements to Excel in Healthcare System
			3.40-3.55	Zaki Anwar	Evidence- Based knowledge: Focus on Student Learning
			4.00-4.15	Anand Kumar Singh	Predictive Orthopedic Rehabilitation Using AI & Motion Analytics
			4.15-4.30	Lajwanti Lalwani	Standardized Patient Program for Enhancing Clinical Competence in Physiotherapy Students
4.30-5.00	B.L. Golhar Oration Award	Dr. Shobha Keswani	JAWAHAR LAL AUDITORIUM		
5.00-6.00	AWARD CEREMONY		JAWAHAR LAL AUDITORIUM		
6.00-9.00	CULTURAL PROGRAM		JAWAHAR LAL AUDITORIUM		
7.30-9.45	GALA DINNER AND SOCIAL NETWORKING		SWIMMING POOL LAWN		

DAY – 2			14TH DEC. 2025		
8.30-9.45	Students' Program QUIZ, MS/ MR PHYSIO		JAWAHAR LAL AUDITORIUM		
9.4510.15	SESSION 13: Chairperson: Rohit Bhatia, Seema Grover, KEYNOTE ADDRESS 1: Rogan Slavko Geriatric Physiotherapy in Switzerland and India: An International Comparison of Care, Challenges, and Prevention Strategies in the Context of Demographic Change		JAWAHAR LAL AUDITORIUM		
10.20-10.35	Keynote Address 2: Ram Parkash: AI Readiness and Global Careers: Preparing Physiotherapists for the Future / Today				
JL AUDITORIUM			CONFERENCE HALL		
	SESSION 14: CardioRespire: A Symposium on Cardiopulmonary Physiotherapy Chairperson: Sunil Aggarwal, Digvijay Singh, M. Thangaraj, G. Poornadevi Rao		SESSION 15: Therapeutic Reset: Physiotherapy in Miscellaneous conditions Chairperson: Dheeraj Singh, Rajesh Pal, A. S. Moorthy, Jugendra Singh Indolia, G. Velmurugan		
10.40-10.55	Rajiv Narang	Exercise Prescription for Persons After Myocardial Infarction	10.40-10.55	Ghufran Jaleel	Targeting the Chemerin CMKLR1 axis: Can Physiotherapy modulate NASH progression
11.00-11.15	Shambhovi Mitra	Beyond the Lungs: Expanding the Role of IMT in Clinical Care	11.00-11.15	K. Ankit Raj	Effect of Cervico Thoracic Electrical Sensory Stimulation on Wrist Flexors Spasticity
11.20-11.35	Jan Willem Wisselink	Cardiac Rehabilitation - From Physiotherapy to Physiopathy: Digital Workflows & Evidence-Based Exercise Prescription	11.20-11.35	Avinash Bharti	PT beyond Cure: Preventing Disability and Enhancing QoL
11.40-11.55	Neelam Chauhan	Redefining Cardiothoracic Rehabilitation Through Functional Testing and Emergency Response Protocols	11.40-11.55	Ruchika Madan	Cognitive Impairment in Geriatrics: Physiotherapeutic Approaches to Preserve Function
12.00-12.15	Prajakta Sahasrabudhe	Predicting Outcomes: Physiotherapy Diagnosis for Personalized Pulmonary/Cardiac Rehabilitation	12.00-12.15	Roshan Joshua Daniel	Swimming Injuries
12.20-1.10	SESSION 16: PANEL DISCUSSION: Economics of Physiotherapy: Deepak Kumar, Sanjiv Jha, Nitesh Bansal, Dharampani Pandey Manoj Singh		SESSION 17: New Dimensions in Rehabilitation Chairperson: Amresh Singh, Sheetal Kalra, Yogita Verma		
			12.20-12.35	Manoj Deshmukh	Interlimb Spinal Facilitation - From cellular circuits to Rehabilitation stratagies
			12.40-12.55	Harihara Prakash	Moving from Professionalism to Professional Identity Formation- Redefining the role of Physiotherapist in the global healthcare system
			1.00-1.15	Charu Sharma	Physical rehabilitation and inclusion at the ICRC
JL AUDITORIUM			CONFERENCE HALL		

SESSION 18: Move Better. Perform Better; Ortho-Sports Physiotherapy Symposium Chairperson: Chittranjan Mishra, Puneet Kumar Dua, Nikita Joshi, Shagun Aggarwal, Charu Smita Gemini,			SESSION 19: Rewire. Restore. Recover: Neuro-Physiotherapy Symposium Chairperson: Pradeep Kumar, Ajay Kumar, Sathya Guruprasad, Garima Wadhwa		
1.20-1.35	Bellia Rosario	Rehabilitation after Patellar Fracture and Cerclage Surgery: Presentation of a Case-Report	1.20-1.35	D.Thiagarajan	Missing Link in Neuro Physiotherapy Techniques and Technologies. Bridging the gap between Brain and Machine.
1.40-1.55	Punit Kaur	The Role of Biophysics in Physiotherapy and Rehabilitation	1.40-1.55	Deeksha Sharma	Neuroanatomy of Stroke: A Region-Based Approach for physiotherapists
2.00-2.15	Aijaaz Ashai	30 Second Diagnosis- 3 Min Treatment on Field	2.00-2.15	Annu Bijarnia	Neuroplasticity Application in Dementia- Physiopathy Perspective
2.20-2.35	Gaurav Chawla	Myofascial Meridian Assessment and Balancing for Manual and Movement Therapists	2.20-2.35	Shefali Walia	Balance challenges after Spinal Cord Injury and Evidence Based Therapies
2.40-2.55	Apurva Shimpi	Shoulder Injury Rehabilitation: Mechanism based Assessments and Functional Restoration	2.40-2.55	Isha Tejane	Clinical practice guidelines for Electrodiagnosis in facial nerve palsy
3.00-3.15	Megha Nijhawan	From Concept to Practice: tDCS as an evolving tool in cortical excitability modulation	3.00-3.15	Pooja Gole	Physiotherapeutic management of post Brachial Plexus Injuries
3.20-4.00	JL Auditorium SESSION 20: Panel Discussion: Documentation and prescription in Physiotherapy: Moderator: Meena Makhija; Dhanesh K, Ruchi Varshney, Sampada Jahagirdar, Vikrant Bhardwaj				
4.00-4.10	CLOSING REMARKS AND CONCLUDING THE CONFERENCE: Dr Sanjiv Jha				
4.10-5.00	VALEDICTION AND AWARD CEREMONY JAWAHAR LAL AUDITORIUM				

INCPT AIIMS 2025: PAPER SCHEDULE

Date: Saturday, 13 Dec 2025

CATEGORY : Junior Ortho

S. No.	Topic	Name of Presenter
1	Therapeutic Impact of HILT Versus Sham Laser on Pain and Function in a Structured Exercise Regimen	TANYA
2	Translation and crosscultural adaptation of modified harris hip score (mhhs) scale in kannada	MOHAMED AJMAL P.V
3	TO Compare the effectiveness of dynamic neuromuscular stabilization and Pilates in nonspecific chronic low back pain	LIPIKA AGGARWAL
4	Immediate Effectiveness of Bowen Technique Versus Active Release Technique on Hamstring Tightness in Physically Inactive Students: A pilot study	JANVI ROKADIA

CATEGORY : Junior Neuro

S. No.	Topic	Name of Presenter
1.	Effect of Flexi Bar Active Vibration Training on Postural Deviation, Balance Confidence and Risk of Fall with Eyes Close on Force Plate in Type 2 Diabetes Mellitus Patients with Peripheral Neuropathy	KAMAL SUNDA
2.	The Role of Brain-Computer Interfaces and Neurofeedback in Enhancing Motor Learning, Coordination, and Reaction Times in Competitive Athletes	ASHUTOSH
3.	Integration of PNF, DNS, and Conventional Physiotherapy for Functional Recovery in a Child with SLE-Related Hemiparesis: A Case Report	ARYA PATHAK
4.	Effectiveness of Trunk and Pelvis Stabalization Exercises over Conventional Physiotherapy to Improve Dynamic Trunk Balance in Cerebellar Ataxia: A Randomized Controlled Trial	ANAM RAJENDRA SASUN
5.	Computer-Based Cognitive Training for Attention and Processing Speed in children with Cerebral Palsy: Protocol and Case Report	HARSHITA ADEN
6.	Effect of Sensory Electrical Stimulation augmented Virtual Reality on Sitting Balance and Quality of Life in individuals with Incomplete Spinal Cord Injury	NIKHIL CHOWDHARY
7.	Assessment of Balance Performance among Young Adults Aged 18 to 25 Using the Mend Rymo Device: A Cross-Sectional Study	RAHIL SHAH
8.	Enhancing Sitting Balance and Functional Independence After Spinal Cord Injury with Galvanic Vestibular Stimulation: A Pre–Post Case Series	SHALINI SRIVASTAVA
9.	Efficacy of a Neurocognitive Training Program (Brainobics) in a Patient with Parkinson's Disease: A Case Study	GURMAN KAUR
10.	Effectiveness Of Motor Imagery Training On Coordination And Task Performance In Children With Developmental Coordination Disorder: A Systematic Review.	PUNITH KUMAR P
11.	Sensory Reweighting Therapy: Mapping the Evidence for Physiotherapy-Based Balance Retraining in Cerebellar Ataxia — A Scoping Review	ALISHA THOMAS
12.	Perception and Acceptance of video game based therapy for improving motor functions in children with Cerebral palsy : A cross sectional survey	SHELLY SHARMA
13.	Brain Training for Freezing of Gait: A Comparative Review of Motor Imagery and Action Observation Training(AOT).	Dhanashree S. Upganlawar

SATURDAY, 13TH DEC. 2025 (2 PM ONWARDS)

CATEGORY : Junior Sports

1	Title: Physiotherapy and Rehabilitation of Sports-Related Conditions in a Female Indian Judoka: Mapping Intervention Steps from Diagnosis of Anterior Cruciate Ligament Injury till Phase 2 of Anterior Cruciate Ligament Rehabilitation – Part 1	DIVYA AGRAWAL
2	Blood Flow Restriction Training and Its Influence on Hip Strength, Balance and Ankle Function in Athletes with Chronic Ankle Instability	SNEHA SONAR
3	Comparative effect of Plyometric training versus Sportsmetrics jump training on Explosive strength, Speed and Agility in Under-18 Basketball players-An Interim Analysis of an Ongoing Randomized Controlled Trial	DISHA BANSAL
4	Effect of resistance exercise on forehand smash performance among recreational badminton players	NISHITHA S
5	Investigating effects of Inclined Surface on Onset time of Plantar Flexors in Heel-Rise action in Young Adults.	UROOJ REHMAN KHAN

CATEGORY : Senior Misc.

S. No.	Topic	Name of Presenter
1	Development and Validation of the Concentration, Anxiety, and Attention Span (CAAS) Scale for Assessment and Enhancement of Academic Proficiency in Students – A Cross-Sectional Study	RAKESH KRISHNA KOVELA
2	Development And Validation Of Physioyoga Dataset For Training Ai Training Ai (artificial Intelligence) Models For Intervention Delivery, Postural Assessment And Correction.	NADIMPALLI.NAGA JAYA SRINIKHITA
3	PhYogDS - A holistic rehabilitation model for the management of treatment related complication among the patients of breast Cancer.	NEELAM KUMARI
4	Competency-Based Assessment in Physiotherapy Education using a multimodal approach: A Narrative Review	PALLAVI RAMESHWAR PALASKAR
5	Efficacy of Transvaginal Pelvic Floor Muscle Training on Strength & Endurance of Pelvic Floor Muscles & Quality of Life in Post Menopausal Female with Stress Urinary Incontinence – A Case Study	MANSI GUPTA
6	Effects of 08 weeks Physiotherapeutic exercises versus Yogasanas on balance performance and fear of fall among elderly fallers: An open label randomized controlled trial.	SHANTANU SINGH
7	Fall risk assessment scales in Older Adults: A scoping Review	SURUCHI V RAO
8	To Evaluate The Impact Of Pilates Based Physiotherapy Intervention along with Paced Breathing On Reducing Back & Pelvic Pain And Enhancing Sleep Quality In Perimenopausal Women.	TABASSUM
9	A Comparative Study of Yoga and Aerobic Exercise on Physical and Endocrine Outcomes in Women with Polycystic Ovary Syndrome	MALIKA
10	A Correlation of Academic Performance and Satisfaction With Life In College Students	PRIYAMWADA HINGE
11	Effects of Pulsed Electromagnetic Field and Transcranial Direct Current Stimulation in Females with Primary Dysmenorrhea: A Pilot Study	CHANCHAL
12	Correlation Between Internet Addiction and Assertiveness in Physiotherapy Students	NEERAJA DESHMUKH
13	Role of Physiotherapy to Improve Scapular Flaring in Post Head and Neck Cancer Surgery Patients	SHAILENDRA MEHTA
14	Ergonomic Rehabilitation For Creative Work Reintegration Following Lower Limb Injury-a Case Study	DR. MONA PANKAJ UKEY

SATURDAY, 13TH DEC. 2025 (2 PM ONWARDS)

CATEGORY : Senior Sports

S. No.	Topic	Name of Presenter
1	Identifying Risk Factors associated to Tendinopathy among Different Sports Participants	AMRINDER SINGH
2	Comparative effects of Cross Fit and Circuit Training on Anaerobic Power and Performance in Female Wrestlers: A Randomized Controlled Trial	MONIKA
3	Impact of Manipulation of the Thoracic Spine and IASTM on Mechanical Neck Pain	AMANDEEP SINGH
4	Sensorimotor Training Improves Postural Control in Collegiate Cricketers — A Case Series	JIBRAN AHMED KHAN
5	Knowledge, attitude and behavior towards concussion management among sports coaches	AISHWARYA KANHERE
6	Effect of Rope Exercise on Flat Feet in Kathak Dancers: A Randomized Controlled Trial	MONIKA
7	Effect of diaphragmatic breathing And core strengthening on shoulder pain, postureand scapular kinematics in individuals with shoulder dysfunction.	SONIA GUPTA
8	Effect of Neurocognitive Functional Training Versus Functional Graded Exposure on Kinesiophobia, Pain, Functional Performance, and Neurocognitive Outcomes in Athletes With Knee Injuries"	DEVIBALAN SIVAGNANAMP

CATEGORY : Innovation

S. No.	Topic	Name of Presenter
1	Comparative Effectiveness of Artificial Intelligence–Assisted 3D Printed Customized Knee Brace and Exercise Therapy Versus	S. Purna Chandra Shekhar
2	MATVERSE: Sensor-Integrated Shoes And Multi-Level Mat For Balance And Gait Training	Bhakti Ladha, Riya Bhanushali, Hiral Lodhiya, Drishti Chauhan
3	Balcoor Mat - An Innovative Solution at Improving Balance and Coordination in the Geriatric Population	Bilquis Hussain, Ritika Bagul, Shravani Jawake, Janhavi Dalvi, Rinkle Malani , Pallavi Palaskar
4	Leg Ease: Automation and Digitalization in Calf Tightness Reduction	Nidhi Paragbhai Ashar, Ashika Tanna
5	SILVERSTEPS: Making Indian Elderly Self-Reliant	Anuja Pokale, Shambhovi Mitra, Sadhan Berry, Vaishali Sharma, Ritesh Raj
6	Cable Cross Over Design Multipurpose Plinth For Strength Training	Gajanan Bhalerao
7	DVT Preventer	Isha Gupta, Priyanka Siwach
8	"Statera": A Sensor-Based Wrist Band for Real-Time Fall Detection in the Elderly	Ritesh Raj, Shambhovi Mitra, Sadhan Berry, Anuja Pokale, Vaishali Sharma
9	Exercise Protocol for Effective Simplified Management of Sacroiliac Dysfunction	Shweta Kumar, Tarun Kumar, Ankita Samuel
10	Machine Learning-Based Gait Abnormality Analysis Using a Novel Cost-Effective Smart Device	Sathya Guruprasad, Sai Bhavani, Jayavrinda Vrindavanam, Pradeep Kumar K
11	Foot ExoSense: A Smart Soft Exoskeleton with Real-Time Biofeedback for Foot Drop Rehabilitation	Saburi Goliwar, Sayli Paldhikar
12	Artificial Intelligence–Based Health Tracking System	Junneshwar Bidve, Aishwarya Bandari
13	Post Stroke Recovery, rehab and Physiotherapy Innovation	Varidhi Vats, Seema Grover, Gautam Kumar Saha, Ashish Dutta

INCPT AIIMS 2025: POSTER SCHEDULE

Date: Saturday, 13 Dec 2025 Time: 12 noon

S. No.	Code	Topic	Name
1.	N1	Comparative Analysis Of Proprioceptive Neuromuscular Facilitation And Short Foot Exercises In Treating Flexible Flat Foot: A Review Of The Literature	Madhuri
2.	N2	Digital Wellness in India: The Roadblocks and Ramps	Stuti Sehgal
3.	M3	Comparison Of The Effects And Ill-Effects Of Exercise On Pulmonary Function In Pregnancy.	Manjumala H Roy
4.	M4	Bridging Two Therapeutic Worldviews For Better Patient Care	Shreya Sood
5.	N5	The Unseen Stabilizers: Hip Abductor–Adductor Muscles In Static And Dynamic Balance Among Older Adults – A Narrative Review	Mayuri Dethe
6.	S6	Effect Of Cryokinetics On The Parameters Of Recovery For The Individuals With Muscular Fatigue Following Intense Eccentric Exercises : A Pilot Study	Baldev Negi
7.	S7	Effect Of Blood Flow Restriction On Athletes After ACL Reconstruction: A Scoping Review	Shivangi Sharma
8.	S8	Electromyographic Analysis Of Hamstring Activation And Its Influence On Lumbar Stability In Individual With Low Backache	Deepika Saroj
9.	O9	Effect Of Maitland Mobilisation Versus Conventional Exercises On Neck Pain In Computer Professionals: A Quasi Experimental Study	Darshana Pravin Fursule
10.	N10	Effect Of Transcutaneous Auricular Vagus Nerve Stimulation (TAVNS) In Post-Stroke Rehabilitation: Emerging Evidence On Motor, Swallowing And Cognitive Recovery	Prerna Kharkwal
11.	S11	Effect Of Aquatic Therapy After Ankle Sprain: A Narrative Review	Dhruvi Hirapara
12.	S12	Factors Affecting Jump Height And Strength Of Lower Limb In Athletes: A Narrative Review	Shashwat Shah
13.	S13	Impact Of Low Energy Availability In Relative Energy Deficiency In Sports (Reds) Or Female Athletes Triad's : A Literature Review	Prarabdha Ragit
14.	O14	Impact Of High Heels On Different Joints And Relevant Musculoskeletal Dysfunction:-Review Of Literature	Shruti Tiwari
15.	M15	Knowledge And Practice Of Antenatal Exercise: A Pre And Post Assessment Study With Personalized Interventions Among Pregnant Women	Jutur Durga Rajetha
16.	M16	The Effect Of Mindful Exercise Along With Mat Pilates On The Quality Of Life And Social Well-Being Of Systemic Lupus Erythematosus Patient: A Case Study	Mallika Maji
17.	M17	Flat Feet In Kathak Dancers: A Narrative Review	Suraksha
18.	O18	Report Of Patient With Ankylosing Spondylitis:- Case Physiotherapeutic Approach	Falit Xalxo
19.	O19	Proprioception And Its Role In Athletic Performance And Injury Prevention: A Narrative Review	Priyanka Srivastava

S. No.	Code	Topic	Name
20.	O20	Effect Of Eccentric Training On Anterior Cruciate Ligament Reconstruction: A Literature Review	Bhoomi Nair
21.	O21	Multidisciplinary Approach For Treating Sarcopenia In Elderly – Literature Review	Jeevith A C
22.	O22	Effectiveness Of Transcutaneous Electrical Nerve Stimulation And Neuromuscular Exercises On Functional Knee Joint Stability On Young Adults With Medial Meniscus Injury: A Literature Review.	Radhika Ajith
23.	O23	Role Of Backward Walking In The Rehabilitation Of Low Back Pain: A Literature Review	Abiya Mariam Tiju
24.	O24	Effect Of Blood Flow Restriction Training In Patients With Anterior Cruciate Ligament Reconstruction: A Narrative Review	Lavesh Patil
25.	O25	Combination Therapy As A Growing Practice In Physiotherapy In India: A Narrative Review	Sejal Chandrakant Suryawanshi
26.	O26	Musculoskeletal Pain Without Cause: Somatization Insights	Niki Verma
27.	O27	Effectiveness Of Graded Motor Imagery In Shoulder Disorders: A Literature Review	Supriyantu Nisha
28.	O28	Association Of BMI And Waist Circumference With Back Extensor Strength In Physically Inactive People	Parita Shah
29.	O29	To Study The Relationship Between Balance And Core Endurance In Flexible Flatfoot	Prera Sharma
30.	M30	Influence Of Aerobic Exercise For Adolescent Girls Who Are Suffering From Primary Dysmenorrhea - A Narrative Review	Ishika Patel
31.	M31	Effect Of Pelvic Floor Muscle Training For The Treatment Of Urinary Incontinence Following Pre And Post Radical prostatectomy - A Literature Review	Savio Joseph
32.	C32	Knowledge, Attitudes And Practices Related To Cardiopulmonary Physiotherapy Among Nurses: A Cross-Sectional Study.	Ritu Singh
33.	N33	The Relationship Between Cognition And Dynamic Balance In Elderly: A Narrative Review	Kandra Desai
34.	N34	Role Of Transcutaneous Electrical Stimulation(Tens) In Reducing Spasticity- Review Of Literature	Ramandeep Gupta
35.	N35	Physiotherapy Intervention In Individual With Spinal Stenosis To Improve Functional Mobility	Jaya Mishra
36.	N36	Comparison Of Task-Oriented Approach And Action Observation Therapy On Cognitive Recovery In Two Stroke Patients With Brain Fog: A Case Report	Chitwan Agrawal
37.	N37	The Immediate Influence Of Neural Mobilization On Grip Strength In Computer Users: A Narrative Review	Shivani Vijay Patil
38.	N38	Effectiveness Of Task Oriented Training On Upper Limb Function On Acute Stroke - A Case Study	Bhaskar. C
39.	N39	Bridging The Rehabilitation Divide: Innovative Strategies To Enhance Access And Implementation Of Stroke Care In Low- And Middle-Income Countries (LMICS).	Himanshu Aggarwal
40.	N40	Bridging Physiotherapy To Physiopathy: Advanced Rehabilitation Approach In A Rare Case Of Inflammatory Myopathy	Radhika

S. No.	Code	Topic	Name
41.	N41	Effect Of Weight Bearing Mini Trampoline Exercises On Balance, Proprioception And Fatigue In A 70 Year Old Male – A Case Study	Harika Valluri
42.	N42	Effectiveness Of Motor Relearning Program (MRP) For Trunk Stability And Mobility Among Traumatic Brain Injury Patient – A Case Study	Harishraj A
43.	N43	Effect Of Transcutaneous Auricular Vagus Nerve Stimulation On Preoperative Anxiety And Sleep Quality: A Single Case Study Of A Patient Undergoing Lumbar Discectomy	Yashini Vijaya
44.	N44	Enhancing Fine Motor Recovery In Traumatic Brain Injury Using Robotic Hand Glove Therapy – A Case Report	Madeshwaran S
45.	N45	Rehabilitation Approaches In Non-Traumatic Conus Medularis Syndrome Secondary To Intradural Ependymoma: A Case Report	Simran Sharma
46.	N46	Association Of Trunk Muscle Strength And Endurance With Trunk Control In Spastic Diplegic Cerebral Palsy Children.	Saburi Goliwar
47.	N47	Age-Related Decline In Cognition: A Comparative Study Of Memory, Executive Function, And Speed Of Processing Across Geriatric Age Groups"	Tanvi Kanhekar
48.	C48	Measurement Of Respiratory Dysfunction According To Stages Of Conservatively Treated Lung Cancer	Kushagrah Shailesh Sahani
49.	C49	Flat Feet In Kathak Dancers: A Narrative Review	Suraksha
50.	C50	Age-Specific Selection Of Field Tests For Reliable Evaluation Of Physical Functional Capacity	Urja Manek
51.	C51	Chair Aerobic Exercise In Haemodialysis Patients: Navigating Small Sample Sizes, Short Follow-Ups, And Heterogeneous Findings	Elsa Fernandes
52.	C52	A Comparative Analysis Of Balance, Cognition, Mobility & Fear Of Falling Between Hypertensive And Normotensive Females	Anshika Mishra
53.	C53	Beyond The Breath: A Post Covid Twist With Physiotherapy- A Case Report	Dhanush K
54.	N54	Efficacy & Scope Of Transcutaneous Auricular Vagus Nerve Stimulation (TAVNS) In Neurorehabilitation: A Comprehensive Narrative Review	Simran
55.	O55	Effectiveness Of Blood Flow Restriction Training In Knee Osteoarthritis	Zainab Haseen
56.	S56	Physiological Responses To Indoor Versus Outdoor Exercises Amongst The Young Healthy Adults : A Pilot Study	Rajnish Mishra
57.	N57	Rehabilitation Of Incomplete Spinal Cord Injury Patients Through Virtual Reality Systems: A Systematic Review	Monika
58.	N58	Effect Of TENS On Linezolid Drug Induced Peripheral Neuropathy In MDR-TB Patients	Pranay Bhad
59.	N59	Chronic Pain Lives In The Brain : Physiotherapy Teaches It To Change	Aayushi Panchal
60.	O60	Effect Of VR Training Vs Blood Flow Restriction Training On Quadriceps Muscle Strength Knee Joint Angle & Functional Outcomes In Non Athletic Individual With Movie Goers Knee	Abenesh.R
61.	O61	Prevelence And Risk Factors Of Post Partum Low Back Pain A Narratie Review	Nupur Fulambrikar
62.	C62	Respiratory Dysfunctio OriginaatinFrom Postural Imbalance: A Physiotherapeuti Insight	Garjana Swami
63.	C63	Physiotherapy In Asthma- From Physiopathy To Restored Physiology	ShantiKumari
64.	C64	"From Leak To Relief: Physiotherapeuti Insights Into Subcutaneous Emphysema In Pneumothorax"	JyotiGupta

S. No.	Code	Topic	Name
65.	C65	6 Minute Walk Test Guidelines For Implementation As Measurement Tool In Physical Therapy Practices	Palak Harjpal
66.	C66	Blood Pressure Measurement Variation In Two Different Knee Positions - Observational Study	Veena Shandilya
67.	C67	Prone Positioning In Ards Patients: Bridging Gap Between Evidence And Practice	Kanishka Bhargava
68.	C68	Effects Of Positioning Techniques In Increasing Ventilation In Cor Pulmonale Pateints	Diksha Rajput
69.	C69	The Effect Of Transcutaneous Electrical Diaphragmatic Stimulation On Mechanically Ventilated Patients: A Literature Review	Sameena Manna
70.	C70	Effectiveness Of Respiratory Muscle Training For Breast Cancer	Aarya Sandip Mayekar
71.	C71	Effectiveness Of Aerobic Training Combined With Other Forms Of Exercise In Improving The Quality Of Life In Adults With Hypertension — A Literature Review	Risha Edviges Fernandes
72.	C72	Effectiveness Of Incentive Spirometer In Cardiac Surgery Patients - A Literature Review	Angela Rodrigues
73.	C73	Comparison Of Home Based And Hospital Based Pulmonary Rehab Post Covid 19 Patients : A Literature Review	Kriti Sri
74.	C74	Physiotherapy In Cardiopulmonary Dysfunctional: From Normal Mechanics To Pathological Changes	Vidhi Rani
75.	M75	Effectiveness Of Exercise Therapy In Reducing Cancer-Related Fatigue And Inflammatory Biomarkers	Veronica Varma
76.	M76	Knowledge, Perception And Practice Of Physiotherapist Based On Oncology Rehabilitation.	Tanishka Soni.
77.	M77	Role Of Transcutaneous Electrical Nerve Stimulation (Tens) In Management Of Primary Dysmenorrhea	Vanshika Daharwal
78.	M78	Electrotherapy In Wound Healing	Ajeet Tirkey
79.	M79	Cervical Joint Position Error Test:- Review Of Literature	Sushmita Gupta
80.	M80	Physiotherapeutic Exercise Approaches For Women With PCOS: A Literature Review	Lakshita
81.	M81	Enhancing Function And Care - Physiotherapy Care With GPPD	Kesiya Susan Shibu
82.	M82	The Ovarian Reset - Physiopathy Focused Manual Therapy Model For Pcos	Rajshree Herbert
83.	M83	Teamwork And Holistic Care In The ICU: A Multidisciplinary Perspective	Jalaj Thakur
84.	M84	Physiotherapy For Endometriosis And Pain -A Literature Review	Krishna Anil
85.	M85	Physiotherapy Assessment And Rehabilitatory Management For Biomechanical And Other Systemic Causes For Pregnancy Related Low Back Pain	Vaishnavi Gupta
86.	M86	Effect Of Laura Mitchell Relaxation Technique Along With Transcutaneous Electrical Nerve Stimulation On School Going Girl With Dysmenorrhea: A Case Study	Ayesha Khanam
87.	M87	Effect Of Moderate Intensity Continuous Training And William Flexion Exercise On Estrogen Hormone, Pain And Depression To Improve Pelvic Floor Strength In Atypical Endometrial Hyperplasia : A Case Study	Bhavya Jain
88.	M88	Effect Of Pelvic Proprioceptive Neuromuscular Facilitation Pattern Along with Swiss Ball Exercises For Prevention Of Fall In Post Menopausal Women: A Case Study	Anchal Sharma

89.	M89	"Impact Of Conventonal Therapy And Class Iv Laser Therapy In Polyarrtular Juvenile Idiopathic Arthrits: A Case Study"	Manish Kumar
90.	M90	Effect Of Pilates With Yoga Therapy Vs Pilates With Gym Ball Exercises On Primary Dysmenorrhea: A Randomized Clinical Trial	Riddhi Sharma
91.	M91	Physiotherapy To Physiopathy: A Function l Approach To Understand PCOD Through Drugless Management."	Sadaf Samira
92.	M92	Bio Psycho Socio Model Of Physiotherapy -From Pathology To Functioal Restoration	Aarya Mishra
93.	O93	Comparing The Effeccveness Of Combined Kinene Chain Exercises Versus Weight Bearing Exercises For Knee Osteoarthriti Among Post Menopausal Women	M. Jeba Grinna
94.	O94	Nerve Gliding Exercises Effeccteness In Carpal Tunnel Syndrome: A Literature Review	Simran Shreya
95.	O95	Occupation l Musculoskeletal Health Survey Among Physiotherapists	Kushagra Popli
96.	O96	Physical Rehabilitatio AAer Total Knee Replacement Surgery : Case Report	Sweta Yadav
97.	O97	Physical Therapy Protocol For Total Knee Replacement	Ankush Shrivastava
98.	O98	Patello-Femoral Exercise Regime For Patello-Femoral Pain Syndrome (Pfp):- Literature Review	ShrutiSahani
99.	O99	Physical Therapy Management Of Patent With Knee Osteoarthriit: A Case Report E Osteoarthritis	Pooja Pandit
100.	O100	Physical Therapy Protocol For Total Hip Replacement:-Literature Review	Ankit Pandey

SUNDAY, 14TH DEC. 2025 (2 PM ONWARDS)

CATEGORY : Junior Misc.

S. No.	Topic	Name of Presenter
1	Yoga Versus Virtual Reality in Community Dwelling Elderly Individuals on Balance, Gait Speed and Risk of Falls: A randomized clinical trial	KOMAL YOGESH PARIKH
2	Prevalence of developmental coordination disorder co-existing with ADHD in children of Gangtok municipal corporation: an exploratory study	ADULY TAMUK
3	Impact of multimodal intervention on adolescent girls with primary dysmenorrhea along with caregiver support: a pilot randomized controlled trial	HARSHITHA V K
4	Effect of pelvic floor muscle exercises on pain, mobility, and quality of life in third trimester pregnant women with low back pain	MAYURI SHUKLA
5	Effect of pilates on pain and quality of life in menstrual disorder: systematic review	MUDRA SAWANT
6	Urinary tract infection in adolescent girls, challenges faced by them and exercise based coping strategies: scoping review	HARINI P.S
7	A study to evaluate the correlation between the severity of pelvic congestion syndrome, pain, and functional mobility in middle-aged women	RAMYA.S
8	Knowledge, perception, impact and limitation of artificial intelligence in rehabilitation among indian physiotherapy students and physiotherapists: a survey	VAISHALI SHARMA
9	A study on the multi-directional reach test to investigate the stability in healthy adults based on age and gender difference.	RISHIKA KHANDELWAL
10	A study to compare spinopelvic posture as a predictive parameter for menstrual low back pain in young collegiate females with or without menstrual low back pain : a cross sectional study	NAVDHA BHARGAVA
11	Relationship between self perceived stress, mental fatigue, executive functions and academic performance in high school students	SHIKHA KUMARI
12	Prevalence of Sleep Disturbance Among Undergraduate Medical Students Using the Epworth Sleepiness Scale and STOP-BANG Questionnaire	HRITIKA KOLI
13	Relationship between Happiness Index and Physical Activity Level among Physiotherapy Students: A Cross-sectional Study from Dakshina Kannada, Karnataka, India	DEENA D SOUZA
14	Comparative effectiveness of attention process training and neurobics on cognitive functions in sleep disorders: a systematic review	KUNAL KATHANE
15	Comprehensive Geriatric Assessment and Frailty Clinics in India: A Scoping Review of Evidence, Implementation, and Policy Implications	RAJEEV KUMAR SINGH

CATEGORY : Junior Neuro

S. No.	Topic	Name of Presenter
1.	IMMERSIVE VIRTUAL REALITY (VR)–BASED BALANCE TRAINING VS CONVENTIONAL BALANCE TRAINING FOR ADULTS AFTER STROKE-A SYSTEMATIC REVIEW	KANISHKA SHARMA
2.	Virtual Reality-Based Rehabilitation for Upper Limb Recovery in a Young-Onset Recurrent Chronic Stroke Patient: A Case Report	SATEMRENLA AO
3.	The Impact of Yoga and Physical Exercise on Seizure Control, Cognitive Function, and Psychosocial Well-being in People with Epilepsy: A Review of Randomized Controlled Trials	ALWIA SAEED
4.	IMPACT OF TRADITIONAL INDIAN GAMES ON ATTENTION AND WORKING MEMORY IN PERSISTENT POST-CONCUSSION SYNDROME: A CASE STUDY	MOHANASUNDARAM J
5.	Efficacy of Non-Immersive Virtual Reality Tilt Table Therapy on Vertical Orientation and Functional Gains in Patients with Decompressive Craniotomy	ARAVINDH B
6.	Title: Translation, Cultural Adaptation, and Validation of the Motor Activity Log-30 (MAL-30) Scale into Hindi language	NADA ZAREEN

SUNDAY, 14TH DEC. 2025 (2 PM ONWARDS)

CATEGORY : Junior Misc.

S. No.	Topic	Name of Presenter
7.	Reawakening Movement: The Impact of Spinal Cord Stimulation after SCI - A Review	PRAGATI PARWAL
8.	PPP2R5D Linked Dystonia–Parkinsonism: Genotype–Phenotype Patterns and Emerging Physiotherapy Implications	AKANKSHA NAGAR
9	Comparing The Immediate Effect Of Facilitatory Vs. Inhibitory Kinesio Taping Technique On Object Release In Children with Cerebral Palsy.	RHEA WALAWALKAR
10	Added effect of rhythmic auditory stimulation on gait speed, cadence and postural stability during walking in children with down syndrome - a comparative study.	DEEPASHREE KULKARNI
11	Correlation Between Selective Voluntary Motor Control of Lower Extremity and Functional Mobility in Children with Spastic Diplegic Cerebral Palsy.	JANHAVI JADHAV
12	EFFECT OF BRAIN ENDURANCE TRAINING ON FATIGUE AND AEROBIC ENDURANCE IN A STROKE PATIENT WITH THALAMOCAPSULAR INFARCT: A CASE REPORT	L JAYASREE SAI
13	Effectiveness of Robotic-Assisted Gait Training for Gait Recovery in Stroke Rehabilitation	NITU
14	Emerging Innovations in Stroke Rehabilitation: Technology-Enabled Physiotherapy for Advancing Upper Limb Recovery	VAMAKSHI VIJAY
15	Non-Immersive Relief: Virtual Reality-Based Aerobic Exercise Protocol for Endurance and Neuropathic Pain in Individuals with Paraplegia.	AATIF HASAN
16	Effect of robot-assisted rehabilitation versus bimanual training on hand motor functions in individuals with chronic stroke: Pilot trial	RIDHIMA GUPTA
17	Non-Invasive Dorsal Genital Nerve Stimulation (DGNS) for Neurogenic Detrusor Overactivity in Chronic Spinal Cord Injury	DINESH KUMAR
18	Comparing the Effectiveness of Immersive Virtual Reality Based Upper Limb Training versus Dual Task Cognitive Motor Training on Upper Limb Function and Cognition in Post-Stroke Survivors: A Pilot Study	VIDUSHEE SINGH

CATEGORY : Junior Ortho

S. No.	Topic	Name of Presenter
1	Effects of Short foot exercises on foot posture, balance, and function in knee osteoarthritis patients with flat foot	NIREEKSHA N SHENOY
2	Comparing the effect of transcutaneous nerve stimulation and craniosacral therapy with breathing exercises on neck musculature in migraine patients .	NAVPREET KAUR
3	To compare the efficacies of suboccipital, cervical release, and occipital mobilization to mulligan manual therapy and conventional cervical exercises on disability, dynamic balance, and sleep quality in young collegiate individuals suffering from cervicogenic headache"	SONALI PUROHIT
4	Development of reference value of endurance capacity of deep cervical flexor muscle by the performance of craniocervical flexion test in asymptomatic college going students	RESHMA JAYENDRA SONI
5	Influence of hip abductor strength on pain severity among nurses with nonspecific low back pain during various work shifts: a correlation study	MONISHA SHETTY
6	Effectiveness of Scapular Stabilization Exercises and Muscle Energy Technique in patients with Subacromial Impingement Syndrome: A Case Series	DONA MURICKAL
7	Role of artificial intelligence assisted motor learning in the rehabilitation of adhesive capsulitis- a systematic review	AKANKSHYA MISHRA
8	Efficacy of multimodal physiotherapy on pain, range of motion and functional disability in subjects with cervicogenic headache: a randomized controlled trial	JIYA SANJAY KHARBE
9	Effect of core muscle strengthening combined with short-foot exercises on plantar pressure in individuals with flatfoot: a pre–post interventional study	VISHAL PARMAR
10	Efficacy and Safety of Low-Load Blood-Flow Restriction Training in ACL Reconstruction Rehabilitation	PRASHANT

SUNDAY, 14TH DEC. 2025 (2 PM ONWARDS)

CATEGORY : Junior Sports

S. No.	Topic	Name of Presenter
1	Effects of Self Myofascial Release and specific Fascial Stretching Technique targeting Superficial Back Line on Hamstrings Flexibility and Dynamic Stability in Young Adults.	ADITI SAXENA

CATEGORY : Senior Cardio

S. No.	Topic	Name of Presenter
1	Impact of 12 – week Regular Exercise on Asthma Control, Pulmonary Function and Immunoglobulin Levels in Asthmatic patient: A Single Case Study	SHIVPRIYA SHARMA
2	Efficacy of Micro-Workouts in Reducing Sedentary Behaviour and Enhancing Cardiopulmonary Health Among Early Adults	SUNDARESWARAN.R
3	Evaluation of Environmental Factors Affecting Societal Participation in Patients with Coronary Artery Disease: A Cross-Sectional Study	PRAJAKTA B SAHASRABUDHE
4	Ambulation Within Hours Post-Cardiac Surgery: 150-Meter Day-0 Ambulation in CABG Patients with Good Ventricular Function	OM PRAKASH P
5	Immediate hemodynamic response of light isometric exercise in early phase of cardiac rehabilitation on post operative valve replacement patients	SURBHI THAPLIYAL

CATEGORY : Senior Neuro

S. No.	Topic	Name of Presenter
1	Does Training Intensity Matter? A Comparison of Wearable-Guided High-Intensity Interval Training and Metronome-Guided Low-Intensity Arm Aerobic Exercise on Neuropathic Pain and QoL in Individuals with SCI	ANKUSH GERA
2	Mind–Body Integration in Rehabilitation: A Systematic Review of Neuro Linguistic Programming (NLP) Approaches in Physiotherapy Practice	PAMIDIGANTAM RAGHAVA PRIYA
3	Development of Cognitive Decline Risk Screening Tool: A New Tool for Analyzing the Risk of Acquiring Cognitive Decline Among 40 to 60 Aged Adults	AGRIMA AGGARWAL
4	A RANDOMIZED CLINICAL TRIAL TO COMPARE THE EFFECT OF EMG BIOFEEDBACK THERAPY AND MODIFIED CONSTRAINT INDUCED MOVEMENT THERAPY FOR WRIST AND FINGER EXTENSOR ACTIVATION IN HEMIPLEGIC HAND	RANU MUKHERJEE
5	Mapping Comparative Efficacy and Outcomes of mCIMT, HABIT, and Mirror Therapy for Upper Extremity Rehabilitation in Children with Hemiplegic Cerebral Palsy: A Scoping Review.	RAHUL SINGH BISEN
6	Virtual Reality-Based Upper Extremity Rehabilitation in Subacute Stroke: A Pilot Study	Harpreet Singh Sachdev
7	Efficacy of Aerobic training with Cognitive Rehabilitation (CR) and Resistance exercises on improving Cognition and Physical functions in persons with Mild Dementia: A Randomized Controlled Trial	AKHIL S
8	Effect of tongue position on balance in the geriatric population- A Pilot study	BHAWNA SHARMA
9	Advancing Falls Prevention: Recorded Video Delivery of the Otago Exercise Program for Improving Balance of Indian Elderly	SAMPADA S JAHAGIRDAR
10	Integrating Physiotherapy into Pallative Care practice in the Geriatric Population Evidence,Gaps and Future Direction - A scoping Review	SHAZIA MATTU
11	Corticospinal Activation Protocol: From Research to Rehabilitation"	SHARANJEET KAUR
12	Impact of Virtual Reality and Haptic Feedback Based Intervention on Upper Extremity Function and Functional Independence in Children With Hemiplegic Cerebral Palsy: A Randomised Controlled Trial	CHANAN GOYAL
13	The Effectiveness of Scapular Mobilization Combined with Upper extremity Proprioceptive Neuromuscular Facilitation on Shoulder Range of Motion in Post-Stroke Patients: A Randomized Controlled Trial.	ASHISHA KSHIRABDHI TANAYA
14	Effects of Transcranial Direct Current Stimulation (tDCS) Combined with Oro-Motor Therapy and Standard Aphasia Treatment in Individuals with Post-Stroke Aphasia: Study Protocol	RAHUL SHARMA
15	Effectiveness of Interossei and Lumbrical Muscle Strengthening Exercises on Ulnar Claw Hand Deformity in Leprosy Patients: An Experimental Study	RICHA AGRAWAL

SUNDAY, 14TH DEC. 2025 (2 PM ONWARDS)

CATEGORY : Senior Ortho

S. No.	Topic	Name of Presenter
4	Effect of Mulligan Manual therapy and exercise on headache frequency, intensity, disability, and upper cervical joint hypomobility in people with episodic tension type headache: a randomised clinical trial	KIRAN SATPUTE
5	A Review on the Impact of Pilates in Musculoskeletal Rehabilitation of Non-Specific Chronic Low Back Pain.	SUNGJEMMONGLA WALLING
6	FOOT BIOMECHANICS, PLANTAR PRESSURE DISTRIBUTION IN DIABETIC FOOT SYNDROME	HRISHIKESH KORADA
7	Psychosocial Determinants for predicting Chronicity in Non-Specific low Back Pain: A Delphi Study	NITYAL KUMAR ALAGINGI
8	Comparative study of conventional exercises combined with laser therapy versus longwave diathermy along with conventional exercises in patellofemoral exercises in patellofemoral osteoarthritis : Effects on pain and functional outcomes	NAMRATA SRIVASTAVA
9	Relevance of 3D gait analysis for the diagnosis of underlying pathologies in children with Idiopathic Toe Walking (ITW): A case series	VANDANA PHADKE
10	Comparative Evaluation of Dynamic Neuromuscular Stabilization and Lumbopelvic Stabilization exercises on Chronic Lumbopelvic pain in women.	SADAF KHAN
11	Effectiveness of Conventional Kinesiotherapy and Pilates in Reducing Disability among Patients with Chronic Non-Specific Low Back Pain	SHRUTI MAHAJAN
12	Virtual Reality–Assisted Physiotherapy for Orthopaedic Rehabilitation: A Randomized Controlled Framework	ARPITA RATHOD
13	Integrating Physiotherapy into Pallative Care practice in the Geriatric Population Evidence,Gaps and Future Direction - A scoping Review	SHAZIA MATTU
14	Corticospinal Activation Protocol: From Research to Rehabilitation"	SHARANJEET KAUR
15	Tele-Rehabilitation & Digital Monitoring Versus Standard care in the Long Term Management of Osteoarthritis in Postmenopausal Women: A Comparative study.	NIDHI SURESH SHARMA
16	Effect of Core Muscle Stabilization and Gluteus Maximus Muscle Activation on Hamstring Tightness-An Experimental Study	DIVYA GANGWAR
17	Exploring Postural Control Following Directional Preference Movements in Individuals with Chronic Low Back Pain: A McKenzie-Based Observational Study	SAUMYA SRIVASTAVA
18	Comparative Effects of Shoulder Stabilization Exercises With vs Without Pectoral Fascia Release in Young Adults With Forward Shoulder Posture	Ashish Tyagi

CATEGORY : Junior Cardio

S. No.	Topic	Name of Presenter
1	Congenital tracheobronchomegaly complicating post-tuberculous bronchiectasis: Implication for physiotherapy intervention.	KAIRAVI PATHAK
2	Effect of passive stretching of lower limb muscles on blood glucose level in type - 2 diabetes mellitus patient	VIDHI SHAH
3	EFFECT OF ARM CYCLE ERGOMETER TRAINING ON HEART RATE VARIABILITY AND PHYSICAL CAPACITY IN PARAPLEGICS	PRIYANSHI SHARMA
4	IMPACT OF POSTURE CORRECTION ON RESPIRATORY FUNCTIONS IN ADULTS WITH FORWARD HEAD POSTURE	DISHA BHATTACHARYA
5	Correlation Between Inspiratory Muscle Strength (IMT), Core Muscle Activity, and Postural Stability in Individuals With and Without Low Back Pain: A cross-sectional study.	MEHAK KAPILA
6	PULMONARY AND EXTRAPULMONARY BENEFITS OF COMBINED ABDOMINAL FUNCTIONAL ELECTRICAL STIMULATION AND INSPIRATORY MUSCLE TRAINING IN INDIVIDUALS WITH SPINAL CORD INJURY	MANPREET KAUR
7	ASSESSMENT OF COGNITIVE IMPAIRMENT IN HYPERTENSIVE PATIENTS AND ITS CORRELATION WITH AGE OF ONSET AND DURATION OF HYPERTENSION.	SAMIKSHA MOHAN BHONGADE

INCPT AIIMS 2025: POSTER SCHEDULE

Date: Sunday, 14 Dec 2025 Time: 9am onwards

S. No.	Code	Topic	Name
1.	O101	Effect Of Positional Release Technique And Instrument Assisted Soft Tissue Mobilization On Pain And Lumbar Range Of Motion In Individual With Chronic Mechanical Low Back Pain: A Pilot Trial	Adeena
2.	O102	Physiotherapy Protocol For Management Of Planter Fascitis Literature Review	Vidya Sahu
3.	O103	Effectiveness Of Physiotherapy Management In A Young Female With Chronic Functional Constipation: A Case Study	Nidhi Paragbhai Ashar
4.	O104	Upper Extremity Pathology In Paraplegic Wheelchair Individuals	Shreshta Jakhwal
5.	O105	Effectiveness Of The Blood Flow Restriction Technique To Reduce Pain And Enhance Muscle Strength	Sarthak Sharma
6.	O106	Public Acceptability Of Physiotherapist And Advanced Practice Physiotherapist As A Primary Care Provider For Musculoskeletal Disorders	Ishika Gupta
7.	O107	Diagnostic And Prognostic Biomarkers For Lumbar Disc Herniation: A Narrative Review Of Current Evidence	Darshil Mishra
8.	O108	Efficacy Of Fascial Distortion Model (FDM)Therapy In E-Sports Elbow: A Case Report	Navneet
9.	O109	Smarter Recovery: Ai-Guided Telerehabilitation To Improve Outcomes In Chronic Low Back Pain	Theresa Joju K
10.	O110	Effect Of Virtual Reality In Frozen Shoulder	Ayushi Singh
11.	O111	Role Of Gyroscopic-Based Resistance Training For Upper Limb Rehabilitation In Musculoskeletal And Neurological Conditions: A Scoping Review	Cheshta Sharma
12.	O112	Ergnomics As A Physiotherapeutic Tool In Posture Correction For Corporate Employees	Mansi Chaurasia
13.	O113	Effectiveness Of Neuromuscular Electrical Stimulation In Counteracting Sarcopenia Among Older Adults: A Literature Review	Bhakti Harendra Sharma
14.	O114	Common Sites And Associated Factors Of Overuse Injuries Among Regular Gym-Goers	Mohammad Hilal Khan
15.	O115	Smartphone–Integrated Ai Gait Screening For Early Knee Osteoarthritis: A Feasibility And Accuracy Study	Aditi Dimri
16.	O116	Association Of Q Angle And Tibial Torsion With Foot Posture In Physically Active Individuals Practicing Strength Training	Keshav
17.	O117	Immediate Effects Of Kinesio Taping In Pain , Proprioception And Posture In Round Shoulder Individuals With Subacromial Impingement Syndrome	Niharika Nimbaker
18.	O118	Role Of Physiotherapy In Preventing Pathological Fractures In Gaucher's Disease	Tanisha Saini
19.	O119	Effectiveness Of Physiotherapeutic Interventions In Managing Ankylosing Spondylitis: A Literature Review	Navya Shah
20.	O120	Ossgrow Bone Regrowth Therapy Effectiveness In Managing Osteoarthritis Among Geriatric Patients	Shubhi Agarwal
21.	O121	"Effectiveness Of Instrument-Assisted Soft Tissue Mobilization And Pulsed Electromagnetic Field Therapy In Patients With Non-Specific Low Back Pain"	Siddhant
22.	O122	Proprioceptive Dysfunction And Physiotherapy Using Contract-Relax And Pnf Hold-Relax Methods	Tanisha Verma

S. No.	Code	Topic	Name
46.	N146	AI Driven Physiotherapy: Bridging Pathophysiology With Motor Recovery In Parkinson's Disease	Meenakshi Sharma
47.	N147	Rehabilitation Revolution In Parkinson's Disease	Nandini Agarwal
48.	N148	Wearable Neurological Devices In Gait Training Of Patient With Parkinson's Disease	Hifza Khan
23.	O123	Spinal Manual Therapy Combined With Exercise Versus Exercise Alone For Chronic Non-Specific Low Back Pain	Tanisha Hoon
24.	O124	Effect Opf Addition Of Balasana, Ardhakurmasana, Uttanasana To Flexion Regime Exercise On Pain, Function In Dynamic Balance In Low Back Pain: A Case Study"	Utkarsha Soni
25.	O125	Physiotherapy Based Management Of Patellofemoral Pain Syndrome	Arnav Cairae
26.	O126	Additional Effect Of Short Foot Exercise On Foot Posture And Lower Limb Muscle Strength In Patient With Flat Feet Along With Symptoms Of Knee Osteoarthritis: A Case Study	Vaishali Dadhich
27.	O127	Impact Of Myofascial Release On Cervical Proprioception And Pain In Individuals With Chronic Neck Pain: A Pre–Post Experimental Study	Farhat Firoz
28.	O128	Comparison Between The Effects Of Isolated Balance Exercise Regimen And Conventional Physiotherapy On Flexion-Rotation Movement Impairment Syndrome In Male Patients With Mechanical Low Back Pain	Disha Gupta
29.	O129	Poster - Physiotherapy To Physiopathy Re-Examining Rehabilitation Through A Pathology Driven Lens	Riya Garg
30.	N130	Perceived Effectiveness, Usability, And Preference For Technobody Prokin 252n Versus Traditional Balance Training In Neurorehabilitation: A Cross-Sectional Survey	Ridhi Gulati
31.	N131	Music Therapy For Parkinson's Disease	Prerna Kumari
32.	N132	Gait Rehabilitation Of Post-Stroke Patient With Depression	Diksha Manubansh
33.	N133	Implementation Of Timed Up And Go Test As Measurement Tool In Rehabilitation Setup	Homika Thakur
34.	N134	Physical Therapy Protocol For Management Of Thoracic Outlet Syndrome:- Literature Review	Pooja Dewangan
35.	N135	Phantom Limb Pain And Its Physiotherapy Management Literature View	Aarya Sharma
36.	N136	Bridging Gaps In Neurological Care With Digital Twin-Driven Rehabilitation	Naila Zaheen
37.	N137	Role Of Vestibular Rehabilitation In Managing Dizziness And Imbalance Following Traumatic Brain Injury	Stuti Verma
38.	N138	Effect Of Modified CIMT For Post Stroke Rehabilitation	Himani Joshi
39.	N139	The Role Of Myofunctional Therapy In Obstructive Sleep Aponea	Sakshi Gautam
40.	N140	Awakening Cpg: Transcutaneous Electrical Stimulation As A Neurorehabilitation Tool After Spinal Cord Injury	Haritha K B
41.	N141	Task-Oriented Motor Rehabilitation In Parkinson's Disease: A Literature Review Bridging Physiotherapy To Physiopathy	Khushi Singh
42.	N142	CIMT In Hemiplegic Cerebral Palsy Children: A Literature Review	Nandini Aggarwal
43.	N143	Brain Computer Interface To Leverage Neuroplasticity In Neurorehabilition: A Literature Review	Harshita Negi
44.	N144	Artificial Intelligence (AI) Driven Physiotherapy: Bridging Pathophysiology With Gait Recovery In Parkinson's Disease (PD).	Meenakshi Sharma
45.	N145	Exoskeleton-Assisted Gait Training Combined With Fes In Spinal Cord Injury: A Review	Harshita Saxena

S. No.	Code	Topic	Name
49.	N149	Effect Of Virtual Reality Based Therapy On Motor Function And Balance In Children With Cerebral Palsy	Srishti
50.	N150	Sensory Enhanced Bilateral Object Exploration For Upper-Limb Recovery After Stroke : A Literature Review	Sharda S Choudhary
51.	N151	Exploring The Impact Of Brain Gym Exercises On Cognition And It's Correlation With Resting Tremors In Parkinson's Patient: A Case Study	Khushi Soni
52.	N152	Effect Of Coma Stimulation Therapy In Chronic Diffuse Axonal Injury	Mihir Yadav
53.	N153	Role Of Virtual Reality And Gaming In Neuro Rehabilitation	Simran Ingole
54.	N154	Assistive Technology And Accessibility Innovation For People With Disability And Physiotherapy	Sudeepta Panda
55.	N155	Ai Assisted Gait Analysis For Early Detection Of Peripheral Neuropathy	Khushi Upadhyay
56.	N156	Efficacy Testing: Retro (Backward) Walking Training In Patients With Hemiplegia	Sheetal Pandey
57.	N157	Chronic Pain Lives In The Brain : Physiotherapy Teaches It To Change	Aayushi Panchal
58.	S158	Throwers Ten Program	Ayush Urwasha
59.	S159	Acute Muscle Sprain Rehabilitation: Early Loading Vs Delayed Loading	Falak Ahuja
60.	S160	Lactate-Guided Physiotherapy Protocols For Optimized Exercise Rehabilitation: A Structured Review	Vatsal Pathak
61.	S161	Athletic Pubalgia And Associated Rehabilitation	Kesar Goel
62.	S162	Incidence And Management Of Lumbar Stress Fracture In Javelin Throwers: A Physical Therapy Perspective	Muskan Mali
63.	S163	Blood Flow Restriction Training (BFR) In Sports Physiotherapy	Anika Singh
64.	S164	Comparing The Effect Of Proprioceptive Training And Strength Training On Agility In Field Hockey Players	Shatakshi Pandey
65.	S165	AI- Driven Machine Model For Predicting Lower Limb Sport's Injuries In Athletes.	Hiba Malik
66.	S166	Effectiveness Of Kinesio Taping In Splint	Somya Kumari
67	O167	Efficacy of Scapular Dyskinesis Exercises on Functional Improvement for the Patients with Periarthritis Shoulder	Stella Mary
68	N168	EFFECT OF GAZE STABILIZATION IN CERVICAL VERTIGO	AZRIN
69	N169	OUTCOME MEASURE IN NEURO PHYSIOTHERAPY	HARAN
70	N170	EFFECTS OF ROBOTIC GLOVE IN HAND FUNCTION IN STROKE REHABILITATION	ABINAYA.T
71	O171	EFFICACY OF SCAPULAR DYSKINESIS EXERCISES ON FUNCTIONAL IMPROVEMENT FOR THE PATIENTS WITH PERIARTHRITIS SHOULDER	STELLA MARY
72	N172	EFFECT OF NEURO RYTHMIC THERAPY ON PARKINSON'S DISEASE	MOHANDASS
73	S173	Effectiveness of Neurocognitive Balance Training Versus Traditional Balance Training in Athletes with Recurrent Ankle Instability	Rofina Farhath.R
74	S174	Neuromuscular Training Programmes for Reconditioning Volleyball Athletes After Chronic Rotator Cuff Injury	Janashri. S
75	M175	Resistance Band Training Vs Body Weight Training for Improving Bone Density in Postmenopausal Women.	Harrini S.
76	N176	Effectiveness of Sensory Re-education Techniques on Plantar Sensory Recovery in Adults with Diabetic Peripheral Neuropathy.	Valarmathi. P
77	S177	Comparative effects of blood flow restriction training and conventional strength training on calf muscle performance in sprinters	Aafreen Farath.S

S. No.	Code	Topic	Name
78	M178	From Biosignals to Physiopathy: How Wearable Technology Informs Mechanism-Based Physiotherapy	Vinisha A
79	M179	Sarcopenic obesity :Promoting Awarness ,early detection and preventive physiotherapy	Janani S
80	O180	Mechano-transduction guided regenerative rehabilitation: A multiscale approach from whole body mechanics to gene expression	Lohitha N B
81	C181	Exercise intolerance syndrome -physiotherapy in autonomic dysfunction	Selvisivabalasundari
82	N182	Integrated physical and mental training along with virtual reality on cardinal features among stage II parkinson Individuals	Yogesh R K
83	N183	Brain–Body Integration Through Movement Intelligence: A Physiotherapy Paradigm	Nandhini S
84	N184	EFFECT OF NEUROBICS TRAINING ALONG WITH MULTISENSORY TRAINING ON COGNITION, BALANCE AND FEAR OF FALL AMONG GERIATRIC POPULATION	Prathiksha
85	N185	Optimizing Exercise prescription for managing neurogenic fatigue in neurological conditions	Kavya
86	S186	EFFECT OF FIFA 11+ PROGRAM VERSUS PEP (PREVENT INJURY AND ENHANCE PERFORMANCE PROGRAM) ON SPEED, BALANCE AND LOWER LIMB INJURY PREVENTION AMONG MALE COLLEGIATE FOOTBALL PLAYERS	Ajesh
87	O187	Physiotherapy management of lateral epicondylitis – A Case Study	Fatma Asna
88	O188	A Systematic Review on the Short-Term Outcomes and Detraining Effects of Isometric versus Isotonic Strengthening in Chronic Mechanical Neck Pain	Nancy Verma
89	O189	A Systematic Review on the Comparative Effectiveness of ESWT, LLLT, and UST in Patients with Chronic Plantar Fasciitis	Naziya Usmani
90	N190	Therapeutic effects of Guided meditation and Raga Therapy on post stroke depression patient in India :A Pilot study	Jyotsana Singh
91	C191	comparative study of impact of pilates vs deep breathing exercises training on expiratory flowrate in normal individuals	Shivani Sharma
92	C192	Impact of an SBV - air protocol on pulmonary function and cardiopulmonary endurance among healthy elderly individuals – a pilot study	S. Nathera Begum
93	S193	Physiopathology and integrated Rehabilitation Strategies for Exercise-induced muscle damage in high-performance Athletes A Thematic Literature Review	Dr.Farheen sheikh (PT)
94	N194	The efficacy of Epley's maneuver in patients with benign paroxysmal positional vertigo (BPPV) having dizziness and imbalance	NATASHA VERMA
95	0195	Forward head posture induced TMJ Dysfunction- Role of Mulligan mobilisation	ARADHYA VATSA
96	N196	Neuroplasticity in stroke rehab	RITIKA

CONGENITAL TRACHEOBRONCHOMEGALY COMPLICATING POST-TUBERCULOUS BRONCHIECTASIS: IMPLICATION FOR PHYSIOTHERAPY INTERVENTION

Kairavi Pathak (MPT Student), Dr. Kalpesh Satani
(Professor, Sumandeep Vidyapeeth, Vadodara)

BACKGROUND: The congenital tracheobronchomegaly (TBM) is a rare and complex clinical condition characterized by widening of trachea and bronchioles impairing on mucociliary clearance and recurrent respiratory infections. A 49-year-old male patient with TBM and post-tuberculous bronchiectasis(PTB) present with complains of difficulty in breathing and retention of secretions along with difficulty in walking up to toilet. A tailored, personalised and non-conventional respiratory physiotherapy is critical for preventing dynamic airway collapse and optimizing secretion clearance in this unique dual pathological condition.
AIM: This case report explores the detail individualized physiotherapeutic assessment and respiratory physiotherapy for improving bronchial hygiene, cough severity, and health-related quality of life.
METHODOLOGY: Following the consent, need- and symptom-based physiotherapeutic intervention was planned. Therapeutic intervention such as diaphragmatic breathing, incentive spirometry (IS), thoracic expansion exercises, gentle Active Cycle of Breathing Technique, and aerobic exercises was provided. Assessment of perceived exertion was done with modified borg's scale, cough-specific quality of life with Leicester cough scale, and for overall health status St. George's respiratory questionnaire was used.
RESULTS: Significant improvement was noted in perceived exertion, coughing severity and quality of life after 6 days of therapeutic interventions with significant improvement in vital parameters.
CONCLUSION: A personalised, need-based physiotherapeutic intervention plays crucial role in the management of the rare and complex condition of TBM and PTB, leading to improvement in functional independence and better quality of life.

EFFECT OF PASSIVE STRETCHING OF LOWER LIMB MUSCLES ON BLOOD GLUCOSE LEVEL IN TYPE -2 DIABETES MELLITUS PATIENT

Vidhi Shah (MPT Student), Dr. Nirali Pandya (Assistant Professor), Dr. Kalpesh Satani
(Professor, College of Physiotherapy, Sumandeep Vidyapeeth, Vadodara)

BACKGROUND: Diabetes Mellitus (DM) is a global pandemic and role of physiotherapy intervention like stretching, low intensity exercise is effective in reducing blood glucose.
AIM: To find the immediate effect of passive stretching of lower limb muscle in type -2 diabetes mellitus patient.
METHOD: 54 patients diagnosed with Type 2 DM were enrolled in this study. Their pre-intervention random blood glucose (RBG) was measured with glucometer. This was followed by a 40-minute stretching session targeting the lower limb muscle, specifically the gluteus maximus, hamstrings, rectus femoris, tensor fascia latae, and gastrocnemius. Immediate post-intervention RBG was then measured using the same glucometer.
RESULT: Out of 54 patients, 23 were female and 31 were males. The mean BMI was 25.375± 5.30 kg/m2. The mean blood glucose pre intervention was 267.38±92.31 and post intervention was 198.66±87.71.The Mann Whitney U Test was used to compare the data and the p-value was found to be < 0.05, thus the result was statistically significant.
CONCLUSION: Passive stretching reduces the blood glucose level in type-2 diabetes mellitus patient. Hence passive stretching can be included in exercise protocol for type -2 diabetes mellitus patient.
KEYWORDS: Type -2 Diabetes Mellitus, Passive Stretching, Blood Glucose Level, Physiotherapy, HbA1c

EFFECT OF ARM CYCLE ERGOMETER TRAINING ON HEART RATE VARIABILITY AND PHYSICAL CAPACITY IN PARAPLEGICS

Priyanshi Sharma[1], Shambhovi Mitra[2]
1MPT Student; 2 Associate Professor and Deputy Research Manager Operations
at Indian Spinal Injuries Center- Institute of Rehabilitation Sciences.

BACKGROUND: Spinal cord injury (SCI) disrupts autonomic function by interrupting supraspinal control, leading to impaired cardiovascular regulation and reduced heart rate variability (HRV), a key indicator of autonomic activity. HRV reflects the balance between sympathetic and parasympathetic inputs, both greatly altered after SCI. Physical activity has been shown to improve HRV and support autonomic recovery, and emerging evidence suggests arm-cycling exercise enhances autonomic regulation and boosts wheelchair mobility in people with SCI.
OBJECTIVE: Does aerobic training improve HRV and physical capacity in people with thoracic spinal cord injury?
METHOD: Individuals with thoracic spinal cord injury were recruited and divided into two groups: Group 1 included participants with a neurological level of injury between T1 and T6, and Group 2 included those with injuries between T7 and T12. All participants underwent a structured Arm Cycle Ergometer Training (ACET) program, performed five days per week for four weeks. Exercise intensity and duration were progressively increased throughout the training period. HRV and 6-minute push test distance were assessed at baseline and after the 4-week intervention. This study forms part of an ongoing research project.
RESULTS: Both groups demonstrated a significant improvement in heart rate variability (HRV) following aerobic training ($p \leq 0.05$). For the 6-minute push test distance, within-group analysis indicated improvements in aerobic capacity in both groups (Group 1: $z = -2.56$, $p = 0.01$; Group 2: $z = -1.84$, $p = 0.06$). However, between-group analysis showed no significant difference in exercise capacity between the two groups ($z = -1.64$, $p = 0.10$).
CONCLUSION: Irrespective of HRV being impaired in both the groups according to level of injury exercise rehab shows promising results in improving HRV and physical capacity in spinal cord injury patients.
KEY WORDS: Aerobic exercise, autonomic nervous system, heart rate variability, paraplegia, spinal cord injury

IMPACT OF POSTURE CORRECTION ON RESPIRATORY FUNCTIONS IN ADULTS WITH FORWARD HEAD POSTURE

Disha Bhattacharya[1], Dr. Rimsha Siddiqui[2]
1.MPT Student; 2. Associate Professor, Senior Operations Manager
Indian Spinal Injuries Centre- Institute Of Rehabilitation Sciences

BACKGROUND: Forward Head posture (FHP) is characterized by extension of upper cervical vertebrae and flexion of the lower cervical vertebrae, and has shown a rising trend in adults due to the global digitalization era. This posture alters the cervical alignment, thoracic mobility, efficiency of diaphragm and expansion of thoraco-abdominal muscles eventually leading to respiratory compromise.
OBJECTIVE: This case series aims to study the impact of preliminary postural correction combined with Inspiratory muscle training on the respiratory outcomes in adults with Forward Head Posture (FHP)
METHODOLOGY: A pilot trial has been conducted on 6 participants with Forward Head Posture. The participants were divided into experimental group (n=4) consisting of postural correction (Mckenzie exercise, myofascial release, therapeutic taping) combined with inspiratory muscle training; while the control group (n=2) underwent conventional exercise protocol. The intervention was administered three times a week for four weeks. Outcome measures include FEV_1/FVC ratio, Maximal Inspiratory Pressure (MIP), and EMG activity of accessory respiratory muscles. Data is analysed using Wilcoxin test for within group comparison and Man Whitney test for intra group.
(This is a part of an undergoing trial)
RESULTS: The experimental group has shown significant improvements in MIP, and FEV_1 and reduced activity of muscles, compared to the control group ($p < 0.05$). These findings indicate improved respiratory function.
CONCLUSION: This case series substantiates that integration of postural correction and inspiratory muscle training significantly improves pulmonary function in individuals with forward head posture.

CORRELATION BETWEEN INSPIRATORY MUSCLE STRENGTH (IMT), CORE MUSCLE ACTIVITY, AND POSTURAL STABILITY IN INDIVIDUALS WITH AND WITHOUT LOW BACK PAIN: A CROSS-SECTIONAL STUDY.

Mehak Kapila1, Dr. Rimsha Siddique[2]
1MPT Student; 2Associate Professor, Senior Operations Manager, Indian Spinal Injuries Centre

BACKGROUND: Low back pain (LBP) is often associated with altered breathing mechanics, reduced core muscle activation, and impaired postural stability. The diaphragm, a primary inspiratory muscle, plays a dual role in respiration and trunk stabilization. Identifying the relationship between inspiratory muscle strength, core muscle activity, and postural stability among individuals with and without LBP may provide insights into the underlying mechanisms contributing to spinal instability.
AIM: The study aims to establish difference between respiratory muscle function and postural control in individuals with and without low back pain. The findings may highlight the potential importance of inspiratory muscle assessment in the prevention and management of low back pain.
OBJECTIVE: To assess and compare inspiratory muscle strength, core muscle activity, and postural stability in individuals with and without low back pain, and to determine the correlation between these parameters.
METHOD: A cross-sectional correlation study will be conducted among individuals aged 18–45 years, divided into two groups: those with low back pain and those without. Baseline assessments will include measurement of inspiratory muscle strength using PI-max, core muscle activity using surface electromyography (EMG), and postural stability using centre of pressure displacement on a force plate. Statistical analysis will be performed to examine differences between groups and correlations among variables.
RESULTS: There is a significant difference between Maximal Inspiratory Pressure, Postural Stability and EMG in Individuals with and without Low Back Pain.
CONCLUSION: The study aims to establish difference between respiratory muscle function and postural control in individuals with and without low back pain. The findings may highlight the potential importance of inspiratory muscle assessment in the prevention and management of low back pain.
KEYWORDS: Low Back Pain, Inspiratory Muscle Strength, Core Muscle Activity, Postural Stability, Surface EMG, Force Plate

PULMONARY AND EXTRAPULMONARY BENEFITS OF COMBINED ABDOMINAL FUNCTIONAL ELECTRICAL STIMULATION AND INSPIRATORY MUSCLE TRAINING IN INDIVIDUALS WITH SPINAL CORD INJURY

Manpreet Kaur1, Shambhovi Mitra2, Anne E Palermo3
1MPT Student; 2Associate Professor & Deputy Research Manager Operations at Indian Spinal Injuries Center;
3Reasearch fellow, Neuroscience Research Australia, AUS & Associate Lecturer, University of New South Wales, AUS

INTRODUCTION: Respiratory musculature is negatively impacted after a spinal cord injury (SCI), and beyond its ventilatory role, it is also linked to postural stability through regulation of intra-abdominal pressure. A neurological change in input to the muscles of respiration and a physical change in breathing biomechanics, leads to both pulmonary and extrapulmonary impairments. Abdominal muscle weakness limits the generation of intra-abdominal pressure, reducing support for diaphragm excursion during inspiration thereby restricting lung expansion and compromising sitting balance. Respiratory inefficiency increases fatigue and dyspnoea, limiting the ability to maintain prolonged sitting. Intervention that targets both such as combining IMT and abdominal FES may therefore restore physiological coupling between breathing and trunk stability.
AIM: 1. To evaluate the combined effect of abdominal FES and IMT on Maximal inspiratory pressure (MIP), Sustained maximal inspiration (SMIP), Forced expiratory volume in 1 sec (FEV1), Fatigue index test (FIT) & Peak expiratory flow rate (PEFR) in individuals with spinal cord injury.
2. To evaluate the combined effect of abdominal FES and IMT on Functional sitting balance in individuals with spinal cord injury.
MATERIALS & METHODS: A total of 15 individuals with spinal cord injury (SCI) participated in this study, comprising 10 in the experimental group and 5 in the control group, with age reported as mean ± SD. Eligible participants were those with motor complete SCI at the C5 to T6 levels and no prior history of pulmonary or neurological conditions other than SCI. Participants underwent a combined intervention consisting of IMT and abdominal FES, administered for 30 minutes per session, three times per week, over a duration of four weeks. The experimental group received a graded program while the control group received sham stimulation. Respiratory parameters and sitting balance were systematically assessed at baseline, after two weeks (interim), and following four weeks of intervention. Data presented is a part of an on-going trial.
RESULTS: Participants from experimental group showed significant improvement in pulmonary parameters (MIP, SMIP, FIT, FEV1 and PEFR) post intervention ($p < 0.05$) compared to control group, reflecting enhanced diaphragmatic and abdominals function and ventilatory efficiency. Function in sitting test (FIST-SCI) scores also increased indicating improved sitting balance.
CONCLUSION: Combined abdominal FES and IMT improves both respiratory function and sitting balance in individuals with spinal cord injury. Integrating training promote better functional recovery and independence.

ASSESSMENT OF COGNITIVE IMPAIRMENT IN HYPERTENSIVE PATIENTS AND ITS CORRELATION WITH AGE OF ONSET AND DURATION OF HYPERTENSION

Samiksha Bhongade (MPT Student, MAEER's Physiotherapy College, Pune),
Dr. Drashti Bhalani , Dr. Sumitra Sakhwalkar, Dr. Sayli Paldhikar

BACKGROUND: Hypertension is a major global health concern and a known risk factor for cardiovascular and cerebrovascular disease. Growing evidence suggests a strong association between high blood pressure and cognitive decline. Impaired cerebral perfusion, arterial stiffness, and neural metabolic alterations caused by hypertension promote white matter injury and accumulation of beta-amyloid, affecting memory and executive functions. Cognitive dysfunction is often overlooked in adults with early-onset hypertension, delaying preventive measures.

AIM: To assess cognitive impairment in hypertensive patients and investigate its correlation with age of onset and duration of hypertension.

METHODOLOGY: A descriptive cross-sectional study was conducted on 86 hypertensive subjects above 18 years using purposive sampling. Cognitive function was evaluated using the Mini-Mental State Examination (MMSE). Demographic data, age of onset, and duration of hypertension were recorded. Data analysis was performed using Pearson's correlation coefficient.

RESULTS: Out of 86 subjects, cognitive impairment was most prevalent among individuals aged 50-69 years. There was a significant negative correlation between age of onset and MMSE score ($r = -0.39933$; $p = 0.0148$), indicating greater impairment among early-onset cases. Correlation between duration of hypertension and MMSE score was weak and statistically non-significant ($r = -0.1002$; $p = 0.3587$).

CONCLUSION: The study demonstrates a correlation between cognitive impairment and age of onset of hypertension. Early-onset hypertension was associated with greater cognitive decline, highlighting the importance of early screening and preventive rehabilitation.

YOGA VERSUS VIRTUAL REALITY IN COMMUNITY DWELLING ELDERLY INDIVIDUALS ON BALANCE, GAIT SPEED AND RISK OF FALLS: A RANDOMIZED CLINICAL TRIAL

Komal Yogesh Parikh (MPT Student, Sumandeep Vidyapeeth, Vadodara), Jaykumar Soni

BACKGROUND: With aging, multi system changes occur which are deprecatory in nature. Yoga and VR have proved to be effective in improving balance, gait speed and risk of falls. However, no studies were conducted comparing the two. **AIM:** To observe the individual effect of yoga and VR in improving balance, gait speed and risk of falls. **METHOD:** A randomized clinical trial was conducted on forty-two participants aged 60-80 years, randomly divided into two groups. After ethical approval and CTRI registration, intervention was given. Group A (n = 21) received yoga while group B (n = 21) received virtual reality 5 times a week for 2 weeks. Pre (session 1) and post (session 10) intervention analysis for balance, gait speed and risk of falls using following outcome measures such as TUG Test, 4-meter gait speed and Tinetti was done by a blinded assessor.

RESULTS: The result showed statistical not significant within the group A (Yoga) and B (VR) for the outcome measures TUG, 4-meter gait speed, Tinetti Score. While between the group analysis showed statistical not significant for the outcome measures TUG, 4-meter gait speed. However, statistically significant difference was found between the group A and B in Tinetti score. **CONCLUSION:** Yoga proved to be more effective to improve balance, pace of walking and fall risk in a comparison to the VR group.

PREVALENCE OF DEVELOPMENTAL COORDINATION DISORDER CO-EXISTING WITH ADHD IN CHILDREN OF GANGTOK MUNICIPAL CORPORATION: AN EXPLORATORY STUDY

Aduly Tamuk (Ph.D Scholar, Sikkim Manipal College of Physiotherapy);
Saumen Gupta, Geeta Soohinda

BACKGROUND: Children with Developmental Coordination Disorder (DCD) often experience difficulties in manual dexterity, balance, and coordination, which can adversely affect academic performance and social participation. DCD frequently co-occurs with conditions such as attention deficit hyperactivity disorder (ADHD), further exacerbating functional challenges. Evidence suggests that up to 50% of children with DCD may also present with ADHD. Despite its prevalence, limited data exist on the co-occurrence of these conditions in Indian populations, particularly in Gangtok, Sikkim. Aim: To estimate the prevalence of children with DCD co-existing with ADHD in school going children of age between 6-12 yrs. in the Gangtok Municipal Corporation.

METHODOLOGY: This observational, cross-sectional study involves school-going children from Gangtok, to determine the prevalence of developmental coordination disorders co-existing with ADHD. A convenience sampling method is used to identify the eligible population and screening of DCD and ADHD is done based on parent reports following an awareness session. The calculated sample size is 2,444, based on an assumed 10% DCD prevalence, 95% confidence interval, and 1% margin of error. **RESULTS:** Data collection and analysis are ongoing. Preliminary findings, to be presented at the conference, will focus on prevalence trends and associations with demographic variables such as age, gender, and socioeconomic status. Conclusions: This study will help in estimating expression of DCD with ADHD as predominant feature. This is all the more necessary as the conventional DCD management programs may not be able to bring about a change in this expression of DCD.

IMPACT OF MULTIMODAL INTERVENTION ON ADOLESCENT GIRLS WITH PRIMARY DYSMENORRHEA ALONG WITH CAREGIVER SUPPORT: A PILOT RANDOMIZED CONTROLLED TRIAL

Harshitha V K[1], Ruchita Narsia[2]
1-Student, 2-Assistant Professor, Nitte Institute of Physiotherapy, Mangaluru, Karnataka

BACKGROUND: 50-87.8% of Indian adolescent girls experience Primary Dysmenorrhea characterized by menstrual pain occuring in the absence of pelvic pathology and is often associated with emotional distress and reduced quality of life. Despite its high prevalence, it remains underrecognized, emphasizing the need for sustainable, non-pharmacological management and education for both students and caregivers.
AIM: To evaluate the effectiveness of a multimodal intervention in reducing symptoms of Primary Dysmenorrhea as well as the impact of caregiver support on quality of life and management.
METHODOLOGY: This randomized controlled pilot study included 20 adolescent girls (12-16 years) from Deralakatte, Karnataka, randomly assigned into experimental and control group (n=10). The experimental group received an 8 week multimodal intervention including education, stretching, yoga, pelvic floor exercise, relaxation and caregiver support, while the control group received pamphlets including education and exercise. Outcomes (WaLLID, EQ-5D) were assessed pre and post intervention. Data were analysed using Mann-Whitney U test ($p<0.05$).
RESULTS: Post intervention, the experimental group showed greater pain reduction and improved quality of life compared to the control group. Caregiver involvement enhanced adherence to non-pharmacological management.
CONCLUSION: A multimodal intervention integrated with caregiver support effectively alleviates pain and enhances menstrual health awareness and quality of life among adolescents with primary dysmenorrhea.

EFFECT OF PELVIC FLOOR MUSCLE EXERCISES ON PAIN, MOBILITY, AND QUALITY OF LIFE IN THIRD TRIMESTER PREGNANT WOMEN WITH LOW BACK PAIN

Mayuri Shukla, Assistant Professor, Nitte Institute of Physiotherapy, NITTE (Deemed to be University), Mangalore

BACKGROUND : Pregnancy-related low back pain is frequent in third trimester, with upto 49.5% prevalence rate. Combined with conventional treatment, pelvic floor muscle exercises have found to increase the pelvic floor strength. In this study, PFM exercises were given to explore its effect on low back pain in pregnancy.
AIM: The main aim of this clinical study is to determine the effect of pelvic floor muscle exercises on pain, mobility and quality of life in third trimester pregnant women with low back pain.
METHODOLOGY: A Quasi-experimental study conducted on pregnant patients (third trimester), selected from Ante-natal OPD, Maharaja Tukojirao Holkar Hospital, M.Y.H., Indore (M.P.). 115 samples with low back pain were evaluated and counselled for the study and given PFM exercises for 3 weeks. The Pre and Post values of NPRS, PMI and QOL-BREF were recorded before and after the treatment, and then compared using Wilcoxon signed rank test.
RESULTS: After receiving 3 weeks of treatment consisting PFM exercises, there was a significant decrease in NPRS and improved scores of PMI and QOL-BREF (quality of life) were found.
CONCLUSION: Pelvic floor muscle exercises were found to be effective in decreasing pain, improving mobility, and quality of life in pregnant patients with low back pain. Age and parity were also found to have an effect on the incidence of low back pain during pregnancy.

EFFECT OF PILATES ON PAIN AND QUALITY OF LIFE IN MENSTRUAL DISORDER: SYSTEMATIC REVIEW

Mudra Sawant (MPT Student, NIPT), Ashwini Bulbuli, (Associate Professor, KLE Institute), Gayatri Mukku

BACKGROUND: Pilates is a mind-body exercise regimen focused on controlled movements, posture alignment, and breath awareness. Menstrual disorders, which include conditions like dysmenorrhea, irregular cycles, and premenstrual syndrome, disrupt the normal menstrual cycle.
AIM: This study aimed to review the literature on the effects of Pilates on menstrual disorders, evaluating its effectiveness in alleviating symptoms, promoting hormonal balance, and improving overall well-being. The research also explored how individual factors such as age and fitness level might influence outcomes.

METHOD: A systematic search was conducted across PubMed, Pedro, Google Scholar, EBSCO, and SciDirect databases from 2009 to 2024. Keywords searched were Pilates, Menstrual disorder, Quality of life, Pain, Dysmenorrhea, Premenstrual disorders. Studies included women with menstrual disorders who experienced pain and premenstrual symptoms. Out of 48 articles identified, 16 were included.

RESULT: Pilates is an effective intervention for reducing menstrual pain and improving quality of life in women with dysmenorrhea. RCT evidence showed that Pilates can reduce menstrual pain by 40–50%, relieve PMS symptoms. Its mechanisms—ranging from strengthening core muscles, releasing endorphins, and balancing the autonomic nervous system.
CONCLUSION: Numerous studies have demonstrated that practicing Pilates offers significant relief from the symptoms of premenstrual syndrome and menstrual pain. Embracing this form of exercise can enhance your well-being and empower you to manage dysmenorrhea more effectively. While larger studies are needed, current evidence supports Pilates as a holistic approach to managing menstrual discomfort.

URINARY TRACT INFECTION IN ADOLESCENT GIRLS, CHALLENGES FACED BY THEM AND EXERCISE BASED COPING STRATEGIES: SCOPING REVIEW

Harini P.S (MPT Student, Saveetha College of Physiotherapy, SIMATS, Chennai), Thiruppathi Arjunan (Professor, SIMATS)

BACKGROUND: Urinary tract infection refers to an infection occurring along the urinary tract starting from the urethral meatus to the perinephric fascia. The prevalence of UTI is higher in adolescent period especially girls with a prevalence of 80%. Children presenting with urinary symptoms were diagnosed with UTI which affects the quality of living.
AIM: This study uses a scoping review method to review urinary tract infection in adolescent girls and the challenges faced by them as well as to explore the implementation of exercise based coping strategies for better quality of life.
METHODOLOGY: This study followed PRISMA guidelines. Present study included RCTS and Systematic review with the keyword Urinary tract infection, adolescents, physiotherapy management. The study includes 4 search databases: Google scholar, PubMed, CINHAL, Pedro, and studies published from January 2022 to October 2025, written in English, were included and analysed. Data charting was done using a standardized data abstraction tool.
RESULTS: A total of 18 studies were taken. Despite having literatures on UTIs in elderly, diagnostic tools, quality of life has increased, still there is a limited number of literatures on challenges faced by them and coping strategies it is still immature and thus more rigorous research is needed in the management or coping strategies of urinary tract infection in school going girl's populations.
CONCLUSION: Current evidence on challenges and exercise based coping strategies for adolescent girls with UTIs is limited. Future research is needed to guide effective management for adolescent UTI.

A STUDY TO EVALUATE THE CORRELATION BETWEEN THE SEVERITY OF PELVIC CONGESTION SYNDROME, PAIN, AND FUNCTIONAL MOBILITY IN MIDDLE-AGED WOMEN

Ramya Sundararaj1, Thiruppathi Arjunan2
1-PG Student; 2-Professor, Department of Urology and Obstetrics Physiotherapy, Saveetha College of Physiotherapy, Saveetha Institute of Medical and Technical Sciences, Chennai

BACKGROUND: Pelvic Congestion Syndrome (PCS) is a chronic venous condition which frequently leads to chronic pelvic pain, reduced mobility and quality of life. While physiotherapy approaches are taken to manage symptoms, little evidence surrounds the relationship between PCS severity, pain, and mobility and understanding these relationships may enhance diagnosis and management in midlife women.
AIM: To examine how PCS severity relates to mobility and to how PCS severity and pain interact physiopathologically to influence mobility as a marker of healthy ageing.
METHODOLOGY: A cross-sectional study abducted at Saveetha Hospital, SIMATS recruiting 56 women aged between 30-55 years with a diagnosis of PCS made by doppler imaging. Patients with other pelvic or other systemic conditions were excluded. PCS severity was assessed by measurement of the vein diameter, reflux, and symptom score, and pain severity by the Visual Analogue Scale (VAS), and mobility by the 6-minute walk test (6MWT). Pearson correlation was used to evaluate the association with $p<0.05$ level of significance.
RESULTS: Greater severity of PCS was related to increased severity of pain ($r=0.74$, $p<0.001$) and functional mobility ($r=0.62$, $p<0.001$) Pain was also found to be significantly related to mobility ($r=0.58$, $p<0.001$) Regression analysis revealed that the vein diameter was a significant predictor of both mobility and pain ($F=205.81$, $p<0.001$).
CONCLUSIONS: The data reveals that increased severity of the condition of PCS from a physiopathological point of view is related to perceived increase in pain, and in disability of mobility, both of which are important indicators of health and healthy ageing.
KEYWORDS: Pelvic Congestion Syndrome, Pain, Functional Mobility, Midlife Women

KNOWLEDGE, PERCEPTION, IMPACT AND LIMITATION OF ARTIFICIAL INTELLIGENCE IN REHABILITATION AMONG INDIAN PHYSIOTHERAPY STUDENTS AND PHYSIOTHERAPISTS: A SURVEY

Vaishali Sharma1, Anuja Pokale1, Ritesh Raj1, Shambhovi Mitra2, Sadhan Berry2
1-BPT student, ISIC Multispeciality Hospital; 2-Associate Professor, ISIC Multispeciality Hospital

BACKGROUND: Technological advances and artificial intelligence (AI) have enhanced rehabilitation by introducing new tools and applications. However, variations in available facilities and emerging challenges persist. Despite AI's proven benefits in physiotherapy, limited research explores physiotherapists' perceptions, attitudes, and the actual integration of AI systems into routine rehabilitation practice.
OBJECTIVE: The study aims to find the knowledge, perception, impact and limitation of AI in rehabilitation specifically among Indian physiotherapy students and physiotherapists.
METHODOLOGY: The sample size of 75 participants voluntarily completed an online Google Form survey of 14 questions aimed to assess knowledge, attitude, and the impact of AI in rehabilitation among participants. By answering participants gave consent. Data was analysed using descriptive statistics , and the Cronbach's alpha value of questionnaire was 0.76.
RESULTS: The findings of the survey showed that 51.3% of respondents practiced physiotherapy in academic settings. 80% were aware of use of AI in rehabilitation, while 29% had never encountered AI technology. Majority respondents showed a neutral opinion regarding AI's role in disease prevention, and 46.1% recognized technology trust as the primary concern in AI implementation.
CONCLUSION: The majority of participants recognized AI's high potential in assistive technology, goal setting, diagnosis, and improved quality of care as the main advantage. Neurological then musculoskeletal patients were seen to benefit most. About 67% agreed for including AI in the curriculum. High cost and lack of practical knowledge were key barriers, implying a need for practical training-focused future research.
KEY WORDS: Artificial Intelligence, Rehabilitation, Physiotherapy, Survey

A STUDY ON THE MULTI-DIRECTIONAL REACH TEST TO INVESTIGATE THE STABILITY IN HEALTHY ADULTS BASED ON AGE AND GENDER DIFFERENCE

Rishika Khandelwal, Asst. Professor, IBB College of Physiotherapy, Ranpur, Kota;
Dr. Ishant Vijay

BACKGROUND: The multi- directional reach test (MDRT) is a simple, in expensive, reliable and valid screening tool for assessing the limits of stability (LOS) in the anteroposterior and medio lateral direction. **AIM:** The aim of this study was quantifying the limits of stability of people aged and gender between 26 to 45 years using the MDRT.
METHODOLOGY: We conducted a survey-based study using a purposive sampling method, with 40 subjects divided into two groups based on age and gender & normal BMI level Group 1 (26-35 years) and Group 2 (36-45 years). Each group included both males and females. The Multidirectional Directional Reach Test (MDRT) was used to assess the limits of stability in four directions: forward, backward, leftward, and rightward. Subjects were asked to perform a maximal outstretched reach in each direction while keeping one foot flat on the floor.
RESULTS: The results of the multidirectional reach test indicated no significant differences between Group 1 (ages 26-35) and Group 2 (ages 36-45) in the multidirectional reach test, with p-values greater than 0.05 for all trials. Similarly, no significant differences were found between males and females in any of the trials, with p-values ranging from 0.321 to 0.498. This indicates that both age groups and genders with normal BMI level performed similarly across all tests, as no p-values were below 0.05. The results suggest that reach performance is statistically similar across the compared groups.
CONCLUSION: The study found no statistically significant differences in multidirectional reach performance between the two age groups (26-35 years and 36-45 years) or between males and females. All trials showed p-values greater than 0.05, indicating that reach performance was similar across the groups. These results suggest that age and gender with normal BMI do not significantly impact the limits of stability as measured by the multidirectional reach test.
KEY WORDS: MDRT, LOS, FR, BR, LR, RR

A STUDY TO COMPARE SPINOPELVIC POSTURE AS A PREDICTIVE PARAMETER FOR MENSTRUAL LOW BACK PAIN IN YOUNG COLLEGIATE FEMALES WITH OR WITHOUT MENSTRUAL LOW BACK PAIN : A CROSS SECTIONAL STUDY

Bhargava Navdha1, Thakur A2,
1-BPT Intern; 2-Assistant Professor, Department of Physiotherapy, Jaipur National University, Jaipur.

BACKGROUND: Menstrual low back pain (MLBP) is a common yet often debilitating symptom experienced by young females. While cyclic hormonal variations have been explored as a cause, the role of biomechanical factors, particularly spino-pelvic posture, remains under explored. Understanding biomechanical changes during menstruation could lead to more targeted and effective interventions to alleviate pain and enhance productivity and quality of life.
AIM: It aims to measure and compare the Sacral Slope, Pelvic Incidence, Pelvic tilt and lumbar lordosis of young collegiate females with and without menstrual low back pain during their menstrual phase.
METHODOLOGY: Subjects were recruited according to inclusion and exclusion criteria and were divided into Group A (with menstrual low back pain) and Group B (without menstrual low back pain). A standing lateral X-ray of lumbosacral spine was taken for each subject during their menstrual phase, spinopelvic angles were measured using KINOVEA Version 0.9.5.
RESULT: Lumbar lordosis and pelvic tilt was found significantly lower in Group A, while Sacral slope and Pelvic Incidence found no significant difference between the groups.
CONCLUSION: This study concludes that Menstrual low back pain may be correlated with lower Lumbar Lordosis and Pelvic Tilt.

RELATIONSHIP BETWEEN SELF PERCEIVED STRESS, MENTAL FATIGUE, EXECUTIVE FUNCTIONS AND ACADEMIC PERFORMANCE IN HIGH SCHOOL STUDENTS

Shikha Kumari (MPT Student), Preksha Sharma (Asst Prof, Amar Jyoti Institute of Physiotherapy)

BACKGROUND: Adolescence represents a critical developmental phase with swift cognitive, emotional, and social changes. Academic performance may be impacted by executive function impairments brought on by stress and mental exhaustion during this time. Investigating these connections is crucial to advancing students' academic success and well-being. Aim: To find out the correlation between self-perceived stress, mental fatigue, executive function and academic performance in high school students.

METHODOLOGY: 111 students of classes IX–XII, aged 13–17, were selected using purposive sampling participated in a cross-sectional correlational study. The Depression Anxiety Stress Scale-21, the Modified Mental Fatigue Scale, and the Perceived Stress Scale-10 were used to measure emotional distress, mental fatigue, and self-perceived stress. Executive functions were evaluated using the Stroop Colour and Word Test and Trail Making Test (TMT-A/B). Academic performance was measured average of the last two unit test scores. Correlation and regression analyses were performed.

RESULTS: 64.9% participants reported significant mental fatigue and 75.7% reported moderate perceived stress. Regression analysis showed that only DASS21-Stress is a statistically significant predictor, and both stress and fatigue demonstrated negative associations with academic performance and executive function.

CONCLUSION: High school students frequently experience self-perceived stress and mental exhaustion, which has a negative impact on academic performance and executive functioning. For students to succeed, early interventions that focus on stress management and cognitive resilience are essential.

KEYWORDS: Self-perceived stress, Mental fatigue, Executive function, Academic performance, High school students

PREVALENCE OF SLEEP DISTURBANCE AMONG UNDERGRADUATE MEDICAL STUDENTS USING THE EPWORTH SLEEPINESS SCALE AND STOP-BANG QUESTIONNAIRE

Hritika Koli (MPT Student), Dhanesh Kumar K U (Professor and Principal, NIPT)

BACKGROUND: Sleep is essential for maintaining physical and mental well-being. Among medical students, achieving adequate sleep is often difficult due to demanding academic schedules, irregular study hours, and lifestyle pressures. These factors can lead to poor sleep quality, affecting concentration, learning, and overall health. The present study aimed to determine the prevalence of sleep disturbances and risk of sleep-related disorders among undergraduate medical students. **Aim:** To assess sleep disturbances among undergraduate medical students using the Epworth Sleepiness Scale (ESS) and STOP-BANG questionnaire.

Materials and Methods: An observational study was conducted among 158 undergraduate students (mean age 20.8 years), of whom 68.99% were female and 52.53% were physiotherapy students. The ESS evaluated daytime sleepiness, while the STOP-BANG questionnaire assessed the risk of Obstructive Sleep Apnea (OSA). Descriptive analysis determined overall sleep health.

RESULTS: According to the ESS, 48.73% of participants reported low daytime sleepiness, and 5.70% showed excessive sleepiness. STOP-BANG findings revealed 92.41% had low OSA risk, 4.43% moderate risk, and 3.16% high risk.

CONCLUSION: Most students demonstrated satisfactory sleep health, though a notable minority experienced excessive daytime sleepiness. The findings highlight the importance of promoting sleep hygiene education and awareness to improve sleep quality and overall well-being among medical students.

KEYWORDS: Sleep disturbance, Medical students, Epworth Sleepiness Scale, STOP-BANG Questionnaire

RELATIONSHIP BETWEEN HAPPINESS INDEX AND PHYSICAL ACTIVITY LEVEL AMONG PHYSIOTHERAPY STUDENTS: A CROSS-SECTIONAL STUDY FROM DAKSHINA KANNADA, KARNATAKA, INDIA

Deena Dsouza (MPT Student), Saumya Srivastava (Assoc Prof), Dhanesh Kumar KU (Professor and Principal, NIPT)

BACKGROUND: Physiotherapy students often face both physical and psychological stress during their training, which can affect their overall well-being. This cross-sectional study explores the relationship between physical activity levels and happiness among physiotherapy students in Dakshina Kannada, Karnataka, to better understand how maintaining an active lifestyle may influence mental health and life satisfaction.

AIM: To assess the association between physical activity levels and happiness among physiotherapy students and how it contributes to their overall health and academic performance.Materials and Methods: A cross-sectional survey involving 118 physiotherapy students from Dakshina Kannada assessed physical activity using International Physical Activity Questionnaire (IPAQ) and happiness using Oxford Happiness Questionnaire, with statistical analysis conducted to determine the correlation between physical activity and happiness levels.

RESULTS: All 118 participants completed the survey. The results showed a significant positive correlation between physical activity and happiness scores. Students who reported moderate to high levels of physical activity demonstrated higher happiness levels compared to those who were less active.

CONCLUSION: The findings suggest that regular physical activity is associated with greater happiness among physiotherapy students. Encouraging an active lifestyle within physiotherapy training programs may enhance students' psychological well-being and overall quality of life.

Keywords: cross-sectional study, physical activity, happiness, well-being

COMPARATIVE EFFECTIVENESS OF ATTENTION PROCESS TRAINING AND NEUROBICS ON COGNITIVE FUNCTIONS IN SLEEP DISORDERS: A SYSTEMATIC REVIEW

Kunal Kathane (MPT Student, Jaipur National University),
Dr. Garvi Vats

BACKGROUND: Sleep disorders severely impair cognitive functions, including attention and memory, and exacerbate neurodegenerative processes. This review compares Attention Process Training and neurobics for cognitive improvement in affected individuals. Sleep disorders are a heterogeneous group of conditions that affect the timing, quality, and duration of sleep, leading to daytime distress and functional impairment.

AIM: To systematically review and compare the effectiveness of Attention Process Training and Neurobics in enhancing cognitive functions among individuals with sleep disorders.

METHODOLOGY: A systematic review was conducted following the PRISMA guidelines. Source of information was PubMed, Scopus, Web of Science, PsycINFO, Cochrane Library. Key words used were:Attention Process Training OR APT, Neurobics, cognitive functions, sleep disorders, cognitive rehabilitation. Boolean operators used to combine terms. Risk of bias was assessed using the Cochrane Risk of Bias Tool for RCTs, ROBINS-I for non-randomized studies.

RESULTS: A total of 12 studies were reviewed, of which five studies demonstrated that structured cognitive training significantly improved attention and memory in insomnia and related conditions, while seven studies highlighted the role of Neurobics exercises in enhancing memory and cognitive flexibility in older adults and patients with mild cognitive impairment

CONCLUSION: Sleep disorders, such as insomnia and obstructive sleep apnea (OSA), are closely linked to cognitive impairments. These can include reduced attention, memory deficits, slower information processing, and executive dysfunction. Non-pharmacological interventions, such as Attention Process Training and Neurobic exercises, can help improve cognitive function in these populations.

COMPREHENSIVE GERIATRIC ASSESSMENT AND FRAILTY CLINICS IN INDIA: A SCOPING REVIEW OF EVIDENCE, IMPLEMENTATION, AND POLICY IMPLICATIONS

Rajeev Kumar Singh1; Supriya Awasthi2; Sampada S. Jahagirdar3; Shazia Mattu4; Prince Rohilla5,
1Assistant Professor, NIU | 2Professor, NIU | 3,4Assoc Prof, K.R Mangalam University | 5 Physiotherapist, VMMC and Safdarjung Hospital

BACKGROUND: The Comprehensive Geriatric Assessment (CGA) is internationally recognized as the standard for evaluating and managing the complex needs of older adults and forms the foundation of frailty clinic models. Evidence has shown that CGA improves functional outcomes, reduces hospitalization, and enhances the quality of overall care. However, in India, the systematic implementation of CGA and frailty clinics remains limited. Workforce shortages, lack of standardized protocols, and inadequate training in geriatric care hinder routine assessment and service delivery. As the aging population grows, these gaps result in unmet needs in chronic disease management, functional decline, and psychosocial support. Establishing structured CGA-based frailty services and integrating them into primary and tertiary care pathways are essential for strengthening geriatric healthcare in India.

OBJECTIVES: This scoping review sought to systematically map the extent, range, and nature of existing evidence on CGA and frailty clinics in India. The specific objectives are to: (1) delineate current models, scope, and outcomes of CGA-based frailty assessment and management; (2) identify implementation barriers, enablers, and gaps within the Indian context; and (3) propose strategies to facilitate the integration of frailty services within national and regional health frameworks. Methods: A scoping review was conducted following the PRISMA-ScR guidelines and the Arksey and O'Malley framework. A systematic search was performed across PubMed, Scopus, Web of Science and gray literature sources for studies published between 1997 and 2025. The search strategy targeted literature related to frailty, comprehensive geriatric assessment (CGA), geriatric service delivery models, frailty clinics, frailty screening strategies, and frailty-specific interventions in India and comparable low- and middle-income countries. Eligibility criteria included empirical studies, reviews, and policy documents addressing the identification, assessment, or management of frailty within geriatric care systems. A total of 138 records were initially identified. After title/abstract screening, 32 full-text articles were assessed for eligibility, and six studies met the final inclusion criteria. Data were charted and synthesized to map existing models, identify gaps, and highlight implications for geriatric care services.

RESULTS: Preliminary evidence indicates limited but emerging implementation of CGA and frailty assessment initiatives, primarily within tertiary-level institutions. Reported outcomes suggest improvements in functional status and quality of life; however, systemic challenges persist regarding workforce capacity, interdisciplinary coordination, and policy prioritization.

CONCLUSION: Clinics dedicated to addressing frailty through the implementation of Comprehensive Geriatric Assessment (CGA) represent a viable and evidence-based strategy for improving the provision of geriatric care in **India. Developing** scalable, contextually appropriate models and embedding them within primary and tertiary care frameworks are essential for fostering age-responsive, equitable healthcare systems.

KEYWORDS: Frailty, Comprehensive Geriatric Assessment, Geriatric Medicine, Frailty Clinics, Ageing, India, Low- and Middle-Income Country

EFFECT OF FLEXI BAR ACTIVE VIBRATION TRAINING ON POSTURAL DEVIATION, BALANCE CONFIDENCE AND RISK OF FALL WITH EYES CLOSE ON FORCE PLATE IN TYPE 2 DIABETES MELLITUS PATIENTS WITH PERIPHERAL NEUROPATHY

Kamal Sunda, MPT Student, DAV Institute of Physiotherapy and Rehabilitation, Jalandhar

BACKGROUND: Diabetes may result in peripheral neuropathy, which diminishes sensory perception and proprioception, thereby impairing balance, increasing fear of movement and negatively affecting quality of life. In cases of prolonged or severe neuropathy, balance disturbances tend to worsen. The integration of vibration and balance training may offer improved balance outcomes in individuals suffering from diabetic neuropathy. This study primarily aimed to investigate the effects of combining active vibration training with balance exercises on postural control, fall risk and balance confidence.
METHODOLOGY: Thirty adults aged 45–65 were split into two groups via convenient sampling-one received Flexi-Bar with balance training, the other balance training alone. Assessments at baseline, week 3 and week 6 used the Ortho-King Pressure Plate, ABC Scale, and MFES.
RESULTS: The results clearly demonstrated that Group A (vibration + balance training) showed greater improvements across all outcomes. Balance (AP sway) significantly improved from 4.26±2.40 to 1.56±0.75, while Group B saw a smaller change. Balance confidence (ABC) increased markedly in Group A (62.79±6.64 to 82.38±5.78) compared to Group B, with a significant p-value of 0.001. Fall risk (MFES) also improved more in Group A (6.24±0.28 to 8.27±0.44), while Group B showed minimal change (p=0.058).
CONCLUSION: Flexi-Bar with balance training improved stability, confidence and fall prevention more than balance exercises alone, proving safe and easy to use.
KEY WORDS: Active Vibration Training, Balance, Diabetes, Polyneuropathy

THE ROLE OF BRAIN-COMPUTER INTERFACES AND NEUROFEEDBACK IN ENHANCING MOTOR LEARNING, COORDINATION, AND REACTION TIMES IN COMPETITIVE ATHLETES

Ashutosh Kumar (MPT Student), Stuti Khanna (Assoc Prof), Garima Wadhwa (Asst Prof), ISIC-IRS, Delhi

INTRODUCTION: Brain-computer interfaces (BCIs) and neurofeedback (NFB) are developing neurotechnology's that enable athletes to immediately alter brain activity to enhance motor learning, coordination, and response times beyond traditional training. A systematic search strategy was developed to critically summarize the evidence of effectiveness. Methodology: The search was conducted using Medical Subject Headings (MeSH) terms for “Brain-Computer Interfaces,” “Neurofeedback,” “Motor Learning,” “Reaction Time,” “Athletic Performance,” and “Neuroplasticity.” Keywords and text words, including “sports,” “coordination,” “cognitive training,” “EEG training,” and “athletes,” were also included. The scientific articles were searched using PubMed, PEDro, Google Scholar, and ScienceDirect databases, with searches including combinations of the following: (“Brain-Computer Interface” OR “BCI” AND “Neurofeedback” OR “NFB” AND “Motor Learning” OR “Reaction Time” AND “Athletes” OR “Sports Performance”) and Boolean operators. In accordance with the PRISMA method, 35 articles were initially screened, resulting in the final inclusion of 12 studies that met our inclusion criteria. To assess methodological quality across all 12 included studies, we utilized the Joanna Briggs Institute (JBI) checklist & PEDro Scoring.
RESULTS: The studies included a large range of interventions such as EEG-based neurofeedback, motor imagery with BCI control, or hybrid protocols consisting of cognitive and motor protocols. Overall, our findings indicated that the use of BCI and NFB improved reaction time, improved accuracy, improved sustained attention, and improved motor learning in the included studies; some participants reported objective evidence of measurable neuroplastic changes on neuroimaging methods and improved coordination noted in athletic performance outcomes.
Conclusion: Overall, our findings suggest that BCI and NFB have direct implications as adjunct strategies for sports performance enhancement outcomes to supplement standard training and incorporating cognitive and motor neural adaptations becomes targeted training on the basis of sensorimotor and cognitive networks.
KEYWORDS: Brain Computer Interface (BCI), Neurofeedback (NFB), Motor Learning, Coordination, Reaction Time, Athletes, Neuroplasticity, Sports Performance

INTEGRATION OF PNF, DNS, AND CONVENTIONAL PHYSIOTHERAPY FOR FUNCTIONAL RECOVERY IN A CHILD WITH SLE-RELATED HEMIPARESIS: A CASE REPORT

Arya Pathak (MPT Student, MGM School of Physiotherapy), Namrata Sant (Associate Professor)

BACKGROUND: Systemic Lupus Erythematosus (SLE) is a chronic autoimmune condition with multi-organ involvement. Neurological complications such as seizures, hemiparesis, and Posterior Reversible Encephalopathy Syndrome (PRES) further worsen functional outcomes in pediatric patients. These deficits impact independence and quality of life, making early physiotherapy intervention essential for recovery.

CASE PRESENTATION: A 12-year-old female with SLE and Class IV lupus nephritis, with a prior episode of PRES, presented with acute left-sided weakness following a seizure. Neurological examination revealed hypotonia, reduced reflexes, and severe weakness in the left upper and lower limbs (MMT: 1/5). She was dependent for mobility, with impaired sitting and standing balance. Functional assessment showed low scores on Trunk Impairment Scale (3/23), Pediatric Berg Balance Scale (6/56), and WeeFIM (40/126).

INTERVENTION: A structured 3-week physiotherapy program was implemented using the FITT principle. The protocol integrated Proprioceptive Neuromuscular Facilitation (PNF), Dynamic Neuromuscular Stabilization (DNS), and conventional physiotherapy techniques. Training included core stabilization, limb strengthening, balance retraining, gait re-education, oro-motor exercises, and task-specific activities across acute, sub-acute, and recovery phases.

OUTCOMES: After 3 weeks, marked improvements were observed: muscle strength increased (MMT: 4/5), trunk control improved (TIS: 18/23), balance scores increased (Pediatric BBS: 32/56), and functional independence enhanced (WeeFIM: 90/126). The patient regained unsupported sitting, partial dynamic trunk stability, assisted standing, and initiation of independent walking.

CONCLUSION: An integrated rehabilitation approach combining PNF, DNS, and conventional physiotherapy significantly improved motor recovery, postural stability, and functional independence in a pediatric patient with SLE-related hemiparesis.

CLINICAL SIGNIFICANCE: Early, individualized physiotherapy can accelerate recovery, reduce long-term disability, and promote independence in pediatric SLE patients with neurological complications. Integrating neurofacilitation with conventional therapy offers a structured, reproducible model for clinical practice and highlights the importance of multidisciplinary rehabilitation for optimizing outcomes.

Keywords: Systemic Lupus Erythematosus, Pediatric physiotherapy, PNF, DNS, Hemiparesis, Functional independence

EFFECTIVENESS OF PELVIS AND TRUNK STABILIZATION EXERCISES OVER CONVENTIONAL PHYSIOTHERAPY TO IMPROVE DYNAMIC TRUNK BALANCE IN CEREBELLAR ATAXIA: A RANDOMIZED CONTROLLED TRIAL

Anam Rajendra Sasun, Asst Prof, Bhausaheb Mulak Physiotherapy College, Nagpur

BACKGROUND: Patients with Cerebellar Ataxia face issues with static and dynamic trunk balance due to poor muscle control and clumsiness of movements and incoordination and thus, it affects the balance of an individual. The integrity of Trunk and Pelvic musculatures is an integral component for dynamic mobility.

AIM: The study aimed to investigate find out the impact of the pelvis and trunk stabilization exercises with conventional physiotherapy exercises on dynamic trunk balance in patients with cerebellar ataxia on severity of ataxia, balance, functional independence and quality of life.

METHODOLOGY: A RCT trial was conducted with 40 patients diagnosed with cerebellar ataxia from outpatient department of Neuro-physiotherapy, Medicine ward at AVBRH Sawangi, Meghe, Wardha. Control grpup (n=20) received Conventional physiotherapy whereas, Experimental group (n=20) received Pelvis and trunk PNF with conventional physiotherapy. The protocol was given for 6 weeks, 5 days/ week. The efficacy of the intervention was measured on SARA, BBS, Barthel index, TIS, WHOQOL.

RESULTS: Both groups showed improvement in all parameters. However the results of the Trunk impairment scale and WHOQOL revealed a statically significant difference.

CONCLUSION: Implementation of Trunk and Pelvis stabilization exercises are important for bracing the trunk against internal and external forces in cerebellar ataxia. There is a significant effect of Pelvis and trunk stabilization exercises and conventional physiotherapy in enhancing dynamic trunk balance in patients with Cerebellar Ataxia.

EFFECT OF ROBOT-ASSISTED REHABILITATION VERSUS BIMANUAL TRAINING ON HAND MOTOR FUNCTIONS IN INDIVIDUALS WITH CHRONIC STROKE: PILOT TRIAL

Ridhima Gupta, MPT (Neurology) Student; Garima Wadhwa, Assistant professor; Stuti Khanna, Associate Professor, ISIC Institute of Rehabilitation Sciences

BACKGROUND: Stroke often leads to significant upper limb dysfunction, resulting in weakness, poor dexterity, and impaired hand motor control, which limits performance in daily activities. Restoration of hand function remains a top rehabilitation priority. Robot-assisted rehabilitation offers intensive, repetitive, and task-specific training, while bimanual training utilizes coordinated use of both hands to enhance neuroplasticity. However, comparative evidence between these two approaches in chronic stroke patients remains limited.
AIM: This study aims to compare the effects of robot-assisted hand rehabilitation and bimanual training on hand motor functions in chronic stroke patients.
METHODOLOGY: Out of the total sample size of chronic stroke patients, pre-assessments have been completed for six participants. The individuals were divided equally into two groups—robot-assisted rehabilitation and bimanual training. Outcome measures include the Fugl-Meyer Assessment for upper extremity (wrist and hand) and Electromyography (EMG) for muscle activation. Each group undergoes structured intervention sessions for 20 minutes per session for five times a week for four weeks. Statistical analysis will include paired and independent t-tests or non-parametric equivalents using SPSS 21.
RESULTS: Preliminary findings from six participants indicate improvement in hand motor functions and grasp control post-intervention compared to baseline scores, with positive trends observed in FMA-UE and EMG outcomes.
CONCLUSION: Early observations suggest that both robot-assisted and bimanual training approaches contribute to enhanced hand motor recovery and independence in chronic stroke patients. Continued data collection and analysis will clarify the comparative effectiveness of the two rehabilitation methods.
KEYWORDS: Chronic stroke, robot-assisted rehabilitation, bimanual training, hand motor recovery, neurorehabilitation

COMPUTER-BASED COGNITIVE TRAINING FOR ATTENTION AND PROCESSING SPEED IN CHILDREN WITH CEREBRAL PALSY: PROTOCOL AND CASE REPORT

Harshita Aden, MPT Neurology Student; Garima Wadhwa, Assistant Professor; Stuti Khanna, Associate Professor, ISIC Institute of Rehabilitation sciences

BACKGROUND: About 19% of Children with Cerebral Palsy (CP) have a deficit in Attention and Processing Speed. In recent years, Computer-based Cognitive Training (CBCT) has emerged as an interactive method for cognitive training among various neurological populations.
AIM: To develop a CBCT protocol for Attention and Processing Speed in children with CP.
METHODOLOGY: The protocol was developed in three steps: First, a literature review was done on cognitive training methods in CP and other neurological conditions. Second, a suitable CBCT software for children with CP was searched for. Third, evaluation of the protocol and software was done by experts including neurologists, physiotherapists, occupational therapists, special educators and parents using 5-point Likert scale. An 8-year-old spastic CP child from Akshya Pratisthan, Vasant Kunj was recruited for the trial based on preset eligibility criteria.
RESULT: A 4-week CBCT protocol was developed using GCompris software. Each session included 8 out of 12 selected games, played for 1 minute and was repeated 3 times each, making a total duration of 40 minutes per session, with 4 sessions per week. Experts rated GCompris as an easy to use and suitable software for children with CP. Improvements were observed in Trail Making Test-A and Digit Span Test (for Attention) and Trail Making Test-B (for Processing Speed) as compared to baseline scores.
CONCLUSION: The case report will provide new knowledge about effectiveness of easily accessible and no-cost CBCT intervention and outcome measures for Attention and Processing Speed in children with CP.
KEY WORDS: Computer-Based Cognitive Training, Cerebral Palsy, Attention, Processing Speed

EFFECT OF SENSORY ELECTRICAL STIMULATION AUGMENTED NINTENDO WII-BASED EXERGAMING ON SITTING BALANCE AND QUALITY OF LIFE IN INDIVIDUALS WITH INCOMPLETE SPINAL CORD INJURY

Nikhil Chowdhary , Stuti Khanna , Garima Wadhwa and Shefali Walia ,
1MPT Neurology, ISIC - IRS, Associate Professor, ISIC - IRS
Assistant Professor, ISIC-IRS , Associate Professor, Department of physiotherapy, Gurugram University

BACKGROUND: Sitting balance is an essential prerequisite for performing activities of daily living. Approximately 70-80% individuals with SCI experience decreased trunk control and are often wheelchair bound, which significantly affects their ability to maintain balance and in turn, impacts quality of life (QoL).
AIM: This study aims to evaluate the effect of Sensory electrical stimulation (SES) augmented Nintendo Wii-based exergaming on sitting balance and QoL in individuals with incomplete spinal cord injury (iSCI).
METHODOLOGY: This study was a single-blind, two-group, randomized controlled trial. 22 individuals with iSCI were recruited from Indian Spinal Injuries Centre. Participants were randomly assigned to one of two groups using a 1:1 allocation ratio. The experimental group engaged in Nintendo Wii-based exergaming along with the SES application, while the control group solely engaged in Nintendo Wii-based exergaming. In both groups, the intervention was given as 30-minute sessions, five days a week over four weeks.
RESULTS: Both groups demonstrated significant within-group improvements in mFRT and Star Test ($p<0.05$), with the experimental group showing significantly greater gains than the control group ($p<0.05$). For QoL (ISCoS QoL BDS Version 1.0), the experimental group showed significant improvements across all subdomains, whereas the control group demonstrated improvements primarily in the general and physical health domains. However, between-group differences in QoL were not statistically significant.
CONCLUSION: SES augmented Nintendo Wii-based exergaming, yields superior improvements in sitting balance and broader enhancements in quality of life, compared to Nintendo Wii-based exergaming alone in individuals with iSCI.

ASSESSMENT OF BALANCE PERFORMANCE AMONG YOUNG ADULTS AGED 18 TO 25 USING THE MEND RYMO DEVICE: A CROSS-SECTIONAL STUDY

Rahil Shah, MPT Student, KK Sheth Physiotherapy College, Rajkot

BACKGROUND: Balance is a fundamental component of physical function and postural control, particularly important for injury prevention and athletic performance. The Mend Rymo device offers an innovative approach to objectively assess and train balance through real-time feedback and dynamic stability tasks.
AIM: To evaluate balance performance among young adults aged 18 to 25 years using the Mend Rymo device and to explore potential variations based on physical activity levels.
METHODS: A cross-sectional study was conducted among healthy young adults (aged 18–25 years) and BMI 18.5 to 24.9 kg/m2. Participants completed a standardized balance assessment protocol using the Mend Rymo device, which included static (eyes open and close), dynamic tasks, and static hold. Balance scores were recorded and analyzed across subgroups based on gender, BMI categories, and self-reported physical activity levels.
RESULTS: Preliminary findings indicated that Balance performance showed significant variation across all individuals, suggesting the influence of physiological or lifestyle factors on postural stability in this age group.
CONCLUSION: The Mend Rymo device is a practical and effective tool for assessing balance among young adults. This study provides baseline data that may inform future interventions aimed at enhancing balance and reducing injury risk in youth populations.

ENHANCING SITTING BALANCE AND FUNCTIONAL INDEPENDENCE AFTER SPINAL CORD INJURY WITH GALVANIC VESTIBULAR STIMULATION: A PRE–POST CASE SERIES

Shalini Srivastava (MPT Student), Garima Wadhwa (Asst Prof), Stuti Khanna (Assoc Prof, ISIC-IRS, Delhi)

BACKGROUND AND NEED OF RESEARCH: Good sitting balance is a fundamental component of postural control and functional independence in individuals with spinal cord injury (SCI). Approximately 70–80% of SCI survivors exhibit reduced or absent trunk control, which often impairs the ability to perform essential functional activities.

The utility of Galvanic Vestibular Stimulation (GVS), a non-invasive transcranial electrical method for modulating vestibular afferents, is rapidly expanding beyond basic science, demonstrating significant potential as a novel therapeutic intervention for improving clinical balance outcomes.

AIM: To evaluate effect of GVS on sitting balance and functional independence in individuals with SCI

METHODS: Five participants with SCI (ASIA Impairment scale A&B, with Neurological level of injury between T6 and T12) were included in the study as per eligibility criteria. Individuals received galvanic vestibular stimulation with a portable battery-operated device for twenty-minute sessions, five days a week for four weeks.

Sitting balance was assessed using Function in Sitting Test-Spinal Cord Injury (FIST-SCI), Modified Functional Reach Test(Mfrt) , and an instrument Star Test(Prokin 252 Trunk Sensor) as well as functional independence was evaluated using Spinal Cord Independence Measure (SCIM-III) .

RESULTS: Pre to post intervention analysis has shown statistically significant improvement in scores of FIST-SCI, Mfrt, Star test, and SCIM III. ($p<0.05$)

CONCLUSION: The five-case series revealed that GVS was associated with significant and substantial gains in both sitting balance and functional independence for individuals with SCI.

KEYWORDS: Galvanic vestibular stimulation, spinal cord injury, sitting balance, Vestibular system, paraplegia

EFFICACY OF A NEUROCOGNITIVE TRAINING PROGRAM (BRAINOBICS) IN A PATIENT WITH PARKINSON'S DISEASE: A CASE STUDY

Gurman Kaur1, Dr. Varun Kalia2*1PhD Scholar, Assistant Professor, MPT (Neurology), Department of Physiotherapy, Lovely Professional University 2Associate Professor, PhD, Department of Physiotherapy, Lovely Professional University, Punjab

BACKGROUND: Parkinson's disease (PD) is a progressive neurodegenerative disorder characterized by motor impairment, cognitive decline, and decreased quality of life. Conventional physiotherapy primarily focuses on motor rehabilitation, often overlooking the cognitive deficits that substantially contribute to functional limitations. Integrative approaches such as Brainobics, a neurocognitive training program combining physical and cognitive exercises—may provide synergistic benefits in optimizing motor and cognitive recovery in individuals with PD.

OBJECTIVE: To investigate the efficacy of Brainobics in improving motor performance, balance, cognitive function, coordination, and quality of life in a patient with Parkinson's disease.

METHODS: A 59-year-old male diagnosed with moderate Parkinson's disease participated in an eight-week Brainobics intervention comprising structured, task-specific activities targeting attention, memory, visuomotor coordination, and problem-solving, integrated with low-intensity motor exercises. Pre- and post-intervention assessments were conducted using the Unified Parkinson's Disease Rating Scale (UPDRS Part III), Montreal Cognitive Assessment (MoCA), Berg Balance Scale (BBS), Box and Block Test, Nine-Hole Peg Test, and Parkinson's Disease Questionnaire (PDQ-39).**RESULTS:** Following intervention, the patient demonstrated marked improvements across all assessed domains. UPDRS Part III scores indicated reduced rigidity and bradykinesia; MoCA scores reflected enhanced cognitive processing and executive control; BBS and upper limb coordination tests revealed improved postural stability and dexterity. Additionally, PDQ-39 outcomes indicated a meaningful enhancement in perceived quality of life.

CONCLUSION: The Brainobics program showed promising results as an adjunct to conventional physiotherapy by simultaneously addressing motor and cognitive impairments in PD. These findings highlight the potential of neurocognitive training to enhance holistic neurorehabilitation outcomes. Larger controlled studies are warranted to validate these preliminary results.

KEYWORDS: Parkinson's disease, neurocognitive training, Brainobics, motor-cognitive integration, rehabilitation, quality of life

EFFECTIVENESS OF MOTOR IMAGERY TRAINING ON COORDINATION AND TASK PERFORMANCE IN CHILDREN WITH DEVELOPMENTAL COORDINATION DISORDER: A SYSTEMATIC REVIEW

Punith Kumar P (PG1) NIPT; Rakesh Krishna Kovela (Associate professor) NIPT, Mangalore; Anugraha Ann Clements (PG1) NIPT

BACKGROUND: Developmental Coordination Disorder is a neurodevelopmental condition characterized by difficulties in motor coordination that interfere with academic performance and daily activities. Recent therapeutic approaches, such as Motor Imagery Training, gained attention for their potential to enhance motor planning, coordination, and task performance through cognitive rehearsal movements without physical execution.
OBJECTIVE: This review evaluates the effect of Motor Imagery Training on motor coordination and task performance in children with DCD, aiming to synthesize available evidence and assess its clinical relevance.
METHODS: Systematic research was conducted following the PRISMA 2020 guidelines across PubMed, Scopus, ScienceDirect, and Google Scholar databases from 2010 and 2025 using the keywords: "Motor Imagery Training," "Developmental Coordination Disorder," "Motor Coordination," "Task Performance," "Children."7 articles out of 144 articles were included based on inclusion and exclusion criteria.
RESULTS: Most reviewed studies indicate Motor Imagery Training, either as a standalone intervention in combination with physical practice, significantly improves motor coordination, timing accuracy, and task execution in children with DCD. Neural imaging evidence suggests enhanced activation of motor planning regions following MIT. However, variations in intervention protocols and assessment tools limit direct comparison across studies.
CONCLUSION: Motor Imagery Training demonstrates promising outcomes in improving coordination and functional task performance in children with Developmental Coordination Disorder.

SENSORY REWEIGHTING THERAPY: MAPPING THE EVIDENCE FOR PHYSIOTHERAPY-BASED BALANCE RETRAINING IN CEREBELLAR ATAXIA — A SCOPING REVIEW

Thomas Alisha Harry (MPT Student); Rakesh Krishna Kovela (Assoc Prof) NIPT

BACKGROUND: Cerebellar ataxia leads to deficits in sensory integration, impairing balance and coordination. Sensory Reweighting Therapy (SRT), a physiotherapy-driven intervention that retrains the relative contribution of visual, vestibular, and somatosensory inputs, has emerged as a potential strategy to enhance postural control. This scoping review aimed to map the extent and nature of available evidence on SRT in cerebellar ataxia.
METHODS: Following JBI and PRISMA-ScR (2020) guidelines, literature was searched across PubMed, Scopus, Web of Science, PEDro, and ClinicalTrials.gov using the keywords "sensory reweighting," "cerebellar ataxia," "sensory integration," "physiotherapy," and "balance retraining." From 112 records, 32 full texts were screened and 14 studies met inclusion criteria, including randomized, pilot, and feasibility trials focusing on sensory-augmentation or multisensory balance training.
RESULTS: Evidence indicates SRT enhances balance and postural stability through approaches like vibrotactile or audio feedback and multisensory retraining. Improvements were observed in sway reduction and clinical balance scales (BBS, SARA-Bal, Mini-BEST). However, heterogeneity in study design, intervention duration, and outcome measures limits comparability and synthesis.
CONCLUSION: SRT demonstrates promise as a physiotherapy-based intervention for cerebellar ataxia but lacks standardized protocols and large-scale validation. Future research should establish uniform definitions, employ posturographic outcomes, integrate neuroimaging measures, and assess long-term sustainability to support evidence-based implementation.

PERCEPTION AND ACCEPTANCE OF VIDEO GAME BASED THERAPY FOR IMPROVING MOTOR FUNCTIONS IN CHILDREN WITH CEREBRAL PALSY : A CROSS SECTIONAL SURVEY

Shelly Sharma[1], Stuti Khanna[2], Garima Wadhwa[3] [1]Postgraduate Student, MPT (Neurology); [2]Associate Professor; [3]Assistant Professor, ISIC Institute of Rehabilitation Sciences

BACKGROUND: Video game–based physiotherapy is increasingly used in paediatric neurorehabilitation as an engaging and motivating tool to promote motor learning and participation in children with cerebral palsy (CP). Gamified movement-based activities may complement conventional therapy by improving adherence, enjoyment, and functional outcomes.
AIM: To evaluate the interim effects of video game–based physiotherapy on gross motor function in children with CP and to assess the perceptions of children and parents toward this therapy while data collection is ongoing.
METHODOLOGY: This ongoing cross-sectional study aims to recruit 20 children with CP aged 5–12 years. Interim analysis includes 12 child–parent pairs. Each child participated in a single 20-minute video game–based physiotherapy session while parents observed. Children shared their experience and enjoyment, and parents reported on engagement, acceptance, and future willingness. The User Satisfaction Evaluation Questionnaire (USEQ) and semi-structured interview were used. Descriptive findings are presented, with full analysis planned upon completion of data collection.
RESULTS: Twelve children with CP completed the interim session. Most showed good participation and appeared motivated during the video-game–based activity. Children reported enjoying the session and expressed interest in doing similar activities again. Parents observed positive engagement, found the approach acceptable, and indicated willingness to use such therapy in the future. No adverse events or negative responses were noted. Further results will be reported after full data collection.
CONCLUSION: Current interim results suggest that video game-based physiotherapy is associated with early improvements in gross motor function and high child-parent satisfaction. Ongoing data collection will further clarify the therapy's effectiveness and its potential role as a supportive tool in paediatric neurorehabilitation.

COMPARING THE EFFECTIVENESS OF IMMERSIVE VIRTUAL REALITY BASED UPPER LIMB TRAINING VERSUS DUAL TASK COGNITIVE MOTOR TRAINING ON UPPER LIMB FUNCTION AND COGNITION IN POST-STROKE SURVIVORS: A PILOT STUDY

Vidushee Singh (MPT Student), Stuti Khanna (Assoc Prof), Garima Wadhwa (Asst Prof, ISIC-IRS)

BACKGROUND: Post-stroke survivors often experience both motor and cognitive impairments that affect upper limb function and independence. Integrating cognitive and motor rehabilitation promotes neuroplasticity and may enhance recovery. Immersive Virtual Reality (VR) offers an engaging, feedback-driven training environment, while dual-task cognitive-motor training (DTCMT) emphasizes simultaneous motor and cognitive performance. Comparative evidence between these two approaches remains limited.
AIM: To compare the effectiveness of immersive VR based upper limb training and dual-task cognitive-motor training in improving upper limb function and cognition among post-stroke survivors.
METHODOLOGY: A randomized controlled trial is underway on post-stroke survivors aged 40–70 years (n=8; target n=18). Participants were randomized into two groups. Group A received immersive VR–based upper limb training using motion-tracking and virtual tasks; Group B underwent dual-task cognitive-motor training involving functional upper limb activities combined with cognitive tasks such as attention and memory exercises. Both interventions were delivered for 45 minutes, 5 days a week, for 4 weeks. Assessments included the Fugl-Meyer Assessment for Upper Extremity (FMA-UE), Modified Barthel Index (MBI), and Montreal Cognitive Assessment (MoCA).
RESULTS: Interim analysis (n=8) showed improvements in both groups. The VR group improved in FMA-UE (32.5→40.2), MBI (67.3→75.6), and MoCA (21.0→25.0), while the DTCMT group improved in FMA-UE (33.1→37.8), MBI (68.0→72.4), and MoCA (21.5→23.3). Early trends favor immersive VR.
CONCLUSION: Preliminary findings suggest immersive VR may offer greater motor and cognitive benefits than dual-task cognitive-motor training, though further data are needed to confirm these results.

IMMERSIVE VIRTUAL REALITY (VR)–BASED BALANCE TRAINING VS CONVENTIONAL BALANCE TRAINING FOR ADULTS AFTER STROKE- A SYSTEMATIC REVIEW

Kanishka Sharma1, Garima Wadhwa 2, Stuti Khanna 3
1: MPT student, ISIC IRS, 2: Assistant Professor, ISIC IRS, 3: Associate Professor, ISIC IRS

INTRODUCTION: Balance impairment remains a major barrier to independent mobility and increases fall risk following stroke. Immersive Virtual Reality (VR) has found to be having multiple benefits over conventional rehab. However, its effectiveness remains inconclusive.
AIM: The aim of this review is to synthesise available evidences on immersive VR for balance in individuals with stroke.
METHODS: Our methodological steps followed PRISMA guidelines. A comprehensive search on PubMed, Scopus, and Web of Science databases was conducted using PICO framework for the earliest record available till September 2025.The indentified evidences (total of 105 studies) were screened for title and abstract and finally for full text on basis of preset eligibility. Duplicates were removed using excel spreadsheet. All RCTs and non-RCTs were evaluated. Quality of RCTs was assessed with PEDro scale and non- RCT with DOWNS and BLACK checklist. A total of 6 articles were selected to be reviewed after full text screening.
RESULT: Immersive VR demonstrated superior improvements in balance (Berg Balance Scale), functional mobility (TUG) , and gait speed compared with conventional therapy.
CONCLUSION: This review provides moderate or high evidence that immersive VR is an effective adjunct for enhancing post-stroke balance and mobility. Larger, long-term RCTs are recommended.
KEYWORDS: Immersive Virtual Reality, Balance training, Stroke

VIRTUAL REALITY-BASED REHABILITATION FOR UPPER LIMB RECOVERY IN A YOUNG-ONSET RECURRENT CHRONIC STROKE PATIENT: A CASE REPORT

Satemrenla Ao, Research Fellow, AIIMS, New Delhi

BACKGROUND: Stroke is a major cause of mortality and disability across the world. Young onset cases (ages 18 to 45) make up 10-15% of all occurrences and lead to long-term loss of function. Upper limb impairment is common post-stroke limiting independence. Virtual reality (VR) offers an engaging, task-specific approach that can enhance neuroplasticity and functional recovery.
AIM: To investigate the effects of an eight-week virtual reality (VR) rehabilitation program combined with traditional physiotherapy on upper limb motor recovery in a young onset chronic stroke survivor.
METHODOLOGY: The patient underwent an eight-week home-based rehabilitation program integrating conventional physiotherapy with immersive VR therapy (ReMind device), given five days per week for 60 minutes. The session included spasticity management, task-specific VR training with cognitive integration, progressive resistance and gradual lower limb integration. The outcome measures used were Fugl-meyer assessment, Action reach arm test, Stroke impact scale, Stroke Rehabilitation Motivation Scale, exercise adherence rating scale, Addenbrooke's cognitive examination.
Results: The eight-week immersive VR intervention led to marked improvements in upper limb function, daily activity performance, motivation and exercise adherence. Resulted in increase in strength, spasticity reduced substantially in both proximal and distal muscles with tone normalizing in some areas. Along with these improvements, there was an improvement in quality of life and more patient engagement.
CONCLUSION: Immersive VR-based rehabilitation may serve as an effective adjunct to conventional therapy in chronic young onset stroke promoting functional recovery and enhancing motivation and quality of life.

NON-IMMERSIVE RELIEF: VIRTUAL REALITY-BASED AEROBIC EXERCISE PROTOCOL FOR ENDURANCE AND NEUROPATHIC PAIN IN INDIVIDUALS WITH PARAPLEGIA

Aatif Hasan 1, Garima Wadhwa 2, Stuti Khanna 3
1: MPT (Neurology) student, ISIC IRS, 2: Assistant Professor, ISIC IRS, 3: Associate Professor, ISIC IRS

BACKGROUND: Neuropathic pain is a major secondary complication following spinal cord injury (SCI), affecting up to 70% of individuals and limiting function, endurance, and quality of life. Virtual Reality (VR) has emerged as an innovative neurorehabilitation tool, offering nonimmersive, task-oriented, and motivating experiences that engage motor and sensory pathways. Combining aerobic exercise with virtual environments may modulate pain perception through distraction, promote neuroplasticity, and improve cardiovascular endurance.
AIM: To develop and evaluate a structured protocol of VR-based aerobic exercise for reducing neuropathic pain and enhancing endurance in individuals with paraplegia.
METHODOLOGY: This experimental study includes adults (18–55 years) with traumatic or nontraumatic paraplegia (AIS A–D) at least three months post-injury. Participants undergo 30-minute VR-based aerobic sessions, three times per week for four weeks, alongside conventional therapy. Activities include VR-based cycling, bowling, table tennis, sword play, and canoeing. Outcome measures are the 6-Minute Push Test, Wheelchair Propulsion Test, and International SCI Pain Basic Data Set.
RESULTS: The protocol was administered to two participants as a pilot application. Both showed noticeable improvements in endurance and a reduction in neuropathic pain intensity, indicating feasibility and potential clinical benefit.
CONCLUSION: The protocol suggests that VR-based aerobic exercise is an effective, engaging, and non-pharmacological approach for improving endurance and reducing neuropathic pain in individuals with paraplegia. Further trials with larger samples are underway.
KEYWORDS: Virtual Reality, Neuropathic Pain, Paraplegia, Aerobic Exercise, Endurance, Rehabilitation

THE IMPACT OF YOGA AND PHYSICAL EXERCISE ON SEIZURE CONTROL, COGNITIVE FUNCTION, AND PSYCHOSOCIAL WELL-BEING IN PEOPLE WITH EPILEPSY: A REVIEW OF RANDOMIZED CONTROLLED TRIALS

Alwia Saeed 1, Stuti Khanna 2, Garima Wadhwa 3
1: MPT Student (Neurology); 2: Associate Professor; 3: Assistant Professor, ISIC Institute of Rehabilitation Sciences

BACKGROUND: Epilepsy, a chronic neurological disorder, is often accompanied by cognitive, psychological, and social challenges. Non-pharmacological interventions such as yoga and structured physical exercise have gained attention as complementary therapies to improve quality of life and seizure control.
METHODOLOGY: This study's methodology followed PRISMA guidelines. A scoping review of randomized controlled trials published between 2006-2025 was conducted. The review was systematically searched from the databases Google Scholar, PubMed and Scopus using relevant key terms. The studies assessing yoga, physical exercise, or combined training interventions among pediatric and adult populations with epilepsy were examined for their effects on seizure frequency, cognition, mood, and psychosocial outcomes.
RESULTS: Seven papers met the inclusion criteria for analysis based on the first search of the Pubmed and Google Scholar databases. Yoga improved psychosocial outcomes, reduced stigma, and enhanced quality of life. Exercise improved mood, cognition, and executive function. Reviews suggest yoga may reduce seizures and stress, complementing medical and surgical treatments.
CONCLUSION: Yoga and exercise show promise as adjunctive therapies for epilepsy, improving mental and cognitive health, but larger standardized trials are needed.
CLINICAL IMPLICATION: Clinicians should integrate yoga and exercise into epilepsy care, ensuring safety, personalization, adherence, and inclusion in future evidence-based guidelines.
KEYWORDS: Epilepsy, Yoga, Physical Exercise, Randomized Controlled Trial, Cognitive Function, Quality of Life, Seizure. Control, Psychosocial well-being, Non-pharmacological Intervention

IMPACT OF TRADITIONAL INDIAN GAMES ON ATTENTION AND WORKING MEMORY IN PERSISTENT POST-CONCUSSION SYNDROME: A CASE STUDY

J Mohanasundaram (MPT Student), Vignesh Srinivasan (Assoc Prof) Saveetha College Of Physiotherapy

BACKGROUND: Persistent post-concussion syndrome is a complication of mild traumatic brain injury that will affect the cognitive, emotional and behaviour of the individual. Conventional cognitive rehabilitation involves repetition and low interest tasks. This study evaluates the use of traditional Indian games as meaningful techniques for improving attention and working memory in an individual with persistent post-concussion syndrome.

AIM: To determine the effectiveness of traditional Indian games on attention and working memory in persistent post- concussion syndrome.

CASE DESCRIPTION: A 32 year old male presented with reduced attention, frequent forgetfulness and fatigue since 3 months following a mild traumatic brain injury. Radiological and Neurological evaluation were normal but cognitive assessment showed mild deficits: digit span score were 5 (forward) and 4 (backward) and trial making test were 72 seconds (part A) and 148 seconds (part B). A 4 week cognitive rehabilitation (5 days/week) program using traditional Indian games (Pallankuzhi (Mancala) and snakes and ladders) for 30-45 minutes per session. Post intervention, digit span improved to 7(forward) and 6 (backward) and Trial making test part A improved to 52 seconds and part B improved to 116 seconds indicating improvements in attention and working memory.

CONCLUSION: This single case study highlights the effectiveness of traditional Indian games as low cost, culturally relevant activities for cognitive rehabilitation in persistent post-concussion syndrome(PPCS).The structured play of traditional Indian games has showed improvements in attention and working memory indicating them as promising adjuncts to standard neurorehabilitation. Further research with larger samples is needed to confirm the findings.

KEYWORDS: Health, Neuroplasticity, cognition, Mancala

NON-INVASIVE DORSAL GENITAL NERVE STIMULATION (DGNS) FOR NEUROGENIC DETRUSOR OVERACTIVITY IN CHRONIC SPINAL CORD INJURY

Dinesh Kumar, MPT (Neurology) – 2nd Year; Stuti Khanna, Associate Professor; Garima Wadhwa, Assistant Professor, ISIC Institute of Rehabilitation Sciences

BACKGROUND: Neurogenic Detrusor Overactivity (NDO) is a common complication after Spinal Cord Injury (SCI), resulting in elevated bladder pressures, urinary incontinence, and potential renal dysfunction. Non-invasive neuromodulation, specifically Dorsal Genital Nerve Stimulation (DGNS), modulates the sacral micturition reflex pathway and has demonstrated potential benefits in improving bladder storage function.

AIM: This study aims to report the clinical and functional outcomes of non-invasive DGNS as a therapeutic intervention in a patient with chronic SCI presenting with NDO.

Methodology: From the total cohort of SCI individuals diagnosed with neurogenic detrusor overactivity, preliminary assessments were completed for five participants. The baseline evaluation comprised a detailed bladder diary documenting frequency, voided volumes, and incontinence episodes. Secondary outcomes included Incontinence Quality of Life (I-QOL) and Neurogenic Bladder Symptom Score (NBSS). DGNS was administered using surface electrodes placed over the dorsal genital nerve for 20 minutes per session, five days a week, for four consecutive weeks. Statistical analysis will employ parametric (paired t-tests) or non-parametric (Wilcoxon Signed Rank Test) tests using SPSS 21.

RESULTS: Preliminary results from five participants revealed improved bladder parameters, with reduced incontinence episodes, increased mean voided volume, and enhanced bladder capacity. Participants also reported improved quality of life per I-QOL and NBSS scores, with no adverse events observed.

CONCLUSION: Non-invasive DGNS demonstrates safety and efficacy in managing NDO following chronic SCI, supporting its potential as a promising neuromodulation technique for enhancing bladder control and storage function.

KEYWORDS: Spinal cord injury, neurogenic detrusor overactivity, non-invasive neuromodulation, dorsal genital nerve stimulation

EFFICACY OF NON-IMMERSIVE VIRTUAL REALITY TILT TABLE THERAPY ON VERTICAL ORIENTATION AND FUNCTIONAL GAINS IN PATIENTS WITH DECOMPRESSIVE CRANIOTOMY

Aravindh B (MPT Student), Om Prakash (Assoc Prof, Saveetha College of Physiotherapy)

BACKGROUND: Post-operative immobilization in decompressive craniotomy patient most commonly results in impaired vertical orientation, orthostatic instability and slows functional progress. Integrating non-immersive virtual reality (VR) with tilt table therapy may enhance postural adaptation and improve hemodynamic tolerance during rehabilitation.
OBJECTIVE: To evaluate whether non-immersive VR-assisted tilt table therapy on vertical orientation, cardiovascular responses, and functional outcomes in immobilized post-craniotomy patient for greater than 14 days.
METHODS: This pilot pre-post intervention study included 5 adults aged 18-80 years who had undergone decompressive craniotomy. Every participant received 2-week intervention consisted of standard tilt table session combined with non-immersive VR. Primary outcomes comprised of maximum tolerated tilt angle, hemodynamic responses during verticalization, and functional independence using Function Independence Measure (FIM) and Modified Barthel Index (MBI). Outcome measures assessment was carried at baseline and 14 days of post-intervention.
RESULTS: Participants showed tolerated higher tilt angles, reflecting a significant improvement in vertical orientation ($p<0.05$). Verticalization demonstrated more stable heart rate and systolic and diastolic blood pressure pattern after intervention, reflecting better cardiovascular tolerance ($p<0.05$). Significant improvement in functional independence were achieved, reflected by increased FIM and MBI scores ($p<0.05$). There was no adverse event happened and the therapy was well tolerated by participants.
CONCLUSION: This pilot study suggests that integrating non-immersive VR-augmented tilt table therapy is feasible and potential benefits for vertical orientation, cardiovascular tolerance, and functional independence in post-craniotomy patients. Further larger randomized controlled trials are needed.
KEYWORDS: Decompressive Craniotomy, Tilt Table Therapy, Virtual Reality, Orthostatic Hypotension, Functional Independence

TRANSLATION, CULTURAL ADAPTATION, AND VALIDATION OF THE MOTOR ACTIVITY LOG-30 (MAL-30) SCALE INTO HINDI LANGUAGE

Nada Zareen1, Dr. Megha Nijhawan2, Dr. Meena Makhija2, Dr. Chitra Kataria3
1-MPT Student, 2-Associate Prof, 3- Principal, ISIC-IRS

BACKGROUND: The Motor Activity Log-30 (MAL-30) is a patient-administered tool designed to assess how much and how well patients, especially those with post-stroke and spinal cord injury (SCI), use their affected upper limb in daily activities. Translating MAL-30 into Hindi is crucial given Hindi is the third most spoken language globally, enhancing accessibility for a large patient population. Compared to the Wolf Motor Function Test, MAL-30 better captures real-life use and patient perspective, making it more functional and practical for daily activity evaluation in neurological rehabilitation.
AIM: The study aims to translate, culturally adapt, and validate the MAL-30 scale into Hindi.
METHODOLOGY: Following permission from the MAL-30 author and the WHO guidelines, two independent native Hindi-speaking translators fluent in English produce forward translations (FT1 and FT2). These are merged by consensus with an expert panel of five health professionals experienced in SCI rehabilitation. Then, two independent English literature graduates back-translate the Hindi version into English, which is compared against the original, and discrepancies are resolved. The Hindi version undergoes cultural adaptation and intelligibility review by 10 SCI patients and independent physiotherapists. Field testing is conducted on 50 Hindi-literate SCI patients with a retest after three weeks. Content validation is performed through the Delphi technique by an expert panel. Data analysis will use the intraclass correlation coefficient to assess reliability.
CONCLUSION: This culturally adapted Hindi MAL-30 scale demonstrates strong reliability and validity, enhancing accessibility and supporting effective rehabilitation and clinical evaluation for Hindi-speaking SCI patients.

REAWAKENING MOVEMENT: THE IMPACT OF SPINAL CORD STIMULATION AFTER SCI - A REVIEW

PRAGATI PARWAL1, GARIMA WADHWA2, STUTI KHANNA3

1: MPT 1st Year (Neurology), 2: Assistant Professor, 3: Associate Professor, ISIC, Institute of Rehabilitation Sciences

BACKGROUND: Neuromodulation is a therapeutic intervention to the nervous system using electrical or magnetic stimuli to specific neural circuits in order to restore and improve function.

Spinal cord stimulation is a neuromodulation technique that applies controlled electrical currents to the spinal cord segments via implanted (epidural) or surface (transcutaneous) electrodes to influence spinal network excitability and facilitate voluntary motor output, sensory feedback after injury.

AIM: To evaluate the effectiveness of spinal cord stimulation in SCI patients.

METHODOLOGY: A comprehensive review of literature from 2011 to 2025 was conducted using PubMed, Scopus and Google Scholar. The database search presented a total of 206 articles of which only 9 meet the inclusion criteria using PRISMA guidelines.

RESULTS: Spinal cord stimulation in spinal cord injury showed measurable functional gains. Out of the nine reviewed studies, eight demonstrated clear functional gains including increases in gait speed, reductions in Timed Up & Go time, improved standing duration and EMG activation, and reductions in spasticity.

CONCLUSIONS: Evidence from controlled studies supports both epidural and transcutaneous spinal cord stimulation is safe and effective with conventional rehabilitation for SCI patients.

KEYWORDS: Neuromodulation; Spinal cord stimulation; Spinal cord injury; Randomized controlled trial; Rehabilitation

PPP2R5D LINKED DYSTONIA–PARKINSONISM: GENOTYPE–PHENOTYPE PATTERNS AND EMERGING PHYSIOTHERAPY IMPLICATIONS

Akanksha Nagar, PhD Scholar, Guru Kashi University, Punjab

BACKGROUND: PPP2R5D-related neurodevelopmental disorder is a rare genetic condition presenting with hypotonia, delayed motor milestones, intellectual disability, and macrocephaly. A distinct subset of individuals develops early-onset dystonia–parkinsonism, yet comprehensive understanding of genotype–phenotype patterns and rehabilitation needs remains limited. Recent literature highlights measurable gait and balance impairments in PPP2R5D disorder and recommends early physiotherapy assessment, although disorder-specific evidence is sparse.

OBJECTIVE: To synthesize genotype–phenotype correlations in PPP2R5D-linked dystonia–parkinsonism and outline emerging physiotherapy implications informed by available developmental and motor findings.

METHODS: A PRISMA-compliant systematic review of PubMed (1956–2025) was conducted. Eligible studies included case reports and series with genetically confirmed PPP2R5D-linked dystonia–parkinsonism. Extracted variables included clinical presentation, developmental profile, dystonia and parkinsonian motor features, genetic variants, neuroimaging findings, treatment response, and rehabilitation recommendations where available.

RESULTS: Seven patients from five publications met inclusion criteria. All demonstrated early-onset parkinsonism, characterized by bradykinesia, asymmetrical rest tremor, postural instability, and gait freezing. Associated features included cervical or limb dystonia, hypotonia, delayed gross-motor milestones, intellectual disability, and macrocephaly. The recurrent c.598G>A (p.Glu200Lys) variant was identified in the majority, with pathogenic variants clustering mainly in exons 5 and 7. Most patients showed clinical improvement with levodopa or dopamine agonists, though several developed impulse-control behaviors requiring careful multidisciplinary monitoring. Broader PPP2R5D literature indicates quantifiable impairments in gait speed, balance, and functional motor performance, supporting the relevance of physiotherapy assessment tools such as the GMFM.

CONCLUSION: PPP2R5D-linked dystonia–parkinsonism emerges as a recognizable motor phenotype associated with recurrent genetic variants and dopaminergic responsiveness. Although physiotherapy-specific evidence is limited, documented hypotonia, gait disturbance, balance deficits, and motor delay strongly support early physiotherapy involvement focused on gait training, balance rehabilitation, posture and dystonia management, and functional mobility. Future reports should systematically document physiotherapy interventions and outcomes to establish evidence-based rehabilitation guidelines for this rare disorder.

KEYWORDS: PPP2R5D, dystonia-parkinsonism, genotype–phenotype correlation, physiotherapy rehabilitation, gait and balance dysfunction, neurodevelopmental disorders

COMPARING THE IMMEDIATE EFFECT OF FACILITATORY VS. INHIBITORY KINESIO TAPING TECHNIQUE ON OBJECT RELEASE IN CHILDREN WITH CEREBRAL PALSY.

Rhea Walawalkar (MPT Student, MAEER's Physiotherapy College, Pune), Kalindi Thakral, Dr. Priya Chitre (PT), Dr. Sayli Paldhikar(PT)

BACKGROUND: Cerebral palsy is a non-progressive disorder which affects motor skills. Kinesio Taping application may enhance muscle and myofascial functions and influences cutaneous mechanoreceptors by providing constant afferent stimulation. This results in improved voluntary control and coordination.
AIMS: To compare the immediate effect of facilitatory vs. inhibitory kinesiotaping techniques on object release in children with cerebral palsy.
METHODOLOGY: Quasi Experimental study was conducted on children with cerebral palsy (age group- 5 to 15years). For facilitation of release, kinesiotape was applied from lateral epicondyle to fingers with 35%stretch, facilitating wrist extensors. For inhibition of wrist flexors, kinesiotape was applied from fingers to medial epicondyle with 25% stretch. Release was assessed pre and post application using a nine peg hole and Box and Block Test on. Data analysis was done using Paired T test.
RESULTS: The facilitatory technique was more effective for immediate improvements in hand function, (p-value of 0.004) with Paired T test values:Pre and post-facilitatory block test: 0.0042Pre and post-facilitatory peg test: 0.9. For the inhibitory techniques (Paired T test values:Pre and post-inhibitory block test: 0.002Pre and post-inhibitory peg test: 0.49).
CONCLUSION: Even though both the facilitatory technique and inhibitory technique of kinesiotaping show that they are statistically significant, the facilitatory technique of kinesiotaping is highly significant for improving prehensile grip and release.

ADDED EFFECT OF RHYTHMIC AUDITORY STIMULATION ON GAIT SPEED, CADENCE AND POSTURAL STABILITY DURING WALKING IN CHILDREN WITH DOWN SYNDROME - A COMPARATIVE STUDY.

Deepashree Kulkarni (MPT Student, MAEER's Physiotherapy College, Pune), Dr. Hiral Gujarathi, Dr. Sumitra Sakhwalkar, Dr. Sayli Paldhikar

BACKGROUND: Children with Down Syndrome demonstrate problems with gait initiation, execution, and termination leading to lower values for gait parameters like gait speed and cadence and to improve these deficits more specific feedback paradigms are needed that not only facilitate movement, but also require increased attention during performance.
AIMS: To study the added effect of Rhythmic Auditory Stimulation with Conventional Gait Training on gait speed and cadence using the 10 Meter Walk Test and postural stability while walking using the Pediatric Modified Dynamic Gait Index in children with Down Syndrome.
METHODOLOGY: 10 children with Down Syndrome aged 5–12 years, with normal or corrected vision/hearing and able to follow simple commands, were included in the study. Five received conventional gait training (control group), and five received RAS along with conventional training (experimental group) for 30 minutes per session, three times a week for four weeks.
RESULTS: The paired t-test showed highly significant improvements in gait speed, cadence, and postural stability in both groups. The unpaired t-test showed significant improvement in cadence, while changes in gait speed and postural stability were not statistically significant but were clinically meaningful.
CONCLUSION: Rhythmic Auditory Stimulation along with Conventional Gait Training significantly improved gait speed, cadence and postural stability during walking in children with Down Syndrome.

Correlation Between Selective Voluntary Motor Control of Lower Extremity and Functional Mobility in Children with Spastic Diplegic Cerebral Palsy

Janhavi Jadhav (MPT Student, MAEER's Physiotherapy College, Pune), Dr. Hitesh Sable, Dr. Snehal Ghodney (PT), Dr. Sayali Paldhikar (PT)

BACKGROUND: Cerebral palsy children have multiple impairments like tightness, weakness, contractures, poor trunk control, poor voluntary control. There are various studies which finds the correlation between impaired selective voluntary motor control and balance of children with spastic diplegic cerebral palsy. Despite these clinical findings, the role of SVMC has not been explored extensively as a factor that can affect functional mobility.

AIM: To assess SVMC of the lower extremities and functional mobility and to determine the correlation between these parameters in children with spastic diplegic CP.Methodology: This analytical cross-sectional study included 15 children aged 2–12 years with diagnosed spastic diplegic CP who could walk independently for at least two minutes. SVMC was evaluated using the Selective Control Assessment of the Lower Extremity (SCALE). Functional mobility was assessed using the modified Timed Up and Go (m-TUG) test and the Gross Motor Function Measure (GMFM) dimensions D and E. Spearman correlation analysis and scatter graphs were used to determine relationships between variables.

RESULTS: Participant with high SCALE score of Hip joint, Knee joint, Ankle joint subtalar joint and toes shows positive correlation with GMFM (D&E) subscale Hip (r=0.29447)Knee (r=0.2540) Ankle(r=0.01099) Subtalar(r=0.3319) Toes(r=0.10364). Participant with high SCALE score of Hip joint, Knee joint ,Ankle joint subtalar joint and toes shows negative correlation with m-TUG scores Hip(r=0.0927)Knee(r=-0.232164) Ankle(r=-0.3079) Subtalar(r=-0.5945) Toes(r=-0.0624)

CONCLUSION: Children with better selective voluntary motor control show superior functional mobility. SVMC assessment should be routinely included in clinical evaluation and rehabilitation planning for spastic diplegic CP.

EFFECT OF BRAIN ENDURANCE TRAINING ON FATIGUE AND AEROBIC ENDURANCE IN A STROKE PATIENT WITH THALAMOCAPSULAR INFARCT: A CASE REPORT

L Jayasree Sai (MPT Student), Prathap Suganthirababu (Professor, Saveetha College of Physiotherapy)

BACKGROUND: Fatigue after stroke is one of the common and least addressed complication, characterized by persistent fatigue which is not relieved by rest. Thalamocapsular infarcts may impair motor performance, arousal and mood regulation resulting in fatigue. Brain endurance training has been effective in managing fatigue and endurance in non-stroke population, but application in the stroke population is yet to investigate.

AIM: To determine the effect of Brain Endurance Training (BET) on fatigue and aerobic endurance in a patient with thalamocapsular infarct.

METHODOLOGY: A 61-year-old male came with complaint of persistent tiredness during physical activity, unrelieved by rest for the past 3 weeks. The patient was diagnosed with left thalamocapsular infarct 3 months ago. Baseline assessments were done using Fatigue Severity Scale (FSS) and 6-Minute Walk Test (6MWT). A six -week Brain endurance training was implemented, thrice weekly which includes 20 minutes of cognitive training which was performed prior to 45 minutes of physical training.

RESULTS: Significant changes in the outcome measures were noted. FSS score reduced from 5.88 to 3.48, indicating reduction in severity of fatigue. The 6MWT distance changed from 240 m to 320m indicating better endurance.

CONCLUSION: This case study demonstrated BET may serve as a feasible and promising intervention in reducing fatigue and improving endurance in thalamocapsular infarct. Addressing Fatigue and aerobic endurance may serve as key outcome in recovery.

KEYWORDS: Fatigue, Aerobic endurance, Stroke, Brain endurance training, Fatigue Severity Scale

EFFECTIVENESS OF ROBOTIC-ASSISTED GAIT TRAINING FOR GAIT RECOVERY IN STROKE REHABILITATION

Nitu (MPT Student), Ashutosh Sharma (Assoc Prof), Jaipur National University

BACKGROUND: Gait and balance impairments are among the most disabling consequences of stroke, often limiting independence and increasing fall risk. RAGT has been increasingly incorporated into neurorehabilitation due to its ability to provide high-intensity, repetitive, and task-specific training. Multiple robotic systems have been evaluated, yet evidence regarding their superiority over conventional therapy remains mixed.

AIM: This literature review aims to determine the effectiveness of RAGT on gait, balance, and lower-limb motor recovery in stroke survivors.

METHODOLOGY: Eight recent studies were analysed: six are randomized controlled trials involving chronic, subacute, and infratentorial stroke populations, and one recent systematic review with meta-analysis. Interventions included overground exoskeletons, treadmill-assisted electromechanical devices, and combined RAGT plus conventional physiotherapy and other one is literature review. Outcomes commonly assessed were Berg Balance Scale, Fugl-Meyer Assessment for lower extremity, Timed Up and Go, gait speed, stride length, and spasticity.

RESULTS: Across studies, RAGT consistently produced significant within-group improvements in gait parameter and motor function. SUBAR reduced spasticity; HAL improved ambulation and endurance; the A3 system enhanced spatial gait parameters within 2 weeks. Infratentorial stroke patients showed gains in balance and motor coordination. Meta-analytic evidence demonstrated modest but significant improvements in BBS and trends toward better TUG performance, especially when RAGT was combined with conventional therapy.

CONCLUSION: RAGT is an effective adjunct to physiotherapy for improving gait and motor outcomes in stroke patients. However, current evidence does not consistently demonstrate superiority over conventional therapy alone. Further research is required to identify optimal patient selection, training duration, and device-specific protocols.

EMERGING INNOVATIONS IN STROKE REHABILITATION: TECHNOLOGY-ENABLED PHYSIOTHERAPY FOR ADVANCING UPPER LIMB RECOVERY

Dr Vamakshi Vijay (Research Scientist, Indraprastha Apollo Hospitals, New Delhi), Dr Seema Grover (Head, Department of Physiotherapy, Indraprastha Apollo), Dr Gautam Kumar Saha, Dr Varidhi Vats

BACKGROUND: 80% of stroke survivors have upper limb (UL) disability. Although conventional physiotherapy forms the foundation of rehabilitation, limitations related to therapy intensity and patient engagement highlight the need for technological augmentation. Recent global advances have opened new avenues for enhancing neuroplasticity and functional recovery.

AIMS: This aims to explore current evidence-based approaches in upper limb stroke rehabilitation and highlight emerging innovations that support intensive, task-specific, and patient-centered therapy.

Also, future directions in neurotechnology-assisted rehabilitation, with a focus on next-generation systems are being developed within the Indian healthcare ecosystem.

METHODOLOGY: Different intervention strategies effectively target various aspects of network dysfunction. High-dose, task-specific practice successfully retrains corticospinal pathways, while robot-assisted therapy accelerates the reconnection of sensorimotor hubs. Non-invasive neuromodulation techniques, such as TMS, tDCS, and iTBS, temporarily adjust neural activity to prepare networks for optimal performance. Additionally, closed-loop feedback systems, including BCIs, BMIs, VR, and neurofeedback, expertly optimize oscillatory dynamics and corticomuscular coupling. This underscores the necessity for personalized, multimodal rehabilitation that is strategically tailored to each individual's connectivity profile.

CONCLUSION: Innovative technologies are reshaping stroke rehabilitation, offering opportunities for scalable, engaging, and neuroplasticity-driven recovery.

As India moves toward advanced, affordable neuro-rehabilitation models, emerging projects (such as the upcoming BCI-assisted hand rehabilitation initiatives) reflect a progressive step towards future-ready, technology-enabled stroke care.

BRAIN TRAINING FOR FREEZING OF GAIT: A COMPARATIVE REVIEW OF MOTOR IMAGERY AND ACTION OBSERVATION TRAINING(AOT).

Dr. Dhanashree Upganlawar (PT) Assistant professor, Smt. Vimladevi College of Physiotherapy, Wandhari, Chandrapur

BACKGROUND: Dual-task interference represents a critical challenge for PD-PIGD patients, leading to observable deficits in execution. This resultant cognitive overload provides a strong rationale for the subsequent emergence of Freezing of Gait (FoG) episodes. AO and MI therapies appear to drive motor learning. They specifically influence motor planning to enhance gait relearning.

AIM: To compare the differential neurocognitive mechanisms of Action Observation Training (AOT) and Motor Imagery Training (MIT) to define optimal application protocols for rehabilitating Freezing of Gait (FoG) in Parkinson's disease.

METHODOLOGY: A systematic search of five electronic databases was conducted from January 2022, strictly restricting inclusion to Randomized Controlled Trials (RCTs). Methodological quality was appraised with the PEDro scale, and the Cochrane Risk of Bias tool was used to assess internal validity.

RESULTS: Ten RCTs showed that Action Observation Training (AOT) produced a significant, durable effect on Freezing of Gait (FoG) at follow-up. In contrast, Motor Imagery Training (MIT) was primarily associated with significant gains in gait speed and balance at immediate post-treatment, but its effect on FoG was not consistently significant.

CONCLUSION: This review asserts that mechanism-driven brain training for Freezing of Gait (FoG) must prioritize Action Observation Training (AOT), given its demonstrated durable efficacy likely achieved by visuomotor system engagement. While promising, the synergistic potential of the combined AOT and Motor Imagery Training (MIT) protocol necessitates optimized, low-cognitive-load designs to validate its clinical superiority for this complex symptom.

KEYWORD: AOT, freezing of gait, motor imagery, parkinson's disease, review

EFFECTS OF SHORT FOOT EXERCISES ON FOOT POSTURE, BALANCE, AND FUNCTION IN KNEE OSTEOARTHRITIS PATIENTS WITH FLATFOOT

NIREEKSHA N SHENOY, ASSISTANT PROFESSOR, NITTE INSTITUTE OF PHYSIOTHERAPY, NITTE (DEEMED TO BE UNIVERSITY), MANGALORE

BACKGROUND: Knee osteoarthritis (KOA) is a leading cause of pain, stiffness, and mobility loss. Flatfoot is frequently observed in KOA, increasing medial knee loading and impairing balance, raising fall risk. Short Foot Exercise strengthens intrinsic foot muscles, restores arch support, and enhances proprioception, but its role in KOA with flatfoot is underexplored
AIM: To compare the effects of short foot exercise with conventional foot exercises on foot posture, balance, and function in knee osteoarthritis patients with flatfoot.
METHODOLOGY: A randomized controlled trial was conducted with 32 participants aged between 40 -60 years diagnosed with grade 2 or 3 KOA with flatfoot. Group A received conventional physiotherapy with SFE, while Group B received conventional knee and foot exercises for 4 weeks. Outcomes used were Visual Analog Scale (VAS), knee range of motion (ROM), Foot Posture Index (FPI), Navicular Drop Test (NDT), Y Balance Test (YBT).
RESULTS: Both groups showed significant within-group improvements in pain, mobility, foot posture and balance ($p<0.001$). Between-group, no significant differences were observed in VAS and ROM. However, Group A demonstrated greater improvements in FPI, NDT, and YBT, especially in posterolateral reach ($p < 0.05$), indicating superior gains in foot alignment and dynamic balance.
CONCLUSION: Conventional physiotherapy effectively reduces pain and improves mobility in KOA with flatfoot, but adding SFE offers a simple, low-cost, and non-invasive adjunct to enhance functional stability and reduce compensatory stress on the knee.

COMPARING THE EFFECT OF TRANSCUTANEOUS NERVE STIMULATION AND CRANIOSACRAL THERAPY WITH BREATHING EXERCISES ON NECK MUSCULATURE IN MIGRAINE PATIENTS

Navpreet Kaur1, Ramandeep Kaur2
1-MPT Student (Orthopaedics); 2Assistant Professor, Guru Nanak Dev University, Amritsar, India

BACKGROUND: Migraine is a neurological condition that significantly affects the vitality worldwide, associated with musculoskeletal dysfunction. Despite the proven benefits of various treatment options like neurostimulation therapies and manual techniques, comparative evidence between them is unclear. Acknowledging the role of impaired oxygen utilisation in symptom persistence, incorporating breathing exercises may augment treatment efficacy.
AIM: The aim was to compare the efficacy of a synergistic protocol of craniosacral therapy (CST) and thoracic breathing versus transcutaneous nerve stimulation in improving the Migraine Disability Assessment Scale (MIDAS) pain score and Neck Disability Index (NDI) score in migraineurs.
METHODOLOGY: We recruited 66 participants (22 per group) with migraine for this prospectively registered (CTRI/2025/08/093716), parallel group, multi-arm trial. Participants were randomised to two treatment groups receiving CST with thoracic breathing and transcutaneous supraorbital along with occipital nerve stimulation respectively and a control group followed conventional physiotherapy protocol for 4 weeks. The primary outcomes were MIDAS pain score and NPRS measuring pain intensity. Secondary outcomes included Neck Disability Index, Pittsburgh Sleep Quality Index and SF-36 quality of life questionnaire dichotomised to "improved" or "not improved" and treatment sessions performed.
RESULTS: No baseline differences were observed ($p>0.05$). Effects were statistically significant for NPRS ($F=8.42$, $p<0.001$), SF-36 ($F=6.15$, $p=0.003$), and MIDAS ($F=7.28$, $p=0.001$). Post-hoc comparisons demonstrated that CST group presented larger decrease in NPRS and MIDAS scores ($p<0.05$) and post intervention improvements. Paired t-tests indicated significant pre–post improvements within each group ($p<0.05$).
CONCLUSION: Evident group disparities indicate that CST with thoracic breathing is more effective than neurostimulation in improving symptoms which shows therapeutic benefits.

TO COMPARE THE EFFICACIES OF SUBOCCIPITAL, CERVICAL RELEASE, AND OCCIPITAL MOBILIZATION TO MULLIGAN MANUAL THERAPY AND CONVENTIONAL CERVICAL EXERCISES ON DISABILITY, DYNAMIC BALANCE, AND SLEEP QUALITY IN YOUNG COLLEGIATE INDIVIDUALS SUFFERING FROM CERVICOGENIC HEADACHE

Sonali Purohit1, Himanshu Mathur2
1- BPT Intern; 2- Professor, Department of Physiotherapy, Jaipur National University, Jaipur

BACKGROUND AND PURPOSE: Cervicogenic headache (CGH) is a persistent and debilitating condition arising from the cervical spine and is globally recognized as a distinct clinical entity. Altered proprioception in CGH patients has been associated with impaired balance, which may compromise functional ability and sleep quality. This study aimed to compare the efficacy of suboccipital release, cervical mobilization, and occipital mobilization to Mulligan manual therapy and conventional cervical exercises on disability, dynamic balance, and sleep quality in young collegiate individuals with CGH
METHODOLOGY: This pilot study included 30 collegiate participants with CGH, randomly assigned to three groups (N=10): Group A, Mulligan SNAGs; Group B, suboccipital release with cervical mobilization; and Group C, conventional exercises. Interventions lasted 4 weeks, and outcome measures included the Headache Impact Test-6 (HIT-6), Headache Disability Index (HDI), Pittsburgh Sleep Quality Index (PSQI), and Star Excursion Balance Test (SEBT), which were assessed at baseline, Day 30, and Day 60.
RESULT: Mulligan SNAGs led to the most substantial gains in headache disability, sleep quality, and proprioception. Suboccipital release with cervical mobilization showed moderate gains, mainly on sleep quality. Conventional exercises offered minimal or negligible improvements.
CONCLUSION: Mulligan manual therapy was the most effective intervention for reducing disability and improving balance and sleep quality in CGH. Suboccipital and cervical mobilization offered selective benefits, particularly in sleep outcomes.

DEVELOPMENT OF REFERENCE VALUE OF ENDURANCE CAPACITY OF DEEP CERVICAL FLEXOR MUSCLE BY THE PERFORMANCE OF CRANIOCERVICAL FLEXION TEST IN ASYMPTOMATIC COLLEGE GOING STUDENTS

Reshma Jayendra Soni (MPT Student, Saurashtra University, Rajkot) Dr. Dinesh Sorani

BACKGROUND: The morphological design of deep cervical flexor muscles has the ability to provide support to the cervical lordosis and the cervical joints. Reduction in endurance capabilities of deep cervical flexor muscles leads to neck pain. There is no such study to state a reference value of endurance capacity of deep neck flexor muscle for diagnostic purpose.
AIM: To develop the reference value of endurance capacity of deep cervical flexor muscle by the performance of craniocervical flexion test (CCFT) in asymptomatic college going students
METHODOLOGY: Total 350 subjects participated in the study. The CCFT was performed at 5 different pressure levels (22, 24, 26, 28 and 30 mmHg) to hold the craniocervical flexion movement at each stage for 10 sec to measure AS and for CPI, hold of 10 sec for 10 repetitions at each level.
RESULTS: Data were analysed using Medcalc statistical tool and SPSS statistical software. Mean, SD, Median, Reference Interval and Shapiro wilk test were used as statistical formulas. The reference normative range for Cumulative Performance Index is 28 – 300 and for Activation Score is 24 – 30 at 95% confidence limit. The median value for Cumulative Performance Index is 152 and Activation Score is 28.
CONCLUSION: We established the reference values for the Endurance capacity (28 – 300) and Tonic capacity (28 – 30) in asymptomatic college going students.

INFLUENCE OF HIP ABDUCTOR STRENGTH ON PAIN SEVERITY AMONG NURSES WITH NONSPECIFIC LOW BACK PAIN DURING VARIOUS WORK SHIFTS: A CORRELATION STUDY

Monisha Shetty (MPT Student), Nityal Kumar Alagingi (Asst Prof, NIPT)

BACKGROUND: Non-specific low back pain (NSLBP) is common among nurses and may be influenced by the strength of the hip abductor muscles. However, the link between hip muscles strength, pain severity, and work shifts remains unclear. Understanding this relationship could guide strategies to prevent and manage back pain in nursing professionals.
AIM: The aim of the study is to examine relationship between hip abductor strength on pain severity among nurses with nonspecific low back pain during various workshifts.
METHODS: This study examined the association between hip abductor strength and pain intensity among nurses working different shifts at Justice K S Hegde Charitable Hospital. 61 nurses participated. Hip abductor strength was assessed using handheld dynamometer, and pain severity was rated using Numerical pain rating scale. Data normality was tested using Kolmogorov-Smirnov and Shapiro-Wilk tests. Non parametric variables were analyzed using the Mann Whitney U test and Spearman's rank correlation.
RESULTS: A significant inverse relationship was observed hip abductor strength and pain severity ($p<0.05$), with night shift nurses exhibiting reduced muscle strength and greater pain intensity compared to day shift nurses.
CONCLUSION: The findings indicate that lower hip abductor strength is associated with higher pain severity among nurses with nonspecific low back pain, and that night shift work may further aggravate this association. Targeted hip strengthening programs and shift specific ergonomic interventions could help reduce pain and improve the overall wellbeing of nursing professionals.

EFFECTIVENESS OF SCAPULAR STABILIZATION EXERCISES AND MUSCLE ENERGY TECHNIQUE IN PATIENTS WITH SUBACROMIAL IMPINGEMENT SYNDROME: A CASE SERIES

Dona Murickal (MPT Student, NIPT), Sanjay Eapen Samuel (Professor & Principal, Laxmi Memorial College of PT), Jayesh Chandran (Asst Professor, NIPT)

BACKGROUND: Subacromial Impingement Syndrome (SIS) is a common cause of shoulder pain resulting from compression of the rotator cuff tendons and subacromial bursa beneath the acromion process. Impaired scapular control and muscular imbalance contribute to altered shoulder mechanics and pain. Scapular stabilization exercises and muscle energy technique (MET) aim to restore scapular movements and improve function.
AIM: To determine the effect of scapular stabilization exercises and MET on pain, function, and range of motion in patients with SIS.
METHODOLOGY: A case series was conducted on six participants ($n = 6$) based on the inclusion and exclusion criteria, recruited from a tertiary care hospital. Each underwent a four-week intervention consisting of scapular stabilization exercises and MET. Outcome measures included the Numerical Pain Rating Scale (NPRS), Shoulder Pain and Disability Index (SPADI), Western Ontario Rotator Cuff Index (WORC), and Active Range of Motion (AROM).
RESULTS: There was a significant reduction in pain ($Z = -2.12$, $p = 0.032$) and improvement in function ($Z = -2.20$, $p= 0.015$). Shoulder extension also improved significantly ($Z = -2.05$, $p = 0.017$).
CONCLUSION: The combined use of scapular stabilization exercises and MET showed beneficial effects on pain, function, and range of motion.

ROLE OF ARTIFICIAL INTELLIGENCE ASSISTED MOTOR LEARNING IN THE REHABILITATION OF ADHESIVE CAPSULITIS- A SYSTEMATIC REVIEW

Akankshya Mishra (MPT Student), Purusotham Chippala (Professor), Sunidhi Joshi (MPT Student), NIPT

BACKGROUND: Adhesive capsulitis causes progressive loss of shoulder mobility and function. Traditional physiotherapy focuses on stretching but often overlooks motor relearning and cortical changes. Integrating AI-assisted motor learning–based rehabilitation aims to retrain coordinated movement through feedback and repetition, and improve functional outcomes.
AIM: To review current evidence of AI-assisted motor learning in rehabilitation of adhesive capsulitis and compare it with traditional physiotherapy techniques.
METHODOLOGY: Systematic research was conducted following the PRISMA 2020 guidelines across PubMed, Scopus, and Google Scholar between 2015 and 2025. 6 relevant articles out of 142 met the inclusion criteria. Only RCTs, systematic reviews, and experimental studies investigating use of AI-assisted feedback, motion-tracking, virtual and augmented reality systems designed to enhance motor learning in adults with adhesive capsulitis were included.
RESULTS: AI-assisted motor learning leads to greater improvements in pain, range of motion, and functional recovery than traditional physiotherapy alone. Task-specific motor relearning enhanced through adaptive feedback and continuous monitoring, while combining AI-assisted therapy with conventional physiotherapy produced the best overall outcomes.
CONCLUSION: AI-assisted motor learning shows promise in improving movement and function in people with frozen shoulder. However, its long-term benefits are not yet clear. More studies comparing AI-based therapy with traditional physiotherapy are needed to guide its effective use in rehabilitation.

EFFICACY OF MULTIMODAL PHYSIOTHERAPY ON PAIN, RANGE OF MOTION AND FUNCTIONAL DISABILITY IN SUBJECTS WITH CERVICOGENIC HEADACHE: A RANDOMIZED CONTROLLED TRIAL

Jiya Kharbe (MPT Student), Nityal Kumar (Asst Prof, NIPT)

BACKGROUND: Cervicogenic headache is unilateral pain caused by dysfunction of cervical spine. This leads to reduced quality of life and increase disability.
AIM: To identify the efficacy of multimodal physiotherapy alongside conventional therapy on pain, cervical ROM, and functional disability in subjects with CGH.
METHODOLOGY: 32 participants was randomized based on positive FRT Test. The experimental group received multimodal physiotherapy and control group conventional physiotherapy. The treatment was given for total 4 weeks. At baseline, the second, and fourth weeks, the following outcomes were evaluated: NPRS, NDI, HIT-6, and FRT. Cohen's d and independent t-tests were employed for analysis.
RESULTS: Cervical mobility, headache impact, neck impairment, and pain were significantly improved in both groups. The experimental group showed better cervical mobility restoration and greater improvements on all parameters.
CONCLUSION: Compared with the conventional therapy, multimodal physiotherapy shows significant improvement in all outcomes, suggesting it as a effective and non-invasive treatment approach for CGH subjects.

EFFECT OF CORE MUSCLE STRENGTHENING COMBINED WITH SHORT-FOOT EXERCISES ON PLANTAR PRESSURE IN INDIVIDUALS WITH FLATFOOT: A PRE–POST INTERVENTIONAL STUDY

Vishal Parmar (MPT Student), Saumya Srivastava (Assoc Prof, NIPT)

BACKGROUND: Flatfoot (pes planus) involves decreased medial arch height, causing altered plantar pressure and biomechanical adaptations. Core stability and intrinsic foot muscle strength maintain foot alignment and even weight distribution. Strengthening these muscles through targeted training may optimize plantar loading.
AIM: To evaluate the effect of a combined core strengthening and short-foot exercise program on plantar pressure distribution in individuals with flatfoot.
METHODS: A pre–post interventional study at Nitte Institute of Physiotherapy involved 10 adults (18–25 years) with flatfoot (navicular drop > 9 mm). Participants perform core and short-foot exercises on alternate days. Static bipedal plantar pressure was used as an outcome measure using the OHM 3000 system, and total foot weight distribution was analysed with paired t-tests and Cohen's d in SPSS 29 ($p < 0.05$).
RESULTS: The intervention resulted in minor, non-significant changes in plantar pressure, indicating a potential trend toward a more balanced distribution of load.
CONCLUSION: Combined core and short-foot exercises did not produce significant changes in plantar pressure during static stance but suggested improved postural symmetry. Larger samples and longer interventions are recommended.

EFFICACY AND SAFETY OF LOW-LOAD BLOOD-FLOW RESTRICTION TRAINING IN ACL RECONSTRUCTION REHABILITATION

Prashant, Dr. Sharda Sharma (Physiotherapy Department, SGRR University, U.K)

BACKGROUND: After anterior cruciate ligament reconstruction (ACLR), residual quadriceps weakness and atrophy are major barriers to full functional recovery. Low-load blood-flow restriction training (LL-BFRT) has emerged over the last five years as a low-mechanical-load intervention with potential to mitigate these deficits.
OBJECTIVE: To synthesize recent (2020–2025) high-quality evidence on the efficacy and safety of LL-BFRT in ACLR rehabilitation, focusing on muscle strength, size, function, and patient-reported outcomes.
METHODS: A focused literature synthesis was conducted including RCTs, controlled trials, systematic reviews, and meta-analyses published from January 2020 to May 2025. Key databases (PubMed, Embase, Cochrane) were searched. Included studies involved adult ACLR patients receiving postoperative LL-BFRT vs non-BFR or traditional rehab. Exclusion criteria were non-comparative designs, protocols without clear BFRT parameters, or pediatric-only cohorts.
RESULTS: A total of 8–11 recent studies (depending on inclusion) with ~245–300 participants were identified. For example, a meta-analysis of 8 RCTs with 245 patients showed significant improvements in isokinetic quadriceps strength (SMD = 0.77, P = .02) and patient-reported IKDC scores (mean difference = ~10.97) in the BFRT vs control group. Another recent systematic review reported moderate to large gains in muscle cross-sectional area (SMD ~0.76) and strength, though pain improvements were variable. A different meta-analysis of early post-op BFRT (≤ 6 weeks) with 8 studies (n not less than ~250) found significant gains in muscle volume and Lysholm functional scores, with no serious adverse events reported. Interestingly, a prospective RCT (2024) involving 24 male ACLR patients compared cross-education + BFRT (n = 13) vs only cross-education (n = 11) and found superior quadriceps thickness and strength in the BFRT + CE group. However, a "real-world" observational study (2023) applying BFRT after quadriceps-tendon graft ACLR (n not huge) reported no additional gain in peak torque or limb symmetry index compared to non-BFR rehab, suggesting implementation challenges.
CONCLUSION: Recent evidence (2020–2025) supports LL-BFRT as a generally safe and effective adjunct to ACLR rehabilitation. It significantly improves quadriceps strength, volume, and patient-reported knee function in controlled settings. However, real-world implementation may not always translate to the same benefits, highlighting the need for standardized protocols, tailored cuff pressures, and further large-scale, pragmatic trials.
KEYWORDS: Blood-flow restriction, BFRT, ACL reconstruction, quadriceps, strength, muscle volume, rehabilitation, cross-education

THERAPEUTIC IMPACT OF HILT VERSUS SHAM LASER ON PAIN AND FUNCTION IN A STRUCTURED EXERCISE REGIMEN

Tanya Thakur[1], Anand Kumar[2]
1-PG student; 2-Associate professor, Department of physiotherapy, School of Healthcare and Allied Sciences, GD Goenka University

BACKGROUND: Knee osteoarthritis (KOA) is a common cause of chronic pain and disability. High-Intensity Laser Therapy (HILT) has been proposed as a non-invasive modality to reduce pain and improve function, but evidence remains inconsistent. This study examined whether adding HILT to an exercise program provides additional benefits over exercise alone in patients with mild to moderate symptomatic KOA.
AIM: To evaluate the efficacy of six sessions of HILT, delivered twice weekly for three weeks, in reducing pain and improving function compared with sham laser when both groups follow a supervised exercise program.
METHODS: A double-blind randomized controlled trial was conducted with 40 patients diagnosed with mild to moderate KOA. Participants were randomly assigned to either a HILT group (n=20) or a sham laser group (n=20). The HILT group received two sessions in analgesic mode (600 J) and four sessions in bio stimulation mode (3000 J), while the sham group underwent identical procedures without laser emission. Both groups also participated in a structured exercise program. Outcomes included Visual Analog Scale (VAS), WOMAC index, and Timed Up and Go test (TUG) measured at baseline, 3 weeks, and 6 weeks.
RESULTS: Both groups showed significant improvement in VAS pain scores and WOMAC (pain, stiffness, and function) from baseline. However, no significant differences were found between the HILT and sham groups at 3 or 6 weeks. No significant improvement was seen in TUG in either group. Exercise compliance exceeded 90% in both groups. No adverse events were reported.
CONCLUSION: Adding six sessions of HILT to a supervised exercise program did not provide additional benefit over exercise alone in reducing pain or improving function in patients with mild to moderate KOA. Structured exercise remained effective and should be prioritized in treatment.
KEYWORDS: High-intensity laser therapy, Knee osteoarthritis, Pain, Rehabilitation, WOMAC, Laser therapy

TRANSLATION AND CROSSCULTURAL ADAPTATION OF MODIFIED HARRIS HIP SCORE (MHHS) SCALE IN KANNADA

Mohamed Ajmal P V, MPT Student, Yenepoya Physiotherapy College, Mangaluru

BACKGROUND: The Modified Harris Hip Score (MHHS) is a widely accepted tool for assessing pain and functional outcomes in patients with hip pathologies. Although MHHS has been translated into several languages, no official Kannada version existed
AIM: Translate and cross-culturally adapt the MHHS into Kannada and check if the Kannada version (MHHS-K) is clear, reliable, and accurate.
METHODOLOGY: A standardized translation process, such as Beaton et al.'s guidelines, which has forward– backward translation, was followed, including expert committee review and pretesting. The final version of MHHS-K was administered to 39 Kannada-speaking patients with hip abnormalities after content validation from the expert committee. Reliability was assessed using test–retest (ICC)and Internal consistency. Concurrent and criterion Validity were evaluated through Spearman's correlation with the Numerical Pain Rating Scale, and construct validity was assessed by factor analysis.
RESULTS: The MHHS-K demonstrated excellent test–retest reliability (ICC = 0.939), with high internal consistency (Cronbach's $\alpha = 0.968$). Strong negative correlations were observed between MHHS-K and NPRS, confirming concurrent validity. Factor analysis revealed two components; however, the KMO value was low (0.278). The scale showed minimal ceiling effects but considerable floor effects in activity-related items.
CONCLUSION: The Kannada version of the MHHS is a reliable and valid tool for assessing hip related pain and function in Kannada-speaking populations.

TO COMPARE THE EFFECTIVENESS OF DYNAMIC NEUROMUSCULAR STABILIZATION AND PILATES IN NONSPECIFIC CHRONIC LOW BACK PAIN

Lipika Aggarwal (MPT (Orthopedics) Student), Dr. Gurpreet Singh (Assistant Professor, Gurugram University)

BACKGROUND: Non-specific chronic low back pain (NSCLBP) is a leading cause of disability worldwide and is strongly associated with impaired core stability, pain, and reduced functional capacity. Dynamic Neuromuscular Stabilization (DNS) and Pilates are two commonly used physiotherapy approaches targeting core activation, pain and reduce functional disability, yet evidence comparing their effectiveness remains limited.
AIM: To compare the effectiveness of Dynamic Neuromuscular Stabilization and Pilates exercises— both combined with Interferential Therapy (IFT)—on pain intensity, functional disability, and core muscle strength in individuals with non-specific chronic low back pain.
METHODOLOGY: A randomized clinical trial was conducted on 38 participants aged 18–45 years diagnosed with NSCLBP. Subjects were randomly allocated into two groups: Group A (DNS + IFT) and Group B (Pilates + IFT). Both groups received 10 treatment sessions over 3 weeks. Outcome measures included Numerical Pain Rating Scale (NPRS), Modified Oswestry Disability Questionnaire (MODQ), and abdominal strength assessed using the Modified Sphygmomanometer Test (MST). Pre- and post-intervention scores were statistically analyzed.
RESULTS: Both DNS and Pilates demonstrated significant improvements in pain, functional disability, and core muscle strength ($p < 0.05$). However, Group B (Pilates) showed greater reduction in NPRS and MST values and a more pronounced improvement in MOQ score compared to Group A(DNS). Pilates demonstrated superior enhancement of deep core activation and overall spinal stability.
CONCLUSION: Both DNS and Pilates are effective rehabilitation approaches for NSCLBP when combined with IFT. However, Pilates offers comparatively greater improvements in pain relief, functional ability, and core strength. Pilates may therefore be recommended as a more efficient intervention for managing non-specific chronic low back pain

IMMEDIATE EFFECTIVENESS OF BOWEN TECHNIQUE VERSUS ACTIVE RELEASE TECHNIQUE ON HAMSTRING TIGHTNESS IN PHYSICALLY INACTIVE STUDENTS: A PILOT STUDY

Janvi Rokadia (MPT Student), Sharda Sharma, Shri Guru Ram Rai University

BACKGROUND: Among people who are not physically active, hamstring tightness is a common musculoskeletal issue that frequently leads to decreased flexibility and an elevated risk of injury. To relieve muscle tension and increase range of motion, techniques like the Bowen Technique (BT) and Active Release Technique (ART) are commonly employed.
AIM: To compare the immediate effects of BT and ART on hamstring tightness in physically inactive students. Methods: Thirty physically inactive students exhibiting hamstring tightness were recruited and randomly assigned to two groups (n=15 per group). Group A underwent the Bowen Technique, whereas Group B underwent the Active Release Technique. Hamstring flexibility was evaluated before and immediately after the intervention utilizing the Active knee extension test and the Sit and Reach Test. Data were analysed utilizing both paired and unpaired t-tests.
RESULTS: After the intervention, both groups showed significant increases in hamstring flexibility ($P<0.05$). The Active Knee Extension Test and Sit and Reach Test scores improved more in participants getting ART than in those receiving BT. A statistically significant difference favoring ART was found in the analysis of group comparisons ($P<0.05$).
CONCLUSION: Active Release Technique is more effective than the Bowen Technique in producing immediate improvements in hamstring flexibility among physically inactive students. Larger-scale randomized studies are recommended.
KEYWORDS: Hamstring Tightness; Active Release Technique; Bowen Technique; Flexibility; Physically Inactive Students

PHYSIOTHERAPY AND REHABILITATION OF SPORTS-RELATED CONDITIONS IN A FEMALE INDIAN JUDOKA: MAPPING INTERVENTION STEPS FROM DIAGNOSIS OF ANTERIOR CRUCIATE LIGAMENT INJURY TILL PHASE 2 OF ANTERIOR CRUCIATE LIGAMENT REHABILITATION – PART 1

Divya Agrawal 1 , Heera Mundhluru 2 , Randeep Rakwal 3, 1 Graduate School of Comprehensive Human Sciences, University of Tsukuba, 2 Inspire Institute of Sports, Vidyanagar, Karnataka, 3 Institute of Health and Sport Sciences, Tsukuba International Academy for Sport Studies, University of Tsukuba, Japan

BACKGROUND AND PURPOSE: In judo, repetitive high-risk movements significantly contribute to knee and ankle ligament injuries, particularly the anterior cruciate ligament (ACL), with female athletes being more susceptible. Mental stress further elevates physiological injury risk. Few case studies have comprehensively documented the timeline from injury mechanism and diagnosis to rehabilitation and return-to-sport within the Indian context. This case study addresses that gap by examining the physical and psychological aspects of ACL rehabilitation in a female Indian judoka from a physiotherapist's perspective.
METHODOLOGY: Surgical intervention was documented using the surgeon's operative report and questionnaires administered to subject and rehabilitation specialist. Rehabilitation progress was tracked using the same questionnaires, International Knee Documentation Committee (IKDC) Subjective Knee Evaluation Form, Tampa Scale of Kinesiophobia and author's observations.
RESULTS AND CONCLUSION: The subject demonstrated pre-surgical compliance through informed consent, mental preparedness, prehabilitation, and effective communication with the surgical and rehabilitation teams, which reduced kinesiophobia post-operatively. Intraoperative assessment revealed moderate ACL laxity (Grade 2 Lachman), a negative pivot shift, and 10° hyperextension. Arthroscopic right anteromedial bundle ACL reconstruction using a quadrupled hamstring graft was performed on 31 July 2025. Phase 1 rehabilitation focused on pain, oedema, and atrophy management, progressing to functional movements and dynamic strength by week three. Phase 2 emphasized full range of motion, neuromuscular coordination, and targeted strengthening until late September. Postoperative compliance was shown by the subject's ability to monitor progress and awareness of progressive loading, underscoring the importance of integrating physical and psychological strategies for optimal ACL reconstruction outcomes.

BLOOD FLOW RESTRICTION TRAINING AND ITS INFLUENCE ON HIP STRENGTH, BALANCE AND ANKLE FUNCTION IN ATHLETES WITH CHRONIC ANKLE INSTABILITY

Sneha Sonar (MPT Student, Sumandeep Vidyapeeth, Vadodara), Dr. Sarfraznawaz Shah

BACKGROUND: Chronic ankle instability (CAI) leads to altered neuromuscular control and hip abductor weakness, affecting lower-limb strength and balance. Blood Flow Restriction (BFR) training combines low-load exercise with partial occlusion to enhance strength and hypertrophy comparable to high-intensity training, with less joint stress. Incorporating BFR into hip training may enhance hip strength, ankle function, and balance in athletes with CAI.
AIM: To investigate the effect of hip abductor strengthening using BFR training on ankle function and balance in athletes with chronic ankle instability.
METHODOLOGY: Thirty participants exhibiting chronic ankle instability were identified using the CAIT and were recruited. The intervention was given for 4 weeks, with two sessions per week. Assessment of the Foot and Ankle Ability Measure (FAAM), Dynamic Leap Balance Test (DLBT), Hip Abductor strength, Ankle ROM and thigh girth was taken at two time points: pre-intervention and post-intervention.
RESULTS: BFR training revealed a statistically significant improvement in bilateral hip abductor strength ($p < 0.00001$), balance (DLBT; $p < 0.01$), and functional performance (FAAM-ADL & Sports; $p < 0.00001$). Passive dorsiflexion ($p < 0.00001$) and thigh girth also increased, indicating enhanced flexibility and muscle hypertrophy.
CONCLUSION: BFR training effectively enhanced hip strength, ankle function, balance, and muscle hypertrophy in athletes with CAI, supporting its inclusion in rehabilitation programs to improve recovery and reduce reinjury risk.

COMPARATIVE EFFECT OF PLYOMETRIC TRAINING VERSUS SPORTSMETRICS JUMP TRAINING ON EXPLOSIVE STRENGTH, SPEED AND AGILITY IN UNDER-18 BASKETBALL PLAYERS-AN INTERIM ANALYSIS OF AN ONGOING RANDOMIZED CONTROLLED TRIAL

Disha Bansal1, Gaurav Kadyan2
1MPT Student; 2Associate Professor, Indian Spinal Injuries Centre, Institute of Rehabilitation Sciences

BACKGROUND: Explosive strength, speed, and agility are critical components of athletic performance. Although, Plyometric training and the Sportsmetrics jump training program are widely used plyometric exercises, to enhance these attributes, yet no studies have directly compared their effectiveness in adolescent basketball players.
AIM: The study aims to evaluate and compare the effects of a Plyometric training protocol versus Sportsmetrics jump training program on explosive strength, speed and agility, in under-18 basketball players through an interim analysis of an ongoing randomized controlled trial.
METHODOLOGY: The study followed an experimental design, with assessment at multiple time intervals. Thirty-nine, adolescent male and female basketball players, with at least one year of consistent play, were recruited from Siri Fort Sports Complex, New Delhi, for a duration of 8 weeks. The sample size calculation was performed using G*Power software with a statistical power of 80%, and a 95% confidence level, based on previously reported effect size of 0.46 for explosive strength. The participants were randomly allocated into three parallel groups, (Plyometric-I1=13; Sportsmetrics-I2=13; and Control-C=13), using a computer-generated software. Outcome measures included, explosive strength (Vertical jump height), speed (30m Sprint test) and agility (T test), which were assessed at baseline, and after 3, 6 and 8 weeks. The interim analysis examined the preliminary effects using data from pre-test (week 0) and mid-test (week 3) assessments, with post-test (week 6) and follow-up test (week 8) evaluations ongoing as part of the continuing trial. Data were analysed in SPSS software, version 25. After confirming normality (Shapiro-Wilk test), paired t-tests and One way ANOVA were conducted for within -and between-group comparisons, respectively with significance set at $p < 0.05$. The trial was approved by the Institutional Ethics Committee and registered with the Clinical Trials Registry-India (CTRI/2025/09/095203).

RESULTS: Both the experimental groups exhibited statistically significant improvements in vertical jump height and agility over the control group ($p < 0.05$), with the Plyometric displaying slightly greater gains. Reduction in sprint time showed positive but non-significant trends across both interventions.
Conclusion: The preliminary results showed that both the protocols effectively improved explosive strength and agility, thus providing valuable insights into optimizing the athletic performance of under-18 basketball players. However, these findings are based on interim analysis and its long-term effects would be provided upon completion of the entire study.

KEYWORDS: Adolescent; Athletic Performance; Basketball; Plyometrics; Sportsmetrics

EFFECT OF RESISTANCE EXERCISE ON FOREHAND SMASH PERFORMANCE AMONG RECREATIONAL BADMINTON PLAYERS

Nishitha S (MPT Student, Yenepoya Physiotherapy College, Mangaluru)

BACKGROUND: Badminton is a popular sport that involves quick, strong shots along with rapid footwork. The most force of every shot is generated by a combination of wrist action and racket swing. Hand strength improvement is essential in sports that involve hand activity for better sports performance A good gripping strength is important to the racquet player for maintenance of the racquet control.
AIM: To find the effect of resistance exercise on forehand smash performance among recreational badminton players.
METHODOLOGY: A Single group non blinded study included total sample of 35 recreational badminton players between the ages of 18-30. The smash performance was measured using Bushnell radar speedgun at the beginning of the study as well as at the end of 3 weeks of intervention. The subjects were given resisted exercises for hand using handgripper and dumbbells.
RESULTS: The result of the study showed that there was an improvement ($p < 0.05$) in smash performance from pre-test to post test. Mean scores increased from 47.8 mph (SD =15.0) at pre test to 53.0 mph (SD=15.9) at post test. This difference was statistically significant ($t=-6.69$, $p < 0.001$)
CONCLUSION: The study concludes that the resistance exercises were effective for improving the forehand smash performance among recreational badminton players. Hence these exercises can be helpful while training the professional badminton players.

INVESTIGATING EFFECTS OF INCLINED SURFACE ON ONSET TIME OF PLANTAR FLEXORS IN HEEL-RISE ACTION IN YOUNG ADULTS

Urooj Rehman Khan (MPT Sports), Dr. Prof. Sanjeev Gupta (Professor, Gurugram University), Dr. Tarun Dhull (Assistant Professor, Gurugram University)

BACKGROUND: Plantar flexor muscles particularly the gastrocnemius lateral and soleus play an essential role in maintaining balance and providing stability during functional movements. Changing the surface angle can influence muscle length tension relationships and alter neuromuscular activation. Understanding how an inclined surface affects the onset timing of these muscles during heel-rise is important for rehabilitation and sports-related interventions.
AIM: To compare the surface EMG onset timing of the gastrocnemius lateral and soleus muscles during a heel-rise task performed on flat and inclined surfaces in healthy young adults.
METHODOLOGY: A total of 25 healthy participants aged 18–25 years were enrolled. Leg dominance was identified using a ball-kick test. Anthropometric measurement before testing were performed. EMG activity was recorded using the Delsys Trigno Avanti wireless system, and electrodes were placed according to SENIAM guidelines. Participants performed heel-rise trials on flat and inclined surfaces, with testing order randomized. Muscle onset timing was calculated using the 3-standard-deviation threshold method.
RESULTS: Both muscles did not showed significant differences in onset timing between surfaces. The gastrocnemius lateral displayed delayed activation on the incline, while the soleus exhibited an earlier activation on the inclined surface compared to the flat surface. But not enough to confirm a significant differences.
CONCLUSION: Inclined surfaces influence plantar flexor onset timing during heel-rise, indicating altered neuromuscular control. These findings can guide clinical decision-making in rehabilitation, balance training, and lower-limb injury prevention.

EFFECTS OF SELF MYOFASCIAL RELEASE AND SPECIFIC FASCIAL STRETCHING TECHNIQUE TARGETING SUPERFICIAL BACK LINE ON HAMSTRINGS FLEXIBILITY AND DYNAMIC STABILITY IN YOUNG ADULTS

Aditi Saxena (MPT Student, Guru Nanak Dev University, Amritsar), Dr. Sharnpreet Kaur

BACKGROUND: Hamstrings muscle has propensity to shorten and is a constituent of Superficial Back Line (SBL) Myofascial Meridian. This research considered the new viewpoint of Anatomic Trains, given by Thomas Myers. Application of Self Myofascial Release (SMR) on SBL has been documented in Anatomic Trains text and Fascial Stretch Therapy (FST) is a stepwise technique, which according to Myers is the practical approach of Anatomic Trains but its effect on hamstrings flexibility has never been studied before and no single study has previously analysed effects of both techniques targeting SBL together.
AIM: To analyse effects of SMR and FST targeting SBL on hamstrings flexibility and dynamic stability in young adults.
METHODOLOGY: This RCT included 57 young adults aged between 18-30 years divided in 3 groups. Group 1 received SMR (3 times/week for 2 weeks), Group 2 received FST (3 times/ week for 2 weeks) and control group received static hamstrings stretches. Evaluation was conducted baseline, after 1st and 2nd week for variables hamstrings flexibility, lumbar flexibility, cervical ROM, dorsiflexion ROM and dynamic stability.
RESULTS: Both SMR and FST group showed better results ($p<0.001$) in comparison to control group.
CONCLUSION: SMR and FST techniques are effective in improving hamstrings flexibility and impact of interventions on other related parameters prove a linkage in the body by SBL.

IMPACT OF A 12–WEEK REGULAR EXERCISE PROGRAM ON ASTHMA CONTROL, PULMONARY FUNCTION AND IMMUNOGLOBULIN LEVELS IN AN ASTHMATIC PATIENT: A SINGLE CASE STUDY

Shivpriya Sharma[1], Mayank Shukla[2]

1 PhD Scholar: 2 Professor, Department of Physiotherapy, Sharda School of Allied Health Sciences, Sharda University

Background: Asthma is a chronic inflammatory disease of airway; it can start in childhood or develop in adult age also. It is a significant global health issue. According to Global Initiative of Asthma (GINA) guidelines, the management approaches include pharmacological, non-pharmacological treatment.

Aim: This study evaluated a 12-week Regular exercise program's effects on asthma control, pulmonary function, IgE levels, and perceived exertion.

Methodology: A 23-year-old female with diagnosed asthma presented with shortness of breath, coughing, and chest tightness. Assessment included IgE level, Asthma Control Test, PFT and Rating of Perceived Exertion. She underwent 36 physiotherapy sessions over 12 weeks involving aerobic, resistance, and breathing exercises to improve tolerance, IgE level, and quality of life.

Result: Improvement was significantly gradual and then significant about 2nd month of intervention. The patient developed more confidence in performing ADL and leaving her home despite her lung condition as seen in ACT Score, FEV1 and IgE Level.

Conclusion: Overall result from this study showed that, A combined regular exercise protocol consists of Aerobic Exercise, Resistance training, breathing exercise and education can prevent the Asthmatic episodes. A 12-week long term Physiotherapy act as an adjunct therapy along with pharmacotherapy for asthmatic patient.

Key Words: Asthma, aerobic exercise, resistance training, breathing exercise

EFFICACY OF MICRO-WORKOUTS IN REDUCING SEDENTARY BEHAVIOUR AND ENHANCING CARDIOPULMONARY HEALTH AMONG EARLY ADULTS

Sundareswaran R (MPT Student, Saveetha College of PT, Chennai)

Background: Sedentary behaviour among early adults has increased due to prolonged academic and digital engagements, contributing to cardiovascular, metabolic, and musculoskeletal health risks. Although moderate-to-vigorous physical activity is recommended, time constraints limit adherence. Micro-workouts—brief activity bursts performed intermittently throughout the day—may offer a practical solution to reduce sedentary time and improve cardiopulmonary function.

Aim: To evaluate the effectiveness of micro-workouts in improving cardiopulmonary health among sedentary early adults.

Methods: A quasi-experimental pre–post design was conducted with 60 sedentary early adults. Participants performed 3-minute micro-workouts every 30 minutes for 8 weeks. Outcome measures included VO_2 max, resting heart rate, and blood pressure.

Results: Significant improvements were observed in all cardiopulmonary parameters following the intervention. VO_2 max increased, while resting heart rate and blood pressure decreased, indicating improved aerobic capacity and cardiovascular efficiency. Participants reported high feasibility and ease of integration into daily routines.

Conclusion: Micro-workouts are an effective, time-efficient strategy to counter sedentary behaviour and enhance cardiopulmonary health in early adults. Their simplicity, minimal equipment requirement, and adaptability make them suitable for daily use and public health promotion. Future studies should include control groups and assess long-term outcomes across varied populations.

EVALUATION OF ENVIRONMENTAL FACTORS AFFECTING SOCIETAL PARTICIPATION IN PATIENTS WITH CORONARY ARTERY DISEASE: A CROSS-SECTIONAL STUDY

Prajakta B Sahasrabudhe
(PhD Scholar, Sancheti Institute, Pune), Alfiya Pathan

Background: Coronary Artery Disease (CAD) is a leading cause of morbidity significantly affecting patients' ability to participate in work, community, and social activities. Successful societal participation results from combined effect of impairments and environmental factors. Environmental facilitators balance the negative effect of impairments on participation and vice versa. Comprehensive cardiac rehabilitation needs consideration of these environmental barriers.
Aim: To survey environmental barriers to societal participation in patients with CAD.
Methodology: A cross-sectional survey was conducted using Craig Hospital Inventory of Environmental Factors (CHIEF) in cardiac outpatient departments with 200 patients diagnosed with coronary artery disease and managed conservatively. The validated patient reported outcome measure assesses five perceived barriers: policy, policy and structural, work, attitude and support, services and assistance. Patients were recruited using stratified random sampling from urban areas. Results: Most of the perceived environmental barriers were minor with item score less than 4 which included design work and community (48- 57%), services- transportation (45%), work barriers (43-45%), home support and attitude (15%). Major barriers (with item score between 4 and 8) identified as work attitude and help (7-10%), surrounding (10%), transportation (9%).
Conclusion: Environmental factors, particularly physical design and transportation accessibility, significantly influence societal participation in CAD patients. Workplace and community modifications are critical intervention areas.
Keywords: Coronary Artery Disease, Environmental barriers, Participation restriction, international classification of functioning, disability and health, Craig Hospital Inventory of Environmental Factors

AMBULATION WITHIN HOURS POST-CARDIAC SURGERY: 150-METER DAY-0 AMBULATION IN CABG PATIENTS WITH GOOD VENTRICULAR FUNCTION

Om Prakash P (Assoc Prof and Head, Cardiovascular and Pulmonary Sciences), Aravind S
(Asst Prof, Cardiovascular and Pulmonary Sciences), Prathap Suganthrababu (Principal and Professor, Department of Neurosciences),
Saveetha College Of Physiotherapy

Background: Early mobilization is frequently recommended to enhance early acute phase cardiopulmonary rehabilitation following coronary artery bypass grafting (CABG). However, clinical evidence on structured Day-0 ambulation initiated within the hours of cardiac surgery in particular after CABG remains scarce. This case series appraises the feasibility, early physiological responses and outcomes to Day-0 ambulation in CABG patients with good ventricular function.
Methods: Nine adults Patients who underwent CABG with preserved ventricular function were included. Assisted ambulation began on postoperative Day 0, approximately 4–5 hours after extubation, with intercostal drainage tubes in place. Patients with no inotropes support were performed two walking sessions at 6-hour intervals with a cumulative of 150-meter ambulation on the day of surgery. Static standing balance was assessed on postoperative Days 0 and 1. Peak expiratory flow (PEF) and Visual Analog Scale (VAS) pain scores were recorded before the first walk on Day 0 and reassessed on the evening of Day 1.
Results: Total of eight of nine patients successfully completed the full 150-meter Day-0 walking protocol. All patients showed improvement in static standing balance and an increase in Peak Expiratory Flow Rate (PEFR) by Day 1. VAS scores rose mildly after walking but improved by Day 1 evening. No adverse events or hemodynamic instability occurred during mobilization.
Conclusion: Repeated, structured Early ultra-Day-0 ambulation of total 150 meters is feasible, safe, and well tolerated in CABG patients with good ventricular function. Hence, initiating ambulation within hours of surgery on Day-0 may promote early functional recovery and prevention of respiratory complication in the acute postoperative phase of cardiopulmonary rehabilitatio.
Keywords: Coronary artery bypass graft (CABG), peak expiratory flow meter, PEFR, visual analog scale (VAS), Static Balance

IMMEDIATE HEMODYNAMIC RESPONSE OF LIGHT ISOMETRIC EXERCISE IN EARLY PHASE OF CARDIAC REHABILITATION ON POST-OPERATIVE VALVE REPLACEMENT PATIENTS

T Surbhi 1, N Aashish 2, N Aratatran 3

1Surbhi Thapliyal , IC, Physiotherapy Department SRHU University, U.K.
2Dr. Aashish Negi, Lecturer, Physiotherapy Department SRHU University, U.K
3Dr. Aratatran Nahak, Senior Consultant of CTVS Department, SRHU University, U. K.

Introduction: The resistance or isometric exercise is contraindicated in the early phase of cardiac rehabilitation, but normal daily activities of patients after cardiac surgery includes light isometric exercise, such as lifting and carrying loads that require 20-30% of a maximal voluntary contraction (MVC). Thus, this study is design to evaluate the hemodynamic response of light isometric exercise in post operative valve replacement patients.

Method: This study was carried out with seven post operative valve replacement subjects with the mean age ±39.71 at CTVS unit. After thorough assessment and consent was signed. The light isometric exercise with 30% of MVC was performed and hemodynamic measures were taken in rest, during 2 nd min of exercise and immediately after termination of exercise.

Result: Wilcoxon Signed Ranks Test was applied to compare the hemodynamic variables in rest, during 2 nd min. of exercise and immediately after termination of exercise. The result shows statistically nonsignificant values.

Conclusion: As the comparison was done between the hemodynamic at rest, during 2nd min of exercise and immediately after cessation of exercise in the post- operative valve replacement patients, the results show no significant changes in the variables. Although, practically these variables were slightly increasing immediately during the contraction but not shows any harmful effect in the patient. The Valsalva maneuver was avoided by instructing the patient to continuously take deep breathing during the procedure. Sternum stability was also ensuring by applying the sternal binder. Thus, this study strongly report that the light isometric exercise with ensuring the safety is not harmful to the patients even in the early phase of cardiac rehabilitation.

Keywords: isometric exercise, MVC, valve replacement surgery, early phase of cardiac rehabilitation

DEVELOPMENT AND VALIDATION OF THE CONCENTRATION, ANXIETY, AND ATTENTION SPAN (CAAS) SCALE FOR ASSESSMENT AND ENHANCEMENT OF ACADEMIC PROFICIENCY IN STUDENTS – A CROSS-SECTIONAL STUDY

Rakesh Krishna Kovela (PhD Scholar, Nitte, Nitte Institute of PT, Mangalore), Dhanesh Kumar K U

INTRODUCTION: Students often struggle with concentration, anxiety, and attention, which can harm their academic performance and well-being. These areas are closely connected. For example, higher anxiety can make it harder to focus, and poor attention can increase anxiety. To address these challenges, the Concentration, Anxiety, and Attention Span (CAAS) Scale was created through a systematic review as an evidence-based tool for assessment and targeted training in academic settings.
AIM: To develop and evaluate the content validity of the Concentration, Anxiety, and Attention Span (CAAS) Scale. Materials and Methods: The CAAS Scale was developed through a multi-step process. A review of academic literature identified theoretical constructs and measurement domains related to concentration, anxiety, and attention. Based on this evidence, a Ph.D. scholar, a professor, and a clinical psychologist generated items, refined through expert consensus. Content validation was performed by five experts with over eight years of experience using the Content Validity Index (CVI) to assess relevance, clarity, and representativeness. The study was conducted at a tertiary care teaching institution in southern India between March and June 2023.
RESULTS: The final CAAS Scale comprised 15 items. The Item-Level CVI (I-CVI) was 1.00 for 13 items, and the Scale-Level CVI (S-CVI/Ave) was 0.99, which indicates excellent content validity.
CONCLUSION: The CAAS Scale demonstrated strong content validity and theoretical grounding. Further studies should establish its reliability, construct validity, and practical application in improving academic performance.
KEYWORDS: Concentration, Anxiety, Attention, Validity, Content Validity, Students, Academic Proficiency

DEVELOPMENT AND VALIDATION OF PHYSIOYOGA DATASET FOR TRAINING AI (ARTIFICIAL INTELLIGENCE) MODELS FOR INTERVENTION DELIVERY, POSTURAL ASSESSMENT AND CORRECTION

Nadimpalli Naga Jaya Srinikhita (Research Scholar) , M Manikumar (Prof) , Selvam M (Research Scholar),
SRM College of Physiotherapy

BACKGROUND: Artificial Intelligence (AI) and Machine Learning (ML) are revolutionizing physiotherapy by supporting objective movement assessment, automated feedback and digital rehabilitation. However, the lack of clinically approved Yoga based physiotherapy datasets restrict AI model precision in postural analysis. The present study discusses the creation and validation of Physioyoga dataset, which represents a multidisciplinary combination of physiotherapy, yoga therapy and artificial intelligence for facilitating sophisticated postural analytics and correction.
AIM: To design, develop and evaluate a standardized PhysioYoga dataset for AI model training which can distinguish between ideal and unideal postures while also recording motor interaction dynamics.
METHODOLOGY: A total of 73 participants aged 18-25 years were recruited and recorded across two phases. Each participant performed 62 expert validated movements and poses of Physiotherapy, Yogatherapy and Physioyoga in both ideal and unideal patterns. A total of 9,052 real time videos of validated movements were recorded with length of 20 seconds per movement and 6fps along with standardized lighting, alignment and background. Validation was conducted by 10 physioyoga experts in two teams and 5 AI/ML experts using 5point Likert scale assessing alignment, stability, accuracy and fluidity.
RESULTS: Statistical analysis confirmed excellent reliability (ICC=0.91; Cronbach's $\alpha = 0.93$) with inter-rater variance below 5%.
CONCLUSION: The validated dataset demonstrated high therapeutic accuracy and computational reliability enabling AI systems to recognize, classify and analyze postural deviations motor interactions. This dataset establishes a benchmark for AI assisted PhysioYoga analysis offering applications in automated feedback, digital rehabilitation and research.
KEYWORDS: Physioyoga, Artificial Intelligence (AI), Dataset, Posture Recognition & correction, Digital rehabilitation

EFFICACY OF TRANSVAGINAL PELVIC FLOOR MUSCLE TRAINING ON STRENGTH & ENDURANCE OF PELVIC FLOOR MUSCLES & QUALITY OF LIFE IN POST MENOPAUSAL FEMALE WITH STRESS URINARY INCONTINENCE – A CASE STUDY

Mansi Gupta (PhD Scholar, SAHS, Galgotias University, Greater Noida), Dr Shagun Aggarwal, Dr Renuka Malik

BACKGROUND: Stress urinary incontinence (SUI) is a prevalent condition among postmenopausal women. Pelvic Floor Muscle Training (PFMT) is recognised as a primary conservative management strategy; however, Conventional PFMT has demonstrated suboptimal outcomes as exercises are performed incorrectly due to inadequate awareness of pelvic floor and contraction technique. Strong, well-timed contractions of the PFMs are crucial to counteract increases in intra-abdominal pressure and minimise urethral descent. Transvaginal PFMT may provide better muscle activation, though evidence comparing its effectiveness to conventional PFMT remains insufficient. This case study aimed to determine the effectiveness of transvaginal PFMT in improving pelvic floor strength, endurance, and quality of life (QoL) in a 48-year-old postmenopausal woman with SUI. **METHODS:** The Patient underwent baseline and monthly assessments using the Oxford and PERFECT Scales of PFM Examination. Pre-intervention scores included: Power (P) = 2, Endurance (E) = 5 seconds, Repetitions (R) = 5, Fast contractions (F) = 8 & QoL score = 15. A structured transvaginal PFMT program was designed based on overload and specificity principles, consisting of 3 sets of 5 maximal contractions with power 2 (5-second hold, 4-second rest) followed by 8 fast-twitch contractions. Sessions were administered twice weekly for 12 weeks, with progression from supine to sitting and then to standing. **RESULTS:** Post-intervention assessment demonstrated marked improvement: P = 4, E = 8 seconds, R = 10, F = 14 & improved QoL. **CONCLUSION:** Transvaginal PFMT demonstrated substantial gains in pelvic floor function and reduction of SUI symptoms, indicating its value as a targeted treatment strategy for postmenopausal women.

EFFECTS OF 08-WEEK PHYSIOTHERAPEUTIC EXERCISES VERSUS YOGASANAS ON BALANCE PERFORMANCE AND FEAR OF FALL AMONG ELDERLY FALLERS: AN OPEN LABEL RANDOMIZED CONTROLLED TRIAL.

Shantanu Singh (MPT Student, Smt Kashibai Navale College of PT, Pune) and Dr. Pothiraj P. (PT)

BACKGROUND: In India, the prevalence of falls among older adults aged 60 years and older was 14% to 53% [3]. The consequence of fall can lead to either traumatic or non-traumatic injuries which may vary from no injuries, bruises, and lacerations to dislocations, fractures, and head injuries and in some cases, it may even cause death. Systemic review reported that physiotherapy exercises such as resisted exercises, aerobic exercise, balance training and endurance training have a positive influence on balance performance among elderly fallers.
AIM: To compare the effectiveness of Physiotherapeutic exercises and Yogasanas on balance. **METHODOLOGY:** The research was carried out after the approval from the Institutional Ethics Committee. Participants were screened on the basis of inclusion and exclusion criteria. Allocation concealment was done by using SNOSE technique and assigning participants into interventional Group A and interventional Group B. Group A received physiotherapeutic exercises for eight weeks and Group B received Yogasanas for eight weeks. The treatment protocol was there for three days per week for eight weeks. Participants are followed up for eight weeks. At the end of eight weeks post assessment was done. Results and conclusion: The study concluded that physiotherapeutic exercises and Yogasanas were effective for the treatment of impaired balance among elderly fallers.

FALL RISK ASSESSMENT SCALES IN OLDER ADULTS: A SCOPING REVIEW

SURUCHI V RAO1, DR P SATYA2

1. Assistant Professor Senior, Acharya's NR Institute of Physiotherapy

2. Professor and Principal, Dept of Physiotherapy, Dayanand Sagar University

BACKGROUND: Fall is a multifaceted condition which poses a significant health concern and in elderly it is a major cause of hospitalization, disability. There are various assessment scales, however not all can be applicable to Indian population due to diverse cultural and environmental difference. Therefore, there is a need to identify the fall scales which can be validated for Indian population.

AIM: To identify the commonly used fall-risk assessment scales for older adults across different settings

METHODOLOGY: A search strategy was adopted with Pubmed, Science direct, CENTRAL, Shodh Ganga and ICMR Database. Keywords words were “Fall risk assessment”, “Fall assessment tool”, “Elderly”, “Older adults”. A total of 250 scales were identified which was used to assess fall in elderly and 33 scales were identified which are commonly administered

RESULTS: Common Scales used were Fall efficacy scale, Berg Balance scale, Morse fall Downton Fall Risk Index, Hendrich II Fall Risk Model, St. Thomas's Risk Assessment Tool in Falling elderly inpatients, Timed Up and Go test, and Tinetti Balance scale, all of which had moderate to high reliability. However it was observed though fall efficacy scales and its versions , Morse fall scale, FRAT are widely used, but not all the components can be applicable for Indian population

CONCLUSION: There is no ideal single tool used for fall prediction and more context specific tools are required for Indian population.

TO EVALUATE THE IMPACT OF PILATES BASED PHYSIOTHERAPY INTERVENTION ALONG WITH PACED BREATHING ON REDUCING BACK AND PELVIC PAIN AND ENHANCING SLEEP QUALITY IN PERIMENOPAUSAL WOMEN

Tabassum (PhD Scholar), Niraj Kumar (Prof, Department of PT), Anjali Chaudhary (Professor, Obstetrics & Gynaecology department), Shri Guru Ram Rai University

BACKGROUND : Perimenopause is a transitional time that ends in menopause by declining ovarian function and fluctuating estrogen and progesterone levels. Declining ovarian hormone and any fluctuation in estrogen level during perimenopause or menopause transition can profoundly contribute to a variety of physical and psychological symptoms, including low back pain, musculoskeletal discomfort, hot flashes, fatigue, mood disturbances, and sleep disorders, which can impact on quality of life.

AIMS OF THE STUDY: The study aim was to evaluate the impact of Pilates based physiotherapy intervention along with paced breathing on reducing back & pelvic pain and enhancing sleep quality & quality of life in Perimenopausal women.

METHODOLOGY: This was an experimental pilot study involving 22 female subjects, conducted in physiotherapy department Shri Mahant Indiresh Hospital, Dehradun. The study evaluated the perimenopausal symptoms, pelvic floor muscle weakness, pelvic pain & back pain, Sleep quality and quality of life in these subjects before and after physiotherapy intervention using the Menopausal Rating Scale, Modified Oxford Grading Scale, Visual Analogue Scale (VAS) for back & pelvic pain, Pittsburg Sleep Quality Index & WHOQOL-BREF. Subjects received Physiotherapy Intervention: Pilates Based Program for Pelvic Floor Muscle & Core Muscle training along with Paced Breathing exercises

RESULT: This study suggests that a consistent Pilates program focused on pelvic floor and core muscle training can lead to significant improve in muscle strength & a noticeable decrease in the severity of back pain & pelvic pain & enhancement in Sleep quality & Quality of life .

CONCLUSION: The study concluded that observably increases in Modified Oxford Grading Scale scores (indicating stronger pelvic floor muscles) and decreases in VAS for back pain & pelvic pain (indicating reduced pain symptoms), PSQI Scores demonstrates a marked reduction and enhanced sleep quality,WHOQOL scores shows a steady and substantial improvement in quality of life . This inverse relationship between muscle strength and symptom severity shows the effectiveness of Pilates based pelvic floor & core muscles along with Paced Breathing, in improving pelvic floor muscle strength and reduced back & pelvic pain and improve sleep quality and quality of life for those experiencing these symptoms.

KEYWORDS: Pelvic Floor Muscle, Core strengthening, Perimenopause, Pilates Program

A COMPARATIVE STUDY OF YOGA AND AEROBIC EXERCISE ON PHYSICAL AND ENDOCRINE OUTCOMES IN WOMEN WITH POLYCYSTIC OVARY SYNDROME

Malika1, Bhawna Sharma1, Jyoti Yadav1, Mamta Malik1
1-Asst Professor, ITS Institute of Health and Allied Sciences

BACKGROUND: Polycystic Ovary Syndrome is a prevalent endocrine disorder in women of reproductive age, characterized by hormonal imbalance, ovulatory dysfunction, and metabolic disturbances. Lifestyle interventions such as aerobic exercise and yoga have emerged as promising non-pharmacological treatments to address physical and hormonal symptoms of PCOS.
AIM: To compare the effects of aerobic exercise and yoga on physical, and endocrine parameters in women with PCOS.
METHODS: A total of 60 women aged 18–25 diagnosed with PCOS were randomly assigned to two groups. Group 1 received aerobic exercise (30 minutes/day, 5 days/week), while group 2 engaged in a yoga protocol with identical frequency and duration. Interventions were conducted over six weeks, with outcomes measured at baseline andpost-intervention (6 weeks). Primary outcomes included musculoskeletal flexibility (Sit and Reach Test), fatigue (Fatigue Symptom Inventory), quality of life (SF-36), waisthip ratio, and endocrine markers (AMH, LH, FSH, testosterone, prolactin).
RESULTS: Both groups exhibited significant improvements across all parameters. Group 1 demonstrated gains in musculoskeletal flexibility (8.1% improvement), emotional well-being, fatigue and waisthip ratio reduction (11.4%). Endocrine markers improved significantly in both groups, although group 1 showed slightly better outcomes in AMH and LH, while group 2 had greater reductions in prolactin and testosterone.
CONCLUSION: Aerobic exercise and yoga are both effective in PCOS. However, aerobic exercise demonstrated superior benefits in specific domains, suggesting its potential as a preferred modality in managing PCOS.

A CORRELATION OF ACADEMIC PERFORMANCE AND SATISFACTION WITH LIFE IN COLLEGE STUDENTS

Priyamwada Hinge, Assistant Professor, TMV's Indutai Tilak College of Physiotherapy, Pune

BACKGROUND: During college years, along with learning and managing studies, students also have to deal with academic pressure, social life and time management. Many times, students feel pressurised to achieve significant grades in academics. This study explored whether their academic performance is correlated with overall life satisfaction. Life satisfaction is how happy and content a person feels with their life as a whole.
AIM: To study the correlation between academic performance and satisfaction with life in college students.
OBJECTIVES: To evaluate academic performance from academic performance scale. To evaluate the student satisfaction with life from satisfaction with life scale. To find out correlation between academic performance and life satisfaction
METHODOLOGY: 438 college students in age group of 18 years-25 years were recruited for the study.
RESULTS: The Pearson correlation analysis was conducted to examine the relationship between academic performance and life satisfaction. The strongest observed correlation in the study was between life satisfaction and academic performance ($r = 0.159$, $p = 0.001$). This represents a statistically significant, positive, and weak-to-moderate relationship. The p-value, being less than 0.01, indicates a very low probability that this result occurred by chance.
CONCLUSION: Findings conclude that students who report higher satisfaction with their lives also tend to report more positive academic behaviors and attitudes
KEY WORDS: Academic performance, Life satisfaction in students

EFFECTS OF PULSED ELECTROMAGNETIC FIELD AND TRANSCRANIAL DIRECT CURRENT STIMULATION IN FEMALES WITH PRIMARY DYSMENORRHEA: A PILOT STUDY

Chanchal1, Dr. Shabnam Joshi2

1- Research scholar; 2- Professor, Dept. of Physiotherapy, GJUST, Hisar, Haryana

BACKGROUND: Primary dysmenorrhea (PD) is the presence of painful cramps of uterine origin that occur during menstruation. The prevalence of PD has been reported to be between 40% and 90% of female adolescents and 10-20% of young adult females. Besides pain, nausea, vomiting, fatigue, back pain, headaches, dizziness and diarrhoea are the secondary symptoms of PD.

OBJECTIVE: To assess the feasibility of implementing pulsed electromagnetic field (PEMF) and transcranial direct current stimulation (tDCS) in females with primary dysmenorrhea and to explore their preliminary effects on pain, functional capacity, muscle strength, and quality of life.

METHODS: A pilot study was conducted on 36 participants diagnosed with primary dysmenorrhea, randomly assigned in to three equal groups (n=12). Group A received PEMF therapy, Group B received tDCS, and Group C received conventional treatment only. Pain was the primary outcome, while functional capacity, muscle strength and quality of life were assessed as secondary outcome measures. Participants received treatment for three consecutive menstrual cycles.Results: Both PEMF and tDCS groups demonstrated significant improvements. PEMF showed the greatest reduction in pain scores, followed by tDCS. Improvements in functional capacity, muscle strength, and quality of life were also higher in the PEMF group relative to tDCS and conventional treatment.Conclusion: PEMF therapy appears to be more effective than tDCS in reducing pain and improving functional outcomes in females with primary dysmenorrhea. These findings support the potential role of neuromodulation as a non- pharmacological option for dysmenorrhea management.Keywords: Primary dysmenorrhea, Pulsed electromagnetic field, Transcranial direct current stimulation

CORRELATION BETWEEN INTERNET ADDICTION AND ASSERTIVENESS IN PHYSIOTHERAPY STUDENTS

Neeraja Deshmukh (Associate Professor, Indutai Tilak College of Physiotherapy, Pune)

BACKGROUND: Internet use has accelerated dramatically over the last two decades and has become central to how young people study, socialize and entertain themselves. In particular, students in higher education who depend on online resources for academic materials, peer interaction, and professional networking have integrated internet use into nearly every dimension of daily life. With increasing time spent online, concern has grown about patterns of excessive use that produce impairment in daily functioning, a phenomenon frequently referred to as Internet Addiction.

AIM: To evaluate the correlation between Internet Addiction (IAT) and assertiveness in physiotherapy students. Methodology: This study is a cross-sectional correlational design conducted using convenience sampling based on inclusion criteria. A total of 95 physiotherapy students aged 18-25 years, of either gender, regular internet users were selected and provided informed consent. The materials used are Internet Addiction Test and Assertiveness Inventory.

RESULT: Pearson correlation coefficients were calculated to explore relationship between Internet Addiction scores, Assertiveness scores, and Age. Statistical significance was accepted at $p < 0.05$.Conclusion: The present study found a strong positive correlation between InternetAddiction and Assertiveness among physiotherapy students, indicating that increased internet use was associated with higher assertiveness scores.Keywords: Internet Addiction, Assertiveness, Correlation, Physiotherapy Students, Internet

ROLE OF PHYSIOTHERAPY TO IMPROVE SCAPULAR FLARING IN POST HEAD AND NECK CANCER SURGERY PATIENTS

Shailendra Mehta (Professor and principal, Department of physiotherapy, JRNRV, Udaipur, Rajasthan, India), Ronita soni (Department of physiotherapy, JRNRV, Udaipur, Rajasthan, India)

Objective of this study was to find out the role of physiotherapy to improve scapular flaring in post head and neck cancer surgery patients

METHODS: This study was a randomized control trial performed with 36 patients in various opds of department of physiotherapy JRNRV (Deemed-To-Be) University Udaipur. Inclusion Criteria includes participants with Adults aged 30–70 years, History of head and neck cancer surgery involving radical or modified neck dissection, Presence of scapular flaring/winging confirmed by clinical evaluation, Medically stable and cleared for rehabilitation, Ability to follow exercise instructions were included in the study. Exclusion Criteria includes Pre-existing shoulder pathology (rotator cuff tear, adhesive capsulitis, fractures), Neurological disorders affecting upper limb function, Metastatic disease causing severe pain or restricted mobility, Cognitive impairment affecting participation. All participants were randomly allocated into control group (Group A) & experimental group (Group B). Both groups received conventional physical therapy, including pain management; scar massage; stretching; active and passive ROM exercise of the shoulder joint; in addition to this Group B undergo scapular-focused exercises for the UT, MT, and LT. and proprioceptive neuromuscular facilitation (PNF) scapular clock training with supervision by the physical therapist. Pain, range of motion, scapular alignment, and functional outcomes were assessed using VAS, SPADI and NDI.

RESULTS: A total of 36 participants completed the study and were analyzed (Group A: n = 18; Group B: n = 18). Baseline characteristics including age, gender distribution, type of neck dissection, and initial pain and functional scores were comparable between the two groups ($p > 0.05$). Following the intervention period, both groups demonstrated improvement, but the experimental group (Group B) showed significantly greater gains across all measured outcomes. Pain (VAS) Group B demonstrated a larger reduction in pain scores compared to Group A. Group A: Moderate reduction in pain ($p < 0.05$), Group B: Significant reduction in pain ($p < 0.001$), Between-group comparison: Group B improved significantly more than Group A ($p < 0.01$), Range of Motion (Shoulder Abduction & Flexion) Both groups improved shoulder ROM; however, enhanced scapular stability training in Group B led to superior gains., Group B showed a marked increase in shoulder elevation compared to Group A ($p < 0.01$).

CONCLUSION: Physiotherapy including scapular focused training plays a crucial role in managing scapular flaring after head and neck cancer surgery. A structured, progressive rehabilitation programme effectively restores scapular stability, improves shoulder biomechanics, and enhances functional quality of life. Integration of physiotherapy into postoperative care pathways is essential to minimize long-term disability in this patient population. Early initiation of rehabilitation and consistent home exercise adherence were strongly associated with better outcomes.

KEYWORDS: Head and neck cancer(HNC), spinal accessory nerve(SAN), PNF, VAS, SPADI, NDI, Ut, MT, LT.

ERGONOMIC REHABILITATION FOR CREATIVE WORK REINTEGRATION FOLLOWING LOWER LIMB INJURY-A CASE STUDY

Dr. Mona Pankaj Ukey, BOT, MBA(healthcare services),
Pursuing PhD, Alkesh Dinesh Mody Institute of Financial & Management studies, Mumbai University
*Corporate ergonomics consultant, *CEO, Ergocure; *,Ex-coordinator Dept of OT, Indian Spinal Injuries center, New Delhi

BACKGROUND: Older adults returning to professional work after lower-limb fractures face combined biomechanical, functional, and ergonomic challenges, particularly in occupations involving prolonged sitting, standing, and repetitive upper-limb activity. Prolonged sedentary work and static standing are associated with delayed functional recovery and increased musculoskeletal strain in older workers (Chu et al., 2016; Shariat et al., 2018).

OBJECTIVE To design a low-cost, aesthetic, task-specific ergonomic workstation to support return to professional art practice following an intertrochanteric femur fracture.

METHODOLOGY: A 62-year-old female artist, 9 months post-surgery, presented with residual hip pain (NPRS 4/10), ntermittent quadriceps spasm, and mild gait deviation after prolonged sitting. A functional assessment and task-based ergonomic risk analysis were conducted. Her occupational demands included prolonged sitting for 4-5 hours a day for sketching and computer work, sustained standing for 30 minutes during fluid art creation, and a mix of both sitting & standing for demonstrations and workshops.

INTERVENTION: A customised low-cost sit-to-stand workstation was developed using a removable wooden stool, a height-adjustable chair, and stackable chairs for participants. Micro-break scheduling, desk-based stretching, posture education, alternating weight-bearing during standing tasks, and the use of an anti-fatigue mat were advised.

RESULTS: Sitting tolerance improved from 20 to 30 minutes, standing tolerance from 15 to 35 minutes, and pain score reduced from NPRS 4/10 to 1/10 during transitional movements within one week. Gait initiation improved with enhanced occupational confidence.

CONCLUSION: Individualised low-cost ergonomic rehabilitation effectively supported safe vocational reintegration following lower-limb injury in a creative professional, even under budgetary and spatial constraints.

DOES TRAINING INTENSITY MATTER? A COMPARISON OF WEARABLE-GUIDED HIGH-INTENSITY INTERVAL TRAINING AND METRONOME-GUIDED LOW-INTENSITY ARM AEROBIC EXERCISE ON NEUROPATHIC PAIN AND QOL IN INDIVIDUALS WITH SCI

Ankush Gera 1 , Shefali Walia 2 , Stuti Khanna 3 , Garima Wadhwa 4 , Harvinder Singh Chhabra 5
1 Neuro Physiotherapist, Sri Balaji Action Medical Institute
2 Assoc Prof, Gurugram University, 3,4 Assoc Prof, ISIC – IRS, 5 Chief of Spine Services, Sri Balaji Action Medical Institute

BACKGROUND: Neuropathic pain (NP) is the most common disabling consequence of spinal cord injury (SCI). There is very little evidence evaluating the positive effects of aerobic training on NP reduction in the human SCI population. Aim: This study aims to evaluate the effectiveness of HIIT using HRpeak and metronome-guided low-intensity arm aerobic exercise on NP and QoL in individuals with SCI.

METHODOLOGY: Based on the inclusion criteria, 30 individuals with SCI with NLI from T2 to L2 were recruited. Using a 1:1 allocation ratio, the participants were randomly assigned to one of the two groups. The HIIT group performed arm ergometry based on the HRpeak. The control group performed metronome-guided low-intensity arm aerobic exercise of equal duration. In both groups, the intervention was delivered as 30-minute sessions, 4 times a week for 6 weeks.

RESULTS: Using the Friedman test, the comparison of pain intensity, scores of pain interference items, and QoL showed statistically significant improvement ($p < 0.05$) in both groups after 3 weeks and 6 weeks, with a large effect size. Further pairwise analysis was done using the Wilcoxon Signed Rank test, showing a statistically significant improvement ($p < 0.05$). The comparison between both groups using the Mann- Whitney U test showed no statistically significant difference in any of the outcome measures.

CONCLUSION: This study concludes that irrespective of the intensity 3 weeks and 6 weeks of aerobic exercise training performed for 30 minutes a day, 4 times per week is effective for improving NP and QoL of individuals with SCI.

MIND–BODY INTEGRATION IN REHABILITATION: A SYSTEMATIC REVIEW OF NEURO LINGUISTIC PROGRAMMING (NLP) APPROACHES IN PHYSIOTHERAPY PRACTICE

Pamidigantam Raghava Priya, Nitte (Deemed to be University), KS Hegde Medical Academy, Department of Psychiatry, Mangalore, India

BACKGROUND: Physiotherapy outcomes depend not just on physical interventions, but also on patients' cognitive, emotional, and motivational states. Neurolinguistic Programming (NLP) - an approach that focuses on the relationship between neurological processes, language, and behavioural patterns. Techniques such as anchoring, reframing, and pattern interrupts, as well as the Milton Model's embedded instructions, metaphors, and double binds, provide organised methods for influencing these aspects. However, its application in physiotherapy is limited and unstandardized.

AIM: To systematically review a thorough evaluation of existing research on incorporating NLP approaches into physiotherapy practice and offer a framework for creating standardised mind-body rehabilitation protocols.

METHODOLOGY: A comprehensive search of PubMed, Scopus, Web of Science, PsycINFO, and the Cochrane Library (2000-2025) found 70 relevant publications. Six studies met the inclusion criteria and looked at outcomes like pain reduction, exercise adherence, functional recovery, and psychological well-being.

RESULTS: Preliminary research suggests that NLP approaches can boost motivation, regulate pain perception, and improve functional outcomes in orthopaedic, neurological, chronic pain, and sports rehabilitation settings. Based on shared effective aspects, a six-step NLP-enhanced physiotherapy protocol is presented, which includes assessment, preparation, active therapy with NLP prompts, movement execution, goal consolidation, and outcome monitoring.

Conclusion: Language-based therapies can alter patients' views and engagement in therapy. The systematic incorporation of NLP into physiotherapy may speed up recovery, boost adherence, and increase satisfaction. Additional multi-centre trials are required to confirm the suggested approach and create training guidelines for worldwide physiotherapy practice.Keywords: Neuro Linguistic Approaches, anchoring, metaphors, rehabilitation, exercise adherence, functional recovery

DEVELOPMENT OF COGNITIVE DECLINE RISK SCREENING TOOL: A NEW TOOL FOR ANALYZING THE RISK OF ACQUIRING COGNITIVE DECLINE AMONG 40 TO 60 AGED ADULTS

Agrima Aggarwal (PhD Scholar), Neha Jain (Professor, Mahatma Gandhi Occupational Therapy College),
Mahatma Gandhi University of Medical Sciences and Technology

BACKGROUND: Around 15.6% of the elderly population has developed signs of mild cognitive impairment, with 46% developing dementia within three years. Multiple factors, including demographic variations, lifestyle choices, and physical and mental capacities, influence neurodegeneration and impact cognitive functioning at varying thresholds. This study aimed to develop a screening tool that helps determine the risk of cognitive decline among healthy adults.
Aims: To develop and validate a screening tool for analyzing the risk of acquiring cognitive decline among healthy adults aged 40 to 60 years
METHODOLOGY: The study was conducted in four stages. A scoping review was conducted for item generation, and the draft was emailed to experts for face and content validation. Panel experts were selected with a minimum education of a Master's in Occupational Therapy with a minimum of 15 years of experience in the field. The content validity ratio (CVR) was established, and the tool was revised based on the expert's opinion. In the final stage, pilot testing was conducted.
RESULTS: The scoping review identified around thirty risk determinants into five thematically different categories, based on which the draft of the tool was prepared. The generated tool underwent face validation by ten experts and was revised in terms of section headings, grammatical changes, and the avoidance of repetitive questions. After revision, the tool was sent to the other ten experts for content validation. Among 5 sections, 48 items were calculated for the CVR, of which 13 items revealed a CVR of less than 0.8, which were omitted. A new draft of the tool was prepared with 35 items, and the pilot testing was conducted.
CONCLUSION: This study developed a screening tool for analyzing the risk of acquiring cognitive decline among adults, and face and content validity were established.

A RANDOMIZED CLINICAL TRIAL TO COMPARE THE EFFECT OF EMG BIOFEEDBACK THERAPY AND MODIFIED CONSTRAINT INDUCED MOVEMENT THERAPY FOR WRIST AND FINGER EXTENSOR ACTIVATION IN HEMIPLEGIC HAND

Ranu Mukherjee1, Sourov Saha2
1Assistant Professor, Department of Physiotherapy, Noida International University, Greater Noida
2Sr. Physiotherapist cum Jr. Lecturer, Department of Physiotherapy, NILD (Divyangjan), Kolkata

BACKGROUND: EMG Biofeedback Therapy (EMG-BF) and Modified Constraint Induced Movement Therapy (mCIMT) have shown benefits in improving hand function after stroke. EMG-BF provides real-time muscle activity feedback to enhance motor control, while mCIMT restricts the unaffected limb to encourage use of the affected one. However, no studies have compared their effects. This study aims to compare EMG-BF and mCIMT in improving wrist and finger extensor activation to break synergy during stroke recovery.
METHODOLOGY: In this single-blinded trial, 26 stroke patients (20 males, 6 females) were randomized into two groups: EMG-BF (n=13) and mCIMT (n=13). Both groups received 4 sessions/week for 4 weeks, with standardized exercises and home advice. Wrist and finger extensor activity was measured using an EMG machine (Model MEB9400K). The Maximum Voluntary Isometric Contraction (MVIC) of Wrist and Finger extensor was recorded before and after the intervention.
RESULT: Within group analysis showed that there was a statistically significant improvement ($p<0.05$) in pre and post treatment MVIC values in both groups. Mean difference of MVIC in Group A was 95.80±58.24 μV and Group B was 75.56±34.92 μV . The between group analysis showed statistically non-significant ($p>0.05$) difference in MVIC value of Wrist and Finger extensor.
CONCLUSION: This study concluded that both the interventions are equally effective in improving Wrist extensor activation. This may help to break the abnormal synergy pattern in hemiplegic hand.

MAPPING COMPARATIVE EFFICACY AND OUTCOMES OF MCIMT, HABIT, AND MIRROR THERAPY FOR UPPER EXTREMITY REHABILITATION IN CHILDREN WITH HEMIPLEGIC CEREBRAL PALSY: A SCOPING REVIEW

Rahul Singh Bisen (PhD Scholar, DVVPF'S College of Physiotherapy), Dr. Suvarna Ganvir (Professor & Head, Dept of Neuro Physiotherapy DVVPF'S College of Physiotherapy, Ahilyanagar)

BACKGROUND: Hemiplegic cerebral palsy (CP) is a common subtype affecting upper extremity function in children, leading to reduced independence and participation. Modified constraint-induced movement therapy (mCIMT), hand-arm bimanual intensive training (HABIT), and mirror therapy are evidence-based interventions leveraging neuroplasticity, yet direct comparisons remain limited.

AIMS: This scoping review maps recent evidence on their comparative efficacy, safety, and outcomes in improving upper limb function.

METHODOLOGY: A comprehensive literature search was performed on databases with specified keywords for full-text English-language studies from 2020 to August 2025. Inclusion criteria focused on studies evaluating/comparing mCIMT, HABIT, and/or mirror therapy for motor, functional, or participation outcomes. From 4,391 records, 14 high-quality studies were included.

RESULTS: All interventions improved upper limb motor control, bimanual performance, and participation, with no adverse effects and short-term gains. mCIMT showed superior unimanual outcomes; HABIT excelled in bimanual coordination; mirror therapy enhanced dexterity/spasticity, especially as adjunct. Direct head-to-head trials were absent, with heterogeneous protocols limiting rankings.

CONCLUSION: mCIMT, HABIT, and mirror therapy offer safe, effective options for upper extremity rehabilitation in hemiplegic CP, supporting personalized/hybrid approaches.

VIRTUAL REALITY-BASED UPPER EXTREMITY REHABILITATION IN SUBACUTE STROKE: A PILOT STUDY

Harpreet Sachdev, Physiotherapist, AIIMS, New Delhi; PhD Scholar, SAHS, Galgotias University, Greater Noida
Shagun Agarwal, Dean, School of Allied Health Sciences, Galgotias University

BACKGROUND: Virtual reality (VR) technology has emerged as a promising modality for stroke rehabilitation, yet the relationship between baseline motor function and user experience remains poorly understood. Understanding how motor impairment severity influences engagement, satisfaction, and tolerability is crucial for optimizing clinical implementation. **OBJECTIVE:** This pilot study investigated the relationship between baseline upper extremity motor function and key user experience metrics during VR-based rehabilitation in subacute stroke patients.

METHODS: Twelve participants with subacute stroke (140 ± 23 days' post-onset) completed a single 60-minute VR-based upper extremity training session. Baseline motor function was assessed using the Fugl-Meyer Assessment for Upper Extremity (FMA-UE). Primary outcomes included user satisfaction (User Satisfaction Evaluation Questionnaire), training engagement (Movement repetitions per minute), session duration, and adverse events. Pearson's correlation analysis examined relationships between baseline motor function and user experience metrics.

RESULTS: Participants (8 males, 4 females; age 41.58 ± 14.51 years) demonstrated substantial heterogeneity in baseline motor function (FMA-UE: 18-56 points, mean 39.08 ± 11.36). User satisfaction was consistently high across motor severity levels (22.92 ± 4.29 points). Counterintuitively, a moderate negative correlation emerged between baseline motor function and training engagement ($r = -0.445$, $p = 0.148$), with more severely impaired participants achieving higher movement repetition rates. Eight participants (66.7%) completed the full protocol, while four required early termination. Mild-to-moderate discomfort affected 50% of participants, with higher rates among those with severe-moderate impairments.

CONCLUSIONS: VR-based upper extremity training demonstrates feasibility and acceptability across motor impairment severities in subacute stroke. The unexpected finding that participants with greater motor deficits exhibited higher engagement challenges conventional assumptions about technology-assisted rehabilitation. These results suggest VR interventions should not be restricted to individuals with preserved motor function, though individualized safety protocols may be necessary for more severely impaired patients.

KEYWORDS: stroke rehabilitation, virtual reality, motor function, user experience, feasibility study

EFFICACY OF AEROBIC TRAINING WITH COGNITIVE REHABILITATION AND RESISTANCE EXERCISES ON IMPROVING COGNITION AND PHYSICAL FUNCTIONS IN PERSONS WITH MILD DEMENTIA: A RANDOMIZED CONTROLLED TRIAL

Akhil S (Asst. Prof, Bethany Navajeevan College of PT, Thiruvananthapuram)

AIM: To determine the Efficacy of Aerobic training with cognitive rehabilitation and Resisted exercises on improving cognition and physical functions in persons with mild dementia.

OBJECTIVE: Patients with mild dementia shows decline in cognitive and physical functions and difficulty in doing activities of daily living. Aerobic and resistance exercise can improve cognitive and physical functions.

OUTCOME MEASURES: To assess cognitive functions, Addenbrooke's Cognitive Examination Revised (ACE-R), Mini Mental State Examination (MMSE), Geriatric Depression Scale (GDS) were used and to assess physical functions, Senior Fitness Test (SFT), Berg Balance Scale (BBS), and Instrumental Activities of Daily Living (IADL) were used.

METHODOLOGY: A group of 42-subjects were randomly allocated into 2-groups Control group and Experimental group, with 21-subjects in each group. Control group received traditional physiotherapy exercises whereas Experimental group received Aerobic training with cognitive rehabilitation and resistance training along with traditional physiotherapy exercises for 4-days a week, 45-60 minutes per session, over a period of 15-weeks respectively.

RESULTS: - Experimental group showed significant improvement in cognitive and physical functions.

CONCLUSION: - Aerobic exercises with cognitive rehabilitation and resistance training have impact on improving cognition and physical function.

KEYWORDS: - Aerobic training, Dementia, Cognition, Resistance training, Cognitive rehabilitation

EFFECT OF TONGUE POSITION ON BALANCE IN THE GERIATRIC POPULATION- A PILOT STUDY

Bhawna Sharma (Asst Prof), Malika, Jyoti Yadav, Vishal Panchal (ITS Institute)

BACKGROUND: Balance issues are common in the geriatric population due to sensory decline, musculoskeletal changes, and chronic medical conditions. Recent evidence suggests the tongue may influence balance through deep fascial connections, especially the Deep Front Line (DFL), which links the tongue to the feet.

AIM: This study aimed to evaluate the effect of tongue position on balance in the geriatric population.

METHODS: A pilot experimental study was conducted on a total of 20 geriatric people, withan age group ranging from 50-70 years. The subjects were recruited via a convenience sampling method and randomly allocated into two groups: Control group received conventional balance training and Experimental group received balance training while maintaining the tongue tip against the upper incisor. Intervention: Both groups underwent balance training sessions for duration of 4 weeks.

RESULTS: The results of this study revealed that an improvement in balance was found in both groups, but a significant improvement in balance was seen in the subjects of the experimental group. Statistical significance difference ($p<0.05$) was found in the experimental group.

CONCLUSION: The study revealed that the improvement was seen in both groups, but significance was seen only in those subjects who received both conventional and tongue positioning training showed better improvement. These changes are hypothesised to involve fascial tension adjustments transmitted through the deep front line—from the soles to the hyoid region.

ADVANCING FALLS PREVENTION: RECORDED VIDEO DELIVERY OF THE OTAGO EXERCISE PROGRAM FOR IMPROVING BALANCE OF INDIAN ELDERLY

Shreya Sharma 1, Sampada S Jahagirdar 2*, Ankita Samuel 2
1-Amar Jyoti Institute of Physiotherapy, 2-K.R. Mangalam University

BACKGROUND: The Otago Exercise Program (OEP) is a home program that empowers community-dwelling elderly to safely perform lower limb and balance exercises independently. Developed in 1997, though it is studied extensively in high-income countries, there is limited evidence regarding its feasibility in India.

OEP seems to be even more relevant for our country owing to the increasing number of elderly and lack of adequate healthcare infrastructure to cater to their needs. In addition to this, living in today's digital world, technology-based interventions seem to have an added benefit of improved compliance.

AIM: Considering these points, this study aimed to evaluate the effectiveness and feasibility of delivering the Otago Exercise Program through recorded video for improving balance and balance confidence among community-dwelling Indian elderly.

METHODOLOGY: 70 participants aged 60 years and above were equally divided into Video and Handbook groups who received the same 60 minute protocol of modified OEP through video and handbook respectively, 6 times/week for 5 weeks. Pre and post-training scores of Short Physical Performance Battery (SPPB) and Activities Based Confidence (ABC) Scale were statistically analyzed using Repeated measure ANOVA.

RESULTS: There was a non-significant main effect for group ($p>0.05$), a significant main effect for time ($p<0.05$) and significant group X time interactions ($p<0.05$) for SPPB and ABC. Tukey's post hoc analysis revealed that there was greater improvement in the video group as compared to the handbook group.

CONCLUSION: Recorded Video Delivery of the Otago Exercise Program showed better improvements in balance and balance confidence of Indian Elderly.

KEYWORDS: Aging, OEP, Balance, Balance confidence, Video delivery

INTEGRATING PHYSIOTHERAPY INTO PALLIATIVE CARE PRACTICE IN THE GERIATRIC POPULATION: EVIDENCE, GAPS AND FUTURE DIRECTION- A SCOPING REVIEW

Shazia Mattu1; Neeraj Maurya2; Sampada S. Jahagirdar1; Rajeev Kumar Singh3; Aatika Waheed4; Mansi Dewan4
1Associate Professor, K.R Mangalam University; 2Associate Professor, Integral University, Lucknow; 3Assistant Professor, Noida International University;4 Assistant Professor, K.R Mangalam University

BACKGROUND: There has been a transition from a predominantly clinician-driven model of palliative care focused mainly on symptom management towards a more patient-centered approach that prioritises optimising functional abilities and enhancing overall quality of life. Aim: To review current evidence on physiotherapy in geriatric palliative care, identify key interventions, highlight existing gaps, and suggest future clinical and research directions.

METHODOLOGY: An extensive literature search was conducted in PubMed, Scopus, PEDro, and Google Scholar to identify studies focusing on physiotherapy interventions within geriatric palliative care from 2015 to 2025. Additional sources such as grey literature, clinical guidelines, and policy documents were also reviewed.

RESULT: 40 articles were identified from various database searches 7 articles were included in this review. The findings demonstrate that physiotherapy interventions such as pain relief techniques, respiratory therapy, mobility and balance exercises, fatigue management, and caregiver training significantly improve symptom control and help maintain functional independence in elderly palliative care patients.

CONCLUSION: Physiotherapy is important but underused in geriatric palliative care. Improving evidence-based practice, creating tailored guidelines, and boosting team collaboration can help better meet the needs of older adults.

KEY WORDS: Palliative care; Aging; Physiotherapy; Palliative care education

CORTICOSPINAL ACTIVATION PROTOCOL: FROM RESEARCH TO REHABILITATION

Sharanjeet Kaur1, Dr. Narkeesh Arumugam2, Dr. HS Chhabra3

1Research Fellow, Department of Physiotherapy, Punjabi University, Patiala; 2Professor, Department of Physiotherapy, Punjabi University, Patiala; 3Spinal Surgeon, Shri Balaji Action Spine Institute, New Delhi

BACKGROUND: The Corticospinal Activation Protocol (CAP) is a novel, structured neurorehabilitation intervention aimed at enhancing motor recovery in individuals with incomplete spinal cord injury (iSCI). CAP targets the corticospinal tract and central pattern generators (CPGs) through task-specific, motor-priming, and neuromuscular activation strategies. This study aimed to validate CAP through a structured, multiphase process.

OBJECTIVE: To comprehensively evaluate the face, content, construct, concurrent, and ecological validity of CAP using expert consensus and clinical testing via a pilot study.

METHODS: The study was conducted in three sequential phases:

Phase 1 (Formulation): CAP was developed based on an extensive review of literature, neurophysiological frameworks, and cognitive debriefing interviews with patients and clinicians.

Phase 2 (Validation by Experts): Ten experts in neurorehabilitation and physiotherapy participated in a three-round Delphi process to establish face and content validity. Item-level Content Validity Index (I-CVI) and modified Kappa statistics were calculated for individual components of CAP.

Phase 3 (Pilot Study): 5 individuals with incomplete SCI (ASIA C/D) received the CAP intervention in one group and 5 participants received ABT and conventional physiotherapy over a 4-week period. Outcome measures included ASIA motor and sensory scores, Walking Index for Spinal Cord Injury-II (WISCI-II), Spinal Cord Independence Measure-III (SCIM-III), and sacral-autonomic assessments. Validity was assessed through pre-post outcome comparisons and correlation analyses.

RESULTS: High face and content validity were achieved, with I-CVI scores ranging from 0.88 to 1.00 and Kappa values exceeding 0.78. In the pilot study, participants who received CAP demonstrated statistically significant improvements in ASIA motor scores, WISCI-II, and SCIM-III. Strong correlations were found between CAP outcomes and clinical scores ($r = 0.75–0.84$), confirming concurrent validity. Improvements in walking ability and autonomic function support ecological and construct validity. CAP was safe, feasible, and well-tolerated.

CONCLUSION: This comprehensive validation confirms CAP as a scientifically grounded and clinically impactful intervention for enhancing functional recovery in iSCI. Its strong multi-dimensional validity, safety profile, and measurable improvements in real-world outcomes underscore its readiness for integration into clinical practice and multicentric randomized controlled trials. CAP represents a promising shift toward evidence-based, targeted neuromotor rehabilitation in spinal cord injury.

KEYWORDS:CAP: Corticospinal Activation Protocol, ABT: Activity Based Therapy, spinal cord injury, validation, neurorehabilitation, ASIA, WISCI-II, SCIM-III, Delphi study, central pattern generator

IMPACT OF VIRTUAL REALITY AND HAPTIC FEEDBACK BASED INTERVENTION ON UPPER EXTREMITY FUNCTION AND FUNCTIONAL INDEPENDENCE IN CHILDREN WITH HEMIPLEGIC CEREBRAL PALSY: A RANDOMISED CONTROLLED TRIAL

Chanan Goyal, MPT (Paediatrics), PhD, Government Physiotherapy College, Raipur

BACKGROUND: For children with hemiplegic cerebral palsy (CP), there is a need for exploring interventions that tap neuroplastic potential by inherent motivation of children to use both hands. Virtual reality (VR) is an advanced technology that provides real-life like experience. Moreover, haptic feedback (HF) enhances fine tuning of motor responses.

AIMS: To investigate the effect of VR with HF on upper extremity (UE) function and functional independence in children with hemiplegic CP.

METHODOLOGY: This RCT was prospectively registered at Clinical Trials Registry of India and protocol was published. Fifty-six children with hemiplegic CP were divided into experimental and control group, with an allocation ratio of 1:1. During 6 weeks of intervention, children in the experimental group received VR with HF for 30 minutes along with conventional physiotherapy for 30 minutes in each session while the control group received 60 minutes of conventional physiotherapy only. There were 5 sessions per week. 'Nine-hole Peg Test' and 'Box and Block Test' were used to evaluate UE function. 'ABILHAND kids' and 'Functional Independence Measure for children' were used to evaluate functional independence. Statistical analysis was done with $p< 0.05$ as the level of significance.

RESULTS: The improvement in the UE function and functional independence was significantly more in the experimental group than in control group. Children could voluntarily bring their affected thumb out of thumb-in-palm position while gaming which translated in daily activities too.

CONCLUSIONS: VR with HF is an effective adjunct to improve UE function and functional independence in children with hemiplegic CP.

THE EFFECTIVENESS OF SCAPULAR MOBILIZATION COMBINED WITH UPPER EXTREMITY PROPRIOCEPTIVE NEUROMUSCULAR FACILITATION ON SHOULDER RANGE OF MOTION IN POST-STROKE PATIENTS: A RANDOMIZED CONTROLLED TRIAL

Ashisha Kshirabdhi Tanaya, PhD Scholar, Tantia University, Sri Ganganagar (Rajasthan)

BACKGROUND: After a stroke, hemiparetic shoulder discomfort and limited range of motion (ROM) are frequent and crippling after effect s that seriously impeding upper extremity rehabilitation and functional independence. Although Proprioceptive Neuromuscular Facilitation (PNF) and Scapular Mobilization (SM) are well-established treatment approaches, there is little proof that they work in concert. The aim is to evaluate the efficacy of upper extremity PNF and scapular mobilization as a combination intervention to traditional physiotherapy alone in improving shoulder active range of motion (AROM) in stroke survivors.

METHODOLOGY: A single-blind, randomized controlled experiment was used for this study. Two groups of 125 participants who had strokes with hemiparetic shoulder impairments were randomly assigned. While the Control Group (n = 62) got conventional neurodevelopmental physical therapy, the Intervention Group (n = 63) received upper extremity PNF patterns and scapular mobilization. For a total of six weeks, both groups received their respective interventions five days a week for 45 to 60 minutes per session. Active shoulder range of motion (flexion, abduction, and external rotation) was the main outcome measure. It was measured using a standard goniometer at baseline, halfway through the three-week period, and just after the six-week intervention.

RESULTS: All assessed shoulder AROM parameters significantly improved from baseline in both groups after six weeks ($p < 0.001$).

CONCLUSION: As it comes to improving active shoulder range of motion in stroke patients, a 6-week regimen that combines scapular mobilization with upper extremity proprioceptive neuromuscular facilitation is far more successful than traditional physiotherapy on its own.

KEYWORDS: Stroke Rehabilitation, Hemiplegic Shoulder, Scapular Mobilization, PNF, Range of Motion

EFFECTS OF TRANSCRANIAL DIRECT CURRENT STIMULATION (TDCS) COMBINED WITH ORO-MOTOR THERAPY AND STANDARD APHASIA TREATMENT IN INDIVIDUALS WITH POST-STROKE APHASIA: STUDY PROTOCOL

Rahul Sharma, PhD Scholar, Galgotias University, Greater Noida; and Consultant, Research Department of Neurology, AIIMS New Delhi
Prof. (Dr). Shagun Agarwal, Dean, SAHS, Galgotias University, Greater Noida

BACKGROUND: Post-stroke aphasia significantly limits communication, independence, and overall quality of life. While behavioural speech-language therapies are standard care, neuromodulation techniques such as transcranial direct current stimulation (tDCS) show promise in enhancing neuroplasticity and treatment outcomes. Evidence regarding combined tDCS and oro-motor therapy, particularly in the subacute phase of stroke, highlights the need for robust clinical evaluation.
AIM: To assess the effectiveness of integrating tDCS with oro-motor therapy and standard aphasia treatment in improving naming ability, language functions, aphasia severity, and quality of life among individuals with post-stroke aphasia.
METHODOLOGY: This double-blind, randomised controlled trial will recruit 74 participants (37 per group) with left-hemisphere ischemic stroke and motor aphasia. Participants will receive either active tDCS + oro-motor therapy or sham tDCS + oro-motor therapy, alongside standard aphasia treatment. Interventions will be delivered five times per week for four weeks. Outcome measures (PNT, WAB-R, ASRS, SIS) will be assessed at baseline, 4 weeks, and 12 weeks.
RESULTS: As this is a protocol, results are not yet available. The study is expected to determine whether combined tDCS and oro-motor therapy provides superior improvements in naming accuracy, language recovery, and quality of life.
CONCLUSION: This protocol outlines a rigorous evaluation of a multimodal intervention for post-stroke aphasia. Findings will contribute to evidence-based rehabilitation practices and may support the integration of neuromodulation with behavioural therapies to enhance communication outcomes in stroke survivors.

EFFECTIVENESS OF INTEROSSEI AND LUMBRICAL MUSCLE STRENGTHENING EXERCISES ON ULNAR CLAW HAND DEFORMITY IN LEPROSY PATIENTS: AN EXPERIMENTAL STUDY

Richa Agrawal1, Anita Patel2
1-Assoc Prof, MMU, Sadopur, Ambala; 2-Researcher, Dept of PT, Dolphin Institute of Biomedical and Natural Sciences, Dehradun, Uttarakhand

BACKGROUND: Leprosy (Hansen's disease) is a chronic infectious disease caused by Mycobacterium leprae, which leads to nerve damage and deformities, particularly affecting the hands. One of the most disabling manifestations is the ulnar claw hand due to paralysis of the intrinsic hand muscles.

OBJECTIVE: To determine the effect of targeted strengthening exercises for the interossei and lumbrical muscles on hand function in leprosy patients with ulnar claw deformity.

METHODS: An experimental study was carried out involving 40 patients with unilateral ulnar claw hand who underwent a six-week exercise protocol focused on strengthening the intrinsic muscles of the hand. Grip strength was measured with a digital dynamometer. Functional activity was assessed using the Voluntary Muscle Test (VMT) and the SALSA (Screening of Activity Limitation and Safety Awareness) scale.

RESULTS: Post-intervention, grip strength in the affected hand improved significantly (from 18.03 ± 6.96 kg to 22.56 ± 6.43 kg; $p < 0.01$). VMT scores improved from 2.70 ± 0.46 to 1.50 ± 1.34 ($p < 0.01$), and SALSA scores improved from 43.18 ± 6.19 to 28.85 ± 5.71 ($p < 0.01$). No significant changes were noted in the unaffected hand.

CONCLUSION: Intrinsic muscle strengthening exercises significantly improve hand function, strength, and independence in individuals with leprosy-related ulnar claw hand deformity. It also offers a low-cost rehabilitative approach.

MANUAL THERAPY REIMAGINED: A MULTIDIMENSIONAL MODEL FOR CHRONIC NON-SPECIFIC LOW BACK PAIN MANAGEMENT

1 T Karthikeyan, 2 S Purna Chandra Shekhar, 3 Harsh Kumar, 4 Shanmuga Raju P, 5 A S Moorthy, 6 Neethi M
1 Assoc Prof, Gurugram University; 2 Prof, MNR University; 3 PT, Ortho Neuro Sports Healthcare; 4 Prof, Chalmeda Anand Rao Institute of Medical Sciences; 5 PT, AIIMS; 6 Professor, Sri Venkateshwaraa College of PT

BACKGROUND: Chronic non-specific low back pain (CNSLBP) remains one of the leading causes of disability worldwide, with limited long-term effectiveness from conventional therapeutic approaches. Emerging evidence highlights the importance of multidimensional strategies that integrate manual therapy, exercise, and patient-centered care.

AIMS: This study aims to propose and evaluate a multidimensional manual therapy model designed to address the biopsychosocial complexities of CNSLBP, thereby enhancing functional outcomes and quality of life.

METHODOLOGY: A randomized controlled trial was conducted involving 120 participants diagnosed with CNSLBP. Participants were allocated into two groups: conventional manual therapy (n=60) and the multidimensional manual therapy model (n=60), which combined manual mobilization, graded exercise, cognitive reassurance, and ergonomic education. Interventions lasted for 8 weeks, with assessments at baseline, post-intervention, and 3-month follow-up using the Oswestry Disability Index (ODI), Visual Analog Scale (VAS), and Fear-Avoidance Beliefs Questionnaire (FABQ).Results: The multidimensional model group demonstrated significant improvements compared to the control group, with greater reductions in ODI and VAS scores ($p<0.01$) and marked decreases in FABQ scores, indicating improved function and reduced fear-avoidance behavior. Follow-up assessments confirmed sustained benefits.

CONCLUSION: A multidimensional manual therapy model offers superior outcomes in the management of CNSLBP compared to conventional methods. Integrating physical, psychological, and educational components provides a holistic framework for long-term pain reduction and functional restoration.Key words: ODI, VAS, CNSLBP, FABQ.

EFFECTIVENESS OF "VIMS KNEE TRACTION UNIT" FOR INCREASE IN KNEE JOINT SPACE IN PATIENTS WITH KNEE OSTEOARTHRITIS: AN OBSERVATIONAL STUDY

Dr Kajol Rajendra Dethe (Bharati Hospital and Research Centre, Pune)

BACKGROUND: Osteoarthritis (OA) is a degenerative disease joint disease characterized by cartilage deterioration, pain, and reduced functional activity, leading to progressive joint structure damage. The primary goals in managing knee osteoarthritis are pain relief and maintaining or improving physical function.

AIM: To find out the effect of "VIMS KNEE TRACTION UNIT" for increase in knee joint space in patients with Knee Osteoarthritis.

OBJECTIVE: To find out the effect of "VIMS KNEE TRACTION UNIT" for increase in knee joint space in patients with knee osteoarthritis.

MATERIALS AND METHODS: 10 patients of Knee osteoarthritis were taken of Grade >2 by Kellgren Lawrence Grade score and by ACR criteria. Radiographic X-rays were taken of each individual by using VIMS KNEE TRACTION UNIT with different degrees and taking images without traction and with traction. 6% of the participant's weight will be taken. Free weights will be used for applying knee joint traction therapy.

RESULTS: "VIMS KNEE TRACTION UNIT" using different degrees for patients with knee osteoarthritis was effective with applying knee joint traction therapy with free weights more than without traction. Results showed extremely significant effect for increase in knee joint space in patients with knee osteoarthritis with p value $p<0.0001$.

CONCLUSION: "VIMS KNEE TRACTION UNIT" showed the significant effect for increase in knee joint space with and without traction in patients with knee osteoarthritis.

INTRA- AND INTER-RATER RELIABILITY OF STAR EXCURSION BALANCE TEST (SEBT) IN PERIMENOPAUSAL WOMEN

Rabab Kaur1, Dr Kshitija Bansal2
1 PhD Scholar, Department of Physiotherapy, SAHS, MRIIRS, 2 Professor, Department of Physiotherapy, MRIIRS

BACKGROUND: During perimenopause, hormonal and neuromuscular changes lead to impaired balance in women, and evidence-based assessment tools are required to assess balance. SEBT is a clinical tool with evidence of validity and reliability in athletes, the elderly, and patients with musculoskeletal diseases. However, its reliability in women experiencing perimenopause has not been examined comprehensively.

AIM: To evaluate the intra-rater and inter-rater reliability of SEBT in healthy perimenopausal women.

METHODOLOGY: A Reliability Study was conducted on twenty perimenopausal women aged between 42-55 years. **INCLUSION CRITERIA:** perimenopausal women as per the STRAW criteria, no neurological, musculoskeletal disorders or history of lower limb injury for the last six months and independent for weight-bearing and balance activities, no systemic comorbidities. Each participant performed SEBT in eight directions on both limbs. Intra-rater reliability was assessed across two sessions by the same rater; inter-rater by two different raters. Data were analysed using SPSS. Intraclass Correlation Coefficients (ICCs) were calculated using a two-way mixed-effects model (consistency type).

RESULTS: Intra-rater ICCs ranged from ~0.90 to 0.96 indicating excellent reliability. Inter-rater ICCs ranged from ~0.84 to 0.94, indicating good to excellent reliability. Results were statistically significant ($p < 0.001$).

CONCLUSION: The SEBT shows high intra-rater and inter-rater reliability in healthy perimenopausal women, demonstrating a dependable tool for balance assessment in this population.

KEYWORDS: Perimenopause, SEBT, Reliability, ICC, Balance

EFFECT OF MULLIGAN MANUAL THERAPY AND EXERCISE ON HEADACHE FREQUENCY, INTENSITY, DISABILITY, AND UPPER CERVICAL JOINT HYPOMOBILITY IN PEOPLE WITH EPISODIC TENSION TYPE HEADACHE: A RANDOMISED CLINICAL TRIAL

Kiran Satpute (Faculty, Smt Kashibai Navale College of PT, Pune)

BACKGROUND: The effectiveness of Mulligan Manual therapy has been investigated in cervicogenic headache but not in tension type headache (TTH).

OBJECTIVE: To compare the effectiveness of exercise + Mulligan Manual therapy over exercise or exercise + sham in episodic TTH.

Methods: Using a randomised clinical trial design, ninety-nine subjects with episodic TTH received six sessions of allocated intervention over 4-weeks. Headache frequency, intensity, duration, medication intake, disability, upper cervical rotation, pressure-pain thresholds, and patient satisfaction were assessed at baseline, 4-weeks, 3, and 6-months.

RESULTS: Headache frequency reduced significantly in group exercise + Mulligan Manual therapy compared to group exercise post-intervention (MD -1.0 day, 95% CI -2.0 to -0.0) ($p=0.002$), and at 3-month follow-up (MD -1 days, 95% CI -2.0 to 0.0) ($p=0.002$), but only at post intervention compared to group exercise + sham (MD 1.0 day, 95% CI 0.0 to 2.0) ($p=0.008$). The clinical relevance is unclear as between-group differences did not reach a clinical threshold. No difference was observed at 6-months ($p>0.17$). A similar trend was observed for other outcomes. There was no difference between groups exercise and exercise + sham for any outcome ($p>0.17$).

CONCLUSION: In episodic TTH, exercise + Mulligan Manual therapy provided short term clinically uncertain improvements in headache parameters. These results differ to studies of cervicogenic headache. Unsuitability of Mulligan Manual therapy for underlying pathophysiological mechanisms in episodic TTH may explain these results. Practitioners should consider Mulligan Manual therapy for selected patients and only as part of evidence based multimodal management of episodic TTH.

A REVIEW ON THE IMPACT OF PILATES IN MUSCULOSKELETAL REHABILITATION OF NON-SPECIFIC CHRONIC LOW BACK PAIN.

Sungjemmongla Walling1* and Pranjal Gogoi2

1PhD Scholar, Department of Physiotherapy and Rehabilitation, Assam down town University.

2 Associate Professor, Department of Physiotherapy and Rehabilitation, Assam down town University and Senior Physiotherapist, Department of Physiotherapy & Rehabilitative services, down town Hospital.

BACKGROUND: Chronic Non-specific low back pain (CNSLBP) is a disabling musculoskeletal condition without reasonable neurological and degenerative involvement that affects the quality of life, prevalent among individuals regardless of professional background or lifestyle. Pilates is a prominent exercise regimen that emphasizes the connection between mind and body, coordinated movements, and has emerged with profound effectiveness in the field of musculoskeletal rehabilitation.
AIMS: This review aims to find the impact of Pilates on improving muscular performance, reducing pain intensity and functional recovery.

METHODOLOGY: A wide-ranging search of literature published over the past decade was conducted through databases including PubMed, Cochrane, Scopus and Web of Science. The research articles containing evidence on the impact of Pilates as an intervention with relevant findings for non-specific chronic low back pain were screened and selected for a narrative synthesis to consolidate the findings for this review.

RESULTS: Although limited evidence were acknowledged, an emerging body of evidence supporting the use and the effectiveness of Pilates were identified. Studies presented with improvements in strength, flexibility, endurance, alleviation of pain intensity and overall individual's functional well-being.

CONCLUSION: This review emphasizes on the potentiality of Pilates in the rehabilitation plan for individuals with CNSLBP and found to have a positive effect in alleviating the pain along with other symptoms. Pilates could be used as a holistic intervention and is a budding approach with consistent positive results on the musculoskeletal system today. More in-depth experimental studies may be performed in the future to establish a firm evidence base.

FOOT BIOMECHANICS, PLANTAR PRESSURE DISTRIBUTION IN DIABETIC FOOT SYNDROME

Hrishikesh Korada (Founder and Director, Footryx Healthcare, Fellow, CfHE, IIT Hyderabad), G Arun Maiya (Dean - MCHP, Professor - Physiotherapy, Chief – CDFCR, MAHE)

OBJECTIVES: Altered plantar pressure distribution and foot and ankle kinematics due to neurological, vascular, and biomechanical changes considered important risk factor for developing diabetic foot ulcers. The objective is to assess spatio-temporal parameters of foot and ankle kinematics, plantar pressure distribution in type 2 diabetes mellitus with peripheral neuropathy.

MATERIALS AND METHODS: This cross-sectional observational study design was conducted, and total of 100 participants were recruited for the study utilizing a comprehensive diabetic foot evaluation form which includes neurological, vascular, and musculoskeletal components. Nondiabetic group (n=20), Diabetic-non neuropathy group (n=20), Mild neuropathy group (n=20), Moderate neuropathy group (n=20), and Severe neuropathy group (n=20). Neuropathy was evaluated with MNSI score more than 3 points and grades were categorized into mild, moderate, and severe as per VPT value of 20V-24.9V, 25V-39V, and >40V respectively using biothesiometer. The plantar pressure measures like Average and maximum plantar pressure, fore foot-hind foot ratio, and spatiotemporal parameters of Gait were measured using a WinTrack plantar pressure system (France). Biomechanical analysis of ankle was measured using 3D SIMI motion analysis GMBH (USA).

RESULTS: Plantar pressure distribution and foot and ankle kinematics showed a significant trend increasing towards worsening neuropathy status ($p<0.05$). Maximum plantar pressure found to be higher in neuropathic group up to 50-70% in comparison with non-diabetic and diabetic-non neuropathic groups. All Gait parameters except stride time ($p=0.29$) and gait cycle duration ($p=0.34$) showed significant difference between the groups.

CONCLUSION: This study concludes that the foot and ankle kinematics, plantar pressure distribution were significantly altered in in type 2 diabetes mellitus with peripheral neuropathy.

PSYCHOSOCIAL DETERMINANTS FOR PREDICTING CHRONICITY IN NON-SPECIFIC LOW BACK PAIN: A DELPHI STUDY

Nityal Kumar Alagingi, PhD Scholar, Assistant Professor G-II, Nitte Institute of Physiotherapy, Nitte (Deemed to be University), Mangalore

INTRODUCTION: The prevalence of nonspecific low back pain is high in India among young adults and is always multifactorial. Understanding these determinants is essential in identifying the transition from acute to chronic pain. Despite growing evidence, there is a limited consensus on the strong psychosocial predictors for developing chronic nonspecific low back pain in India.

OBJECTIVE: To achieve an expert consensus on the most relevant psychosocial determinants contributing to the chronicity of NSLBP.

METHODS: This study is designed in accordance with CREDES (conducting and reporting Delphi studies). A panel of experts in various fields of physiotherapy was identified, and a three-round Delphi study was conducted. In round 1, all 100 items were sent to the participants using a Google form and on a Likert scale. In round 2, the items rated for relevance are considered. Consensus was defined as ≥ 75% on domain inclusion.

RESULTS: A total of 9 experts completed all 3 rounds. Consensus was achieved on 10 key psychosocial domains like fear-avoidance beliefs, pain catastrophising, self-efficacy, Substance abuse, Burnout, High job demands, Limited access to healthcare, Family dynamics, Major life events, and Unemployment. These determinants are considered contributors to the chronicity of NSLBP.

CONCLUSION: These determinants provide a scientific foundation for predictive risk stratification and early targeted interventions in Physiotherapy practice.

COMPARATIVE STUDY OF CONVENTIONAL EXERCISES COMBINED WITH LASER THERAPY VERSUS LONGWAVE DIATHERMY ALONG WITH CONVENTIONAL EXERCISES IN PATELLOFEMORAL EXERCISES IN PATELLOFEMORAL OSTEOARTHRITIS: EFFECTS ON PAIN AND FUNCTIONAL OUTCOMES

Namrata Srivastava (PhD Scholar, NIMS, Jaipur)

BACKGROUND: Patellofemoral osteoarthritis (PFOA) is a common source of anterior knee pain and functional limitation, affecting quality of life and mobility in older adults. While conventional exercise remains central to conservative management, adjunctive modalities such as laser therapy and longwave diathermy are being investigated for their added benefits. **OBJECTIVE:** To compare the effectiveness of conventional exercises combined with laser therapy versus conventional exercises combined with longwave diathermy in reducing pain and enhancing functional outcomes among patients with PFOA. **METHODS:** A prospective comparative study design was adopted. A total of eligible participants with clinically diagnosed PFOA were recruited using purposive sampling from outpatient physiotherapy clinics. Participants were divided into two groups: Group A received conventional exercise therapy plus laser therapy, while Group B received conventional exercise therapy plus longwave diathermy. Interventions were provided three times per week for six weeks. Outcome measures included the Numerical Pain Rating Scale (NPRS) for pain, the 6-Minute Walk Test (6MWT) for endurance and mobility, and the Knee Outcome Survey–Activities of Daily Living Scale (KOS-ADLS) for functional status. Pre- and post-intervention data were analyzed using paired and unpaired statistical tests with a significance level of $p<0.05$.

RESULTS: Both groups showed statistically significant improvements across all outcomes post-intervention. However, Group A (exercise + laser therapy) demonstrated greater reductions in pain, longer walking distances on the 6MWT, and superior functional scores on the KOS-ADLS when compared to Group B.

CONCLUSION: The combination of laser therapy with conventional exercises proved more effective than longwave diathermy with exercises in improving pain and function in PFOA patients. Given the results, laser therapy may be recommended as a more beneficial adjunct to conventional rehabilitation strategies.

KEYWORDS: Patellofemoral osteoarthritis, prospective comparative study, purposive sampling, laser therapy, longwave diathermy, pain, functional outcomes.

RELEVANCE OF 3D GAIT ANALYSIS FOR THE DIAGNOSIS OF UNDERLYING PATHOLOGIES IN CHILDREN WITH IDIOPATHIC TOE WALKING (ITW): A CASE SERIES

Vandana Phadke (PhD, Gait and Motion Analysis Lab, Center for Pediatric Orthopedics and Disabilities)
Bhumika Joshi, Manoj Padman

BACKGROUND: Children are labelled to have Idiopathic Toe walking (ITW) when they persistently (> 5 years) walk bilaterally on toes without any known Orthopaedic/Neurological disorders. It is a diagnosis of exclusion with poorly defined treatment regimens. 3-dimensional gait analysis with kinematics and kinetics may assist to identify differences across patients for improved targeted management.

AIMS: To report findings of 3D gait analysis in five children (3 female, 6-10 years) with suspected diagnosis of ITW.

METHODOLOGY: After detailed clinical evaluation, data were collected with 10 VICON cameras + AMTI forceplates and standard plug-in-gait model using 16 markers. After collecting standing calibration trials, children were asked to walk barefeet at a self-selected and relatively fast pace on the 9m walkway in lab. 3D data were plotted for pelvis, hip, knee and ankle segments.

RESULTS: All children reported no pain/functional limitations except parents reporting toe walking. They had tight plantarflexors, no spasticity, or any relevant findings at other joint. Two children presented with absent heel strike at initial contact, and absent first rocker. Two children additionally had early plantarflexion during push-off and increased first ankle moment suggesting possible hypertonia. One child presented with weak push-off and flexion at the knee suggesting weak soleus-knee extension coupling.

CONCLUSION: Detailed 3D gait analysis may identify underlying pathologies that contribute to toe walking, thus, overcoming misdiagnosis or mislabeling.

COMPARATIVE EVALUATION OF DYNAMIC NEUROMUSCULAR STABILIZATION AND LUMBOPELVIC STABILIZATION EXERCISES ON CHRONIC LUMBOPELVIC PAIN IN WOMEN.

Sadaf Khan (PhD Scholar) Jasmine Kaur Chawla (Associate Professor), Department of Physiotherapy,
Manav Rachna International Institute of Research and Studies

BACKGROUND: The primary cause of chronic lumbopelvic discomfort, which affects 70.4% of Indian women, is still unknown. Hormonal changes during menopause increase pain and weight, exacerbating strain on the spine and pelvis, which leads to biomechanical alterations and pain. Despite its widespread occurrence, there are not enough efficient management techniques. In order to fill the vacuum in the existing literature and investigate prospective evidence-based therapy options for this understudied population, this randomized controlled trial will compare Dynamic Neuromuscular Stabilization with lumbopelvic stabilization exercises in menopausal women.

AIMS: The purpose of this study was to assess the efficacy of the Lumbopelvic Stabilization exercise regimen and Dynamic Neuromuscular Stabilization in treating menopausal women's chronic lumbopelvic discomfort.

METHODOLOGY: G*Power was used to determine a sample size of 72. Three equal groups of participants were formed: Control, Lumbopelvic Stabilization Exercise, and Dynamic Neuromuscular Exercise. Sessions are held three days a week for eight weeks of the intervention. The following outcomes were used to assess effectiveness: muscle strength (Pressure Biofeedback), menopause-related quality of life (Menopause Quality Of Life), pain (NPRS), and disability (Oswestry Disability Index).

RESULTS: Both the exercise intervention protocols are effective in managing pain, disability, and muscle strength ($p < 0.001$); but there is no significant improvement in the Menopausal Quality of Life, neither with DNS ($p = 0.15$) nor with Lumbopelvic stabilization exercise ($p = 0.20$).Conclusion- Dynamic Neuromuscular Stabilization (DNS) exercises are more effective for managing chronic lumbopelvic pain in menopausal women. Although Lumbopelvic Stabilization exercises show almost equivalent potential, women found the DNS exercise protocol easier to follow.

KEYWORDS: Chronic lumbopelvic pain, Dynamic Neuromuscular Stabilization exercise, Lumbopelvic Stabilization exercise, Women's health, Menopause

EFFECTIVENESS OF CONVENTIONAL KINESIOTHERAPY AND PILATES IN REDUCING DISABILITY AMONG PATIENTS WITH CHRONIC NON-SPECIFIC LOW BACK PAIN

Shruti Mahajan1, Dr. Khushwant Singh Rathore2, Dr. Raghvendra Choubey3, Dr. Ajeet Kumar Saharan1, Namrata Srivastava1

1. Department of Physiotherapy, National Institute of Medical Science & Research, NIMS University, Jaipur
2. Department of Orthopedic Surgery, National Institute of Medical Science & Research, NIMS University, Jaipur
3. Department of Orthopedics, Bundelkhand Medical College, Sagar, Madhya Pradesh, India

BACKGROUND: Chronic non-specific low back pain (CNSLBP) is a major contributor to disability worldwide. Exercise-based rehabilitation is widely recommended, yet the most effective combination of therapeutic approaches remains unclear. Aims: The aim of this study was to evaluate the effectiveness of conventional kinesiotherapy alone with that of conventional kinesiotherapy combined with Pilates in reducing disability and pain among individuals with CNSLBP. **METHODOLOGY:** A randomized, assessor-blinded, parallel-group trial was conducted at Bundelkhand Medical College, Sagar, India. A total of 300 adults aged 20–60 years with CNSLBP for ≥12 weeks were recruited through consecutive sampling. Participants were randomized (1:1) into a control group (conventional kinesiotherapy) or an intervention group (kinesiotherapy + Pilates) using computer-generated block randomization stratified by baseline RMDQ severity. Both groups underwent 24 supervised sessions over 8 weeks. Disability (Roland–Morris Disability Questionnaire) and pain intensity (Visual Analogue Scale) were assessed at baseline and week 8. Statistical analysis included paired t-tests for within-group changes and independent t-tests for between-group comparisons, with significance set at $p < 0.05$.

RESULTS: Both groups demonstrated significant reductions in pain and disability after 8 weeks ($p < 0.001$). Between-group comparisons showed significantly greater improvements in the intervention group, with lower post-treatment VAS scores (2.84 ± 1.02 vs. 4.13 ± 1.10) and RMDQ scores (7.84 ± 3.12 vs. 10.91 ± 3.25) compared to the control group ($p < 0.001$).

CONCLUSION: The addition of Pilates to conventional kinesiotherapy produced significantly greater improvements in pain and disability than kinesiotherapy alone. This combined exercise approach may serve as a more effective rehabilitation strategy for managing chronic non-specific low back pain.

KEYWORDS: Chronic non-specific low back pain; Disability; Kinesiotherapy; Pilates.

VIRTUAL REALITY–ASSISTED PHYSIOTHERAPY FOR ORTHOPAEDIC REHABILITATION: A RANDOMIZED CONTROLLED FRAMEWORK

Arpita Rathod (PhD Scholar, Tilak Maharashtra Vidyapeeth, Pune)

BACKGROUND: Virtual reality (VR) offers immersive and interactive rehabilitation environments that enhance task-specific movement training, motor learning, and patient motivation in orthopaedic physiotherapy. Recent systematic reviews and clinical trials report beneficial effects of VR on pain modulation, adherence, and functional recovery in musculoskeletal conditions. Aim: To assess the effectiveness of a four-week VR-assisted physiotherapy program on pain, mobility, and patient engagement compared to conventional physiotherapy in post-operative lower-limb orthopaedic patients.

METHODOLOGY: A single-blind randomized controlled study was designed with 60 participants divided equally into a VR group (n=30) and a conventional physiotherapy group (n=30). The VR group received 30-minute, task-oriented sessions using an immersive VR system with real-time visual feedback, five days per week for four weeks. The control group received matched-duration traditional physiotherapy exercises. Outcomes included the Visual Analogue Scale (VAS) for pain, Timed Up and Go (TUG), lower-limb functional performance tests, and a validated Patient Engagement Scale. Data were analysed using mixed ANOVA under an intention-to-treat approach.

RESULTS: Emerging evidence from recent VR-based RCTs suggests that VR-integrated physiotherapy produces superior pain reduction, increased movement confidence, and higher engagement levels compared to conventional rehabilitation, with small-to-moderate functional gains depending on condition severity.

CONCLUSION: VR-assisted physiotherapy is a safe, engaging, and promising adjunct to traditional orthopaedic rehabilitation. It has the potential to enhance patient outcomes and adherence, though larger, standardized clinical trials are needed to establish long-term efficacy and cost-effectiveness.

EFFECT OF JADESTONE MOBILIZATION VERSUS NON-ABRASIVE CUPPING THERAPY ON PAIN PRESSURE THRESHOLD, CERVICAL RANGE OF MOTION AND QUALITY OF LIFE IN SUBJECTS WITH NON-SPECIFIC NECK PAIN-A RCT

Yogesh Patil (Tilak Maharashtra Vidyapeeth, Pune), Dr Vijay Kage

BACKGROUND AND OBJECTIVES: NSNP is pain caused due to presence or absence of radiating pain, the generation of pain is unknown, there is lack of any specific systematic disease or a pathological reason. The objective is to study and compare the effect of jadestone mobilization and non-abrasive cupping therapy in subjects having NSNP in terms of pain intensity, PPT, QOL and cervical ROM.

MATERIALS AND METHOD: Thirty patients of both the gender having NSNP were recruited and allocated in Group-A (n=15), received Jadestone mobilization along with conventional physiotherapy and Group-B (n=15), received Non-abrasive cupping therapy along with conventional physiotherapy Outcomes on 1st day and on 10th day, which included NPRS, PPT, cervical using digital inclinometer and RAND SF-36 questionnaire were analysed.

RESULT: The mean age in Group-A and B was 24.00 ±1.73 years and 24.13 ± 2.17 years respectively indicating homogenous distribution. The parameter analyzed at baseline and post treatment reflects no arithmetical noteworthy difference in among the groups whereas, showed statistical significant difference within the group comparison (p value = 0.0001*)

CONCLUSION: Jadestone mobilization and Non-abrasive cupping therapy are effective but jadestone mobilization showed more clinical significance than non-abrasive cupping therapy in relieving pain, improving cervical ROM, PPT and QOL in subjects having NSNP. Hence, suggesting that it can be implemented along with other conventional physiotherapy in treatment of NSNP

A REVIEW ON THE SIGNIFICANCE OF THE Q-ANGLE IN CHONDROMALACIA PATELLAE

Dr. Pallavi Gujjanwar (Assoc Prof, Smt Vimladevi College of Physiotherapy, Chandrapur)

BACKGROUND: Chondromalacia patella (CMP), one of the cause of anterior knee pain, that occurs from softening and degeneration of patellar articular cartilage and is influenced by complex interactions of anatomical and biomechanical factors. In these, the quadriceps angle (Q-angle)—the angle formed between the quadriceps' line of pull and the patellar tendon—is generally assessed for its role in altered patellar tracking and patellofemoral joint pain syndrome and stress.

AIM: This review evaluates the significance of the Q-angle in the cause, diagnosis, and treatment of CMP. An increased Q-angle exaggerates the lateral vector acting on the patella, increasing lateral patellar shift, tilt, and enhanced compressive forces on the lateral patellar facet. The above biomechanical changes may contribute to cartilage irritation and degradation CMP.

METHODOLOGY: Several studies supporting the correlation between increased Q-angle and patellofemoral pain, proposing that individuals—particularly females with naturally wider Q-angles—that may be predisposed to CMP, articles with full text available were taken from Pubmed, google scholar and other relevant sources. However, contradictory evidence indicates that static Q-angle measurements alone do not strongly prognosticate patellofemoral pathology, as other time dependent variables such as hip strength, lower limb kinematics, tibial rotation, and foot pronation may exert greater influences on patellar tracking. Consequently, the Q-angle should be described within a wider biomechanical and functional assessment tool rather than as an idivisualised predicting mean. Clinically, directing modifiable providers to increased dynamic Q-angle—such as poor hip control or excessive pronation—remains essential in CMP management. Overall, while the Q-angle is a relevant anatomical parameter linked to patellofemoral mechanics, its significance is best understood as part of a multifactorial model of CMP pathology and management.

TELE-REHABILITATION AND DIGITAL MONITORING VERSUS STANDARD CARE IN THE LONG TERM MANAGEMENT OF OSTEOARTHRITIS IN POSTMENOPAUSAL WOMEN: A COMPARATIVE STUDY.

Nidhi Suresh Sharma, PhD Scholar, Tantia University, Sri Ganganagar (Rajasthan)

INTRODUCTION: Due to obstacles to receiving regular care, managing osteoarthritis (OA) in postmenopausal women over the long term is difficult. The effectiveness of a tele-rehabilitation and digital monitoring program in comparison to standard care was assessed in this study.

METHODS: A total of 156 postmenopausal women with knee OA were randomly assigned to either the Control Group (CG, n = 78) or the Intervention Group (IG, n = 78). After a 12-week organized tele-rehabilitation program that included live video sessions and a digital exercise library, the IG was continuously monitored digitally for nine months using a smartphone app for tracking and education. Standard care (one-time consultation, brochure, regular follow-up) was provided to the CG. The Western Ontario and McMaster Universities Osteoarthritis Index (WOMAC) score change at 12 months was the main result. Adherence and quality of life (EQ-5D) were secondary outcomes. Results: At 12 months, the IG's overall WOMAC score had decreased considerably more than the CG's. Additionally, the IG showed considerably higher improvements in EQ-5D ($p < 0.01$). The IG had much greater exercise adherence (68% vs. 35%, $p < 0.001$).

CONCLUSION: For the long-term treatment of OA in postmenopausal women, a novel approach that combines structured tele-rehabilitation with continuous digital monitoring is better than standard therapy. Pain, function, and quality of life all improve with time, and exercise adherence is much higher. For the treatment of long-term musculoskeletal disorders, this strategy offers an adaptable and efficient option.

KEYWORDS: Postmenopausal women, tele-rehabilitation, digital health, osteoarthritis, remote monitoring.

EFFECT OF CORE MUSCLE STABILIZATION AND GLUTEUS MAXIMUS MUSCLE ACTIVATION ON HAMSTRING TIGHTNESS-AN EXPERIMENTAL STUDY

Km. Divya Gangwar1, Ritika Indoria2

1-Asst Prof, MMCP&R, MMU, Ambala; 2-Asst Prof, Dept. of PT, Sharda University, Greater Noida

BACKGROUND: The hamstrings are the group of muscles that have become inactive, resulting in problems like diminished function, a higher risk of muscle damage, backache, and biomechanical changes in the region's joints. The aim of the study was to see how core stabilization and Gluteus Maximus activation affected hamstring tightness.

MATERIAL AND METHODS: A total of 97 subjects were chosen the age between 18 to 30 years old and were recruited. The subjects were divided in two groups. An Experimental group received core stabilization, gluteus maximus activation and hamstring stretching and control group receive only hamstring stretching. Each group received the treatment 3 sessions per week for four weeks. Patients were evaluated for their ROM.

RESULTS: The results reveal that there is a substantial difference between the experimental and control groups' pre and post, active and passive ROM.

CONCLUSION: Treatment of group A was more effective than Group B. In Group A, there was increased Range of motion, core stability and balance by performing Core stability Gluteus activation exercises.

CLINICAL RELEVANCE: The study was very useful to improving ROM, neuromuscular control and coordination of trunk and lower limb.

KEYWORDS: Gold standard test, Hamstring tightness, Core stabilization, hamstring stretching, Gluteus Maximus activation exercises

EXPLORING POSTURAL CONTROL FOLLOWING DIRECTIONAL PREFERENCE MOVEMENTS IN INDIVIDUALS WITH CHRONIC LOW BACK PAIN: A MCKENZIE-BASED OBSERVATIONAL STUDY

Dr Saumya Srivastava (PhD) (Nitte Institute of Physiotherapy, NITTE, Mangalore)

BACKGROUND: Chronic Low Back Pain (CLBP) is increasingly recognized as a disorder of altered motor control and postural adaptability rather than a purely structural dysfunction. The McKenzie Method (Mechanical Diagnosis and Therapy—MDT) emphasizes movement-based self-correction through directional preference; however, its influence on postural readjustment mechanisms remains underinvestigated.

OBJECTIVE: This study aimed to examine the acute changes in postural stability and movement confidence following a single session of McKenzie-based directional preference exercises in individuals with CLBP.

METHODS: Thirty adults (aged 25–45 years) with nonspecific CLBP participated in a one-day experimental observational protocol. Participants were assessed for postural sway (using a Modified Clinical Test of Sensory Interaction on Balance (mCTSIB)) and perceived movement confidence (using a 10-point visual analog scale) before and after individualized McKenzie directional preference movements identified through mechanical assessment. No interventional follow-up was done.

RESULTS: A single session of MDT directional preference movements led to a significant reduction in postural sway area ($p<0.05$). Participants also reported an immediate increase in perceived movement confidence and reduced fear-avoidance behaviors. Correlational analysis indicated that improvement in postural control was strongly associated with the directionality of the centralization response.

CONCLUSION: The findings suggest that even a single, clinically guided McKenzie directional movement can improve postural control and enhance proprioceptive confidence in individuals with CLBP. The study offers a novel neuro-mechanical perspective on the McKenzie Method, highlighting its potential in motor retraining and early functional restoration without requiring longitudinal intervention frameworks.

KEYWORDS: McKenzie Method, Low Back Pain, Postural Control, Directional Preference, Motor Relearning, Physiotherapy

TITLE: COMPARATIVE EFFECTS OF SHOULDER STABILIZATION EXERCISES WITH VS WITHOUT PECTORAL FASCIA RELEASE IN YOUNG ADULTS WITH FORWARD SHOULDER POSTURE

Ashish Tyagi PhD Scholar, Physiotherapist, AIIMS, New Delhi

BACKGROUND: Forward Shoulder Posture (FSP) is a common postural deviation associated with shortened pectoralis minor, reduced chest expansion, and impaired quality of life (QoL). While stabilization exercises are widely used, combining them with pectoral fascia release may optimize outcomes. This study compared the effects of shoulder stabilization exercises alone versus in combination with pectoral fascia release on pectoralis minor length, chest expansion, and QoL in young adults with FSP.

METHODS: A total of 46 participants diagnosed with FSP were allocated into two groups: Group A received shoulder stabilization exercises, while Group B received stabilization exercises combined with pectoral fascia release. Interventions were applied for 4 weeks. Outcome measures included pectoralis minor length, chest expansion at three thoracic levels, and QoL (WHOQoL-BREF). Statistical analysis included paired and unpaired t-tests with significance set at $p<0.05$.

RESULTS: Both groups showed significant improvements in all outcomes; however, Group B demonstrated superior improvements. Pectoralis minor length showed greater reduction in Group B (mean diff: 1.27 cm) vs Group A (mean diff: 0.42 cm). Chest expansion improved at all levels in both groups, with Group B consistently showing higher gains. QoL improved significantly in both groups, with Group B exhibiting greater enhancement (mean diff: 14.24) compared to Group A (mean diff: 10.57).

CONCLUSION: Both interventions improved posture, chest expansion, and QoL; however, adding pectoral fascia release to shoulder stabilization exercises yielded superior clinical outcomes. Integrating manual therapy with exercise-based rehabilitation may provide a more comprehensive approach for correcting FSP.

KEYWORDS: Forward shoulder posture, pectoralis minor, chest expansion, fascia release, physiotherapy, posture correction.

IDENTIFYING RISK FACTORS ASSOCIATED TO TENDINOPATHY AMONG DIFFERENT SPORTS PARTICIPANTS

Amrinder Singh, Lavi Sharan, Vaidehi R. Shankhapal, Shweta Shenoy,
MYAS- GNDU Department of Sports Sciences & Medicine, Guru Nanak Dev University

BACKGROUND: Tendinopathy in athletes is influenced by both intrinsic and extrinsic risk factors. Intrinsic factors include age, gender, genetic predisposition, and metabolic diseases such as diabetes and obesity. The most significant extrinsic cause is repetitive mechanical loading during athletic activities, which often results in tendon related issues.

AIM: To identify the contributing risk factors for tendinopathy among athletes.

METHOD: A cross-sectional analytical study was conducted on a sample of 548 athletes from various regions of Punjab, India, including institutions like GNDU and PAP etc. Data were collected by physiotherapist through structured Questionnaire for Sports Athletes with or without Tendinopathy (QSAT) that covers physical, psychological, and training-related questions. After identifying important risk factors using a Random Forest model, adjusted odds ratios (95% CI) were estimated at a 5% significance level using logistic regression.

RESULT: The result shows that the major risk factors were postural alignment, pain severity, and localized tenderness. Athletes who reported higher pain score on the VAS scale and showed tenderness had a considerably higher risk of developing tendinopathy. Psychological factors, specifically low self-esteem and stress-coping mechanisms also had a significant impact. The ROC curve study showed that the model's overall predictive accuracy was high, with great sensitivity and specificity.

CONCLUSION: The study highlights that bio-mechanical factors play a major role in the development of tendinopathy among athletes. While psychological and other factors may also influence risk, their impact appears to be less direct. Early identification and management of risk factors can help in reducing tendinopathy occurrence and improving athlete well-being.

KEYWORDS: Risk factors, Athletes, Tendinopathy, Logistic Regression

COMPARATIVE EFFECTS OF CROSS FIT AND CIRCUIT TRAINING ON ANAEROBIC POWER AND PERFORMANCE IN FEMALE WRESTLERS: A RANDOMIZED CONTROLLED TRIAL

Monika (PhD Scholar, Guru Jambheshwar University, Hisar)

BACKGROUND: Developing anaerobic power and speed is critical for female wrestlers, who rely on explosive efforts and short recovery periods during matches. Cross Fit and circuit training are both functional conditioning approaches widely used to improve athletic performance, yet limited controlled evidence compares their effects in female wrestlers.

OBJECTIVE: To compare the effects of eight weeks of Cross Fit and circuit training on speed, anaerobic power, and performance among competitive female wrestlers.

METHODS: Ninety female wrestlers (aged 18–28 years) were randomly assigned to Cross Fit (Group A, n = 30), Circuit Training (Group B, n = 30), or Control (Group C, n = 30). Both experimental groups trained four sessions per week for eight weeks, while the control group continued regular wrestling practice. Performance measures included a 30-m sprint, Wattbike-measured anaerobic power (W/kg), and a wrestling-specific performance test. Data were analysed using paired t-tests and one-way ANOVA with $p \leq 0.05$.

RESULTS: Cross Fit significantly improved anaerobic power (pre = 9.10 ± 0.52, post = 10.33 ± 1.07 W/kg; $p < 0.001$) and overall performance (pre = 69.40 ± 9.07, post = 76.77 ± 10.37; $p = 0.002$). Circuit training also showed significant gains in anaerobic power (pre = 8.82 ± 0.54, post = 10.00 ± 1.10 W/kg; $p < 0.001$) and performance (pre = 72.06 ± 7.93, post = 77.99 ± 9.15; $p = 0.008$). Between-group ANOVA revealed significant differences in post-intervention anaerobic power ($F = 5.321$, $p = 0.007$), favouring Cross Fit over the control. Sprint performance did not differ significantly among groups ($p > 0.05$).

CONCLUSION: Both Cross Fit and circuit training effectively enhanced anaerobic power and overall performance in female wrestlers, with Cross Fit producing slightly superior anaerobic adaptations. These findings support the inclusion of high-intensity functional and circuit-based training methods in female wrestling conditioning programs.

KEYWORDS: Cross Fit, circuit training, female wrestlers, anaerobic power, speed, performance, randomized controlled trial

IMPACT OF MANIPULATION OF THE THORACIC SPINE AND IASTM ON MECHANICAL NECK PAIN

Amandeep Singh (PhD Scholar, GJU, Hisar), Shabnam Joshi

BACKGROUND: A growing musculoskeletal condition is mechanical neck pain, which may cause drug use, work absenteeism, poor quality of life, and reduced performance. Various techniques such as instrument-assisted soft tissue mobilization, thoracic manipulation, and pressure biofeedback have been used for management. However, no evidence is present for the combined efficacy of these interventions in neck pain.Aim: To find the effectiveness of IASTM, TM, and pressure biofeedback in mechanical neck pain.

METHODS: A randomized controlled trial was conducted with one hundred participants with mechanical neck pain were categorized into four groups: IASTM, TM, and pressure biofeedback (Group A); IASTM and pressure biofeedback (Group B); TM and pressure biofeedback (Group C); and pressure biofeedback only (Group D). The outcome variables were neck pain, disability, range of motion (ROM), and endurance, which were evaluated at baseline, post-treatment and follow-up. **STATISTICAL ANALYSIS:** Data normality was analysed using the Shapiro-Wilk test. Neck pain was analysed using the Kruskal-Wallis and Wilcoxon tests. Neck disability, ROM, and endurance were analysed using ANOVA. Results: Group A showed superior improvement in neck pain, disability, ROM, and endurance compared to Groups D and C at both week 4 and week 6 ($p < 0.05$). Groups A and B did not show significant differences in flexion, side flexion, and rotation ($p > 0.05$).

CONCLUSIONS: IASTM, TM, and pressure biofeedback, when given in combination, are more effective in improving neck pain, disability, ROM, and endurance in mechanical neck pain.

Sensorimotor Training Improves Postural Control in Collegiate Cricketers - A Case Series

Jibran Ahmed Khan1, Nidhi Singh2

1Phd Research Scholar; 2Professor, Department of Physiotherapy, School of Allied Health Sciences, Galgotias University, Greater Noida

BACKGROUND: Postural control is essential for playing cricket successfully and preventing injuries. Sensorimotor training (SMT) enhances neuromuscular coordination and balance by fortifying the integration of the vestibular, proprioceptive, and visual systems. This case study evaluated the effects of a structured SMT program on the postural stability of collegiate cricket players with residual balance deficiencies who had fully recovered from previous mild lower limb injuries.

CASE PRESENTATION/ METHODS: Two male collegiate cricketers, aged 20 and 22, who were injury-free and training consistently, were enrolled in the study. Balance assessments were conducted before and after the training program utilizing the Nintendo Wii Balance Board (model RVL-021) and the Star Excursion Balance Test (SEBT). Static balance evaluation included quiet standing tests with Eyes Open (EO) and Eyes Closed (EC) for durations of 20–30 seconds, with the Center of Pressure (CoP) recorded at a frequency of 50 Hz and analysed for path length, average sway velocity, RMS sway in both medial-lateral and anterior-posterior directions, and the 95% ellipse area. Dynamic balance was evaluated through SEBT composite scores and Limits of Stability (LOS) trials across eight directions (Forward, Backward, Left, Right, Forward-Left, Forward-Right, Backward-Left, Backward-Right), measuring maximum excursion and directional control.

INTERVENTION: Proprioceptive exercises, static and dynamic balance drills, and visual-vestibular challenges using unstable surfaces and balance boards were all part of the six-week SMT program for both participants, which consisted of three sessions per week.

RESULTS: Both cases showed improved postural control on objective WBB measures after the intervention; improvements in static stability were indicated by decreases in CoP path length, mean sway velocity, RMS sway, and 95% ellipse area across EO and EC trials. Additionally, dynamic balance improved: LOS testing revealed greater maximal excursion and improved directional control, and SEBT composite scores rose by 18% (Case 1) and 16% (Case 2).

CONCLUSION: A well-organized 6-week sensorimotor training regimen led to significant enhancements in both static (Wii Balance Board) and dynamic (SEBT) balance among college cricketers. These results endorse SMT as an efficient and practical method for improving postural control and functional performance in cricket players.

KEYWORDS: Sensorimotor training, postural control, cricket, proprioception, balance, rehabilitation

KNOWLEDGE, ATTITUDE AND BEHAVIOR TOWARDS CONCUSSION MANAGEMENT AMONG SPORTS COACHES

Aishwarya Kanhere (Associate Professor, Tilak Maharashtra Vidyapeeth, Pune)

BACKGROUND: Concussions are mild traumatic brain injuries brought on by biomechanical pressures to the head or body. Concussion remains a significant yet often under-recognised injury in sport. Coaches play a central role in early identification and management however, gaps in knowledge and inconsistent behaviours can compromise athlete safety. Understanding coaches perspectives can help physiotherapists design more effective education and return-to-play pathways.

AIM: To assess knowledge, attitude and practice towards concussion management among athletes.

METHODOLOGY: An observational cross-sectional study was used. A total of 100 participants from various sports and of different age groups and experience were included in the study. A self-made questionnaire consisting of 3 sections was administered to athletes via google as well as physical forms to assess their knowledge, attitude and behaviour towards concussion management among coaches.

RESULTS: It was found that there was moderate knowledge and most positive attitudes and weak behavior implementation. The p value was 0.01 which shows the data was statistically significant. Most coaching staff reported they would have supportive behaviour if faced with a suspected concussion on the pitch.

CONCLUSION: Most coaching staff reported attitudes and intended behaviour towards protecting the player's health, such as respecting medical staff's decision on assessment and return to play.

KEYWORDS: Sport-related concussion, Coaching staff, Traumatic brain injury

EFFECT OF ROPE EXERCISE ON FLAT FEET IN KATHAK DANCERS: A RANDOMIZED CONTROLLED TRIAL

Monika (PhD Scholar), Kalindi Dev (Asst Prof), Suraksha (MPT Student), Guru Jambheshwar University of Science and Technology, Haryana

BACKGROUND: Kathak dancers often experience flat feet due to repetitive foot strikes and turnout positions. Rope exercise, a plyometric and rhythmic activity, has been shown to improve muscular strength, proprioception, and foot arch support. This study aimed to evaluate the effect of rope exercise on pain, foot function, and navicular drop among Kathak dancers with flat feet.

METHODS: Forty female Kathak dancers aged 15–25 years with flexible flat feet were randomly assigned into two groups: Group A (rope exercise) and Group B (control). Group A performed barefoot rope exercises for 10 minutes (2-minute bouts with 30-second rests) three times per week for 4 weeks, while Group B performed only routine dance practice. Outcome measures included Visual Analogue Scale (VAS) for pain, Foot Function Index (FFI), and Navicular Drop Test (NDT). Data were analyzed using paired and independent t-tests at $p < 0.05$.

RESULTS: Group A demonstrated significant reductions in VAS (6.1 ± 1.0 to 3.3 ± 0.8), FFI (67.8 ± 6.2 to 53.1 ± 5.4), and NDT (11.5 ± 2.0 to 8.7 ± 1.8) ($p < 0.001$), while the control group showed minimal change. Between-group comparisons revealedstatistically significant improvements favoring the rope exercise group.

CONCLUSION: Rope exercise is an effective, low-cost intervention for improving medial arch stability and reducing pain in Kathak dancers with flat feet. Incorporating rope exercise into dance training may prevent long-term postural deviations and improve performance outcomes.

KEYWORDS: Rope exercise, Flat feet, Kathak dancers, Medial longitudinal arch, Randomized controlled trial

EFFECT OF DIAPHRAGMATIC BREATHING AND CORE ACTIVATION ON SHOULDER PAIN, POSTURE AND SCAPULAR KINEMATICS IN INDIVIDUALS WITH SHOULDER DYSFUNCTION

Sonia Gupta (PhD Scholar, Teerthankar Mahavir University, Moradabad)

BACKGROUND: Shoulder dysfunction is a prevalent musculoskeletal disorder frequently linked to inadequate posture, modified scapular movement, and persistent pain. Recent studies indicate that disruption in the diaphragm and core musculature may lead to shoulder instability by impairing proper kinetic chain performance and postural regulation. Diaphragmatic breathing and core activation exercises may enhance shoulder mechanics by improving trunk stability, intra-abdominal pressure, and neuromuscular synchronization.

AIM: This study aimed to examine the impact of diaphragmatic breathing and core activation activities on shoulder pain, posture, and scapular kinematics in persons with shoulder dysfunction.

METHODOLOGY: Forty participants aged 25 to 45 years with diagnosed unilateral shoulder dysfunction were randomly assigned to two groups: an experimental group undergoing diaphragmatic breathing and core activation training in conjunction with conventional shoulder rehabilitation, and a control group receiving solely conventional rehabilitation for 3times per week six weeks. Assessments conducted before and after the intervention encompassed pain intensity (using VAS), posture (evaluated by photogrammetric analysis), and scapular kinematics (measured using a motion analysis system). Statistical analysis utilized paired and unpaired t-tests to assess differences within and between groups.

RESULTS: The experimental group exhibited a notable decrease in shoulder discomfort and enhancement in postural alignment relative to the control group ($p < 0.05$). Furthermore, scapular upward rotation and posterior tilt exhibited significant improvement in the experimental group, signifying enhanced scapular control and movement efficiency.

CONCLUSION: Integrating diaphragmatic breathing and core activation into shoulder therapy markedly enhances pain, posture, and scapular kinematics in persons with shoulder dysfunction. These findings underscore the significance of incorporating respiratory and core stabilization strategies for comprehensive and efficient shoulder rehabilitation.

EFFECT OF NEUROCOGNITIVE FUNCTIONAL TRAINING VERSUS FUNCTIONAL GRADED EXPOSURE ON KINESIOPHOBIA, PAIN, FUNCTIONAL PERFORMANCE, AND NEUROCOGNITIVE OUTCOMES IN ATHLETES WITH KNEE INJURIES"

Devibalan Sivagnanam P1, Manoj Abraham M1, Ramesh M1,
1. KG College Of Physiotherapy, Coimbatore, Tamilnadu.

BACKGROUND: Kinesiophobia is a major barrier to successful rehabilitation following knee injuries. Neurocognitive Functional Training (NCFT) and Functional Graded Exposure (FGX) have emerged as promising strategies to address psychological and neurocognitive aspects of recovery, but comparative evidence is limited.

AIM: To compare the effect of NCFT Vs FGX on kinesiophobia, neurocognitive performance, pain, and functional outcomes in athletes with knee injuries.

METHODOLOGY: A randomized controlled trial was conducted on 50 athletes aged 18–35 years with knee injuries and moderate kinesiophobia (TSK ≥ 37). Participants were randomly allocated to NCFT ($n = 25$) or FGX ($n = 25$) and underwent 6 weeks of supervised training (3 sessions/week). Outcomes included Tampa Scale for Kinesiophobia (TSK), Trail Making Test A and B (TMT-A, TMT-B), Numeric Pain Rating Scale (NPRS), and single-leg hop test, assessed at baseline and post-intervention. Within-group pre–post changes were analysed using paired t-tests, and between-group differences in change scores were analysed using independent t-tests ($p < 0.05$).

RESULTS: Both groups showed significant reductions in TSK and improvements in TMT and hop performance ($p < 0.001$ within groups). The NCFT group demonstrated a greater reduction in TSK (50.2 ± 5.1 to 32.4 ± 4.8) compared with FGX (49.6 ± 6.0 to 38.9 ± 5.3), and larger improvements in TMT-A and TMT-B times. Independent t-tests on change scores showed significantly greater improvement in the NCFT group for TSK, TMT-A, and TMT-B ($p < 0.01$).

CONCLUSION: Both NCFT and FGX were effective in reducing kinesiophobia and improving performance in athletes with knee injuries; however, NCFT produced superior reductions in fear and greater gains in neurocognitive performance.

COMPARATIVE EFFECTIVENESS OF ARTIFICIAL INTELLIGENCE–ASSISTED 3D PRINTED CUSTOMIZED KNEE BRACE AND EXERCISE THERAPY VERSUS CONVENTIONAL ELECTROTHERAPY IN ERGONOMICAL KNEE PAIN: A RANDOMIZED CONTROLLED STUDY

Prof. Dr. S. Purna Chandra Shekhar (PhD), Professor, Department of Physiotherapy, MNR Hospital & School of Physiotherapy, MNR University, Sangareddy, Telangana.

BACKGROUND/PROBLEM STATEMENT: Ergonomical knee pain is a growing musculoskeletal concern prevalent among individuals engaged in prolonged sitting, occupational overload, repetitive tasks, and poor workstation ergonomics. Conventional electrotherapy modalities offer symptomatic relief but lack personalized biomechanical correction. Advancements such as Artificial Intelligence (AI)–based movement analysis and 3D printing technology enable customized braces and real-time exercise monitoring, potentially improving treatment precision and functional outcomes.

OBJECTIVE OF INNOVATION: To evaluate and compare the clinical effectiveness of an AI-assisted knee exercise program combined with a 3D-printed customized knee brace and heating pad versus traditional electrotherapy modalities with strengthening exercises in adults with ergonomical knee pain.

DESCRIPTION OF INNOVATION: Type of innovation- A combined AI-driven digital physiotherapy solution and 3D printed customized orthopedic brace integrated into a physiotherapy treatment protocol. Its key components are:

AI EXERCISE MONITORING SYSTEM: Tracks knee ROM, provides feedback on movement accuracy, monitors adherence, and personalizes progression.

3D-PRINTED CUSTOMIZED KNEE BRACE: Designed using patient-specific knee dimensions; provides ergonomic alignment, medial–lateral stability, and load redistribution during activities.

INTEGRATED PROTOCOL: Heating pad warm-up + AI-guided exercises + brace-assisted functional training.

Design/Workflow:

AI ASSESSMENT: Digital knee movement scanning and algorithm-based exercise plan. Customization: Knee brace model generated using 3D Scanner with CAD software and produced via 3D printing.

TREATMENT DELIVERY: 30-minute AI-guided sessions supervised by the therapist.

FEEDBACK LOOP: AI platform records progress and automatically adjusts intensity.

Novelty and Advantages:

First-of-its-kind integration of AI exercise monitoring with a 3D-printed personalized knee brace for ergonomical knee pain.

Provides **highly individualized treatment**, unlike one-size-fits-all electrotherapy protocols.

Enhances **accuracy, motivation, and adherence** through real-time feedback.

3D brace offers superior biomechanical correction, joint unloading, and comfort.

Reduces dependence on conventional modalities by promoting active rehabilitation.

Cost-effective and scalable for tele-rehabilitation and workplace health programs.

Potential Applications/Future Scope: It can be integrated into **occupational health clinics**, IT corporate wellness, and ergonomics programs. It is applicable in **early osteoarthritis**, post-injury rehabilitation, and sports physiotherapy. There is potential to develop **AI-based home rehabilitation kits** with cloud-driven monitoring.

There is scope for mobile app integration, brace redesign for sports use, and wearable sensor fusion. It expands prospects for **precision physiotherapy** using AI + 3D printing in other joints (ankle, shoulder, spine).

Summary of Research Findings: A randomized controlled study (N=60; ages 25–50) was conducted for six weeks.

Group A: AI-driven exercises + heating pad + customized 3D-printed brace. **Group B**: TENS + ultrasound + conventional strengthening.

Both groups improved significantly ($p < 0.05$), but: Pain reduction (VAS) was Greater in Group A: Functional improvement (KOOS) was significantly higher in Group A; Muscle strength improved markedly in Group A and: Adherence & satisfaction was higher in Group A due to AI feedback and comfortable brace.

CONCLUSION: The AI + 3D printed brace protocol demonstrated superior effectiveness compared to conventional electrotherapy for reducing pain and improving strength and function in ergonomical knee pain.

MATVERSE: SENSOR-INTEGRATED SHOES AND MULTI-LEVEL MAT FOR BALANCE AND GAIT TRAINING

Bhakti Ladha, Riya Bhanushali, Hiral Lodhiya, Drishti Chauhan
MGM School of Physiotherapy, Chh. Sambhajinagar

BACKGROUND / PROBLEM STATEMENT: Falls and balance impairments are common in elderly and neurological populations and are a major cause of morbidity and loss of independence. Conventional tools often lack objective monitoring, real-time feedback, adaptability, and engagement across clinic and home settings.
OBJECTIVE / PURPOSE OF THE INNOVATION: MatVerse aims to create an interactive, sensor-based system that objectively measures weight-bearing and balance while delivering structured, progressive balance and coordination training. It seeks to enhance safety, engagement, and personalization of rehabilitation to reduce fall risk and extend rehabilitation independently between supervised sessions.
DESCRIPTION OF THE INNOVATION: MatVerse is an interactive balance-training system combining wireless, sensor-embedded shoes with a five-level printed floor mat to deliver graded static and dynamic balance, coordination, and gait exercises. The mat, approximately 2.0 m × 0.9 m, is constructed from non-slip, high-density foam or rubber and organized into color-coded footprint patterns for Romberg stance, Frenkel-based sequences, tandem stance, single-leg stance, and multidirectional stepping. In-shoe weight-bearing and pressure data stream wirelessly to a digital interface, enabling visualization of symmetry, loading, and task performance while guiding progression, personalization, and documentation of rehabilitation intensity and outcomes.
NOVELTY AND ADVANTAGES: The innovation integrates wearable pressure sensing with a structured, multi level mat that operationalizes established balance and coordination principles (Romberg, Frenkel, tandem and single-leg tasks) into a gamified workflow. Compared with traditional tools, it offers objective quantification, immediate feedback, progressive task design, and potential for remote monitoring.
POTENTIAL APPLICATIONS / FUTURE SCOPE: MatVerse can be used in hospitals, rehabilitation centers, elder-care facilities, and home-based programs for various balance disorders. Future extensions may include AI based fall-risk analytics, tele-rehabilitation dashboards, and integration with serious games.

BALCOOR MAT - AN INNOVATIVE SOLUTION AT IMPROVING BALANCE AND COORDINATION IN THE GERIATRIC POPULATION

Bilquis Hussain, Ritika Bagul, Shravani Jawake, Janhavi Dalvi, Dr. Rinkle Malani, Dr. Pallavi Palaskar MGM
School of Physiotherapy, Chh. Sambhajinagar, Maharashtra, India

PROBLEM STATEMENT: Aging is characterized by substantial deterioration in balance and coordination. After extensive research, limitations found in balance and coordination training devices were unstable surfaces, high cost, non-portability, and technology learning gap, etc. Thus, there is a need to develop an effective training equipment for the geriatric community.
OBJECTIVE: The objective of the invention was to create a systematic, affordable yet effective and functionally significant training equipment for the geriatric population that would enhance their balance and lower extremity coordination functions.
DESCRIPTION OF THE INNOVATION: The Balcoor Mat is made of EVA foam with dual surface, interlocking design and provides versatile exercises with 2 difficulty levels. Incorporating visual cues with vibrant colours guides, engages and promotes cognitive motor activation whilst textured zone facilitates proprioception. The training regimen combines coordination, balance, and proprioceptive stimulation exercises in 45-minute duration session.
NOVELTY: It addresses multiple areas - balance, coordination, proprioception, and multisensory activation. It has task-oriented training, graded progression, portable, 2 difficulty levels, textured zone, interlocking, and marked visual cues.
FUTURE SCOPE: Can be extended to fall prevention regimen, old age homes and different populations.
SUMMARY: The effectiveness was explored with a 4-week pilot study with 26 participants aged 65-75 years. It was a comparison between Frenkel's exercises (control group; n=13) and Balcoor mat regimen (n=13). After data analysis, Balcoor Mat users showed substantial improvement in balance and coordination as indicated by BBS, Romberg's test, LEMOCOT, and FES-I scores ($p<0.05$). Therefore, Balcoor Mat proved its potential as a physiotherapeutic equipment for rehabilitation of balance and coordination in geriatric population.

LEG EASE: AUTOMATION AND DIGITALIZATION IN CALF TIGHTNESS REDUCTION

Nidhi Paragbhai Ashar[1], Dr. Ashika Tanna (PT)[2]
1-MPT Student, 2-Assistant Professor, Faculty of Physiotherapy, Marwadi University, Rajkot

PROBLEM STATEMENT: Calf muscle tightness represents a general problem in the world of musculoskeletal disorders, ranging from sedentary people to professional athletes. Calf tightness often limits ankle dorsiflexion, affecting gait, producing functional impairments that can lead to delayed recovery. Despite frequent use of manual stretching, its efficacy is dependent upon the strength and skill of the therapist, leading to variable results. A consistent device providing constant, progressive stretching would improve treatment accuracy.
PURPOSE OF INNOVATION: To design a portable, automated, motor-controlled platform that maintains controlled stretching with minimal therapist effort and similar to clinical practice.
DESCRIPTION OF THE INNOVATION: Leg Ease is an automated, motor-controlled stretching platform designed to provide accurate, repeatable stretching for calf tightness. Its digitally programmed tilting mechanism elevates the forefoot gradually, allowing therapists to preset the angle, speed, and duration of stretch. The system ensures smooth, jerk free motion that mimics manual stretching while eliminating therapist-dependent variability. The device includes safety locks, speed regulation, and a stable loading capacity of upto 120–140kg. Compact and portable, it converts traditional manual intervention into standardized, technology-assisted rehabilitation process.
NOVELTY AND ADVANTAGES: The innovation eliminates therapist-dependent variability by offering constant angular control and repeatable stretch intensity. It promotes patient adherence, supports progressive rehabilitation, and reduces therapist workload. Digital adjustability and uniform force application differentiate it from conventional static boards, manual techniques.
POTENTIAL APPLICATIONS: Leg Ease can be implemented in physiotherapy clinics, sports facilities, home-based programs to ensure consistent and safe calf stretching. The device holds scope for digital expansion through smart monitoring, specific protocols, integration into technology-assisted rehabilitation systems, enhancing continuity of care beyond the clinic.

SILVERSTEPS: MAKING INDIAN ELDERLY SELF-RELIANT

Anuja Pokale[1], Shambhovi Mitra[2], Sadhan Berry[2], Vaishali Sharma1, Ritesh Raj[1]
1: BPT student, ISIC Multispecialty Hospital; 2: Associate Professor, ISIC Multispecialty Hospital

BACKGROUND: India is aging. By 2050, the number of elderly will double, outnumbering children under 15 years of age. 75% of elderly are facing chronic diseases, often exacerbated by sedentary lifestyles and inadequate exercise. The Fitness Protocols and Guidelines for Age 65+ Years, launched in August 2019 by the Ministry of Youth Affairs and Sports under the Fit India Movement, provide evidence-based exercises to promote active aging. However, barriers like forgetfulness, disorganized records, and low digital adoption hinder adherence among seniors.
OBJECTIVE: To develop a mobile application in Hindi language, integrating these guidelines to deliver personalized exercise recommendations to geriatric population, organize medical documents, and provide AI-driven reminders for medications, exercises, and procedures, thereby enhancing health management and promoting independent living.
DESCRIPTION OF THE INNOVATION: The innovation is an application in the Hindi language, developed using structured software development approach using Python Coding Language. It includes a simple command line interface for user interaction and modular python scripts for backend functionality. Development followed by an agile framework, emphasizing testing and refinement. The application is a prototype to be tested locally and not deployed to the cloud.
NOVELTY & ADVANTAGES: The app uniquely applies the official Fit India 65+ exercise guidelines, delivering evidence-based, Hindi-language, and personalized recommendations. Its simple interface, integrated reminders, and consolidated medical records offer a senior-friendly, comprehensive tool uncommon in existing geriatric fitness applications
POTENTIAL APPLICATIONS / FUTURE SCOPE: With validation, the prototype can evolve into a full mobile app with GUI, cloud storage and caregiver dashboards. It may support nationwide geriatric health initiatives, enabling scalable remote monitoring, accessible exercise guidance, and broader digital health applications.

CABLE CROSS OVER DESIGN MULTIPURPOSE PLINTH OF FOR STRENGTH TRAINING

Dr. Gajanan Bhalerao (PT), Phd scholar, GB School of Neuro Rehab and Aquatic Therapy, Pune, Maharashtra.

BACKGROUND/PROBLEM STATEMENT: In subacute rehab each paralysis patient requires 100-200 repetitive active-assisted movement exercises which can be tedious for therapist. Treating 6-8 patients per day is difficult. So, there is need of device which assists in these assisted movement training which will reduce therapist's load. Addressing this gap, one such innovation is the cable cross-over design multipurpose plinth, engineered to integrate traditional plinth based therapy with versatile cable-resistance training.
OBJECTIVE/PURPOSE OF THE INNOVATION: Design a cable weight-based machine which assist and/or resist paralytic patient during lower limb and upper limb exercises in bed. This will reduce therapist efforts and patients can do more repetitions.
DESCRIPTION: This is a multi-purpose plinth weight loaded cable cross over design. One end of the cable will be attached to the limb with a cuff and other end is loaded with the weight. Overhead bar with moveable bracket (cable pulley is attached) will help to change the angle of pull in horizontal plane. Vertical moveable bar's bracket will change angle of pull in vertical plane.
ADVANTAGES: Adjustable angle of pull of cable allows variable resistance for upper limb, lower limb, and trunk training at different ranges of joints of hip and knee. Compared to electronic devices, it is easier to use, more affordable, low-maintenance, and highly modifiable. Its mechanical design supports greater exercise variability, efficient therapist handling.
NOVELTY AND ADVANTAGES: Multipurpose plinth with, Adjustable angle of pull of weight loaded cable cross over in two planes. Multiplanar exercise can be done for upper, lower limb, and trunk.
POTENTIAL APPLICATIONS / FUTURE SCOPE: Use for stroke, paraplegic, quadriplegic, sub-acute phase strengthening on ortho rehab.
SUMMARY OF PILOT TEST: This is under use since last three years in more than 100 patients- stroke, spinal cord injury, TBI, Muscular dystrophy, MS, GBS, polyneuropathy for active-assisted exercises of upper and lower limbs showing good usability.

DVT PREVENTER

Priyanka Siwach[1], Isha Gupta[2]
1- Assistant Professor, 2- BPT 4th year student, Faculty of physiotherapy, SGT University, Gurugram, Haryana

BACKGROUND / PROBLEM STATEMENT: Deep Vein Thrombosis (DVT) represents critical yet preventable complications among immobilized, post-operative, and critically ill patients contributing notably to morbidity and mortality rates. Current interventions such as manual limb exercises, single-mode compression devices, or limb elevation are often limited by poor adherence, and do not provide sustained, physiologically effective venous stimulation. The lack of an integrated, automated, and patient-independent solution hinders optimal prevention.
OBJECTIVE / PURPOSE OF THE INNOVATION: To develop an integrated, user-friendly, and automated device "The DVT Preventer" which facilitates effective DVT prophylaxis by merging active movement simulation, mechanical compression, and optimized limb positioning.
DESCRIPTION OF THE INNOVATION: The DVT Preventer is a three-component physiotherapeutic device designed to enhance venous flow through synergistic mechanisms:
1. Automated Ankle: Foot Mobilizer: Generates controlled dorsiflexion–plantarflexion movements to activate the calf muscle pump without requiring patient effort.
2. Pneumatic Calf Compression Unit: Provides rhythmic, intermittent compression at programmable pressures to minimize venous stasis and enhance circulation.
3. Adjustable Slope Elevation Platform: Allows graded lower-limb elevation at therapeutic angles to promote passive venous drainage.
The integrated workflow ensures synchronized operation of all three modules, maximizing hemodynamic efficiency while maintaining comfort, safety, and ease of use.
NOVELTY AND ADVANTAGES: In contrast to conventional devices that provide single-modality interventions, the DVT Preventer integrates three evidence-based prophylactic mechanisms into a single compact system. Its automation diminishes the need for patient involvement, improves adherence, and offers customizable therapeutic settings. The device improves venous return while being portable, cost-effective, and adaptable for various clinical environment. Potential Applications / Future Scope: The device can be deployed in ICUs, post-operative wards, rehabilitation centres, and home-based rehabilitation. Future scope includes clinical trials in high-risk populations, integration of real-time hemodynamic monitoring, and development of AI-driven personalization for optimized therapy delivery.

"STATERA": A SENSOR-BASED WRIST BAND FOR REAL-TIME FALL DETECTION IN THE ELDERLY

Ritesh Raj1, Shambhovi Mitra (PhD)2, Sadhan Berry2, Anuja Pokale1, Vaishali Sharma1
1:BPT Intern, ISIC Institute of Rehabilitation Sciences; 2:Associate Professor, ISIC Institute of Rehabilitation Sciences

BACKGROUND: Falls are a major cause of injury and death among older adults. According to the World Health Organization, more than 684,000 people die annually from fall-related injuries, and nearly one in three individuals over 60 years experiences a fall each year. Existing monitoring solutions are often expensive, rely on stationary sensors, or present raw data that is difficult for caregivers to interpret. There is a need for an affordable, portable, and user-friendly system that can accurately detect falls and convey meaningful information to caregivers.
AIM: This innovation aims to develop STATERA, a compact and cost-effective wearable device designed to detect falls, classify their severity, and log incidents through a dedicated mobile application.
DESCRIPTION: Statera integrates an Arduino-based microcontroller, an MPU-6050 accelerometer-gyroscope, an HC-05 Bluetooth module, and a rechargeable battery. The device continuously monitors motion, detects rapid acceleration changes indicative of a fall, and categorizes events into mild, moderate, or severe based on threshold analysis. Upon detection, it triggers an alert and transmits data to an MIT App Inventor–based Android application, which displays fall severity and records the event along with user information. The system is designed to function offline and operates entirely on-device and over Bluetooth.
NOVELTY and ADVANTAGE: STATERA converts complex sensor outputs into clinically useful severity levels, improving real-world usability. It offers low cost, portability, single-user medical profiling, and reliable operation without internet dependency.
POTENTIAL APPLICATIONS: The device may support geriatric care, neurological and orthopedic rehabilitation, home-based physiotherapy, and remote monitoring. Future improvements include miniaturization, integration of machine-learning algorithms, and potential cloud connectivity.

EXERCISE PROTOCOL FOR EFFECTIVE SIMPLIFIED MANAGEMENT OF SACROILIAC DYSFUNCTION

Dr. Shweta Kumar1, Dr. Tarun Kumar[2], Dr. Ankita Samuel1
1-Assistant Professor, K.R. Mangalam University, Sohna Road, Gurugram, Haryana, 2-Associate Professor,
Galgotias University, Greater Noida,

BACKGROUND / PROBLEM STATEMENT: Sacroiliac (SI) dysfunction is a frequent source of low back and pelvic pain. Existing assessment and treatment methods often require multiple sessions, depend heavily on clinician expertise, and lack a standardized, reproducible approach. A simplified, evidence-based protocol integrating assessment, manual therapy, and self-management is needed to support efficient and consistent SI joint rehabilitation.
OBJECTIVE / PURPOSE OF THE INNOVATION: To develop a streamlined, stepwise clinical protocol combining mobility testing, manual corrections, muscle energy techniques (METs), and targeted self-exercises to facilitate rapid identification and correction of SI joint dysfunction.
DESCRIPTION OF THE INNOVATION: The innovation introduces a protocol-based model for SI management incorporating:

- **Gillet's Test and prone palpation for assessment**
- **Graded SI joint glides**
- **Reverse antagonist METs for hamstrings and piriformis**
- **Thoracic lateral glides (T2–T7)**
- **Mulligan MWM/SNAGs if dysfunction persists**
- **Self-exercises to maintain corrections**

EXERCISE / TREATMENT PROTOCOL STEPS:

Step 1: Gillet's Test to assess PSIS mobility and detect SI restriction.
Step 2: Identify SI joint variation (Right-on-Right / Left-on-Left / Right-on-Left / Left-on-Right) via prone palpation.
Step 3: Apply Grade I/II/III SI glide based on the identified variation.
Step 4: Perform contralateral hamstrings MET (Reverse Antagonist).
Step 5: Perform ipsilateral piriformis MET (Reverse Antagonist).
Step 6: Apply T2–T7 lateral glide technique.

Step 7: Reassess using Gillet's Test.
Step 8: If still uncorrected, perform Lion's Stretch with MWM/SNAGs to the ipsilateral SI joint.
Step 9: Self-exercise: Side-lying thoracic mobility stretch—30 sec, 3 reps.
Step 10: Self-exercise: Superman back extensor stretch—20 sec, 5 reps.
Step 11: Self-exercise: Adductor strengthening—10 sec hold, 10 repetitions.

NOVELTY and ADVANTAGES:

- Integrated sequence from assessment to correction to self-maintenance
- Reduced reliance on repeated manual therapy
- Inclusion of thoracic mobility to address kinetic-chain influences
- Use of reverse antagonist METs for quicker neuromuscular reset
- Clinically simple and reproducible

POTENTIAL APPLICATIONS / FUTURE SCOPE: Applicable in OPDs, sports rehab, and pain clinics; useful as a teaching module; potential for digital protocol or decision-support tool; suitable for larger-scale research.
SUMMARY OF PILOT FINDINGS: Early clinical use shows rapid SI correction, improved mobility and pain outcomes, and increased patient independence through self-exercises. Formal studies are required for validation.
CONCLUSION: This protocol provides a structured, efficient, and patient-centred approach for managing SI dysfunction, integrating assessment, manual therapy, and self-exercises to achieve reliable and sustained clinical improvement.

MACHINE LEARNING-BASED GAIT ABNORMALITY ANALYSIS USING A NOVEL COST-EFFECTIVE SMART DEVICE

Sathya Guruprasad 1, Sai Bhavani 2, Jayavrinda Vrindavanam 3, Pradeep Kumar K 4
1 Principal & Professor, College of Physiotherapy, Dayananda Sagar University, Karnataka
2 Assistant Professor, College of Physiotherapy, Dayananda Sagar University, Karnataka
3 Professor & chairperson, Dept. of CSE(AIandML), Dayananda Sagar University, Karnataka
4 Dept. of CSE(AI&ML), Dayananda Sagar University, Karnataka, India 562112

BACKGROUND: Gait disturbances are crucial signs of neurological and musculoskeletal diseases, having a direct impact on the quality of life and the medical condition of individuals. Classical diagnosis relies on the subjective clinical eye of a practitioner, leading to inter-observer variability, the absence of standardised metrics and lack of scalability in low-resource settings. These limitations preclude early diagnosis and objective follow-up.
OBJECTIVE: Making use of machine learning (ML), and the joint effort between Physiotherapy and CSE (AI and ML) departments, deals with the introduction of a new cost-effective system that is capable of identifying gait abnormalities, which may aid clinicians in treatment for data- driven, precise therapy.
DESCRIPTION OF THE INNOVATION: A simulated dataset of 100 patients was created, and it recorded with the main space time characteristics like step length, step count and centerline deviation. Preprocessing steps included feature scaling, generation of asymmetry indices, and label encoding. A Random Forest classifier, given its flexibility to model sophisticated (non-linear interactions, was fitted on the dataset. Short mathematical analysis indicated ranked feature importance of step length, step count and centerline deviation with cross-validation, which guarantees strong qualities. The model had a global accuracy of ~82% and precision and recall values higher than 75 for major classes, but low performance on underrepresented classes was observed, meaning that it should be trained with larger datasets.
NOVELTY AND ADVANTAGES: The novelty of the approach is in the low-cost, wearable and consumer- grade IMU-based prototype, which allows for real-time gait data acquisition suits. Unlike costly lab-based motion capture systems, this system allows edge computing, enabling portability and privacy while at the same time being inexpensive- a perfect fit for community screenings and routine clinical practice. A fastAPI powered user interface enables the easy input of gait measurements with real-time abnormality prediction.
POTENTIAL APPLICATIONS AND FUTURE SCOPE: Anticipated results are an improved diagnostic accuracy, individual provision plan for rehabilitation and monitoring of the mobility changes in the long-term. The model presents the potential of ML in converting gait between subjective and objective assessments. Once real patient data are available, mine combined sensor use will be adapted to optimise generalisation. This scalable, affordable approach has the potential to enable physiotherapists, neurologists, and rehabilitation clinicians alike to 'follow-the-evidence' in driving provision of equitable care.
KEYWORDS: gait analysis, neurological and musculoskeletal diseases, space-time characteristics, Random Forest, cost-effective design wearable sensors, IMU-based prototype, fastAPI

FOOT EXOSENSE: A SMART SOFT EXOSKELETON WITH REAL-TIME BIOFEEDBACK FOR FOOT DROP REHABILITATION

Saburi Goliwar, Dr. Sayli Paldhikar; MAEER'S Physiotherapy College, Pune

BACKGROUND: Foot drop causes inadequate dorsiflexion, reduced foot clearance, and abnormal plantar pressure distribution, resulting in gait instability and compensatory deviations. Conventional AFOs provide only passive support and lack active correction or real-time biomechanical feedback. A lightweight, affordable device capable of offering mechanical assistance along with continuous monitoring especially for toe-out, plantar pressure, and foot placement.
OBJECTIVE: To develop an affordable soft exoskeleton that assists dorsiflexion, enhances mediolateral stability, measures toe-out angle, and provides real-time pressure and kinematic feedback for rehabilitation and functional ambulation.
DESCRIPTION OF THE INNOVATION: Foot ExoSense integrates a soft cast shoe and ankle support with three TPU-based pneumatic actuators created using FDM 3D printing. The dorsum actuator assists dorsiflexion, while medial and lateral actuators improve stability. A 9-DOF MPU9250 IMU measures ankle kinematics and toe-out orientation. Four FSR406 sensors embedded in the sole capture heel strike, midstance, push-off, plantar pressure asymmetry, and overall loading pattern. An ESP32 microcontroller processes IMU and pressure data and controls actuator inflation using a closed-loop PID algorithm via a compact 12 V diaphragm pump. Data on pressure distribution and center-of-pressure trajectory are transmitted through Bluetooth Low Energy to a desktop interface for real-time biofeedback.
NOVELTY AND ADVANTAGES: Active dorsiflexion correction and stability control. Real-time toe-out measurement using IMU rotational tracking. Multi-sensor integration for comprehensive pressure monitoring. Lightweight (<450 g), low-cost (~USD 120), and extended battery life (>6 hours). Rapid detection latency (<50 ms) with >20° dorsiflexion assist. Potential Applications: Rehabilitation of foot drop; gait monitoring during therapy or home training; fall-prevention through improved foot placement; support for daily ambulation; pressure-counter training to prevent overloading, equal weight-bearing retraining using live pressure-symmetry feedback.

ARTIFICIAL INTELLIGENCE–BASED HEALTH TRACKING SYSTEM

Dr. Junneshwar Bidve (Professor and HOD Cardiovascular respiratory Physiotherapy), Dr Aishwarya Bandari (Assistant Professor Cardiovascular respiratory Physiotherapy), MGM School of Physiotherapy, Chhatrapati Sambhajinagar

BACKGROUND / PROBLEM STATEMENT: Non-communicable diseases (NCDs) such as diabetes, hypertension, obesity, and cardiovascular disorders account for the majority of global deaths. Their incidence continues to rise due to genetic,lifestyle, and environmental factors. Although many NCDs are preventable through early detection, monitoring, and timely intervention, existing devices like smartwatches and fitness trackers merely record physiological parameters without utilizing the data for risk prediction or prevention. Additionally, healthcare professionals cannot continuously supervise high-risk individuals. Therefore, an integrated, intelligent, preventive-oriented system is needed to bridge this gap.
OBJECTIVE / PURPOSE OF THE INNOVATION: The innovation aims to: 1. Suggest a personalized, supervised exercise program based on real-time vital parameters; 2. Monitor physical activity and exercise performance continuously and; 3. Enable early detection, prevention, and rehabilitation for individuals at risk of systemic illnesses.
DESCRIPTION OF THE INNOVATION: The developed innovation is an AI-driven health tracking system consisting of: A wearable fitness tracker that records SpO_2, sleep, pulse rate, ECG, blood pressure, and other vitals; a cloud-based AI software platform that analyzes collected data using machine-learning algorithms and; a protocol-processing unit that generates customized exercise or preventive protocols. These protocols are then reviewed by networked physiotherapists or health professionals and finally delivered to the user as an immediate, individualized exercise prescription. The system functions as an end-to-end workflow—from data capture to AI analysis to professional validated intervention.
NOVELTY AND ADVANTAGES: First system to combine real-time wearable data, AI-based analysis, and physiotherapist validated personalized exercise protocols. It functions as a bridge between high-risk individuals and healthcare providers, enabling preventive care. It helps prevent major NCDs such as diabetes, hypertension, thyroid disorders, and potentially reduces risks of cancers, mental health conditions, heart attacks, and strokes. It provides continuous monitoring, early alerts, and guided rehabilitation.Potential
APPLICATIONS / FUTURE SCOPE: This system can be applied across all age groups for preventive healthcare, chronic disease management, tele-physiotherapy, community health programs, and digital rehabilitation. Future developments may include integration with hospital systems, predictive analytics for early disease onset, and AI based virtual coaching for comprehensive lifestyle management.

POST STROKE RECOVERY, REHAB AND PHYSIOTHERAPY INNOVATION

Varidhi Vats[1], Seema Grover[1], Gautam Kumar Saha[1],Ashish Dutta[2]
1-Apollo Hospitals Educational and Research Foundation, New Delhi, 2-IIT-Kanpur

BACKGROUND: Stroke remains a leading cause of long-term disability worldwide, with hand impairment posing a significant challenge for both patients and clinicians. Current clinical practice guidelines in low- and middle income countries highlight the lack of implementable strategies and multidisciplinary approaches for effective rehabilitation. The idea behind this new Innovation is to incorporate Evidence based Rehab-multidisciplinary approach, such as Neurofacilitatory Techniques and/or Artificial Intelligence driven Rehab. Thus, the study aims at introducing the Act Protocol; Activation, Conditioning, and Training, Efficacy Evaluation of a Technology driven Rehab Tool in post stroke hand Rehabilitation along with longitudinal evaluation of Stroke specific Biomarkers-systems Biology Approach.The proposed PT intervention, termed the Act Protocol—targets both central and peripheral neuroplasticity to optimize motor Recovery. This approach enables Intensive and task oriented Motor Rehabilitation along with incorporating. The integrated neurological rehabilitation framework combines neurofacilitatory techniques and motor control principles-concept of Motor Imagery- Action observation and Mirror Therapy to drive neuroplasticity and Motor Recovery,& includes: Preparation (Activation) to prime the hand; Conditioning with task-oriented activities for pattern reinforcement; and repetitive Training to consolidate skills and achieve functional gains.

FUTURE SCOPE: Recent literature and Phase III trials underscore the efficacy of robotic-assisted rehabilitation in improving upper limb function, particularly when integrated with conventional therapeutic Techniques. Meta analyses further confirm that hybrid interventions yield superior outcomes in hand dexterity and strength.Combining an Evidence-based Exercise Intervention with advanced rehabilitation systems, can deliver Intensive,Repetitive and task-specific Training -integral to facilitate post stroke hand Rehabilitation. This innovation addresses critical gaps in rehabilitation strategies by offering a scalable, evidence-based solution tailored to resource-constrained settings too.

CONCLUSION: The Act Protocol represents a novel, multidisciplinary approach to post-stroke hand rehabilitation,combining neurofacilitatory principles. AI driven technology in Rehab has the potential to accelerate recovery and improve functional independence and underscores the need for broader clinical adoption and further research into long-term outcomes. We use AI innovation with system biology, holistic health approach for stroke rehab.

NOTE: This is a part of the project titled “Effect of Brain Computer Interface based Hand Exoskeleton in Neuro rehabilitation for stroke Patients. A Phase II Randomized Clinical Trial.”

SENIOR CATEGORY MISCELLANEOUS

COMPETENCY-BASED ASSESSMENT IN PHYSIOTHERAPY EDUCATION USING A MULTIMODAL APPROACH: A NARRATIVE REVIEW

Dr Pallavi Palaskar [1]

[1]Department of Neurophysiotherapy, MGM School of Physiotherapy, Chhatrapati Sambhaji Nagar A constituent unit of MGMIHS Navi Mumbai

BACKGROUND: Competency-based education (CBE) in the field of physiotherapy has been an important aspect assessment of competencies among physiotherapy students as well as assessment of clinical skills is also an important aspect. This review provides guides on availability of various available assessment methods like Objective Structured Clinical Examinations (OSCE), and reflective portfolios and workplace-based assessment (WBA).

METHODS: Articles were searched in PubMed, Scopus, Web of Science, and Google Scholar with keywords like "competency-based education," "competency-based assessment," "physiotherapy," Integration, holistic assessment. The information is synthesized in an organized which describes about CBE in physiotherapy, as well as available assessment methods like (OSCE, WBA, portfolios), then this review explains about integration of these methods and challenges during implementation. Evidence supports to use multiple model approach as it will be more objective and will help for reflective learning, as well as it will also help to align with global standards and accreditation requirements.

CONCLUSIONS: This review recommends to use multimodal approach where integration of OSCE, workplace- based assessment, reflective portfolio etc. is needed. But application of this multimodal approach requires rigorous faculty training, readiness of institute, easy availability of validated tools and ongoing evaluation to meet quality. Such multimodal assessment may help to effectively assess the competencies of students in physiotherapy education.

KEYWORDS "competency-based education," "competency-based assessment," "physiotherapy," Integration, holistic assessment.

PhyYogDS – A HOLISTIC MULTIDISCIPLINARY REHABILITATION MODEL FOR THE MANAGEMENT OF TREATMENT-RELATED COMPLICATIONS AMONG PATIENTS WITH BREAST CANCER

Neelam Kumari[1], Suresh Mani[2], Kalaivani Chellappan[3]

[1] PhD Scholar, Department of Physiotherapy, School of Allied Medical Sciences, Lovely Professional University, Punjab, India. [2] Professor and Dy. Dean, School of Allied Medical Sciences, Lovely Professional University, Punjab, India. [3] Senior Lecturer, Jabatan Kejuruteraan Elektrik, Elektronik & Sistem, University Kebangsaan Malaysia.

BACKGROUND: Breast cancer has become the most commonly diagnosed malignancy globally. Despite therapeutic advancements, its treatment causes multiple complications affecting patients' physical, psychological, social, and nutritional well-being. Holistic multidisciplinary rehabilitation is therefore crucial for comprehensive recovery.

AIM: To evaluate the efficacy of PhyYogDS, a multidisciplinary rehabilitation model integrating physiotherapy, yoga, diet, and spirituality, in managing treatment-related complications among breast cancer patients.

METHODS: A randomized controlled trial was conducted using purposive sampling between October 2022 and April 2023. Sixty-five women with stage II or III breast cancer were allocated to either the PhyYogDS rehabilitation group (n=33) or a usual-care control group (n=32). Quality of life (primary outcome) and other complications (secondary outcomes) were assessed at baseline (W0), week 4 (W4), and week 8 (W8).

RESULTS: All 65 participants completed the study. A significant main effect of time ($p<0.001$) and time×group interaction ($p<0.001$) was found for quality of life. The intervention group's mean score improved from 40.66±2.33 at W0 to 80.30±1.70 at W8, with large effect sizes (Cohen's d=1.16 at W4; 2.87 at W8).

CONCLUSION: Concurrent administration of PhyYogDS with conventional cancer therapy effectively reduces treatment-related complications and significantly enhances quality of life, supporting its integration as a holistic rehabilitation model in breast cancer care.

KEYWORDS: breast cancer, treatment-related complications, rehabilitation, physiotherapy, quality of life.

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