DOI: 10.7860/JCDR/2024/53576.19758

PHYSIO CONNECT

SPREADING KNOWLEDGE

# Physio Connect 4

**Theme : Expanding new horizons in the field of Physiotherapy**

## National Conference

## Conference Proceedings

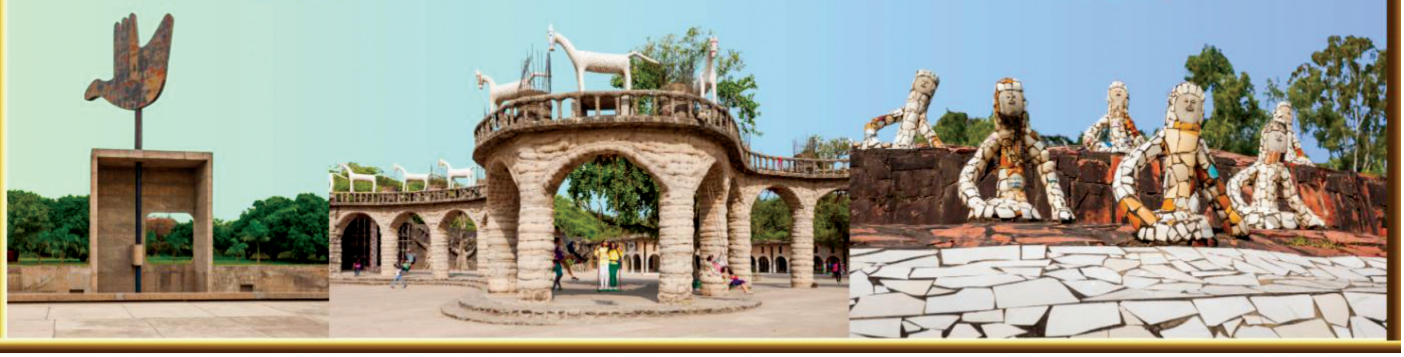
THE MAYRA FOUNDATION

A Move Towards Life

Venue : Law Auditorium

Panjab University, Chandigarh

**30-31 MARCH 2024**



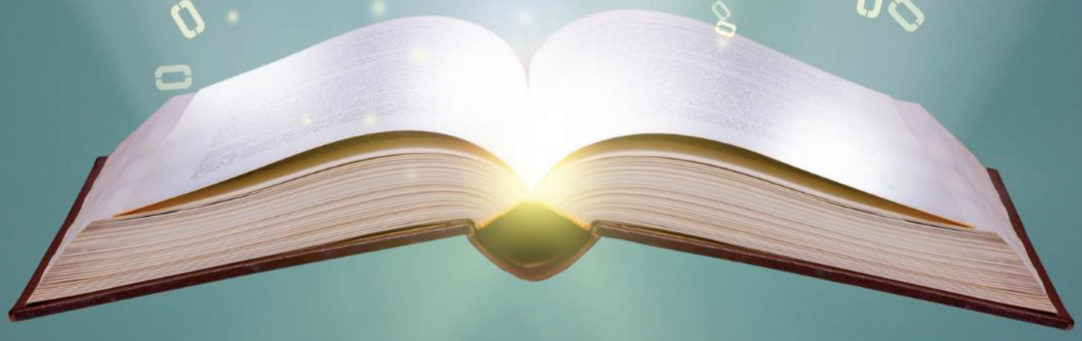
THE MAYRA FOUNDATION

PHYSIO CONNECT
SPREADING KNOWLEDGE

# Physio Connect 4

## NATIONAL CONFERENCE

**Theme : Expanding new horizons in the field of Physiotherapy**



**DR. SARVOTAM CHAUHAN (PT)**
Organising Chairman
Founder Prognosia Healthcare
Gurugram

**DR. MOHIT NAIN (PT)**
Organising Co-Chairman
Sr. Physiotherapist
Jind, Haryana

**DR. SHWETA SHARMA (PT)**
Organising Secretary
Assistant Professor
MM Institute of Physiotherapy, Mullana

**DR. SOM GUPTA (PT)**
Joint Secretary
Head Dep. of Physiotherapy
Fortis Hospital, Ludhiana

Joint Secretary

**DR. POOJA SHARMA**
Associate Professor
Manav Rachna Institute of Research and Sciences, Faridabad

Joint Secretary

**DR. SATVIRJEET SINGH (PT)**
Sr. Physiotherapist
Chandigarh

Joint Secretary

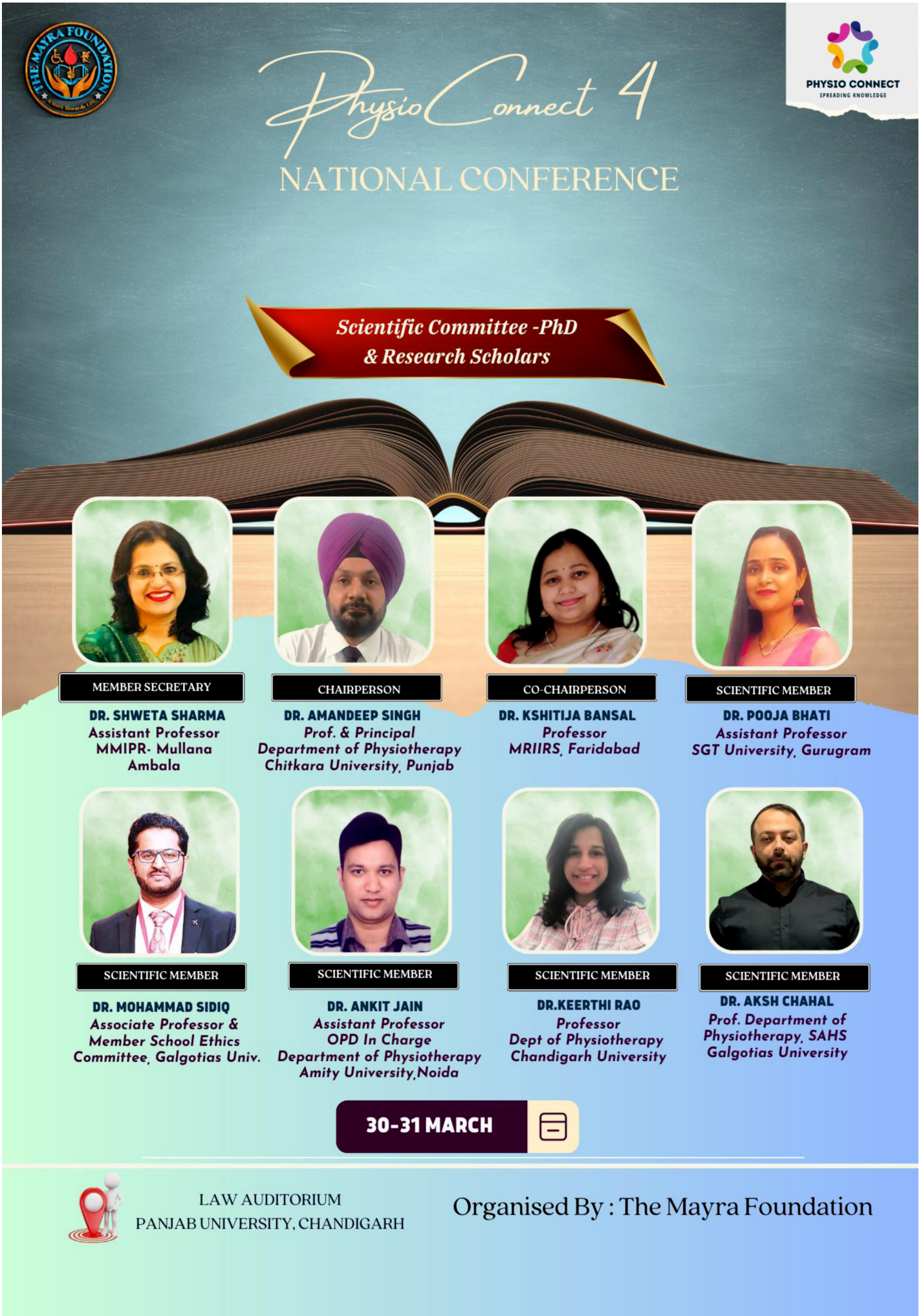
**DR. SAED VARIS (PT)**
HOD Physiotherapy
CK Birla Hospital, Gurugram

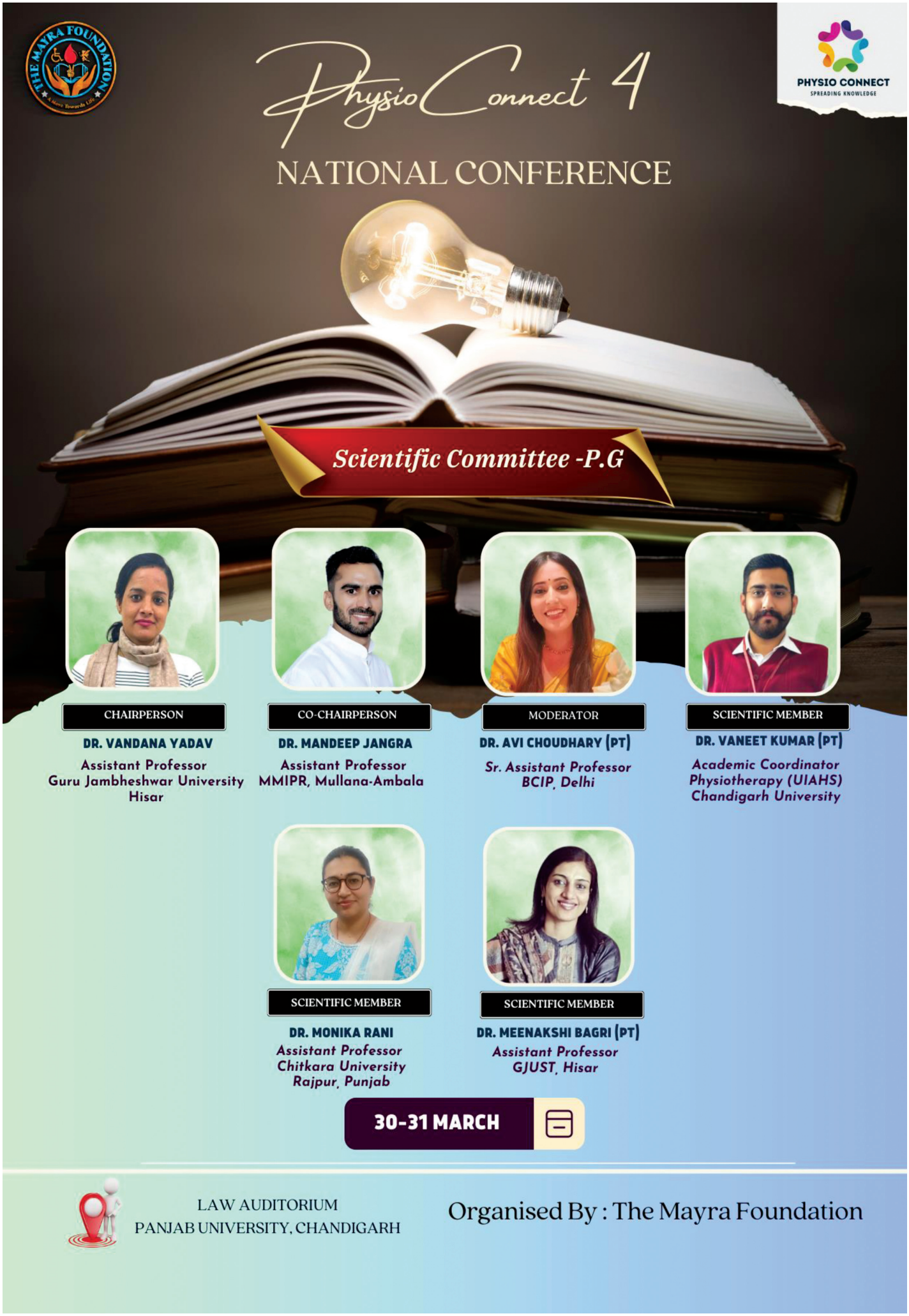
**DR. AMANDEEP SINGH**
Prof. & Principal
Department of Physiotherapy
Chitkara University, Rajpura Punjab

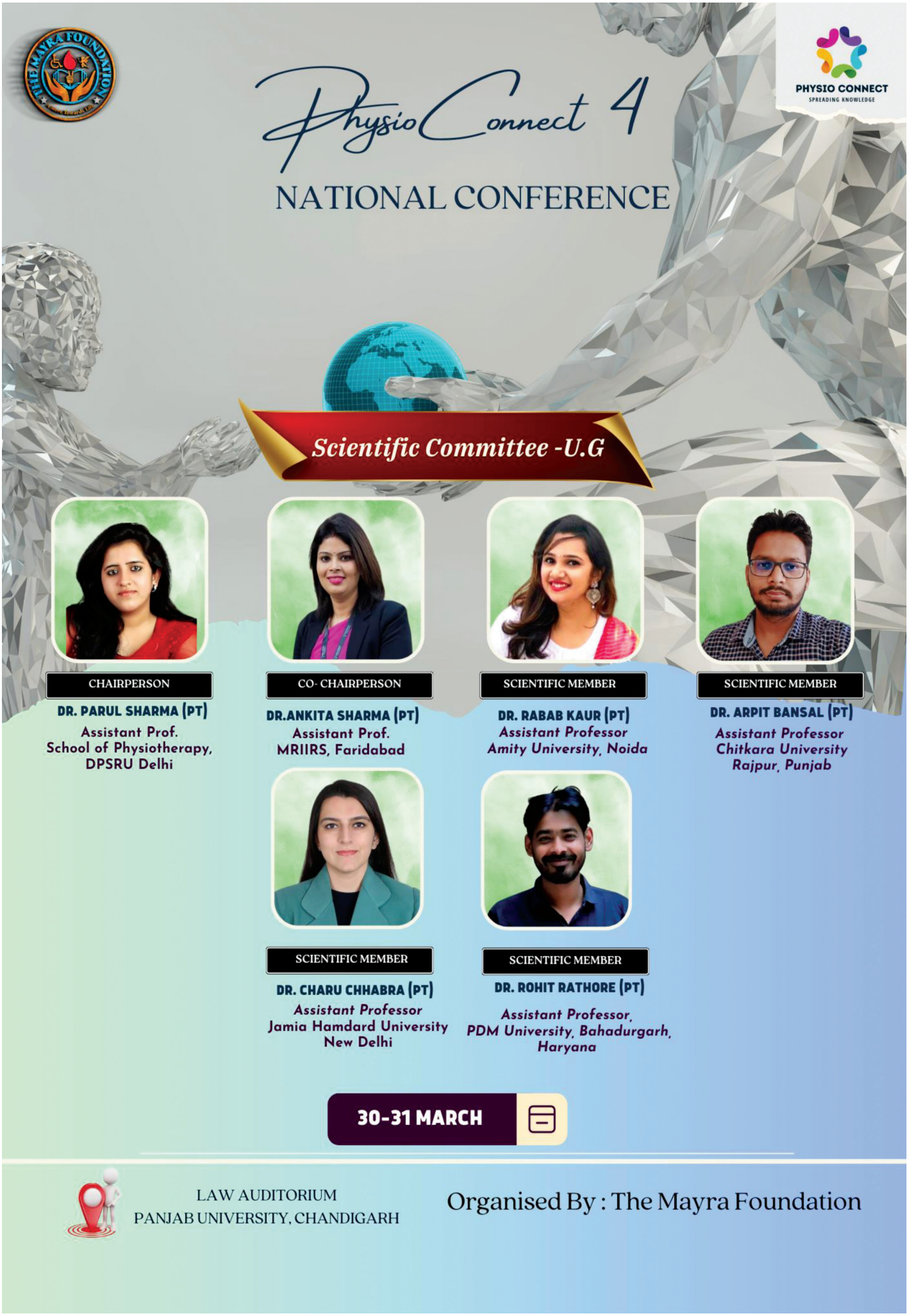
**DR. VIDHI SINGH (PT)**
Assistant Prof.
Sanskriti University, Mathura

**30-31 MARCH 2024**

LAW AUDITORIUM
PANJAB UNIVERSITY CHANDIGARH


THE MAYRA FOUNDATION
PHYSIO CONNECT
SPREADING KNOWLEDGE
Physio Connect 4
NATIONAL CONFERENCE
Scientific Committee -PhD & Research Scholars
MEMBER SECRETARY
DR. SHWETA SHARMA
Assistant Professor
MMIPR- Mullana
Ambala
CHAIRPERSON
DR. AMANDEEP SINGH
Prof. & Principal
Department of Physiotherapy
Chitkara University, Punjab
CO-CHAIRPERSON
DR. KSHITIJA BANSAL
Professor
MRIIRS, Faridabad
SCIENTIFIC MEMBER
DR. POOJA BHATI
Assistant Professor
SGT University, Gurugram
SCIENTIFIC MEMBER
DR. MOHAMMAD SIDIQ
Associate Professor &
Member School Ethics
Committee, Galgotias Univ.
SCIENTIFIC MEMBER
DR. ANKIT JAIN
Assistant Professor
OPD In Charge
Department of Physiotherapy
Amity University,Noida
SCIENTIFIC MEMBER
DR.KEERTHI RAO
Professor
Dept of Physiotherapy
Chandigarh University
SCIENTIFIC MEMBER
DR. AKSH CHAHAL
Prof. Department of
Physiotherapy, SAHS
Galgotias University
30-31 MARCH
LAW AUDITORIUM
PANJAB UNIVERSITY, CHANDIGARH
Organised By : The Mayra Foundation


THE MAYRA FOUNDATION
PHYSIO CONNECT
SPREADING KNOWLEDGE
Physio Connect 4
NATIONAL CONFERENCE
Scientific Committee -P.G
CHAIRPERSON
DR. VANDANA YADAV
Assistant Professor
Guru Jambheshwar University
Hisar
CO-CHAIRPERSON
DR. MANDEEP JANGRA
Assistant Professor
MMIPR, Mullana-Ambala
MODERATOR
DR. AVI CHOUDHARY (PT)
Sr. Assistant Professor
BCIP, Delhi
SCIENTIFIC MEMBER
DR. VANEET KUMAR (PT)
Academic Coordinator
Physiotherapy (UIAHS)
Chandigarh University
SCIENTIFIC MEMBER
DR. MONIKA RANI
Assistant Professor
Chitkara University
Rajpur, Punjab
SCIENTIFIC MEMBER
DR. MEENAKSHI BAGRI (PT)
Assistant Professor
GJUST, Hisar
30-31 MARCH
LAW AUDITORIUM
PANJAB UNIVERSITY, CHANDIGARH
Organised By : The Mayra Foundation


THE MAYRA FOUNDATION
PHYSIO CONNECT
SPREADING KNOWLEDGE
Physio Connect 4
NATIONAL CONFERENCE
Scientific Committee -U.G
CHAIRPERSON
DR. PARUL SHARMA (PT)
Assistant Prof.
School of Physiotherapy,
DPSRU Delhi
CO- CHAIRPERSON
DR.ANKITA SHARMA (PT)
Assistant Prof.
MRIIRS, Faridabad
SCIENTIFIC MEMBER
DR. RABAB KAUR (PT)
Assistant Professor
Amity University, Noida
SCIENTIFIC MEMBER
DR. ARPIT BANSAL (PT)
Assistant Professor
Chitkara University
Rajpur, Punjab
SCIENTIFIC MEMBER
DR. CHARU CHHABRA (PT)
Assistant Professor
Jamia Hamdard University
New Delhi
SCIENTIFIC MEMBER
DR. ROHIT RATHORE (PT)
Assistant Professor,
PDM University, Bahadurgarh,
Haryana
30-31 MARCH
LAW AUDITORIUM
PANJAB UNIVERSITY, CHANDIGARH
Organised By : The Mayra Foundation

## Message from the Conference Organizing Chairman and Founder of The Mayra Foundation, Dr. Sarvotam Chauhan

**DR. SARVOTAM CHAUHAN (PT)**

Dear Colleagues and Friends,

It is with great pride and immense pleasure that I extend a warm welcome to all participants, speakers, and delegates to the **PhysioConnect 4** National Conference themed 'Expanding new horizons in the field of Physiotherapy', held at Panjab University, Chandigarh, on March 30-31, 2024. This year's conference promises to be an exceptional event, bringing together some of the brightest minds in the field of physiotherapy to share knowledge, innovations, and advancements.

PhysioConnect 4 stands as a testament to our commitment to fostering an environment of learning and collaboration. With over 220 abstracts submitted, we are thrilled by the enthusiasm and dedication demonstrated by our community. This overwhelming response underscores the importance of our collective mission: to advance physiotherapy through education, research, and practice.

At **The Mayra Foundation**, our goal has always been to support and uplift healthcare, physiotherapists by providing platforms like PhysioConnect, where professionals can converge, network, and inspire one another. We believe that through such initiatives, we can drive significant progress in physiotherapy, ultimately benefiting patients and enhancing the quality of care.

I would like to express my heartfelt gratitude to our esteemed speakers, dedicated organizing committee, and all participants for their unwavering support and contributions. Your efforts and passion are the driving forces behind the success of this conference.

Warm regards,
**Dr. Sarvotam Chauhan (PT)**
Organizing Chairman
Founder, The Mayra Foundation

# Intra-rater Agreement of One Foot Balance Test to Identify Balance among Female Collegiates

Abstract ID-UG 01

**Kriti Arya, Student (UG), Department of Physiotherapy, Maharishi Markandeshwar Institute of Physiotherapy and Rehabilitation, Maharishi Markandeshwar (Deemed to be University), Mullana, Ambala, Haryana, India.**
**Sunanda Bhowmik, Assistant Professor, Department of Physiotherapy, Maharishi Markandeshwar Institute of Physiotherapy and Rehabilitation, Maharishi Markandeshwar (Deemed to be University), Mullana, Ambala, Haryana, India.**

**Introduction:** Static balance is relying on intact sensory systems and is crucial for preventing falls, especially in populations with neurological or musculoskeletal issues. The One-foot Balance Test (OFBT) is one of the common assessment tools of static balance. Previous Researches have highlighted the importance of reliable assessments like OFBT in identifying balance issues. But there is a dearth in literature regarding the intra-rater reliability of OFBT among female collegiates aged between 19-22 years.

**Aim:** To establish the intra-rater reliability of OFBT among collegiate students.

**Materials and Methods:** This was an observational study with a cross-sectional design. The sample size for this study was estimated to be 120. Participants were asked to stand on their right foot followed by the left leg. Three readings for each were taken with both eyes open and eyes closed. After two days one reading for each was taken for both legs with Eyes Open (EO) and Eyes Closed (EC) to check the intra-rater reliability of one foot balance test at same suitable conditions.

**Results:** The value of Cronbach's alpha was 0.31 and the Intra-class Correlation Coefficient (ICC) value of EC (R) and EC (L) was 0.18. The value of Cronbach's alpha was 0.27 and the Intraclass Correlation Coefficient (ICC) value for EO (R) and EO (L) was 0.15.

**Conclusion:** The intra-rater reliability of OFBT found to be very poor in female collegiate. This may be due to poor proprioception of the students, sedentary lifestyles more indulging in indoor activities of the collegiate.

**Keywords:** Females, Musculo-skeletal issues, Neurological issues Reliability, Sensory systems.

# Effect of Knee Isokinetic Strength Ratio on Foot Arch Index In College-going Students: A Cross-sectional Study

Abstract ID-UG 02

**Dikshita Kabba, Student, MMIPR, Maharishi Markandeshwar (Deemed to be University), Mullana, Ambala, Haryana, India.**
**Joydip Saha, Assistant Professor, MMIPR, Maharishi Markandeshwar (Deemed to be University), Mullana, Ambala, Haryana, India.**

**Introduction:** Knee isokinetic refers to the dynamic knee muscles contraction with constant velocity. Hamstring-to-Quadriceps (H:Q) ratio data for several knee isokinetic parameters are essential as they are primary dynamic frontal-plane knee stabilizers. Multiple researches had confirmed that altered frontal knee alignment is highly correlated with the foot posture. Foot arch is biomechanically linked with the knee by kinematic chain which may influence the knee alignments.

**Aim:** To find the effect and relation of knee isokinetic strength on foot arch index in college-going students.

**Materials and Methods:** The 200 college-going students (age: 22.08±1.36 years) were recruited in this study using convenient sampling method. Informed consent and demographic details were obtained from each individual. H:Q ratio with five repetitions of maximal knee concentric flexion and extension were performed on an isokinetic dynamometer. Harris mat was used to obtain the foot print and arch index was calculated using Staheli's arch index.

**Results:** The mean H:Q ratio was 66.94±27.791 ($p>0.05$). The foot arch index was normally distributed (left=0.682±0.172, right=0.680±0.169). There was no significant relationship between left (r=-0.044) and right (r=-0.062) foot arch index with the H:Q ratio.

**Conclusion:** The study concluded that there was no effect and correlation of knee isokinetic strength ratio on foot arch in college-going students.

**Keywords:** Collegiates, Foot arch index, H:Q ratio.

# Evaluation and Quantifying the Difference Between Male and Female Agility in Football Players: A Cross-sectional Pilot Study

Abstract ID-UG 03

**Varsha Chattanta BPT Student, Maharishi Markandeshwar Medical College and Hospital, Solan.**
**Nitesh Verma, Assistant Professor, Maharishi Markandeshwar Medical College and Hospital, Solan.**
**Pooja Mehra, Assistant Professor, Maharishi Markandeshwar Medical College and Hospital, Solan.**

**Introduction:** Football is an intermittent sport which requires agility as essential trait for player conditioning, selection and prevention of injury. Agility is a conditional motoric attribute classified as a locomotor skill combining both a muscular and cognitive component. Previous study, revealed that Illinois and T-test were most significant tests to evaluate agility.

**Aim:** To evaluate and quantify the difference in agility between male and female footballers.

**Materials and Methods:** Purposive sampling was used in this cross-sectional study. 30 professional football players, aged between 18-25 years with normal BMI and had atleast 3 years of systematic football training with 3-4 training sessions weekly and 8 hours of football training per week were included. Those players who had visual/hearing impairments, history of lower limb fractures, Anterior Cruciate Ligament (ACL) reconstruction and meniscectomy were excluded from the study. Illinois and T-test was used to access agility of football players. Normality of data was checked using Shapiro-Wilk test. Descriptive statistics in form of Mean±SD were used to find normative value and Independent T-test was utilised to quantify the difference.

**Results:** Reference value of male and female player's agility in T-test was 10.35±0.58 and 14.52±0.50 whereas for Illinois test it is 16.34±0.79 and 18.12±1.02 respectively. Independent T- test showed significant difference in male and female agility for both Illinois and T-test ($p<0.001$).

**Conclusion:** Normative values are established for both genders. It is concluded that female players are clinically and statistically less agile when compared to male players (p-value <0.001).

**Keywords:** Body mass index, Illinois, Injury, Sport.

# Exploring the Impact of Office Syndrome on Employee Productivity: A Literature Review

Abstract ID-UG 04

**Md Sajid Raza Khan, BPT intern UG student, Department of Physiotherapy, Maharishi Markandeshwar Institute of Physiotherapy and Rehabilitation, Maharishi Markandeshwar (Deemed to be University), Mullana, Ambala, Haryana, India.**
**Simranjeet Kaur, Assistant Professor, Department of Physiotherapy, Maharishi Markandeshwar Institute of Physiotherapy and Rehabilitation, Maharishi Markendeshwar (Deemed to be University), Mullana, Ambala, Haryana, India.**
**Nidhi Sharma, Professor, Department of Physiotherapy, Maharishi Markandeshwar Institute of Physiotherapy and Rehabilitation, Maharishi Markandeshwar (Deemed to be university), Mullana, Ambala, Haryana, India.**

**Introduction:** Physiotherapy helps employees prevent injuries at work by improving workspaces and everyday routines, with a focus on acoustics and body mechanics. Working in a situation where every employee is aware of their individual physical needs, understands how to improve their posture, and takes regular pauses to stretch out decreases the likelihood of accidents while increasing productivity.

**Aim:** To explore the impact of office syndrome on employee productivity.

**Materials and Methods:** A total of twenty articles were reviewed in this narrative review. Twenty publications were evaluated, including 8 reviews, 2 experimental studies, 3 observational studies, 5 cross-sectional studies, and 2 surveys.

**Results:** According to the studies and publications included, the most common occupations with an increased risk of upper limb injuries were office workers. Workers reported increased weariness, upper backache, and neck discomfort after commencing work. Neck and back pain have been shown to interfere with participants' normal activities. We discovered a positive correlation between computer usage on a regular basis.

**Conclusion:** The majority of research participants experienced symptoms of office syndrome, mostly related to stiffness in their upper extremities and back. Employees working in offices who are older, female, have more experience, and put in longer hours are at a higher risk of developing these problems and need extra care. Ergonomic modifications, such as adjustable workstations and raised desks; behavioural cures, such as regular stretch breaks and postural awareness training.

**Keywords:** Back pain, Fatigue, Injury, Posture.

# Reference Value of Heel on Shin Test in Young Adolescents

Abstract ID-UG 05

**Rohit Kumar, Student (UG), Department of Physiotherapy, Maharishi Markandeshwar Institute of Physiotherapy and Rehabilitation, Maharishi Markandeshwar (Deemed to be University), Mullana, Ambala, Haryana, India.**
**Sunanda Bhowmik, Assistant Professor, Department of Physiotherapy, Maharishi Markandeshwar Institute of Physiotherapy and Rehabilitation, Maharishi Markandeshwar (Deemed to be University), Mullana, Ambala, Haryana, India.**

**Introduction:** Co-ordination assessment plays a pivotal role in evaluating motor function, particularly in adolescents, where impairments can have significant implications for daily activities and overall well-being. By providing standardised benchmarks, the reference value may have a potential effect to identify the optimal co-ordination among ideally developing young adolescents.

**Aim:** To establish normative reference values for the Heel on Shin Test (HST) among healthy young adolescents aged 12-19 years.

**Materials and Methods:** Weighing machine (healthgenie®), Anthropometer, Measuring tape, Stopwatch, other stationary items. The sample size for this test was 110 according to the formula: $N=[(1.96*0.13) / (0.025)]^2 =110$. The anthropometric measurement was then taken for the selected participants. The selected participants were asked to be in supine lying position to perform "heel on shin test", with eyes open and close for each side simultaneously with both limbs right limb following the left limb. They were instructed to place the heel of one foot onto the knee of the other leg and then slide the heel down the shin from the knee to the ankle and back up to the knee respectively.

**Results:** The mean±SD, GM for HTS_R_EO was (2.39±0.17,2.39), HTS_R_EC was (2.36±0.16,2.35) and for left side mean±SD, GM is HTS_L_EO was (2.44±0.19,2.41), HTS_L_EC was (2.42±0.18,2.41) respectively.

**Conclusion:** The normative values for the HST in adolescents provide crucial benchmarks for assessing motor function. These findings aid in identifying co-ordination impairments.

**Keywords:** Anthropometer, Co-ordination, Reference values.

# Effects of Exercise and Lifestyle Modifications in Sarcopenia Affected Elders: A Literature Review

Abstract ID-UG 06

**Nilesh Bhargava, Student, Department of Physiotherapy, SAHS, Manav Rachna International Institute of Research and Studies, Faridabad, Haryana, India.**
**Smriti Bhatia, Student, Department of Physiotherapy, SAHS, Manav Rachna International Institute of Research and Studies, Faridabad, Haryana, India.**
**Sunita Kumari, Assistant Professor, Department of Physiotherapy, SAHS, Manav Rachna International Institute of Research and Studies, Faridabad, Haryana, India.**
**Sarvotam Chauhan, Director and Chief Physiotherapist Prognosia Healthcare, Gurugram, Haryana, India.**

**Introduction:** Sarcopenia is a condition in which the loss of muscle mass and strength occurs. Which leads to difficulty in daily activities it has negative impact on physical health and quality of life among geriatric population. Studies showed 25% of elders aged 65+ elders affected by sarcopenia and 60% of 80+ elders are affected by sarcopenia. Studies show the role of exercise in improving muscle mass and function in Geriatric population with sarcopenia, and the duration and frequency of exercise needed to manage sarcopenia in this age group.

**Aim:** To find positive impact of exercise on elders and create awareness about exercises has numerous benefits in sarcopenia management.

**Materials and Methods:** Data has been sourced from google scholar, PubMed, ResearchGate and various journals. A total of 9 out of 10 studies are selected and have been reviewed and concluded in this article.

**Results:** A total of 7 out of 9 papers showed that Resistance exercise, aerobic exercise, combined exercise has positive effect. Resistance exercise shows efficacy in improving muscle strength and muscle mass in individuals at various stages of life. A total of 5 papers also says it improves the structural function of the neuromuscular system as it also slows down the chronic inflammatory response caused from aging and regulate hormone secretion.

**Conclusion:** People with sarcopenia, muscle strength and function can be enhanced through physical activity. The review also identified some gaps in the current research, like the need for more studies to evaluate the long-term effects of exercise.

**Keywords:** Geriatric, Muscle mass, Physiotherapy.

# Physiotherapy as Holistic Care in Pregnancy: A Literature Review

Abstract ID-UG 07

**Smriti Bhatia, Student, Department of Physiotherapy, SAHS, Manav Rachna International Institute of Research and Studies, Faridabad, Haryana, India.**
**Nilesh Bhargava, Student, Department of Physiotherapy, SAHS, Manav Rachna International Institute of Research and Studies, Faridabad, Haryana, India.**
**Pooja Sharma, Associate Professor, Department of Physiotherapy, SAHS, Manav Rachna International Institute of Research and Studies, Faridabad, Haryana, India.**
**Sarvotam Chauhan, Director and Chief Physiotherapist Prognosia Healthcare, Gurugram, Haryana, India.**

**Introduction:** Physiotherapy deals with the overall physical development of an individual. In pregnancy, there are pregnancy related disorders, such as gestational weight gain, gestational diabetes, pelvic muscle dysfunction and incontinence. Regular physical exercise during pregnancy is associated with numerous benefits.

**Aim:** To gather best evidence about the effectiveness of exercise and modalities during pregnancy.

**Materials and Methods:** Random controlled trails and studies from Google scholar, Pubmed and Physiotherapy Evidence Database (PEDro) that were published from 2019-2023 were reviewed. These studies included the trail of modalities during parturition and various forms of exercises during pregnancy. After reviews from these studies, a concise review has been formed suggesting the effectiveness of physiotherapy in pregnancy.

**Results:** Out of 15 papers that were selected 13 showed a positive impact of exercise and TENS in pregnancy and parturition respectively. Physiotherapy in case of pregnancy had shown a significant impact on gestational period, parturition Pelvic floor strengthening held in easy carrying of the foetus and exercises were found to prevent the gestational weight gain along with it, Pelvic floor strengthening helped in management of stress incontinence.

**Conclusion:** The whole study showed a positive impact of physiotherapy during pregnancy. The implementation of physiotherapy and modalities has the potential to reduce labor pain. Pregnant women who exercise have been shown to have a shorter labor and easier deliveries and possesses greater self-esteem.

**Keywords:** Exercise, Labour, Parturition.

# Impact of Aerobic Exercise Training on Sleep Quality in Adults with Somatic Dysfunction

Abstract ID-UG 08

**Aryan Batra, Student (BPT), Department of Physiotherapy, Maharishi Markandeshwar Institute of Physiotherapy and Rehabilitation, Maharishi Markandeshwar (Deemed to be University), Mullana, Ambala, Haryana, India.**
**Kanu Goyal, Assistant Professor, Department of Physiotherapy, Maharishi Markandeshwar Institute of Physiotherapy and Rehabilitation, Maharishi Markandeshwar (Deemed to be University), Mullana, Ambala, Haryana, India.**
**Manu Goyal, Professor, Department of Physiotherapy, Maharishi Markandeshwar Institute of Physiotherapy and Rehabilitation, Maharishi Markandeshwar (Deemed to be University), Mullana, Ambala, Haryana, India.**

**Introduction:** It has been demonstrated that aerobic exercise improves cardiovascular health and endurance. Patients with somatic dysfunction have low quality sleep, and training in aerobic exercise is important for enhancing the quality of the patients' sleep. Training with aerobic exercises includes cycling, running, and brisk walking.

**Aim:** To study that aerobic exercise improves sleep quality in adults with somatic dysfunction

**Materials and Methods:** Databases such as PubMed/Medline, Google Scholar, Scopus, Cochrane were explored to uncover full-text publications authored in English and were searched to retrieve desired articles. In addition, reference list of the retrieved article were searched in the analysis process.

**Result:** A total 278 articles are retrieved after removing duplicates articles, only 3 articles were evaluated in this literature review.

**Conclusion:** It has been concluded that aerobic exercise training improves sleep quality in adults with somatic dysfunction. Aerobic exercise training has shown promising effects on sleep quality among adults with somatic dysfunction. Research indicates that regular aerobic activity can improve sleep duration, efficiency, and overall quality. By reducing stress and promoting relaxation, aerobic exercise contributes to better sleep patterns, potentially enhancing the well-being of individuals with somatic dysfunction.

**Implementation:** Aerobic exercise protocols are employed to raise physical health and improve sleep quality in adults.

**Keywords:** Exercise therapy, Resistive training, Sleep quality.

Abstract ID-UG 09

# Development and Content Validation of Iliotibial Band Friction Syndrome Index (IBFS-I)

**Ritika, UG Student, Department of Physiotherapy, Maharishi Markandeshwar Institute of Physiotherapy and Rehabilitation, Maharishi Markandeshwar (Deemed to be university), Mullana, Ambala, Haryana, India.**
**Sandeep, Assistant Professor, Department of Physiotherapy, Maharishi Markandeshwar Institute of Physiotherapy and Rehabilitation, Maharishi Markandeshwar (Deemed to be university), Mullana, Ambala, Haryana, India.**
**Joydip Saha, Assistant Professor, Department of Physiotherapy, Maharishi Markandeshwar Institute of Physiotherapy and Rehabilitation, Maharishi Markandeshwar (Deemed to be university), Mullana, Ambala, Haryana, India.**
**Lalit Mishra, Postgraduate Student, LNCT University (Laxmi Narayan University of Technology) Group, Bhopal, Madhya Pradesh, India.**
**Sunanda Bhowmik, Assistant Professor, Department of Physiotherapy, Maharishi Markandeshwar Institute of Physiotherapy and Rehabilitation, Maharishi Markandeshwar (Deemed to be University), Mullana, Ambala, Haryana, India.**

**Introduction:** Activity-related lateral knee discomfort is a common symptom of Iliotibial Band Friction Syndrome (ITBFS), a condition characterised by excessive friction between the iliotibial band and the lateral femoral condyle. Literature indicates that ITBFS is highly prevalent in road cyclists, military recruits, and habitual runners respectively. But there is scarcity of readily usable tool to identify the extent of ITBS. This study was designed to develop and validate the content of a scale for ITBFS diagnosis.

**Aim:** To develop and content validate of the developed tool which will help the physiotherapist to asses easier and earlier.

**Materials and Methods:** This study involves expert opinions from seven different physiotherapy experts in an offline mode. Study was done in 3 phases:

Phase 1: The extensive literature exploration

Phase 2: Development of questionnaire

Phase 3: Content validation of the developed questionnaire.

The Delphi method was used to validate the content, which involves expert review panel, examining the domain and its items, assigning a score to each item, and computing the scale level content validity index (S-CVI) and item content validity index (I-CVI). It was performed using Delphi method which includes seeking expert opinion from 7 different expert from the field of physiotherapy on an offline mode, selecting expert review panel, reviewing domain and items, providing score to each item and calculating I-CVI (item content validity index) and scale level content validity index (S-CVI).

**Results:** I-CVI was calculated using (I-CVI= agreed item/number of expert) and found to be 0.98 and S-CVI using (S-CVI= sum of I-CVI scores/Number of items) and found to be 0.9. This developed questionnaire is having excellent I-CVI and S-CVI. The physiotherapists may use the IBFS-I scale for the early identification of ITBFS.

**Conclusion:** The IBFS-I scale may help physiotherapists diagnose ITBFS early. This scale may prove to be an effective tool in assisting the therapist in determining the degree of ITBFS in individuals.

**Keywords:** Condyle, Delphi method, Expert opinion, Lateral knee discomfort.

Abstract ID-UG 10

# Normative Reference Value of Four Square Step Test among School-going Children

**Shiwangi, BPT Intern UG Student, Department of Physiotherapy, Maharishi Markandeshwar Institute of Physiotherapy and Rehabilitation, Maharishi Markandeshwar (Deemed to be University), Mullana, Ambala, Haryana, India.**
**Sunanda Bhowmik, Assistant Professor, Department of Physiotherapy, Maharishi Markandeshwar Institute of Physiotherapy and Rehabilitation, Maharishi Markandeshwar (Deemed to be University), Mullana, Ambala, Haryana, India.**

**Introduction:** Dynamic Balance (DB) is the ability to maintain balance while the body is moving. The Four-Square Step Test (FSST) is a reliable and valid tool to assess DB in older populations. Previous research demonstrated the normative score of FSST for the community-dwelling older population.

**Aim:** To estimate the reference score of FSST among 8 to 15-year-olds.

**Materials and Methods:** FSST is a test that can be used for both therapeutic and diagnostic purposes to evaluate an individual's dynamic standing balance. A total of 90 School goers were recruited for this research. Participants had to cross the four sticks in a predetermined order. The sticks were each 90 cm long and were positioned in a cross pattern on the ground. They were instructed not to touch any sticks when they were crossing them. The amount of time it took to complete the test was recorded.

**Results:** The normative value of FSST was (mean±SD 11.43±1.24) Geometric mean (11.37), skewness (0.30), kurtosis (0.65), median (25, 75 IQR) 11.25 (11.25,12.07), range (8.00-15.00).

**Conclusion:** The total time taken by the participants to finish the test was 9 to 12 seconds. Analysing these results against findings to previous research, children between the ages of 8 and 15 were found to finish the FSST faster than average adults. In clinical practice, the standard reference score may be employed to rule out abnormalities related to children's DB.

**Keywords:** Mobility, Neurological condition, Postural stability.

# Reference Score of C7 Angle among College Students of North India

Abstract ID-UG 11

**Subhi Kumari, BPT Student, Department of Physiotherapy, Maharishi Markandeshwar Institute of Physiotherapy and Rehabilitation Maharishi Markandeshwar (Deemed to be University), Mullana, Ambala, Haryana, India.**
**Joydip Saha, Assistant Professor, Department of Physiotherapy, Maharishi Markandeshwar Institute of Physiotherapy and Rehabilitation Maharishi Markandeshwar (Deemed to be University), Mullana, Ambala, Haryana, India.**

**Introduction:** The sagittal shoulder C7 angle is specialised to analyse shoulder posture in the sagittal plane. the curvature of the cervical spine can influence the location and movement of the shoulder girdle like, a higher C7 angle leads to greater cervical lordosis, whereas a lower C7 angle leads to forward head posture and changes in shoulder blade position, affecting shoulder function and biomechanics.

**Aim:** To establish normative score of C7 angle among college-going students of North India.

**Materials and Methods:** A total 57 college-going male students with any musculo-skeletal condition in neck and head are included in this study to establish the normative score of C7 angle. The C7 angle was calculated in two phases. Firstly, the authors here took photographs of neck and head of participants in sagittal plane and angle was calculated by Kinovea software which were reliable methods.

**Results:** Normative was establish for the participants which came to be abmormal. The p-value obtained was less than 0.05. Hence the normative value is represented in terms of median and IQR. The p-value <0.05 indicates a non-normal distribution. The researchers most likely performed a normality test on the C7 angle measurements collected from the individuals. A p-value <0.05 indicates that the data deviates from a normal distribution. To put it simply, the C7 angle scores were not distributed uniformly, as a conventional bell curve would be. Traditionally, the average (mean) serves as the normative value. However, extreme values in non-normal distributions have a significant influence on the mean. Because the C7 angle scores were not normally distributed, taking the mean as the normative value could be deceptive. It may be skewed to greater or lower values based on the data.

**Conclusion:** The analysis was successful and normative score for C7 angle was 55.03 as well as results will help to determine normal value of C7 angle among college-going students.

**Keywords:** Cervical vertebrae 7 angle, Forward head, Kinovea app, Posture, Sagittal angle.

# Unwind the Prevalence of Caffeine Intake and Risk of Hypertension among Indian Healthcare Professionals

Abstract ID-UG 12

**Simran Kaur, UG Student, MMIPR, Maharishi Markandeshwar (Deemed to be University), Mullana, Ambala, Haryana, India.**
**Neha Kashyap, Assistant Professor, MMIPR, Maharishi Markandeshwar (Deemed to be University), Mullana, Ambala, Haryana, India.**

**Introduction:** The most widely used psycho-stimulant substance with a lengthy history of use across the globe is caffeine. In general, consuming little to moderate amounts of caffeine is safe and advantageous. Health care being a demanding job, requires one to be awake and diligent all the time, hence a lot of health care professional resort to caffeine to combat long shifts and heavy workload.

**Aim:** To unravel the prevalence of caffeine consumption and risk of hypertension among indian health care professionals.

**Materials and Methods:** This study recruited 245 Indian health care professionals aged 19 to 45 years. The data was procured using a questionnaire directed to test their addiction to caffeine and their awareness to risk of Hypertension (HTN).

**Results:** A total of 54.2% healthcare professionals consume caffeine on regular basis. It was observed that more than 34% health care professionals consume more than four drinks and unaware of the negative effects of caffeine despite experiencing symptoms of excessive caffeine consumption.

**Conclusion:** In the present study, the authors concluded that more awareness of the harmful effects of drinking caffeine and the likelihood of getting hypertension is desperately needed to reduce the risk of acquiring any of the numerous cardiovascular conditions.

**Keywords:** Cardiovascular risk, Caffeinated beverages, Negative effects.

# Review on Prevalence of Musculoskeletal Disorders in Nurses and Sweepers

Abstract ID-UG 13

**Harman, BPT Student, Department of Physiotherapy, CSHS, Chitkara University, Rajpura, Punjab, India.**
**Neha, BPT Student, Department of Physiotherapy, CSHS, Chitkara University, Rajpura, Punjab, India.**
**Gurleen Kaur, BPT Student, Department of Physiotherapy, CSHS, Chitkara University, Rajpura, Punjab, India.**
**Arpit Bansal, Assistant Professor, Department of Physiotherapy, CSHS, Chitkara University, Rajpura, Punjab, India.**

**Introduction:** Studying the prevalence of musculoskeletal disorders in health care professionals like nurses and sweepers is important because it helps us to understand the impact of their work on their physical health by identifying the common disorders and risk factors.

**Aim:** To find out prevalence of musculoskeletal disorders in nurses and sweepers.

**Materials and Methods:** This research was conducted on nurses and sweepers. We searched PubMed, Google-Scholar and selected cross-sectional population- based or cohort study that provide a view on work-related musculoskeletal disorders among nurses and sweepers.

**Results:** Work Related musculoskeletal disorders prevalence augmenting. The occupational activities such as lifting, carrying, pulling and pushing the dustbin (cleaners) leads to muscular strain. Female sweepers complaints of body pain (93.33%), pain in shoulder (91.67%), arm (85%), hand/wrist (83.33%) due to repetitive job which require heavy physical effort needed in carrying out. In nurses, most vulnerable anatomical sites of WRMSD are vertebral column (45.70%), followed by shoulder (23.50%), neck (28.50%), knee, ankle and feet (20%). Physical demand of nursing profession are bending and twisting movement.

**Conclusion:** Description of the 15 studies located during this review had either measured the prevalence of MSD or reported on the possible risk factors for the MSD among nurses and sweepers.

**Implication:** It is important to raise awareness about ergonomics, provide training on proper body mechanics.

**Keywords:** Healthcare professionals, Knee and ankle pain, Nurses.

# Factor Contributing Abdominal Obesity among Young Adults

Abstract ID-UG 14

**Hemlata, UG student Maharishi Markandeshwar Institute of Physiotherapy and Rehabilitation, Maharishi Markandeshwar (Deemed to be university), Mullana, Ambala, Haryana, India.**
**Prof. (Dr.) Nidhi Sharma, Professor, Maharishi Markandeshwar Institute of Physiotherapy and Rehabilitation, Maharishi Markandeshwar (Deemed to be university), Mullana, Ambala, Haryana, India.**
**Dr. Simranjeet Kaur, Assistant Professor, Maharishi Markandeshwar Institute of Physiotherapy and Rehabilitation, Maharishi Markandeshwar (Deemed to be university), Mullana, Ambala, Haryana, India.**

**Introduction:** In general obesity, adipose tissue increases in the overall body, and it is generally represented by BMI while in abdominal obesity fat accumulates specifically in the abdomen and is measured such as waist circumference, waist-to-hip ratio, and waist-to-height ratio (WHtR).

**Aim:** This study aims to gather all the factors that can contribute to abdominal obesity.

**Materials and Methods:** The literature search was conducted in the electronic database (PubMed and Google Scholar). By using the key terms risk factor, abdominal obesity, genetic traits, and young adults, factor affecting. The search was made between 2002 and 2023. Therefore, the inclusion and exclusion criteria are young adults, both males and females were recruited, and metabolic disorder, and abdominal surgery respectively.

**Result:** By using key terms, found 1195 articles, out of these 20 articles were included (5 Reviews, 9 Observational studies, 3 Surveys, 1 RCT, 1 Cohort study). These are the common factors that prompt the abdominal obesity such as physical inactivity, insulin resistance, eating disorders, increased testosterone levels, signal transducer and activation of transcription 3 genes (STAT3 Gene) and low altitude.

**Conclusion:** The study indicates that a sedentary lifestyle and genetic mutations significantly contribute to the development of abdominal obesity. The physiotherapy program for abdominal obesity involves personalized exercise regimens, regular progress monitoring, and lifestyle education, focusing on strength training, core stability, and aerobic activities.

**Keywords:** Abdominal; Obesity; Sedentary Behaviour

# Association Between Body Mass Index and Heart Rate in School-going Children

Abstract ID-UG 15

**Tanishak, UG Student, Department of Physiotherapy, Maharishi Markandeshwar Institute of Physiotherapy and Rehabilitation, Maharishi Markandeshwar (Deemed to be University), Mullana, Ambala, Haryana, India.**
**Sunanda Bhowmik, Assistant Professor, Department of Physiotherapy, Maharishi Markandeshwar Institute of Physiotherapy and Rehabilitation, Maharishi Markandeshwar (Deemed to be University), Mullana, Ambala, Haryana, India.**

**Introduction:** The link between Body Mass Index (BMI) and heart rate(HR) in school-age children is an important area of study due to its potential impact on health fitness. BMI, a measure of body fat based on height and weight, and heart rate, an indicator of cardiovascular health, are being investigated together to gain a better understanding of children's overall well-being and potential risks for heart-related issues.

**Aim:** To determine if there is association between body mass index and heart rate (HR) in School-going children.

**Materials and Methods:** This was a correlation study, 284 school-going children aged between 6 to 12 years were selected according to the inclusion criteria, and categorised into underweight (uwBMI), normal weight (nBMI), and overweight (owBMI). Their age, height, and weight, gender also was recorded. They underwent a modified shuttle test paeds (MSTP) procedure three trials each for 3 minute, Pre and Post intervention HR was recorded through a pulse oximeter.

**Results:** The findings of this study suggest poor association for HR Pre_uwBMI was (r=0.38); HR Post_uwBMI was (r=0.71), HR pre_nBMI was (r=0.55), HR post_nBMI was (r=0.44), HR pre_owBMI was (r=0.17); HR post_owBMI was (r=0.28) respectively (p-value_<0.005).

**Conclusion:** This study concludes that, there was no association among different BMI on heart rate of students aged between 06-12 years.

**Keywords:** Intervention, Modified shuttle test paeds, Pulse oximeter.

# Effect of Conservative Management of Sacroiliac Joint Dysfunction in a Patient with Posteromedial Knee Pain: A Case Report

Abstract ID-UG 16

**Mansi Dewan, Physiotherapist, Assistant Professor, K.R. Mangalam University, Sohna Road, Gurugram, Haryana, India.**
**Deepak Tyagi, Physiotherapist, Associate Professor, ITS Institute of Health and Allied Sciences, Muradnagar, Uttar Pradesh, India.**
**Nitin Sharma, Physiotherapist, Senior Executive, NivaBupa, Noida, Uttar Pradesh, India.**
**Harsh Raj, Student, B.P.T Final Year, K.R. Mangalam University, Sohna Road, Gurugram, Haryana, India.**

Over the world, knee discomfort is a major problem. Since this discomfort is mostly associated with muscular dysfunction, it has been suggested that early in the rehabilitation process, efforts should be made to reduce muscle inhibition as this can postpone functional recovery. Studies have shown that a patient may only suffer knee pain in some circumstances, if a more proximal structure such as the hip or sacroiliac joint is impacted. This necessitates assessing pain referral from a proximal structure.

The purpose of the present case study was to assess whether conservative treatment for sacroiliac joint improves the muscular dysfunction and functional abilities at the knee joint. A case study of a 27-year-old male who experienced excruciating knee pain during squats and runs is documented. Antalgic gait and decreased left SI hypomobility were seen throughout the examination accompanied by muscular imbalance. The patient reported a significant improvement in knee discomfort after the SI manipulation (VAS-4/10). The deep squat pain subsided and the gait showed signs of recovery. These symptoms improved in the ensuing sessions. When the LEFS was administered on the tenth day of the rehabilitation, the findings showed a significant improvement (LEFS 41 to 56). This case study discusses the connection between sacroiliac joint dysfunction and knee function. The present case study serves as additional evidence of the importance of a thorough regional assessment in preserving the equilibrium between the proximal and distal portions of the kinetic chain. Therefore, sacroiliac joint exams can be beneficial for patients and therapists when performed on individuals who are having knee pain.

**Keywords:** Muscular dysfunction, Regional examination, Sacroiliac manipulation.

# Can Neurobic Exercises be used as an Efficacious Approach to Improve Reaction Time among Runner? A Case Report

Abstract ID-UG 17

**Pooja Sunil Patil, Postgraduate Student, School of Allied Medical Sciences, Lovely Professional University, Phagwara, Punjab, Haryana, India.**
**Amit Kumar, Assistant Professor, School of Allied Medical Sciences, Lovely Professional University, Phagwara, Punjab, Haryana, India.**
**Shashi Prakash Sharma, Postgraduate Student, School of Allied Medical Sciences, Lovely Professional University, Phagwara, Punjab, Haryana, India.**

To find the effectiveness of Neurobic exercises, recreational runner, male, aged 23 years was selected for this case reported on the basis of inclusion criteria. A planned five weeks Neurobic exercises protocol was created with an emphasis on reaction time improvement. This protocol included: Lazy eights, backward walking, cross crawls, ankle touch, brain buttons, and trace X. For the quantification of improvement three outcome measures were used; Sprint with 90 degrees turn, sprint 9-3-6-3-9 meters with 180 degrees turn, sprint 9-3-6-3-9 meters with backward and forward running. Neurobic exercises work as an effective treatment for efficient and quick decision making while creating new associative patterns using neuroplastic approach. This case report demonstrates how a runner can benefit and improve his reaction time and boost his field performance. Positive results emphasise how crucial Neurobic exercises are for supporting sports players for their betterment on field.

**Keywords:** Players, Recreational runner, Sprint.

# Testing the Significance of Backward Drill Exercise Protocol in Alleviating Pain and Enhancing Strength in Patello-femoral Pain Syndrome Patients

Abstract ID-UG 18

**Aniruddha Ratnaparkhi, Department of Physiotherapy, School of Allied Medical Sciences, Lovely Professional University, Phagwara, Punjab, India.**
**Sakshi Sadhu, Department of Physiotherapy, School of Allied Medical Sciences, Lovely Professional University, Phagwara, Punjab, India.**

**Introduction:** Patello-femoral Pain Syndrome (PFPS) is a common musculoskeletal disorder characterised by anterior knee pain, particularly during activities like climbing stairs and squatting and long running. Despite its prevalence, effective rehabilitation strategies for PFPS remain a topic of research.

**Aim:** To assess the significance of a novel backward drill exercise protocol in reducing pain and improving strength among PFPS patients.

**Materials and Methods:** A randomised controlled trial will be conducted with 40 PFPS patients aged 18-30 years. Participants will be randomly assigned to either the backward drill exercise group or a control group (receive standard physiotherapy treatment protocol). Both groups will undergo a 6-week interventional program. Pain levels will be assessed by using the Visual Analog Scale (VAS), and muscle strength will be measured using a dynamometer, EMG study will be done for Vastus Medialis Obliquus muscle to check its activation before and after the intervention.

**Discussion:** This study will test whether backward drill exercise protocol is a significant intervention for PFPS patients to effectively reduce pain, enhancing quadriceps strength and activation of the Vastus medialis obliquus muscle. Implementing this exercise protocol in the rehabilitation of PFPS patients may offer a promising alternative to standard physiotherapy approaches, potentially improving patient outcomes and quality of life.

**Keywords:** Pain reduction, Quadriceps strength, Randomised controlled trial, Rehabilitation.

Abstract ID-UG 19

# Exploring the efficacy of Constraint-induced Movement Therapy on hand function rehabilitation in Stroke survivors: A Review

**Simran, UG Student, Banarsidas Chandiwala Institute of Physiotherapy, New Delhi, India.**
**Aman Kanda, UG Student, Banarsidas Chandiwala Institute of Physiotherapy, New Delhi, India.**
**Neha Kashyap, Assistant Professor, Department of Physiotherapy, Maharishi Markandeshwar (Deemed to be) University, Mullana, Ambala, Haryana, India.**

**Introduction:** Stroke is the abrupt loss of neurological function caused by an arrest of the blood flow to the brain which deprives brain tissue of oxygen and nutrients. Majority of people with stroke experience some degree of motor impairment in their upper extremities. Constraint-Induced Movement Therapy (CIMT) is a multi-faceted intervention which promotes affected upper extremity. It involves constraining the movement of unaffected limb while synchronously engaging in intensive training and exercises with the affected limb.

**Aim:** To emphasise the effect of CIMT on hand function rehabilitation in stroke patients.

**Materials and Methods:** An extensive search on various databases was carried out including Ovid, Google Scholar, Medline, PubMed, Research gate and Scopus. Studies done in last 15 years were included in the review.

**Results:** CIMT showed significant improvements in grip strength, dexterity and overall functional use of the affected hand and with long lasting effects, indicating the enduring effectiveness in facilitating hand function recovery.

**Conclusion:** CIMT is an effective intervention for improving hand function among stroke patients.

**Keywords:** Motor impairement, Neurological physiotherapy, Physical therapy techniques.

Abstract ID-UG 20

# Study Over Factors Leading to ACL Injuries in Female Athletes

**Archisman Mitra, BPT Student, Department of Physiotherapy, Maharishi Markandeshwar Institute of Physiotherapy and Rehabilitation, Maharishi Markandeshwar (Deemed to be University), Mullana, Ambala, Haryana, India.**

**Introduction:** There has been some past physiotherapeutic interventions for ACL injury management by compiling every factor that contributes to such injuries and proposing further areas of research.

**Aim:** To understand the factors leading to such increased amount of ACL injuries in female athletes and also suggest role of physiotherapy in dealing such injuries.

**Materials and Methods:** Cases of professional female athletes in ball playing sports from the age of 18 to 32 years were studied. An exploratory review of relevant articles were done. All articles explicitly explaining the factors for increased risk of ACL injuries in female athletes were included. Articles in english language were only considered.

**Results:** The major factors playing role in increased ACL injuries in female athletes can be categorised into, structural (comprising Q angle and valgus tendency, smaller inter-condylar fossa, quadriceps dominance, reconstruction problems), hormonal (oestrogen Increase effects), biomechanical (poor landing mechanics) factors.

**Conclusion:** The found factors help us better understand the problems to tackle to effectively rehabilitate female athletes and reduce their injury probability.

**Implication:** These findings can guide further research efforts aimed at enhancing evidence-based practices in physiotherapy for ACL rupture in female athletes.

**Keywords:** Non-contact injury, Knee laxity, Risk factor, Menstrual cycle.

# Role of Physical Therapy in Treating Infertility- Beyond Basic Physical Therapy

Abstract ID-UG 21

**Mansi Dewan, Physiotherapist, Assistant Professor, K.R. Mangalam University, Sohna Road, Gurugram, Haryana, India.**
**Kangana Juneja, Physiotherapist, Assistant Professor, K.R. Mangalam University, Sohna Road, Gurugram, Haryana, India.**
**Ankita Samuel, Physiotherapist, Assistant Professor, K.R. Mangalam University, Sohna Road, Gurugram, Haryana, India.**
**Mehak, Student, BPT Second Year, K.R. Mangalam University, Sohna Road, Gurugram, Haryana, India.**
**Monika, BPT Second Year, K.R. Mangalam University, Sohna Road, Gurugram, Haryana, India.**
**Aryan Gupta, BPT Second Year, K.R. Mangalam University, Sohna Road, Gurugram, Haryana, India.**

**Introduction:** Infertility is defined as the inability of a sexually active, non-contraceptive couple to conceive within a year of one another. There is scarcity of literature to evaluate the effects of manual therapy in combating infertility.

**Aim:** To address the possible outcomes of various manual therapy techniques and the data that currently supports their efficacy.

**Materials and Methods:** The extant literature supports the efficaciousness of manual therapy as a treatment for female infertility. This narrative review looks at the results that can be obtained from a number of manual treatment methods as well as the evidence that currently supports their effectiveness.

**Results:** The use of osteopathic care illustrated a variety of concepts and techniques for diagnosis and treatment. Osteopathy may be able to reverse infertility, despite the scant evidence supporting this theory. It is highly recommended to do more research with more thorough descriptions of the intervention and different study designs.

**Conclusion:** The range of manual therapy techniques is indicative of several scopes that provide encouraging options for infertility treatment. Infertility serves as a subtle stigma for couples. The creation of innovative therapy strategies can help the infertile couple live happy, full lives and overcome this stigma.

**Keywords:** Interventions, Manual therapy, Osteopathy.

# Effectiveness of Dynamic and Rigid Taping in Subacromial Impingement Syndrome: A Review

Abstract ID-UG 22

**Muskan Manaktala, BPT Student, Maharishi Markandeshwar Institute of Physiotherapy and Rehabilitation, Maharishi Markandeshwar (Deemed to be University), Mullana, Ambala, Haryana, India.**
**Kanu Goyal, Assistant Professor, Maharishi Markandeshwar Institute of Physiotherapy and Rehabilitation, Maharishi Markandeshwar (Deemed to be University), Mullana, Ambala, Haryana, India.**
**Manu Goyal, Professor, Maharishi Markandeshwar Institute of Physiotherapy and Rehabilitation, Maharishi Markandeshwar (Deemed to be University), Mullana, Ambala, Haryana, India.**

**Introduction:** Subacromial Impingement Syndrome (SIS) is a condition characterised by the narrowing of the shoulder complex between the acromion and the humeral head. It is caused by entrapment of the subacromial bursa, biceps tendon, teres minor muscle, supraspinatus, and infraspinatus between the humeral head and coracoacromial arch. This entrapment results in shoulder pain and inflammation. Physiotherapy is frequently regarded as the initial course of treatment for SIS. Theories have suggested that taping corrects alignment through dynamic motions or induces proprioceptive input. Taping procedures increase the strength of muscles, improve function, and lessen pain.

**Aim:** The aim of this review is to ascertain daily physical activities in subacromial impingement syndrome.

**Materials and Methods:** This review utilised PubMed, Cochrane, Google Scholar, and ProQuest to search relevant literature, and identified 7430 studies from the last 10 years. After removing duplicates, 5470 titles and abstracts were screened, with 11 studies assessed.

**Results:** The study found that dynamic and rigid taping significantly improved pain and physical activity ratings in subacromial impingement syndrome patients, but not recommended for long-term effects. Further high-quality research is still required to confirm these results.

**Conclusion:** Dynamic and Rigid Taping improves physical activity, reduces pain, and decreases myoelectric activity in specific muscles, but may not be a standalone alternative for treating Subacromial Impingement Syndrome.

**Keywords:** Physical activities, Physiotherapy, Shoulder pain.

# Physiotherapy Intervention in Nocturnal Leg Cramps: A Review

Abstract ID-UG 23

**Niyti, BPT Student, Maharishi Markandeshwar Institute of Physiotherapy and Rehabilitation, Maharishi Markandeshwar (Deemed to be University), Mullana, Ambala, Haryana, India.**
**Kanu Goyal, Assistant Professor, Maharishi Markandeshwar Institute of Physiotherapy and Rehabilitation, Maharishi Markandeshwar (Deemed to be University), Mullana, Ambala, Haryana, India.**
**Manu Goyal, Professor, Maharishi Markandeshwar Institute of Physiotherapy and Rehabilitation, Maharishi Markandeshwar (Deemed to be University), Mullana, Ambala, Haryana, India.**

**Introduction:** Nocturnal Leg Cramps (NLC) are painful, involuntary spasms of the calf, hamstring, or foot muscles at night, causing severe pain and disrupting sleep. Through physiotherapy interventions, we can prevent the nocturnal leg cramps. In NLC, on palpation muscle became tender or hard and affect or disturb the sleep. The study is done to know about the various physiotherapy intervention and its effectiveness in nocturnal leg cramps, based on various articles.

**Aim:** To identify the most effective physiotherapy intervention for reducing or preventing nocturnal leg cramps, based on various articles.

**Materials and Methods:** This review utilised PubMed, Cochrane, MEDLINE databases are searched to find the desired articles. In addition, physiotherapy interventions of the desired articles were checked to conduct the study. Older adults (above 55 yrs. of age), Pregnant female and patient with lumbar degenerative disorder were included.

**Results:** Eight articles highlight the effectiveness of various physiotherapy interventions, including tendoachilles, hamstring and calf stretching, moist heat pack, cryotherapy, self-myofascial technique in reducing nocturnal leg cramps, including in pregnant females.

**Conclusion:** The stretching is the more effective in reducing the nocturnal leg cramps as compared to other physiotherapy interventions but further high-quality research is still required to confirm these results.

**Keywords:** Cryotherapy, Spasm, Stretching.

# Normative Reference Score of 6×10 M Shuttle Run Test among North Indian Collegiates Athlete

Abstract ID-UG 24

**Sujan Gharti Chhetri, BPT Student, Maharishi Markandeshwar Institute of Physiotherapy and Rehabilitation, MM(DU), Mullana, Ambala, Haryana, India.**
**Joydip Saha, Assistant Professor, Maharishi Markandeshwar Institute of Physiotherapy and Rehabilitation, MM(DU), Mullana, Ambala, Haryana, India.**

**Introduction:** The 6×10 M shuttle run test is a widely used measure of agility, speed, and anaerobic performance among athletes. Agility is a crucial component of athletic performance, particularly among collegiate athletes who compete at high levels of intensity and skill across various sports. Understanding the significance of agility in this population is essential for optimising training strategies, injury prevention, and overall athletic success.

**Aim:** To establish a normative reference score of a 6×10 M shuttle run test among college-going students.

**Materials and Methods:** A Total of 43 college-going male and female students between 18-26 years are included in this study through convenient sampling technique to establish the normative score of the 6×10 M shuttle run test. A total of three repetitions of running back and forth over a 10 M distance, with their times recorded.

**Results:** Normality of the data was calculated by using Shapiro-wilk test as the present sample size was less then 50 and the data came out to be normal. Hence their normative value is represented in terms of mean with standard deviation.

**Conclusion:** The analysis of the study established a normative reference score of 6×10 M shuttle run test is 22.87 with a standard deviation of 2.304.

**Implications:** This result will help to determine the normal value of agility among college-going students.

**Keywords:** Agility, Fitness evaluation, Physical fitness, Skill.

Abstract ID-UG 25

# Developement of Self Adminstrative Questionaire to Assess Shin Pain among College-going Students

**Vikash Chahal, BPT Student, Maharishi Markandeshwar Institute of Physiotherapy and Rehabilitation, Maharishi Markandeshwar (Deemed to be University), Mullana, Ambala, Haryana, India.**
**Joydip Saha, Assistant Professor, Maharishi Markandeshwar Institute of Physiotherapy and Rehabilitation (Deemed to be University), Mullana, Ambala, Haryana, India.**

**Introduction:** Shin pain, or shin splints, is mainly an overuse injury in athletes that occurs mainly in the anterior aspect of the tibia. It commonly occurs in athletes who are involved in activities like running and jumping and in military personnel who perform drills as part of their daily routine. The main causes of shin pain are not known yet, but there are many studies that show different views on its occurrence.

**Aim:** To develop a self-administrative questionnaire to assess shin pain among collage going students.

**Materials and Methods:** A total of six experts from physiotherapy profession and currently working as an assistant and associate professor in different universities from India were included in this study for content validation of the questionnaire. Three stages went into developing the questionnaire. We do a thorough literature review to determine the questionnaire's domain in the first phase. Subsequently, the domain was examined to identify the questionnaire items by means of participant interviews and expert judgments. Subsequently, the questionnaire is sent to six experts for content evaluation using Delphi methodologies.

**Results:** The newly developed questionnaire has CV-I index of 0.98.

**Conclusion:** The self-administrate questionnaire used in the present study is highly validate tool.

**Keywords:** Jumping, Running, Shin splints.

Abstract ID-UG 26

# Is there any Correlation Between Knowledge Level, Health Protective Practice, and Depression among Physiotherapists Working in Intensive Care Units?

**Manisha, UG Student, Maharishi Markandeshwar Institute of Physiotherapy and Rehabilitation, Maharishi Markandeshwar (Deemed to be University), Mullana, Ambala, Haryana, India.**
**Sunanda Bhowmik, Assistant Professor, Maharishi Markandeshwar Institute of Physiotherapy and Rehabilitation, Maharishi Markandeshwar (Deemed to be University), Mullana, Ambala, Haryana, India.**

**Introduction:** The correlation between knowledge level, health-protective practice, and depression among physiotherapists in Intensive Care Units (ICUs) is a significant area of inquiry. Understanding this relationship is vital for optimising healthcare delivery and ensuring the well-being of healthcare professionals. This study aims to explore the interplay between these variables to enhance support mechanisms and improve overall ICU working conditions.

**Aim:** To examine the correlation between, the level of health-protective practices, depression, and knowledge level among physiotherapists working in ICU.

**Materials and Methods:** The material required includes, good network service, and an online Google form. Circulate the Google form and complete the data collection within 3 to 4 days which includes 18 questions and then go for the data analysis for the same. The participants were identified from different medical hospitals equipped with ICUs, and an online survey was done to assess their knowledge levels, health-protective practices, and depression levels. Hundred forty-eight Physiotherapists working in ICUs aged between 20-40 years.

**Results:** There were 54% of physiotherapists had >15 days posting duration 46% of physiotherapists had <15 days posting duration 64% had a high knowledge level of ICU training. 61.78% of physiotherapists suffered from depression. A total of 94.28% of physiotherapists used health-protective practices in work life.

**Conclusion:** The study concludes female physiotherapists had very high knowledge levels of ICU training and most of them suffered from depression. Females are more affected in comparison with the male.

**Keywords:** Health status, Intensive care unit, Well-being.

# Virtual Reality: A Game Changer in Cardiac Rehabilitation

Abstract ID-UG 27

**Simran Kaur, BPT Student, Maharishi Markandeshwar Institute of Physiotherapy and Rehabilitation, Maharishi Markandeshwar (Deemed to be University), Mullana, Ambala, Haryana, India.**
**Neha Kashyap, Assistant Professor, Maharishi Markandeshwar Institute of Physiotherapy and Rehabilitation, Maharishi Markandeshwar (Deemed to be University), Mullana, Ambala, Haryana, India.**

**Introduction:** Virtual Reality (VR) technology creates a three-dimensional virtual environment that mimics the actual world, allowing users to interact with its features and engage in variable exercise where essential components include intensity, repetition, and feedback. It is a computer-generated simulation consisting of sounds and visuals that mimic an actual location or circumstance.

**Aim:** To determine whether VR balance or gait training is superior to traditional balance or gait training for patients.

**Materials and Methods:** An extensive search on various databases was carried out including Ovid, Google Scholar, Medline, PubMed, ResearchGate and Scopus. Researches, RCT's and reviews done in last 10 year were included for this review.

**Conclusion:** It has been discovered that virtual reality can evoke acute stress reactions accompanied by the activation of the sympathetic nervous system and a decrease in the activity of the parasympathetic nervous system. It is a powerful tool for individual to acquire new learning for the benefit of their psychological well-being.

**Keywords:** Environment, Parasympathetic nervous system, Psychological well-being.

# Effect of Active, Passive and Non-smoking on Aerobic Capacity among Young Collegiates

Abstract ID-UG 28

**Aakrit Sharma, UG Student, Maharishi Markandeshwar Institute of Physiotherapy and Rehabilitation, Maharishi Markandeshwar (Deemed to be University), Mullana, Ambala, Haryana, India.**
**Mandeep Kumar Jangra, Assistant Professor, Maharishi Markandeshwar Institute of Physiotherapy and Rehabilitation, Maharishi Markandeshwar (Deemed to be University), Mullana, Ambala, Haryana, India.**

**Introduction:** The Cardiopulmonary health of young collegiates is important, especially considering the prevalence of smoking within this demographic. Despite widespread awareness of risks, many college students still smoke actively or are exposed to second hand smoke. Understanding these effects on young adults is vital for targeted interventions to reduce risks. This study aimed to explore how various smoking statuses affect the Cardiopulmonary health of young college students, to provide strategies to promote healthier lifestyles and lessen the burden of smoking-related diseases in this demographic.

**Aim:** To investigate the effects of active and passive smoking on aerobic capacity among young collegiates.

**Materials and Methods:** A total of 60 participants with a mean age of 21.7±1.4 years were randomly divided into three groups: active, passive, and non-smokers. Aerobic capacity was assessed using the Queen's College step test. Participants stepped for three minutes with a cadence of 22 steps/minute for females and 24 steps/minute for males. Heart rate was recorded immediately after the test for 15 seconds and multiplied by 4 to obtain the rate per minute.

**Results:** Active smokers exhibited the lowest $VO_2$ max, followed by passive smokers, while non-smokers demonstrated the highest aerobic capacity. But there was no statistically significant difference in $VO_2$ max among the groups; active-passive (p=1.000), passive and non-smokers (p=0.299), active and non-smokers(p=0.113).

**Conclusion:** Although there was no significant change in aerobic capacity, lower $VO_2$ max was observed among active smokers followed by passive smokers.

**Keywords:** Cardio-pulmonary health, Exercise testing, Smoking, Step test.

Abstract ID-UG 29

# Development of Self Administrate Questionnaire to Check the Affect of Prolong Standing on Fatigue among Healthcare Professionals

**Sonam, BPT Student, Maharishi Markandeshwar Institute of Physiotherapy and Rehabilitation, Maharishi Markandeshwar (Deemed to be university), Mullana, Ambala, Haryana, India.**
**Joydip Saha, Assistant Professor, Maharishi Markandeshwar Institute of Physiotherapy and Rehabilitation, Maharishi Markandeshwar (Deemed to be University), Mullana, Ambala, Haryana, India.**

**Introduction:** Fatigue is commonly characterised as an extreme state of being tired and feeling exhausted. There are two types of fatigue: Mental which leads to reduced concentration and Physical which leads to decrease in performance. One of the major occupational risk factors that lead to fatigue is prolonged standing. Healthcare professionals are also affected by this issue as they have to stand prolong time in their duty hours.

**Aim:** To find the effect of prolong standing on fatigue in the healthcare professionals.

**Materials and Methods:** The Questionnaire was developed in three phases. In first phase we identify the domain of the questionnaire by doing intense literature survey. Then items of the questionnaire were identified from the domain by taking interview from the participants and taking expert opinion. Then we send the questionnaire through Delphi methods to 9 experts for content validation of questionnaire. All the experts are from physiotherapy profession and currently working as an assistant and associate professor in different universities from India.

**Results:** Newly developed questionnaire has content validity index of 1 for all the items included.

**Conclusion:** The developed questionnaire has the significant content validity to check the fatigue among healthcare professionals. The questionnaire was designed to capture the specific type of fatigue that is most relevant to prolonged standing.

**Keywords:** Ergonomics, Professional hazard, Weariness.

Abstract ID-UG 30

# Development of Self Administrative Questionnaire to Check Effect of Menstrual Cycle on Physical Activity

**Dilrose Kaur Toor, BPT Student, Maharishi Markandeshwar Institute of Physiotherapy and Rehabilitation, MM(DU), Mullana, Ambala, Haryana, India.**
**Joydip Saha, Assistant Professor, Maharishi Markandeshwar Institute of Physiotherapy and Rehabilitation, MM(DU), Mullana, Ambala, Haryana, India.**

**Introduction:** The menstrual cycle is a crucial biological rhythm typically lasting 21 to 35 days, averaging 28 days, is vital for female athletes. Increasingly, women in sports are recognising menstrual cycle impact on performance due to hormonal fluctuations. Sensitivity to these changes varies, potentially affecting exercise tolerance and energy levels during training and competition. Recognising these dynamics is crucial in physiotherapy to optimise athletic performance with tailored interventions, considering the menstrual cycle's impact on the female body.

**Aim:** To develop a questionnaire to examine the influence of the menstrual cycle on physical activity.

**Materials and Methods:** To evaluate the impact of the menstrual cycle on physical activity, a self-administrative questionnaire was formulated in three stages: establishing the questionnaire's scope through reviewing literature, determining questionnaire components by consulting participants and experts feedback, and verifying its content validity with the input of eight experts using Delphi method. These eight physiotherapy experts are serving as assistant and associate professors at various universities in India, contributed to this validation process.

**Results:** Newly developed questionnaire has content validity index of 0.98 for all the items included.

**Conclusion:** This questionnaire is a valid tool for assessing the impact of menstrual cycle phases on physical activity of young adult.

**Keywords:** Female athlete, Periods, Performance, Physical Fitness.

Abstract ID-UG 31

# Analysing the Impact of Work-related Musculoskeletal Disorder among Chefs in Different Categories: A Narrative Review

**Sourabh Kaushal, BPT Student, Maharishi Markandeshwar Institute of Physiotherapy and Rehabilitation, Maharishi Markandeshwar (Deemed to University), Mullana, Ambala, Haryana, India.**
**Nidhi Sharma, Professor, Maharishi Markandeshwar Institute of Physiotherapy and Rehabilitation, Maharishi Markandeshwar (Deemed to be University), Mullana, Ambala, Haryana, India.**
**Simranjeet Kaur, Assistant Professor, Maharishi Markandeshwar Institute of Physiotherapy and Rehabilitation Maharishi Markandeshwar (Deemed to be University), Mullana, Ambala, Haryana, India.**

**Introduction:** Chefs are essential contributors to the culinary industry, yet they face unique challenges in their work environment that predispose them to Work-Related Musculoskeletal Disorders (WRMSDs).

**Aim:** This study examines the influence of work-related musculoskeletal disorders on chefs across various categories.

**Materials and Methods:** This review studies chefs in various culinary fields, including cooks, pastry chefs, and sous chefs within the age range of 25 to 45 in both commercial and restaurant settings. A comprehensive literature search was conducted utilising electronic databases like PubMed, Google Scholar, and Scopus. By using the key terms work-related musculoskeletal disorders, chefs, and culinary industry articles were searched from the year 1998 to 2023 based on the impact of WRMSDs on diverse categories of chefs, and published within the last 25 years.

**Results:** By using key terms, 675 articles were retrieved related to WRMSDs, out of which 16 articles (6 cross-sectional studies, 4 observational studies, 2 reviews, 2 surveys, and 2 experimental studies) were included for the review that assessed the prevalence, risk factors, consequences, management strategies, and interventions related to WRMSDs.

**Conclusion:** WRMSDs are prevalent and affecting chefs. Risk factors include physical workload, prolonged standing, awkward posture, repetitive movement, and workplace stress. Interventions include ergonomic improvements, workplace modifications, and lifestyle changes.

**Keywords:** Cooks, Food Industry, Occupational disease.

Abstract ID-UG 32

# A Review of Latest Guidelines to Treat Lymphoedema Post Vulva Cancer

**Janvi, BPT Student, K.R. Mangalam University, Sohna Road, Gurugram, Haryana, India.**
**Suruchi Shreya, BPT Student, K.R. Mangalam University, Sohna Road, Gurugram, Haryana, India.**
**Eishika Bloreya, BPT Student, K.R. Mangalam University, Sohna Road, Gurugram, Haryana, India.**
**Shweta Kumar, Assistant Professor, K.R. Mangalam University, Sohna Road, Gurugram, Haryana, India.**

**Introduction:** The “stages” of Vulva Cancer that describes the size of cancer and how far it has grown and “grades” that describe how abnormal the cell look under the microscope. Vulva is the outer layer of urethra, where cancer cells rapidly spread to skin that often gets associated with poor prognosis.

**Aim:** To create a database of information on vulva cancer led Lymphoedema and to create collection of guidelines on current available literature on rehabilitation of lymphoedema post-vulva cancer.

**Materials and Methods:** The guidelines were searched using the PubMed database. Embase database will be used for literature search using PICOT table.

**Results:** A literature survey table ruled out the guidelines required to be incorporated in the management of lymphoedema cases.

**Conclusion:** This literature review will interpret the guidelines already stated using evidence-based searches and highlight it at one place for the benefit of clinicians. This study will establish clinical guidelines to effectively manage lymphoedema bilateral or unilateral extremities post vulva cancer. Lymphoedema post vulva cancer suffers from poor prognosis due to skin related cancerous changes that usually are malignant in nature. Physiotherapists in this field work towards good quality of life for these patients with effective communication and using short stretch bandages.

**Keywords:** Embase database, Grading, Staging.

Abstract ID-UG 33

# Physiotherapy Strategies for Improved Hygiene and Quality of Life in Wheelchair-bound Women: A Narrative Review

**Diksha, UG student, Maharishi Markandeshwar Institute of Physiotherapy and Rehabilitation, Maharishi Markandeshwar (Deemed to be university), Mullana, Ambala, Haryana, India.**
**Sunita Sharma, Associate Professor, Maharishi Markandeshwar Institute of Physiotherapy and Rehabilitation, Maharishi Markandeshwar (Deemed to be university), Mullana, Ambala, Haryana, India.**

**Introduction:** Wheelchairs offer increased mobility and freedom, their usage may introduce supplementary obstacles to engage in daily activities, potentially impact an individual's overall quality of life adversely. Studies demonstrate that women with disabilities are subjected to emotional, physical, and sexual abuse at notable frequencies and these disabilities frequently result in individuals using wheelchairs. The analysis indicates that girls with disabilities rely on caregivers and family members for mobility, facing difficulties in maintaining hygiene and accessing safe, disability-friendly washrooms.

**Aim:** To investigate the potential benefits of physiotherapy interventions in enhancing hygiene management and overall well-being among women who rely on wheelchairs.

**Materials and Methods:** We conducted searches in English across databases including PubMed, Scopus, and Google Scholar using the keywords “physiotherapy strategies”, “hygiene care”, “quality of life” and “wheelchair-bound women”. For this review, a total 16 articles were selected, comprising 6 narrative reviews, 3 systematic reviews, 4 Randomised Clinical Trials (RCTs), and 3 experimental studies and excludes studies not written in English, conference abstracts, and those lacking relevance to the topic.

**Results:** Physiotherapy interventions for wheelchair-bound women enhance hygiene and quality of life, emphasising personalised approaches and inter-disciplinary collaboration for optimisation.

**Conclusion:** Physiotherapy treatments, such as targeted exercises and instruction, have the potential to alter hygiene care and quality of life for wheelchair-using women, promoting independence and well-being.

**Keywords:** Disability friendly washrooms, Experimental studies, Mobility.

Abstract ID-UG 34

# Effectiveness of Physiotherapy Intervention in Meralgia Parasthetica in Females: A Literature Review

**Nidhi Mor, BPT Student, Maharishi Markandeshwar Institute of Physiotherapy and Rehabilitation, Maharishi Markandeshwar (Deemed to be University), Mullana, Ambala, Haryana, India.**
**Kanu Goyal, Assistant Professor, Maharishi Markandeshwar Institute of Physiotherapy and Rehabilitation, Maharishi Markandeshwar (Deemed to be University), Mullana, Ambala, Haryana, India.**

**Introduction:** The studies suggest that physiotherapy interventions improve the condition of meralgia parasthetica in females.

**Aim:** To analyse the literature present on the physiotherapy treatment intervention of meralgia parasthetica in females.

**Materials and Methods:** The review utilised PubMed, Google scholar to search relevant and identified 776 studies from last 10 years. After removing duplicates, titles and abstracts were screened, from the literature involving females patients of 30-40 years of age group, and finally 11 were assessed.

**Results:** We included studies consisting of RCTs, Systematic review, clinical trials, correlation studies and meta-analysis. All studies included physiotherapy treatments and interventions.

**Conclusion:** The study concluded that manual therapy, kinesio-taping, PNF, TENS and PFR all extremely effective treatment interventions to manage meralgia paresthetica in females.

**Implications:** The results can be used to conduct further studies to add evidence-based literature in physiotherapy practice.

**Keywords:** Evidence based literature, Manual therapy, Systematic review.

Abstract ID-UG 35

# Development and Content Validation of Survey Questionnaire to Evaluate the Awareness of Alternative Menstrual Care Devices among University Female Students

**Navneet Kaur, BPT Student, Maharishi Markandeshwar Institute of Physiotherapy and Rehabilitation, Maharishi Markandeshwar (Deemed to be University), Mullana, Ambala, Haryana, India.**
**Sandeep Pattnaik, Assistant Professor, Maharishi Markandeshwar Institute of Physiotherapy and Rehabilitation, Maharishi Markandeshwar (Deemed to be University), Mullana, Ambala, Haryana, India.**

**Introduction:** Menstrual care products that are most used in India have historically been sanitary pads for menstrual hygiene and analgesics for period pain. Alternative menstruation care products are, nevertheless, the subject of a growing discourse. Informed decisions about menstrual hygiene and period pain management are being hampered by ignorance about these alternative menstrual care options.

**Aim:** To develop and validate a survey questionnaire to evaluate university female students' awareness of alternative menstrual care devices for menstrual hygiene and pain relief compared to conventionally used products.

**Materials and Methods:** The study describes two phases of questionnaire development and its validation. At first, an extensive literature review was conducted to frame the 23-item survey questionnaire, which was later validated in the later phase. For content validation, a panel of 9 experts, including gynaecologists, physiotherapists who specialise in menstrual rehabilitation, and social activists, was formed. They were prompted to validate the questionnaire produced in Google Forms after providing their consent.

**Results:** The Content Validation Index (CVI) was used to quantitatively assess the questionnaire's content validity. The I-CVI score was calculated to be 0.97, which exceeds 0.83, suggesting an excellent content validity.

**Conclusion:** This study successfully developed and validated a survey questionnaire with strong assessment attributes. The developed questionnaire can be used to carry out surveys among females in the menstrual age and based on the results, modifications can be made to menstrual rehabilitation, its implication policies and awareness programs related to it.

**Keywords:** Menstruation, Hygiene, Pain management.

Abstract ID-UG 36

# Mysophobia and its Impact on General Wellbeing of Physiotherapists Attending IPD Duties

**Yachika Tyagi, UG Student, Maharishi Markandeshwar Institute of Physiotherapy and Rehabilitation, Maharishi Markandeshwar (Deemed to be university), Mullana, Ambala, Haryana, India.**
**Kanika, Assistant Professor, Maharishi Markandeshwar Institute of Physiotherapy and Rehabilitation, Maharishi Markandeshwar (Deemed to be university), Mullana, Ambala, Haryana, India.**
**Rittu Sharma, Assistant Professor, Maharishi Markandeshwar Institute of Physiotherapy and Rehabilitation, Maharishi Markandeshwar (Deemed to be university), Mullana, Ambala, Haryana, India.**

**Introduction:** Mysophobia, or germaphobia, is a pathological fear of germs and poor cleanliness, ranked fifth among all phobias by the Diagnostic and Statistical Manual of Mental Disorders (DSM). The term was coined by William Alexander Hamilton. Its causes are thought to be a mix of psychological, environmental, and genetic factors, impacting mental health and well-being significantly.

**Aim:** To ascertain how mysophobia impact the overall health of physiotherapists who perform IPD duties.

**Materials and Methods:** A total of 300 physiotherapists working in IPD set-ups of different secondary and tertiary health care centres in Haryana, India. A self- administered questionnaire with an item content validity (I-CVI) of 0.8 and scale content validity (S-CVI) of 0.9 was circulated among physiotherapists working in a tertiary healthcare hospital.

**Results:** This study found that 79.3% of individuals experience anxiety due to germs exposure. This fear affects work performance for 57.9% and leads to excessive hand hygiene practices and affecting their skin integrity and hindering their ability to attend to more patient. Healthcare professionals, especially students, show heightened mysophobic behaviours, impacting patient care and mental well-being. Interventions like therapy and education are needed to address these concerns effectively.

**Conclusion:** Mysophobia impairs general health and limits interactions with patients, which in turn affects their rehabilitation.

**Keywords:** Fear, Germophobia, In-patient department.

Abstract ID-UG 37

# Prevalence of Tokophobia among Pregnant Women Electing for Normal Vaginal Delivery and Caesarean-section: A Cross-sectional Study

**Isha, BPT Intern, Maharishi Markandeshwar Medical College and Hospital, Solan, Himachal Pradesh, India.**
**Pooja Mehra, Assistant Professor, Maharishi Markandeshwar Medical College and Hospital, Solan, Haryana, India.**
**Geetanjali Kaul, Assistant Professor, Maharishi Markandeshwar Medical College and Hospital, Solan, Haryana, India.**
**Varsha Chattanta, BPT Intern, Maharishi Markandeshwar Medical College and Hospital, Solan, Haryana, India.**

**Introduction:** Normal Vaginal Delivery (NVD) and Caesarean (C) -section are two different mode of delivery that are opted in pregnant women and each method has its own advantages and disadvantages. The pathological dread of child-birth known as "tokophobia" has an impact on women's health by increasing their risk of physical and psychological morbidity. It includes fear for the infant's life, genital tract, and injuries. Early tokophobia detection is crucial since it can result in long-term anxiety and make daily tasks challenging.

**Aim:** To evaluate the Prevalence of Tokophobia among Pregnant women electing for Normal Vaginal Delivery and Caesarean-section.

**Materials and Methods:** A total of 230 pregnant women (115-NVD, 115- c-section), aged between 18 to 45 years, convenience sampling were enrolled in the study. Kolmogorov Smirnov's test showed data was normally distributed and was expressed mean (range) and 95% CI. Chi-square test was used to check association of tokophobia with mode of delivery and gravida.

**Results:** Intense fear (35.65%) was observed in women electing for NVD than caesarean section (28%). There was a significant association between mode of delivery and tokophobia (<0.05) and in-significant association between gravida and tokophobia (>0.05). Phi-crammer's v criteria shows that mode of delivery and tokophobia has strong association (p-value 0.015) and gravida and tokophobia has moderate association (p-value 0.149) respectively.

**Conclusion:** Intense fear was found to be more prevalent among primigravida women opting for NVD.

**Keywords:** Fear, Pregnancy, Psychological morbidity.

Abstract ID-UG 38

# Impact of Music Therapy on Psychological Health During Pregnancy: A Literature Review

**Neha, UG Student, Maharishi Markandeshwar Institute of Physiotherapy and Rehabilitation, Maharishi Markandeshwar (Deemed to be University), Mullana, Ambala, Haryana, India.**
**Rittu Sharma, Assistant Professor, Maharishi Markandeshwar Institute of Physiotherapy and Rehabilitation, Maharishi Markandeshwar (Deemed to be University), Mullana, Ambala, Haryana, India.**
**Jahanvi Dave, Assistant Professor, Maharishi Markandeshwar Institute of Physiotherapy and Rehabilitation, Maharishi Markandeshwar (Deemed to be University), Mullana, Ambala, Haryana, India.**

**Introduction:** Pregnancy is a crucial phase for maternal mental health. Pregnancy is a significant period marked by profound physiological and psychological changes in women. While it's a time of anticipation and joy, it can also be accompanied by various stressors, anxieties, and emotional challenges. Recognising the importance of supporting maternal psychological well-being during this critical phase, researchers and healthcare professionals have explored various interventions, including music therapy. Music therapy has emerged as a promising intervention to support psychological well-being during this period. This paper examines the impact of music therapy on a pregnant mother's mental health, highlighting its potential as a valuable aspect of prenatal care.

**Aim:** The aim is to explore how music therapy can positively impact the psychological well-being of pregnant women.

**Materials and Methods:** PubMed/Medline and Google Scholar were searched together recently published articles. By using key terms, music therapy, during pregnancy, and psychological health. This approach includes 11 articles (7 RCT, 3 Reviews, 1 Observational) from (2007-2021) which showed the effect of music therapy during pregnancy are included and excluded from post-partum women studies.

**Results:** Music therapy is a cost-effective, non-pharmacological intervention, that has been shown to quantifiably decrease

postpartum anxiety, pain, and depression while increasing the tolerance for pain and helping to maintain maternal and fetal parameters, promoting safe maternal-fetal bonding, and reducing blood pressure.

**Conclusion:** This study concludes that music therapy is free of cost with very effective treatment during pregnancy to maintain psychological well-being for the mother and foetus.

**Keywords:** Anxiety, Pregnant women, Psychological well-being.

# Managing Myofascial Pain Syndrome: A Multi-disciplinary Approach

Abstract ID-UG 39

**Akash Rajput, BPT Scholar, SPRS, KR Mangalam University, Sohna, Haryana, India.**
**Manish, BPT Scholar, SPRS, KR Mangalam University, Sohna, Haryana, India.**
**Charu Chhabra, Assistant Professor, Department of Physiotherapy, Jamia Hamdard University, New Delhi, India.**

Myofascial Pain Syndrome (MPS), a pain originating from muscle and fascia is present with localised tenderness and discomfort in a restricted area or referred pain of different patterns. According to recent studies, there exists a myofascial component of pain in 30% of patients in an internal medicine practice, 55% of those in a head and neck pain clinic, and up to 85% to 95% of cases in a clinic. With a prevalence rate of 30% to 85% amongst patients with musculoskeletal pain, this syndrome is usually found in the population aged from 27 to 50 years with greater incidences in females than males. Although the cause is unclear, repetitive, prolonged tasks, cause increase in stress of the muscle fibers leading to muscle strain, fatigue, hypoxia and ischemia.it is believed that intracellular calcium pumps, which are responsible for inducing sustained muscle contraction, are dysfunctional due to energy depletion, resulting in the development of taut bands. In conservative physical therapy practice, emphasis is laid on the use of electro-therapeutic modalities such as ultrasound, transcutaneous electric nerve stimulation, and therapeutic massage or soft tissue manipulation for symptomatic relief in patients with MPS. Although these non invasive techniques, have a temporary effect, but the root cause of the problem is not rectified. With the advent of technology, low-level laser therapy has proved to provide tremendous benefits when used with stretching techniques, post-isometric relaxation, active release techniques, trigger point pressure release, muscle energy techniques, massage. Latest researches lay emphasis on the use of dry needling and cupping therapy as individual therapies, and as combination therapy in patients with MPS. These approaches are not only time saving and effective; these have minimal risk of dependence and are easy for use for the therapist with considerable expertise in the field.

**Keywords:** Dry needling, Intracellular calcium pumps, Low level laser therapy.

# Questionnaire to Assess the Influence of Short-form Videos on University Students' Attention Span and Concentration: Development and Content Validation

Abstract ID-UG 40

**Shashank Malhotra, Student, Maharishi Markandeshwar Institute of Physiotherapy and Rehabilitation, Maharishi Markandeshwar (Deemed to be University), Mullana, Ambala, Haryana, India.**
**Sandeep Pattnaik, Assistant Professor, Maharishi Markandeshwar Institute of Physiotherapy and Rehabilitation, Maharishi Markandeshwar (Deemed to be University), Mullana, Ambala, Haryana, India.**

**Introduction:** The attention span and concentration of students are often hypothesised to be influenced by the addiction to Short-Form Videos (SFVs). Although the idea about such impact of SFVs has suddenly boomed across the globe, the earlier literature lacks a valid self-administered questionnaire to assess people's perceptions of the impact of SFVs on their attention span and concentration.

**Aim:** To develop and validate a survey questionnaire that can be used to assess the impact of addiction to SFVs browsing on the attention span and concentration of university students.

**Materials and Methods:** The study describes two phases of questionnaire development and its validation. At first, an extensive literature review was conducted to frame the 26-item survey questionnaire. For content validation in the second phase, a panel of 8 experts, including physiotherapists, psychologists and psychiatrists who specialise in neuro-psychological rehabilitation with a minimum of 5 years of relevant experience was formed. After giving their consent, they were asked to validate the Google Forms questionnaire.

**Results:** The Content Validation Index (CVI) was used to quantitatively assess the questionnaire's content validity. The I-CVI score was calculated to be 0.94 (>0.83), thus suggesting excellent content validity.

**Conclusion:** This study successfully developed and validated a survey questionnaire with strong assessment attributes, that offers a valuable tool for researchers investigating the relationship between SFVs use and students' cognitive abilities, paving the way for a deeper understanding of the potential influence of these popular media platforms on academic performance.

**Keywords:** Academic Performance, Attention, Cognition.

Abstract ID-UG 41

# To Check Aerobic Capacity and Fatigue Index of Asymptomatic Young Adults: A Pilot Study

**Neetu Swami, BPT Student, K.R. Mangalam University, Sohna Road, Gurugram, Haryana, India.**
**Arihant Pandey, BPT Student, K.R. Mangalam University, Sohna Road, Gurugram, Haryana, India.**
**Shweta Kumar, Assistant Professor, K.R. Mangalam University, Sohna Road, Gurugram, Haryana, India.**

**Introduction:** The 6-minute walk test is a submaximal exercise test used to assess aerobic capacity and endurance. This test helps the researchers understand the importance of physical activity and exercise tolerance. It is very useful in elderly and frail patients, but the present study will establish data for young asymptomatic individuals.

**Aim:** To assess the utility of 6-minute walk test to monitor the progress of functional capacity, aerobic capacity and endurance of the asymptomatic individual.

**Methods:** Instruct the patient to walk as far as they can without running in a 30 m long hallway. If a subject stopped before the 6$^{th}$ minute were up operator decided that he\she should not continue the reason for stopping was recorded.

**Results:** The participants in the study were analysed based on pre-post values of $SpO_2$, fatigue and heart rate. Statistical Package for Social Sciences (SPSS) version 21.0 was used to analyse the data and paired test was used to analyse the results further.

**Conclusion:** 6-minute walk test is a submaximal exercise assessment tool to gauge a person's endurance and functional capacity. This test is mild to moderate activity and can be used to determine the exercise tolerance and cardio-respiratory fitness. The test can be used to evaluate the physical performance of asymptomatic young adults' young individuals.

**Keywords:** Endurance, Exercise tolerance, Sub-maximal exercise.

Abstract ID-UG 42

# A Comprehensive Review to Determine the Effect of Dehydration on Various Health Conditions

**Luckshita, BPT Student, Maharishi Markandeshwar Institute of Physiotherapy and Rehabilitation, Maharishi Markandeshwar (Deemed to University), Mullana, Ambala, Haryana, India.**
**Nidhi Sharma, Professor, Maharishi Markandeshwar Institute of Physiotherapy and Rehabilitation, Maharishi Markandeshhwar (Deemed to be University), Mullana, Ambala, Haryana, India.**
**Simranjeet Kaur, Assistant Professor, Maharishi Markandeshwar Institute of Physiotherapy and Rehabilitation, Maharishi Markendeshwar (Deemed to be University), Mullana, Ambala, Haryana, India.**

**Introduction:** The effects of dehydration on medical ailments have significant relevance to physiotherapy, as it impacts multiple facets of patient care including pain management, joint health, muscular function, recuperation, and cognitive function. To enhance patient results and promote overall well-being, physiotherapists need to incorporate considerations of hydration status into their therapy approach. Dehydration is the state in which the body loses more fluid than it takes in, which throws off electrolyte balance and impairs biological processes.

**Aim:** To review the imbalance which may cause minor to severe health consequences depending on the level of dehydration and personal variables.

**Materials and Methods:** Commencing with PubMed, and Google Scholar, the authors here looked through the databases. key terms were used such as dehydration, health effects etc. Those with dehydration-related disorders were included in this group.

**Results:** Out of 201 Nine studies in total, including three cross-sectional, four case studies, one longitudinal, one retrospective, and one stating the impact of dehydration on health.

**Conclusion:** Dehydration can have complex effects on various health parameters, such as exercise tolerance, cardiovascular health, cognitive function, and musculoskeletal function. In physiotherapy, where the main goals are movement retraining, functional restoration, and rehabilitation, taking hydration into account is critical.

**Keywords:** Dehydration, Health, Loss of fluid.

# Leveraging Physiotherapy to Combat Children's Mental Health

Abstract ID-UG 43

**Anshika, UG Student, Maharishi Markandeshwar Institute of Physiotherapy and Rehabilitation, Maharishi Markandeshwar (Deemed to be University), Mullana, Ambala, Haryana, India.**
**Shweta Sharma, Assistant Professor, Maharishi Markandeshwar Institute of Physiotherapy and Rehabilitation, Maharishi Markandeshwar (Deemed to be University), Mullana, Ambala, Haryana, India.**

**Introduction:** In the realms of mental health, psychiatry physiotherapy has evolved as a renowned specialisation. In the backdrop of mental health, human mobility, functioning, physical activity, and exercise were all addressed in physiotherapy both individually as well as collaborative sessions. For managing children's psychological disorders (attention deficit hyperactivity disorder, cerebral palsy) multiple physiotherapy regimen serves, including pilates and relaxation techniques, as well as to foster their mental health. In the arena of pediatric psychiatry, physiotherapy possesses a lot of space to evolve.

**Aim:** To map out the synergies between children's mental health and physiotherapy.

**Materials and Methods:** To retrieve full-text publications, we commenced by digging through databases, notably PubMed, Google Scholar, and Scopus. For this narrative review, 20 publications were scrutinised. This encompasses publications or articles that dealt with pediatric population to gauge the sanctity of their perturbed mental health, which incorporates 8 reviews, 5 experimental, 2 observational, 2 cross-sectional, and 3 survey studies.

**Results:** To ascertain the result, 20 articles were screened for the analysis, which states that integrating the practice of physiotherapy into the oversight of children's mental health unveils an extensive approach. As reported by many studies, consistent engaging in exercise overcomes anxiety and depression. Furthermore, the mental health evaluations demonstrated substantial variation between the low, medium, and high physical activity groups; these disparities indicate, level of higher physical activity possess better mental health.

**Conclusion:** This study concludes that engaging in physical activity has the potential to contribute for pleasant psychological ramifications.

**Keywords:** Psychiatry, Psychological disorders, Review.

# Breast Distension and Mastitis Amid Lactation: An Obligation for Physical Rehabilitation- A Narrative Review

Abstract ID-UG 44

**Sandhya, BPT Student, Maharishi Markandeshwar Institute of Physiotherapy and Rehabilitation, Maharishi Markandeshwar (Deemed to be University), Mullana, Ambala, Haryana, India.**
**Shweta Sharma, Assistant Professor, Maharishi Markandeshwar Institute of Physiotherapy and Rehabilitation, Maharishi Markandeshwar (Deemed to be University), Mullana, Ambala, Haryana, India.**

**Introduction:** Physical therapy targets posture, muscle tension, and lymphatic drainage, among other aspects, and can be effective for preventing breast mastitis during lactation. Therapeutic ultrasonography, massage, and exercise are a few of the techniques that can help minimise pain, enhance circulation, and promote the healing process. In scenarios of mastitis and breast apprehension, comprehensive physical therapy indicated worth it.

**Aim:** To figure out the efficacy of physiotherapeutic intervention to supervise breast mastitis in lactating mothers.

**Materials and Methods:** For determining full text publications, we pursued by browsing databases comprising PubMed, Cochrane, Google Scholar, and Scopus. In the context of the analysis, the reference outlines of the retrieved articles were also assessed. This narrative review entailed 20 publications in all, representing 7 reviews, 3 experimental investigations, 4 cross-sectional studies, 3 randomised control trials, 1 retrospective study and 2 case report.

**Results:** The analysis covered 15 publications in order to acquire the outcome, which anticipated that conservative management is likely to be productive. Breast-feeding mothers can encounter re-assurance from breast discomfort via physical therapy interventions. There were statistically significant drops in challenges with breast-feeding and pain.

**Conclusion:** It's concluded that physiotherapy is a key component of breast mastitis treatment. A comprehensive physical therapy strategy involving ultrasonography, specialised manual techniques, and patient education has been demonstrated to be quite helpful in mastitis in feeding women.

**Keywords:** Breast-feeding, Breast mastitis, Physiotherapy.

# Physiotherapy in Prevention and Management of Herniated Disc

Abstract ID-UG 45

**Chetna Chaprana, Smriti Bhatia, Nilesh Bhargava**
**Student, Manav Rachna International Institute of Research and Studies, Faridabad, Haryana, India.**

**Introduction:** A herniated disk is also known as a slipped, ruptured or bulging disk. It's one of the most common causes of neck, back and leg pain. Every year, up to 2% of people get a herniated disk. Herniated disks are a leading cause of neck, back and leg pain.

**Aim:** To discuss role of physiotherapy in prevention and management of herniated discs.

**Materials and Methods:** Data was collected from Pubmed, Physiotherapy Evidence Database (PEDro) and Google Scholar.

**Results:** Most of the papers were in the favor of physiotherapy in management of herniated disc. Physiotherapy helps in managing pain and prevents this problem by maintaining a good posture. It also helped in increasing range of motion by performing specific exercises. It was found that core strengthening and exercises can help surrounding muscles of spine and hip and pelvis. Physiotherapy also helps in regaining muscle endurance.

**Conclusion:** The provision of physiotherapy programs and form of infrared, tens, stretching hamstrings and core exercises performed two times a week for four weeks helped in reducing pain and improve functional ability in patients.

**Keywords:** Bulging disc, Muscle endurance, Pain, Range of motion.

# Exploring the Efficacy of Ultrasonic Therapy for Ankle Sprains- A Narrative Review

Abstract ID-UG 46

**Sejal, BPT Student, Maharishi Markandeshwar Institute of Physiotherapy and Rehabilitation, Maharishi Markandeshwar (Deemed to be University), Mullana, Ambala, Haryana, India.**
**Sunita Sharma, Associate Professor, Maharishi Markandeshwar Institute of Physiotherapy and Rehabilitation, Maharishi Markandeshwar (Deemed to be University), Mullana, Ambala, Haryana, India.**

**Introduction:** Ankle sprains are musculoskeletal ailments resulting in discomfort, oedema, and functional impairment. Ultrasound has been used extensively to treat a wide range of musculoskeletal conditions including ankle sprains by reducing pain, swelling and improving joint motion.

**Aim:** To determine if ultrasonic therapy is effective in alleviating the symptoms of ankle sprain.

**Materials and Methods:** We started by looking through the databases, which included Google Scholar, PubMed, and Scopus and as per the inclusion criteria. A total of 7 articles were reviewed out of which there were 3 RCTs, 2 case series assessing ultrasonic treatment for ankle sprains, investigations examining pain severity, and 2 systematic reviews were all considered.

**Results:** The outcomes showed conflicting results. Following ultrasonic treatment intervention, limited studies found significant improvements in pain relief and swelling reduction however, others in majority did not discover any appreciable variations. It is possible that differences in treatment parameters, like the frequency and intensity of ultrasonic therapy, played a role in the inconsistent study results.

**Conclusion:** Ultrasonic therapy appears to be a supplementary treatment option for ankle sprains but it is less effective. Clinicians can maximise the therapeutic potential of ultrasound to improve functional outcomes and speed up recovery for patients by clarifying the treatment parameters.

**Keywords:** Pain relief, Rehabilitation, Swelling reduction, Ultrasound.

# Effectiveness of Physiotherapy Intervention Following ACL Reconstruction of Grade 3 ACL Tear: A Case Report

Abstract ID-UG 47

**Mohit Bansal, BPT Student, Maharishi Markandeshwar Institute of Physiotherapy and Rehabilitation, MM(DU), Mullana, Ambala, Haryana, India.**
**Rittu Sharma, Assistant Professor, Maharishi Markandeshwar Institute of Physiotherapy and Rehabilitation, MM(DU), Mullana, Ambala, Haryana, India.**
**Abhishek Kori, Postgraduate Student, Maharishi Markandeshwar Institute of Physiotherapy and Rehabilitation, MM(DU), Mullana, Ambala, Haryana, India.**
**Kanika, Assistant Professor, Maharishi Markandeshwar Institute of Physiotherapy and Rehabilitation, MM(DU), Mullana, Ambala, Haryana, India.**

Individuals with third grade Acute Cruciate Ligament (ACL) tear commonly face lower limb function impairments like pain, difficulty in prolong standing and reduced Range of Motion (ROM). The prevalence of ACL tear is approximately 87% for both males and females who are engaged in sports. Hence, effectiveness of physiotherapy for post-ACL surgery patients of ACL tear to bring them to their optimal level of functioning needs to be checked. A 27-year old male patient with grade 3 ACL tear reconstruction was recruited and given physiotherapy intervention for 5 weeks. Pre-Post (after surgery) intervention changes were recorded by Visual Analog Scale (VAS), ACI-Return to Sport after Injury (ACL-RSI) and ROM of left Knee. After 5 weeks of intervention, pre-post-intervention changes were as VAS (7 to 1), ACL-RSI (39 to 67/100) and ROM (active Knee flexion 35° to 74°). The results suggest that physiotherapy intervention is much beneficial approach for better recovery or to maintain the optimise level of functioning in individual with ACL grade 3 reconstruction. Post surgery Physiotherapy intervention program can be the beneficial approach for better and early recovery in grade 3 ACL tear reconstruction.

**Keywords:** Acute cruciate ligament, Pain, Return to sport after Injury.

# Knowledge, Attitude and Practice of Tele-rehabilitation among Physiotherapists Working in Haryana

Abstract ID-UG 48

**Vishaka, BPT Student, Maharishi Markandeshwar Institute of Physiotherapy and Rehabilitation, Maharishi Markandeshwar (Deemed to be University), Mullana, Ambala, Haryana, India.**
**Kanika, Assistant Professor, Maharishi Markandeshwar Institute of Physiotherapy and Rehabilitation, Maharishi Markandeshwar (Deemed to be University), Mullana, Ambala, Haryana, India.**
**Rituraj Mandal, Masters of Physiotherapy student, Maharishi Markandeshwar Institute of Physiotherapy and Rehabilitation, Maharishi Markandeshwar (Deemed to be University), Mullana, Ambala, Haryana, India.**

**Introduction:** In this burgeoning epoch, tele-rehabilitation represents an emerging method to rehabilitate patients without the necessity of commuting. Tele-rehabilitation facilitates un-interrupted service provision throughout the entire rehabilitation process, encompassing assessment, intervention, consultation, and education.

**Aim:** To find out the knowledge, practice, and attitudes towards TR among physiotherapists working in various settings.

**Materials and Methods:** A self-administered questionnaire, with an Item Content Validity Index (I-CVI) of 0.78 and a Scale Content Validity Index (S-CVI) of 0.84, was distributed among physiotherapists working in a tertiary healthcare hospital.

**Results:** The study showed that out of 365 participants, 69.4% were aware of TR. 64.2% reported using TR in conjunction with physical rehabilitation for patients who are unable to commute daily, aiming to enhance their recovery. Surprisingly, 71% of physiotherapists displayed a negative attitude toward TR and considered it a waste of time, citing the inability to achieve recovery without physical contact, 64.3% expressed concerns that TR hinders the recovery process by impeding the assessment of muscle recruitment. A total of 77.3% of physiotherapists reported not utilising any applications for tele-rehabilitation. Additionally, 72.7% identified network errors as the primary distraction during tele rehabilitation sessions.

**Conclusion:** Although the knowledge and practice of tele-marketing among physiotherapists are relatively high, there is a pressing need to address and alter their negative attitudes toward tele-rehabilitation practice. The findings of this study will assist physiotherapists to have extended knowledge of tele-rehabilitation use so that they can implement in their clinical settings and larger

number of patients having various impairments can be benefitted from the same.

**Keywords:** Awareness, Muscle recruitment, Rehabilitation.

# Unravelling the Evidence: Craniosacral Therapy for Migraine Relief- A Review

Abstract ID-UG 49

**Jasleen Kaur Grover, Student (BPT), Maharishi Markandeshwar Institute of Physiotherapy and Rehabilitation, Maharishi Markandeshwar (Deemed to be University), Mullana, Ambala, Haryana, India.**
**Subhasish Chatterjee, Associate Professor, Maharishi Markandeshwar Institute of Physiotherapy and Rehabilitation, Maharishi Markandeshwar (Deemed to be University), Mullana, Ambala, Haryana, India.**
**Mousumi Saha, Assistant Professor, Maharishi Markandeshwar Institute of Physiotherapy and Rehabilitation, Maharishi Markandeshwar (Deemed to be University), Mullana, Ambala, Haryana, India.**

**Introduction:** Cranio-sacral Therapy (CST) is a non invasive method which can help patients with migraine. Reviews are needed to explore the effectiveness of the same and also the most effective treatment frequency and duration need to be recommend.

**Aim:** To evaluate the effectiveness of CST in managing pain and migraine attack frequency among migraineurs.

**Methodology:** Relevant articles were identified by searching major databases (PubMed, Physiotherapy Evidence Database, Cochrane Library) published between 2000 and 2023 on adult participants who received CST with a history of migraine for atleast one year. The focus was to find whether effectiveness of CST was superior to sham interventions in participants with migraines. A standardised approach was used to assess the quality and potential biases within each study using Physiotherapy Evidence Database (PEDro) scale and robvis tool, followed by an evaluation of the overall strength of the evidence using a recognised framework.

**Results:** The present search identified 38 studies, of which only 5 trials met the strict criteria for inclusion in this review. These studies consistently showed that CST was more effective than sham therapy in reducing both migraine frequency and pain intensity. Additionally, the results suggested that CST may not only decrease migraine frequency but also improve overall quality of life.

**Conclusion:** CST is a gentle and safe approach and can be a valuable complementary therapy that may help reduce both the frequency and intensity of migraine episodes compared to other interventions.

**Implications:** It's crucial to seek treatment from a qualified cranio-sacral therapist for optimal safety and effectiveness.

**Keywords:** Non invasive, Pain intensity, Pain intensity.

# Reliability and Validity of 3-Meter Backward Walk Test in Individuals with Balance Impairments: A Literature Review

Abstract ID-UG 50

**Palkin, UG Student, Maharishi Markandeshwar Institute of Physiotherapy and Rehabilitation, Maharishi Markandeshwar (Deemed to be University), Mullana, Ambala, Haryana, India.**
**Kanu Goyal, Assistant Professor, Maharishi Markandeshwar Institute of Physiotherapy and Rehabilitation, Maharishi Markandeshwar (Deemed to be University), Mullana, Ambala, Haryana, India.**
**Manu Goyal, Professor, Maharishi Markandeshwar Institute of Physiotherapy and Rehabilitation, Maharishi Markandeshwar (Deemed to be University), Mullana, Ambala, Haryana, India.**

**Introduction:** Balance tests are helpful in assessing a population with variety of conditions. Computerised dynamic posturography, and other tools for balance assessment are expensive, difficult to handle/use and also not readily available. Thus, basic screening exams like 3-Meter Backward Walk Test (3MBWT) are developed. The 3MBWT is used to assess backward walking mobility, balance, and risk of fall.3-meter backward walk test (3MBWT) is a quick, easy, and clinically standardised way to evaluate backward walking and is therefore a tool for balance assessment.

**Aim:** The study aims to review the validity and reliability of 3MBWT in individuals with balance impairments.

**Materials and Methods:** The study commenced by exploring the databases including PubMed/Medline, Google Scholar, and Scopus to uncover full text publications authored in English. A total of 34 articles were retrieved after extensive data search, which were evaluated and only 13 articles met the inclusion criteria and were reviewed. Young adults, older adults and older populations with neurological and musculoskeletal impairments were included.

**Results:** 3MBWT shows excellent intrarater, interrater and test-retest reliability (ICC>0.80) and moderate to strong co-relations with already established tools for balance assessment therefore is having good concurrent validity.

**Conclusion:** 3MBWT is a reliable, valid and user-friendly tool for assessment of balance and fall risk and should therefore be included in the series of tests while assessing patients with neurological or musculoskeletal conditions.

**Implications:** The findings may be administered in assessment of balance and risk of fall.

**Keywords:** Backward walking, Balance, Reliability, Responsiveness, Validity.

# Effect of Side Dominance on Range of Motion at Different Joints of the Body in Adults: A Literature Review

Abstract ID-UG 51

**Mohit Kumar Siradhana, UG student, Maharishi Markandeshwar Institute of Physiotherapy and Rehabilitation, Maharishi Markandeshwar (Deemed to be University), Mullana, Ambala, Haryana, India.**
**Aditi Popli, Assistant Professor, Maharishi Markandeshwar Institute of Physiotherapy and Rehabilitation, Maharishi Markandeshwar (Deemed to be University), Mullana, Ambala, Haryana, India.**

**Introduction:** Side dominance decides the involvement of bodies' side during activities of daily living therefore each side of the body undergoes different amounts of stress and load which leads to varying degenerative changes. When diagnosing musculoskeletal problems and tracking prognosis, Range of Motion (ROM) assessments are frequently used. Therefore, ROM is a helpful clinical indicator of tailored treatment plans. Current rehabilitation literature suggests to goal for equal ROM at the effected joint as contralateral side which may differs greatly based on the dominance of the extremity.

**Aim:** The study aims to assess the effects of side dominance on ROM at different joints of the body in adults.

**Materials and Methods:** The study commenced by exploring the databases including PubMed/ Medline, Google Scholar and Scopus to uncover full text publications authored in English. A total of 38 articles were retrieved after extensive data search, which were evaluated and only 5 articles met the inclusion criteria and were reviewed. Adult Males and Females (18-59 years) were included.

**Results:** It was found out that there is significant difference between ROM measurements of dominant and non-dominant sides of the body.

**Conclusion:** ROM measurements of dominant and non-dominant sides is found different which should be considered while planning rehabilitation goals.

**Implication:** The findings may be administered in assessing difference in ROM in dominant and non-dominant sides of body.

**Keywords:** Dominant, Handedness, Non-dominant.

# Optimising Navicular Height: A Narrative Review of Physiotherapy Interventions Focused on the Medial Longitudinal Arch

Abstract ID-UG 52

**Ruchi Bohra, BPT Student, Maharishi Markandeshwar Institute of Physiotherapy and Rehabilitation, Maharishi Markandeshwar (Deemed to University), Mullana, Ambala, Haryana, India.**
**Subhashish Chatterjee, Associate professor, Maharishi Markandeshwar Institute of Physiotherapy and Rehabilitation, Maharishi Markandeshwar (Deemed to be University), Mullana, Ambala, Haryana, India.**
**Mousumi Saha, Assistant Professor, Maharishi Markandeshwar Institute of Physiotherapy and Rehabilitation, Maharishi Markandeshwar (Deemed to be University), Mullana, Ambala, Haryana, India.**

**Introduction:** The Medial Longitudinal Arch (MLA), specifically the navicular height, is vital for foot biomechanics and overall lower limb function. Physiotherapy interventions focused on improving Navicular Height (NVH) are important for foot health and movement efficiency. This review aims to examine different physiotherapy methods which enhance navicular height, providing insights into their effectiveness and clinical significance. This understanding is crucial for clinicians looking for evidence-based techniques to manage foot- related issues and enhance patient well-being.

**Aim:** To evaluate and synthesise existing literature on physiotherapy interventions targeting the medial longitudinal arch with the goal of optimising navicular height.

**Materials and Methods:** A literature search using electronic databases (Google Scholar and PubMed) identified relevant articles on medial longitudinal arch, navicular height, and physiotherapy intervention, including randomised controlled trials, cohort studies, and case series.

**Results:** Using key terms found a total article 1567 on MLA and NV height which 13 articles (7 Experimental studies, 2 cross-sectional studies, 2 reviews, and 1 case study) included Interventions like strengthening exercises, stretching techniques, orthotic support, and manual therapy have shown promising results in enhancing NV height and improving foot functions.

**Conclusion:** This study examines the effectiveness of physiotherapy interventions in modifying MLA and NV height, identifying gaps, and improving foot biomechanics and function, with multi-modal approaches tailored to individual needs potentially achieving optimal outcomes in managing foot pathologies, and suggesting future research directions for foot deformity management.

**Keywords:** Foot deformities, Clinical relevance, Physical therapy intervention.

Abstract ID-UG 53

# To Assess the Effect of Physiotherapy Management in Osteoarthritis Knee: A Case Report

**Prachi Sharma, BPT Student, Maharishi Markandeshwar Institute of Physiotherapy and Rehabilitation, MM(DU), Mullana, Ambala, Haryana, India.**
**Vanshika Chouhan, BPT Student, Maharishi Markandeshwar Institute of Physiotherapy and Rehabilitation, MM(DU), Mullana, Ambala, Haryana, India.**
**Aditi Popli, Assistant Professor, Maharishi Markandeshwar Institute of Physiotherapy and Rehabilitation, MM(DU), Mullana, Ambala, Haryana, India.**

**Introduction:** Osteoarthritis (OA) is the most common degenerative joint condition, characterised by joint pain and dysfunction caused by joint destruction. There is strong evidence to show short-term beneficial effects of exercise on pain and function. Physiotherapy treatments aim to dissipate knee joint load, alter lower limb alignment, improve range of motion and restore normal neuromuscular function.

**Aim:** To check if physiotherapy helps in improving joint function in patients with OA.

**Methodology:** A 27-year-old male patient diagnosed with osteoarthritis knee were recruited and given physiotherapy intervention for 4 weeks. On the basis radiological examination and Kellgren and Lawerence Scale patient is classified as OA knee.

**Results:** Physiotherapy in combination with other management strategies, such as weight loss and attention to psychological factors may provide more significant outcomes than any one of these in isolation.

**Conclusion:** Physiotherapy plays a crucial role in managing Osteoarthritis Knee.

**Implication:** Physiotherapy interventions can reduce knee pain and improve function in those with knee OA.

**Keywords:** Exercise therapy, Knee joint, Lower extremity, Pain, Physical therapy modalities, Range of motion.

Abstract ID-UG 54

# Emotional Competence and Cognitive Abilities: A Comparative Survey Study of Active and Sedentary College Students

**S Choudhary, BPT Student, Faculty of Physiotherapy, SGT University, Gurugram, Haryana, India.**
**P Siwach, Demonstrator, Faculty of Physiotherapy, SGT University, Gurugram, Haryana, India.**
**A Choudhury, BPT Student, Faculty of Physiotherapy, SGT University, Gurugram, Haryana, India.**
**S Verma, BPT Student, Faculty of Physiotherapy, SGT University, Gurugram, Haryana, India.**
**H Sehrawat, BPT Student, Faculty of Physiotherapy, SGT University, Gurugram, Haryana, India.**

**Introduction:** College students are prone to physical inactivity resulting in sedentary behaviour which may closely linked to their lower levels of cognitive function and emotional intelligence. The purpose is to compare the cognitive function and emotional intelligence among physically active versus sedentary college students. As physical activity is crucial for physical as well as psychological health of students that can help students to achieve better academically.

**Aim:** To compare the cognitive function and emotional competence in college students.

**Materials and Methods:** A total of 400 college students, aged 18-30 years of either gender, were included in this questionnaire-based survey. The subjects were asked to fill google form regarding their activity level on Sedentary Behaviour Questionnaire, The Cognitive Assessment Questionnaire for cognitive competency and Wong and Law Emotional Intelligence Scale for Emotional Intelligence. Participants were grouped into Group A (Sedentary) and Group B (Active), findings of both groups were compared.

**Results:** Mean with SD for cognitive competency were 47.83±17.3 for Group A and 35.59±19.36 for Group B. Mean with SD for Emotional Intelligence four sub-domain SEA, ROE, UOE and OEA (Group A: 4.07±1.3, 4.29±1.3, 4.11±1.3, 4.08±1.3) (Group B: 4.75±1.7, 4.82±1.6, 4.71±1.6, 4.58±1.6) respectively. Results of Cognitive and Emotional Intelligence of Group B were found highly significant with p-value<0.05 than inactive subjects.

**Conclusion:** Physical activity can help in better cognition and emotional intelligence among collegiate students.

**Implications:** Some amount of physical activity is necessary to improve one's emotional competence and cognitive function.

**Keywords:** Academic performance, Sedentary behaviour questionnaire, Wong and law emotional intelligence scale.

Abstract ID-UG 55

# Cognitive Resilience in Willis Ekbom Disease: Enhancing Functionality Through Neurophysiotherapy Interventions

**Muskan, BPT student, Maharishi Markandeshwar Institute of Physiotherapy and Rehabilitation, MM(DU), Mullana, Ambala, Haryana, India.**
**Shweta Sharma, Assistant Professor, Maharishi Markandeshwar Institute of Physiotherapy and Rehabilitation, MM(DU), Mullana, Ambala, Haryana, India.**

**Introduction:** The neurological condition known as Restless Legs Syndrome (RLS), or Willis-Ekbom disease, is epitomised by unintentional movement of the legs that predominantly unfold during sleep. RLS is accompanied by leg discomfort. RLS management is multi-faceted because of its heterogeneous causes and varying treatment outcomes. Dopamine agonists are the primary treatment, however some individuals may have augmentation-paradoxical worsening of symptoms.

**Aim:** To explore the potential of neuro-physiotherapy to further dignify cognitive resilience among individuals grappling with Willis Ekbom Disease (WED).

**Materials and Methods:** An exhaustive review of the literature, encompassing several full-text published studies, was carried out using key databases such as PubMed/Medline, Google Scholar, and Scopus to uncover cognitive-focused approaches that could potentially be incorporated into neuro-physiotherapy for WED. This review stipulated a comprehensive examination of individuals aged 18 and above who experienced sleeplessness, apprehension and neuromuscular diseases.

**Results:** Enhancements in cognitive function, including attention, memory, and executive function, can result from neuro-physiotherapy therapies such as cognitive training, psychoeducation, and interdisciplinary teamwork which ultimately mitigate WED.

**Conclusion:** This study concludes that inclusion of cognitive resilience-focused therapies into neuro-physiotherapy for WED proves essential for holistic care, resulting in enhanced patient outcomes and prevention of disease.

**Keywords:** Cognition, Periodic leg movements, Restless leg syndrome.

Abstract ID-UG 56

# Enhancing Rehabilitation through Pilates: A Comprehensive Approach

**Shreya, BPT student, Maharishi Markandeshwar Institute of Physiotherapy and Rehabilitation, MM(DU), Mullana, Ambala, Haryana, India.**
**Aditi Popli, Assistant Professor, Maharishi Markandeshwar Institute of Physiotherapy and Rehabilitation, MM(DU), Mullana, Ambala, Haryana, India.**

**Introduction:** Pilates is a type of exercise treatment that strengthen the deep torso muscles, increase breathing awareness, and improve spine alignment. The Pilates mat exercises use limb motions to change the torque applied to the trunk muscles when standing, supine, prone, or side lying. Pilates is an effective tool for rehabilitation. Pilates was discovered to be an appropriate and successful movement-based rehabilitation method, particularly because of its exercises' safety and individual adaptability.

**Aim:** To bring attention to possible advantages of integrating movements, exercises, and mindfulness practices of Pilates into conventional rehabilitation treatments.

**Materials and Methods:** Several researches were carried out using databases such as Google Scholar and Pubmed to review full text published articles in relevance with Pilates.

**Results:** Pilates works well for treating back pain, scoliosis, ankylosing spondylitis, and breast cancer. It significantly improves neuromotor fitness, especially balance both dynamically and statically. On the other hand, data for other components of fitness are contradictory. Pilates is a useful technique for enhancing balance, particularly in older persons.

**Conclusion:** Pilates can be a useful addition to conventional rehabilitation techniques, with possible advantages for both injury prevention and general physical well-being.

**Keywords:** Injury prevention, Torso muscles, Torque.

# Effects of Blood Flow Restriction Technique in Patients with Knee Osteoarthritis- A Narrative Review

Abstract ID-UG 57

**Anuj Chhabra, BPT Student, Maharishi Markandeshwar Institute of Physiotherapy and Rehabilitation, Maharishi Markandeshwar (Deemed to be University), Mullana, Ambala, Haryana, India.**
**Aditi Popli, Assistant Professor, Maharishi Markandeshwar Institute of Physiotherapy and Rehabilitation, Maharishi Markandeshwar (Deemed to be University), Mullana, Ambala, Haryana, India.**
**Akanksha Saxena, Assistant Professor, Maharishi Markandeshwar Institute of Physiotherapy and Rehabilitation, Maharishi Markandeshwar (Deemed to be University), Mullana, Ambala, Haryana, India.**
**Anmol Ratna, BPT Student, Maharishi Markandeshwar Institute of Physiotherapy and Rehabilitation, Maharishi Markandeshwar (Deemed to be University), Mullana, Ambala, Haryana, India.**

**Introduction:** Blood Flow Restriction Training (BFRT) involves limiting the blood flow to muscle during exercise. It reduces joint stress and pain for individuals with knee Osteo-arthritis (OA).

**Aim:** This narrative review aims to assess BFRT, safety, and effectiveness in treating patients with OA of the knee.

**Materials and Methods:** PubMed/ Medline, Google Scholar, and Physiotherapy Evidence Database (PEDro), databases were searched to identify the full-text studies in the English language for the last 10 years. Initially the authors found 487 articles, after deletion of duplicated and screening of titles and abstracts and finalised 43 full texts articles for this review. Out of 43, 7 articles were suitable for this review study.

**Results:** The combined data demonstrated that there was no discernible difference between BFRT and traditional training for knee OA in terms of pain, functional performance, self-reported function, or adverse events. Adverse event rates were reduced with BFRT than high-load resistance training (HLRT).

**Conclusion:** BFRT is less likely to be ineffective in treating individuals with OA Knee. A small body of research, however, points to BFRT's potential safety advantage over HLRT. With additional studies on efficacy and safety, more high-quality data is required.

**Implication:** BFRT has shown several positive effects in patients with knee OA including improved muscle strength, reduced pain, enhanced muscle strength, improved joint function, and enhanced rehabilitation. This creates a challenging environment for the muscles, allowing individuals like young and older adults to achieve similar training benefits with fewer repetitions.

**Keywords:** Adverse eventa, Exercise, High load resistance training.

# Efficacy of Physiotherapeutic Intervention in the Improvement of Lower Limb Impairments following Injection Palsy

Abstract ID-UG 58

**Nishu, BPT student, Maharishi Markandeshwar Institute of Physiotherapy and Rehabilitation, Maharishi Markandeshwar (Deemed to be University), Mullana, Ambala, Haryana, India.**
**Kanika, Assistant Professor, Maharishi Markandeshwar Institute of Physiotherapy and Rehabilitation, Maharishi Markandeshwar (Deemed to be University), Mullana, Ambala, Haryana, India.**
**Yukta Sharma, Postgraduate Student, Maharishi Markandeshwar Institute of Physiotherapy and Rehabilitation, Maharishi Markandeshwar (Deemed to be University), Mullana, Ambala, Haryana, India.**
**Rittu Sharma, Assistant Professor, Maharishi Markandeshwar Institute of Physiotherapy and Rehabilitation, Maharishi Markandeshwar (Deemed to be University), Mullana, Ambala, Haryana, India.**

A 36-year-old male patient presented to the neuro-physiotherapy Outpatient Department (OPD) with the complaint of pain in left lower limb and difficulty in weight-bearing on left lower limb from the past two weeks. Patient had a history of accidental trauma to sciatic nerve while taking an injection on the gluteal region. The patient underwent lower limb function assessment using motor and sensory examinations, Foot and Ankle Disability Index (FADI), Stanmore Assessment Questionnaire (SAQ), and Visual Analogue Scale (VAS) and Nerve Conduction Velocity testing (NCV). Patient was having intact myotomes and dermatomes on both lower limbs. The Manual Muscle Testing (MMT) of left lower limb was found to be affected. A physiotherapy protocol including electrical stimulation, application of Transcutaneous Electrical Nerve Stimulation (TENS) over the distribution of sciatic nerve and strengthening of foot muscles was given for a duration of 5 times a week for 8-weeks. The given treatment showed improvement in MMT scores from 3 to 4 for hip flexors, 3- to 3+ for hip extensors, 3 to 3+ for knee flexors, 2- to 3 for ankle plantar flexion, 2+ to 3 for dorsiflexion, 2 to 3- for eversion and from +1 to 2+ for inversion, FADI scores decreased from 104 to 16, SAQ scores improved from 100 to 61 and VAS scores decreased from 9 to 3. Additionally, the motor nerve conduction velocity (MNCV) of the sciatic nerve increased from 42.4ms to 43.7ms in the left lower limb and tibial nerve from 36.3ms to 37.07. The provided treatment demonstrated effectiveness in alleviating the patient's symptoms.

**Keywords:** Manual muscle testing, Nerve conduction velocity, Physiotherapy, Rehabilitation.

# Enhancing Maternal Health: Physiotherapy Rehabilitation Approaches for Gestational Diabetes in Pregnant Women: A Narrative Review

Abstract ID-UG 59

**Vanshika Agarwal, BPT Student, Maharishi Markandeshwar Institute of Physiotherapy and Rehabilitation, Maharishi Markandeshwar (Deemed to be University), Mullana, Ambala, Haryana, India.**
**Simranjeet Kaur, Assistant Professor, Maharishi Markandeshwar Institute of Physiotherapy and Rehabilitation, Maharishi Markandeshwar (Deemed to be University), Mullana, Ambala, Haryana, India.**
**Nidhi Sharma, Professor, Maharishi Markandeshwar Institute of Physiotherapy and Rehabilitation, Maharishi Markandeshwar (Deemed to be University), Mullana, Ambala, Haryana, India.**

**Introduction:** According to a Diabetes Prevention Program (DPP) study, patients with gestational diabetes mellites may experience a lower risk of acquiring diabetes if they implement lifestyle modifications. Physical activity is regarded as a crucial element in the treatment of gestational diabetes mellites. For people with insulin resistance, systematic exercise is beneficial in improving diabetes management outside of pregnancy.

**Aim:** To summarise all the existing literature to learn about the physiotherapy rehabilitation of expectant mothers with gestational diabetes mellitus.

**Materials and Methods:** A This narrative review included articles from the databases PubMed, Cochrane Library and Physiotherapy Evidence Database (PEDro) databases have been utilised to search articles with search terms which includes, REHAB “GBM”, exercise, hydrotherapy AND aerobic using Boolean operators AND, OR. The search yield 156 results in the PubMed Database and few articles results in the GOOGLE SCHOLAR database. various studies that analyses effect of physical activity, resistance training exercise, aerobic exercise, to improve strength, cardiovascular activity and functional reduction in the weight at the time of pregnancy 8 articles

fulfilled the eligibility criteria and were included for the present review in which total participants with diabetes were allocated to experimental and control group.

**Results:** The blood glucose level in the resistance exercise group and the aerobic exercise group were lower after the intervention than before the intervention.

**Conclusion:** Exercise is essential for managing GDM, although there is currently little data to support its medium to long-term benefits.

**Keywords:** Aerobic exercise, Physical exercise, Pregnancy, Resistance training.

Abstract ID-UG 60

# Holistic Review of Epley Maneuver for Posterior Canal Benign Paroxysmal Positional Vertigo

**Vankita Tandon, BPT Student, Maharishi Markandeshwar Institute of Physiotherapy and Rehabilitation, Maharishi Markandeshwar (Deemed to be University), Mullana, Ambala, Haryana, India.**
**Shweta Sharma, Assistant Professor, Maharishi Markandeshwar Institute of Physiotherapy and Rehabilitation, Maharishi Markandeshwar (Deemed to be University), Mullana, Ambala, Haryana, India.**

**Introduction:** Vertigo is a prevalent medical manifestation with multiple diagnoses that need to be addressed through a thorough clinical assessment and physical examination. The predominant reason behind vertigo is particularly Benign Paroxysmal Positional Vertigo (BPPV) in primary healthcare settings are confirmed through a positive Dix Hallpike positional test and addressed through repositioning training session.

**Aim:** The primary focus of this study centred on evaluating the efficacy of Epley manoeuvres for addressing patients afflicted with Posterior Canal Benign Paroxysmal Positional Vertigo (PC-BPPV).

**Materials and Methods:** Research articles from PubMed, Cochrane library, Scopus and Google Scholar databases were reviewed. Approximately, 20 articles were reviewed in total in this literature review. Fourteen publications were assessed including 14 randomised control studies, two observational studies and four reviews.

**Results:** In order to attain the result, 20 articles were featured in the analysis which stated that the Epley Manoeuvre improves quality of life in both the global and disease-specific domains for older patients with BPPV. When used in primary care, this manoeuvre can effectively reverse a positive Dix Hallpike Test and lessen the extent of vertigo in individuals in the Dix Hallpike Test who had baseline nystagmus.

**Conclusion:** The administration of self-Epley manoeuvre twice a day has a good success rate and can be used for patients who are unable to perform the Epley manoeuvre after the Dix Hallpike Test.

**Keywords:** Physiotherapy, Vestibular Rehabilitation, Dip Hallpike Test

Abstract ID-UG 61

# Recent Physiotherapy Management of Peripheral Vascular Disease: A Review

**Purvanshi, BPT Student, Maharishi Markandeshwar Institute of Physiotherapy and Rehabilitation, Maharishi Markandeshwar (Deemed to be University), Mullana, Ambala, Haryana, India.**
**Mandeep K Jangra, Assistant Professor, Maharishi Markandeshwar Institute of Physiotherapy and Rehabilitation, Maharishi Markandeshwar (Deemed to be University), Mullana, Ambala, Haryana, India.**
**Akanksha Saxena, Assistant Professor, Maharishi Markandeshwar Institute of Physiotherapy and Rehabilitation, Maharishi Markandeshwar (Deemed to be University), Mullana, Ambala, Haryana, India.**

**Introduction:** Peripheral vascular disease commonly called Varicose vein and Deep Vein Thrombosis (DVT) are abnormal conditions affecting 20% to 40% of adults, causing venous dilatation and twisting in the legs. These veins are caused by valve malfunctions in the great saphenous vein, small saphenous vein, and perforator vein artery. Pulmonary embolism and deep vein thrombosis are major causes of morbidity and death. Factors like obesity, inactivity, hormonal changes, smoking, constipation, and prolonged standing can weaken veins.

**Aim:** To known the efficacy of physiotherapy treatment in peripheral vascular disease.

**Materials and Methods:** A total of 15 articles were analysed from various databases PubMed, Google Scholar focus on physiotherapy treatment of Peripheral vascular disease.

**Results:** The review of articles on physiotherapy for Peripheral Vascular Disease (PVD) reveals promising strategies for pain reduction and symptom management. Techniques like Neuromuscular Electrical Stimulation and Hydrotherapy show efficacy in improving venous blood flow and alleviating discomfort. Additionally, exercises, Transcutaneous Electrical Nerve Stimulation (TENS), and therapeutic ultrasound exhibit positive outcomes. Strengthening calf muscles emerges as a key approach for managing varicose veins. Overall,

physiotherapy offers diverse interventions to improve symptoms and enhance venous function in PVD patients.

**Conclusion:** Advanced physiotherapy modalities and techniques offer a multifaceted approach to rehabilitation and pain management across various conditions and populations. Electrotherapy modalities such as Neuromuscular Electrical Stimulation (NMES), Transcutaneous Electrical Nerve Stimulation (TENS), and Low Intensity Laser Therapy (LILT) provide effective pain relief, while manual therapy techniques like joint mobilisations and myofascial release restore mobility and function.

**Keywords:** Electrotherapy modalities, Hormonal changes, Obesity.

# Electrotherapeutic interventions in Diabetic Peripheral Neuropathy- A Narrative Review

Abstract ID-UG 62

**Sakshi Thakur, BPT Student, Maharishi Markandeshwar Institute of Physiotherapy and Rehabilitation, Maharishi Markandeshwar (Deemed to be University), Mullana, Ambala, Haryana, India.**
**Kirti Chhabra, Assistant Professor, Maharishi Markandeshwar Institute of Physiotherapy and Rehabilitation, Maharishi Markandeshwar (Deemed to be University), Mullana, Ambala, Haryana, India.**

**Introduction:** Diabetic peripheral neuropathy presents a significant clinical challenge, often resulting in chronic pain and sensory deficits. Electrotherapy offers a non-pharmacological approach to alleviate symptoms, presenting potential benefits for pain management and functional improvement.

**Aim:** To explore the efficacy, mechanisms, and clinical relevance of electrotherapeutic interventions Transcutaneous Electrical Nerve Stimulation (TENS), Precutaneous Electrical Nerve Stimulation (PENS), low frequency pulse electromagnetic field in the management of diabetic neuropathy of peripheral extremities.

**Materials and Methods:** Searches were conducted in English across databases including PubMed, Scopus, and Google Scholar using the keywords “electrotherapy” and “diabetic peripheral neuropathy.” For this review, a total of 21 articles were selected, comprising six narrative reviews, three systematic reviews, nine Randomised Control Trial (RCT) and three experimental studies.

**Results:** Electrotherapy has been shown to effectively decrease pain levels, enhance sensory function, and improve the overall well-being of individuals suffering from diabetic peripheral neuropathy.

**Conclusion:** Electrotherapy represents a valuable adjunctive treatment for diabetic neuropathy, warranting consideration in clinical practice for enhanced patient care and treatment outcomes.

**Implementation:** Clinicians should consider incorporating electrotherapeutic interventions into comprehensive treatment plans for diabetic neuropathy, taking into account individual patient characteristics, preferences, and treatment goals. Multidisciplinary collaboration and patient education are essential for maximising the potential benefits of electrotherapy in clinical practice.

**Keywords:** Diabetic neuropathy, Electrotherapy interventions, Multidisciplinary collaboration.

# Evaluation of Psychometric Properties Across Translated Variants of the Tinetti Performance-oriented Mobility Assessment (POMA) Scale: A Narrative Review

Abstract ID-UG 63

**Sukhpal Singh, BPT Student, Maharishi Markandeshwar Institute of Physiotherapy and Rehabilitation, Maharishi Markandeshwar (Deemed to be university), Mullana, Ambala, Haryana, India.**
**Nidhi Sharma, Professor, Maharishi Markandeshwar Institute of Physiotherapy and Rehabilitation, Maharishi Markandeshwar (Deemed to be university), Mullana, Ambala, Haryana, India.**
**Simranjeet Kaur, Assistant Professor, Maharishi Markandeshwar Institute of Physiotherapy and Rehabilitation, Maharishi Markandeshwar (Deemed to be university), Mullana, Ambala, Haryana, India.**

**Introduction:** The Tinetti POMA Scale evaluates balance and gait in the elderly. It's commonly used by healthcare professionals who work with the elderly and those with neurological disabilities. Each component is scored separately, with higher scores indicating better balance and gait function. The overall score ranges from 0 to 28.

**Aim:** To evaluate the psychometric properties across different translated variants of the Tinetti Performance-Oriented Mobility Assessment (POMA) scale.

**Materials and Methods:** Authors searched electronic databases from inception to March 2024, including studies on translation

procedures, validity, reliability, and responsiveness of the scale in non-english languages. We assessed quality using predetermined standards.

**Results:** A total of four studies met the inclusion criteria, it was found that the Korean adaptation of the Tinetti mobility test exhibited superior psychometric properties compared to the Turkish, Persian, and Gujarati versions. The test demonstrated a strong level of concurrent validity, displaying a negative correlation to the 10-meter walk test and the TUG test, while displaying a positive correlation to the BBS. Additionally, the Tinetti balance and gait scale showed high levels of test-retest, internal consistency, intra-rater, and inter-rater reliability. The gait and balance sensitivity and specificity were also found to be high.

**Conclusion:** The study found that translated versions of Tinetti POMA are reliable, valid, and sensitive. Hence, they are suitable for use in the target population or language group. This supports the use of Tinetti POMA in clinical practice and research across different linguistic and cultural settings.

**Keywords:** Gait, Neurological disabilities, Translation.

Abstract ID-UG 64

# Efficacy of Physiotherapy Intervention in the Symptomatic Management of Foot Drop due to Compressive Neuropathy of the Common Peroneal Nerve: A Case Report

**Chhavi, BPT Student, Maharishi Markandeshwar Institute of Physiotherapy and Rehabilitation, MM(DU), Mullana, Ambala, Haryana, India.**
**Rituraj Mandal, Postgraduate Student, Maharishi Markandeshwar Institute of Physiotherapy and Rehabilitation, MM(DU), Mullana, Ambala, Haryana, India.**
**Kanika, Assistant professor, Maharishi Markandeshwar Institute of Physiotherapy and Rehabilitation, MM(DU), Mullana, Ambala, Haryana, India.**
**Rittu Sharma, Assistant professor, Maharishi Markandeshwar Institute of Physiotherapy and Rehabilitation, MM(DU), Mullana, Ambala, Haryana, India.**

**Introduction:** Compressive neuropathy of the common peroneal nerve occurs when it's trapped, often around the fibular head which causes symptoms like foot drop, sensory loss, and pain in the leg. Therefore, this study aimed to assess the effectiveness of a newly developed physiotherapy intervention for foot drop resulting from nerve entrapment.

**Case Report:** A 37-year-old male patient presented to the physiotherapy OPD with complaints of weakness, tingling, and numbness in the left lower limb, along with difficulty walking over the past month. The patient underwent pre and post intervention assessment using the Stanmore Assessment Questionnaire (SAQ), Foot Ankle Disability Index (FADI), Dynamic Gait Index (DGI), Manual Muscle Testing (MMT), Motor Nerve Conduction Velocity (MNCV), and F-wave study of the peroneal and tibial nerves. The patient underwent a regimen that included Intermittent Galvanic Stimulation, passive dorsiflexion and weight-bearing exercises initially of left lower limb. After that Functional Electrical Stimulation coupled with gait training, as well as active-assisted to active-resisted range of motion exercises targeting ankle dorsiflexors evertors and thera-band exercises were administrated. Significant improvements were observed in SAQ scores (from 21 to 74), FADI (from 66 to 85), DGI (from 8 to 22), MMT of ankle dorsiflexors (from grade 1 to grade 4), MNCV (from non-recordable to 35.3 m/sec), and F-wave latency (from non-recordable to 32 m/sec). The provided treatment demonstrates effectiveness in improving foot drop due to compressive neuropathy. This treatment protocol enables physiotherapists to evaluate the effectiveness of the newly developed intervention on a larger sample size, thereby enhancing patient care.

**Keywords:** Functional electrical stimulation, Gait, Peroneal neuropathies.

# Impact of Physical Activity on Functional Independence among Elderly Population Residing in Old Age Homes

Abstract ID-UG 65

**Sanjana, BPT Student, Maharishi Markandeshwar Institute of Physiotherapy and Rehabilitation, Maharishi Markandeshwar (Deemed to be University), Mullana, Ambala, Haryana, India.**
**Kanika, Assistant Professor, Maharishi Markandeshwar Institute of Physiotherapy and Rehabilitation, Maharishi Markandeshwar (Deemed to be University), Mullana, Ambala, Haryana, India.**
**Nidhi Sharma, Professor, Maharishi Markandeshwar Institute of Physiotherapy and Rehabilitation, Maharishi Markandeshwar (Deemed to be University), Mullana, Ambala, Haryana, India.**

**Introduction:** Ageing is a global phenomenon. Age-related physiological changes result in a decline in functional skills as the population ages. Reduced functional abilities result in issues with everyday living, self-care, and psychosocial issues. Regular physical activity is known to enhance functional ability, physical fitness, and well-being and to mitigate the adverse effects of aging.

**Aim:** Evaluate the impact of physical activity on the functional independence in daily living of the elderly residing in old age homes.

**Materials and Methods:** A total of 100 elderly individuals aged 60-80 years were recruited using purposive sampling based on selection criteria. The Global Physical Activity Questionnaire (GPAQ) was employed to assess the level of physical activity and Functional Independence Measure (FIM) was evaluated to determine the participants' level of independence.

**Results:** The study comprised 52 male participants with a mean age of 70.26±7.61 and 48 female participants with a mean age of 68.91±2.34. The data exhibited normal distribution, therefore pearson correlation was used for data analysis. The findings revealed a strong positive correlation between physical activity and functional independence ($r=0.9$, $p>0.05$).

**Conclusion:** This study found a strong positive correlation between physical activity and functional independence. This shows that affected physical activity can be major contributing factor in the level of independence. It has been proven that higher disability was found to be associated with lower physical activity.

**Keywords:** Functional independence, Physical activity, Psychosocial issues.

# The Impact of Menopause on Rheumatoid Arthritis and Role of Physiotherapy: A Narrative Review

Abstract ID-UG 66

**Lavanya, UG student, Maharishi Markandeshwar Institute of Physiotherapy and Rehabilitation, Maharishi Markandeshwar (Deemed to be University), Mullana, Ambala, Haryana, India.**
**Mandeep Jangra, Assistant Professor, Maharishi Markandeshwar Institute of Physiotherapy and Rehabilitation, Maharishi Markandeshwar (Deemed to be University), Mullana, Ambala, Haryana, India.**

**Introduction:** Rheumatoid Arthritis (RA) is a chronic autoimmune disease characterised by inflammation of the synovium, leading to joint pain, stiffness, and progressive joint destruction. It predominantly affects women, with a peak onset around the age of menopause. Menopause, a physiological milestone marking the cessation of ovarian function and reproductive capability, brings about hormonal changes, particularly a decline in oestrogen levels, which have been implicated in the pathogenesis and progression of RA.

**Aim:** To investigate the impact of menopause on rheumatoid arthritis and elucidate the potential role of physiotherapy interventions in managing the symptoms and improving the quality of life in postmenopausal women with RA.

**Materials and Methods:** This review utilised PubMed, Google Scholar, to search relevant literature, and identified 20123 studies from 2011 to 2024 years. After removing duplicates 10215, 9908 titles and abstracts were screened for eligibility criteria, out of these 11 articles were included in this review.

**Results:** This review has synthesised the result that the lowered levels of oestrogen in women after the menopause modifies the immune response of the body to inflammation. This altered response coupled with age related changes in the joints not only makes females vulnerable to arthritic conditions but also accelerates the progression of joint related conditions such as rheumatoid arthritis.

**Conclusion:** Menopause has a significant impact on RA among postmenopausal women, and physiotherapeutic treatment has been proven efficient in dealing with it.

**Keywords:** Physical therapy, Menopause, Rheumatoid arthritis.

# Virtual Reality in Neurorehabilitation

Abstract ID-UG 67

**Lavisha, Kuljeet Singh, Taniya Chandel, Cherry Sharma, Agam Nischey Singh.**
**UG Student, Department of Physiotherapy, Chitkara School of Health Sciences, Chitkara University, Punjab, India.**

**Introduction:** Virtual Reality (VR) is revolutionising neurorehabilitation by providing interactive and captivating approaches to enhance the treatment and recovery of patients with neurological disorders. Traditional techniques for neurorehabilitation offer effective therapies, but often face challenges with patient motivation and the ability to create safe and engaging training environments. Virtual Reality addresses these limitations.

**Aim:** To explore the potential of VR in neurorehabilitation by examining its impact on motor, sensory and cognitive rehabilitation.

**Materials and Methods:** Literature on use of Virtual Reality in various neurological rehabilitation were studied in order to find out the effectiveness of VR in neurological rehabilitation.

**Results:** Virtual Reality is a promising avenue in rehabilitation nowadays, it can be beneficial in a variety of neurological disorder. It can create safe and engaging training environment that ultimately enhances the rehabilitation of patients.

**Conclusion:** Integration of Virtual Reality into neurorehabilitation offers exciting possibilities such as improving movement, boosting motivation, managing pain, and enhancing cognitive skills. This can lead to a better quality of life for patients recovering from neurological conditions.

**Keywords:** Cognitive skills, Physiotherapy, Rehabilitation.

# Effect of Stress and Behaviour on Working Memory and Psychosocial Status among Healthy College-going Medical Laboratory Technician Student

Abstract ID-UG 68

**Janki Kumari, UG Student, Maharishi Markandeshwar Institute of Physiotherapy and Rehabilitation, Maharishi Markandeshwar (Deemed to be University), Mullana, Ambala, Haryana, India.**
**Sunanda Bhowmik, Assistant Professor, Maharishi Markandeshwar Institute of Physiotherapy and Rehabilitation, Maharishi Markandeshwar (Deemed to be University), Mullana, Ambala, Haryana, India.**

**Introduction:** This study might have a potential input about the behaviour, anxiety and working memory of college-going students stress can significantly impact working memory and psychosocial status among college students. Understanding the mechanisms through which stress affects cognitive function and behaviour is crucial for developing interventions to support students in managing stress effectively and promoting their overall well-being.

**Aim:** To determine the effect of stress and behaviour on health stress can significantly impact working memory and psychosocial status among college students. Understanding the mechanisms through which stress affects cognitive function and behaviour is crucial for developing interventions to support students in managing stress effectively and promoting their overall well-being.

**Materials and Methods:** The study included 100 sample from college-going healthy students aged between 19-25 years. The participants were selected from several MLT department colleges, and an online survey was used to evaluate their behaviour and the impact of stress on their working memory and psychosocial status.

**Results:** Women are more impacted than men. It was discovered how frequently stressed and behaved college-bound students were in good health. Of the MLT students, 38.9% and 61.1% were most affected.

**Conclusion:** The MLT students were frequent affected with stress and anxiety mostly the females were affected rather than male.

**Keywords:** Anxiety, Cognitive function, Stressed.

# Effect of Core Stimulation and Hamstring Release on Pain and Disability among Male Adults with Chronic Low Back Pain

Abstract ID-UG 69

**Devansh Sharma, Department of Physiotherapy, Amity Institute of Health Allied Sciences, Amity University, Noida, Uttar Pradesh, India.**
**Rabab Kaur, Department of Physiotherapy, Amity Institute of Health Allied Sciences, Amity University, Noida, Uttar Pradesh, India.**
**Krishan Mohan, Neuro Rehab., Block-C, Noida, Uttar Pradesh, India.**

**Introduction:** Chronic Low Back Pain (CLBP) is a prevalent condition affecting a substantial portion of the adult population, particularly males. Conventional therapies used for treating CLBP are mostly targeting symptomatic treatment. Core muscles help to provide stability to the spine as well as help in maintaining good posture, if these muscles are weak then this stability and posture is lost. Core stimulation aims to increase the strength and stability of core musculature which in turn will help to stabilise the lower back area. Tight hamstring muscles produce an increased load on the pelvis leading to posterior pelvic tilt which in turn causes increased stress on the lower back, hamstring release aims to decrease this load from the lower back area.

**Aim:** This study aims to find out the effect of core stimulation combined with hamstring release in pain, and disability among male adults with CLBP.

**Materials and Methods:** 60 male individuals with CLBP were selected from NEURO REHAB, Amity Institute of Health Allied Sciences, Amity University, Noida, Uttar Pradesh; the subjects had to be male, aged 25–60, have an NPRS of <7/10, and have a Core Strength MMT of >3. Patients have no past surgical history and have suffered low back discomfort for atleast 3 months. Subjects were excluded on the grounds of osteoporosis, using painkillers, having any co-morbidities, neurological impairments, and obesity. Baseline assessment was done on day 1 using the Numerical Pain Rating Scale (NPRS) and Oswestry Disability Index(ODI). Subjects were randomly assigned in two groups: Group A was given Conventional therapy and Group B was given Conventional therapy, Hamstring Release along with Core stimulation. Subjects were reassessed after 2 weeks and results were analysed using paired and unpaired t-tests. The significance level was kept at 95% ($p<0.05$).

**Results:** In this study, authors found significant improvement in pain and disability in both groups ($p<0.05$). A significant reduction in pain and disability was found in Group B as compared to Group A ($p<0.05$).

**Conclusion:** The finding of this study concludes that core stimulation and hamstring release reduce pain and disability among males with CLBP.

**Keywords:** Conventional therapies, Disability, Pain management.

# Effect of Stretching and Strengthening Exercises on Thenar Muscles of Hands on Smartphone Users

Abstract ID-UG 70

**Ritu Sinha, Taruna Verma.**
**Galgotias University, Department of Physiotherapy, School of Allied Health Sciences.**

**Introduction:** Musculoskeletal issues are more likely to develop while using a smartphone because of the time spent in a stooping posture. Long-term use of a smartphone may lead to bad posture and numbness and discomfort in the hands, arms, shoulders, and elbows.

**Aim:** To find out the effectiveness of hand muscle strengthening exercises and stretching exercise with home management program on dominant hand grip strength and hand function in smartphone addicted healthy Indian population.

**Materials and Methods:** A total of 30 subjects between the age 18-30 who met inclusion and exclusion criteria were selected. They were then randomly assigned to one of the two treatments groups: Group A (Hand strengthening and stretching activities) or Group B (only stretching exercises) were assigned with home exercise program to their respective treatment programs for a period of 4 weeks. The VAS scale, the Duruöz Hand Index (DHI), and the SAS-SV scale test were administered to all of the individuals before and after the intervention programmed.

**Results:** In comparison, Group A DHI score was 25 points lower than Group B, while Group B was 16 points lower. Both Group A and Group B had decreased levels of pain as measured by the Visual Analogue Scale (VAS). A p-value of $p=0.05$ revealed statistically significant variations in test results between the two groups.

**Conclusion:** Hand muscle strengthening exercises and stretching exercise with home management program have significant effect

on dominant hand grip strength and hand function in smartphone addicted healthy Indian population.

**Keywords:** Strengthening exercise, Stretching exercise, Home exercise program.

Abstract ID-UG 71

# Physiotherapeutic Assessment and Treatment Strategy in Gymnastic Athletes: An Update

**Riya Mittal, BPT Student, School of Healthcare and Allied Sciences, Department of Physiotherapy, G D Goenka University, Haryana, India.**
**Himani Kaushik, Assistant Professor, Banarsidas Chandiwala Institute of Physiotherapy, Affiliated to Guru Gobind Singh Indraprastha University, Delhi, India.**
**Avi Choudhary, Senior Assistant Professor, Banarsidas Chandiwala Institute of Physiotherapy, Affiliated to Guru Gobind Singh Indraprastha University, Delhi, India.**

**Introduction:** Gymnastics is a sports that require early specialisation and high-intensity training. Training programs at a young age help to develop power and strength, as the sport demands explosive lower-body power and control of the body. Physiotherapy rehabilitation protocols can be incorporated to improve the athletic performance of the gymnasts.

**Aim:** To identify the impact of physiotherapy protocols on the subjective and objective physical fitness parameters of gymnastic athletes.

**Materials and Methods:** The authors carried out a comprehensive literature search using different databases: PUBMED, ResearchGate, Cochrane Library, and Scopus using MESH terms rehabilitation, physiotherapy, physical fitness, gymnastics, and training. Full-text articles written in the English language from 2013-2023 were considered, and gymnastic athletes of any gender and age group were included in the study.

**Results:** The study included eight articles on physiotherapy rehabilitation in gymnasts, based on specific inclusion and exclusion criteria. The studies show that various types of physiotherapy rehabilitation protocols can be included in gymnasts' training programs, leading to significant improvements in both subjective and objective physical fitness outcome measures related to athletic performance. These protocols may involve plyometric training, core training, and neuromuscular training all of which can enhance the power, agility, strength, endurance, flexibility, and balance of the gymnastic athletes.

**Conclusion:** This review shows that different physiotherapy rehabilitation programs can lead to significant improvement in the physical fitness and overall performance of gymnastic athletes. Further studies should be conducted in this area to identify the most challenging situations of gymnastic athletes, enhance performance, and develop effective rehabilitation protocols.

**Keywords:** Gymnast, Physical fitness, Physiotherapy.

Abstract ID-UG 72

# Impact of Aquatic Therapy for Patients with Multiple Sclerosis: A Systematic Review

**Himani Chauhan, BPT Student, Banarsidas Chandiwala Institute of Physiotherapy, Delhi, India.**
**Avi Choudhary, Senior Assistant Professor, Banarsidas Chandiwala Institute of Physiotherapy, Affiliated to Guru Gobind Singh Indraprastha University, Delhi, India.**
**C.S. Ram, Director, Banarsidas Chandiwala Institute of Physiotherapy, Affiliated to Guru Gobind Singh Indraprastha University, Delhi, India.**
**Himani Kaushik, Assistant Professor, Banarsidas Chandiwala Institute of Physiotherapy, Affiliated to Guru Gobind Singh Indraprastha University, Delhi, India.**

**Introduction:** Multiple sclerosis is a chronic inflammatory auto-immune demyelinating disorder of the central nervous system. Aquatic therapy refers to the therapeutic activities or treatments that take place in water, especially those aimed at promoting fitness, relaxation and physical healing. Exercise in aquatic environments can offer various benefits due to factors such as buoyancy, turbulence, hydrostatic pressure and resistance.

**Aim:** To systematically review the impact of aquatic therapy on multiple sclerosis patients and to evaluate the scientific evidence endorsing the benefits of this therapeutic approach.

**Materials and Methods:** Using keywords such as aquatic therapy, physiotherapy and multiple sclerosis, exercise, and rehabilitation a comprehensive analysis of research on the role of aquatic therapy in multiple sclerosis was conducted. Electronic databases such as PubMed, Research Gate, Web of Science and Google Scholar were searched to identify the literature. A total of 121 articles from the last ten years (2013-2024) were identified according to inclusion and exclusion criteria, out of which 12 articles were included in the study using the PRISMA guidelines. Data was obtained from the included articles and summarised in PICO format. This review includes articles encompassing adult patients aged ≥18 years with multiple sclerosis, including both males and females.

**Results:** Finally 12 articles were analysed for the literature review providing evidence supporting the use of aquatic therapy to manage symptoms of multiple sclerosis patients in combination with exercise therapy. It significantly reduces fatigue, depression also it improves cognitive functions, balance, motor functions, physical independence and functional capacity. Additionally, it may delay the progression of the disease. No adverse effect was observed after the therapy.

**Conclusion:** Aquatic therapy is effective when used in combination with other conventional physiotherapeutic measures. Aquatic therapy helps improve the overall quality of life of patients with multiple sclerosis. More randomised control trials are needed to provide good-quality evidence of the extent to which aquatic therapy can improve the function and quality of life of individuals with multiple sclerosis.

**Keywords:** Exercise, Motar function, Physiotherapy.

# Factor Contributing Abdominal Obesity among Young Adults

Abstract ID: UG-73

**Hemlata, UG student, Maharishi Markandeshwar Institute of Physiotherapy and Rehabilitation, Maharishi Markandeshwar (Deemed to be university), Mullana, Ambala, Haryana, India.**
**Nidhi Sharma, Professor, Maharishi Markandeshwar Institute of Physiotherapy and Rehabilitation, Maharishi Markandeshwar (Deemed to be university), Mullana, Ambala, Haryana, India.**
**Simranjeet Kaur, Assistant Professor, Maharishi Markandeshwar Institute of Physiotherapy and Rehabilitation, Maharishi Markandeshwar (Deemed to be university), Mullana, Ambala, Haryana, India.**

**Introduction:** In general obesity, adipose tissue increases in the overall body, and it is generally represented by Body Mass Index (BMI) while in abdominal obesity fat accumulates specifically in the abdomen and is measured such as waist circumference, waist-to-hip ratio, and waist-to-height ratio (WHtR).

**Aim:** To gather all the factors that can contribute to abdominal obesity.

**Materials and Methods:** The literature search was conducted in the electronic database (PubMed and Google Scholar). By using the key terms risk factor, abdominal obesity, genetic traits, and young adults, factor affecting. The search was made between 2002 and 2023. Therefore, the inclusion and exclusion criteria were young adults, both males and females and metabolic disorder, and abdominal surgery respectively.

**Results:** By using key terms, authors found 1195 articles, out of these 20 articles were included (five reviews, nine observational studies, three surveys, one Randomised Control Trial (RCT), one cohort study). These are the common factors that prompt the abdominal obesity such as physical inactivity, insulin resistance, eating disorders, increased testosterone levels, signal transducer and activation of transcription 3 genes (STAT3 Gene) and low altitude.

**Conclusion:** The study indicates that a sedentary lifestyle and genetic mutations significantly contribute to the development of abdominal obesity. The physiotherapy program for abdominal obesity involves personalised exercise regimens, regular progress monitoring, and lifestyle education, focusing on strength training, core stability, and aerobic activities.

**Keywords:** Genetic traits, Physiotherapy program, Sedentary behaviour.

Abstract ID: PG-01

# A Comprehensive Review of Cranial Electrical Stimulation on Cognitive Enhancement among Adults

**Naveeta Thakur, Postgraduate Student, Maharishi Markandeshwar Institute of Physiotherapy and Rehabilitation, Maharishi Markandeshwar (Deemed to be University), Mullana, Ambala, Haryana, India.**
**Nidhi Sharma, Professor, Maharishi Markandeshwar Institute of Physiotherapy and Rehabilitation, Maharishi Markandeshwar (Deemed to be University), Mullana, Ambala, Haryana, India.**
**Simranjeet Kaur, Assistant Professor, Maharishi Markandeshwar Institute of Physiotherapy and Rehabilitation, Maharishi Markandeshwar (Deemed to be University), Mullana, Ambala, Haryana, India.**

**Introduction:** Cranial Electrotherapy Stimulation (CES) is a U.S. Food and Drug Administration approved non invasive neuromodulation method used for treating insomnia, anxiety, depression, pain and cognition.

**Aim:** To provide an insight on the effect of Cranial Electrotherapy Stimulation on cognition among adults.

**Materials and Methods:** A literature search was performed using the PubMed, Scopus and Google Scholar databases for relevant research published from inception to February 2024. The search terms like "Cranial Electrotherapy Stimulation", "Cognition", "Attention" and "Memory" using Boolean operators AND, OR were used. 4,593 articles were retrieved, out of which only 6 articles met the eligibility criteria, in which186 participants with cognitive dysfunction were included. Adult population, randomised controlled trials, case series and complete text papers written in english were included and preliminary reviews, book chapters and thesis and dissertations were excluded.

**Results:** All articles included for the review examined the impact of CES on cognition and out of those, three randomised controlled trials and one case series showed statistically significant improvement in all aspect of cognition among normal adults and in clinical population. However, two randomised controlled trials showed no significant improvement on cognition among clinical population, potential reasons for not observing positive effects from the intervention include missed CES treatments and a small sample size.

**Conclusion:** CES is a safe neuromodulation method that appears to have the potential to enhance cognitive performance among normal adults and in clinical population. However, further research is needed to confirm these conclusions.

**Keywords:** Cognition, Depression, Memory.

Abstract ID: PG-02

# Impact of Extracorporeal Shockwave Therapy on Quadratus Lumborum Trigger Point Associated with Chronic Low Back Pain: A Scoping Review

**Riya Kalra, Postgraduate Student, Maharishi Markandeshwar Institute of Physiotherapy and Rehabilitation, MM(DU), Mullana, Ambala, Haryana, India.**
**Manu Goyal, Professor, Maharishi Markandeshwar Institute of Physiotherapy and Rehabilitation, MM(DU), Mullana, Ambala, Haryana, India.**
**Kanu Goyal, Assistant Professor, Maharishi Markandeshwar Institute of Physiotherapy and Rehabilitation, MM(DU), Mullana, Ambala, Haryana, India.**

**Introduction:** Chronic Low Back Pain (CLBP), a well-known public health burden which progressively increased with time and development of trigger points in Quadratus Lumborum (QL) is frequently the cause of CLBP. Extracorporeal Shockwave Therapy (ESWT) is an entirely novel and effective non invasive therapy for treating myofascial trigger points.

**Aim:** There is no comprehensive analysis which assess the effect of ESWT on QL trigger points associated with CLBP. As a result, aim of this review is to outlined the existing evidence available.

**Materials and Methods:** Electronic databases which include PubMed/Medline, Scopus, Physiotherapy Evidence Database (PEDro), and Cochrane were searched. Searches were limited to full-text english language and publication between Jan 2000 to Jan 2024. In addition, reference list of the retrieved articles was also explored. A total of 678 relevant articles which includes 142 participants were identified in which participants were included. After duplicates were removed, articles were assessed for eligibility criteria. Five (n=5) articles met all criteria and were included in the final data synthesis.

**Results:** The results shows that patients treated with ESWT shows statistically significant improvement in pain ($p<0.05$) for Visual Analogue Scale (VAS). Also, some studies show statistically significant improvement ($p<0.05$) in ODI (Oswestry Disability Index) and SF-36 (Short Form Health survey).

**Conclusion:** ESWT leads to significant pain reduction, improve Quality of Life (QOL) of patients having QL Trigger points associated with CLBP.

**Keywords:** Health survey, Pain management, Visual analogue scale.

# Effects of Instrument Assisted Soft Tissue Mobilisation on Pain in Patients with Plantar Fasciitis: A Literature Review

Abstract ID: PG-03

**Prachi Ranjan, Postgraduate Student, Maharishi Markandeshwar Institute of Physiotherapy and Rehabilitation, Maharishi Markandeshwar (Deemed to be University), Mullana, Ambala, Haryana, India.**
**Simranjeet Kaur, Assistant Professor, Maharishi Markandeshwar Institute of Physiotherapy and Rehabilitation, Maharishi Markandeshwar (Deemed to be University), Mullana, Ambala, Haryana, India.**
**Nidhi Sharma, Professor, Maharishi Markandeshwar Institute of Physiotherapy and Rehabilitation, Maharishi Markandeshwar (Deemed to be University), Mullana, Ambala, Haryana, India.**

**Introduction:** Plantar Fasciitis (PF), with a 10% lifetime prevalence, is often attributed to biomechanical issues. Instrument Assisted Soft Tissue Mobilisation (IASTM) is a therapeutic technique that involves using specialised tools to manipulate soft tissue, such as muscles and tendons, to help reduce pain, improve mobility, and promote healing.

**Aim:** To provide an insight on the effect of Instrument Assisted Soft Tissue Mobilisation on pain in patients with PF.

**Materials and Methods:** A literature search was conducted on PubMed, Scopus, and Google Scholar from inception to January 2024 using keywords like "Instrument Assisted Soft Tissue Mobilisation," "Pain," and "Plantar fasciitis" with Boolean operators. 4,551 articles were retrieved, out of which only 6 articles met the eligibility criteria, in which 223 participants on plantar fasciitis population were included. Randomised controlled trials, case series and complete text papers written in English were included while preliminary reviews, book chapters, thesis, and dissertations were excluded.

**Results:** Following a standardised literature search, authors identified four randomised controlled trials, one quasi-experimental study and one case series. All the studies showed significant improvement on pain reduction, improve strength and functional mobility of the foot and ankle. Therefore, all the studies suggested that IASTM used alone or in combination with other techniques or exercises, give positive effect for managing chronic heel pain.

**Conclusion:** IASTM is a safe manual therapy technique used to treat the plantar-fascia pain and to improve foot and ankle function in patients with plantar fasciitis. However, this further research is needed to confirm these conclusions.

**Keywords:** Functional mobility, Improve strenght, Strength.

# Joint Effectiveness of Dry Needling and Neurodynamic Mobilisation in Patients Suffering from Piriformis Syndrome: A Case Series

Abstract ID: PG-04

**Alisha Jaiswal, Postgraduate Student, Maharishi Markandeshwar Institute of Physiotherapy and Rehabilitation, Maharishi Markandeshwar (Deemed to be University), Mullana, Ambala, Haryana, India.**
**Akanksha Saxena, Assistant Professor, Maharishi Markandeshwar Institute of Physiotherapy and Rehabilitation, Maharishi Markandeshwar (Deemed to be University), Mullana, Ambala, Haryana, India.**
**Yashleen Kaur Sandhu, Postgraduate student Maharishi Markandeshwar Institute of Physiotherapy and Rehabilitation, Maharishi Markandeshwar (Deemed to be University), Mullana, Ambala, Haryana, India.**
**Mandeep Kumar Jangra, Assistant Professor, Maharishi Markandeshwar Institute of Physiotherapy and Rehabilitation, Maharishi Markandeshwar (Deemed to be University), Mullana, Ambala, Haryana, India.**

**Introduction:** Piriformis Syndrome (PS) is a neuromuscular condition caused due to tightness of piriformis muscle along with the irritation of the sciatic nerve. Management of PS so far involved only musculoskeletal component with none working on the neural component. So, authors intent to work on combined effectiveness of Dry Needling (DN) and Neurodynamic Mobilisation (NDS) as a new emerging technique for better management of PS.

**Case Report:** Four patients were involved (3 females and 1 male) who experienced untreated and recurrent PS for a prolonged period (1-2 years) during their fourth decade. After reassessment of the patients, PS was confirmed by Flexion Adduction and internal rotation (FAIR), Beatty maneuver, and Straight Leg Raise (SLR). Baseline and post measurements were taken using outcome variables VAS, Pain Pressure Threshold, h-reflex, hip rotations range of motion, and Lower Extremity Functional Scale (LEFS). Patients recruited were given a 10-days treatment with dry needling for 10 minutes on alternate days and continuous neurodynamic mobilisation (sliders and tensioners) comprising 30 repetitions/minute for 2 sets with a 1-minute rest in between, in addition to conventional therapy. The study revealed substantial improvement in pain scores, pressure threshold, h-latency, hip rotations and functional capabilities of the lower extremities. A study demonstrated a notably substantial enhancement in addressing symptoms associated with both the muscular and neural aspects, along with the overall improvement in quality of life. Addressing to it neural and muscular with NDS and DN has long lasting effects and reduced frequency of reoccurrence of PS symptoms.

**Keywords:** Piriformis muscle syndrome, Dry needling, Lower extremity.

Abstract ID: PG-05

# Combined Effect of Class IV Laser Therapy with Neural Mobilisation on Improving Vibration and Sensory Function in Individuals with Diabetic Peripheral Neuropathy: A Case Series

**Rohan Sood, Postgraduate student Maharishi Markandeshwar Institute of Physiotherapy and Rehabilitation, Maharishi Markandeshwar (Deemed to be University), Mullana, Ambala, Haryana, India.**
**Akanksha Saxena, Assistant Professor, Maharishi Markandeshwar Institute of Physiotherapy and Rehabilitation, Maharishi Markandeshwar (Deemed to be University), Mullana, Ambala, Haryana, India.**
**Mandeep Jangra, Assistant Professor, Maharishi Markandeshwar Institute of Physiotherapy and Rehabilitation, Maharishi Markandeshwar (Deemed to be University), Mullana, Ambala, Haryana, India.**

**Introduction:** Diabetic peripheral neuropathy is a complication of type 2 diabetes mellitus that can lead to altered sensation, muscular weakness, and neuropathic pain in affected individuals. Limited literature exists on the effectiveness of the Neural mobilisation on diabetic peripheral neuropathy but there is no literature available on which the combine effect of class IV laser therapy and neural mobilisation on this condition.

**Case Series:** This study aimed to assess the combined effectiveness of these treatments on vibration and sensory functions in individuals with diabetic peripheral neuropathy. Three participants, with an average age of 53 years (2 females and 1 male), diagnosed 8 years ago, were recruited for the study. The participants were given neural mobilisation of tibial and peroneal nerve and Class IV Laser therapy regular for 6 days followed by alternate days in next consecutive week. At baseline, scores of outcome parameter such as vibration sense was assessed by biothesiometry, light touch sensation by monofilament, assessment of sensory functions of patients by the help of Michigan Neuropathy Screening Instrument (MNSI) testing. After intervention mean score value of right foot changes from 38.7 to 36.3, and left foot changes from 40.3 to 37 along with changes observed in MNSI value from 7 to 5.3. Result of the current study shows the substantial significant improvement on sensory functions and vibration sense. This treatment overlooks the, sensory functions and motor functions. Class IV laser combined with neural mobilisation is an effective treatment in diabetic peripheral neuropathy.

**Keywords:** Muscular weakness, Pain, Type 2 diabetes.

# Effect of Pilate Breathing on the Pulmonary Functions in Chronic Obstructive Pulmonary Disease: A Review

Abstract ID: PG-06

**Urvashi, BPT (MPT, Cardiothoracic and Pulmonary Disorders), Maharishi Markandeshwar Institute of Physiotherapy and Rehabilitation, Maharishi Markandeshwar (Deemed to be University), Mullana, Ambala, Haryana, India.**
**Mandeep Kumar Jangra, Assistant Professor, Maharishi Markandeshwar Institute of Physiotherapy and Rehabilitation, Maharishi Markandeshwar (Deemed to be University), Mullana, Ambala, Haryana, India.**

**Introduction:** Chronic Obstructive Pulmonary Disease (COPD) ranks third globally in causing mortality. It not only affects lungs but overall bodily systems. A novel and impactful treatment approach needs to be summoned in managing and improving quality of life in individuals with COPD. Pilates breathing presents a cost-effective solution for enhancing fitness and rehabilitation in COPD by improving strength, endurance, and breathing efficiency. This review aims to unveil Pilate breathing effect on pulmonary functions in COPD.

**Aim:** To determine the effect of Pilate breathing on pulmonary function among COPD.

**Materials and Methods:** The following searches were performed in PubMed, Physiotherapy Evidence Database (PEDro), Cochrane and Google Scholar from years 2014-2024 with the keywords, "Pilates", "COPD" and "Pulmonary Function" which resulted in 1284 articles. After removal of duplicates only three Randomised Control Trails (RCTs) were included, the patients with moderate to severe COPD according to Global Initiative for Chronic Obstructive Lung Disease (GOLD) criteria from age groups 40 to 80 years. A total of 104 participants participated in the three recruited RCTs with the outcome measures of chest expansion, Modified Medical Research Council Dyspnea scale, Modified Borg Dyspnea scale, FEV1/FVC by spirometer, respirator pattern measurement and saturation measurement.

**Results:** Three RCTs with an average 5 weeks intervention. The findings indicated that Pilate breathing enhances pulmonary function, increases the FEV1/FVC ratio and reduces dyspnea.

**Conclusion:** Pilates breathing proved to be effective in enhancing chest expansion, alleviating breathlessness, and boosting functional capacity among individuals with COPD. Integrating Pilates breathing into the rehabilitation process of COPD facilitates early and effective patient recovery.

**Keywords:** Dyspnea scale, Respiratory pattern, Spirometer.

# To Analyse the Effect of Sliders Neural Mobilisation on F wave Latency in Lumbar Radiculopathy Patients: A Pilot Study

Abstract ID: PG-07

**Nitya Chophla, Divya Aggarwal**
**Department of Physiotherapy, SAHS, MRIIRS, Faridabad, Haryana, India.**

**Introduction:** Lumbar radiculopathy is second leading cause of disability globally, characterised pain, weakness, and sensory changes due to nerve compression. Sliders neural mobilisation, involves neural structure movement and helps relieve pain and improve nerve excursion. F wave latency serves as an electrophysiological marker of nerve function in this condition.

**Aim:** This pilot study aimed to evaluate the effect of sliders neural mobilisation on F wave latency.

**Materials and Methods:** Twelve participants (25-50 years) diagnosed with Lumbar Radiculopathy (L4-L5 & L5-S1) having unilateral symptoms for more than 3 months were enrolled, excluding recent spinal trauma or surgery and diabetic neuropathy. They were divided into two groups: A (Sliders Neural Mobilisation) and B (Sham Mobilisation). Both groups received hot pack application (10 minutes), mobilisation (5 sets, 1.5 minutes each), and core exercises thrice weekly for two weeks. Pre- and post-intervention, Numeric Pain Rating Scale (NPRS) & F wave latencies of Tibial and Common Peroneal Nerves were measured.

**Results:** Results showed that decrease in NPRS scores and F wave latency was more in sliders neural mobilisation group ($p<0.05$) after 2 weeks, indicating pain reduction and improved nerve conduction.

**Conclusion:** The study suggests that sliders neural mobilisation positively affect nerve function in lumbar radiculopathy patients. Further research with larger sample sizes and randomised controlled designs is necessary to validate these initial findings.

**Keywords:** Hot pack application, Neurodynamic mobilisation, Nerve compression.

Abstract ID: PG-08

# Electromyographical Analysis on Combined Effect of Breathing Exercise and Core Stabilisation Exercise along with Breathing Cadence in Runner's Stitch in Recreational Runner's: A Randomised Controlled Trial

**Pinku Kumari, Postgraduate Student, Faculty of Physiotherapy, SGT University, Gurugram, Haryana, India.**
**Jaganjyoti Das, Assistant Professor, Faculty of Physiotherapy, SGT University, Gurugram, Haryana, India.**
**Pooja Bhati, Assistant Professor, Faculty of Physiotherapy, SGT University, Gurugram, Haryana, India.**

**Introduction:** Runner's stitch is a painful sharp or stabbing or cramping sensation that is experienced by a runner during the course of the activity. Pain is localised, prevalent in young people due to larger peritoneal space but it is not related to gender. The main function of the core is to maintain postural alignment during functional activity. Core stability is the muscular capacity of the lumbopelvic-hip complex. Breathing exercises is a process of moving air into and from lungs to facilitate gas exchange.

**Aim:** To compare the effect of breathing exercise, core stabilisation exercise along with breathing cadence on onset latency of stitch, severity, location, muscle activation pattern, muscle co-activation ratio and lower limb power in runner's stitch.

**Materials and Methods:** A total of 15 subjects were randomly allocated to three groups. Group A consisted of core stabilisation exercises along with active stretching, group B performed core stabilisation exercises along with breathing exercises breathing cadence and active stretching, group C only performed active stretching as a controlled measured. The players were asked to perform the dynamic exercises desuring which amplitude of muscle activation pattern, onset, severity, location of side stitch, muscle co-activation ratio with surface electrode using four channel electromyographical system were measured for 12 muscles.

**Result:** Data were significantly analysed by one-way ANOVA for within the group analysis and post hoc test used for multiple comparison. Group B showed significant improvement in mean amplitude, co-contraction of muscles with p value ($p<0.05$).

**Conclusion:** Core stability along with breathing exercise and breathing cadence help delay runner's stitch in runners and can be implemented in athletes for better results.

**Keywords:** Muscular capacity, Postural equilibrium, Surface electromyography.

Abstract ID: PG-09

# Comparative Study of the Effectiveness of Fartlek Training and High-intensity Interval Training on Vo2max and Power on Volleyball Players: A Pilot Study

**Nikita Gautam, Postgraduate Student, Faculty of Physiotherapy, SGT University, Gurugram, Haryana, India.**
**Sajjan Pal, Assistant Professor, Faculty of Physiotherapy, SGT University, Gurugram, Haryana, India.**
**Himanshu Rakheja, Assistant Professor, Faculty of Physiotherapy, SGT University, Gurugram, Haryana, India.**

**Introduction:** Volleyball is an Intermittent sport that requires players to compete in frequent short bouts of high-intensity exercise, which is followed by periods of low-intensity activity. Fartlek training is a very efficient cardiovascular interval training technique which is utilised by endurance athletes. The Fartlek exercise training that delivers both aerobic conditioning and strength and endurance is converging. High-intensity Interval Training (HIIT) is one form of technique and the appropriate form of exercise since it is very effective and efficient approach to enhance the desired of physical components of volleyball sports.

**Aim:** To compare the effectiveness of the 6-week Fartlek Training and High-Intensity Interval Training program.

**Materials and Methods:** A total of 15 national volleyball players were divided into three groups; Experiment one consisted of fartlek training, Experiment two consisted of high-intensity interval training, and a control group was given conventional training. The outcome variables measured were VO2max and Power which was calculated before and after training. Fartlek training sessions include jogging, sand running, and sprinting whereas HIIT includes several exercises.

**Results:** Data were significantly analysed by one-way ANOVA for within the group analysis and post hoc test were used for multiple comparison. Group A showed significance than group C in terms of VO2 max and power (p=0.003 and p=0.001) Group B showed significance than group C in V02 max and power (both p=0.001).

**Conclusion:** Group B, which underwent HIIT, demonstrated higher improvement in VO2 max compared to Group A, which underwent Fartlek training. However, both Group A (Fartlek training) and Group B (HIIT) showed significant improvements in terms of power.

**Keywords:** Jogging, Running, Short bouts.

Abstract ID: PG-10

# Effect of High-intensity Interval Training in Perimenopausal Women on Sleep and Different Level of Psychological Health Problem: A Pilot Study

**Shweta Yadav, Postgraduate Student, Faculty of Physiotherapy, SGT University, Gurugram, Haryana, India.**
**Vinika Chaudhary, Assistant Professor, Faculty of Physiotherapy, SGT University, Gurugram, Haryana, India.**
**Sonia Pawaria, Associate Professor, Faculty of Physiotherapy, SGT University, Gurugram, Haryana, India.**

**Introduction:** Sleep related issues ranges from 40 % to 50 % in perimenopausal women. Women's Health Across the Nation (SWAN), longitudinal examination of 8 years' worth of data from more than 3000 women revealed that the most prevalent issue was difficulty sleeping owing to frequent awakenings, which worsened as women enter menopause. A history of perimenopausal phase indicates the symptoms of sleep issues, Hot Flashes (HFs), depression, and stress, resulting from a differential susceptibility to hormonal changes in the body.

**Aim:** To find out the effect of High-intensity Interval Training (HIIT) in premenopausal women on sleep difficulties and different levels of psychological health problems.

**Materials and Methods:** The subjects were taken from SGT Hospital and were treated in the Physiotherapy Department of the Hospital. Total 20 subjects were randomly allocated in two groups, one was experimental i.e. group A and other was the control group B, the treatment session was 3 days in a week for 3 weeks. The patient underwent baseline measurement through Pittsburgh Sleep Quality Index (PSQI) and Depression, Anxiety and Stress (DASS) scale. The Follicle-Stimulating Hormone (FSH) test helps identify the stages of the shift and to more clearly understand how and when changes in the parameters of perimenopausal phase.

**Results:** For all the variable (PSQI and DASS) between group analysis was done using Mann whitney test and within group analysis was done using Wilcoxon test, the Group A showed a significant change (p=0.005) when compared to Pre and post value, at p<0.05, the results were considered statistically significant.

**Conclusion:** The study suggests that HIIT has a positive result in sleep problems and psychological mental health problems compared to the control group. HIIT will prove their effectiveness in improving sleep difficulties and associated mental health during the perimenopause phase and provide better therapeutic options to improve the quality of life.

**Keywords:** Anxiety, Depression, Moderate intensity training, Physical exercises, Stress.

Abstract ID: PG-11

# Parkinson's New Advancements in Diagnosis and Treatment: A Review

**Sakshi, Assistant Professor, Department of Physiotherapy, School of Allied Health Sciences, MVN University.**
**Pooja Anand, Professor and Dean, Faculty of Physiotherapy, SGT University, Gurugram, Haryana, India.**

Parkinsonism Disease (PD) is a progressive neurological disorder. Although PD is associated with a variety of Non-motor symptoms (NMS) in virtually all patients including hyposmia, constipation, pain and sleep disturbances. It is age related disorder and affects more than 6 million population every year. It is associated with neuronal degeneration in substantia nigra and to lesser extent, in the globus pallidus, putamen and caudate nucleus. The degeneration of the neurons of the substantia nigra that send their axons to the corpus striatum results in reduction in the release of neurotransmitter dopamine with in corpus striatum. This leads to hypersensitivity of the dopamine receptors in the post synaptic neurons in the striatum. Individuals have characteristics signs and symptoms tremors, bradykinesia, postural instabilities, rigidity. Neither loss of sense nor muscle power is usually seen in such cases. Deep tendon, Superficial and Abdominal reflexes are well retained on evaluation. There has been various types of classification in Parkinsonism which are described later. Together with aging, genetics, environment and the role of biological sex as important factor in development of PD has been widely discussed in the past decade. Investigations in PD remains a challenge, recent studies included 7 Tesla MRI, PET

and SPECT have proved to be confirmatory in diagnosis of PD. Parkinsonism disease treatment includes increasing the levels of dopamine in brain by giving its immediate precursor L-dopa which can easily cross blood brain barrier unlike dopamine. Evidence of slowing the process of degeneration has been seen with drug selegiline. Other than drugs surgical options include pallidotomy.

**Keywords:** Hypersensitivity, Postural instabilities, Rigidity.

Abstract ID: PG-12

# Effect of Quality of Sleep on Choice Reaction Time, Coordination and Fatigue Level in Football Players

**Dimple, Student, MPT-Sports Department of Physiotherapy, CSHS, Chitkara University, Punjab, India.**
**Roopika Sabharwal, Assistant Professor, Department of Physiotherapy, CSHS, Chitkara University, Punjab, India.**
**A Sahana, Assistant Professor, Department of Physiotherapy, CSHS, Chitkara University, Punjab, India.**

**Introduction:** The relationship between sleep quality and athletic performance is an important but little-researched topic in the immense world of football. This study aims to provide insight into how sleep quality affect football players' choice reaction time, coordination, and fatigue levels, providing important information for training optimisation and improving on-field performance.

**Aim:** To examine the effects of sleep quality on the athletic performance of young football players.

**Materials and Methods:** A total of 40, (U-17)-developmental stage male football players who were able to perform functional keys for choice reaction time task from Chandigarh Football Association were recruited using non-probability convenience sampling. Correlational design was employed to assess sleep quality and fatigue levels using Sleep Quality Scale-(SQS) and Fatigue Assessment Scale-(FAS). Choice reaction time and coordination was determined via Deary liewald reaction time task software and Hand-eye coordination test respectively. Quantitative analysis was conducted by Karl Pearson's coefficient correlation.

**Results:** Study found a non significant weak positive relationship between sleep quality and choice reaction time, [r (40)=0.025, p=0.881], significant moderate positive relationship between sleep quality and coordination, [r (40) =0.433, p=0.005], and significant moderate negative relationship between sleep quality and fatigue level, [r (40)=-0.517, p=0.001]. Increased sleep quality improved coordination and reduced fatigue levels, while choice reaction time showed no significant improvements.

**Conclusion:** Sleep quality significantly impacts coordination and fatigue levels, but no effect was observed on choice reaction time. Future research should explore various sports with a larger sample size.

**Keywords:** Sleep quality, Sleep quality scale, Hand-eye cordination.

Abstract ID: PG-13

# Combined Effect of Transcutaneous Electrical Nerve Stimulation and Yoga on Pain and Discomfort Associated with Dysmenorrhea

**Devanshi, Student, MPT-Musculoskeletal disorders, Department of Physiotherapy, CSHS, Chitkara University, Punjab, India.**
**Amandeep Singh, Professor and Principal, Department of Physiotherapy, CSHS, Chitkara University, Punjab, India.**
**Shalika Pathania, Assistant Professor, CSHS, Chitkara University, Punjab, India.**
**Monika Rani, Assistant Professor, CSHS, Chitkara University, Punjab, India.**

**Introduction:** Dysmenorrhea is a common problem with almost 50 to 90% of women affected worldwide. Transcutaneous Electrical Nerve Stimulation (TENS) and yoga is frequently used to treat dysmenorrhic pain and discomfort.

**Aim:** To assess the combined effect of transcutaneous electrical nerve stimulation and yoga on pain and discomfort associated with dysmenorrhea in university students.

**Materials and Methods:** The study involved 60 subjects aged 18-25 years female students divided into three groups via using chit box approach by using simple random sampling. An experimental design was employed to assess pain and discomfort through numeric pain rating scale. Quality of life was assessed by using EQ-5D-5L questionnaire. The necessary permission to use the questionnaire was also obtained.

**Results:** Wilcoxon sign rank showed statistically significant difference between pre and post data for pain (<0.001) and quality of life (<0.001) in both first and second months. Kruskal-Wallis test showed non significant difference between groups for pain (mean difference of 5.32 in 1st month and 2.62 in 2nd month) and quality of life (mean difference of 5.4 in 1st month and 1.15 in 2nd month)

indicating that all three groups were equally effective in reducing pain and improving quality of life.

**Conclusion:** All three groups have shown statistically significant improvement among dysmenorrhic females but clinically more improvement was found out in group three that received combination of TENS and yoga.

**Keywords:** Quality of life, Yoga and Dysmenorrhea.

# Empowering Women: Pilates as a Holistic Approach to Alleviate Dysmenorrhea Symptoms- A Systemic Review

Abstract ID: PG-14

**Palak Chaudhary, Postgraduate Student, Department of Physiotherapy, SAHS, Manav Rachna International Institute of Research and Studies.**
**Neha Upadhyay, Assistant Professor, Department of Physiotherapy, SAHS, Manav Rachna International Institute of Research and Studies.**
**Ankita Sharma, Assistant Professor, Department of Physiotherapy, SAHS, Manav Rachna International Institute of Research and Studies.**

**Introduction:** Dysmenorrhea, characterised by painful menstrual cramps, is a prevalent condition affecting a significant portion of the female population worldwide. Despite its common occurrence, the management of dysmenorrhea often remains inadequate, with reliance on pharmacological interventions that may offer temporary relief but come with potential side effects and long-term consequences.

**Aim:** To evaluate the effectiveness of pilates as a holistic approach to alleviate dysmenorrhea symptoms, with the goal of empowering women in managing their menstrual health more effectively.

**Materials and Methods:** The study's literature review spanned several databases—PubMed, Scopus, Web of Science, and Google Scholar—complemented by manual reference list searches. The search strategy incorporated keywords such as "Pilates," "dysmenorrhea," "menstrual pain management," and "non-pharmacological interventions for dysmenorrhea." This approach yielded 98 articles, from which six full-text available articles, published from 2014 to January 2024, were selected for their insights into the pilates-dysmenorrhea nexus. This research engaged women diagnosed with dysmenorrhea, with pre- and post-intervention assessments measuring pain levels and physical function using standardised tools.

**Results:** Preliminary outcomes indicate a marked reduction in menstrual pain and an enhancement in physical function among participants undertaking pilates exercises, compared to those in the control group.

**Conclusion:** Pilates exercises offer a holistic and comprehensive management strategy for dysmenorrhea, addressing both its physical and psychological dimensions. The study affirms pilates as an effective, non invasive way to ease dysmenorrhea symptoms.

**Keywords:** Cramps, Menstrual pain management, Non-pharmacological.

# A Study Protocol to Investigate the Influence of Shoe Collar Height on Coordination and Plantar Pressure Distribution during Locomotion in Young Adults

Abstract ID: PG-15

**Gargi Sahu, Postgraduate Student, Maharishi Markandeshwar Institute of Physiotherapy and Rehabilitation, Maharishi Markandeshwar (Deemed to be University), Mullana, Ambala, Haryana, India.**
**Nidhi Sharma, Professor, Maharishi Markandeshwar Institute of Physiotherapy and Rehabilitation, Maharishi Markandeshwar (Deemed to be University), Mullana, Ambala, Haryana, India.**
**Simranjeet Kaur, Assistant Professor, Maharishi Markandeshwar Institute of Physiotherapy and Rehabilitation, Maharishi Markandeshwar (Deemed to be University), Mullana, Ambala, Haryana, India.**

**Introduction:** Higher collar heights are often associated with increased ankle support and stability while lower collar heights may allow for greater ankle flexibility. The design of footwear, particularly the height of the collar, plays a crucial role in influencing how individuals move and distribute pressure on their feet during various activities.

**Aim:** To investigate how high-cut, low-cut and mid-cut shoes affects coordination and plantar pressure distribution during walking in young adults.

**Materials and Methods:** Ninety-five healthy college-going students aged between 18-25 years wearing casual shoes for atleast six hours a day for 5 days a week for more than 6 months will be recruited through convenience sampling method. Participants shall be grouped based on the design and cut height of their shoes into high-cut, low-cut and mid-cut categories. Coordination tests under barefoot and shod conditions will be used to assess coordination. Plantar pressure in barefoot condition for different foot regions will be determined through Harris mat and Podia Scan® software.

**Results:** Kolmogorov-Smirnov test will be used to determine normality (n>50). Parametric (Paired t-test) or non-parametric test (Wilcoxon-Signed Rank Test) will be used for within-group analysis. For between-group analysis, parametric (One-way ANOVA) or non-parametric test (Kruskal-Wallis H test) will be used.

**Conclusion:** Understanding the relationship between shoe collar height and lower extremity coordination as well as foot pressure distribution is crucial for designing footwear that optimises performance, minimises injury risk, and enhances overall movement efficiency across various physical activities.

**Keywords:** Foot, Injury, Walking.

# Effectiveness of X-box Gaming on Balance using One Leg Standing among Older Adults: A Mini Systematic Review

Abstract ID: PG-16

**Mayuri Thakur, Postgraduate Student, Maharishi Markandeshwar Institute of Physiotherapy and Rehabilitation, Maharishi Markandeshwar (Deemed to be University), Mullana, Ambala, Haryana, India.**
**Nidhi Sharma, Professor, Maharishi Markandeshwar Institute of Physiotherapy and Rehabilitation, Maharishi Markandeshwar (Deemed to be University), Mullana, Ambala, Haryana, India.**
**Simranjeet Kaur, Assistant Professor, Maharishi Markandeshwar Institute of Physiotherapy and Rehabilitation, Maharishi Markandeshwar (Deemed to be University), Mullana, Ambala, Haryana, India.**

**Introduction:** The predominant challenge encountered by the elderly and older people is balance. This concern is not only affecting the quality of life for individuals but increasing their risk of falling. Literatures available determined the effect of various gaming apparatus on balance in older adults but these evidences need to be reviewed systematically to determine their overall effect. There is no systematic review assessing the effectiveness of X-box gaming on balance among older adults.

**Aim:** To assess X-box gaming effectiveness on older adults balance.

**Materials and Methods:** Searches in PUBMED, Physiotherapy Evidence Database (PEDro), and SCOPUS (2015–2023) included randomised controlled trials featuring participants, aged more than 55 years, using one-legged stance test as outcome measure, as assessing one's balance through single-leg standing on various surfaces aids in determining the Center of Pressure (CoP). Greater variability in CoP measurements suggests poor overall balance control and an elevated risk of falls among individual. X-box gaming interventions were included.

**Results:** Initially, 432 studies were screened; after eliminating duplicates and applying inclusion criteria, 2 eligible studies were selected for review.

**Conclusion:** The reviewed trials showed diverse X-box and exercise intervention parameters. Future research should explore different treatment protocols for balance re-education and exercise therapy in older adults to establish optimal guidelines for enhancing balance and reducing fall risk.

**Keywords:** Fall, Older adults, Quality of life.

# Physiotherapy Intervention for Cervical Radiculopathy: A Case Report

Abstract ID: PG-17

**Mehak Harjai, Postgraduate Student, Maharishi Markandeshwar Institute of Physiotherapy and Rehabilitation, Maharishi Markandeshwar (Deemed to be University), Mullana, Ambala, Haryana, India.**
**Simranjeet Kaur, Assistant Professor, Maharishi Markandeshwar Institute of Physiotherapy and Rehabilitation, Maharishi Markandeshwar (Deemed to be University), Mullana, Ambala, Haryana, India.**
**Nidhi Sharma, Professor, Maharishi Markandeshwar Institute of Physiotherapy and Rehabilitation, Maharishi Markandeshwar (Deemed to be University), Mullana, Ambala, Haryana, India.**

**Introduction:** The objective of this study is to determine the efficacy of physiotherapy on pain and quality of life in cervical radiculopathy. Cervical Radiculopathy is characterised by compression of the nerves by either arthritic bone spurs or herniated disc material.

Usually, this impingement causes motor dysfunction in the upper extremities and neck, as well as sensory impairments, numbness, or discomfort extending to the arms. Pathologies affecting the nerve roots might result in cervical radiculopathy.

**Case Report:** This case report focuses on a 31-year-old female patient who has been diagnosed with cervical radiculopathy. She had tingling and numbness in her hands, particularly in right arm shows (median nerve distribution). Patient was recruited on the basis of special test: Spurling Test, Distraction Test, and Upper Limb Tension Test. After 2 week of intervention significant improvement was shown by using- Numeric pain Rating scale for pain, Neck Disability Index for Disability, and SF_12 for quality of life, patient reported less symptomatic and symptoms reduction during work and exercise. This case report demonstrates an effective, evidence based approach to physical therapy treatment for patients in cervical radiculopathy.

**Keywords:** Distraction test, Herniated disc, Numbness and upper extremities.

Abstract ID: PG-18

# Reaping Metabolic Benefits of Blood Flow Restriction Training (BFRT): A Boon for Diabetes and Hypertension- A Narrative Review

**Arghya Mondal, Postgraduate Student, Maharishi Markandeshwar Institute of Physiotherapy and Rehabilitation, Maharishi Markandeshwar (Deemed to be University), Mullana, Ambala, Haryana, India.**
**Mandeep Kumar Jangra, Assistant Professor, Maharishi Markandeshwar Institute of Physiotherapy and Rehabilitation, Maharishi Markandeshwar (Deemed to be University), Mullana, Ambala, Haryana, India.**
**Muskaan Banyal, Postgraduate Student, Maharishi Markandeshwar Institute of Physiotherapy and Rehabilitation, Maharishi Markandeshwar (Deemed to be University), Mullana, Ambala, Haryana, India.**
**Akanksha Saxena, Assistant Professor, Maharishi Markandeshwar Institute of Physiotherapy and Rehabilitation, Maharishi Markandeshwar (Deemed to be University), Mullana, Ambala, Haryana, India.**

**Introduction:** Blood Flow Restriction Training (BFRT) is an emerging tool that not only works on musculoskeletal conditions but also improve vascular and metabolic health by using controlled exercise with blood flow occlusion. Research findings suggest that lowering blood pressure and maintaining glycaemic control can decrease the likelihood of complications related to diabetes. BFR combined with exercise is studied for its positive effects on managing diabetes and hypertension due to its impact on metabolism and hemodynamic. BFRT can thus be viewed as an upcoming novel technique for treating metabolic conditions like diabetes and hypertension for reaping better results.

**Aim:** The current narrative review aims on exploring the effects of Blood flow restriction training BFRT for managing diabetes and hypertension.

**Materials and Methods:** The databases probed were Google scholar, PubMed, Physiotherapy Evidence Database (PEDro) and Ovid from 2015-2024. The studies with both male and female individuals, age ranging from 18 to 75 and diagnosed with type 1/type 2 diabetes mellitus and hypertension, using BFRT as a treatment technique were included. The selected studies were segregated and analysed further.

**Results:** From 9997 initial studies, seven relevant ones were selected after duplicate removal. Among them, six studies focused on hypertension and one on diabetes mellitus and hypertension both collectively indicating a significant positive impact of BFRT on these conditions.

**Conclusion:** BFRT has an effect on both systemic and metabolic parameters and hence can be looked up to as an advanced tool for treating both the conditions and managing diabetes and hypertension in a better way.

**Keywords:** Diabetes mellitus, Metabolic parameters, Systemic parameters.

Abstract ID: PG-19

# The Effectiveness and Adherence of Postural Hygiene on Chronic Neck Pain: A Narrative Review

**Sneha Mittal, Postgraduate Student, Maharishi Markandeshwar Institute of Physiotherapy and Rehabilitation, Maharishi Markandeshwar (Deemed to be University), Mullana, Ambala, Haryana, India.**
**Sunita Sharma, Professor, Maharishi Markandeshwar Institute of Physiotherapy and Rehabilitation, Maharishi Markandeshwar (Deemed to be University), Mullana, Ambala, Haryana, India.**

**Introduction:** One important condition that causes disability in people is chronic neck pain. Most people agree that this aberrant posture is linked to the onset and duration of numerous forms of neck pain as well as other biomechanically driven illnesses.

**Aim:** The effectiveness of posture correction advice for persistent neck pain is highlighted in this review. Through the use of longer active postures and enhanced antagonist muscle activation, posture re-education seeks to lengthen and stretch these shortened muscles, promoting greater muscular balance and postural symmetry.

**Materials and Methods:** The following researches were performed in PubMed, Cochrane and Scopus from year 2015-2024 with the keywords "Chronic neck pain and postural re-education". The searches yielded 1,320 studies, out of which four randomised controlled trials met the inclusion criteria and were include in the narrative review.

**Results:** This review includes four articles, summarises the literature of postural re-education used in the treatment of neck pain. Research indicates that postural advice is a clinically useful treatment for a variety of musculoskeletal conditions and limitations.

**Discussion:** This review has outlined the potentially beneficial effects of preserving posture in cases of neck pain, including pain reduction and improved neck impairment. Postural education has shown to be effective than manual therapy interventions.

**Conclusion:** The review will help clinicians to incorporate postural hygiene as a part of their treatment plan in patients with chronic neck pain.

**Keywords:** Manual therapy, Muscular balance, Postural re-education.

Abstract ID: PG-20

# Unveiling the Impact and Innovations of Physiotherapy Intervention in Patients with Neuropathic Pain: A Narrative Review

**Yashica Sharma, Postgraduate Student, Maharishi Markandeshwar Institute of Physiotherapy and Rehabilitation, Maharishi Markandeshwar (Deemed to be University, Mullana, Ambala, Haryana, India.**
**Sunita Sharma, Associate Professor, Maharishi Markandeshwar Institute of Physiotherapy and Rehabilitation, Maharishi Markandeshwar (Deemed to be University, Mullana, Ambala, Haryana, India.**

**Introduction:** Neuropathic pain, as characterized by the International Association for the Study of Pain, results from abnormalities or injuries that affect the somatosensory system. Physiotherapy Interventions like heat and cold, manual therapy, electrotherapy with exercise therapy can help improve physical function, reduce pain intensity, and enhance overall quality of life.

**Aim:** To assess the impact of physiotherapy interventions in patients with neuropathic pain.

**Materials and Methods:** Searches in PubMed, Scopus, Cochrane and Google scholar (2015- 2023) included Randomised Controlled Trials (RCTs) featuring participants aged 40+ (both male and female), using Neuropathic pain Scale and Visual Analog Scale as an outcome measure, which assessed patients with Neuropathic pain and manual therapy, electrotherapy with exercises interventions were included.

**Results:** Initially, a total of 5,740 studies were screened. After removing duplicate entries and applying the inclusion criteria, 5 studies meeting the eligibility requirements were chosen for review. These selected studies provide a valuable summary of the efficacy of physiotherapy intervention in managing neuropathic pain and highlight various interventions that hold clinical utility for treatment.

**Conclusion:** Physiotherapy interventions hold promise as valuable components of neuropathic pain management, offering multifaceted approaches to symptom relief and functional improvement. However, further research is needed to elucidate optimal intervention strategies and address existing gaps in knowledge.

**Keywords:** Exercise, Electrotherapy and manual therapy, Multifaceted approaches.

Abstract ID: PG-21

# Improving Respiratory Outcomes: The Role of Soft Tissue Manipulation in Enhancing Pulmonary Function for COPD Patients: A Narrative Review

**Deepika, Postgraduate Student, Maharishi Markandeshwar Institute of Physiotherapy and Rehabilitation, Maharishi Markandeshwar (Deemed to be University), Mullana, Ambala, Haryana, India.**
**Mandeep Kumar Jangra, Assistant Professor, Maharishi Markandeshwar Institute of Physiotherapy and Rehabilitation, Maharishi Markandeshwar (Deemed to be University), Mullana, Ambala, Haryana, India.**
**Sarvotam Chauhan, Director and Chief Physiotherapist Prognosia Healthcare, Gurugram, Haryana, India.**

**Introduction:** COPD is the most prevalent respiratory disease to be studied and employing a variety of treatment techniques to deal with. Soft tissue manipulation is one such technique which decreases muscle tone that helps to achieve better compliance and hence improved respiratory functions and functional capacity in COPD patients.

**Aim:** To determine effect of soft tissue manipulation on pulmonary function among Chronic Obstructive Pulmonary Disease (COPD).

**Materials and Methods:** The following searches were performed in PubMed, Physiotherapy Evidence Database (PEDro), Cochrane and Google Scholar from years 2015-2024 with the keywords, "Soft tissue manipulation", "COPD", "Visceral manipulation" and "Pulmonary Function". After probing these databases out of 5,240 articles only five studies were found to be in line with the aim, where the participants were both male and female with moderate to severe COPD according to GOLD criteria, aged from 45 to 80 years.

**Results:** One pilot study and four randomised controlled trials were included in this review. These studies employed soft tissue manipulation over Diaphragm, Costal, Pectoralis, Scalene, Trapezius muscles ranging from 4 weeks to 24 weeks intervention for COPD patients and the results so reaped were that the technique helps improve pulmonary functions (Residual volume, Forced vital capacity, Forced expiratory volume, Total lung capacity, Functional exercise capacity, FEV1/FVC ratio) in COPD patients.

**Conclusion:** Soft tissue manipulation has been proven to have a positive impact on the pulmonary functions in COPD patients.

**Keywords:** Residual volume, Scalene, Trapezius.

Abstract ID: PG-22

# Efficacy of Plyometric Warm Up Exercises on Aerobic Capacity and Anaerobic Capacity in Palestrato Population: A Pilot Study

**Deeksha Pokhrel, Postgraduate Student (Sports), MMIPR, MM(DU), Mullana, Ambala, Haryana, India.**
**Joydip Saha, Assistant Professor, MPT (Sports), (PhD Scholar), MMIPR, MM(DU), Mullana, Ambala, Haryana, India.**

**Introduction:** Plyometric training should be a fundamental part of any plan, whether it is used for performance enhancement, strength and conditioning, or later phases of rehabilitation. Plyometric training, also known as jump-based strength training, is a popular approach to enhancing neuromuscular strength. It utilises the Stretch-Shortening Cycle (SSC) in muscle contractions. This method can improve running economy and reactive strength index, potentially enhancing aerobic performance.

**Aim:** To observe and compare the efficacy of plyometric warm up exercises on aerobic and anaerobic capacity in palestrato population.

**Materials and Methods:** The participants were randomly assigned to two groups using convenience sampling; plyometric warm up group (n=6): Non-plyometric warm up group (n=6), a four week warm up intervention was given to the Plyometric group. Outcome measures included push-ups, squat thrusts, abdominal curls, and a 20-meter shuttle run test.

**Results:** The experimental group (plyometric) showed significant improvement in all four measures: 20m shuttle run test: Pre (30.7±2.7) and post (34.6±2.8) with p=0.02. Push-up test: Pre (32.8±9.3), post (35.5±8.4) with p=0.042. Abdominal curl: Pre (31.2±8.9), post (35.3±8.3) with p=0.042. Squat thrust: Pre (12.8±4.2), post (17.5±2.1) with p=0.027.

**Conclusion:** Strength athletes can benefit from plyometrics to increase their muscle strength and power as well as their aerobic capacity.

**Keywords:** Abdominal curl, Aerobic capacity, Body mass index.

# Effectiveness of Concurrent Training in Improving Lipid Profiles among Hypertensive Individuals: A Review

Abstract ID: PG-23

**Priyanka Tah, Postgraduate Student, Maharishi Markandeshwar Institute of Physiotherapy and Rehabilitation, Maharishi Markandeshwar (Deemed to be University), Mullana, Ambala, Haryana, India.**
**Mandeep K Jangra, Assistant Professor, Maharishi Markandeshwar Institute of Physiotherapy and Rehabilitation, Maharishi Markandeshwar (Deemed to be University), Mullana, Ambala, Haryana, India.**
**Akanksha Saxena, Assistant Professor, Maharishi Markandeshwar Institute of Physiotherapy and Rehabilitation, Maharishi Markandeshwar (Deemed to be University), Mullana, Ambala, Haryana, India.**

**Introduction:** Hypertension is the elevated blood pressure and most common risk factor of Cardiovascular Disease (CVD). Dyslipidaemia, is the imbalance of lipids such as liproprotein cholesterol, triglycerides, and high-density lipoproteins that increases the CVD risk. Concurrent training proves to be efficacious in improving lipid profiles, it could serve as a valuable adjunctive therapy in the management of hypertension and associated metabolic abnormalities.

**Aim:** This review aims to critically examine the existing literature to explain the effects of concurrent training on lipid profiles in hypertensive individuals.

**Materials and Methods:** A comprehensive literature search was conducted using PubMed and Google Scholar to identify relevant studies published from 2009 to February 2024. Keywords used for the search included "hypertension," "concurrent training," "lipid profile" employing Boolean query. Full text experimental studies using concurrent training as an intervention on individuals with controlled hypertension were included whereas congestive heart failure, recent myocardial infarction, musculoskeletal disorder were excluded.

**Results:** The search revealed 1133 articles from which seven full text articles met the selection criteria. Concurrent training elicits favourable effects on lipid profiles in hypertensive individuals. Specifically, improvements in total cholesterol, LDL-cholesterol, triglycerides, an HDL-cholesterol levels have been observed following concurrent training interventions of varied intervals. These beneficial effects are attributed to the combined impact of aerobic and resistance exercises on lipid metabolism and cardiovascular health.

**Conclusion:** Concurrent training (combining aerobic and resistance exercises) offers promising benefits for cardiovascular health in improving lipid profiles in hypertensive individuals.

**Keywords:** Cardiovascular disease, Dislipidaemia, Hypertension.

# Integrating Suboccipital Muscle Inhibition Techniques with Adjunctive Therapies for Tension-type Headache: A Narrative Review

Abstract ID: PG-24

**Sandhya, BPT, (MPT Orthopaedics), Maharishi Markandeshwar Institute of Physiotherapy and Rehabilitation, Maharishi Markandeshwar (Deemed to be University), Mullana, Ambala, Haryana, India.**
**Sunita Sharma, Associate Professor, Maharishi Markandeshwar Institute of Physiotherapy and Rehabilitation, Maharishi Markandeshwar (Deemed to be University), Mullana, Ambala, Haryana, India.**

**Objective:** Tension Type Headache (TTH) recounted as 'a band encircling the head' which is mild to moderate in intensity and bilateral in location. Suboccipital Muscle Inhibition Technique (SMIT) is one of the manual therapy procedures utilised for treating myofascial areas that have been compromised due to restriction.

**Aim:** To determine the effect of SMI combined with other therapeutic approaches in patients with.

**Materials and Methods:** The following researches were performed in PubMed, Cochrane and google scholar from year 2015-2024 with the keywords "Suboccipital Muscle Inhibition" and "Tension Type Headache". The searches yielded 1,630 studies, out of which four randomised controlled trials met the inclusion criteria and were include in the narrative review.

**Results:** This review summarise the literature of SMI technique, spinal manipulation and electrotherapy intervention in reducing headache intensity, disability and pericranial tenderness and increase in craniocervical flexion and extension in individuals with TTH.

**Conclusion:** Integrating SMI techniques with adjunctive therapies holds great promise for the management of TTH. Clinicians should consider this multimodal approach in their treatment plans. TTH is a chronic condition and on amalgamating this technique with other therapeutic intervention shows better improvement in pain management.

**Keywords:** Pain, Myofacial, Spinal manipulation.

Abstract ID: PG-25

# A Compressive Review to Evaluate the Modifications While Translating Lower Extremity Functional Scale into Various Languages

**Yashleen Kaur Sandhu, Postgraduate Student, Maharishi Markandeshwar Institute of Physiotherapy and Rehabilitation, Maharishi Markandeshwar (Deemed to be University), Mullana, Ambala, Haryana, India.**
**Simranjeet Kaur, Assistant Professor, Maharishi Markandeshwar Institute of Physiotherapy and Rehabilitation, Maharishi Markandeshwar (Deemed to be University), Mullana, Ambala, Haryana, India.**
**Nidhi Sharma, Professor, Maharishi Markandeshwar Institute of Physiotherapy and Rehabilitation, Maharishi Markandeshwar (Deemed to be University), Mullana, Ambala, Haryana, India.**
**Alisha Jaiswal, Postgraduate Student, Maharishi Markandeshwar Institute of Physiotherapy and Rehabilitation, Maharishi Markandeshwar (Deemed to be University), Mullana, Ambala, Haryana, India.**

**Introduction:** Ability to locomote heavily relies on the effectiveness of one's lower limbs. In contemporary society, due to sedentary lifestyles and inadequate nutritional habits, individuals as young as 40 years old often present to outpatient departments with complaints of lower extremity pain, which is most of the time miscellaneous in nature. Therefore, an outcome measure such as Lower Extremity Functional Scale (LEFS) that completely assesses functional status and thus help in planning perfect treatment protocol gets ideal for use.

**Aim:** To gather information regarding the problems faced by authors while getting final translated version of LEFS in the desired language. This is done in order to understand the diversity present in different cultures.

**Materials and Methods:** Multiple databases like PubMed, Google Scholar and Cochrane Library were searched to gather all available translations to date. Various terms were used so that no article gets skipped, like 'LEFS', 'translations', 'adaptation', 'LEFS and validity' and 'Reliability' with the help of Boolean operation like 'AND' and 'OF'. Articles published between 1999 and 2023 were systematically gathered. Following extensive screening, a total of 20 translations were gathered out of which 17 were included.

**Results:** It was observed that native individuals embraced the adaptation of LEFS; however, several modifications, including alterations to specific items, were necessary to enhance its level of acceptance among people.

**Conclusion:** For better cultural adaptation, translated versions had slight modifications in them. But item no. 12 out of all the items was the one to undergo maximum modifications followed by item no. 11.

**Keywords:** Functional status, Language, Lower extremity, Outcome measure, Validity and reliability.

Abstract ID: PG-26

# Advancement in Balance Training among Individual with Chronic Obstructive Pulmonary Disease

**Simran Chawla, Postgraduate Student, Maharishi Markandeshwar Institute of Physiotherapy and Rehabilitation, Maharishi Markandeshwar (Deemed to be University), Mullana, Ambala, Haryana, India.**
**Mandeep Kumar Jangra, Assistant Professor Maharishi Markandeshwar Institute of Physiotherapy and Rehabilitation, Maharishi Markandeshwar (Deemed to be University), Mullana, Ambala Haryana, India.**
**Akanksha Saxena, Assistant Professor Maharishi Markandeshwar Institute of Physiotherapy and Rehabilitation, Maharishi Markandeshwar (Deemed to be University), Mullana, Ambala Haryana, India.**
**Sarvotam Chauhan, Director and Chief Physiotherapist Prognosia Healthcare, Gurugram, Haryana, India.**

**Introduction:** Individuals with Chronic Obstructive Pulmonary Disease (COPD) face not only respiratory challenges, but also posture issues, leading to compromised balance, increased fall risk, and activities limitations. As traditional pulmonary rehabilitation lacks global accessibility, alternative approaches like Virtual Reality (VR) technologies and Sensamove with biofeedback have been explored offering benefits such as adjustable difficulty levels, performance monitoring, and movement guidance.

**Aim:** To highlight the advancement in balance training among individuals with COPD.

**Materials and Methods:** Authors conducted a recent literature review (2019 to 2024) utilising databases including Cochrane, PubMed, and Google Scholar, focusing on interventions for moderate to severe COPD based on GOLD criteria (FEV1/FVC<0.7) aged between 40-70 years.

**Results:** A total of 24,300 articles were retrieved, out of which only eight articles were found relevant that met our inclusion criteria and directly related to our research objectives in which four RCT study's using X-box 360 and Kinect adventures software and there were four systematic reviews. With VR and sensa move authors found that patients with COPD improve physical fitness, lungs function, quality of life, exercise capacity and dyspnea.

**Conclusion:** The integration of innovative tools such as VR and sensamove alongside established interventions holds potential for more comprehensive and effective approach to COPD rehabilitation.

**Keywords:** Dyspnea, Exercise capacity, Virtual reality.

Abstract ID: PG-27

# Pelvic Floor Training, a Silent Enhancer of Pulmonary Function: An Integrative Literature Review

**Sadikshya Mulepati, BPT, Postgraduate Student, Maharishi Markandeshwar Institute of Physiotherapy and Rehabilitation, Maharishi Markandeshwar (Deemed to be University), Mullana, Ambala, Haryana, India.**
**Akanksha Saxena, Assistant Professor, Maharishi Markandeshwar Institute of Physiotherapy and Rehabilitation, Maharishi Markandeshwar (Deemed to be University), Mullana, Ambala, Haryana, India.**
**Mandeep Kumar Jangra, Assistant Professor, Maharishi Markandeshwar Institute of Physiotherapy and Rehabilitation, Maharishi Markandeshwar (Deemed to be University), Mullana, Ambala, Haryana, India.**

**Objective:** This review delves into the intricate relationship between pelvic floor training and its potential to enhance lung function across diverse health conditions. While the coordination between the pelvic floor and diaphragm is well-established, the specific advantages of pelvic floor strengthening in bolstering pulmonary health necessitate deeper investigation. Despite indications of pelvic floor training's potential benefits for pulmonary issues, a comprehensive review is imperative to consolidate understanding.

**Aim:** This review attempts to shed light on how pelvic floor activation influences various parameters of pulmonary function. Articles analysing pulmonary function improvements post pelvic floor activation constituted the participant pool for this review.

**Materials and Methods:** An extensive search spanning from 2001 to 2024 across databases like PubMed, Ovid, Cochrane Review, and Physiotherapy Evidence Database (PEDro) unearthed experimental and observational studies. Primary outcome measures included forced expiratory volume in 1 second, forced vital capacity, Peak expiratory flow rate, forced expiratory flow, maximum voluntary ventilation and others.

**Results:** Ten studies meeting inclusion criteria involved healthy subjects, individuals with pelvic floor weakness, and pulmonary impairment. Exercises like Kegels, hypopressive techniques and electrical stimulation, demonstrated positive impacts on pulmonary function parameters.

**Conclusion:** This review underscores the significance of pelvic floor exercises in augmenting lung function. By exploring diverse interventions and their effects on pulmonary health outcomes, it addresses a critical gap in research, potentially informing recommendations for respiratory rehabilitation programs. Insights gleaned from this review hold promise for enhancing pulmonary rehabilitation programs by integrating pelvic floor exercises. Clinical recommendations could benefit from incorporating these findings, thereby optimising patient outcomes.

**Keywords:** Exercise, Hypopressive technique, Respiratory function tests.

Abstract ID: PG-28

# Outcome Measures For Shoulder Joint Assessment In Patients With Stroke: A Narrative Review

**Jatin Sangwan, BPT (MPT Neurology), Maharishi Markandeshwar Institute of Physiotherapy and Rehabilitation, Maharishi Markandeshwar (Deemed to be University), Mullana, Ambala, Haryana, India.**
**Subhasish Chatterjee, PhD, Associate Professor, Maharishi Markandeshwar Institute of Physiotherapy and Rehabilitation, Maharishi Markandeshwar (Deemed to be University), Mullana, Ambala, Haryana, India.**
**Mousumi Saha, MPT (Cardiothoracic), PhD Scholar, Maharishi Markandeshwar Institute of Physiotherapy and Rehabilitation, Maharishi Markandeshwar (Deemed to be University), Mullana, Ambala, Haryana, India.**

**Objective:** Understanding the influence of evidence-based practice on rehabilitating patients with stroke can be achieved through the use of suitable outcome measures.

**Aim:** The purpose of this study is to consolidate the existing outcome measures related to the Shoulder Joint assessment in patients with stroke. This review aims to provide education to neurologists, physiotherapists, academics, and researchers regarding available resources for diagnosing, prognosing, and rehabilitating shoulder joint in stroke patients.

**Materials and Methods:** Electronic searches were performed on databases including Medline, PubMed, Cochrane, Physiotherapy Evidence Database (PEDro) and Google Scholar using terms

related to outcome measures utilised in the diagnosis, prognosis, and rehabilitation of shoulder joint in stroke patients.

**Results:** Total seven outcome measures {Stroke Specific Shoulder Disability Index (SSSDI), Fugl Meyer Assessment of Upper Extremity, Motor Assessment Scale, Chedoke-McMaster Stroke Assessment, Orpington Prognostic Scale, Motricity Index, and Stroke Rehabilitation Assessment of Movement} were included in this study used in the diagnosis, prognosis, and rehabilitation of upper extremity in shoulder joints having shoulder domains were identified. SSSDI and Fugl Meyer Assessment of Upper Extremity (FMA-UE) have excellent reliability and good validity among them. But, FMA-UE does not measure the functional assessment of shoulder joint. Currently, among the scales used for shoulder assessment in stroke patients, only the SSSDI covers all domains comprehensively, setting it apart from other scales.

**Conclusion:** The SSSDI is a single tool available for assessing the shoulder domains in stroke patients having excellent reliability.

**Keywords:** Disability, Functional assessment, Rehabilitation, Upper Extremity.

Abstract ID: PG-29

# Effectiveness of Power Exercises vs Plyometric Training in Athletes: An Electromyographical Analysis

**Hetashri Upadhyay, Postgraduate Student, SGT University, Gurugram, Haryana, India.**
**Jaganjyoti Das, Assistant Professor, SGT University, Gurugram, Haryana, India.**
**Neha Reyalch, Assistant Professor, SGT University, Gurugram, Haryana, India.**

**Introduction:** Power Training and Plyometric training exercises are recommended to improve the power of the upper and lower extremities. Research is necessary to provide coaches and practitioners with more information to plan their General power training and Plyometric training programs on various biomechanical and fitness measures.

**Aim:** To compare the effect of General Power training vs Plyometric training on electromyographical parameter in athletes.

**Materials and Methods:** A total of 15 subjects were divided into three groups: Power training group, Plyometric group, Control group. A total of 15 young athletes were randomly allocated to experimental and control group (N=15, n=5). Participants of three groups were asked to perform the dynamic activities during which amplitude of muscle activation with surface electrodes using four channel Electromyographic system were measured. Average of three trials were considered. Initially 16 muscles of both the sides were assessed. The intervention of Group A consisted of Power training exercises, Group B consisted of Plyometric drills and the control group performed regular training exercises. The intervention was given for 3 days a week for 6 weeks. All the outcome variables were recorded for baseline and after 6 weeks.

**Results:** Within group analysis for both experimental groups were found to be statistically significant for Rectus femoris and Vastus Lateralis muscles whereas between group analysis revealed general power training group to offer statistically significant improvement with p-value <0.05.

**Conclusion:** There was a significant improvement in in both the groups in terms of muscle activation; however, General Power training shows effective outcome than the Plyometric training.

**Keywords:** Electromyography, General power training, Lateralis muscle.

Abstract ID: PG-30

# Problems Associated with Persisting Primitive Reflex in Healthy School-going Children

**Yukta Sharma, Maharishi Markandeshwar Institution of Physiotherapy and Rehabilitation, Maharishi Markandeshwar deemed to be university Mullana, Ambala, Haryana, India.**
**Akanksha Saxena, Assistant Professor, Maharishi Markandeshwar Institution of Physiotherapy and Rehabilitation, Maharishi Markandeshwar deemed to be university Mullana, Ambala, Haryana, India.**

**Introduction:** Primitive reflexes, originating in the brainstem, develop in utero and vanish within six months post-birth, aiding infant motor milestones. Integration relies on cortical maturation inhibiting them via basal ganglia pathways. Persistence may indicate neurological issues lead to motor, balance, and learning difficulties.

**Aim:** This scoping review explored the persistence of primitive reflexes and determined the problems associated with their persistence in healthy school-going children.

**Materials and Methods:** A total of 3988 full-text published articles were identified from PubMed, Ovid-SP and Physiotherapy Evidence

Database (PEDro) from 2004-2024 year. Only full text prevalence/incidence and observational studies on children between 4-12 years are included. After duplicate deletion 3614 articles were left at abstract level, finally 63 full text articles related to research topic were further analysed and only nine articles were included in review for analysis.

**Results:** Within group analysis for both experimental groups were found to be statistically significant for Rectus femoris and Vastus Lateralis muscles whereas between group analysis revealed general power training group to offer statistically significant improvement with p-value <0.05.

**Conclusion:** Majority of articles show that persistence of ATNR (Asymmetrical Tonic Neck Reflex) reflex shows neurological impairments like attention and reading difficulties while persistence of spinal galant may lead to scoliosis. In articles assessing the persistence of all primitive reflexes like ATNR/STNR (Symmetrical Tonic Neck Reflex)/TLR (Tonic Labyrinthine Reflex) may cause gait impairments and development delay. Boys exhibit higher reflex activity and attention deficits, correlating with diminished reading proficiency, emphasising the link between neuromotor maturity and academic achievement.

**Conclusion:** The prevalence of primary reflexes like ATNR and TLR in preschoolers, impact attention, neuromotor development and gait. Early detection of persisting primitive reflex, and managing them with reflex integration therapy in children can help mitigate neurological development delay.

**Keywords:** Child, Prevalence, Tonic labyrinthine reflex.

# A Review of the Finger-to-Nose Test for Assessing Coordination in Children with Developmental Coordination Disorder

Abstract ID: PG-31

**Priyanka Negi, Postgraduate Student, Maharishi Markandeshwar Institute of Physiotherapy and Rehabilitation, Maharishi Markandeshwar (Deemed to be University), Mullana, Ambala, Haryana, India.**
**Nidhi Sharma, Professor, Maharishi Markandeshwar Institute of Physiotherapy and Rehabilitation, Maharishi Markandeshwar (Deemed to be University), Mullana, Ambala, Haryana, India.**
**Simranjeet Kaur, Assistant Professor, Maharishi Markandeshwar, Institute of Physiotherapy and Rehabilitation, Maharishi Markandeshwar (Deemed to be University), Mullana, Ambala, Haryana, India.**

**Introduction:** Developmental Coordination Disorder (DCD) affects around 5-6% of school-aged children and is characterised by impairments in motor coordination that significantly interfere with daily activities. Various assessment tools have been explored to evaluate coordination difficulties in children with DCD. This review focuses on the Finger-to-Nose Test (FNT), examining its utility in diagnosing and monitoring coordination impairments in this population.

**Aim:** To provide a comprehensive analysis and purposeful evaluation of the FNT in this specific population.

**Materials and Methods:** A literature search was conducted using the PubMed, Scopus, and Google Scholar databases for relevant studies published from inception to February 2024. The keywords including "Finger-to-Nose Test, "Developmental Coordination Disorder," "pediatric population," using Boolean operators AND, OR were used. Based on inclusion criteria Developmental coordination disorder with pediatric population, Observational and RCTs studies included.

**Results:** A total of 532 articles were found from different databases, out of which only five articles fulfilled the eligibility criteria. Findings from the reviewed studies demonstrate that finger-to-nose test alone is not very promising evidence to assess children with DCD from healthy controls.

**Conclusion:** This review concluded that FTN test remains a valuable tool in assessing motor coordination disorders, its optimal use lies in conjunction with other assessment measures to enhance diagnostic accuracy and treatment planning. Continuous research efforts aimed at refining its utility and exploring its implications in therapeutic interventions will contribute to better understanding and management of motor coordination disorders in children.

**Keywords:** Boolean operators, Paediatrics, Therapeutic intervention.

Abstract ID: PG-32

# Efficacy of Sustained Natural Apophyseal Glides in Improving Pain, Cervical Range of Motion, and Enhancing Quality of Life in Cervicogenic Headache: A Systematic Review

**Sukhpreet Kaur, Maharishi Markandeshwar Institute of Physiotherapy and Rehabilitation, Maharishi Markandeshwar (Deemed to be University), Ambala, Haryana, India.**
**Akanksha Saxena, Assistant Professor, Maharishi Markandeshwar Institute of Physiotherapy and Rehabilitation, Maharishi Markandeshwar (Deemed to be University), Ambala, Haryana, India.**

**Introduction:** Cervicogenic headaches originates from cervical region issues, causing one-sided head pain, neck stiffness, and shoulder discomfort worsened by movement. Sustained Natural Apophyseal Glides (SNAG) mobilisation, a manual therapy technique, applies targeted pressure to dysfunctional spinal segments, aiming to alleviate pain and enhance cervical mobility, potentially offering relief and restoring normal function.

**Aim:** To systematically review the existing literature to determine the efficacy of SNAGs as a treatment intervention for cervicogenic headache, with a focus on evaluating their impact on pain severity, cervical range of motion, and quality of life outcomes.

**Materials and Methods:** A systematic litertaure search was performed using PubMed, Physiotherapy Evidence Database (PEDro) AND Ovid, from 2014 to February 2024. The search terms "SNAG" OR "Sustained Natural Apophyseal Glides OR "Mulligan" AND "Cervicogenic headache" AND "pain" OR "range of motion" OR "disability" OR "quality of life" were used according to PRISMA guidelines. The study included total 1757 articles, from which eight articles met the inclusion criteria which includes 432 participants with cervicogenic headache. The methodological quality of the included studies were analysed using the PEDro scale.

**Results:** Majority of the articles provide evidence that SNAG has a significant positive effect on the cervicogenic headache. A total of six studies shows positive effect of SNAG on ROM and pain, two studies showed significant improvement in improving quality of life and ROM.

**Conclusion:** SNAG is safe and effective technique that manages cervicogenic headaches.

**Keywords:** Allevita pain, Impact of pain, Quality of life.

Abstract ID: PG-33

# Rhythm and Response: Examining the Effects of Music on Reaction Time: A Comprehensive Review

**Preeti Kapri, Postgraduate Student, Maharishi Markandeshwar Institute of Physiotherapy and Rehabilitation, Maharishi Markandeshwar (Deemed to be University), Mullana, Ambala, Haryana, India.**
**Nidhi Sharma, Professor, Maharishi Markandeshwar Institute of Physiotherapy and Rehabilitation, Maharishi Markandeshwar (Deemed to be University), Mullana, Ambala, Haryana, India.**
**Simranjeet Kaur, Assistant Professor, Maharishi Markandeshwar Institute of Physiotherapy and Rehabilitation, Maharishi Markandeshwar (Deemed to be University), Mullana, Ambala, Haryana, India.**

**Introduction:** A reaction time test measures a person's response time to stimuli. There has been a noticeable increase in exposure to loud music, which is generally believed to result in functional aberrations over time in healthy individuals. Loud music can improve alertness and arousal in certain situations, but it can also slow down cognitive processes and impede reaction time, especially when it serves as a stressor or distraction.

**Aim:** To offer insights into investigating how music affects reaction time in adults.

**Materials and Methods:** A literature search was conducted from PubMed, The Cochrane Library, and Google Scholar database from February 2000 to February 2024. The search utilised terms such as "music", "high volume", "adult", "reaction time" and "noise" employing Boolean operators (AND, OR). Articles in which reaction time was measured included in this review, non-english articles were excluded.

**Results:** A total of 2392 articles found from different database, out of which only seven met the inclusion criteria. These studies suggest that listening to loud music may have a negative impact on reaction time.

**Conclusion:** The varying outcomes observed may suggest that the selection of music could have influenced alertness levels, while the presence of different distraction levels might have contributed to

neurocognitive alterations, such as delayed responses and impaired bodily functions.

**Keywords:** Alertness, High volume, Noise.

# Current Trends in Physiotherapy Treatment Protocols in Parkinson's Disease

Abstract ID: PG-34

**Syed Tashbeeba, Postgraduate Second Year, Department of Physiotherapy, Sharda University, Greater Noida, Uttar Pradesh, India.**
**Meenakshi Verma, Assistant Professor, Department of Physiotherapy, Sharda University, Greater Noida, Uttar Pradesh, India.**

**Objective:** Physiotherapy is prescribed for individuals with Parkinson's Disease (PD). Conventional forms of physiotherapy have been studied extensively, however effectiveness of recent physiotherapy interventions for PD are being evaluated and assessed.

**Aim:** To evaluate the efficacy of conventional and recent physiotherapy interventions for people with Parkinson's disease.

**Materials and Methods:** A systematic search using CINAHL, Embase, and PubMed, that contrasted physiotherapy with no intervention or sham treatment. Resistance training, treadmill training, strategy training, dance, martial arts, aerobic exercises, hydrotherapy, balance, gait training, dual tasking, exergaming, and Nordic walking, were twelve categories into which trials were divided. Motor symptoms, balance, gait, and quality of life were among the outcomes. To evaluate methodological quality, GRADE (Grading of Recommendations, Assessment, Development and Evaluation) was used. A total of 191 trials, with 7998 participants were taken. Active therapy was included, irrespective of the severity or stage of the disease.

**Results:** Physiotherapy enhanced gait, quality of life, and motor symptoms. Resistance and treadmill training improved gait. Training strategies enhanced gait and balance. Nordic walking, balance and gait training, and others improved gait, balance and motor symptoms. Exergaming and hydrotherapy enhanced life quality and balance. However, none of the outcomes significantly improved by dual task training.

**Conclusion:** This review offers data supporting the efficacy of physiotherapy treatment in Parkinson's disease, empowering medical professionals to choose treatment based on the best available research. PD affects balance, mobility, gait, fall susceptibility. Conventional and advanced physiotherapy improves these motor symptoms, and augment quality of life.

**Keywords:** Recent advances physiotherapy, Review, Treadmill.

# Agility among College-going Student: A Literature Review

Abstract ID: PG-35

**Tanbeer Hassan, Postgraduate Student, Maharishi Markandeshwar Institute of Physiotherapy and Rehabilitation, Maharishi Markandeshwar (Deemed to be University), Mullana, Ambala, Haryana, India.**
**Joydip Saha, Assistant Professor, Maharishi Markandeshwar Institute of Physiotherapy and Rehabilitation, Maharishi Markandeshwar (Deemed to be University), Mullana, Ambala, Haryana, India.**

**Introduction:** Agility is the ability to rapidly alter direction or speed of whole-body in response to a stimulus. Agility is correlated with several trainable physical attributes, including technique, strength, endurance, power and cognitive components.

**Aim:** To provide an insight on agility testing among college-going students.

**Materials and Methods:** A literature search was performed using the PubMed, Scopus and Ovid Medline databases for relevant research published from 2012 to 2022. Articles including participant with age group 18-25 year are included. The search terms such as "Agility", "Agility test", "Youth", "Students" using Boolean operators AND, OR were used. All the free full original English articles inexplicitly explaining the role of agility in the different sport were included, irrespective of the type of the study.

**Results:** A total of 3045 articles were retrieved from different databases, out of which only nine articles fulfilled the inclusion criteria and were included for the present review. These studies revealed that several Agility Test (AT) were developed such as Y-shaped AT, 505 AT, Illinois AT, zigzag run AT, T drill AT, 5-20-30m sprint AT, pro AT, repetitive AT, Butterfly AT and Hexagonal AT, which were used among similar population.

**Conclusion:** Although there are multiple valid agility tests which can be performed among college student. Illinois AT and T drill AT are considered to be most effective test and helps to improve the agility among college students. This review will aware about the implication of different agility test among college-going students.

**Keywords:** Colleagues, Cognitive components, Endurane.

Abstract ID: PG-36

# Comparative Evaluation of the Impact of Anodal Transcranial Direct Current Stimulation (TDCS) Targeting the Cerebrum versus the Cerebellum on Balance Function in Individuals with Chronic Stroke: A Pilot Randomised Clinical Trial

**Rituraj Mandal, Postgraduate Student, Maharishi Markandeshwar Institute of Physiotherapy and Rehabilitation, Maharishi Markandeshwar (Deemed to be University), Mullana, Ambala, Haryana, India.**
**Subhasish Chatterjee, Associate Professor, Maharishi Markandeshwar Institute of Physiotherapy and Rehabilitation, Maharishi Markandeshwar (Deemed to be University), Mullana, Ambala, Haryana, India.**

**Introduction:** Balance impairment significantly impact the daily activities of individuals with chronic stroke, often stemming from issues like spasticity, muscle weakness, and other neurological symptoms. tDCS has shown promise in enhancing both balance and walking abilities among chronic stroke patients.

**Aim:** To evaluate the efficacy of anodal tDCS in enhancing balance performance among chronic stroke patients, comparing its effectiveness between stimulation of the cerebellum and the primary motor cortex region.

**Materials and Methods:** The study aimed to evaluate the efficacy of anodal tDCS in enhancing balance performance among chronic stroke patients, comparing its effectiveness between stimulation of the cerebellum and the primary motor cortex region.

**Results:** Both groups showed significant improvement in all outcome measures (TUG, BESS, MRMI, DGI) ($p<0.05$). Between-group analysis revealed significant changes in TUG, BESS, and DGI ($p=0.0016$, 0.019, 0.003 respectively). However, there was no significant change between groups in MRMI ($p=0.528$).

**Conclusion:** Anodal cerebellar tDCS is more effective to improve balance and gait than Cerebral tDCS.

**Keywords:** Cerebellum, Cortex region, Gait, Primary motor cortex.

Abstract ID: PG-37

# Effect of Aerobic Exercises on Abdominal Strength, Sexual Dysfunction, Pain and Menstrual Parameters in Women with Caesarean Section Delivery Suffering from Primary Dysmenorrhea: A Pilot Study

**Nisha, Postgraduate Student, SGT University, Gurugram, Haryana, India.**
**JaganJyoti Das, Assistant Professor, SGT University, Gurugram, Haryana, India.**
**Aditi, Assistant Professor, SGT University, Gurugram, Haryana, India.**

**Aim:** To find out the effect of aerobic exercise on abdominal strength, sexual dysfunction, pain and menstrual parameters in women with caesarean section delivery suffering from primary dysmenorrhea. This will help effective management of patients suffering from dysmenorrhea after caesarean section delivery.

**Materials and Methods:** A total of 16 subjects were divided into 2 groups (i.e., aerobic exercise, control group). 16 subjects with diagnosed dysmenorrhea after caesarean section delivery were randomly allocated to experimental and control groups (N=16; n=8) participants of both groups were asked to perform a set of exercises. The intervention of the experimental group consisted of aerobic exercise along with stretching and hot packs whereas the control group was given only stretching exercise and hot pack. The intervention was prescribed 4 days a week for 6 weeks. All the outcome variables were recorded at the baseline and the end of 6 weeks. The mean and standard deviation of all dependent variables

of both groups were calculated. For all the variables within group analysis was done using paired sample T-test and between group analysis was done by independent sample T-test. The significance level was set at 95% ($p \leq 0.05$).

**Results:** Statistically, a significant difference ($p \leq 0.05$) was found in the mean amplitude of pre- and post-values of the experimental group as well as between the groups were found to be significantly improved, whereas, in the experimental group, difference is found to more than the control group in abdominal strength, sexual dysfunction, pain and menstrual parameters.

**Conclusion:** There was a significant improvement in abdominal strength, sexual dysfunction, pain and menstrual parameters in the aerobic exercise group in the experimental group. A focused rehabilitation program for dysmenorrhic females after caesarean section delivery will help in improving the quality of life and functional efficacy.

**Keywords:** Dysmenorrhea, Caesarean section delivery, Aerobic exercises.

# Effects of Pillow and it's Types in Individuals with Chronic Neck Pain: A Literature Review

Abstract ID: PG-38

**Swarup Ghosh, Master of Physiotherapy Student, Maharishi Markandeshwar Institute of Physiotherapy and Rehabilitation (MMIPR), Maharishi Markandeshwar (Deemed to be University), Mullana, Ambala, Haryana, India.**
**Manu Goyal, Professor, Maharishi Markandeshwar Institute of Physiotherapy and Rehabilitation (MMIPR), Maharishi Markandeshwar (Deemed to be University), Mullana, Ambala, Haryana, India.**

**Introduction:** Chronic neck pain has become a significant burden, exacerbating disability and disrupting sleep quality in contemporary society. Besides various treatment approaches, selecting an appropriate pillow is crucial for promoting spinal alignment, relieving strain on neck muscles, and enhancing overall sleep quality.

**Aim:** Thoroughly synthesise and summarise current research on the influence of diverse pillow characteristics in individuals with chronic neck pain.

**Materials and Methods:** A comprehensive search from the year 2014-2024 retrieved 15,258 articles through electronic databases like PubMed, Google Scholar, and Cochrane Library. Studies incorporating pillow interventions alongside physiotherapy treatment in symptomatic individuals, aged 18 years and older, who presented symptoms of chronic neck pain were included. Only, seven pertinent studies, following the removal of duplicates were selected for inclusion in this review and subjected to further analysis.

**Results:** The reviewed literature primarily employed outcome measures like Visual Analogue Scale (VAS), Numerical Rating Scale (NRS), Numerical Pain Rating Scale (NPRS), and Neck Disability Index (NDI), with only 2 studies investigating sleep quality using the PSQI. Limited studies indicate pillow efficacy as adjuncts, with minimal evidence favoring latex or foam pillows over regular ones, showing statistical significance in NRS ($p=0.015$) but no statistical significance in NDI ($p=0.195$).

**Conclusion:** The heterogeneity of outcome measures and the diversity of pillows assessed hinder a conclusive determination of pillow effectiveness in managing chronic neck pain. Hence, it is imperative for future research to prioritise conducting rigorous randomised trials to ascertain the effectiveness of pillows in individuals with this widespread condition.

**Keywords:** Neck muscle, Range of motion, Sleep suality.

# Hindi Translation, Validation and Test-retest Reliability of The Fugl Meyer Assessment Upper Extremity Scale: A Cross-sectional Study Protocol

Abstract ID: PG-39

**Etika Rana, Postgraduate Student, Maharishi Markandeshwar Institute of Physiotherapy and Rehabilitation, Maharishi Markandeshwar (Deemed to be University), Mullana, Ambala, Haryana, India.**
**Subhashish Chatterjee, Associate Professor, Maharishi Markandeshwar Institute of Physiotherapy and Rehabilitation, Maharishi Markandeshwar (Deemed to be University), Mullana, Ambala, Haryana, India.**

**Introduction:** Stroke, a global health concern, causes substantial mortality and disability. The Fugl Meyer Assessment Upper Extremity (FMA-UE) scale evaluates sensorimotor impairment in stroke patients. Despite Hindi's widespread use, with over 609 million speakers worldwide, the scale lacks a Hindi version. Bridging this gap could significantly enhance stroke rehabilitation outcomes.

**Aim:** This study aims to translate the FMA-UE scale into Hindi, validate the translated version, and determine its test-retest reliability in Hindi-speaking stroke patients.

**Materials and Methods:** Permission from the author is required before meticulously translating the FMA-UE scale into Hindi by bilingual experts. This process will involve, combining perspectives from a medical expert and a linguistic specialist. Merged translations will be back-translated into English for accuracy. Content validation via the Delphi method by an expert panel will ensure linguistic equivalence. Pretesting will gauge comprehensibility and appropriateness. Test-retest reliability will be determined through correlation coefficient calculations on patients, assessed twice with an interval.

**Results:** Study anticipates successful translation of FMA-UE scale into Hindi with robust linguistic translation. Delphi method will be used for item assessment, calculating Item-level Content Validity Index (I-CVI). Scale-level Content Validity Index Average (S-CVI/Ave) ensures unanimity. Test-retest reliability evaluated through ICCs and Bland-Altman plots, illustrating mean scores and standard deviations across sessions, with ICC values indicating reliability and Bland-Altman plots confirming score agreement visually.

**Conclusion:** The Hindi FMA-UE scale will aid assessment in Hindi-speaking stroke populations. This protocol ensures linguistic adequacy, enhancing clinical assessment and rehabilitation strategies.

**Keywords:** Linguistic adequecy, Stroke, Validations.

# Efficacy of Spencer's Technique in Adhesive Capsulitis: A Literature Review

Abstract ID: PG-40

**Krishnagopal Mondal, Master of Physiotherapy Student, Maharishi Markandeshwar Institute of Physiotherapy and Rehabilitation (MMIPR), Maharishi Markandeshwar (Deemed-to-be-University), Mullana, Ambala, Haryana, India.**
**Sunita Sharma, Associate Professor, Maharishi Markandeshwar Institute of Physiotherapy and Rehabilitation (MMIPR), Maharishi Markandeshwar (Deemed-to-be-University), Mullana, Ambala, Haryana, India.**

**Introduction:** Adhesive capsulitis, characterised by escalating pain and gradual joint mobility restriction of uncertain origin, poses significant challenges in daily activities over months to years. Among numerous treatment modalities, the Spencer technique emerges as a distinctive and highly promising approach, offering notable improvements in pain relief, reduction of disability, and enhancement of range of motion for individuals afflicted with this condition.

**Aim:** To provide a comprehensive summary of the current body of literature pertaining to the efficacy of Spencer's technique in patients diagnosed with adhesive capsulitis.

**Materials and Methods:** A total of 2,788 articles were initially collected from electronic search engines like PubMed and Google Scholar. Studies incorporating individuals aged 30 years or older, diagnosed with frozen shoulder, and utilising Spencer's technique as an intervention were included. However, only 10 relevant articles were included in this review and analysed further, following removal of duplication.

**Results:** While most the studies demonstrated significant findings of Spencer's technique on ROM ($p<0.05$), they presented diverse results concerning pain levels and SPADI scores. Also, 3 articles have indicated that Mulligan mobilisation exhibits greater efficacy compared to the Spencer technique in adhesive capsulitis patients.

**Conclusion:** Spencer's technique demonstrates significant differences in pre-post outcomes versus conventional methods but lacks superiority over Mulligan mobilisation, supported by moderate evidence. Additionally, other manual therapy techniques' efficacy remains scarce or limited in comparison.

**Keywords:** Frozen shoulder, Intervention, Range of motion.

Abstract ID: PG-41

# A Literature Review on Maximising Pain Management in Low Back Pain: A Combined Approach of High-intensity LASER Therapy and Exercise Therapy

**Divya Chauhan, Postgraduate Student, Department of Physiotherapy, Maharishi Markandeshwar Institute of Physiotherapy and Rehabilitation, Maharishi Markandeshwar (Deemed to be University), Mullana, Ambala, Haryana, India.**
**Sunita Sharma, Associate Professor, Department of Physiotherapy, Maharishi Markandeshwar Institute of Physiotherapy and Rehabilitation, Maharishi Markandeshwar (Deemed to be University), Mullana, Ambala, Haryana, India.**
**Mandeep Kumar Jangra, Assistant Professor, Department of Physiotherapy, Maharishi Markandeshwar Institute of Physiotherapy and Rehabilitation, Maharishi Markandeshwar (Deemed to be University), Mullana, Ambala, Haryana, India.**

**Introduction:** Low Back Pain (LBP) is one of the most common musculoskeletal conditions in the world which impairs one's ability to move, and their general quality of life. In modern medicine, High-intensity Light Amplification by Stimulated Emission of Radiation (LASER) Therapy (HILT) in particular, is commonly used in conjunction with exercise therapy to enhance the effectiveness of treating musculoskeletal complaints. However, there is insufficient data to support the combined therapeutic efficacy of HILT and exercise therapy in treatment of LBP.

**Aim:** To investigate several databases to find out the effectiveness of combined approach of HILT and exercise therapy in pain alleviation in LBP.

**Materials and Methods:** Using Medical Subject Headings (MeSH) keywords, authors searched across various electronic databases such as PubMed, Cochrane Library, Google Scholar, Medline, and Physiotherapy Evidence Database (PEDro). Full text randomised clinical and controlled studies were included from last 15 years. After an initial screening of 3,913 records and the removal of articles whose title and abstract didn't meet the inclusion criteria, 54 records were considered for eligibility. Among these, the review incorporated three articles focusing on the treatment of LBP using a combination of HILT and exercise therapy.

**Results:** The findings demonstrated the advantages of HILT, especially in terms of pain relief, may improve exercise compliance by lessening limitations brought on by pain and permitting more thorough low back rehabilitation.

**Conclusion:** The current literature analysis showed that treating individuals with LBP with a combination of HILT and exercise therapy is more effective in reducing pain.

**Keywords:** Light amplification by stimulated emission of radiation, Low back rehabilitation, Pain relief.

Abstract ID: PG-42

# A Comparison of Myofascial Release and Positional Release in Conjunction with Static Stretching for Treatment of Upper Trapezius Trigger Points among University Students: A Pilot Study

**Rubi Yadav, Postgraduate Student, Department of Physiotherapy, Maharishi Markandeshwar Institute of Physiotherapy and Rehabilitation, Maharishi Markandeshwar (Deemed to be University), Mullana, Ambala, Haryana, India.**
**Sunita Sharma, Associate Professor, Department of Physiotherapy Maharishi Markandeshwar Institute of Physiotherapy and Rehabilitation, Maharishi Markandeshwar (Deemed to be University), Mullana, Ambala, Haryana, India.**

**Introduction:** Myofascial trigger points are considered to be a major cause of neck pain and shoulder muscle tenderness among the working population.

**Aim:** To investigate the efficacy of combining Myofascial Release Therapy (MFR) and Positional Release Therapy (PRT) on pain intensity and pain tolerance for managing neck pain caused by Myofascial Trigger Points (MTrPs) of the upper trapezius muscle.

**Materials and Methods:** A pilot study was conducted in the Department of Physiotherapy, Maharishi Markandeshwar Institute of Physiotherapy and Rehabilitation, Maharishi Markandeshwar

(Deemed to be University), Mullana, Ambala, Haryana, India on a total of 16 participants were randomly assigned to Group A (MFR) and Group B (PRT), receiving treatment 3 days a week for two weeks. Both groups also received conventional treatment (such as static stretching of the upper trapezius along with a cold pack). The Numeric Pain Rating Scale (NPRS) and the Pain Pressure Threshold (PPT) were employed to compare the pre- and post-intervention assessment of the participants.

**Results:** As the baseline data were normally distributed, the statistical analysis used independent t-tests for between-group comparisons and paired t-tests for within-group analysis. For within-group analysis, both groups revealed highly significant improvement ($p<0.05$) in all the outcome measures such as (NPRS and PPT). However, upon comparing both groups, the between-group analysis showed significant improvement across all parameters ($p<0.05$).

**Conclusion:** Both PRT and MFR combined with static stretching were found to be effective in reducing pain and raising the pain threshold; however, comparing patients who received MFR combined with static stretching had more significant results.

**Keywords:** Myofascial release therapy, Neck pain, Positional release therapy.

# A Literature Review on Graston-assisted Soft Tissue Mobilisation Technique in Patients with Plantar Fasciitis

Abstract ID: PG-43

**Sanam Maurya, Postgraduate Student, Department of Physiotherapy, Maharishi Markandeshwar Institute of Physiotherapy and Rehabilitation, Maharishi Markandeshwar (Deemed to be University), Mullana, Ambala, Haryana, India.**
**Sunita Sharma, Associate Professor, Department of Physiotherapy, Maharishi Markandeshwar Institute of Physiotherapy and Rehabilitation, Maharishi Markandeshwar (Deemed to be University), Mullana, Ambala, Haryana, India.**

**Introduction:** Plantar fasciitis is a common condition characterised by inflammation and microtears of the plantar-fascia, resulting in heel pain and impaired foot function. Traditional treatments include stretching, orthotics and physical therapy. Graston-assisted soft tissue mobilisation has emerged as a promising adjunctive therapy for plantar fasciitis, aiming to improve outcomes through targeted tissue manipulation.

**Aim:** To critically evaluate existing research on the effectiveness of Graston-assisted Soft Tissue Mobilisation (GASTM) techniques in treating patients with plantar fasciitis.

**Materials and Methods:** A literature search was conducted from Pubmed, Cochrane Library, and Google Scholar from year February 2014 to February 2024. The search utilised MeSH key terms such as “Plantar fasciitis”, “Graston technique”, “Soft tissue mobilisation”, “Quality of life”, “Range of motion” employing Boolean operators (AND, OR). A total of 2642 articles were found from different databases. Duplicate articles was removed. A total of six articles fulfilled the eligibility criteria and were included for the present review.

**Results:** The reviewed literature primarily employed outcome measures like Numeric Pain Rating Scale (NPRS), Visual Analogue Scale (VAS), Foot and Ankle Disability Index (FADI) and Foot Function Index (FFI). Out of 2642 articles, only six met the criteria in which Graston technique effect on plantar fasciitis was evaluated and were included in the review. The review demonstrated that the Graston therapy significantly improves plantar fasciitis.

**Conclusion:** The GASTM can effectively reduce soft tissue restriction, alleviate plantar-fascia pain, increase dorsiflexion range, and improve foot and ankle function.

**Keywords:** Graston techniques, Plantar-fascia, Quality of life.

Abstract ID: PG-44

# Development and Validation of a Multidimensional Rehabilitation Protocol for Postmenopausal Women- A Cross-sectional Study

**Poornima Maurya, Postgraduate Student, Department of Physiotherapy, Maharishi Markandeshwar Institute of Physiotherapy and Rehabilitation, Maharishi Markandeshwar (Deemed to be University), Mullana, Ambala, Haryana, India.**
**Akanksha Saxena, Assistant Professor, Department of Physiotherapy, Maharishi Markandeshwar Institute of Physiotherapy and Rehabilitation, Maharishi Markandeshwar (Deemed to be University), Mullana, Ambala, Haryana, India.**

**Introduction:** Menopause is a normal aging phenomenon in women. The overall prevalence of menopausal symptoms in all domains was reported as 87.7% which includes hot flushes, cognition, autonomic nervous disorders, sleep disturbances, mood changes, anxiety, etc. Therefore, it is necessary to manage these symptoms to improve the quality of life.

**Aim:** To develop and validate a multidimensional rehabilitation protocol for Postmenopausal women.

**Materials and Methods:** A cross-sectional study was conducted from December 2023 to February 2024 after thorough literature review, a 45-50 minute protocol was developed which included warm-up, resistance training, cognition training followed by a cool down session. After which a Delphi survey method was employed to evaluate the content validity of the formed protocol by a multidisciplinary expert panel on the basis of relevancy. Then I-CVI (Item-level Content Validity Index) and S-CVI (Scale- level Content Validity Index) of the developed protocol was calculated.

**Results:** The protocol has been validated by a group of multidisciplinary experts with an average experience of 9.5 years working in Department of Obstetrics and Gynaecology/Women's Health. A total of seven experts responded and evaluated each item of the protocol and suggested modifications. The I-CVI of each item was found to be between 0.86 and 1 whereas the S-CVI by average method was found to be 0.93 which was above the satisfactory level as suggested by Lynn i.e. above 0.83.

**Conclusion:** The above generated multidimensional rehabilitation protocol for Postmenopausal women is valid.

**Keywords:** Aging, Anxiety, Cognition, Menopause, Oestrogen, Quality of life, Sleep.

Abstract ID: PG-45

# Impact of Manual Therapy Techniques in Individuals with Text Neck Syndrome: A Narrative Review

**Shavez, Postgraduate Student, Department of Physiotherapy, Maharishi Markandeshwar Institute of Physiotherapy and Rehabilitation, Maharishi Markandeshwar (Deemed to be University), Mullana, Ambala, Haryana, India.**
**Sunita Sharma, Associate Professor, Department of Physiotherapy, Maharishi Markandeshwar Institute of Physiotherapy and Rehabilitation, Maharishi Markandeshwar (Deemed to be University), Mullana, Ambala, Haryana, India.**

**Introduction:** Manual therapy can help to improve pain, range of motion, strength, functional disability etc. Techniques like Elongation Longitudinaux Avec Decoaption Osteo-articulaire (ELDOA), Myofascial release, Muscle Energy Technique (MET), Neck Stabilisation exercises etc, targets specific areas affected by text neck syndrome and provide valuable management strategies.

**Aim:** To summarise all the available evidences on how manual therapy techniques can help individuals with Text neck syndrome.

**Materials and Methods:** A narrative review search was conducted using PubMed, Cochrane library, Physiotherapy Evidence Database (PEDro) and Cumulative Index to Nursing and Allied Health Literature (CINAHL) from year 2019 to January 2024. The search terms -" Text neck syndrome", "Manual therapy", "Physiotherapy" were used. The studies which included both males and females aged 18-35 years with text neck syndrome, full text Randomised Controlled Trials (RCTs) and Quasi-experimental studies were included.

**Results:** Total 1,464 articles were found on different databases. A total of nine articles which met the inclusion criteria were included in this narrative review, out of which seven were randomised trials and two were quasi-experimental studies. Most of the manual therapy techniques found to be significantly effective in reducing pain, functional disability, improving Range of Motion (ROM) and strength while the cervical stabilisation exercise with visual feedback was effective for the proprioception and the neck stabilisation and contrology training increased Craniovertebral Angle (CVA) in individuals with text neck syndrome.

**Conclusion:** The present review concluded that manual therapy techniques which authors reviewed were safe and effective in

reducing pain, functional disability, improving ROM and strength in individuals with text neck syndrome.

**Keywords:** Proprioception, Range of motion, Visual feedback.

Abstract ID: PG-46

# Impact of Body Composition on Dynamic Balance in School-going Children: A Comprehensive Literature Review

**Suraya Niyaz, Postgraduate Student, Department of Physiotherapy, Maharishi Markandeshwar Institute of Physiotherapy and Rehabilitation, Maharishi Markandeshwar (Deemed to be University), Mullana, Ambala, Haryana, India.**
**Kanu Goyal, Assistant Professor, Department of Physiotherapy, Maharishi Markandeshwar Institute of Physiotherapy and Rehabilitation, Maharishi Markandeshwar (Deemed to be University), Mullana, Ambala, Haryana, India.**

**Introduction:** The primary goal is to provide insights into the mechanisms underlying this relationship and to highlight the relevance of understanding body composition for balance-related interventions. Dynamic balance is crucial for daily activities, and understanding how body composition affects balance can inform strategies to improve balance control and reduce the risk of falls and injuries in children. The present review addresses the gap in knowledge regarding the specific impact of body composition on dynamic balance and its implications for school-going children.

**Aim:** To investigate the relationship between body composition and dynamic balance to elucidate how body composition influence balance performance in school-going children.

**Materials and Methods:** A comprehensive literature search included school-going children from the age 5 to 19 years and was conducted using PubMed, Cochrane, Scopus and Web of Science databases to identify relevant studies published up to the present date. Articles investigating the association between body composition and dynamic balance in school-going children were included.

**Results:** A total of 913 articles were retrieved for the present study. After removing duplicate articles only 9 articles were evaluated in this literature review. The aim was to explore the relationship between body composition and dynamic balance in school going children. All the 9 articles showed a relatively high proportion of children with overweight and obesity exhibit impairment of dynamic balance.

**Conclusion:** The present review concluded that Body Mass Index (BMI) affects dynamic balance in school-going children. These effects can increase risk of falls and injuries among children. Overall, further research is required to elucidate the precise mechanisms underlying how body composition affects dynamic balance and to develop targeted interventions for improving balance for school-going children. This review will increase awareness about the implication of different balance test among school-going students.

**Keywords:** Balance test, Body mass index, Mechanisms.

Abstract ID: PG-47

# Effect of Soft Tissue Mobilisation on Somatic Symptoms in Chronic Low Back Pain Patients: A Pilot Pretest Post-test Randomised Clinical Trial

**Sourabh Kumar, Postgraduate Student, Department of Physiotherapy, Maharishi Markandeshwar Institute of Physiotherapy and Rehabilitation, Maharishi Markandeshwar (Deemed to be University), Mullana, Ambala, Haryana, India.**
**Manu Goyal, Professor, Department of Physiotherapy, Maharishi Markandeshwar Institute of Physiotherapy and Rehabilitation, Maharishi Markandeshwar (Deemed to be University), Mullana, Ambala, Haryana, India.**

**Introduction:** Numerous studies suggest a significant correlation between Chronic Low Back Pain (CLBP) and somatic symptoms. These symptoms often stem from altered fascial biomechanics. Implementing Soft Tissue Mobilisation (STM) techniques aimed at restoring fascial biomechanics can markedly alleviate somatic symptoms associated with CLBP.

**Aim:** To assess the efficacy of STM in alleviating somatic symptoms in patients with Chronic Low Back Pain (CLBP).

**Materials and Methods:** A pilot pretest post-test randomised clinical trial was conducted in the Department of Physiotherapy, Maharishi Markandeshwar Institute of Physiotherapy and Rehabilitation, Maharishi Markandeshwar (Deemed to be University), Mullana, Ambala, Haryana, India, from July 2023 to December 2023, on participants diagnosed with Non Specific Chronic Low Back Pain (NSCLBP) accompanied by somatic symptoms. The experimental group (Group 1), n=6 (41.00±6.29 years), received myofascial unwinding and myofascial release. In contrast, the clinical group (Group 2), n=6 (43.83±11.20 years), received conventional physiotherapy care, including structured exercises and electrophysical modalities, over 4 weeks. Both groups underwent three sessions per week, amounting to 12 sessions in total. The evaluation of somatic symptoms was conducted using the Hamilton Depression Rating Scale (HDRS) at baseline and after the 4 weeks.

**Results:** The statistical analysis demonstrated significant within-group differences in HDRS (p-value=0.002) in Group 1, and no statistically significant difference in Group 2 (p-value=0.749). The between-group analysis demonstrated a statistically significant difference in HDRS (p=0.035) with a large effect size (d=1.4).

**Conclusion:** STM effectively improves somatic symptoms in NSCLBP patients. The beneficial effect of STM on somatic symptoms can be translated into clinical practice after strengthening results in the larger population.

**Keywords:** Medically unexplained symptoms, Myofascial release therapy, Physiotherapy care.

Abstract ID: PG-48

# Establishing the Normative Reference Values of Timed Up and Go Test among Normal Weight and Overweight School-age Children: A Study Protocol

**Sushma KC, Postgraduate Student, Department of Physiotherapy, Maharishi Markandeshwar Institute of Physiotherapy and Rehabilitation, Maharishi Markandeshwar (Deemed to be University), Mullana, Ambala, Haryana, India.**
**Kanu Goyal, Assistant Professor, Department of Physiotherapy, Maharishi Markandeshwar Institute of Physiotherapy and Rehabilitation, Maharishi Markandeshwar (Deemed to be University), Mullana, Ambala, Haryana, India.**
**Manu Goyal, Professor, Department of Physiotherapy, Maharishi Markandeshwar Institute of Physiotherapy and Rehabilitation, Maharishi Markandeshwar (Deemed to be University), Mullana, Ambala, Haryana, India.**

**Introduction:** The dynamics of body posture to avoid falling are generally referred to as balance. It has been shown that child developmental skills are influenced by their body compositions. When compared to their peers who are at a healthy weight, children who are overweight or obese frequently show poorer levels of motor proficiency including balance, mobility and related features.

**Need of the Study:** The protocol will determine the typical TUG test results in children relative to their body composition, enabling clinicians to effectively screen for balance deficits in children and will enable timely interventions to prevent falls, accidents, and sports injuries in children.

**Aim:** To find the reference values of Timed Up and Go (TUG) test in normal weight and overweight children and compare the values between them.

**Materials and Methods:** A study protocol on school-going children aged 5 to 15 years will be recruited using convenience sampling and divided into two groups based on their Body Mass Index (BMI): normal weight and overweight. The procedure for performing TUG test will be taught to the children, and the time taken for completion will be recorded using a stopwatch. To check the normality, Kolmogorov test will be applied as sample size estimated is above 50. Parametric or non parametric tests will be used for between group analyses.

**Keywords:** Body composition, Body mass index, Motor proficiency.

# Correlation Between Hamstrings-quadriceps Strength Ratio and Lumbar Flexibility of College-going Students: A Pilot Study

Abstract ID: PG-49

**Abhishek Kori, Postgraduate Student, Department of Physiotherapy, Maharishi Markandeshwar Institute of Physiotherapy and Rehabilitation, Maharishi Markandeshwar (Deemed to be University), Mullana, Ambala, Haryana, India.**
**Joydip Saha, Assistant Professor, Department of Physiotherapy, Maharishi Markandeshwar Institute of Physiotherapy and Rehabilitation, Maharishi Markandeshwar (Deemed to be University), Mullana, Ambala, Haryana, India.**

**Introduction:** The concept of myofascial chains or meridians emphasises the interconnectedness of the musculoskeletal system. There is a correlation between the counteracting forces applied by the knee and lower back regions. Fatigue in the quadriceps femoris muscle can lead to increased activation of the lumbar muscles. Accelerated exhaustion of the lumbar muscles during isometric trunk extension correlates with heightened suppression of the quadriceps muscles. The strength of the quadriceps muscles sets a limit on the ability to lift objects or sustain back injuries.

**Aim:** To establish relationship between hamstring-quadriceps strength ratio and lumbar flexibility among college going individuals.

**Materials and Methods:** A pilot study was conducted in the Department of Physiotherapy, Maharishi Markandeshwar Institute of Physiotherapy and Rehabilitation, Maharishi Markandeshwar (Deemed to be University), Mullana, Ambala, Haryana, India, from October 2023 to November 2023. The study comprised 15 volunteers, aged 18 to 25, who were regular college-going students with a normal Body Mass Index (BMI) and have no active cardiovascular or musculoskeletal conditions. An evaluation was made that included isokinetic dynamometer strength ratio (duration for strength ratio evaluation was 10 minutes for each subject) and Schober test (duration for flexibility evaluation was 5 minutes for each subject). Participants followed test thrice at the same time.

**Results:** Normality of data was determined by using Shapiro–Wilk test which showed not normal distribution. The peak hamstring-quadriceps ratio was generated from bilateral limb, which showed fair correlation to performance of composite score of Schober test in individuals going college regularly ($r=-0.594$; $p<0.05$).

**Conclusion:** Lumbar flexibility can be dependent on Hamstring and quadriceps strength ratio among healthy individuals. The clinical implication of the present study is improving strength ratio of Hamstring and quadriceps can be an effective measure to increase lumbar flexibility and reduce low back injuries.

**Keywords:** Fatigue, Meridians, Quadriceps muscle, Running back injuries, Walking.

# Effectiveness of Physiotherapy Intervention in the Symptomatic Management of Hirayama Disease: A Case Report

Abstract ID: PG-50

**Bhumika Kashyap, Postgraduate Student, Department of Physiotherapy, Maharishi Markandeshwar Institute of Physiotherapy and Rehabilitation, Maharishi Markandeshwar (Deemed to be University), Mullana, Ambala, Haryana, India.**
**Kanika, Assistant Professor, Department of Physiotherapy, Maharishi Markandeshwar Institute of Physiotherapy and Rehabilitation, Maharishi Markandeshwar (Deemed to be University), Mullana, Ambala, Haryana, India.**
**Subhasish Chatterjee, Associate Professor, Department of Physiotherapy, Maharishi Markandeshwar Institute of Physiotherapy and Rehabilitation, Maharishi Markandeshwar (Deemed to be University), Mullana, Ambala, Haryana, India.**

Hirayama Disease (HD) is an infrequent condition. Due to its rarity and misdiagnosed nature, epidemiological data is limited. Therefore, the present study aimed to find the effectiveness of physiotherapy intervention in the symptomatic management of HD. The results of the present study provided evidence for the development of standardised protocol for treatment to manage the symptoms of HD. Hereby. the authors present a case of a 20-year-old male, who presented with the chief complaint of weakness in bilateral hands

for the past 3 years. The patient was examined for upper limb motor functions using Nerve Conduction Velocity (NCV), Manual Muscle Testing (MMT), Patient-related Wrist Evaluation (PRWE) and Patient-related Hand Evaluation, Quality of Life (QoL) Scale, Handheld Dynamometer (HHD) and Pinchmeter. Pre and post-intervention analysis of outcome measures were used to show the differences in the improvement of the patient's symptoms. There was a clinical and symptomatic improvement in the scoring of PRWE from 29 to 6, NCV (30.17 m/s to 35.80 m/s on right side median nerve, 28.23 m/s to 32.06 m/s on right side ulnar nerve, 32.87 m/s to 37.23 m/s on left side median nerve, 32.13 m/s to 40.12 m/s on left ulnar nerve), MMT (from grade 2 or 3 to grade 3, 4 or 4+), QOL (72 to 99), HHD (0.3 lb to 0.5 lb of left side and 0.1 lb to 0.5 lb of right side) and Pinchmeter (0.5 lb to 3 lb of left and 0.2 lb to 1 lb of right side). The treatment given was effective in improving the patient's symptoms. The results can be used to conduct further studies to add evidence-based literature in physiotherapy practice.

**Keywords:** Manual muscle testing, Nerve conduction velocity, Rehabilitation.

Abstract ID: PG-51

# Experience of Physical Rehabilitation in Empowering Individuals Living with Parkinson's Disease: A Qualitative Study Protocol

**Simran Saini, Postgraduate, Department of Physiotherapy, Maharishi Markandeshwar Institute of Physiotherapy and Rehabilitation, Maharishi Markandeshwar (Deemed to be university), Mullana, Ambala, Haryana, India.**
**Akanksha Saxena, Assistant Professor, Department of Physiotherapy, Maharishi Markandeshwar Institute of Physiotherapy and Rehabilitation, Maharishi Markandeshwar (Deemed to be university), Mullana, Ambala, Haryana, India.**
**Mandeep Kumar Jangra, Assistant Professor, Department of Physiotherapy, Maharishi Markandeshwar Institute of Physiotherapy and Rehabilitation, Maharishi Markandeshwar (Deemed to be university), Mullana, Ambala, Haryana, India.**

**Introduction:** Life expectancy is good, patients live with certain problems (tremors, difficulty in activities of daily living, cognitive impairment, lack of balance etc). Although mainstay treatment requires pharmacological treatment and regular physiotherapy. So, the first-hand experience of physiotherapy matters in these individuals.

**Need of the Study:** The present protocol will explore the experience of individuals with Parkinson's Disease (PD). It will help in exploring the patients' physical and emotional experiences as they return to the community, their barriers, facilitators and also gaps they experience in their rehabilitation journey.

**Aim:** To explore the experience of physical rehabilitation in empowering individuals with Parkinson's Disease (PD).

**Materials and Methods:** An open-ended interview guide was formed and validated by multidisciplinary experts. Both male and female above the age of 40 years, undergoing rehabilitation for atleast 6 months and having mild and moderate PD (Hoehn and Yahr stage I-III). No depression and anxiety is assessed on Hospital Anxiety and Depression scale (HADS); HADS-depression score=9, HAD-anxiety=8 will be recruited. It will have 17 open ended questions regarding the experiences after Physical Rehabilitation, Cognitive impairment's, Activities of Daily Living (ADLs), Freezing, Balance, Facilitators, Barriers. Semi-structured interviews will be conducted and transcribed verbatim into English language, then entered into Qualitative Data Analysis (QDA) miner software for analysis. The interview guide is validated by the experts and obtained an Item-level Content Validity Index (I-CVI) of all items/questions of 0.84-1 while Scale-level Content Validity Index (S-CVI) by Average method and Universal agreement is 0.914 and 0.647, respectively. Results will be depicted in form of word clouds and code tree.

**Keywords:** Barriers, Hospital anxiety and depression scale, Physical rehabilitation.

# Transcranial Direct Current Stimulation as a Modulator of Autonomic Functions: A Narrative Review

Abstract ID: PG-52

**Muskaan Banyal, Postgraduate, Department of Physiotherapy, Maharishi Markandeshwar Institute of Physiotherapy and Rehabilitation, Maharishi Markandeshwar (Deemed to be University), Mullana, Ambala, Haryana, India.**
**Mandeep Kumar Jangra, Assistant Professor, Department of Physiotherapy, Maharishi Markandeshwar Institute of Physiotherapy and Rehabilitation Maharishi Markandeshwar (Deemed to be University), Mullana, Ambala, Haryana, India.**
**Akanksha Saxena, Assistant Professor, Department of Physiotherapy, Maharishi Markandeshwar Institute of Physiotherapy and Rehabilitation Maharishi Markandeshwar (Deemed to be University), Mullana, Ambala, Haryana, India.**

**Introduction:** The transcranial Direct Current Stimulation (tDCS) has been explored for its benefits in a variety of conditions, and has been reported to have significant impact on the autonomic functions such as heart rate, heart rate variability, sympathetic and parasympathetic outflow via the neural modulation.

**Aim:** To study the potential effects tDCS on the autonomic functions.

**Materials and Methods:** A narrative review was conducted on healthy young adults with age ranging from 18 to 35 years. For the studies to be segregated, a plethora of studies were looked up the databases PubMed, Google Scholar, Cochrane, Ovid and Physiotherapy Evidence Database (PEDro). As a result of search, 1007 studies were found out of which 22 experimental studies were found to justify the aim chosen for current study and hence were scrutinised for yielding the result.

**Results:** The scrutiny of the included literature resulted in yielding the nuances that stimulation by tDCS has improved the parameters determined by autonomic nervous system. A total of nine out of 22 studies talked about the cathode placed extra-cephalous, having no statistically appreciable results however, rest 13 studies had the anode and cathode both placed cephalic and had significant impact on heart rate variability, baro-reception and sympathetic and parasympathetic outflow. Though on comparison of the type of tDCS stimulation, stimulation via anode had much pronounced beneficial changes than cathode or sham stimulation.

**Conclusion:** The tDCS is a novel technique that impact-fully deals with impairment in autonomic functions incorporation with the conventional treatment techniques, tDCS can be adjunctively used to deal with autonomic impairments and help achieve better quality at life.

**Keywords:** Baro-reception, Heart rate variability, Sympathetic outflow.

# Exploring the Psychometric Properties of Upper Extremity Functional Scale: A Narrative Review

Abstract ID: PG-53

**Rubina Nazz, Postgraduate Student, Department of Physiotherapy, Maharishi Markandeshwar Institute of Physiotherapy and Rehabilitation, Maharishi Markandeshwar (Deemed to be University), Mullana, Ambala, Haryana, India.**
**Simranjeet Kaur, Assistant Professor, Department of Physiotherapy, Maharishi Markandeshwar Institute of Physiotherapy and Rehabilitation, Maharishi Markandeshwar (Deemed to be University), Mullana, Ambala, Haryana, India.**
**Nidhi Sharma, Professor, Department of Physiotherapy, Maharishi Markandeshwar Institute of Physiotherapy and Rehabilitation, Maharishi Markandeshwar (Deemed to be University), Mullana, Ambala, Haryana, India.**

**Introduction:** The Upper Extremity Functional Scale (UEFS) is a 20-item, region-specific, patient-reported outcome measure developed by Glenn Pransky and colleagues in 1997. The UEFS is used to measure upper extremity function in individuals with hand and upper extremity disorders. Patients rate their function on a 0 to 4 Likert scale, where 0 indicates extreme difficulty and 4 indicates no difficulty performing the task. This translates into a maximum possible score of 80, which indicates excellent function. The UEFS takes about 5 minutes to complete and is easy to administer and score with minimal training. The total score is computed by adding up individual item scores.

**Aim:** To examine the psychometric properties of the UEFS.

**Materials and Methods:** A narrative review was conducted from August 2023 to February 2024 and included searches in PubMed, Physiotherapy Evidence Database (PEDro), and Scopus (2015–2023) The search strategy included keywords such as "Upper

Extremity Functional Scale," "psychometric properties," "reliability" "validity," and "responsiveness." There were 10 articles investigating the psychometric properties of the UEFS in individuals with upper extremity musculoskeletal disorders were included.

**Results:** The summary of the psychometric evidence of the Upper Extremity Functional Index (UEFI) available version in terms of reliability, validity and responsiveness. The UEFI and UEFI-15 versions showed consistent test-retest reliability results {Intraclass Correlation Coefficient (ICC)=0.94}. Convergent validity for both the UEFI and UEFI-15 versions was supported by their strong correlation with the Upper Extremity Functional Scale (UEFS) ≥0.6.

**Conclusion:** The UEFS exhibits strong psychometric properties. It is widely used in clinical practice and research, with solid evidence supporting its usefulness in measuring upper extremity function in people with musculoskeletal diseases.

**Keywords:** Musculoskeletal diseases, Pain, Psychometric evidence.

Abstract ID: PG-54

# Impact of Stationary Cycling on Clinical Outcomes in Patients with Tibiofemoral Osteoarthrosis: A Pilot Study

**Akash Chatterjee, Postgraduate, Department of Physiotherapy, Maharishi Markandeshwar Institute of Physiotherapy and Rehabilitation, Maharishi Markandeshwar (Deemed to be University), Mullana, Ambala, Haryana, India.**
**Manu Goyal, PhD, Department of Physiotherapy, Maharishi Markandeshwar Institute of Physiotherapy and Rehabilitation, Maharishi Markandeshwar (Deemed to be University), Mullana, Ambala, Haryana, India.**

**Introduction:** Knee osteoarthrosis (tibiofemoral) is one of the most common forms of arthritis and a significant contributor to disability in the elderly. It has a notable impact on the muscle strength and lower limb biomechanics. The pain and stiffness associated with osteoarthrosis knee can significantly hinder daily activities and work potential in affected individuals. Aerobic exercises have demonstrated positive outcomes for these patients

**Aim:** To evaluate the effectiveness of forward and backward cycling with knee osteoarthrosis ranging from grade 1-3.

**Materials and Methods:** A prospective, randomised clinical trial and single-blind pilot study was conducted in the Department of Physiotherapy, Maharishi Markandeshwar Institute of Physiotherapy and Rehabilitation, Maharishi Markandeshwar (Deemed to be University), Mullana, Ambala, Haryana, India. The compared two groups: one adding static cycling to regular treatment, the other receiving only regular treatment. Both groups got treatment three times a week for four weeks. Quality of Life (QoL) and pain were assessed using the Comprehensive Knee Osteoarthritis Index (CKOAI) scale, while isokinetic strength was measured with an isokinetic dynamometer. Evaluation at both baseline and endpoint was conducted by the same assessor.

**Results:** Significant improvements were shown at the 4-week follow up for QOL, pain and isokinetic strength ($p<0.02$) with stationary cycling. The CKOAI, an indicator of pain intensity and QOL showed significant improvement ($p=0.02$).

**Conclusions:** The research affirms the findings from the earlier Randomised Controlled Trials (RCTs) and indicated that engaging in stationary cycling leads to significant enhancement in individuals with osteoarthrosis knee. Participants expressed their appreciation for the program and proved to be safe, effective and feasible in primary care.

**Keywords:** Biomechanical phenome, Exercise, Knee joint, Pain, Pain measurement, Quality of life.

Abstract ID: PG-55

# Effectiveness of Myofascial Release on Respiratory Muscle in COPD Patients: A Narrative Review

**Yuvraj Rana, Postgraduate Student, Department of Physiotherapy, Maharishi Markandeshwar Institute of Physiotherapy and Rehabilitation, Maharishi Markandeshwar (Deemed to be University), Mullana, Ambala, Haryana, India.**
**Manu Goyal, Professor, Department of Physiotherapy, Maharishi Markandeshwar Institute of Physiotherapy and Rehabilitation, Maharishi Markandeshwar (Deemed to be University), Mullana, Ambala, Haryana, India.**

**Introduction:** The Chronic Obstructive Pulmonary Disease (COPD) can stiffen the diaphragm, limiting its movement and compliance. Myofascial Release (MFR) techniques may help loosen restrictions in the fascia surrounding the diaphragm, allowing for better mobility and more efficient breathing. While some studies suggest benefits of MFR for COPD patients, the overall research base is limited.

**Aim:** To evaluate the current evidence on effectiveness of MFR techniques in improving respiratory muscle function in patients with COPD.

**Materials and Methods:** A narrative review was conducted from September 2023 to January 2024 and following searches were performed in PubMed, Physiotherapy Evidence Database (PEDro) and Cochrane using keywords like “manual diaphragm release”, “respiratory muscles”, “COPD” and “diaphragmatic myofascial release”. After probing the databases only four studies were found to be in line with the aim, where the participants were both male and female with COPD according to Global Initiative for Chronic Obstructive Lung Disease (GOLD) criteria.

**Results:** Findings of the Randomised Controlled Trials (RCTs) were included in the present review. The studies employed Myofascial release over Respiratory muscles which shows that MFR have beneficial effects on respiratory muscle functions in COPD patients, potentially improving breathing mechanics, muscle strength and exercise tolerance.

**Conclusion:** The review supports the potential effectiveness of myofascial release as a complementary therapy for improving respiratory muscle function in individuals with COPD. The MFR could be a valuable non invasive and drug-free technique to complement existing COPD management strategies like medication and pulmonary rehabilitation. It might offer additional benefits for symptom management and overall well-being.

**Keywords:** Chronic obstructive pulmonary disease, Diaphragm, Pulmonary rehabilitation.

# Role of Core Muscle Strengthening Exercises in Rehabilitation of Knee Osteoarthritis in Obese Patients: A Narrative Review

Abstract ID: PG-56

**Manalisa, Student (Orthopaedics), Department of Physiotherapy, Maharishi Markandeshwar Institute of Physiotherapy and Rehabilitation, Maharishi Markandeshwar (Deemed to be University), Mullana, Ambala, Haryana, India.**
**Sunita Sharma, Associate Professor, Department of Physiotherapy, Maharishi Markandeshwar Institute of Physiotherapy and Rehabilitation, Maharishi Markandeshwar (Deemed to be University), Mullana, Ambala, Haryana, India.**

**Introduction:** Knee Osteoarthritis (OA), is a common cause of disability. It normally affects women more often than men, and as people age, it becomes more prevalent. Obese individuals are more prone to develop knee OA. Regular exercise has been demonstrated to lessen knee OA discomfort. Exercises that strengthen the core muscles are very beneficial for people with osteoarthritis in the knee, particularly those who are obese.

**Aim:** To determine whether core muscle-strengthening exercises have been beneficial in the rehabilitation of knee osteoarthritis patients with obesity.

**Materials and Methods:** Electronic searches were conducted using PubMed, Scopus, and Google Scholar databases to get information that was relevant from years 2012-2024 with the keywords, “Knee Osteoarthritis”, “Obesity”, “Regular Exercise”, “Quality of Life”. An unbiased selection, evaluation, and extraction of data were carried out in the present review. Complete text papers, written in English, published within 2007 and 2023 and knee OA with core strengthening studies were included in the review.

**Results:** The present review included a total of five articles that emphasize the use of the photogrammetric method in the evaluation of forward head posture, particularly the craniovertebral angle. The angular and linear values are commonly utilised by using posture analysis software to evaluate changes in the frontal and sagittal planes of the spine. The photogrammetric method can be recommended as a reliable tool for evaluation of forward head posture.

**Conclusion:** Exercises that strengthen the core muscles are very beneficial for people with osteoarthritis in the knee. Strengthening the core muscles is a very effective physical treatment for knee osteoarthritis patients, as it dramatically improves their functional status, discomfort, range of motion and Quality of Life (QoL).

**Keywords:** Physical treatment, Quality of life, Regular exercise.

# Evaluation of Forward Head Posture using Photogrammetric Method: A Literature Review

Abstract ID: PG-57

**Anamika Kundu, Postgraduate Student, Department of Physiotherapy, Maharishi Markandeshwar Institute of Physiotherapy and Rehabilitation, Maharishi Markandeshwar (Deemed to be University), Mullana, Ambala, Haryana, India.**
**Simranjeet Kaur, Assistant Professor, Department of Physiotherapy, Maharishi Markandeshwar Institute of Physiotherapy and Rehabilitation, Maharishi Markandeshwar (Deemed to be University), Mullana, Ambala, Haryana, India.**
**Nidhi Sharma, Professor, Department of Physiotherapy, Maharishi Markandeshwar Institute of Physiotherapy and Rehabilitation, Maharishi Markandeshwar (Deemed to be University), Mullana, Ambala, Haryana, India.**

**Introduction:** Photogrammetry is a technological space, innovations in electronics and computer science had an enormous effect on it and continues to be greatly impacted by the expanding use of technology. This particular area is perpetually progressing and the transition from analog to statistical and digitised approaches emphasises this aspect well. The photogrammetric method is comprehensively being used in the healthcare system for the assessment of forward head postural evaluation.

**Aim:** To determine the efficacy of photogrammetry for the assessment of forward head posture in frontal and sagittal planes.

**Materials and Methods:** Electronic databases such as PubMed, Google Scholar, and Cochrane Library to acquire essential information on photogrammetric methods for evaluating forward head posture were used. Studies including evaluation of the forward head posture utilising the photogrammetric method as an outcome measure, full-text articles, written in English language, published between 2010 to 2023 were included. The review performed an objective process, evaluation, and selection of data extraction.

**Results:** This review included a total of five articles that emphasised the use of the photogrammetric method in the evaluation of forward head posture, particularly the craniovertebral angle.

**Conclusion:** The photogrammetric method has shown consistency for the evaluation of forward head posture, particularly the craniovertebral angle, and therefore is a cost-effective approach in the field of postural evaluation and it would be worth considering for evaluating forward head posture.

**Keywords:** Craniovertebral angle, Photogrammetry, Technology.

# Impact of Class IV LASER Therapy and Conventional Exercise on Young Adults with Cervicogenic Headache: A Randomised Clinical Trial Protocol

Abstract ID: PG-58

**Anjuman Sahani, Postgraduate Student, Department of Physiotherapy, Maharishi Markandeshwar Institute of Physiotherapy and Rehabilitation, Maharishi Markandeshwar (Deemed to be University), Mullana, Ambala, Haryana, India.**
**Sunita Sharma, Associate Professor, Department of Physiotherapy, Maharishi Markandeshwar Institute of Physiotherapy and Rehabilitation, Maharishi Markandeshwar (Deemed to be University), Mullana, Ambala, Haryana, India.**

**Introduction:** A Cervicogenic Headache (CGH) is characterised by unilateral neck pain that originates in the bony or soft tissues of the neck and refers to the head. Light Amplification by Stimulated Emission of Radiation (LASER) therapy is frequently employed in clinical settings to treat musculoskeletal diseases.

**Need for the study:** Authors anticipate cervicogenic headache (CGH) treatment with Class IV LASER therapy will lead to statistically significant reduction in both neck pain and headache compared to baseline measurement. Adverse events related to Class IV LASER on CGH is minimal. The anticipated result of the present protocol will provide valuable insight into the efficacy and safety of Class IV LASER in the management of headache and neck pain.

**Aim:** To determine the efficacy of Class IV LASER therapy in young adults with CGH.

**Materials and Methods:** A randomised clinical trial protocol will be conducted on a total of 44 patients having age range between 20-39 years with cervicogenic headache were recruited by convenience sampling method. Recruited individuals with cervicogenic headache will be randomly divided into two groups: Treatment Group A (Class IV LASER therapy with conventional exercises) and Treatment Group B (Conventional exercises). Treatment time for group A will

be calculated by dividing the total energy delivered by the average total output. Each patient received six sessions in total alternative days. Group B also received same session as group A. The visual analogue scale, neck disability index, algometer, and headache impact test are outcome measures that will be recorded as a baseline and of the two-week post-intervention period.

**Keywords:** Headache impact, Light amplification by stimulated emission of radiation, Musculoskeletal diseases, Neck pain.

# Effect of Soft Tissue Mobilisation in Patients with Oral Submucous Fibrosis: A Case Series

Abstract ID: PG-59

**Rohan Kumar Sahu, Postgraduate Student, Maharishi Markandeshwar Institute of Physiotherapy and Rehabilitation, Maharishi Markandeshwar (Deemed to be University), Mullana, Ambala, Haryana, India.**
**Manu Goyal, Professor, Maharishi Markandeshwar Institute of Physiotherapy and Rehabilitation, Maharishi Markandeshwar (Deemed to be University), Mullana, Ambala, Haryana, India.**

Oral Submucous Fibrosis (OSMF) is a chronic, premalignant disorder of oral cavity, marked by limited mouth opening (trismus) and burning sensation in the mouth. Purpose of the present case series was to evaluate the effect of Soft Tissue Mobilisation (STM) in patients with OSMF. Individuals with history of trismus with histopathological confirmation of OSMF who volunteered for the study. STM is a manual therapy technique and is widely used in soft tissue conditions. In this study STM was used to treat fibrous band which are present in the buccal mucosa of the OSMF patients. Mouth opening range was taken as an outcome measure, assessed using vernier caliper at the baseline and after six weeks from the baseline. Treatment duration was once in a week for 6 weeks. The patients showed significant increase in the mouth opening range (1.5±0.14 inches), at the end of 6 weeks. The present case series has delineated the promising contribution of STM in OSMF by improving mouth opening. The effect of STM has shown, this helps clinicians to incorporate STM as a part of their treatment plan in patients with OSMF.

**Keywords:** Mouth opening, Sensation, Trismus, Oral cavity.

# Visual Biofeedback Assisted Lower Limb Balance Training in Chronic Stroke: A Pilot Study

Abstract ID: PG-60

**Satemrenla Ao, Postgraduate Student, Amity Institute of Health Allied Sciences, Amity University, Noida, Uttar Pradesh, India.**
**Neha Gupta, Associate Professor, Amity University, Noida, Uttar Pradesh, India.**
**Ankur Mittal, Director Xcell Physiocare, Greater Kailash, New Delhi, India.**

**Introduction:** Stroke is one of the significant long-term impairments and it results in the inability to carry out many activities due to balance issues leading to increased risk of falls. A rehabilitation technique called Visual Biofeedback (VBF) may be applied to provide the patient with visual cues and are given more knowledge to modify their behaviour and achieve improved performance.

**Aim:** To investigate the effectiveness of lower limb balance training interventions using VBF (Togu Challenge Disc 2.0) in improving balance in hemiplegic patients following a stroke.

**Materials and Methods:** A pilot study was conducted in Xcell Physiocare, Greater Kailash 1, New Delhi, India for 3 weeks, from 27 February, 2024 to 14 March, 2024. In the present study, a total five chronic stroke patients were included and the selection criteria were as: able to tolerate standing, Berg Balance Scale (BBS) score >20 to <41, Brunnstrom score between stage I and IV. For the training, subjects were made to perform activities standing on a platform known as Togu challenge disc 2.0 where there were various levels and patient had to move their COG in the directions as displayed on the screen and recorded in a software named Body Teamwork. A total of nine sessions (30 min/day, 3 times per week for 3 weeks) were given. Pre- and post-intervention assessment was carried out using Berg Balance Scale and Lower Extremity Motor Coordination Test (LEMOCOT). Intervention effects were evaluated with the Wilcoxon's matched paired test.

**Results:** After training, the group showed significant improvement and increase in BBS median score from 34 (range=32-39) to 38 (35-42) ($p>0.05$) and LEMOCOT median score from 13 (range=11.33-14.63) to 16 (range=15-16.66) ($p>0.05$).

**Conclusion:** The VBF improved both the balance and coordination.

**Keywords:** Coordination, Hemiplegia, Togu challenge disc.

# Efficacy of Pilates Training on Balance in Spastic Cerebral Palsy Children: A Pilot Study

Abstract ID: PG-61

**Shyamoli Sharma, Postgraduate Student, Amity Institute of Health Allied Sciences, Amity University, Noida, Uttar Pradesh, India.**
**Neha Gupta, Associate Professor, Amity University, Noida, Uttar Pradesh, India.**
**Ankur Mittal, Director Xcell Physiocare, Greater Kailash, New Delhi, India.**

**Introduction:** Impaired postural and reactive balance control is a substantial challenge for children with Cerebral Palsy (CP). Evidence states that Pilates Training (PT) increases strength, endurance and flexibility of the trunk and abdominals, and demonstrates improvement in the deep core muscles which helps body's ability to relax and improve balance in Spastic Cerebral palsy (SCP) children.

**Aim:** To measure the efficacy of PT on improving balance in SCP children.

**Materials and Methods:** A quasi-experimental pilot study with convenient sampling was conducted for 2 weeks, from March 6, 2024 to March 21, 2024 in Xcell Physiocare, Greater Kailash -I, New Delhi, India among children aged between 5 to 9 years, who were able to understand Hindi and English, with spasticity ranging from 1 to 1+ (Modified Ashworth Scale), level 3 and 4 (Gross Motor Function Classification System) and normal flexibility of lower back muscle. They received 10 minutes of stretching, followed by 45 minutes of PT, 10 repetition each, 4 times a week for 2 weeks. The measurement was performed at baseline and post-treatment using Pediatric Balance Scale (PBS), modified Timed Up and Go (mTUG). Data was analysed using Wilcoxon's Signed-rank test.

**Results:** The measured variables before and after therapy showed a significant improvement ($p<0.05$) in both PBS and mTUG.

**Conclusion:** PT is an effective treatment program for improving balance in SCP children.

**Keywords:** Flexibility, Paediatric balance scale, Spasticity, Timed up and go.

# Balance Training for Improving Equilibrium in Patients with Chronic Ankle Instability: A Literature Review

Abstract ID: PG-62

**Deepshikha, Postgraduate Student, Department of Physiotherapy, Maharishi Markandeshwar Institute of Physiotherapy and Rehabilitation, Maharishi Markandeshwar (Deemed to be University), Mullana, Ambala, Haryana, India.**
**Simranjeet Kaur, Assistant Professor, Department of Physiotherapy, Maharishi Markandeshwar Institute of Physiotherapy and Rehabilitation, Maharishi Markandeshwar (Deemed to be University), Mullana, Ambala, Haryana, India.**
**Nidhi Sharma, Professor, Department of Physiotherapy, Maharishi Markandeshwar Institute of Physiotherapy and Rehabilitation, Maharishi Markandeshwar (Deemed to be University), Mullana, Ambala, Haryana, India.**

**Introduction:** Balance training refers to a type of exercise or physical activity that focuses on improving an individual's ability to maintain stability and equilibrium. For those with recurrent balance problems, balance training is a specific method to increase stability and decrease the chance of falls or injury.

**Aim:** To find out the effectiveness of balance training among individuals with chronic ankle instability.

**Materials and Methods:** A literature review with a total of nine randomised controlled trial and one cohort study were included which emphasised on balance training and addressed the treatment of chronic ankle instability. Electronic searches were performed through databases PubMed, Google scholar and Cochrane library were used to acquire the relevant studies from the last 10 years from 2014 to 2024. The keywords like "Balance training","Chronic ankle instability", 'Equilibrium' and 'Posture' were used. An impartial selection, evaluation and data extraction procedure were carried out by the reviewer.

**Results:** Balance training through physical therapy involved specific treatment plans which aimed at strengthening areas of weakness that led to balance and coordination issues and proven significant results for the management of the chronic ankle instability.

**Conclusion:** Balance training was better treatment for the improvement in the dynamic as well as static balance, gait patterns, functional improvement and postural control in the individuals having chronic ankle instability.

**Keywords:** Effectiveness, Gait patterns, Physical activity, Postural balance.

# Impact of Ladder Training on Lower Limb Power, Strength and Agility in Collegiate Badminton Players: A Pilot Study

Abstract ID: PG-63

**Baishali Singha, Postgraduate Student, Department of Physiotherapy, SGT University, Gurugram, Haryana, India.**
**Pooja Anand, Professor and Dean, Department of Physiotherapy, SGT University, Gurugram, Haryana, India.**
**Himanshu Rakheja, Assistant Professor, Department of Physiotherapy, SGT University, Gurugram, Haryana, India.**

**Introduction:** Badminton is a highly explosive, intermittent sport that requires quick anticipation and response to opponent movements. To execute advanced strokes and compete against stronger opponents, players must improve their basic physical parameters-strength, power and agility, otherwise due to physical demands on the lower limbs, leads to frequent injuries among players. Ladder training, type of strength and sports training, involves performing one or more exercises with an ascending and falling repetition pattern for building muscular endurance and conditioning, to assist players to increase their overall training volume.

**Aim:** To study the impact of ladder training on lower limb power, strength and agility in collegiate badminton players.

**Materials and Methods:** A pilot study was conducted in the Department of Physiotherapy, SGT University, Gurugram, Haryana, India, from December 2023 to January 2024. In the present study, 10 collegiate badminton players were selected according to the inclusion and exclusion criteria with informed consent signed. The players were further divided into two groups: experimental group (n=5) underwent ladder training for 3 days/week, 6 weeks. and control group (n=5) underwent conventional training for 3 days/week, 6 weeks.. The outcome measures for both groups were: Y-shaped agility test, standing broad jump test and Triple hop distance test, taken before and after training session.

**Results:** The data was statistically analysed by paired and unpaired t-test, the agility performance of Group A compared to Group B with p-value=0.001 was considered highly significant and the data between pre and post training the group A was highly significant (p=0.001) in strength, power and agility of the players.

**Keywords:** Athlete, Exercise, Sports, Training volume.

# Exploring the Viability of Neurobic Exercises as an Intervention for Cognitive Impairment: A Literature Review

Abstract ID: PG-64

**Pooja Purendra Chandrakar, Postgraduate Student, Department of Physiotherapy, School of Allied Health Sciences, MRIIRS, Faridabad, Haryana, India.**
**Sunita Kumari, Assistant Professor, Department of Physiotherapy, School of Allied Health Sciences, MRI-IRS, Faridabad, Haryana, India.**

**Aim:** To investigate the viability of implementing neurobic exercise interventions among adults diagnosed with Mild Cognitive Impairment (MCI).

**Materials and Methods:** A comprehensive search of electronic databases PubMed, Google Scholar, Medline, was done for relevant studies, including randomised controlled trials, observational studies. Inclusion criteria were both male and female with cognitive impairment, implementation of neurobic programme and their follow ups. A total of four articles were synthesised out of 12, for the review based on the inclusion criteria.

**Results:** All the four studies yielded positive results. Firstly, use of neurobic exercises exhibited a significant decrease in Informant Questionnaire on Cognitive Decline in the Elderly (IQCODE) relative change scores, indicating cognitive decline improvement, and significantly higher Catechol-O-methyltransferase (COMT) relative change scores, reflecting enhanced cognitive performance at 3$^{rd}$ and 6$^{th}$ weeks. Secondly, serum Brain-derived Neurotrophic Factor (BDNF) level in the neurobic group was slightly higher than pretest. There was change in Montreal Cognitive Assessment (MoCA) scale in post treatment experimental group as compared to conventional group. Participants expressed high satisfaction with the activities and perceived the intervention as helpful.

**Conclusion:** The implementation of neurobic exercise interventions proved to be both feasible and was well-received by people with cognitive impairment. It also proved to improve quality of life. Neurobic exercises suggest future research avenues demonstrating a forward looking approach to address existing research gaps.

**Keywords:** Montreal cognitive assessment, Neurobic programme, Quality of life.

# Exploring Non invasive Neuromodulation to Ameliorate Radiculopathic Pain- A Systematic Review of Randomised Controlled Trials

Abstract ID: PG-65

**Sidharth Bansal, Postgraduate Student, Maharishi Markandeshwar Institute of Physiotherapy and Rehabilitation, Maharishi Markandeshwar (Deemed to be University), Mullana, Ambala, Haryana, India.**
**Nidhi Sharma, Professor, Maharishi Markandeshwar Institute of Physiotherapy and Rehabilitation, Maharishi Markandeshwar (Deemed to be University), Mullana, Ambala, Haryana, India.**
**Simranjeet Kaur, Assistant Professor, Maharishi Markandeshwar Institute of Physiotherapy and Rehabilitation, Maharishi Markandeshwar (Deemed to be University), Mullana, Ambala, Haryana, India.**

**Introduction:** Despite numerous investigations has delved into Non invasive Neuromodulation (NINM) for alleviating neuropathic pain from various origins, its efficacy in addressing radiculopathic pain specifically remains inadequately explored.

**Aim:** To comprehensively synthesise existing literature on the use of NINM in managing radiculopathy-induced pain.

**Materials and Methods:** A thorough search of four databases—Scopus, PubMed, Physiotherapy Evidence Database (PEDro), and Cochrane Library was conducted following the Preferred Reporting Items for Systematic Review and Meta-Analysis (PRISMA) guidelines from October 2023 to January 2024. Included articles in the study must have patients with cervical or lumbar radiculopathy, aged over 18 years, and included atleast one non invasive neuromodulation intervention, with outcomes measuring pain. Case reports, reviews, and meta-analyses were reviewed for additional references. "Radiculopathy" and "Neuromodulation" were the primary keywords used to extract data and the studies' quality and findings were critically appraised using tools such as PEDro, Grading of Recommendations, Assessment, Development and Evaluations (GRADE), Level of Evidence, and Risk of Bias.

**Results:** Six out of 75,182 studies that were identified met the inclusion criteria and underwent thorough evaluation. The remaining 75,176 articles were excluded for reasons such as duplicates (32,156), patients not related to radiculopathy (15,637), lack of the desired intervention or outcome (27,094), and various other reasons (289). NINM methods showed a significant reduction in pain severity for radiculopathy patients, with no reported adverse effects.

**Conclusion:** In summary, integrating NINM approaches alongside conventional therapeutic strategies showed promising effects in enhancing the efficacy and sustainability of pain management for radiculopathy.

**Keywords:** Neuropathic pain, Radiculopathy, Therapeutic strategies.

Abstract ID: PG-66

# Effect of High-intensity LASER Therapy, Kinesio-taping and Plantar-fascia Stretching on Patients with Plantar Fasciitis: A Study Protocol

**Sarita Yadav, Postgraduate Student, Department of Physiotherapy, Maharishi Markandeshwar Institute of Physiotherapy and Rehabilitation, Maharishi Markandeshwar (Deemed to be University), Mullana, Ambala, Haryana, India.**
**Sunita Sharma, Associate Professor, Department of Physiotherapy, Maharishi Markandeshwar Institute of Physiotherapy and Rehabilitation, Maharishi Markandeshwar (Deemed to be University), Mullana, Ambala, Haryana, India.**
**Mandeep K Jangra, Assistant Professor, Department of Physiotherapy, Maharishi Markandeshwar Institute of Physiotherapy and Rehabilitation, Maharishi Markandeshwar (Deemed to be University), Mullana, Ambala, Haryana, India.**
**Sandeep Pattnaik, Assistant Professor, Department of Physiotherapy, Maharishi Markandeshwar Institute of Physiotherapy and Rehabilitation, Maharishi Markandeshwar (Deemed to be University), Mullana, Ambala, Haryana, India.**

**Introduction:** Plantar Fasciitis (PF) is the most frequent musculoskeletal condition that primarily affects the foot, causing tenderness and disturbed foot function.

**Need of the Study:** The planned clinical trial will proceed with the aim of ensuring that the intervention is accessible to the general public, irrespective of the outcomes. This study will help in exploring the effect of HILT, KT and plantar-fascia stretching and to add this method as adjunct to conventional physiotherapy approach in plantar fasciitis sufferers.

**Aim:** To evaluate the effect of combination of {High-Intensity Light Amplification by Stimulated Emission of Radiation (LASER) Therapy HILT)} with Kinesio-taping (KT), and plantar-fascia stretching in

improving pain pressure threshold and foot function in individuals suffering from PF.

**Materials and Methods:** A single-blinded randomised clinical trial design will be employed to enroll both male and female participants aged >18 years, with plantar heel pain lasting more than 4 weeks and will be randomly divided into two groups. The experimental group will receive HILT along with KT using the low-dye taping technique, while the comparator group will receive HILT along with plantar-fascia stretching. A power analysis will be conducted to determine the appropriate sample size based on the findings of a pilot study. Outcome measures will include pressure algometry to assess pressure pain threshold and the foot function index to evaluate disability. The study outcomes could either indicate a meaningful difference between the groups or not. This will confirm the practical relevance of the intervention for individuals suffering from plantar fasciitis.

**Keywords:** Foot function, Musculoskeletal condition, Pain.

# A Review on Optimising Limb Function with Inspiratory Muscle Training: Unlocking Potential with Enhanced Performance

Abstract ID: PG-67

**Deepa Sharma, Postgraduate Student, Department of Physiotherapy, Maharishi Markandeshwar Institute of Physiotherapy and Rehabilitation, Maharishi Markandeshwar (Deemed to be University), Mullana, Ambala, Haryana, India.**
**Mandeep K Jangra, Assistant Professor, Department of Physiotherapy, Maharishi Markandeshwar Institute of Physiotherapy and Rehabilitation, Maharishi Markandeshwar (Deemed to be University), Mullana, Ambala, Haryana, India.**

**Introduction:** The potential of Inspiratory Muscle Training (IMT) to enhance limb function holds broad significance across sports science, rehabilitation, and physical therapy. The present review elucidates the link between respiratory muscle function and limb performance, suggesting that integrating IMT into training protocols and rehabilitation programs, particularly in sports and preventive healthcare, could yield improved outcomes. Recognising the vital role of respiratory muscle function in overall performance may inspire innovative approaches to training and rehabilitation strategies.

**Aim:** To investigate the effect of inspiratory muscle training in optimising limb function and its impact on overall performance enhancement.

**Materials and Methods:** Full text published articles from year 2004 to 2024 from different databases like Google Scholar, PubMed, Physiotherapy Evidence Database (PEDro) and Cochrane library were included. The search items like “Inspiratory muscle training,” “Limb function”, “Respiratory muscle strength” using Boolean operators AND, OR were used. The study involving both male and female individuals were included.

**Results:** From a total of 345 studies, seven full text studies were relevant and meeting the inclusion criteria were selected. IMT was proven to improve limb function especially in athletes.

**Conclusion:** The findings are expected to provide valuable insights into the potential of IMT as a novel intervention for optimising limb function and enhancing overall performance. The conclusion drawn will contribute to the body of knowledge in sports science, rehabilitation and physical therapy, prepare the way for clinical applications.

**Keywords:** Physical therapy, Respiratory muscle strength, Sports science.

Abstract ID: PG-68

# Comprehensive Therapeutic Approach for Obstetric Brachial Plexus Injuries: A Scoping Review

**Payal Mehta, Postgraduate Student, Department of Physiotherapy, Maharishi Markandeshwar Institute of Physiotherapy and Rehabilitation, Maharishi Markandeshwar (Deemed to be University), Mullana, Ambala, Haryana, India.**
**Shweta Sharma, Assistant Professor, Department of Physiotherapy, Maharishi Markandeshwar Institute of Physiotherapy and Rehabilitation, Maharishi Markandeshwar (Deemed to be University), Mullana, Ambala, Haryana, India.**

**Introduction:** About 1.4 out of 1000 deliveries of live babies result in Obstetric Brachial Plexus Injury (OBPI), which is characterised by flaccid paralysis of the arm due to brachial plexus damage to the nerve following birth. Shoulder dystocia, maternal hyperglycemia, instrumental delivery, and breech delivery are the primary risk factors. Repercussions are seen in the form of muscle weakness, and activity limitations. Thus, early intervention is a necessity here.

**Aim:** To highlight all the therapeutic interventions that are exercised in children with brachial plexus injury.

**Materials and Methods:** To retrieve literature about obstetric brachial plexus injury, the Cochrane Library and PubMed databases were accessed for this scoping review. A total of 256 articles were determined to be pertinent to the investigation. In summary, 40 met the review's inclusion specifications, so they had been thoroughly reviewed.

**Results:** There is unanimous agreement that principles of Modified Constraint-induced Movement Therapy is the main treatment option for the rehabilitation of OBPI. The disparities have been identified and the need for further research has been highlighted.

**Conclusion:** The present study concludes that Modified constraint-induced Movement Therapy (mCIMT) has found to be effective for upper limb function and strength in cases of OBPI. However, efficacy of other techniques like Kinesio-taping and dynamic orthosis in combination with mCIMT needs more clarity, in terms of literatures and evidences. Also, emerging source of virtual rehabilitation in terms of Erb's Palsy requires justifications.

**Implication:** The present scoping review provides an insight of all the techniques which shall be administered while treating cases of OBPI in clinical practice.

**Keywords:** Erb's palsy, Modified constraint-induced movement therapy, Therapeutic interventions.

Abstract ID: PG-69

# Enhancing Sensory Disparities: A Case Report on Structured Exercise Protocol in Diabetic Peripheral Neuropathy Management

**Khushboo Kumari, Postgraduate, Department of Physiotherapy, Maharishi Markandeshwar Institute of Physiotherapy and Rehabilitation, Maharishi Markandeshwar (Deemed to be University), Mullana, Ambala, Haryana, India.**
**Subhasish Chatterjee, Associate Professor, Department of Physiotherapy, Maharishi Markandeshwar Institute of Physiotherapy and Rehabilitation, Maharishi Markandeshwar (Deemed to be University), Mullana, Ambala, Haryana, India.**
**Manu Goyal, Professor, Department of Physiotherapy, Maharishi Markandeshwar Institute of Physiotherapy and Rehabilitation, Maharishi Markandeshwar (Deemed to be University), Mullana, Ambala, Haryana, India.**

Diabetes encompasses a spectrum of metabolic disorders marked by elevated blood sugar levels due to issues with insulin secretion, its effectiveness, or both. Despite numerous investigations into managing symptoms of Diabetic Peripheral Neuropathy (DPN), a structured protocol has yet to be established. The present study aimed to shed light on the impact of a structured exercise protocol on symptom management and the enhancement of superficial and deep sensations. Specifically, the study explores the effectiveness of a Structured Exercise Program in addressing symptoms of DPN, with a focus on improving both superficial and deep sensations to enhance overall quality of life. The case report involved a participant diagnosed with DPN. Following a comprehensive clinical assessment and diagnostic tests, specific predetermined criteria were established to confirm the alleviation of symptoms. Physiotherapy interventions were employed to address various symptoms, with superficial and deep vibratory sensation serving as indicators of progress. Over the 30-day monitoring period, the patient showed improvements in light touch and pressure sensations during everyday activities. The

treatment strategies effectively addressed the specific challenges associated with enhancing the patient's quality of life and functional abilities. In conclusion, this case study highlights the complexities of managing DPN and the effectiveness of combining physiotherapy interventions. The enhancements in sensory functions and daily activities underscore the potential of exercise therapy in improving the quality of life for individuals with DPN.

**Keywords:** Diabetic neuropathies, Exercise therapy, Sensation.

Abstract ID: PG-70

# Evidence of Disability and Quality of Life-related Outcome Measures in Postpartum Women with Pelvic Girdle Pain: A Literature Review

**Devendra Kumar Dhruv, Postgraduate Student, Department of Physiotherapy, Maharishi Markandeshwar Institute of Physiotherapy and Rehabilitation, Maharishi Markandeshwar (Deemed to be University), Mullana, Ambala, Haryana, India.**
**Manu Goyal, Professor, Department of Physiotherapy, Maharishi Markandeshwar Institute of Physiotherapy and Rehabilitation, Maharishi Markandeshwar (Deemed to be University), Mullana, Ambala, Haryana, India.**

**Introduction:** Pelvic girdle pain is a common musculoskeletal complaint in pregnant or postpartum women. This pain is experienced between the posterior iliac crest and the gluteal fold. Various assessment tools are used for assessing Disability and Quality of life in postpartum women with pelvic girdle pain.

**Aim:** To provide suggestions based on evidence, for the assessment tools used in postpartum women with pelvic girdle pain.

**Materials and Methods:** In the present review, MEDLINE (via PubMed), Scopus, Google Scholar, Physiotherapy Evidence Database (PEDro) were searched using Boolean operators to identify existing relevant studies from September 2023 to February 2024. The studies that assessed the measurement properties of tools used to measure outcomes relevant to populations experiencing Pelvic Girdle Pain (PGP) and/or Lumbar Pelvic Pain (LPP) were included.

**Results:** The existing evidence suggested reliability of tools for Pelvic Girdle Questionnaire {Intraclass Correlation Coefficient (ICC)=0.98} Oswestry Disability Index (0.94); Roland Morris Disability Questionnaire (0.91); Disability Rating Index (ICC=0.90); Short Form-8 (ICC=0.85).

**Conclusion:** All the instruments showed excellent reliability and the Pelvic Girdle Questionnaire (PGQ) is the most assessed instrument in the literature. It is suggested that PGQ can be utilised to assess disability in postpartum women with pelvic girdle pain and is the only condition-specific tool for pelvic girdle pain. By employing these assessment instruments in clinical setting would assist in diagnosing and monitoring prognosis during subsequent evaluations.

**Keywords:** Lumbar pelvic pain, Pelvic girdle questionnaire, Pregnant.

Abstract ID: PG-71

# Normative Reference Value of Proprioception and Reaction Time among Females with PMS- A Cross-sectional Study

**Anshu Sharma, Postgraduate Student, Department of Physiotherapy, Maharishi Markandeshwar Institute of Physiotherapy and Rehabilitation, Maharishi Markandeshwar (Deemed to be University), Mullana, Ambala, Haryana, India.**
**Nidhi Sharma, Professor, Department of Physiotherapy, Maharishi Markandeshwar Institute of Physiotherapy and Rehabilitation, Maharishi Markandeshwar (Deemed to be University), Mullana, Ambala, Haryana, India.**
**Simranjeet Kaur, Assistant Professor, Department of Physiotherapy, Maharishi Markandeshwar Institute of Physiotherapy and Rehabilitation, Maharishi Markandeshwar (Deemed to be University), Mullana, Ambala, Haryana, India.**

**Introduction:** Premenstrual Syndrome (PMS) encompasses physical, emotional, and behavioral changes prior to menstruation. While hormonal fluctuations during PMS may affect neurological processes, direct links to alterations in proprioception and reaction time are not firmly established. Normative reference scores have not been established for proprioception and reaction time among females with premenstrual syndrome.

**Aim:** To determine the normative reference score of proprioception and reaction time among females with PMS using the Sensbalance MiniBoard.

**Materials and Methods:** A cross-sectional study was conducted at the Department of Physiotherapy, Maharishi Markandeshwar Institute of Physiotherapy and Rehabilitation, Maharishi Markandeshwar

(Deemed to be University), Mullana, Ambala, Haryana, India, recruited females aged 18 to 40 years, with regular menstrual cycle, and with Premenstrual Syndrome (PMS), diagnosed according to Premenstrual Dysphoric Disorder (PMDD) criteria (≥5 out of 11 symptoms). The study aimed to establish normative values for these measures in PMDD individuals.

**Results:** The normative data for proprioception in four directions i.e. front, back, left, and right were 19.47±18.26°, 7.59±3.66°, 11.94±12.93°, 10.99±8.02°. The normative data for the reaction time in front, back, left and right was obtained as 0.94±0.32 s, 0.79±0.16 s, 0.91±0.27 s and 0.93±0.50 s, respectively.

**Conclusion:** The results suggest the feasibility of conducting an extensive study with a larger sample size to facilitate the generalisation of data to a global population.

**Keywords:** Premenstrual syndrome, Reference norms, Sensbalance MiniBoard.

Abstract ID: PG-72

# Interpretation of Normative Score of Hamstring and Quadriceps Isokinetic Peak Torque among University Students: A Pilot Study

**Nandni Goel, Postgraduate Student, Department of Physiotherapy, Maharishi Markandeshwar Institute of Physiotherapy and Rehabilitation, Maharishi Markandeshwar (Deemed to be University), Mullana, Ambala, Haryana, India.**
**Sunanda Bhowmik, Assistant Professor, Maharishi Markandeshwar Institute of Physiotherapy and Rehabilitation, Maharishi Markandeshwar (Deemed to be University), Mullana, Ambala, Haryana, India.**

**Introduction:** Understanding normative scores can help in identifying individuals who may be at risk of injury due to muscle imbalances or weakness. By comparing an individual's scores to the normal, interventions can be implemented to address any deficits and reduce the risk of injuries, particularly in physically active populations like college students involved in sports or physical activities.

**Aim:** To evaluate the normative reference score of isokinetic peak torque of hamstring and quadriceps muscles among healthy college-going students from the age group 18-25 years.

**Materials and Methods:** This pilot study was conducted in the Department of Physiotherapy, Maharishi Markandeshwar Institute of Physiotherapy and Rehabilitation, Maharishi Markandeshwar (Deemed to be University), Mullana, Ambala, Haryana, India and enrolled 50 healthy college-going students. Permission was taken from participants in the Institutional Research Laboratory for data collection. Students aged 18 to 25 years were enlisted for the research. All participants were sensitised about the procedure before they participated in the study. The participants were provided consent form.

**Results:** The normative reference value of RHq_R was mean±SD 1.18±0.61, median (IQR) was 1.07(0.76, 1.43), skewness was 1.26, kurtosis was 1.37 and for the LHq_L mean±SD was 1.35± 0.71, median {Interquartile Range (IQL)} was 1.21(0.83, 1.80) and the skewness, kurtosis was 1.18 and 0.97, respectively.

**Conclusion:** The study found that college students had weak quadriceps and hamstring strength. It also revealed that these students had a bad Hamstring:Quadriceps strength (H:Q) ratio and were more likely to have hamstring injuries.

**Keywords:** Normative reference value, Physical activity, Therapist.

Abstract ID: PG-73

# Exploring New Trends in Physiotherapy for Optimising Recovery in Patients with Spinal Cord Injury: A Narrative Review

**Akanksha Nagar, Research Assistant, Guru Gobind Singh Medical College and Hospital, Faridkot, Punjab, India.**
**Jaspreet Singh Vij, Associate Professor, University College of Physiotherapy, Baba Farid University of Health Sciences, Faridkot, Punjab, India.**

**Introduction:** The present study provides up-to-date insights for healthcare professionals and aim for the improvement in patient outcomes and enhanced recovery. It also focuses on recent advancements in physiotherapy techniques tailored for spinal surgery recovery.

**Aim:** To explore emerging trends and innovative approaches in physiotherapy interventions for patients with Spinal Cord Injury (SCI).

**Materials and Methods:** Relevant literature published from January 2019 to March 2024 searched. MeSH terms and keywords were combined in a search strategy. The included studies comprised

of patients aged 19-44 years with spinal cord injury. Primary intervention were of new technologies in physiotherapy.

**Results:** A total of 573 studies were found through search and out of them 18 were selected. A total of seven studies were included.

**Conclusion:** The ultimate goal of these interventions is to achieve patient's societal reintegration and become independent in most of the activities according to the severity of their condition; therefore, improving and updating these strategies create opportunities for innovative research, as well as implementing rehabilitation strategies as a complement for non pharmacological strategies for the SCI patient.

**Keywords:** Balance, Rehabilitation, Spinal surgery.

Abstract ID: PG-74

# Effectiveness of Bobath-based Rehabilitation Program and Conventional Physiotherapy on Motor Function in Children with Hydrocephalus

**Tanpreet Kaur Bakshi, Postgraduate Student, University College of Physiotherapy, Baba Farid University of Health Sciences, Faridkot, Punjab, India.**
**Jaspreet Singh Vij, Associate Professor, Department of Physiotherapy, University College of Physiotherapy, Baba Farid University of Health Sciences, Faridkot, Punjab, India.**
**Ashish Chhabra, Associate Professor, Department of Paediatric Surgery, Guru Gobind Singh Medical College and Hospital, Faridkot, Punjab, India.**

**Introduction:** Hydrocephalus is the most common childhood brain disorder and among the most common entities addressed by neurosurgeons. Disabilities of hydrocephalus are dependent on the patient's age.

**Aim:** To determine the efficacy of bobath-based rehabilitation program and conventional physiotherapy in improving motor function in children with hydrocephalus and levels of anxiety of parents of children with hydrocephalus.

**Materials and Methods:** A study was conducted in the Department of Physiotherapy, University College of Physiotherapy, Baba Farid University of Health Sciences, Faridkot, Punjab, India, with a total of 20 subjects of hydrocephalus, aged 3 months to 8 years, both males and females, who were included as per the selection criteria, after their parents' written consent. These subjects were randomly divided into two groups, Group A (n=10) and Group B (n=10). All the subjects were assessed for motor function using Gross Motor Function Measure (GMFM-88 scoring). The anxiety level of parents was assessed using State-trait Anxiety Inventory (STAI). Group A was administered bobath-based rehabilitation program whereas Group B received conventional physiotherapy. In both the groups the specific interventions were given for a total of 8 weeks, with 1 session per week. Subjects were reassessed after completion of the interventions. Statistical analysis was done using paired t-test and unpaired t-test.

**Results:** The results showed statistically significant difference in the scores of GMFM, STAI-State (S) and STAI-Trait (T) in Group A (p-value=0.0030, 0.0001,0.0009) and Group B (p-value=0.0234, 0.0013,0.0005), respectively.

**Conclusion:** Thus, both bobath-based rehabilitation program and conventional physiotherapy are efficacious for enhancing motor function and in improving level of anxiety of parents of children with hydrocephalus.

**Keywords:** Anxiety level, Gross motor function measure, Quality of life.

Abstract ID: PG-75

# Virtual Reality's Influence on Eye Sightedness: A Review

**Jay Shankar Choudhary, Postgraduate Student, Department of Physiotherapy, Maharishi Markandeshwar Institute of Physiotherapy and Rehabilitation. Maharishi Markandeshwar (Deemed to be University), Mullana, Ambala, Haryana, India.**
**Nidhi Sharma, Professor, Department of Physiotherapy, Maharishi Markandeshwar Institute of Physiotherapy and Rehabilitation, Maharishi Markandeshwar (Deemed to be University), Mullana, Ambala, Haryana, India.**
**Simranjeet Kaur, Assistant Professor, Department of Physiotherapy, Maharishi Markandeshwar Institute of Physiotherapy and Rehabilitation, Maharishi Markandeshwar (Deemed to be University), Mullana, Ambala, Haryana, India.**

**Introduction:** Virtual Reality (VR) is an innovative tool for treating a range of childhood and adult illnesses, improving motor skills across ages. The use of VR therapies is expanding, particularly in serious VR games that may influence vision. VR's immersive

environments, tracked by headsets and sensors, raise concerns for eye health, affecting user experience and potentially creating visual challenges.

**Aim:** To provide perspectives on exploring the influence of virtual reality on the eye sightedness.

**Materials and Methods:** A search of literature was carried out on databases including PubMed, Cochrane, Physiotherapy Evidence Database (PEDro), Ovid-SP, and Google Scholar from their beginnings until February 2024. The search involved using terms such as "Virtual Reality," "Eye," "vision," "effects," and "physiotherapy," with the use of Boolean operators AND and OR. Out of 3549 articles found in different databases, only four met the criteria and were included in this review.

**Results:** The findings of the present review indicated that prolonged virtual reality use can strain the eyes, leading to discomfort, dryness, and visual fatigue. Over time, this strain may cause more significant issues such as the progression of myopia, digital eye strain, and potential long-term impacts on vision clarity and eye health.

**Conclusion:** Concerns about the impact of extended VR use on eyes are valid, with evidence suggesting it could lead to the development of heterophoria—a condition where eyes point in different directions at rest. This condition may result in long-term vision issues. However, enjoying the benefits of VR (such as education, therapy, and entertainment) while being mindful of eye health is still feasible.

**Keywords:** Eye, Impact, Vision issues.

Abstract ID: PG-76

# Efficacy of TheraTogs on Biomechanical Variables in Spastic Diplegic Cerebral Palsy Children- A Literature Review

**Payal Mehta, Postgraduate Student, Department of Physiotherapy, Maharishi Markandeshwar Institute of Physiotherapy and Rehabilitation, Maharishi Markandeshwar (Deemed to be University), Mullana, Ambala, Haryana, India.**
**Shweta Sharma, Assistant Professor, Department of Physiotherapy, Maharishi Markandeshwar Institute of Physiotherapy and Rehabilitation, Maharishi Markandeshwar (Deemed to be University), Mullana, Ambala, Haryana, India.**

**Introduction:** TheraTogs are specialised orthotic garments which is highly used for rehabilitation purpose for improving postural control, alignment and stability, especially in case of spastic diplegic cerebral palsy children. This poster highlights all the therapeutic benefits that has been thoroughly examined with the use of TheraTogs. Selected published literatures that has featured the efficacy of theratogs on various parameters in children with cerebral palsy are evaluated here.

**Aim:** To study the efficacy of TheraTogs on biochemical variables in spastic diplegic cerebral palsy children.

**Materials and Methods:** To access literature about TheraTogs, the Cochrane Library and PubMed databases were accessed for the present literature review from December, 2023 to February 2024. Twenty-five articles were determined to be pertinent to the investigation. In summary, 20 met the review's inclusion specifications, so they had been selected and thoroughly reviewed.

**Results:** When compared to the control group (the Conventional Physiotherapy), children in the experimental group (using TheraTogs) demonstrated statistically significant improvements in all primary and secondary measure scores after treatment ($p < 0.05$).

**Conclusion:** The present review concluded that TheraTogs orthotic undergarments have been found to be a potentially helpful tool for enhancing spinal geometry, improving gait and postural control in children with diplegic cerebral palsy. This literature review provides an insight of all the benefits which can be forecasted with the use of TheraTogs in clinical practice.

**Keywords:** Diplegia, Orthotic garments, Postural control.

Abstract ID: PG-77

# The Use of Robotic Devices in Knee Rehabilitation: A Literature Review

**Neha Upadhyay, Postgraduate Student, Department of Physiotherapy, School of Allied Health Sciences, Manav Rachna International Institute of Research and Studies (MRIIRS), Faridabad, Haryana, India.**
**Pooja Sharma, Associate Professor, Department of Physiotherapy, School of Allied Health Sciences, Manav Rachna International Institute of Research and Studies (MRIIRS), Faridabad, Haryana, India.**
**Palak Chaudhary, Postgraduate Student, Department of Physiotherapy, School of Allied Health Sciences, Manav Rachna International Institute of Research and Studies (MRIIRS), Faridabad, Haryana, India.**

**Introduction:** Total Knee Replacement (TKR) surgery rehabilitation presents significant challenges, necessitating effective interventions to restore function and mobility. Robotic devices have emerged as promising tools for enhancing knee rehabilitation outcomes. Robotic-Assisted Rehabilitation (RAR) systems offer unique capabilities that may address some of the challenges associated with traditional

methods, robotic devices can facilitate early mobilisation and functional training, potentially leading to faster recovery, improved joint function, and enhanced patient satisfaction.

**Aim:** To provide a comprehensive overview of the current state of research on the use of robotic devices in knee rehabilitation.

**Materials and Methods:** A thorough search of databases, including PubMed, Google Scholar, Science Direct, and Medical Literature Analysis and Retrieval System Online (MEDLINE) was conducted by Preferred Reporting Items for Systematic Reviews and Meta-analyses (PRISMA) guidelines using the terms" rehabilitation"," robot", and "total knee replacement". This approach yielded 37 articles of which six full-text available articles, from 2014 and 2024 were included in the present review. Studies were selected based on predefined inclusion criteria. Pertinent reference lists were examined.

**Results:** The review identified various types of robotic devices utilised in knee rehabilitation, including exoskeletons, robotic-assisted therapy systems, and rehabilitation platforms. Comparative effectiveness studies indicated potential benefits of robotic-assisted rehabilitation in improving range of motion, muscle strength, functional performance and patient satisfaction.

**Conclusion:** It can be concluded that RAR may be an effective treatment in TKR patients. Future research should focus on personalised rehabilitation protocols, longitudinal outcomes assessment and innovative technologies to optimise patient care and rehabilitation efficacy in knee injuries and surgeries.

**Keywords:** Bilateral, Robotic-assisted rehabilitation, Robotic therapy, Total knee replacement, Unilateral.

# Impact of Gamification on Undergraduate Physiotherapy and Occupational Therapy Pedagogy: A Comprehensive Review and Quality Analysis using MERSQI

Abstract ID: PG-78

**Rohi Kumar, Student, Department of Physiotherapy, School of Allied Health Sciences, Manav Rachna International Institute of Research and Studies (MRIIRS), Faridabad, Haryana, India.**
**Nitya Chophla, Student, School of Allied Health Sciences, Manav Rachna International Institute of Research and Studies (MRIIRS), Faridabad, Haryana, India.**

**Introduction:** In the realms of physiotherapy and occupational therapy pedagogy, a notable shift towards student-centered approaches has been witnessed, with gamification emerging as a pivotal tool for fostering teaching methodology and motivating learners. This study helped to explore innovative educational gamification methods and assessed the quality of the evidence which could help in incorporating this approach in undergraduate teaching.

**Aim:** To evaluate the impact of gamification on undergraduate pedagogy in physiotherapy and occupational therapy. Additionally, it aimed to analyse the quality of evidence of research using the Medical Education Research Study Quality Instrument (MERSQI) scale.

**Materials and Methods:** Employing a systematic approach, a thorough search was conducted across various electronic databases including Google Scholar, PubMed, Science Direct, etc. The search strategy used a combination of keywords like: "gamification", "physiotherapy", etc. Quality of evidence was assessed using the MERSQI scale. A total of 679 articles were screened, ultimately leading to the inclusion of 12 studies.

**Results:** The review included 12 Studies with 1348 Students of UG programs. Quality assessment, measured via the MERSQI scale, yielded scores ranging from 8 to 13.5 out of 18. Key gamification strategies such as Kahoot! and Escape Room puzzles were observed to significantly enhance active learning, bolster retention rates and foster critical problem-solving skills among students.

**Conclusion:** It was found that gamification had a positive impact on the motivation, learning outcomes, and professional development of students and holds immense potential for revolutionising pedagogical practices and fostering a dynamic and engaging learning environment.

**Keywords:** Education, Medical education research study quality instrument, Pedagogical practices.

# Effectualness of Dry Needling: A Review

Abstract ID: PG-79

**Tamanna Sharma, Postgraduate Student, Department of Physiotherapy, Chandigarh University, Chandigarh, Punjab, India.**
**Navjyot S Trivedi, Professor, Department of Physiotherapy, Chandigarh University, Chandigarh, Punjab, India.**

Trigger point Dry Needling (TDN) is a therapeutic intervention for Musculoskeletal (MSK) pain, encompassing various body areas. TDN, involving the insertion of fine needles into muscles, connective tissues, and myofascial trigger points, has gained popularity as a treatment for MSK pain. The review aimed to consolidate evidence from published Systematic Reviews (SRs) on the efficacy of TDN in managing myofascial pain syndrome across different MSK disorders. The review adhered to the Preferred Reporting Items for Systematic Reviews and Meta-analyses (PRISMA) 2020 statement, evaluating SRs of Randomised Controlled Trials (RCTs) published after 2000. The search strategy encompassed databases such as Web of Science, Excerpta Medica DataBASE (EMBASE) and Medical Literature Analysis and Retrieval System Online (MEDLINE), with keywords including "dry needling," "acupuncture," and "physical therapy." Nineteen SRs met the inclusion criteria, focusing on TDN efficacy across various body regions. TDN was found to be effective in reducing pain and tenderness in regions including the temporomandibular joint, cervical spine and shoulder, upper extremities, lumbar spine, and lower extremities. The review suggests that TDN may offer temporary relief for trigger point-related pain and tenderness, with outcomes comparable to or better than other interventions such as manual therapy, stretching, and pharmaceutical injections. However, the review acknowledges limitations in the available evidence, including variations in study protocols, methodologies, and outcome measures across publications. While TDN shows promise in reducing myofascial pain across different body regions, further high-quality research is needed to confirm its efficacy and inform clinical decision-making. The review emphasises the importance of standardised protocols and comprehensive outcome assessments in future research to better understand the potential benefits of TDN for MSK pain management.

**Keywords:** Fine needles, Musculoskeletal pain, Myofascial pain, Stretching, Trigger point.

# EMG Activity of Core and Global Muscles of Spine during Functional Exercises in Basketball Players with Chronic Ankle Instability: A Pilot Study

Abstract ID: PG-80

**Anuj Sehrawat, Postgraduate, Department of Physiotherapy, SGT University, Gurugram, Haryana, India.**
**Pooja Bhati, Assistant professor, Department of Physiotherapy, SGT University, Gurugram, Haryana, India.**
**Pooja Anand, Dean and Professor, Department of Physiotherapy, SGT University, Gurugram, Haryana, India.**

**Introduction:** Assessing the Electromyography (EMG) activity of core muscles during various exercises might be extremely important to understand the neuro-muscular strategies used by basketball athletes with Chronic Ankle Instability (CAI).

**Aim:** To compare the EMG activity of the core/global muscles during different functional exercises in basketball athletes with versus without CAI.

**Materials and Methods:** A pilot study was conducted in the Department of Physiotherapy, SGT University, Gurugram, Haryana, India. A total of eight basketball players subjects aged 18-30 years with (n=4) and without CAI (n=4) were recruited using convenience sampling. Players with atleast 2 years of competitive experience were enrolled. CAI was diagnosed if there was a history of atleast two ankle inversion injuries in the same ankle for the past 2 years, which had required a period of protected weight bearing or immobilisation or any complaint of giving way of the ankle during functional activities and score of less than 24 on the Cumberland ankle instability tool. Surface EMG was recorded for multifidus, rectus abdominis, transverse abdominis and erector spinae during six functional exercises (single leg squat, Y balance exercise, quadrant hop, toe touch down, box jump and medicine ball slams). 2X5X4 repeated measures Analysis of Variance (ANOVA) was employed to test the study hypothesis.

**Results:** A significant difference was found between the activation patterns of the core and global muscles in basketball players with CAI and without CAI.

**Conclusion:** It can be concluded that CAI alters the activation of core and global spinal muscles significantly. CAI is not restricted to distal joint but has an impact on proximal muscles as well. Neuromuscular training for the muscles, which alters motor control strategy because of CAI, could be taken into consideration when planning rehabilitation for CAI.

**Keywords:** Electromyographic activity, Muscle activation, Spinal muscles.

# Sleep Disturbance among Chronic Low Back Patients- A Short Survey

Abstract ID: PG-81

**Shivangi, Postgraduate Student, Department of Physiotherapy, Maharishi Markandeshwar Institute of Physiotherapy and Rehabilitation, Maharishi Markandeshwar (Deemed to be University), Mullana, Ambala, Haryana, India.**
**Manu Goyal, Professor, Department of Physiotherapy, Maharishi Markandeshwar Institute of Physiotherapy and Rehabilitation, Maharishi Markandeshwar (Deemed to be University), Mullana, Ambala, Haryana, India.**

**Introduction:** In the realm of modern health challenges, Chronic Low Back Pain (CLBP) and sleep disturbances is an issue of concern, casting a shadow over millions worldwide CLBP has a direct impact on the sleep disturbance leading to physical and mental disabilities. Physiotherapy is pivotal in management of Primary and secondary complications like sleep disturbances associated with CLBP.

**Aim:** To evaluate and analyse various domains of sleep hygiene among CLBP patients through Pittsburgh Sleep Quality Index (PSQI).

**Materials and Methods:** A survey using the gold standard method was conducted in the Department of Physiotherapy, Maharishi Markandeshwar Institute of Physiotherapy and Rehabilitation, Maharishi Markandeshwar (Deemed to be University), Mullana, Ambala, Haryana, India, among 8 patients with CLBP and the sleep was evaluated through PSQI which serves as a seven component subjective questionnaire that evaluated the state of sleep and interruptions during a one-month period.

**Results:** Data analysis showed that PSQI has significant improvements ($p<0.05$) after manual and conventional physiotherapy.

**Conclusion:** Physiotherapy plays a crucial role in management of chronic low back pain and secondary complications such as sleep disturbance associated with it. Using both manual and conventional physiotherapy techniques greatly improves the outcome of treating CLBP.

**Keywords:** Chronic, Low back pain, Physiotherapy, Sleep Hygiene, Treatment.

# Efficacy of Integrated Neuromuscular Inhibition Technique on Pain and Range of Motion in Patients with Upper Trapezius Triggers Point: A Literature Review

Abstract ID: PG-82

**Shivani Chauhan, Postgraduate Student, Department of Physiotherapy, Maharishi Markandeshwar Institute of Physiotherapy and Rehabilitation, Maharishi Markandeshwar (Deemed to be University), Mullana, Ambala, Haryana, India.**
**Simranjeet Kaur, Assistant Professor, Department of Physiotherapy, Maharishi Markandeshwar Institute of Physiotherapy and Rehabilitation, Maharishi Markandeshwar (Deemed to be University), Mullana, Ambala, Haryana, India.**
**Nidhi Sharma, Professor, Department of Physiotherapy, Maharishi Markandeshwar Institute of Physiotherapy and Rehabilitation, Maharishi Markandeshwar (Deemed to be University), Mullana, Ambala, Haryana, India.**

**Introduction:** Myofascial Pain Syndrome (MPS) is current musculoskeletal pain disorder that affects the majority of chronic pain population. Myofascial Trigger Points (MTrPs) are hyperexcitable spots in a tight band within the skeletal muscle, which ache upon shortening, elongating and manifest referred pain. Integrated Neuromuscular Inhibition Technique (INIT) is a single coordinated technique, which is used to decrease the pain intensity, increase the function and range of motion due to the increased blood supply by intermittent pressure, muscle relaxation by strain-counter strain and tone reduction by muscle energy technique. Thus, the review of literature was suggested to explore the efficacy of techniques like INIT on pain and range of motion parameters.

**Aim:** To evaluate the current literatures on the efficacy of INIT on pain and range of motion in patients with upper trapezius trigger point.

**Materials and Methods:** A literature review was conducted from December 2023 to February 2024, using PubMed, the Cochrane Library, and PEDro databases to identify studies on the Integrated Neuromuscular Inhibition Technique (INIT) in patients with upper trapezius trigger points. Seven articles meeting inclusion criteria were selected for detailed analysis to evaluate INIT's effects on pain and range of motion in this population.

**Results:** From the initial search of PubMed, the Cochrane Library, and PEDro databases, seven articles met inclusion criteria for analysis. Among these, four studies reported positive outcomes for

the Integrated Neuromuscular Inhibition Technique (INIT) in treating upper trapezius trigger points. INIT interventions consistently improved pain levels and range of motion, indicating its efficacy in managing myofascial pain syndromes in this muscle group.

**Conclusion:** An integrated strategy, INIT is proved to be effective in reducing pain and improving quality of life in patients with non specific neck pain, stiffness, and enhancing functionality.

**Keywords:** Myofascial pain syndrome, Trigger points, Upper fiber.

Abstract ID: PG-83

# Prevalence of Neck and Shoulder Pain among Teaching Professionals: A Cross-sectional Study

**Simran Kaur Mohi, Postgraduate Student, Department of Physiotherapy, Chitkara School of Health Sciences (CSHS), Chitkara University, Punjab, India.**
**Sahana, Assistant Professor, Department of Physiotherapy, Chitkara School of Health Sciences (CSHS), Chitkara University, Punjab, India.**
**Ravia, Assistant Professor, Department of Physiotherapy, Chitkara School of Health Sciences (CSHS), Chitkara University, Punjab, India.**
**Amandeep Singh, Professor and Principal, Department of Physiotherapy, Chitkara School of Health Sciences (CSHS), Chitkara University, Punjab, India.**

**Introduction:** Teachers are more susceptible to neck and shoulder pain due to their daily tasks and regular employment, making it the most prevalent occupational health issue contributing to morbidity and absence among teachers globally. Neck and/or shoulder pain in working population such as in teachers is increasing day by day. Incidence of shoulder pain is 73.4% and neck pain is 68.9%.

**Aim:** To find out the prevalence of neck and shoulder pain among the teaching professionals.

**Materials and Methods:** A cross-sectional study was conducted in the Department of Physiotherapy, CSHS, Chitkara University, Punjab, India. Atotal of 207 educators teaching in colleges and universities completed a questionnaire. Sampling method used was convenient sampling method. The data collection was done using a questionnaire which was circulated through Google form.

**Results:** Out of 207 subjects, 125 teaching professionals were found to have neck and shoulder pain. Among them, 57.1% females and 42.9% males of which, 48.3% reported neck pain, 21.3% radiating pain and 38.4% describe it as dull aching, whereas 39.6% reported shoulder pain. The screen usage per day: 79.7% reported >3 hours, 10.6% with 3 hours, 4.8% with 2 hours, and 4.8% with 0-1 hours.

**Conclusion:** The incidence of neck pain and shoulder pain was found to be quite high among teaching professionals. They need to be administered regular postural advices so as to maximise their outputs.

**Keywords:** Neck pain, Radiating pain, Postural advises.

Abstract ID: PG-84

# Effectiveness of Blood Flow Restriction Training on Functional Mobility and Strength in Neurological Disorders: A Review

**Sudhir Kumar, Student, Faculty of Physiotherapy, SGT University, Gurugram, Haryana, India.**
**Aarti Gupta, Assistant Professor, Faculty of Physiotherapy, SGT University, Gurugram, Haryana, India.**
**Saurabh, Associate Professor, Faculty of Physiotherapy, SGT University, Gurugram, Haryana, India.**

**Introduction:** Research indicates that Blood Flow Restriction (BFR) offers advantages for individuals in good health, older populations, and those experiencing musculoskeletal issues. A comprehensive analysis was carried out to explore the efficacy of BFR in improving functional mobility and strength among individuals with neurological disorders. In recent times, there has been a surge in interest towards BFR research, which entails the regulation of blood flow to the muscles during physical activity, partly for arterial circulation and fully for venous circulation, aiming to optimize training outcomes.

**Aim:** To ascertain how blood flow restriction training affects strength and functional mobility in neurological diseases.

**Materials and Methods:** A comprehensive analysis was conducted. PubMed, Web of Science (WOS), Physiotherapy Evidence Database (PEDro), Google Scholar, Cumulative Index of Nursing and Allied Literature Complete (CINAHL), the Cochrane Library, and Research Gate were the databases that were searched for literature between January 2003 and October 2023. The risk of bias in the research was assessed using the Cochrane Collaboration tool, and the

methodological quality of the studies was assessed using the PEDro scale. Total 278 articles were found through literature search, after filtration for all years through 2003 to 2023 yielded (278) articles and removing duplicates yielded 238 articles. Reports assessed for eligibility (N=15). A total of 10 articles were included based on the inclusion criteria.

**Results:** There were no unfavourable results from any of the trials that we reviewed. However, we found out significant improvement in increasing muscular strength and functional mobility among neurological patients. Due to the substantial diversity and small number of publications, the results should be interpreted with caution. Further clinical study ought to be conducted. These studies should improve the methodological quality as well as the consistency of the procedures used in larger samples.

**Conclusion:** Blood flow restriction therapy appears to be helpful in treating neurological problems without having negative side effects, according to the reviews in this study. Progress has been observed in walking endurance, strength, muscle thickness, gluteus density, and step length symmetry, and gait speed. There have also been improvements to the balance.

**Keywords:** Kaatsu training, Muscular strength, Occlusion training.

# Effectiveness of Mulligan Therapy in Patients with Cervicogenic Headache- A Systematic Review of Randomised Control Trials

Abstract ID: PG-85

**Shruti Tamhankar, Postgraduate Student, Department of Physiotherapy, Chandigarh University, Chandigarh, Punjab, India.**
**Vaneet Kumar, Assistant Professor, Chandigarh University, Chandigarh, Punjab, India.**

**Introduction:** Cervicogenic headache is a type of headache that presents as unilateral pain which starts in neck. It originates from C1-C2 zygapophyseal joints. Mulligan therapy is a technique that utilises pain-free low velocity joint mobilisations that includes active component.

**Aim:** To find out effectiveness of mulligan therapy in patients with cervicogenic headache.

**Materials and Methods:** A systematic review of articles searched from PubMed central, Google scholar, ResearchGate until 2023 were undertaken. Among 70 articles, only 10 articles which were according to inclusion and exclusion criteria, were reviewed. The article was reviewed based on Preferred Reporting Items for Systematic Reviews and Meta-analyses (PRISMA) and Physiotherapy Evidence Database (PEDro) guidelines. Patients with cervicogenic headache, studies reporting influence of mulligan therapy, study design including only randomised control trials were included.

**Conclusion:** Mulligan therapy specifically Natural Apophyseal Glides (NAGs) and Sustained Natural Apophyseal Glides (SNAGs) had an effect on decreasing pain intensity level, improving functional cervical range of motion in patients with cervicogenic headache.

**Keywords:** Joint mobilisation, Pain intensity, Range of motion.

# Physical Functional Limitations in Breast Cancer- A Case Series

Abstract ID: PhD-01

**Suman Mehra, PhD Scholar, Department of Physiotherapy, Amity Institute of Physiotherapy, Noida, Uttar Pradesh, India.**
**Pragya Kumar, Assistant Professor, Department of Physiotherapy, Amity institute of Physiotherapy, Noida, Uttar Pradesh, India.**
**Abhishek Soni, Associate Professor, Department of Radiation Oncology, Pt BD Sharma PGIMS, Rohtak, Haryana, India.**

Multidisciplinary approach, to Breast Cancer (BC) has significantly improved patient survival time, but the patients suffer from adverse effects of cancer and anti-cancer treatment affecting their functionality and overall quality of life. This case series aimed to identify limitations in physical functioning among patients with breast cancer. An interview guide was developed on the basis of literature definition of 'physical function', its determinants, International Classification of Functioning, Disability and Health criteria on functioning, and literature published on relevant factors in BC. Fifteen women diagnosed with BC, who were either undergoing active treatment or completed it, with age ranging between 26-75 years, were included. Semi-structured interviews were conducted using interview guide and responses were audio-recorded. The responses obtained were then coded and analysed using thematic

analysis. Out of total 15 participants, three were on ongoing active treatment and 12 had completed it (nine were within one year of completion of active treatment). Thematic analysis revealed that the subjects experienced impairments in upper quarter flexibility (n=7), upper limb functional strength (n=9), limitations in basic (n=5) and instrumental activities of daily living (n=12) and many had done changes in performing activities at home or workplace (n=12). Many women had pain (n=13) in neck or arm after sustained activity, swelling in arm, cording, fatigue, impairment of balance (n=6) and negative body image perception. Such limitations were more prevalent among old and frail. Limitations in physical functioning were found prevalent among participants in the present case series which points out the need for long term surveillance of women with breast cancer for physical functional limitations.

**Keywords:** Anti-cancer treatment, Physical function, Quality of life.

Abstract ID: PhD-02

# Physiotherapy Interventions for the Management of Treatment-related Complications in Breast Cancer: Systematic Literature Review

**Neelam Kumari, PhD scholar, Department of Physiotherapy, Lovely Professional University, Punjab, India.**
**Suresh Mani, Prof and Dy Dean, School of Allied Medical Sciences, Lovely Professional University, Punjab, India.**
**Kalaivani Chellappan, Senior Lecturer, UKM, Malaysia.**

**Introduction:** The prevalence of treatment-related complications remains high throughout the course of cancer treatment resulting a decline in quality of life. Physiotherapy can have a positive influence on various domains of Quality of Life (QoL), potentially alleviating the severity of perceived complications.

**Aim:** To evaluate the physiotherapy interventions used for managing treatment-related complications among breast cancer patients.

**Materials and Methods:** Databases including Medical Literature Analysis and Retrieval System Online (MEDLINE), Science Direct, Cochrane Library, and Scopus from year 2000 to 2022 was searched with Mesh terms for trials with breast cancer patients>18 years of age participating in physiotherapy program. The primary outcome measure of interest was a significant improvement in treatment-related complications from pre- to post intervention. Change in quality of life was evaluated as secondary outcome measure. Cochrane risk of bias tool was used to assess the risk of bias and quality of included studies.

**Results:** A total of 20 randomised controlled trials with 2019 patients incorporated various physiotherapy interventions to manage and alleviate treatment-related complications. For physical functioning (p=0.04) and the pain-sleep-fatigue cluster (p=0.006 to 0.044) different types of exercises were included. Complex Decongestive Therapy (CDT) combined with other electrotherapy modalities was embraced to manage lymphedema (p<0.05). For shoulder and arm dysfunction (p<0.05) passive stretching, mobilisation and strengthening exercises were incorporated. Furthermore, regular practice of exercise and physiotherapy exhibited positive impacts on overall health-related quality of life (p=0.0001 to 0.01) along with improvements in anxiety, depression, self-esteem and emotional function.

**Conclusion:** Physiotherapy interventions are exceedingly effective in managing and providing relief from breast cancer treatment-related complications. Consequently, the integration of physiotherapy into cancer treatment protocols has the potential to enhance the overall QoL of patients.

**Keywords:** Chemotherapy, Radiotherapy, Surgery.

Abstract ID: PhD-03

# Management of Pain and Inflammation in Knee Osteoarthritis using Class IV LASER- An Experimental Study

**Anupma, Department of Physiotherapy, Amity Institute of Health Allied Sciences, Amity University, Noida, Uttar Pradesh, India.**
**Jasobanta Sethi, Department of Physiotherapy, Amity Institute of Health Allied Sciences, Amity University, Noida, Uttar Pradesh, India.**
**Rajeev Aggrawal, Neurophysiotherapy Unit, Neurosciences Centre, All India Institute of Medical Sciences, New Delhi, India.**

**Introduction:** Knee osteoarthritis is a degenerative inflammatory disease affecting the entire joint and is characterised by progressive loss of cartilage and associated with pain. The tissue cells absorbs a certain wavelength of Light Amplification by Stimulated Emission of

Radiation (LASER) which triggers a number of chemical responses in the cells that promote healing and reduce inflammation.

**Aim:** To find the effect of Class IV LASER on pain and inflammation in knee osteoarthritis of older adults.

**Materials and Methods:** This study utilised an experimental controlled design with pre and post comparison. The study was conducted from March 2023 to January 2024 at Jindal Physio Care, New Delhi, India, with the sample size of 36 subjects (18 each group). Participants were recruited based upon a predefined selection criterion. After signing the informed consent, all the subjects were randomly distributed among two groups (Group A and Group B). Outcome variables were inflammatory biomarkers Interleukins 6 (IL 6), Interleukins 1β (IL 1β), C-Reactive Protein (CRP) and Numeric Pain Rating Scale (NPRS), which were assessed in the beginning and at the end of study period of 10 weeks. Group A was given Placebo LASER along with moist heat, exercises and knee brace while Group B was given Class IV high-intensity LASER along with moist heat, exercises and knee brace. Data were analysed using the Student's t-test and significance level was kept 95% ($p<0.05$).

**Results:** There was a significant decrease in NPRS score, IL 6, IL 1β and CRP levels in both the groups at the end of the study. A substantial reduction was found in group B compared to group A ($p<0.001$).

**Conclusion:** Class IV LASER treatment has been found satisfactory in alleviating pain and inflammation, which may be a promising treatment method for knee osteoarthritis.

**Keywords:** High-intensity, Inflammatory biomarkers, Knee brace, Light amplification by stimulated emission of radiation.

Abstract ID: PhD-04

# Effectiveness of Kabat Rehabilitation, Kinesio-taping Combined with Neuromuscular Facilitation Techniques in Management of Subacute Bell's Palsy: A Case Report

**Adarsh Sharma, Assistant Professor, Department of Physiotherapy, Amar Jyoti Institute of Physiotherapy, University of Delhi, Karkardooma, Delhi, India.**
**S Jeyanthi, Associate Professor, Department of Physiotherapy, Amar Jyoti Institute of Physiotherapy, University of Delhi, Karkardooma, Delhi, India.**

A comprehensive physiotherapy protocol for treating individuals with Bell's palsy including neuromuscular facilitation techniques is essential to enhance therapeutic effects and significant outcomes for individuals with subacute Bell's palsy. The purpose of the present case report was to explore the distinct effects of Kabat rehabilitation, Kinesio-taping, and neuromuscular facilitation techniques for treating Bell's palsy. It underscores the necessity for additional integrated research in this domain. Hereby, the authors present a case of a 34-year-old male suffering from Bell's palsy with a history of left ear pain and heaviness on the left side of the face for 1.5 months. The patient reported to Neurophysiotherapy Outpatient Department (OPD) and was recruited after thorough assessment and screening followed by informed consent and was given an intervention of 40 minutes per session, 5 times per week for 4 weeks. Baseline and post-assessments were done for facial functions with the House-Brackmann Facial Outcome Scale (HBFS) and Facial Disability Index (FDI). After 4 weeks of intervention, there were significant improvements between baseline and post-intervention scores on the HBFS and FDI. The result of the present report was to provide a more potentiate intervention to improve facial outcomes in individuals with Bell's Palsy. Emphasis should be placed on experimental studies with larger sample sizes to observe more significant results.

**Keywords:** Facial disability index, House-Brackmann facial outcome index, Physical therapy modalities.

Abstract ID: PhD-05

# Comparative Study of Blood Flow Restriction Therapy and Weight Training on the Knee Flexors Strength among Recreational Cricket Players- A Randomised Controlled Trial

**Radha Mittal, Undergraduate Student, Department of Physiotherapy, Galgotias University (GU), Greater Noida, Uttar Pradesh, India.**
**Nikki, Undergraduate Student, Department of Physiotherapy, Galgotias University (GU), Greater Noida, Uttar Pradesh, India.**
**Pragnya Jyoti Dash, Assistant Professor, Physiotherapy Department, SAHS, Galgotias University, Gautam Budh Nagar, Noida, Uttar Pradesh, India.**
**Tanya Gujral, PhD Scholar, School of Physiotherapy, Delhi Pharmaceutical Sciences and Research University, New Delhi, India.**
**Richa Hirendra Rai, Professor, School of Physiotherapy, Delhi Pharmaceutical Sciences and Research University, New Delhi, India.**

**Introduction:** Cricket was once regarded as a "moderate injury risk" sport, However, there has been a continual increase in injury rates in cricket, with Hamstring Strain Injuries (HSIs) being the most prominent. More recent research suggests that the injury rate in cricket is rising, with HSIs one of the most common and severe injuries.

**Aim:** To investigate the impact of Blood Flow Restriction Therapy (BFRT) and traditional resistance training on knee flexor strength and squat test among cricket players.

**Materials and Methods:** This was a single-blinded, randomised controlled trial on 39 cricket players conducted in the Department of Physiotherapy, Galgotias University (GU), Greater Noida, Uttar Pradesh, India. Subjects aged between 18-25 years were randomly divided in a 1:1 ratio. Group A underwent BFRT combined with low-resistance training, and Group B underwent traditional resistance training. A four-week intervention, comprising two sessions weekly was administered.

**Results:** For within-group comparisons, the paired t-test was used and for between-group comparisons, the independent t-test was used using Statistical Package for the Social Sciences (SPSS), version 25.0. Group A demonstrated a statistically significant increase in squat test scores from pre- to post-intervention compared to Group B after 4 weeks. No significant difference in muscle strength was observed among the two groups.

**Conclusion:** Combining BFRT with low-resistance training significantly enhances knee flexor endurance, as evidenced by superior performance in the squat test compared to traditional resistance training alone. These findings suggest the potential of BFRT as a valuable adjunct to rehabilitation and performance enhancement strategies for lower limb injuries in athletes.

**Keywords:** Hamstring, Occlusion training, Resistance exercises, Squat test.

Abstract ID: PhD-06

# Management of Pain and Improvement in Quality of Life in Lumbar Disc Herniation using Class IV LASER- A Placebo-controlled study

**Dinesh Kumar, PhD Scholar, Department of Physiotherapy, Amity Institute of Allied Health Sciences, Amity University, Noida, Uttar Pradesh, India.**
**Jasobanta Sethi, Director, Department of Physiotherapy, Amity Institute of Allied Health Sciences, Amity University, Noida, Uttar Pradesh, India.**
**Rajeev Agarwal, Incharge, Neurophysiotherapy Unit, Neurosciences center, All India Institute of Medical Sciences, New Delhi, India.**

**Introduction:** Intervertebral disc herniation is the most common cause of spine related disability in working-age individuals. Class IV high-intensity Light Amplification by Stimulated Emission of Radiation (LASER) therapy can help in reducing inflammation, pain

and improve function with increasing microcirculation, activating angiogenesis.

**Aim:** To find the effect of Class IV LASER on pain and Quality of Life (QoL) in patients with herniated lumbar disc.

**Materials and Methods:** This placebo-controlled pre- and post-comparison study conducted at Jindal Physio Care, New Delhi with the sample size of 34 subjects. Participants were recruited based upon a predefined selection criteria. After signing the informed consent, all the subjects were randomly distributed among two groups. Outcome variables were Numeric Pain Rating Scale (NPRS), and QOL 36-Item Short Form Survey Instrument (SF-36) questionnaire which were assessed in the beginning and at the end of study period of 10 weeks. Control group was given placebo LASER whereas the study group was treated with high-intensity LASER. Moist heat, core strengthening exercise and use of lumbar corset was advised for both the groups.

**Results:** There was a significant ($p<0.05$) decrease in NPRS and SF-36 score in both the groups at the end of the study. However, study group showed significant improvement compared to control group ($p<0.001$).

**Conclusion:** Class IV LASER treatment has been found more effective reducing pain and improving QoL. This can be a better choice of treatment in patients with lumbar disc herniation.

**Keywords:** Herniated lumbar disc, Light amplification by stimulated emission of radiation, Quality of life.

Abstract ID: PhD-07

# Understanding the Risk Factors for Cardiac Arrest in Young Adults: A Systematic Review

**Kalindi Dev, Assistant Professor, Department of Physiotherapy, Guru Jambheshwar University of Science and Technology, Hisar, Haryana, India.**

**Introduction:** Cardiac arrest, once largely associated with older individuals, is increasingly affecting young adults, necessitating a deeper understanding of its risk factors in this demographic.

**Aim:** To identify and analyse relevant literature to uncover the risk factors contributing to cardiac arrest among young adults.

**Materials and Methods:** A comprehensive search of databases using specific keywords related to cardiac arrest, risk factors, and young adults was conducted. Out of 573 studies initially identified, 245 duplicates were removed, and 328 were screened based on eligibility criteria. After further assessment, 123 records were rejected, leaving 205 full-text papers for review. Ultimately, eight studies were included in the qualitative analysis.

**Results:** The review highlighted modifiable lifestyle factors, cardiovascular conditions, genetic predisposition and environmental influences as significant contributors to cardiac arrest risk in young adults. Specifically, obesity, smoking, physical inactivity, and substance abuse emerged as prominent modifiable risk factors. Predisposing factors such as inherited cardiac conditions, structural heart abnormalities, and acquired cardiac disorders were also identified. Environmental factors, including air pollution and socioeconomic status, were found to play a role in shaping the risk profile of young adults.

**Conclusion:** The review concludes by emphasising the importance of addressing modifiable risk factors and promoting cardiovascular health awareness to mitigate the incidence of cardiac arrest in young adults. By addressing these factors, healthcare providers can work towards reducing the burden of cardiac arrest and improving outcomes in this vulnerable population. The present systematic review provides valuable insights into the risk factors contributing to cardiac arrest in young adults and lays a foundation for evidence-based preventive measures.

**Keywords:** Cardiovascular health, Preventive measures, Risk factors.

Abstract ID: PhD-08

# Effect of Isometric and Eccentric Exercises on Pain and Jump Performance in Indian Male Volleyball Players with Patellar Tendinopathy

**Monika, Research Scholar, Department of Physiotherapy, Guru Jambheshwar University of Science and Technology, Hisar, Haryana, India.**
**Kalindi Dev, Assistant Professor, Department of Physiotherapy, Guru Jambheshwar University of Science and Technology, Hisar, Haryana, India..**

**Aim:** To find out which exercise, isometric or eccentric is the best intervention to reduce the patellar tendon pain and maximise the jump performance.

**Materials and Methods:** The participants were screened and selected according to the inclusion and exclusion criteria. The demographic data, pain and Victorian Institute of Sport Assessment–

Patella (VISA-P) scale were measured pre-intervention and post-intervention. A total of 25 players of mean age 17.00±16.54 years, mean weight 67.76±60.84 kg and 89.63±17.67 cm mean height were taken through the single-blinded randomised sampling and were allocated into two groups Group A (n=12) of isometric exercise intervention and Group B (n=13) of Eccentric (EC) exercise intervention for 12 weeks.

**Results:** There was a statistically non significant difference seen for the demographic values between the groups (p>0.05) for all the variables. There was a statistically highly significant difference seen for the values between the groups (p<0.01) for post VISA-P with higher values in EC group. There was a statistically non significant difference seen for the values between the groups (p>0.05) for pre VISA-P.

**Conclusion:** In this trial, among volleyball players with chronic patellar tendinopathy, treatment with eccentric exercise is superior to isometric. Coaches, sport scientists and volleyball players may use the eccentric exercise as a training protocol to improve the game skills. This could aid coaches in planning and controlling training, making appropriate performance enhancement decisions, and avoiding hand injuries.

**Keywords:** Eccentric exercise, Isometric exercise, Victorian institute of sport assessment-patella scale.

Abstract ID: PhD-09

# Normative Reference Value of Hop Test and its Association with Body Mass Index in Football Players: A Cross-Sectional Study

**Nitesh Verma, Assistant Professor, Department of Physiotherapy, Maharishi Markandeshwar Medical College and Hospital, Solan, Himachal Pradesh, India.**
**Pooja Mehra, Assistant Professor, Department of Physiotherapy, Maharishi Markandeshwar Medical College and Hospital, Solan, Himachal Pradesh, India**
**Shweta, BPT Student, Department of Physiotherapy, Maharishi Markandeshwar Medical College and Hospital, Solan, Himachal Pradesh, India.**

**Introduction:** Football is a highly regarded and widely appreciated sport that is played throughout the globe. It is a quick game that involves continuous running and jumping activities as per game demands. Hop tests are functional test that can be used to assess power and strength of lower limbs and helps to decide fitness level of a player. In most studies this test is used after Anterior Cruciate Ligament (ACL) reconstruction for return to sport and comparison between dominant and non dominant leg.

**Aim:** To establish a normative value of hop test {Single Leg Hop Test (SLHT), Triple Leg Hop Test (TLHT) and 6-minute Timed Hop Test (6-mHT)} and its association with Body Mass Index (BMI).

**Materials and Methods:** A cross-sectional study was conducted from December 2023 to February 2024 in the Department of Physiotherapy, Maharishi Markandeshwar Medical College and Hospital, Solan, Himachal Pradesh, India, from December 2023 to February 2024. Convenience sampling was used to recruit 280 players, aged between 18-25 years. Inclusion criteria was 3 years of systematic football training with 3-4 training sessions weekly and 8 hour of football training per week. The SLHT, TLHT and 6-mHT were used to assess functional testing of players. Kolmogorov Smirnov test showed data was non normal, expressed in the form of Median {Interquartile Range (IQR)} and Median (Range). Pearson's Chi-square test was used to check association between BMI and hop test.

**Results:** Normative values were established for SLHT 150 (25), 153.64 (127-177); TLHT 448 (101.25), 446.88 (368-522); 6-mHT 2.45 (1.49), 2.84 (1.95-4.30). Phi-Cramer's test showed that SLHT and 6-mHT have a very weak association with BMI having p-value=0.047 and <0.001 respectively.

**Conclusion:** Normative values were established for hop test and it showed a very strong association between BMI and TLHT.

**Keywords:** Adolescent, Leg, Physical therapy modalities.

Abstract ID: PhD-10

# Identification of Barriers and Facilitators towards Diabetic Peripheral Neuropathy Patients' Experiences about Physiotherapy Intervention: A Step-wise Interview Guide Protocol

**Rittu Sharma, PhD Scholar, Department of Physiotherapy, Maharishi Markandeshwar Institute of Physiotherapy and Rehabilitation, Maharishi Markandeshwar (Deemed to be University), Mullana, Haryana, India.**
**Manu Goyal, Professor, Department of Physiotherapy, Maharishi Markandeshwar Institute of Physiotherapy and Rehabilitation,Maharishi Markandeshwar (Deemed to be University), Mullana, Haryana, India.**

**Introduction:** Diabetic Peripheral Neuropathy (DPN) is the most common complication of diabetes. Qualitative study includes patients experiences in detail which are not covered under quantitative study. This interview guide will collect broad information about the facilitators and barriers of DPN patients about the physiotherapy intervention which is helpful for decision makers to solve the challenges experienced by the patients.

**Need of the Study:** The present study is based on the experiences of DPN patients to identify their facilitators and barriers for physiotherapy intervention. It will provide broad information about the facilitators and barriers for physiotherapy intervention and will be helpful for decision makers and policy formulators to plan and implement evidence-based strategies to solve the challenges experienced by DPN patients.

**Aim:** To cater the experiences of the DPN patients to identify facilitators and barriers of the physiotherapy intervention through an interview guide to solve the treatment challenges experienced by them.

**Materials and Methods:** This phenomenological study will recruit 5-25 DPN participants (Acc. to Polkinghorne, 1989) till data saturation. An interview guide is prepared through the Delphi method. In depth face to face semi-structured interview will be conducted after the physiotherapy intervention of 4 times/week for 6 weeks. All the interviews will be video recorded and transcripts will be prepared in English. After that interview, transcripts will be analysed through thematic analysis by the Qualitative Data Analysis (QDA) Miner-lite software. QDA Miner-lite software will be used to describe the results i.e facilitators and barriers in the form of word-cloud, bar graph, pie-chart and code tree which will highlights the description of the patients' experiences about the physiotherapy intervention.

**Keywords:** Diabetes mellitus, Evidence-based strategies, Qualitative data analysis.

Abstract ID: PhD-11

# Predicting the Aerobic Capacity in Chronic Obstructive Pulmonary Disease Patients with Infection: A Study Protocol

**Prachi Rana, PhD Scholar, Department of Physiotherapy, Maharishi Markandeshwar Institute of Physiotherapy and Rehabilitation, Maharishi Markandeshwar (Deemed to be University), Mullana, Ambala, Haryana, India.**
**Subhasish Chatterjee, Associate Professor, Department of Physiotherapy, Maharishi Markandeshwar Institute of Physiotherapy and Rehabilitation, Maharishi Markandeshwar (Deemed to be University), Mullana, Ambala, Haryana, India.**
**Sameer Singhal, Professor, Department of Physiotherapy, Maharishi Markandeshwar Institute of Medical Sciences and Research, Maharishi Markandeshwar (Deemed to be University), Mullana, Ambala, Haryana, India.**

**Introduction:** Chronic Obstructive Pulmonary Disease (COPD), a prevalent respiratory condition, can be prevented and treated. Among various triggers, infections are a leading cause of COPD exacerbations. Assessing aerobic capacity is essential in COPD management, as it serves as a fundamental indicator of both quality of life and mortality. However, determining this target value necessitates the estimation of a gender-specific predictive aerobic capacity value for each individual.

**Need of the Study:** The newly developed gender-based reference equation for aerobic capacity may have the potential to accurately calculate predicted values that assess the individual patient and aerobic capacity.

**Aim:** To develop a gender-based prediction equation to assess aerobic capacity in COPD patients with infection.

**Materials and Methods:** A cross-sectional study will be conducted at a tertiary care super specialty hospital, analysing various parameters including anthropometric data and pulmonary function tests to identify factors related to aerobic capacity. The Forced Expiration Volume in 1 second/Forced Vital Capacity (FEV1/FVC) ratio will be documented

using the post-bronchodilator Pulmonary Function Test (PFT) report, while aerobic capacity will be evaluated through the Six-Minute Walk Test (6MWT). The sample size will be calculated with G*Power 3.1.9.7 software. Data will be analysed using IBM Statistical Package for the Social Sciences (SPSS) version 26.0. Demographics and outcomes will be checked for normality using the Shapiro–Wilk test. Depending on data type, Chi-square, Spearman's or Pearson's tests will be used to assess the correlations between FEV1/FVC and 6MWT. Multivariate linear regression with a step-wise approach will create a predictive equation for aerobic capacity. Subsequently, a standardised equation for aerobic capacity will be derived.

**Keywords:** Forced expiratory volume, Respiratory function tests, Six-minute walk test.

Abstract ID: PhD-12

# Identifying Clinical Determinants for Artificial Intelligence-based Diagnosis of Lumbar Prolapsed Intervertebral Disc: A Prospective Cross-sectional Study

**Sandeep Pattnaik, PhD Scholar, Department of Physiotherapy, Maharishi Markandeshwar Institute of Physiotherapy and Rehabilitation, Maharishi Markandeshwar (Deemed to be University), Mullana, Ambala, Haryana, India.**
**Manu Goyal, Professor, Department of Physiotherapy, Maharishi Markandeshwar Institute of Physiotherapy and Rehabilitation, Maharishi Markandeshwar (Deemed to be University), Mullana, Ambala, Haryana, India.**
**Rajneesh Kumar, Professor, Department of Computer Science and Engineering, Maharishi Markandeshwar (Deemed to be University), Mullana, Ambala, Haryana, India.**

**Introduction:** For the clinical diagnosis of lumbar Prolapsed Intervertebral Disc Disease (PIVD), an Artificial Intelligence (AI)-based diagnostic tool may prove to be a productive substitute for the widely accepted gold standard diagnostic technique of magnetic resonance imaging. Development of such an AI-based diagnostic tool requires a dataset framed around the clinical findings that are most accurate to diagnose lumbar PIVD.

**Aim:** To identify the important clinical determinants for the dataset to be used for the development of an AI-based lumbar PIVD diagnosis tool.

**Materials and Methods:** A two-phase prospective cross-sectional study was conducted in the Department of Physiotherapy, Maharishi Markandeshwar Institute of Physiotherapy and Rehabilitation, Maharishi Markandeshwar (Deemed to be University), Mullana, Ambala, Haryana, India, from July 2023 to December 2023. Phase 1 involved a thorough review of the literature to identify the most prevalent clinical determinants linked to the incidence of lumbar PIVD, and phase 2 involved an online expert opinion survey to get physiotherapist; opinions on the most suitable clinical determinants among these identified findings that lead to the diagnosis of the condition.

**Results:** A total of 67% of the experts identified age between 25 to 50 years, low back pain, and radiating pain as the most common clinical determinants. Other identified determinants included height, body mass index, prolonged sitting job and heavy lifting job.

**Conclusion:** The findings of the literature review and online expert opinion survey assisted in determining and identifying clinical characteristics that can be best used to create a dataset for the development of an AI-based diagnostic tool for lumbar PIVD.

**Keywords:** Expert testimony, Intervertebral disc disease, Low back pain.

Abstract ID: PhD-13

# Effect of Video-assissted Neurobics Training on Sustained Attention in Rural and Urban School Goers: A Pilot Feasibility Trial

**Sunanda Bhowmik, PhD Scholar, Maharishi Markandeshwar Institute of Physiotherapy and Rehabilitation, Maharishi Markandeshwar (Deemed to be University), Mullana, Ambala, Haryana, India.**
**Manu Goyal, Professor, Maharishi Markandeshwar Institute of Physiotherapy and Rehabilitation, Maharishi Markandeshwar (Deemed to be University), Mullana, Ambala, Haryana, India.**

**Introduction:** The primary cause of healthy children's decreased cognitive performance is lack of focused attention, as well as the lack of attention of parents and educators, The ability to pay attention is a critical skill for learning. Sustained attention allows students to

focus on a task for an extended period without getting distracted. There is a growing body of research on the benefits of neurobics, which are exercises designed to improve cognitive function. Some studies have shown that neurobics can improve attention, memory, and processing speed.

**Aim:** To determine the effect of video-assisted neurobics activities on children's attention.

**Materials and Methods:** A pilot feasibility trial was conducted in the Department of Physiotherapy, Maharishi Markandeshwar Institute of Physiotherapy and Rehabilitation, Maharishi Markandeshwar (Deemed to be University), Mullana, Ambala, Haryana, India, from September 2023 to January 2024 among school-going children. A total of 31 school goers were recruited for the study. Participants were screened according to selection criteria. After all the anthropometrics, baseline data were taken using Trial Making Test (TMT), seven interventions were than, given to the participants one after another for 3 session/week/4 week. Following this, the participants were then assessed using TMT.

**Results:** As the data doesn't follows a normal distribution, the Wilcoxon's ranked test was employed to analyse the differences between the pre and post-intervention periods. The results suggested that, for all age groups except 13 and 14 years, the median difference between the pre and post TMT data was significant ($p<0.05$) for all subdomains. Moreover, the gender-specific pre and post intervention data showed significant changes in all TMT subdomains ($p<0.05$).

**Conclusion:** Neurobics program may have a potential to maximise sustained attention among school goers.

**Keywords:** Children, Processing speed, Students.

Abstract ID: PhD-14

# Effect of Comprehensive Physiotherapy Protocol on Muscle Mass, Strength, Functional Ability and Quality of Life in Postmenopausal Women with Type-2 Diabetes Mellitus: A Study Protocol

**Sonali Guliya, PhD Scholar, Department of Physiotherapy, Maharishi Markandeshwar Institute of Physiotherapy and Rehabilitation, Maharishi Markandeshwar (Deemed to be University), Mullana, Ambala, Haryana, India.**
**Subhasish Chatterjee, Associate Professor, Department of Physiotherapy, Maharishi Markandeshwar Institute of Physiotherapy and Rehabilitation, Maharishi Markandeshwar (Deemed to be University), Mullana, Ambala, Haryana, India.**

**Introduction:** Postmenopausal women with Type-2 Diabetes Mellitus (T2DM) are at five-fold higher risk of muscle mass and strength loss compared to those without diabetes. This poses serious health concerns necessitating effective management.

**Need of the Study:** The present protocol may provide evidence of the efficacy of a comprehensive physiotherapy protocol on muscle mass, strength, functional ability and quality of life in postmenopausal women with T2DM and also integrate specialised physiotherapy programs into standard care.

**Aim:** To design and test a comprehensive physiotherapy protocol for muscle mass, strength, functional ability and quality of life in postmenopausal women with T2DM.

**Materials and Methods:** The study will be conducted in a tertiary care superspeciality hospital, and the procedure will be divided into two phases. Phase I includes formulation and validation of a comprehensive physiotherapy protocol. For validation, A panel of 10 experts in the relevant field will be formed. Phase II includes testing the effectiveness of protocol by performing Randomised Controlled Trial (RCT) on Postmenopausal women with T2DM. All participants will be assessed pre- and post-treatment with outcome measures such as musculoskeletal ultrasonography, isokinetic dynamometer, and Sarcopenia Quality of Life (SarQoL) questionnaire. The duration of the intervention would be three days a week for six weeks.

**Results:** Content validation will be determined according to the Content Validity Index (CVI) values. Data analysis will be done using the Wilcoxon's signed-rank test/paired t-test and Mann Whitney U-test/Independent t-test. The significance level will be set at p-value <0.05.

**Keywords:** Female, Postmenopause, Sarcopenia quality of life.

# Correlation Between Body Mass Index and Body Fat Percentage in Patients Suffering from Diabetes Mellitus with Normal Healthy People

Abstract ID: PhD-15

**Amita, Research Scholar, Department of Physiotherapy, Guru Jambheshwar University of Science and Technology, Hisar, Haryana, India.**
**Shabnam Joshi, Professor, Department of Physiotherapy, Guru Jambheshwar University of Science and Technology, Hisar, Haryana, India.**
**Deepika, Research Scholar, Department of Physiotherapy, Guru Jambheshwar University of Science and Technology, Hisar, Haryana, India.**

**Introduction:** Diabetes Mellitus (DM) is a metabolic disorder in which body is unable to produce or respond to the insulin and unable to maintain the proper blood sugar levels. Diabetes is the most common non communicable disease globally. It has been predicted by World Health Organisation (WHO) that, by 2030, DM will become one of the leading cause of death. Type 2 diabetes constitutes about 85% to 95% of all diabetes in developed countries.

**Aim:** To find the correlation between the Body Mass Index (BMI) and and Body Fat Percentage (BF%) of patients suffering from diabetes in comparison with normal healthy people.

**Materials and Methods:** A study was conducted in the Department of Physiotherapy, Guru Jambheshwar University of Science and Technology, Hisar, Haryana, India, on a total of 400 subjects were included divided in two groups out of which, Group A (Diabetes) and Group B (Normal). Only those patients were included who were diagnosed by physician. The demographic data was taken from every subject regarding the study. At last the height, weight and BF% were noted down.

**Results:** The obese individuals showed higher value of BMI and BF%, therefore, increase in BMI and BF% associated with higher risk of diabetes. The patients suffering from diabetes mellitus showed higher BMI and BF% as compared to the normal ones. The BF% is different for every individual due to variety in body weight and fat deposition. The body fat percentage depends upon various factors such as: Age, Weight, Height and Sex.

**Conclusion:** The current study showed that the BMI and BF% are strongly correlates with each other and showed positive relationship, respectively among patients having diabetes with normal healthy individuals.

**Keywords:** Body fat index, Body weight, Diabetic patients, Metabolic diseases.

# Additive Effect of Neuromuscular Taping to Conventional Physiotherapy on Sensorimotor Complications in Patients with Diabetic Peripheral Neuropathy

Abstract ID: PhD-16

**Kanika, PhD Scholar, Department of Physiotherapy, Maharishi Markandeshwar Institute of Physiotherapy and Rehabilitation, Maharishi Markandeshwar (Deemed to be University), Mullana, Ambala, Haryana, India.**
**Manu Goyal, Professor, Department of Physiotherapy, Maharishi Markandeshwar Institute of Physiotherapy and Rehabilitation, Maharishi Markandeshwar (Deemed to be University), Mullana, Ambala, Haryana, India.**

**Introduction:** Neuromuscular Taping (NMT) is the application of elastic adhesive tape to the skin without any tension over the target area. NMT has demonstrated the ability to induce a dilation effect on underlying body tissues, leading to pain relief, improved lymphatic flow, and increased vascularity. The outcomes of the present study will provide evidence regarding the effectiveness of NMT in alleviating sensorimotor symptoms associated with Diabetic Peripheral Neuropathy (DPN).

**Aim:** To assess the effectiveness of NMT in addition to conventional treatment among patients with DPN.

**Materials and Methods:** This pilot feasibility trial was conducted in the Department of Physiotherapy, Maharishi Markandeshwar Institute of Physiotherapy and Rehabilitation, Maharishi Markandeshwar (Deemed to be University), Mullana, Ambala, Haryana, India, from January 2023 to January 2024. A total of 12 participants were recruited and were divided into two groups: Experimental Group

(EG) (n=6) and Control Group (CG) (n=6). An 8-weeks physiotherapy intervention was given. EG group received NMT on bilateral tibialis anterior, tibialis posterior, peroneus longus muscles and transverse arch of foot and Transcutaneous Electrical Nerve Stimulation (TENS) on the course of bilateral tibial and peroneal nerves. CG received sham taping and TENS as EG group. Patients were assessed for pre and post intervention using the outcomes; Leeds Assessment of Neuropathic Signs and Symptoms (LANSS) and Nerve Conduction Velocity (NCV) of tibial, peroneal and sural nerves.

**Results:** There was significant improvement in the LAANS scores; p=0.03 and NCV tibial right; p=0.01, NCV tibial left; p=0.01, NCV peroneal right; p=0.04 and NCV peroneal left; p=0.03, NCV sural right; p= 0.03 and NCV sural left; p= 0.01 at p>0.05.

**Conclusion:** The present study suggested that NMT in conjunction with conventional treatment can be an effective approach for managing sensorimotor symptoms of DPN.

**Keywords:** Nerve conduction velocity, Neuropathic pain, Vascularity.

Abstract ID: PhD-17

# Efficacy of Scapular Stabilisation Exercise Program in Patients with Subacromial Impingement Syndrome: A Systematic Review

**Deepika, Research Scholar, Department of Physiotherapy, Guru Jambheshwar University of Science and Technology, Hisar, Haryana, India.**
**Shabnam Joshi, Professor, Department of Physiotherapy, Guru Jambheshwar University of Science and Technology, Hisar, Haryana, India.**
**Amita, Research Scholar, Department of Physiotherapy, Guru Jambheshwar University of Science and Technology, Hisar, Haryana, India.**

**Introduction:** Subacromial Impingement Syndrome (SIS) is compression and mechanical abrasion of the rotator cuff structures as they pass beneath the coracoacromial arch during elevation of the arm.

**Aim:** To study the efficacy of scapular stabilisation exercise program in patients with subacromial impingement syndrome.

**Materials and Methods:** The electronic databases such as PubMed and Cochrane Library, Physiotherapy Evidence Database (PEDro) and additional articles were searched according to Patient/Population, Intervention, Comparison and Outcomes (PICO) strategies and references of the relevant articles from 2011 till date. The appropriate keywords were used relevant to the condition and outcome measures. Fourteen Randomised Controlled Trial (RCTs) were selected based on the inclusion and exclusion criteria in which scapular stabilisation exercises alone or with conventional treatment were used for management of subacromial impingement syndrome.

**Results:** According to PEDro soring, one study was of excellent quality, 10 of good quality and three were fair in quality. The sample size in these studies ranged from 7 to 120 participants from different countries. Following this, full-text screening of 942 articles was performed, out of which 13 were finally included. Finally, 14 articles consisting of 630 participants who had subacromial impingement syndrome were selected for analysis.

**Conclusion:** Scapular oriented exercise is effective in reducing pain and disability for patients with shoulder impingement syndrome.

**Keywords:** Scapular exercises, Scapular rehabilitation, Shoulder impingement.

# Effectiveness of Isometric Neck Exercises versus Dynamic Neck Exercises in Chronic Neck Pain among University Students- A Randomised Controlled Trial

Abstract ID: PhD-18

**Chanchal, Research Scholar, Department of Physiotherapy,Guru Jambheshwar University of Science and Technology, Hisar, Haryana, India.**
**Sujata Sharma, Assistant Professor, Department of physiotherapy, Guru Jambheshwar University of Science and Technology, Hisar, Haryana, India.**
**Shabnam Joshi, Associate Professor, Department of physiotherapy, Guru Jambheshwar University of Science and Technology, Hisar, Haryana, India.**

**Introduction:** Neck pain can be characterised as "the tenderness in any space joined to nuchal line from the upper and lower edge". It is becoming a very common health problem throughout the world and affects almost two-thirds of the general population.

**Aim:** To find out the effectiveness of isometric neck exercises and dynamic neck exercises in management of chronic neck pain among university students.

**Materials and Methods:** This was a randomised controlled trial conducted in the Department of Physiotherapy, Guru Jambheshwar University of Science and Technology, Hisar, Haryana, India and a total of 60 subjects were included in the study. The outcome measures were pain, disability, depression and anxiety. The students had non specific neck pain for more than 3 months with the age above 18- 40 years and both males and females were included. Participants were randomly assigned to two groups (Group A and Group B). Isometric neck exercises were given to the patients in group A and dynamic neck exercises to the group B. Outcomes were assessed at baseline and at the end of the intervention program (post-intervention).

**Results:** There was a statistically significant difference ($p<0.01$) found between the Group A and Group B. Group A (19.8±8.22) showed greater effect than Group B (13.7±5.96). There was a significant reduction in the anxiety and depression after performing the dynamic and isometric neck exercises.

**Conclusion:** The present study concluded that isometric and dynamic neck exercises both are effective in management of chronic neck pain but dynamic neck exercises are more effective than isometric and can be used for the management of chronic neck pain and reduction of anxiety and depression among university students.

**Keywords:** Depression, Disability, Pain in neck, Tenderness.

# Physical Fitness Evaluation among Young Adults: A Literature Review

Abstract ID: PhD-19

**Joydip Saha, PhD Scholar, Department of Physiotherapy, Maharishi Markandeshwar Institute of Physiotherapy and Rehabilitation, Maharishi Markandeshwar (Deemed to be University), Mullana, Ambala, Haryana, India.**
**Manu Goyal, Professor, PhD, Department of Physiotherapy, Maharishi Markandeshwar Institute of Physiotherapy and Rehabilitation, Maharishi Markandeshwar (Deemed to be University), Mullana, Ambala, Haryana, India.**

**Introduction:** Everyone engages in physical activity to stay healthy, however, the amount is primarily a matter of personal preference and can differ significantly across individuals as well as throughout a person lifespan. Fitness is a collection of two traits, general health attributes and specialised sport-based skill attributes where fitness measurement should involve all the attributes.

**Aim:** To provide an insight into a comprehensive overview of physical fitness evaluation among healthy adults.

**Materials and Methods:** A literature search was performed to identify English-language peer -reviewed articles on healthy adults using the PubMed, Ovid Medical Literature Analysis and Retrieval System Online (MEDLINE) and Scopus databases from 2014- 2024. With Boolean operators AND and OR, the search terms utilised were "Physical Fitness test battery", "Fitness evaluation", "Physical Fitness" and "Healthy adults".

**Results:** After retrieving 122 articles from various databases, only eight of them met the inclusion criteria and were part of the current review. According to these investigations, several fitness test batteries had been developed involving questionnaires and On-Field assessments. The most widely utilised options are modifiable activity questionnaires, health fitness measurement scale, vitality test battery, senior test battery {Intraclass Correlation Coefficient (ICC) from 0.93 to 0.98} and Preschoolers Fitness (PREFIT) (ICC from 0.73 to 0.99).

**Conclusion:** The study concluded that, although there are several fitness test batteries present to assess physical fitness in healthy novices, the PREFIT and Senior test batteries are the most helpful since they cover most fitness components they are found to be

reliable to assess physical fitness. The information might assist health educators or physiotherapists in selecting the most efficient fitness assessment tool.

**Keywords:** Health measurement, Performance test, Physical activity.

Abstract ID: PhD-20

# Tele-rehabilitation in Physiotherapy for Low Back Pain: A Scoping Review of Patient Satisfaction

**Nishchint Banga, Assistant Professor, Department of Physiotherapy, School of Allied Health Sciences, Noida International University, Noida, Uttar Pradesh, India.**
**Pallavi Prakash, Assistant Professor and Head, Department of Physiotherapy, School of Allied Health Sciences, Noida International University, Noida, Uttar Pradesh, India.**
**Supriya Awasthi, Dean of School of Allied Health Sciences, Noida International University, Noida, Uttar Pradesh, India.**

**Introduction:** Tele-rehabilitation has been shown to be highly relevant in the field of physiotherapy for low back pain, offering significant benefits in terms of effectiveness, efficiency, and patient satisfaction. Studies have demonstrated tele-rehabilitation has proven to be efficient, requiring fewer visits and potentially providing more cost-effective care options for both patients and payers.

**Aim:** To evaluate how well tele-rehabilitation enhances the functional status of individuals with low back pain compared to traditional in-person care. Additionally, to comprehend the level of patient contentment with tele-rehabilitation in contrast to satisfaction levels from in-person clinic visits.

**Materials and Methods:** The participants were individuals with low back pain who received care through tele-rehabilitation, allowing for the comparison of outcomes between those who received traditional in-person care and those who received care through tele-rehabilitation. A scoping review conducted for three months duration i.e. December 2023 to February 2024 in Medical Literature Analysis and Retrieval System Online (MEDLINE)/PubMed, Scopus, and Web of Science (WOS), Google Scholar, Cochrane Library, Physiotherapy Evidence Database (PEDro) using terms like tele-rehabilitation, satisfaction, low back pain, telehealth, patient experience, and pain. The criteria for inclusion were studies that evaluated patient or professional satisfaction as an outcome of tele-rehabilitation interventions, focused on low back pain, and utilised a qualitative and quantitative research approach.

**Results:** A total of 14 articles were included, Randomised Controlled Trials (RCTs) (n=8), systematic reviews (n=2), case studies (n=1), survey study (n=2), and case series (n=1). PEDro rating scale was used to evaluate the quality of included studies but for non randomised clinical trials, assessed using the Methodological Index for Non randomised Studies (MINORS). Patients experiencing low back pain expressed satisfaction with the communication, technical aspects, and overall experience of their physiotherapy treatment through tele-rehabilitation. However, the review highlighted a mix of study quality, which posed challenges in making direct comparisons and broad generalisations.

**Conclusion:** Patient satisfaction is attributed to effective communication and interactions between physiotherapists and patients, which include involving patients in treatment decisions, ensuring understanding of their conditions, empowering patients to manage their issues, and supporting their return to normal activities.

**Keywords:** Methodological index, Patient satisfaction, Physiotherapists.

Abstract ID: PhD-21

# Relationship of Forward Head Posture and Kinesthesia with Electromyographical Parameters in Upper Cross Syndrome: A Correlational Cross-sectional Study

**Jaganjyoti Das, Assistant Professor, Department of Physiotherapy, SGT University, Gurugram, Haryana, India.**
**Pooja Anand, Professor, Department of Physiotherapy, SGT University, Gurugram, Haryana, India.**
**Pooja Bhati, Assistant Professor, Department of Physiotherapy, SGT University, Gurugram, Haryana, India.**

**Introduction:** Forward Head Posture is a functional ailment observed due to alterations in cervical and shoulder muscular function. Kinesthesia is an objective measure of cervical proprioception. It has been observed that muscle functions do affect the joint proprioception and function. There are no studies focused on electromyographic parameters of Forward Head Posture and kinesthesia.

**Aim:** To identify electromyographical parameters and its correlation with forward head posture and kinesthesia in Upper Crossed Syndrome (UCS) patients.

**Materials and Methods:** A correlational cross-sectional study was conducted in the Department of Physiotherapy, SGT University, Gurugram, Haryana, India was conducted for three months on a total number of 45 subjects with UCS who had undergone electromyographical testing for 12 muscles of both side (Upper, middle and lower trapezius, serratus anterior, pectoralis major, anterior scalene). Participants were asked to perform a set of dynamic exercise (Y and W exercise) post familiarisation using elastic resistance band during which Root-mean-square (RMS) value for muscle activation and activation ratio were calculated by surface electrodes using 4-channel electromyographic system (26T PowerLab, ADInstruments Inc.). Average of three trial were considered. Kinesthesia of neck position was measured using Joint Position Sense Error (JPSE) test. Forward Head Posture (FHP) was measured using photogrammetric and ruler method.

Mean and standard deviation of all dependent variables of both the groups were calculated. Correlation between all the variables were done by using Pearson's correlation test. The significance level was set at 95% ($p \leq 0.05$).

**Results:** A statistical significant correlation was found between average amplitude of Upper Trapezius (UT), Lower Trapezius (LT) and Serratus Anterior (SA) with both FHP and kinesthetic sense ($p \leq 0.05$). Muscle activation ratio of UT:LT and UT:SA also found to be significantly correlated to FHP ($p \leq 0.05$).

**Conclusion:** Altered muscle activation in UCS patients is strongly correlated with forward head posture and joint position sense.

**Keywords:** Electromyography, Joint position sense error, Kinesthesia.

# Prevalence of Crossed Syndrome among College-going Students- An Observational Study

Abstract ID: PhD-22

**Amit Kumar, Assistant Professor, School of Allied Medical Sciences, Lovely Professional University, Phagwara, Punjab, India.**
**Mahima Guleria, Postgraduate Student, School of Allied Medical Sciences, Lovely Professional University, Phagwara, Punjab, India.**

**Introduction:** Backpack carriage is a common practice among collegiate students. There is evidence that students carry heavy backpacks weighing beyond the recommended safe limits of 10 % of their body weight and this has potential consequences such as musculoskeletal discomfort leads to crossed syndrome. For best of authors' knowledge, there is scarcity of researches in this field of study showing a positive perspective of specific outcome measures related to crossed syndrome.

**Aim:** To identify the prevalence of crossed syndrome among college-going students using backpacks.

**Materials and Methods:** An observational study was conducted in the Department of Physiotherapy, School of Allied Medical Sciences, Lovely Professional University, Phagwara, Punjab, India between January 2024 and March 2024. A total 12 college-going students were recruited based on Researcher-designed Questionnaire as primary outcome measure. Secondary outcome measures were Neck Flexor Endurance Test (to check strength), Flexi Curve Ruler (to check kyphotic angle), and GaitON (to check static posture). On the basis of readings of all the outcome measures, data was analysed using Statistical Package for the Social Sciences (SPSS), version 20.0 software.

**Results:** A total of 83.5% of participants had the symptoms of crossed syndrome and 93.9% of participants failed to demonstrate Neck Flexor Endurance test within normative range (Males: 38.9 secs, females: 28.7 secs). A total of 67.8% of participants had disturbed normative ranges of angles and alignment measured by GaitON.

**Conclusion:** A total of 81.7% of participants were suffering from crossed syndrome according to the present study. It can be concluded that there existed a positive perspective of specific outcome measures related to crossed syndrome, among college-going students using backpacks.

**Keywords:** Endurance, Posture, Researcher-designed questionnaire.

Abstract ID: PhD-23

# Establishing Normative Values of Star Excursion Balance Test and its Relationship with Age and Gender in Older Adults: An Observational Study

**Sharnpreet Kaur, PhD Scholar, MYAS-GNDU, Department of Sports Sciences and Medicine, Amritsar, Punjab, India.**
**Sarika, Assistant Professor, MYAS-GNDU, Department of Sports Sciences and Medicine, Amritsar, Punjab, India.**

**Introduction:** Balance and gait are key factors in healthy aging. Existing research indicates that the Star Excursion Balance Test (SEBT) can offer objective measures to distinguish between deficits and improvements in dynamic postural-control related to lower extremity injury and induced fatigue. Therefore, SEBT is taken into consideration due to its low cost, ease of use, validity, and reliability. Additionally, the testing pattern is reflected in daily activities that are comparable. The research that is currently available indicates that no study has utilised or employed the SEBT with an older population. Furthermore, neither the reference value nor the normalised data for this test are available.

**Aim:** To establish and provide a reference value of SEBT and its relationship with age and gender in older adults.

**Materials and Methods:** This cross-sectional study was conducted in MYAS-GNDU, Department of Sports Sciences and Medicine, Amritsar, Punjab, India, and a convenience sample of 139 subjects were included after obtaining written informed consent and screening through inclusion and exclusion criteria. The sample consisted of 70 men and 69 women, age 55-65 years. The subjects were approached from the different locations of the Punjab. Following the documentation of subject characteristics and subjective data sheet, each participants limb length was measured. Afterward in each of the test directions, each participant completed four practice and three recorded reaches. Testing was done in each of the eight directions.

**Results:** The mean age and height of participants was 60.78±2.70 years and 167.64±9.86 cm. The normative values of the SEBT among older age adults were represented in mean scores and standard deviations. The different reach distances recorded for each direction were expressed as a percentage of leg length. The maximum reach distance was observed on posteromedial direction for both right and left side. Conversely, the shortest reach distance is observed on lateral and posterolateral directions in both the sides.

**Conclusion:** The present study has established normative performance values for the SEBT in older adults. These values can be used to identify the balance deficits among older adults. Normative data are crucial for researchers and physicians alike. It may be easier to identify and treat balance issues of a person or group of people who have much poorer balance than a healthy individual of the same age.

**Keywords:** Balance deficits, Lower extremity, Normative data.

Abstract ID: PhD-24

# Efficacy of Exercise Therapy on Fatigue Levels of Patients with Multiple Sclerosis: A Literature Review

**Avi Choudhary, Senior Assistant Professor, Banarsidas Chandiwala Institute of Physiotherapy, Affiliated to Guru Gobind Singh Indraprastha University, New Delhi, India.**
**Himani Kaushik, Assistant Professor, Banarsidas Chandiwala Institute of Physiotherapy, Affiliated to Guru Gobind Singh Indraprastha University, New Delhi, India.**

**Introduction:** Multiple sclerosis is a disease of the central nervous system caused by the immune system and it affects people all over the world. It is characterised by a variety of symptoms. Excessive fatigue is the most prevalent and debilitating symptom in individuals with multiple sclerosis, significantly impacting their lives. Several factors contribute to the disease and physical inactivity, which have been suggested to impact fatigue levels. Regular exercise therapy has the potential to alter psychological and physiological functions that can significantly improve fatigue in multiple sclerosis patients.

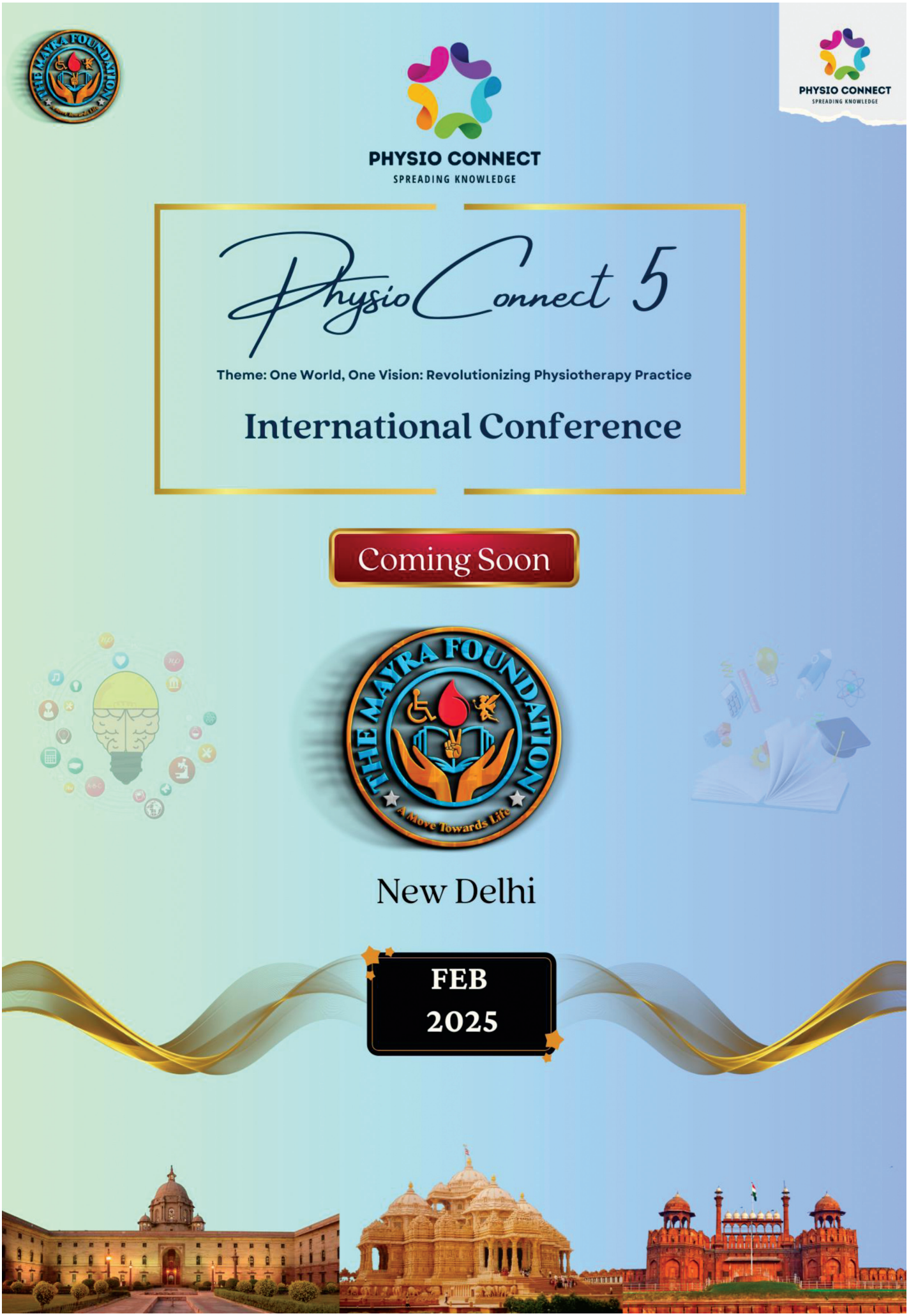
**Aim:** To review the existing literature on the efficacy of exercise therapy on fatigue levels of multiple sclerosis patients.

**Materials and Methods:** The authors conducted a literature search from 2014-2024 using different search engines such as Google Scholar, PubMed, Physiotherapy Evidence Database (PEDro), Cochrane Library and Scopus. The search utilised MeSH (Medical Subject Headings) keywords including exercise, multiple sclerosis, and fatigue. The authors included all types of studies that examined the efficacy of exercise interventions on fatigue outcome measures.

**Results:** Exercise therapy was a safe intervention for multiple sclerosis patients and did not cause any harm. A combination of exercise programs were used to improve fatigue levels and the quality of life of multiple sclerosis patients. Both subjective and objective outcome measures showed significant changes in fatigue levels.

**Conclusion:** Exercise therapy has shown promising results in improving the overall health of multiple sclerosis patients, particularly in reducing fatigue levels. There is a need for more focus on designing non stereotypical treatment protocols and evaluating them using gold-standard tools. The International Classification of Functioning, Disability and Health (ICF) model can be incorporated to identify more effective treatment and assessment methods.

**Keywords:** Immune system, Physiotherapy, Regular exercise therapy.


PHYSIO CONNECT
SPREADING KNOWLEDGE
PHYSIO CONNECT
SPREADING KNOWLEDGE
Physio Connect 5
Theme: One World, One Vision: Revolutionizing Physiotherapy Practice
International Conference
Coming Soon
THE MAYRA FOUNDATION
A Move Towards Life
New Delhi
FEB
2025