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AMITY UNIVERSITY UTTAR PRADESH

AMITY INSTITUTE OF HEALTH ALLIED SCIENCES

PRESENTS

AIHAS PG RESEARCH CONCLAVE 2026

Theme of the Event:
Emerging Research in Allied Health Sciences

AUUP RESEARCH CONCLAVE 2026
HEALTH ALLIED SCIENCE

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Abstract No.: PT 01

The Effect of Blood Flow Restriction Therapy on Performance in Recreational Runners: An Experimental Study

SAURABH SHARMA[1], JASOBANTA SETHI[2], MAYANK SHARMA[3]

ABSTRACT

Introduction: Muscle performance, especially lower limb strength and endurance, is essential for recreational runners. While performance is improved by traditional high-load training, mechanical stress may be increased. As Blood Flow Restriction Therapy (BFRT) produces a hypoxic muscular environment, low-load exercise can cause changes that are comparable to those caused by high-intensity training.

Aim: To find out the effect of BFRT on performance in recreational runners.

Materials and Methods: An experimental study was conducted on 42 recreational runners, randomly allocated into a control group (n=21) and an experimental group (n=21). The intervention lasted 6 weeks. BFR was provided to the experimental group, with both groups engaging in strength training. Outcome measures included lower limb muscle strength assessed by the 1RM squat test and lower limb endurance assessed by the single-leg sit-to-stand test. Statistical analysis was performed using paired and unpaired t-tests with significance set at $p<0.05$.

Results: Both groups showed improvements; however, substantial gains were observed in the experimental group. Muscle strength improved from 59.95±4.37 to 71.33±4.87 kg in the control group and from 56.76±4.72 to 85.38±5.97 kg in the experimental group. Endurance increased from 19.66±1.35 to 23.76±1.67 reps (left) and 20.00±1.64 to 24.47±1.72 reps (right) in controls, compared to 20.80±1.20 to 28.80±1.16 reps (left) and 19.66±1.35 to 23.76±1.67 reps (right) in the experimental group (p=0.001).

Conclusion: BFRT is more effective than conventional training in improving lower limb strength and endurance in recreational runners, offering a safe and efficient low-load training alternative.

Keywords: Endurance, Muscle strength, Recreational runners, Sit-to-stand test.

PARTICULARS OF CONTRIBUTORS:
1. MPT Student, Department of Physiotherapy, Amity Institute of Health Allied Sciences, Amity University, Noida, Uttar Pradesh, India.
2. Professor and Director, Department of Physiotherapy, Amity Institute of Health Allied Sciences, Amity University, Noida, Uttar Pradesh, India.
3. Physiotherapist, GOPT India, Noida, India.

NAME, ADDRESS, E-MAIL ID OF THE CORRESPONDING AUTHOR:
Prof. (Dr.) Jasobanta Sethi,
Professor and Director, Department of Physiotherapy, Amity Institute of Health Allied Sciences, Amity University, Sector-125, Noida-201313, Uttar Pradesh, India.
Email: jsethi@amity.edu; jasobantsethi@yahoo.co.in

Abstract No.: PT 02

Effects of Open Kinetic Chain versus Closed Kinetic Chain Exercise with the Common Use of Blood Flow Restriction Therapy among Athletes with Hamstring Strain

ARTI GUPTA[1], JASOBANTA SETHI[2], ROHIT RATHORE[3]

ABSTRACT

Introduction: Hamstring Strain Injury (HSI) is one of the most common soft tissue injuries among athletes, frequently leading to pain, reduced muscle flexibility, impaired performance, and delayed return to sports. Persistent deficits in flexibility and inadequate rehabilitation often increase the risk of reinjury. Blood Flow Restriction Therapy (BFRT) has gained attention as a rehabilitation approach that enhances muscular adaptation at low exercise loads. However, evidence comparing the combined effects of Open Chain Kinetic Exercise (OCKE) and Closed Chain Kinetic Exercise (CCKE) with BFRT on pain and muscle flexibility in HSI remains limited.

Aim: To evaluate the effects of Open Chain Kinetic Exercise with Blood Flow Restriction Therapy (OCKE+BFRT), Closed Chain Kinetic Exercise with Blood Flow Restriction Therapy (CCKE+BFRT), and BFRT alone on pain and muscle flexibility among athletes with HSI.

Materials and Methods: A three-parallel group randomised controlled trial was conducted among 100 athletes aged 18-35 years diagnosed with Grade I or II HSI. Participants were randomly allocated into Control Group (BFRT only, n=33), Experimental Group A (OCKE+BFRT, n=33), and Experimental Group B (CCKE+BFRT, n=34). Interventions were administered three sessions per week for four weeks. Outcome measures included pain assessment using the Numerical Pain Rating Scale (NPRS) and muscle flexibility assessment using the 90-90 Straight Leg Raise (SLR) test and Bent Knee Stretch test. Data were analysed using mean±standard deviation, and pre- and post-intervention comparisons were performed with the level of significance set at p=0.05.

Results: All groups demonstrated improvement following intervention. The Experimental Group B (CCKE+BFRT) showed a notable improvement in pain reduction and muscle flexibility, with NPRS scores improving from 7.3±1.0 to 3.5±0.8 and 90-90 SLR flexibility improving from 44.8±5.8 to 61.8±4.9. The Experimental Group A (OCKE+BFRT) demonstrated moderate improvements, with pain scores improving from 7.1±1.2 to 4.2±1.0 and flexibility from 45.2±6.1 to 58.0±5.5. The control group (BFRT only) showed comparatively negligible improvements in pain (7.0±1.3 to 5.1±1.2) and flexibility (45.5±6.4 to 52.0±6.0).

Conclusion: Both OCKE and CKCE combined with BFRT were effective in reducing pain and improving muscle flexibility in athletes with HSI. However, CKCE combined with BFRT demonstrated comparatively greater improvements, suggesting that functional weight-bearing exercises integrated with BFRT may provide superior rehabilitation benefits in athletes with HSI.

Keywords: Blood flow restriction exercise, Closed chain kinetic exercise, Hamstring strain injury, Open chain kinetic exercise, Pain.

PARTICULARS OF CONTRIBUTORS:
1. MPT Student, Department of Physiotherapy, Amity Institute of Health Allied Sciences, Amity University, Noida, Uttar Pradesh, India.
2. Professor and Director, Department of Physiotherapy, Amity Institute of Health Allied Sciences, Amity University, Noida, Uttar Pradesh, India.
3. Physiotherapist, Axon Physiotherapy Rehabilitation Centre, F-6 Gupta Complex Shiv Market, Vijay Enclave, Dwarkapuri, New Delhi, India.

NAME, ADDRESS, E-MAIL ID OF THE CORRESPONDING AUTHOR:
Prof. (Dr.) Jasobanta Sethi,
Professor and Director, Department of Physiotherapy, Amity Institute of Health Allied Sciences, Amity University, Sector-125, Noida-201313, Uttar Pradesh, India.
Email: jsethi@amity.edu; jasobantsethi@yahoo.co.in

Abstract No.: PT 03

Effect of Pulse Electromagnetic Stimulation on Pain and Functional Mobility in Patients with Frozen Shoulder: A Randomised Controlled Trial

MISBAH ANJUM[1], RABAB KAUR[2], ZEESHAN AHMAD[3]

ABSTRACT

Introduction: Adhesive capsulitis, also referred to as frozen shoulder, results in severe pain and restricted mobility. In 2-5% of people between the ages of 40 and 60, Pain-limited compliance frequently limits the early-phase efficacy of traditional physiotherapy, despite its modest therapeutic effects. Through non-invasive bio-electromagnetic effects on inflammation, cellular metabolism, and tissue healing, adjunct therapies such as Pulsed Electromagnetic Stimulation (PEMS) have the potential to greatly improve rehabilitation outcomes.

Aim: Effect of PEMS on pain and functional mobility in patients with frozen shoulder.

Materials and Methods: Forty patients with frozen shoulder were randomly assigned to two groups for this four-week randomised controlled experiment. Group A (n=21) underwent PEMS therapy (dosage: <300 Hz frequency, 20-30 minutes per session, for a total of 12 sessions over 4 weeks) in addition to standard physiotherapy (range of motion, stretching, strengthening exercises, manual therapy, and ice packs). Group B (n=19) was given only the same standard physiotherapy routine. The Numeric Pain Rating Scale (NPRS) was used to measure pain intensity as the main outcome measure. The Shoulder Pain and Disability Index (SPADI) ratings and goniometric active Range of Motion (ROM) for shoulder flexion, abduction, and external rotation were used as secondary end measures. Paired t-tests, independent t-tests, and repeated measures Analysis of Variance (ANOVA) were used to examine the data.

Results: Both groups demonstrated significant improvements from baseline; however, Group A (PEMS adjunct) showed statistically and clinically superior outcomes across all parameters ($p<0.001$ between groups). For the primary outcome, Group A achieved a greater reduction in pain intensity (NPRS change: -4.0+- 2.5 vs. -2.5+- 1.1 in Group B; $p<0.001$) with a large effect size (Cohen's $d=1.1$). For secondary outcomes, Group A demonstrated vastly superior active ROM gains compared to Group B in flexion (+360 vs. +190), abduction (+340 vs. +200), and external rotation (+320. +180), corresponding to an 80 greater improvement in mobility ($p<0.001$). Functional recovery was also significantly enhanced in Group A, with a SPADI score reduction of -39 points (37% improvement) compared to -25 points (24% improvement) in Group B ($p<0.001$, Cohen's $d=0.9$). No adverse events were recorded during the trial.

Conclusion: PEMS significantly reduces pain (60% greater alleviation) and promotes shoulder mobility (80% greater ROM improvements) in just four weeks when combined with regular conventional physical therapy. These findings imply that PEMS is a non-invasive, safe, and very successful bio-electromagnetic adjunct therapy for the clinical treatment of adhesive capsulitis.

Keywords: Adhesive capsulitis, Frozen shoulder, Numeric pain rating scale, Pulsed electromagnetic stimulation, Range of motion, Shoulder pain and disability index.

PARTICULARS OF CONTRIBUTORS:
1. MPT Student, Department of Physiotherapy, Amity Institute of Health Allied Sciences, Amity University, Noida, Uttar Pradesh, India.
2. Assistant Professor, Department of Physiotherapy, Amity Institute of Health Allied Sciences, Amity University, Noida, Uttar Pradesh, India.
3. Physiotherapist, Amity University OPD, Uttar Pradesh, India.

NAME, ADDRESS, E-MAIL ID OF THE CORRESPONDING AUTHOR:
Dr. Rabab Kaur (PT),
Assistant Professor, Department of Physiotherapy, Amity Institute of Health Allied Sciences, Amity University, Sector-125, Noida-201313, Uttar Pradesh, India.
Email: rkaur4@amity.edu

Abstract No.: PT 04

Disability Measurement in Radiculopathy: Scoping Review of Clinically Quantifiable Measurement Tools

SAPNA DWIVEDI[1], PANKAJ KUMAR MALIK[2]

ABSTRACT

Introduction: Radiculopathy is a common neuro-musculoskeletal condition characterised by multi-dimensional physical and functional limitations resulting from nerve-root compression or irritation that negatively affect quality of life and daily activities. Accurate assessments for the disability associated with radiculopathy are essential to diagnose, plan, treat, monitor and evaluate therapeutic outcomes.

Aim: To identify the objective outcome measures/tools related to the assessment of disability in patients with radiculopathy.

Materials and Methods: A scoping literature review was conducted across major databases, including PubMed, Scopus, Web of Science and CINAHL, to identify reliable and valid tools to assess the disability resulting from lumbar and cervical radiculopathy. Both patient-reported outcome measures and clinician-administered assessment tools were searched.

Results: The review demonstrated that many nonspecific disability measurement tools were in use in the existing literature. Generic measurement instruments like the Oswestry Disability Index, Neck Disability Index, Visual Analogue Scale, Numeric Pain Rating Scale, Roland-Morris Disability Questionnaire, and SF-36 have been used in many studies. Disease-specific instruments provide more accurate and clinically meaningful assessment compared with generalised low back pain measures like the Istanbul Low Back Pain Disability Index (ILBPDI), which showed excellent reliability and validity; Turkish versions of the Sciatica Bothersomeness Index (SBI) and Sciatica Frequency Index (SFI) were found to be reliable and culturally adaptable tools for assessing sciatica symptoms. The modified Roland–Morris Disability Scale (RMS-L) demonstrated improved sensitivity in evaluating disability related to leg pain and sciatica. Additionally, the Cervical Radiculopathy Impact Scale (CRIS) highlighted a systematic approach to scale development and psychometric evaluation.

Conclusion: The scoping review highlights the limitations in current measurement tools used in radiculopathy. None of the scales reviewed captured the multidimensional impact of radiculopathy, including physical, psychological, social and quality of life components, except CRIS. The findings suggest the need for the development of a standardised, multidimensional, and clinically feasible assessment tool to improve patient evaluation in the area. Such a tool would enhance clinical evaluation, treatment planning, outcome monitoring, and research applicability by providing a comprehensive assessment of both functional and psychosocial disability.

Keywords: Disability assessment, Functional disability, Lumbar radiculopathy, Psychometric validation, Rehabilitation outcome measures, Reliability and validity.

PARTICULARS OF CONTRIBUTORS:
1. MPT Student, Department of Physiotherapy, Amity Institute of Health Allied Sciences, Amity University, Noida, Uttar Pradesh, India.
2. Assistant Professor, Department of Physiotherapy, Amity Institute of Health Allied Sciences, Amity University, Noida, Uttar Pradesh, India.

NAME, ADDRESS, E-MAIL ID OF THE CORRESPONDING AUTHOR:
Dr. Pankaj Kumar Malik,
Assistant Professor III, Department of Physiotherapy, Amity Institute of Health Allied Sciences, Amity University, Sector-125, Noida-201313, Uttar Pradesh, India.
Email: pkmalik@amity.edu; pankajkrmalik@gmail.com

Abstract No.: PT 05

Association of Forward Head Posture with Cervical Mechanosensitivity, Neck Disability, and Anxiety in Indian Young Adults: A Cross-sectional Study

KUSH PARASHAR[1], KAVITA SHARMA[2], ROHIT RATHORE[3]

ABSTRACT

Introduction: Forward Head Posture (FHP) is a common postural deviation increasingly observed among young adults due to prolonged smartphone use, sedentary behaviour, and academic activities. Sustained anterior translation of the head may alter cervical biomechanics, increase mechanical stress on musculoskeletal tissues, and contribute to functional and psychological disturbances.

Aim: To investigate the association of FHP with cervical mechanosensitivity, neck disability, and anxiety in Indian young adults.

Materials and Methods: A cross-sectional observational study was conducted among 100 participants aged 18-25 years recruited from academic institutions in North India. Participants were classified into an FHP group {craniovertebral angle (CVA) <50°} and a Normal Head Posture group (CVA ≥50°) using digital photogrammetry. Cervical mechanosensitivity was assessed bilaterally over the upper trapezius and levator scapulae muscles using Pressure Pain Threshold (PPT) measured with a digital algometer. Functional disability was evaluated using the Neck Disability Index (NDI), while anxiety levels were assessed using the anxiety subscale of the Depression Anxiety Stress Scale-21 (DASS-21). Statistical analysis included an independent samples t-test and Pearson correlation analysis with significance set at $p<0.05$.

Results: Participants with FHP demonstrated significantly lower PPT values over the upper trapezius and levator scapulae muscles compared to participants with normal head posture ($p<0.001$). The FHP group also showed significantly higher NDI scores and elevated DASS-21 anxiety scores ($p<0.05$). Craniovertebral angle demonstrated a positive correlation with PPT values and a negative correlation with neck disability and anxiety scores.

Conclusion: FHP is significantly associated with increased cervical mechanosensitivity, greater neck disability, and elevated anxiety levels in Indian young adults. A reduced craniovertebral angle may negatively influence both physical and psychological health. Early postural assessment and multidimensional rehabilitation strategies may help reduce associated musculoskeletal and psychosocial complications.

Keywords: Anxiety, Craniovertebral angle, Forward head posture, Neck disability, Pressure pain threshold, Young adults.

PARTICULARS OF CONTRIBUTORS:
1. MPT Student, Department of Physiotherapy, Amity Institute of Health Allied Sciences, Amity University, Noida, Uttar Pradesh, India.
2. Assistant Professor, Department of Physiotherapy, Amity Institute of Health Allied Sciences, Amity University, Noida, Uttar Pradesh, India.
3. Axon Physiotherapy Rehabilitation Centre, F-6, Gupta Complex, Shiv Main Market, Vijay Enclave, Dwarkapuri, New Delhi, India.

NAME, ADDRESS, E-MAIL ID OF THE CORRESPONDING AUTHOR:
Dr. Kavita Sharma,
Assistant Professor, Department of Physiotherapy, Amity Institute of Allied Health Sciences, Amity University, Sector-125, Noida-201313, Uttar Pradesh, India.
Email: kavitasharma8.@amity.edu

Abstract No.: PT 06

Factors Affecting Postural Control under Dual-task Conditions among Physiotherapy Students With and Without Low Back Pain: Cross-sectional Comparative Study

RUPA DAS[1], PRAGYA KUMAR[2]

ABSTRACT

Introduction: Low Back Pain (LBP) has become a major musculoskeletal issue not only in the elderly but also among young adults, especially in physiotherapy students who are subjected to physical and academic stressors in the course of their studies. Dual-task paradigms provide insight into functional performance under real-life conditions by simultaneously assessing cognitive and motor demands, which are otherwise not captured in standard single-task assessments.

Aim: To compare postural control under dual-task conditions in physiotherapy students with and without LBP, and to identify the physical, cognitive, and psychological factors associated with dual-task performance impairment.

Materials and Methods: A cross-sectional comparative study was conducted on 92 physiotherapy students (46 with LBP, 46 without LBP). Outcome measures included the Visual Analogue Scale (VAS) for pain intensity, Stroop Test for cognitive performance, Depression Anxiety Stress Scale (DASS-21) for psychological assessment, and Mini-BESTest for dynamic balance. Postural control was also assessed using Timed Up and Go (TUG) under both single-task and dual-task conditions. Data normality was assessed using the Shapiro-Wilk test. Since all variables were non-normally distributed ($p<0.05$), non-parametric Mann-Whitney U tests were used for group comparisons, and univariate logistic regression was applied to examine individual predictors of dual-task performance impairment.

Results: Significant differences were observed between groups in VAS score ($U=312.0$, $p<0.001$), Stroop time ($U=375.0$, $p<0.001$), DASS Depression ($U=358.5$, $p<0.001$), DASS Anxiety ($U=349.0$, $p<0.001$), DASS ($U=325.5$, $p<0.001$), Mini-BESTest ($U=410.0$, $p<0.001$), TUG Single ($U=402.0$, $p<0.001$), and TUG Dual Task ($U=298.0$, $p<0.001$). Age and Body Mass Index (BMI) showed no significant group differences ($p>0.05$), confirming baseline comparability. TUG Dual Task was the most significantly impaired variable in the LBP group. Univariate logistic regression identified Stroop time (OR=1.09, $p<0.001$), Mini-BESTest score (OR=0.81, $p<0.001$), VAS score (OR=1.20, $p=0.001$), and DASS Stress (OR=1.07, $p=0.002$) as significant individual predictors of dual-task impairment.

Conclusion: LBP significantly impairs dual-task postural control in physiotherapy students. Cognitive load, psychological stress, pain intensity, and balance ability are key determinants of functional performance. LBP should be viewed as a multidimensional disorder encompassing neuromuscular, cognitive, and psychological systems. A multidimensional rehabilitation approach incorporating dual-task training, cognitive strategies, and psychological support is recommended to improve functional outcomes and prevent long-term disability among physiotherapy students.

Keywords: Cognitive-motor performance, Dual-task performance, Low back pain, Postural balance, Psychological stress.

PARTICULARS OF CONTRIBUTORS:
1. MPT Student, Department of Physiotherapy, Amity Institute of Health Allied Sciences, Amity University, Noida, Uttar Pradesh, India.
2. Associate Professor, Department of Physiotherapy, Amity Institute of Health Allied Sciences, Amity University, Noida, Uttar Pradesh, India.

NAME, ADDRESS, E-MAIL ID OF THE CORRESPONDING AUTHOR:
Dr. Pragya Kumar,
Associate Professor, Department of Physiotherapy, Amity Institute of Health Allied Sciences, Amity University, Sector-125, Noida-201313, Uttar Pradesh, India.
Email: pkumar24@amity.edu

Abstract No.: PT 07

Efficacy of Tai Chi on Pain and Physical Function in Individuals with Hip Osteoarthritis

RAMITA ARORA[1], SANJIB KUMAR DAS[2]

ABSTRACT

Introduction: Hip Osteoarthritis (OA) is a degenerative joint disorder causing pain, stiffness, and reduced physical function, thereby affecting quality of life. Tai Chi has emerged as a promising mind-body intervention for OA; however, comparative evidence between the simplified 8-form and traditional 24-form Tai Chi remains limited, particularly in the Indian population.

Aim: To compare the effects of 8-form Tai Chi, 24-form Tai Chi, and conventional physiotherapy on pain, physical function, and functional mobility in individuals with hip OA.

Materials and Methods: A randomised controlled trial was conducted on 86 participants (45-60 years) with confirmed hip OA (ACR criteria, Grade I-III) recruited from clinics in Delhi NCR. Participants were randomly allocated into three groups: Group 1 (8-form Tai Chi+conventional physiotherapy), Group 2 (24-form Tai Chi+conventional physiotherapy), and Group 3 (conventional physiotherapy only). Interventions were provided twice weekly for six weeks. Outcomes included the Numerical Pain Rating Scale (NPRS) and the Timed Up and Go (TUG) test, assessed at baseline, Week 4, and Week 6. Data were analysed using mixed-design ANOVA with Bonferroni post hoc correction.

Results: All groups showed significant improvement over time ($p<0.001$). The 24-form Tai Chi group demonstrated superior outcomes on TUG ($p=0.001$) compared to the 8-form group. NPRS pain reduction was comparable between both Tai Chi groups ($p>0.05$), with both outperforming the control group. Effect sizes ranged from large to very large ($\eta^2=0.521$-0.959).

Conclusion: Both Tai Chi forms produced clinically meaningful improvements in hip OA. The 24-form showed superior functional outcomes, while the 8-form provided comparable pain relief, making it a suitable entry-level intervention for elderly or deconditioned individuals.

Keywords: Functional mobility, Randomised controlled trial, Timed up and go.

PARTICULARS OF CONTRIBUTORS:
1. MPT Student, Department of Physiotherapy, Amity Institute of Health Allied Sciences, Amity University, Noida, Uttar Pradesh, India.
2. Associate Professor, Department of Physiotherapy, Amity Institute of Health Allied Sciences, Amity University, Sector-125, Noida, Uttar Pradesh, India.
ORCID: 0000-0002-5083-5001

NAME, ADDRESS, E-MAIL ID OF THE CORRESPONDING AUTHOR:
Dr. Sanjib Kumar Das,
Associate Professor, Department of Physiotherapy, Amity Institute of Health Allied Sciences, Amity University, Sector-125, Noida-201313, Uttar Pradesh, India.
Email: skdas@amity.edu; sanjib_bpt@yahoo.co.in

Abstract No.: PT 08

Association of Physical, Social and Psychological Factors with Non-specific Low Back Pain among Home-based Female Entrepreneurs: Cross-sectional Study

AMBREEN ALMAS[1], PRAGYA KUMAR[2], MEHWISH[3]

ABSTRACT

Introduction: Non-Specific Low Back Pain (NSLBP) is a common condition that affects the musculoskeletal system in all parts of the world. The condition is influenced by biological, psychological, and social factors. For instance, women entrepreneurs who operate from their homes have unique issues such as sitting for long periods, poor ergonomics, and conflict between work and family life. These individuals have become some of the highest-risk groups that have rarely been studied before.

Aim: The experiment was conducted using a cross-sectional design with 150 female participants having ownership of their home-based business between the ages of 18 and 50. Self-reported structured questionnaires were used for collecting data. The levels of pain were evaluated through the Visual Analogue

Scale (VAS), while the psychological stress was measured using PSS-10.

Materials and Methods: In total, 150 women entrepreneurs in the home base, 51.3% had suffered from NSLBP, with most of them having moderate pain. Chi-square testing demonstrated a significant association between NSLBP and socio-demographic, physical, psychological, social, and quality of life factors ($p<0.05$). Binary logistic regression analysis proved poor sitting posture as a predictor for NSLBP, psychological stress, poor coping skills, and lack of meaning in life as strong factors contributing to NSLBP.

Results: In total, 150 women entrepreneurs in the home base, 51.3% had suffered from NSLBP, with most of them having moderate pain. Chi-square testing demonstrated a significant association between NSLBP and socio-demographic, physical, psychological, social, and quality of life factors ($p<0.05$). Binary logistic regression analysis proved poor sitting posture as a predictor for NSLBP, psychological stress, poor coping skills, and lack of meaning in life as strong factors contributing to NSLBP.

Conclusion: NSLBP among home-based female entrepreneurs can be considered a complex issue brought about by physical workload, mental pressure, and an unhelpful social environment. It is recommended to use a biopsychosocial approach that considers ergonomics, stress management, and social support.

Keywords: Caesarean section, Functional mobility, Pain management, Postpartum physiotherapy, Tele-rehabilitation.

PARTICULARS OF CONTRIBUTORS:
1. MPT Student, Department of Physiotherapy, Amity Institute of Health Allied Sciences, Amity University, Noida, Uttar Pradesh, India.
2. Associate Professor, Department of Physiotherapy, Amity Institute of Health Allied Sciences, Amity University, Noida, Uttar Pradesh, India.
3. Physiotherapist, Relax Physiotherapy and Rehabilitation Centre, Jogabai Extension, Zakir Nagar, Okhla, New Delhi, India.

NAME, ADDRESS, E-MAIL ID OF THE CORRESPONDING AUTHOR:
Dr. Pragya Kumar,
Associate Professor, Department of Physiotherapy, Amity Institute of Health Allied Sciences, Amity University, Sector-125, Noida-201313, Uttar Pradesh, India.
Email: pkumar24@amity.edu

Abstract No.: PT 09

Comparative Study on the Effect of e-Cigarette Use in Vapers and Non-vapers on Lung Health and Athletic Performance in University Football Players

TOKO YANIA[1], RITIKA KUMAR[2], NIDHI KUMAR[3]

ABSTRACT

Introduction: The increasing use of electronic cigarettes (e-Cigarettes) among young adults has raised significant public health concerns, particularly regarding their effects on respiratory function and physical performance. Although often perceived as a safer alternative to conventional smoking, emerging evidence suggests potential adverse physiological effects, especially in physically active populations such as athletes.

Aim: To evaluate and compare lung function and athletic performance between e-Cigarette users and non-users among university football players.

Materials and Methods: A comparative cross-sectional study was conducted on 32 male university football players aged 18-24 years, recruited through convenience sampling. Participants were divided into two groups: e-cigarette users (n=16) and non-users (n=16). Outcome measures included Peak Expiratory Flow Rate (PEFR) to assess lung function, Yo-Yo Intermittent Recovery Test (Level 1) for aerobic endurance, estimated VO_2max, and Rating of Perceived Exertion (RPE). Data were analysed using descriptive statistics and an independent samples t-test, with significance set at $p<0.05$.

Results: e-Cigarette users demonstrated significantly lower PEFR values compared to non-users ($p<0.001$), indicating compromised pulmonary function. Endurance performance was also significantly reduced among users, as reflected by lower total distance, shuttles, and VO_2max ($p<0.001$). Additionally, e-cigarette users reported higher perceived exertion and showed delayed heart rate recovery. These findings suggest impaired cardiorespiratory fitness and reduced exercise tolerance among users.

Conclusion: e-Cigarette use is associated with significantly reduced lung function and impaired athletic performance in university football players. Non-users exhibited superior pulmonary efficiency, endurance capacity, and recovery responses. The findings highlight the potential risks of vaping in athletic populations and emphasise the need for awareness and preventive strategies.

Keywords: Athletic performance, E-cigarettes, Football players, Lung function, Vaping, VO_2max.

PARTICULARS OF CONTRIBUTORS:
1. MPT Student, Department of Physiotherapy, Amity Institute of Health Allied Sciences, Amity University, Noida, Uttar Pradesh, India.
2. Teaching Associate, Department of Physiotherapy, Amity Institute of Health Allied Sciences, Amity University, Noida, Uttar Pradesh, India.
3. Physiotherapist, Nivaaran Multispeciality Clinic, Rajouri Garden, New Delhi, India.

NAME, ADDRESS, E-MAIL ID OF THE CORRESPONDING AUTHOR:
Dr. Ritika Kumar,
Teaching Associate, Department of Physiotherapy, Amity Institute of Health Allied Sciences, Amity University, Sector-125, Noida-2013133, Uttar Pradesh, India.
Email: rkumar21@amity.edu

Abstract No.: PT 10

Efficacy of Pulsed Electromagnetic Field on Pain and Physical Function among Individuals with Knee Osteoarthritis

TANIYA RIZWAN[1], SANJIB KUMAR DAS[2]

ABSTRACT

Introduction: Knee Osteoarthritis (OA) is one of the most common causes of pain and disability, particularly among older adults and individuals with obesity. Conventional treatments such as Non-Steroidal Anti-Inflammatory Drugs (NSAIDs), intra-articular injections, and surgery may provide limited or unsatisfactory outcomes. Pulsed Electromagnetic Field (PEMF) therapy has emerged as a non-invasive modality that may promote chondrocyte growth, cartilage matrix production, and subchondral bone quality. However, its clinical efficacy requires further exploration.

Aim: To compare the effects of PEMF therapy on pain and physical function among individuals with knee OA.

Materials and Methods: A randomised controlled trial was conducted involving 80 participants aged 40-60 years who were clinically and radiographically diagnosed with knee OA (Kellgren–Lawrence Grade I-III). Participants were divided into two groups: Group A received conventional therapy, while Group B received PEMF therapy (Almag-02 device by Elamed) in addition to conventional therapy. Pain intensity was assessed using the Numerical Pain Rating Scale (NPRS), knee range of motion was measured using goniometry, and physical function was evaluated using the Western Ontario and McMaster Universities Osteoarthritis Index (WOMAC).

Results: Both PEMF therapy combined with exercise and ultrasonic therapy combined with exercise produced significant improvements in pain and physical function over six weeks. Statistically significant improvements were observed in WOMAC and NPRS scores within both groups; however, no statistically significant difference was found between the two interventions.

Conclusion: PEMF therapy appears to be a safe and cost-effective adjunct to conventional physiotherapy for improving pain and physical function in individuals with knee osteoarthritis.

Keywords: Pain Management, Physical functional performance, Physical therapy, Randomised controlled trial.

PARTICULARS OF CONTRIBUTORS:
1. MPT Student, Department of Physiotherapy, Amity Institute of Health Allied Sciences, Amity University, Noida, Uttar Pradesh, India.
2. Associate Professor, Department of Physiotherapy, Amity Institute of Health Allied Sciences, Amity University, Noida, Uttar Pradesh, India.
ORCID: 0000-0002-5083-5001

NAME, ADDRESS, E-MAIL ID OF THE CORRESPONDING AUTHOR:
Dr. Sanjib Kumar Das,
Associate Professor, Department of Physiotherapy, Amity Institute of Health Allied Sciences, Amity University, Sector-125, Noida-201313, Uttar Pradesh, India.
Email: skdas@amity.edu; sanjib_bpt@yahoo.co.in

Abstract No.: PT 11

Evaluating the Effectiveness of Telerehabilitation on Pain Management and Functional Mobility in Post Caesarean Delivery: Randomised Controlled Trial

NAVYA DHINGRA[1], PRAGYA KUMAR[2], SANJEEV PAL YADAV[3]

ABSTRACT

Introduction: Caesarean Section (CS) is one of the most performed surgical procedures globally, with rising rates particularly in developing nations. Despite its necessity, CS is associated with significant postoperative complications, including pain, immobility, and delayed functional recovery, which impair maternal independence and quality of life. While physiotherapy has demonstrated efficacy in post CS rehabilitation, scalable and structured tele-rehabilitation protocols for this population remain largely unexplored.

Aim: To evaluate the effectiveness of a 6-week structured telerehabilitation programme on pain management, functional independence, disability, and patient satisfaction in post-caesarean women compared to standard postoperative physiotherapy care.

Materials and Methods: A randomised controlled trial was conducted at MGS-MASSH Super Speciality Hospital, New Delhi, with 46 post-caesarean women (n=23 per group) aged 20-40 years, recruited 72 hours after delivery. The interventional group received a progressive 6-week telerehabilitation protocol (3 sessions/week), while the control group received conventional in-hospital physiotherapy until discharge. Outcome measures, including the Visual Analogue Scale (VAS), Katz Activities of Daily Living Index (KATZ ADL), Oswestry Disability Index (ODI), and Patient Satisfaction Questionnaire-18 (PSQ-18), were assessed at baseline, 3rd week, and 6th week. Nonparametric tests (Friedman test, Wilcoxon Signed-Rank, Mann-Whitney U) were applied following Shapiro-Wilk normality testing.

Results: Both groups demonstrated statistically significant within-group improvements across all outcome measures ($p<0.05$). Between-group analysis revealed that by the 3rd week, the experimental group showed significantly better functional independence (KATZ ADL: $U=149.5$, $Z=-2.681$, $p=0.007$) and lower disability (ODI: $U=9.0$, $Z=-5.642$, $p<0.001$), while VAS scores were not yet significantly different ($U=197.5$, $p=0.126$). At the 6th week, the interventional group demonstrated significantly superior outcomes for VAS ($U=110.0$, $Z=-3.512$, $p<0.001$), KATZ ADL ($U=184.0$, $Z=-2.573$, $p=0.010$) and ODI ($U=0.5$, $Z=-5.837$, $p<0.001$). PSQ-18 satisfaction scores were significantly higher in the control group across all timepoints, attributable to a baseline advantage ($p<0.001$).

Conclusion: A structured 6-week telerehabilitation programme is significantly more effective than standard postoperative care in reducing pain and disability and improving functional independence in postcesarean women, supporting its integration into routine maternal healthcare.

Keywords: Caesarean section, Katz Activities of Daily Living Index, Postpartum physiotherapy.

PARTICULARS OF CONTRIBUTORS:
1. MPT Student, Department of Physiotherapy, Amity Institute of Health Allied Sciences, Amity University, Noida, Uttar Pradesh, India.
2. Associate Professor, Department of Physiotherapy, Amity Institute of Health Allied Sciences, Amity University, Noida, Uttar Pradesh, India.
3. Physiotherapist, MGS-MASSH Super Speciality Hospital, Punjabi Bagh, Delhi, India.

NAME, ADDRESS, E-MAIL ID OF THE CORRESPONDING AUTHOR:
Dr. Pragya Kumar,
Associate Professor, Department of Physiotherapy, Amity Institute of Health Allied Sciences, Amity University, Sector-125, Noida-201313, Uttar Pradesh, India.
Email: pkumar24@amity.edu

Abstract No.: PT 12

Influence of Sleep Hygiene Education on Rehabilitation Progress in Patients with Non-specific Low Back Pain

FAREEN[1],SANJIB KUMAR DAS[2]

ABSTRACT

Introduction: Sleep plays a crucial role in musculoskeletal recovery by influencing pain modulation, tissue healing, and functional restoration. Non-specific low back pain is commonly associated with poor sleep quality, which may negatively affect rehabilitation outcomes. Despite this, sleep is often overlooked in routine physiotherapy practice.

Aim: To evaluate the effect of Sleep Hygiene Education (SHE) on rehabilitation outcomes in patients with non-specific low back pain.

Materials and Methods: A randomised controlled trial was conducted on 100 participants aged 40-59 years with non-specific low back pain (>3 months) and poor sleep quality (PSQI >5). Participants were randomly allocated into two groups: Control Group (standard rehabilitation) and Intervention Group (standard rehabilitation and SHE). Outcome measures included the Numeric Pain Rating Scale (NPRS), the Pittsburgh Sleep Quality Index (PSQI), the Oswestry Disability Index (ODI) and the Manual Muscle Testing (MMT). Data were analysed using paired and independent t-tests with significance set at $p<0.05$.

Results: Both groups showed significant improvement in pain, sleep quality, functional disability, and muscle strength after intervention ($p<0.001$). However, the Intervention Group demonstrated significantly greater improvement compared to the Control Group across all outcome measures, including NPRS, PSQI, ODI, and MMT.

Conclusion: The addition of SHE to standard rehabilitation significantly enhances rehabilitation outcomes in patients with non-specific low back pain. It is a simple, cost-effective, and non-invasive intervention that can decrease pain and improve sleep quality, functional ability and muscle strength.

Keywords: Musculoskeletal diseases, Non-specific low back pain, Physical therapy, Rehabilitation, Sleep, Sleep hygiene.

PARTICULARS OF CONTRIBUTORS:
1. MPT Student, Department of Physiotherapy, Amity Institute of Health Allied Sciences, Amity University, Noida, Uttar Pradesh, India.
2. Associate Professor, Department of Physiotherapy, Amity Institute of Health Allied Sciences, Amity University, Noida, Uttar Pradesh, India.
ORCID: 0000-0002-5083-5001

NAME, ADDRESS, E-MAIL ID OF THE CORRESPONDING AUTHOR:
Dr. Sanjib Kumar Das,
Associate Professor, Department of Physiotherapy, Amity Institute of Health Allied Sciences, Amity University, Sector-125, Noida-201313, Uttar Pradesh, India.
Email: skdas@amity.edu; sanjib_bpt@yahoo.co.in

Abstract No.: PT 13

Effect of Blood Flow Restriction Therapy on Strength and Sprint Ability among Footballers

SEJAL SHARMA[1], JASOBANTA SETHI[2], NABIN BISHWAKARMA[3]

ABSTRACT

IIntroduction: Football is a high-intensity sport involving repeated sprinting, jumping, and rapid and frequent changes in direction. This leads to muscle fatigue, reduced performance, and slower recovery. Blood Flow Restriction Therapy (BFRT) enables low-load exercise to induce changes in the body similar to those of high-intensity training by inducing a low-oxygen environment. Sprint-specific plyometric drills further improve neuromuscular coordination and explosive performance. Limited evidence exists on the combined effect of BFRT and sprint-specific plyometric training on football players' performance.

Aim: To evaluate the effects of blood flow restriction therapy combined with sprint-specific plyometrics on lower limb explosive strength and agility in semi-professional football players through a 4-week study.

Materials and Methods: 80 healthy semi-professional footballers between the ages of 18 and 30 were randomly assigned to the Control Group (n=40) and to the Experimental Group (n=40). BFRT was administered to the experimental group, with common sprint-specific plyometric training given to both groups, who trained three times a week for 4 weeks. The results included vertical jump height and the Illinois agility test. The data before and

after intervention were analysed and presented as mean and SD.

Results: The baseline values were comparable between the groups. After four weeks of the training protocol, the experimental group demonstrated greater improvements across all outcome measures than the control group. Vertical Jump Height: Control: 51.17±4.02 to 55.53±3.88 cm; Experimental: 52.49±3.54 to 59.64±3.61 cm. Illinois agility test: Control: 18.62±0.58 to 17.82±0.69 s; Experimental: 18.42±0.69 to 16.93±0.70 s. No adverse events were reported during the intervention period.

Conclusion: The findings of the study suggest that combining blood flow restriction training with sprint-specific plyometric drills may be a safe and effective reduced-volume training strategy to improve lower-limb explosive strength and mild agility in semi-professional football players.

Keywords: Agility, Blood flow restriction training, Football, Semi-professional footballers, Sprint-specific plyometrics, Strength.

PARTICULARS OF CONTRIBUTORS:
1. MPT Student, Department of Physiotherapy, Amity Institute of Health Allied Sciences, Amity University, Noida, Uttar Pradesh, India.
2. Professor and Director, Department of Physiotherapy, Amity Institute of Health Allied Sciences, Amity University, Noida, Uttar Pradesh, India.
3. Physiotherapist, The Rehab Culture Sports Physiotherapy and Rehabilitation Centre, C.R. Park, New Delhi, India.

NAME, ADDRESS, E-MAIL ID OF THE CORRESPONDING AUTHOR:
Prof. (Dr.) Jasobanta Sethi,
Professor and Director, Department of Physiotherapy, Amity Institute of Health Allied Sciences, Amity University, Sector-125, Noida-201313, Uttar Pradesh, India.
Email: jsethi@amity.edu; jasobantasethi@yahoo.co.in

Abstract No.: PT 14

Relationship of Neck, Shoulder, and Handgrip Strength with Upper Limb Injury Risk in Freestyle Wrestlers

SIMRAN RAWAT[1], ANU BANSAL[2], MUNESH KUMAR[3]

ABSTRACT

Introduction: Wrestling is one of the world's oldest and most physically demanding combat sports, which places significant stress on the upper extremities and cervical spine. Handgrip strength has been considered a valuable measure for assessing upper limb strength in wrestlers.

Objectives: This study investigated the prevalence of injury, the correlation between neck, shoulder, and handgrip strength, and the prediction of injury risk in competitive male freestyle wrestlers.

Materials and Methods: A cross-sectional observational correlation study was conducted with 70 male freestyle wrestlers (mean age 21.94±2.10 years; mean Body Mass Index (BMI) 25.78±2.74 kg/m^2), recruited via convenience sampling. Handgrip strength was assessed using a JAMAR dynamometer; shoulder and neck isometric strength were measured using a MicroFET handheld dynamometer. For statistical analysis, correlation and logistic regression analysis were conducted.

Results: An injury rate of 5.64 per 1000 players and a case rate of 34.29 per 100 players were observed. Positive correlation was observed between both right and left shoulder abduction, adduction, neck flexion, extension and lateral flexion. Also, right-hand grip strength was positively correlated with neck flexion and extension strengths. Injured wrestlers demonstrated significantly weaker neck flexion ($p<.001$), neck extension ($p=.023$), left shoulder adduction ($p=0.28$), left shoulder abduction($p=0.23$), right shoulder abduction ($p=0.37$), and right shoulder adduction($p=0.36$) strengths compared to non-injured wrestlers. On further analysis, neck flexion was found to be a significant injury risk predictor (OR=0.684, $p=.001$).

Conclusion: The prevalence of injuries in male freestyle wrestlers was 34.3%. Neck flexion strength was identified as a significant factor for predicting upper limb injury risk in freestyle male wrestlers. Hence, future randomised controlled trials should examine whether targeted cervical and shoulder conditioning interventions directly reduce injury incidence in the upper limb of freestyle wrestlers.

Keywords: Freestyle wrestling, Handgrip strength, Neck strength, Shoulder strength, Upper-limb injury risk.

PARTICULARS OF CONTRIBUTORS:
1. MPT Student, Department of Physiotherapy, Amity Institute of Health Allied Sciences, Amity University, Noida, Uttar Pradesh, India.
2. Assistant Professor, Department of Physiotherapy, Amity Institute of Health Allied Sciences, Amity University, Noida, Uttar Pradesh, India.
3. Physiotherapist, Delhi Sports School, Shamnath Marg, Adjacent to Ludlow Castle Sports Complex, Civil Lines, Delhi, India.

NAME, ADDRESS, E-MAIL ID OF THE CORRESPONDING AUTHOR:
Dr. Anu Bansal,
Assistant Professor, Department of Physiotherapy, Amity Institute of Health Allied Sciences, Amity University, Sector-125, Noida-201313, Uttar Pradesh, India.
Email: abansal@amity.edu

Abstract No.: PT 15

Effectiveness of Aquatic-based Rehabilitation Protocol among Athletes Post ACL Reconstruction: A Systematic Review

PRACHI TOMAR[1], ANU BANSAL[2], SADHANA MEENA[3]

ABSTRACT

Introduction: In recent years, Anterior Cruciate Ligament (ACL) reconstruction surgeries have increased globally, but it is still questionable whether aquatic rehabilitation significantly improves knee function over land-based physiotherapy. Water naturally removes much of the body's weight, which leads to a reduction in joint swelling and provides resistance with every movement, creating conditions that allow patients to start exercising earlier and with less pain than would be possible on dry land.

Aim: To review the effectiveness of aquatic-based rehabilitation protocol for improving static balance, functional gait capacity, and proprioception among athletes post ACL reconstruction.

Materials and Methods: PubMed, Scopus, Web of Science, and Google Scholar were searched for systematic reviews. Eight studies satisfied the inclusion criteria: four randomised controlled trials, one prospective comparative clinical study, one single-subject multiple-baseline case series, one randomised comparative experimental study, and one comparative experimental study. Methodological quality was assessed using the (PEDro) scale, and risk of bias was evaluated using the Cochrane Risk of Bias 2.0 tool.

Results: Eight studies meeting the inclusion criteria were analysed. PEDro scoring classified three studies as high quality (6-8/10), two as moderate (4-5/10), and three as low quality (2-3/10). Risk of bias assessment identified four studies at moderate overall risk and four at high risk. Notably, three out of four high-risk studies also scored lowest on the PEDro scale, demonstrating a consistent relationship between elevated bias and poor methodological quality. Studies included in this review with lower scores on PEDro and demonstrating a high risk of bias were excluded because of low methodological quality. But still, all the studies pointed towards aquatic rehabilitation being beneficial. Aquatic rehabilitation produced clinically meaningful improvements across all functional domains, with mean proprioception improving by 6.08° in joint position sense error, static balance improving by 4.03 mm^2 in sway area, and functional gait capacity increasing by 250 metres on the Six-Minute Walk Test.

Conclusion: Aquatic rehabilitation following ACLR demonstrates consistent clinical benefits, with six-week protocols delivered with three sessions weekly, proving most effective by targeting the early recovery in terms of static balance, joint position sense, and functional gait capacity. Future well-designed randomised trials should specifically investigate aquatic therapy's measurable effects on gait biomechanics, dynamic balance, and progressive strengthening protocols.

Keywords: Anterior cruciate ligament reconstruction, Aquatic rehabilitation, Balance, Gait, Hydrotherapy, Proprioception.

PARTICULARS OF CONTRIBUTORS:
1. MPT Student, Department of Physiotherapy, Amity Institute of Health Allied Sciences, Amity University, Noida, Uttar Pradesh, India.
2. Assistant Professor, Department of Physiotherapy, Amity Institute of Health Allied Sciences, Amity University, Noida, Uttar Pradesh, India.
3. Physiotherapist, Sports Injury Centre, Safdarjung Hospital, Ansari Nagar West, New Delhi, Delhi, India.

NAME, ADDRESS, E-MAIL ID OF THE CORRESPONDING AUTHOR:
Dr. Anu Bansal,
Assistant Professor, Department of Physiotherapy, Amity Institute of Health Allied Sciences, Amity University, Sector-125, Noida-201313, Uttar Pradesh, India.
Email: abansal@amity.edu

Abstract No.: PT 16

Evaluating the Efficacy of a Structured Intervention Programme on Physical and Neurological Frailty in Older Adults: Integrating Motor and Cognitive Rehabilitation through a Multidimensional Perspective

SHIVANGI SINGH[1], KAVITA SHARMA[2]

ABSTRACT

Introduction: For comparison, 7-16% of older adults (65 years and older) in the community are frail and are at higher risk of falls, hospitalisation, disability and death. This condition is caused by the progressive loss of the physiological reserve of different systems. Mild Cognitive Impairment (MCI) associated with physical frailty is called "*dual domain syndrome*". In this condition, there are bidirectional pathophysiological mechanisms between neurocognitive decline and physical deterioration. Management approaches remain silo-based and fail to consider the interrelated and reinforcing nature of the patient's condition.

Aim: This study aims to compare the effectiveness of a six-week structured multidimensional intervention (cognitive rehabilitation+physical exercise) to standard care in the reduction of neurological and physical frailty, in improvement of functional mobility and in improvement of health-related quality of life.

Materials and Methods: Mild to moderate frailty (Fried Frailty Phenotype score 1-4) and MCI (MoCA 19-25) were present in 100 adults who completed a Randomised Controlled Trial (RCT) in a parallel-group design with an assessor-blinded design. There was an even number of participants in the intervention and control groups (n=50). The 6-week treatment consisted of cognitive stimulation, balance training, strength training and dual-task motor-cognitive exercises. There were a total of 18 sessions. The control group received health education and low-intensity stretching. Since the data was found to be non-normal, non-parametric tests (Wilcoxon Signed-Rank test and Mann-Whitney U test) were used.

Results: There was no loss of data due to attrition. Significant improvements were shown by the intervention group in all outcomes ($p<0.001$). Improvements in MoCA were 3.04 points (SD=0.83), Timed Up and Go (TUG) was 2.21 seconds (SD=0.43) faster, and SF-36 was 10.62 points (SD=3.26) faster than before. The Fried score went down by 1.66 points (SD=0.48). For all participants in the intervention, there was improvement in all measures. The distribution of the TUG test result did not overlap and the maximum effect showed 0.000, which resulted in very significant differences between the groups (all $p<0.001$).

Conclusion: Older adults with physical and cognitive frailty can benefit greatly from a six-week integrated dual-domain rehabilitation program, which enhances their frailty, cognition, mobility, and overall well-being. It is recommended that this program be part of common geriatric care routines.

Keywords: Cognitive fragility, Dual-task training, Multidimensional rehabilitation, Older adults, Physiotherapy.

PARTICULARS OF CONTRIBUTORS:
1. MPT Student, Department of Physiotherapy, Amity Institute of Health Allied Sciences, Amity University, Noida, Uttar Pradesh, India.
2. Assistant Professor, Department of Physiotherapy, Amity Institute of Health Allied Sciences, Amity University, Noida, Uttar Pradesh, India.

NAME, ADDRESS, E-MAIL ID OF THE CORRESPONDING AUTHOR:
Dr. Kavita Sharma,
Assistant Professor, Department of Physiotherapy, Amity Institute of Health Allied Sciences, Amity University, Sector-125, Noida-201313, Uttar Pradesh, India.
Email: kavitasharma8.@amity.edu

Abstract No.: PT 17

Effect of Capacitive and Resistive Energy Transfer on Pain, Quality of Life and Functional Limitation in Spinal Disorders: A Systematic Review

RAEESHA RAZAQUE[1], ANKITA SHARMA[2], SARVOTAM CHAUHAN[3]

ABSTRACT

Introduction: Chronic spinal pain and disc-related issues are disabling and prevalent conditions leading to reduced quality of life, functional limitations and persistent pain. Capacitive and Resistive Energy Transfer (CRET), also called TECAR or monopolar radiofrequency therapy, is a non-invasive physical modality that uses capacitive and resistive modes to deliver long-wave radiofrequency energy (roughly 440-600 kHz), enabling treatment of both superficial and deep tissues. Despite being used more frequently in clinical settings for neuromuscular optimisation, tissue repair, and pain modulation pain its therapeutic effectiveness in managing chronic spinal pain requires a comprehensive synthesis of existing evidence.

Aim: To systematically evaluate the effectiveness of capacitive and resistive energy transfer in reducing pain intensity and functional disability in individuals with chronic spinal pain associated with spinal disorders.

Materials and Methods: The databases PubMed, MEDLINE, Web of Knowledge, PEDro, ProQuest, and Cochrane Library were thoroughly searched for research published from 2020 to December 2025. Included studies were randomised controlled trials, controlled clinical trials, and meta-analyses assessing monopolar radiofrequency or CRET treatments for musculoskeletal spinal pain. Primary outcomes were pain severity {Visual Analogue Scale (VAS)/Numerical Pain Rating Scale (NPRS)} and impairment (Neck impairment Index or functional surveys) were the main results. Methodological quality and risk of bias were evaluated using standardised assessment tools.

Results: Thirteen studies met the inclusion criteria, primarily involving musculoskeletal spinal conditions, degenerative spinal disorders, mechanical spinal pain and osteoarthritis-related spinal pain reported significant short-term reductions in pain intensity and improvements in functional disability following CRET therapy compared with baseline measures or control interventions. While there was little evidence to suggest that neuromuscular performance would be improved, several studies found increases in cervical mobility and muscle function. Only two studies showed low risk of bias, and there was clear variation in treatment regimens and outcome measures despite encouraging results. When compared to a placebo or conventional therapy alone, the included trials showed that CRET therapy significantly reduces neck-related disability and pain intensity in participants aged 20 to 40 years. Reports of improved muscular function and cervical mobility were also common.

Conclusion: Capacitive and resistive energy transfer appears to be a beneficial adjunctive intervention for reducing pain and functional disability in individuals with chronic spinal pain due to spinal disorders. While short-term clinical improvements are consistently reported, the heterogeneity of protocols and methodological limitations highlight the need for high-quality randomised controlled trials to establish standardised treatment guidelines and determine long-term effectiveness.

Keywords: Capacitive and resistive energy transfer, Disability, Functional limitation, Spinal pain.

PARTICULARS OF CONTRIBUTORS:
1. MPT Student, Department of Physiotherapy, Amity Institute of Health Allied Sciences, Amity University, Noida, Uttar Pradesh, India.
2. Associate Professor, Department of Physiotherapy, Amity Institute of Health Allied Sciences, Amity University, Noida, Uttar Pradesh, India.
3. Physiotherapist, Prognosia Healthcare, DLF Phase 2, Gurugram, Shahpur, Haryana, India.

NAME, ADDRESS, E-MAIL ID OF THE CORRESPONDING AUTHOR:
Dr. Ankita Sharma,
Associate Professor, Department of Physiotherapy, Amity Institute of Health Allied Sciences, Amity University, Sector-125, Noida-201313, Uttar Pradesh, India.
Email: asharma39@amity.edu

Abstract No.: PT 18

Effect of MENT Protocol on Pain and Functional Outcomes in Cervical Radiculopathy: A Randomised Controlled Trial

SANYA KAPOOR[1], CHANDAN KUMAR[2], KHYATEE[3]

ABSTRACT

Introduction: Neck discomfort with radiating upper limb symptoms is the hallmark of Cervical Radiculopathy (CR), a common neuromusculoskeletal disorder that frequently results in severe functional limits. Despite the widespread use of conventional physiotherapy interventions, results are still variable because multimodal techniques that target both neurological and musculoskeletal deficits are not fully integrated.

Aim: To assess how patients with CR respond to the MENT treatment in terms of pain reduction and improved functional abilities.

Materials and Methods: Thirty-six patients with CR were divided into two groups in this randomised controlled trial: the experimental group received the MENT regimen, while the control group received conventional physiotherapy. The intervention was conducted over two weeks using controlled sessions that focused on improving neuronal mobility, neuromuscular control, and pain regulation. The Numerical Pain Rating Scale (NPRS) and the Patient-Specific Functional Scale (PSFS) were used to measure outcomes both before and after the intervention.

Results: After the intervention, both groups showed statistically significant increases in both functional capacity and pain severity. However, compared to the control group, the experimental group showed a more noticeable improvement in functional outcomes and a higher reduction in pain, suggesting that the MENT procedure was more successful.

Conclusion: The study reveals that the MENT protocol is more effective than traditional physiotherapy in alleviating pain and enhancing functional capacity in cervical radiculopathy patients. A multimodal strategy, focusing on pain modulation and neuromuscular control, showed superior results in the experimental group.

Keywords: Cervical radiculopathy, Functional status, Neural mobilisation, Pain management, Physical therapy modalities, Rehabilitation.

PARTICULARS OF CONTRIBUTORS:
1. MPT Student, Department of Physiotherapy, Amity Institute of Health Allied Sciences, Amity University, Noida, Uttar Pradesh, India.
2. Professor, Department of Physiotherapy, Amity Institute of Health Allied Sciences, Amity University, Noida, Uttar Pradesh, India.
3. Physiotherapist, Pratyaksh Multi-Specialty Clinic, Indirapuram, Ghaziabad, Uttar Pradesh, India.

NAME, ADDRESS, E-MAIL ID OF THE CORRESPONDING AUTHOR:
Prof. (Dr.) Chandan Kumar,
Professor, Department of Physiotherapy, Amity Institute of Health Allied Sciences, Amity University, Sector-125, Noida-201313, Uttar Pradesh, India.
Email: ptchandan221@gmail.com

Abstract No.: PT 19

Digital Habits and Cognitive Health in Indian College Students

VANI KANDPAL[1], CHANDAN KUMAR[2]

ABSTRACT

Introduction: College students in India spend a significant portion of their waking hours on digital devices, but the overall cognitive effects of internet addiction, excessive screen time and psychological distress have not been studied adequately in the Indian university setting.

Aim: This study examined the combined and independent effects of internet addiction, daily screen time and psychological distress on cognitive performance of college students of Delhi-NCR.

Materials and Methods: The study was a cross-sectional study conducted among 331 students (18 to 26 years) from different universities of Delhi-NCR. Cognitive function was measured using the Montreal Cognitive Assessment (MoCA). Internet addiction, mental health, sleep, and physical activity {IAT, Depression Anxiety Stress Scales – 10 (DASS-10), Pittsburgh Sleep Quality Index (PSQI), International Physical Activity Questionnaire – Short Form (IPAQ-SF)} were assessed using validated self-report questionnaires, and daily screen time was self-reported. A two-block hierarchical regression

was used, with the lifestyle covariates entered before the three main predictors.

Results: Almost 88% of students exhibited above-normal internet usage, with nearly 50% classified as moderately addicted. Daily screen time averaged around 10 hours, and many experienced significant psychological distress. One-third scored below the MoCA threshold for mild cognitive concern. Internet addiction had the strongest negative effect on cognitive performance, followed by screen time and psychological distress, which also compounded cognitive disadvantages. After considering these digital and psychological factors, sleep quality and physical activity lost their status as independent predictors of cognition.

Conclusion: Heavy internet use, prolonged screen exposure and increased psychological distress represent a significant and modifiable burden to student cognitive health, indicating a need for university-based digital wellness programmes that address both behavioural and psychological dimensions of digital overuse.

Keywords: Cognitive functioning, College students, Internet addiction, Mental health, Screen time.

PARTICULARS OF CONTRIBUTORS:
1. MPT Student, Department of Physiotherapy, Amity Institute of Health Allied Sciences, Amity University, Noida, Uttar Pradesh, India.
2. Professor, Department of Physiotherapy, Amity Institute of Health Allied Sciences, Amity University, Noida, Uttar Pradesh, India.

NAME, ADDRESS, E-MAIL ID OF THE CORRESPONDING AUTHOR:
Prof. (Dr.) Chandan Kumar,
Professor, Department of Physiotherapy, Amity Institute of Health Allied Sciences, Amity University, Sector-125, Noida-201313, Uttar Pradesh, India.
Email: ptchandan221@gmail.com

Abstract No.: PT 20

Prevalence of Hand Deformities among Leprosy-affected Adults in Delhi: A Cross-sectional Study

SHEETAL RAWAT[1], NIDHI SHARMA[2], ANKIT JAIN[3], JAYA SHANKER TEDLA[4]

ABSTRACT

Introduction: Despite multidrug therapy's success, nerve damage causing hand deformities remains a persistent burden in leprosy patients post-cure, affecting daily life and carrying social stigma. This study aimed to address the lack of recent data on their prevalence and impact.

Aim: This study examined the prevalence, frequency, and pattern of hand deformities among leprosy-affected adults seeking treatment and investigated whether disease duration and type influence their occurrence, alongside the prevalence and distribution of hand sensory impairment.

Materials and Methods: The study included 300 adult leprosy patients recruited through purposive sampling at two Delhi leprosy centres between January and March 2026. Those with prior hand reconstructive surgery were excluded to ensure results reflected true disease conditions. Disability was assessed using the WHO Disability Grading Scale, while peripheral nerve involvement was evaluated through touch-pressure monofilament testing and pin-prick pain sensation tests.

Results: WHO Grade 2 hand deformities were found in 36.3% of subjects (n=109), with an additional 43.3% at Grade 1, meaning nearly 80% showed peripheral nerve damage. Most patients (84.3%) had multibacillary leprosy, which carried the highest deformity burden. Bilateral involvement predominated (65.1%), with claw hand most common (84.4%), followed by finger absorption (43.1%) and trophic ulcers/scars (41.3%). Sensory deficits affected 75% of all patients and 87.2% of those with visible deformities, with pain loss most strongly associated with deformity. Deformity rates increased with disease duration, rising from 12.7% under one year to 33% at six to 10 years.

Conclusion: Hand deformities affect over a third of leprosy patients in Delhi, persisting beyond cure. MB leprosy and prolonged disease duration carry the highest risk, underscoring the need for early diagnosis and strengthened deformity surveillance within national leprosy control programs.

Keywords: Cross-sectional study, Hand deformity, Leprosy, Multibacillary leprosy, Sensory loss, WHO disability grading.

PARTICULARS OF CONTRIBUTORS:
1. MPT Student, Department of Physiotherapy, Amity Institute of Health Allied Sciences, Amity University, Noida, Uttar Pradesh, India.
2. Professor, Department of Physiotherapy, Amity Institute of Health Allied Sciences, Amity University, Noida, Uttar Pradesh, India. **ORCID: 0000-0003-3999-1780**
3. Associate Professor, Department of Physiotherapy, SLAS, Mody University of Science and Technology, Rajasthan, India.
4. Associate Professor, Department of Medical Rehabilitation Sciences, College of Applied Medical Sciences, King Khalid University, Alfara, Abha, KSA.

NAME, ADDRESS, E-MAIL ID OF THE CORRESPONDING AUTHOR:
Prof. (Dr.) Nidhi Sharma,
Professor, Department of Physiotherapy, Amity Institute of Health Allied Sciences, Amity University, Sector-125, Noida-201313, Uttar Pradesh, India.
Email: nsharma30@amity.edu

Abstract No.: PT 21

Sleep Quality, Stress and their Combined Effect on Cognitive Function among University Students: A Cross-sectional Study

PALAK SEHGAL[1], CHANDAN KUMAR[2]

ABSTRACT

Introduction: University students face significant risks from poor sleep quality and high psychological stress, both of which can negatively impact cognitive functioning. Although evidence suggests a bidirectional link between stress and sleep issues, the interactive effects on cognition have not been well researched in this context.

Aim: This study aimed to assess the independent and combined effects of sleep quality and perceived stress on cognitive function among university students in Delhi-NCR, and to examine gender differences in these variables.

Materials and Methods: A cross-sectional observational study was conducted with 400 university students (aged 18-26 years) recruited from universities across Delhi-NCR using convenience sampling. Sleep quality was assessed using the Pittsburgh Sleep Quality Index (PSQI), perceived stress using the Perceived Stress Scale (PSS), and cognitive function using the Montreal Cognitive Assessment (MoCA). Physical activity (IPAQ-SF) and screen time were included as covariates. Hierarchical multiple regression and interaction analysis were performed using SPSS ($p<0.05$).

Results: The sample mean PSQI score (8.57±2.55) indicated poor sleep, while the mean PSS score (20.95±5.04) suggested moderate stress. The mean MoCA score of 22.58±4.21 was at the lower edge of the normative range. Significant negative correlations were found between poor sleep quality ($r=-0.488$, $p<0.001$) and higher perceived stress ($r=-0.511$, $p<0.001$) with cognitive performance. PSQI and PSS explained 32.3% of the variance in MoCA scores ($R^2=0.323$), but their interaction did not show significant effects ($\beta=-0.053$, $p=0.201$). Female students reported poorer sleep quality and higher stress, while male students had slightly higher MoCA scores ($p<0.001$).

Conclusion: Sleep quality and perceived stress are significant, independent, and additive predictors of cognitive function in university students. These findings support the integration of routine sleep and stress screening into university health programmes and the development of targeted cognitive wellness interventions, including sleep hygiene education and stress management strategies.

Keywords: Cognitive function, Montreal cognitive assessment, Perceived stress, Pittsburgh sleep quality index, Sleep quality, University students.

PARTICULARS OF CONTRIBUTORS:
1. MPT Student, Department of Physiotherapy, Amity Institute of Health Allied Sciences, Amity University, Noida, Uttar Pradesh, India.
2. Professor, Department of Physiotherapy, Amity Institute of Health Allied Sciences, Amity University, Noida, Uttar Pradesh, India.

NAME, ADDRESS, E-MAIL ID OF THE CORRESPONDING AUTHOR:
Prof. (Dr.) Chandan Kumar,
Professor, Department of Physiotherapy, Amity Institute of Health Allied Sciences, Amity University, Sector-125, Noida-201313, Uttar Pradesh, India.
Email: ptchandan221@gmail.com

Abstract No.: PT 22

Deep Cervical Flexor Muscle Activation for Rehabilitation of Cervicogenic Headache

SUNITA MARDI[1], RUCHIKA KALRA[2]

ABSTRACT

Introduction: Cervicogenic Headache (CEH) disorder, linked to dysfunction in the cervical spine, is often mistaken for migraine or tension-type headache. CEH is caused by nociceptive input from cervical tissues that refers pain to the head. Because of overlapping symptoms, CEH is frequently misdiagnosed as migraine or tension headaches. Epidemiology data suggest a prevalence of 0.17-4.1% in the general population. But the incidence rises significantly in patients with chronic or severe rising to 17.5% among individuals with severe headache. Recent studies in younger age groups highlight lifestyle contributors such as prolonged smartphone and laptop use, which contribute to sustained neck flexion, muscular strain and cervical dysfunction. In individuals aged 15-24 years, CEH prevalence has been reported at 10.4%, underscoring its growing clinical relevance in modern sedentary lifestyles.

Aim: To explore the evidence regarding the effectiveness of Deep Cervical Flexor (DCF) training to reduce pain and disability in patients of CEH.

Materials and Methods: An electronic literature review search was performed using the keyword deep cervical flexor training. Articles identified with the search were screened for the following inclusion criteria: Human subjects, randomised controlled trials, deep cervical flexor groups and cervicogenic headache. The diagnostic approach relies on patient-reported outcomes and validated assessment tools. The Neck Disability Index has been validated in CEH patients, demonstrating strong psychometric reliability (Cronbach's α=0.87; ICC=0.93). The cervical flexion rotating test is widely used to assess C1–C2 mobility deficit.

Results: Physiotherapy is consistently identified as the first-line management strategy for CEH. Randomised controlled trials demonstrated deep flexor training. Significantly reduces pain and disability compared to conventional isometric exercises, particularly in dentists and CEH patients. Strengthening cervical flexors and extensors in migraine populations has also been shown to improve cervical range of motion, reduce pain intensity, and decrease reliance on medication, highlighting the overlap between CEH and migraine–related cervical dysfunction. Furthermore, pressure biofeedback-guided DCF training produced superior outcomes in reducing headache disability and pain intensity compared to conventional exercise programmes.

Conclusion: CEH is clinically relevant yet an under-recognised condition. Reliable assessment tools such as the NDI- RU, careful application of CFRT, and targeted physiotherapy intervention–especially DCF strengthening and biofeedback–are essential for improving diagnostic measures with evidence-based rehabilitation strategies that enhance CEH management, reduce disability and promote long-term functional recovery.

Keywords: Cervicogenic headache, Deep cervical flexor strengthening training, Disability, Neck Disability Index, Neck pain.

PARTICULARS OF CONTRIBUTORS:
1. MPT Student, Department of Physiotherapy, Amity Institute of Health Allied Sciences, Amity University, Noida, Uttar Pradesh, India.
2. Teaching Associate, Department of Physiotherapy, Amity Institute of Health Allied Sciences, Amity University, Noida, Uttar Pradesh, India.

NAME, ADDRESS, E-MAIL ID OF THE CORRESPONDING AUTHOR:
Dr. Ruchika Kalra (PT),
Teaching Associate, Department of Physiotherapy, Amity Institute of Health Allied Sciences, Amity University, Sector-125, Noida-201313, Uttar Pradesh, India.
Email: rkalra1@amity.edu

Abstract No.: PT 23

Efficacy of Cawthorne–Cooksey Exercise: Mechanism behind Balance Recovery in the Population of Age 40-60 years

KHUSHBOO[1], RUCHIKA KALRA[2]

ABSTRACT

Introduction: Balance impairment and dizziness are common in individuals aged 40-60 years due to age-related decline in vestibular function. The vestibular system plays a crucial role in maintaining postural control by integrating visual, proprioceptive, and sensory inputs. Age-related decline in this integration can lead to dizziness and instability. Cawthorne–Cooksey exercises promote neural plasticity and sensory reweighting, making them relevant for this population. Vestibular rehabilitation, particularly Cawthorne–Cooksey exercises, is widely used to promote central compensation and improve functional balance. The study aims to find out the efficacy of Cawthorne-Cooksey exercises and understand the mechanism behind balance recovery in individuals aged 40-60 years.

Materials and Methods: This review synthesises evidence from 10 articles of randomised controlled trials and experimental studies evaluating the effectiveness of Cawthorne–Cooksey exercises and related vestibular rehabilitation protocols. The methodologies across studies included structured exercise programmes targeting gaze stabilisation, habituation, and postural control, with outcome measures such as the Berg Balance Scale, timed up and go test, dynamic gait index, and dizziness handicap scores.

Results: Findings consistently demonstrate significant improvements in balance, gait, and functional mobility following Cawthorne-Cooksey exercise intervention. The underlying mechanism involves vestibular adaptation, sensory reweighting, and enhancement of visual–vestibular interaction, leading to improved central nervous system compensation. Multimodal approaches incorporating these exercises showed comparatively greater improvements in static and dynamic balance parameters. The exercises stimulate repeated head and eye movements, facilitating habituation and neuroplastic changes. This enhances postural stability and functional independence. Compared to no intervention, outcomes were clinically meaningful, though multimodal approaches sometimes showed slightly superior results.

Conclusion: In conclusion, Cawthorne–Cooksey exercises are an effective, low-cost, and non-invasive intervention for improving balance in the 40-60 age population. Their role in facilitating neuroplastic changes and restoring sensory integration highlights their importance in clinical rehabilitation. Further research is recommended to explore long-term outcomes and optimise individualised protocols.

Keywords: Balance recovery, Cawthorne–Cooksey exercises, Middle-aged adults, Postural stability, Vestibular rehabilitation.

PARTICULARS OF CONTRIBUTORS:
1. MPT Student, Department of Physiotherapy, Amity Institute of Health Allied Sciences, Amity University, Noida, Uttar Pradesh, India.
2. Teaching Associate, Department of Physiotherapy, Amity Institute of Health Allied Sciences, Amity University, Noida, Uttar Pradesh, India.

NAME, ADDRESS, E-MAIL ID OF THE CORRESPONDING AUTHOR:
Dr. Ruchika Kalra (PT),
Teaching Associate, Department of Physiotherapy, Amity Institute of Health Allied Sciences, Amity University, Sector-125, Noida-201313, Uttar Pradesh, India.
Email: rkalra1@amity.edu

Abstract No.: PT 24

Evaluating Physiotherapy Modalities in Cerebral Palsy: A Systematic Review of Functional and Quality Outcomes

KAJAL CHAUDHARY[1], MEENA GUPTA[2]

ABSTRACT

Introduction: Physiotherapy remains central to Cerebral Palsy (CP) rehabilitation, yet the comparative evidence across diverse modalities such as task-specific training, constraint-induced therapy, hydrotherapy, and hippotherapy has not been consistently synthesised.

Aim: To evaluate the effectiveness of physiotherapy modalities in improving motor function, participation, and quality of life among children with CP.

Materials and Methods: Between 2015 and 2025, we systematically searched the electronic databases PubMed, Scopus, and PEDro to find randomised controlled trials and systematic reviews related to children with CP between the ages of 2 and 18 years. The outcomes we recorded included gross motor function, upper limb activity, participating in everyday life, and caregiver-reported quality of life. Because of differences in research design and analysis methods across the studies, narrative synthesis was used to summarise the findings.

Results: Thirty-two studies met the inclusion criteria. Task-specific and intensive physiotherapy programmes consistently improved Gross Motor Function Measure (GMFM) scores. Constraint-induced movement therapy yielded moderate gains in upper limb function. Hydrotherapy and hippotherapy enhanced participation and psychosocial well-being. Evidence for neurodevelopmental therapy was mixed, with limited superiority over task-specific approaches.

Conclusion: Physiotherapy interventions demonstrate measurable benefits in CP rehabilitation, particularly task-specific and intensive programmes. Future trials should prioritise standardised outcome measures and long-term follow-up to strengthen evidence for clinical practice.

Keywords: Cerebral palsy, Constraint-induced movement therapy, Hippotherapy, Hydrotherapy, Motor skills disorders, Physical therapy modalities, Quality of life.

PARTICULARS OF CONTRIBUTORS:
1. MPT Student, Department of Physiotherapy, Amity Institute of Health Allied Sciences, Amity University, Noida, Uttar Pradesh, India.
2. Associate Professor, Department of Physiotherapy, Amity Institute of Health Allied Sciences, Amity University, Noida, Uttar Pradesh, India.

NAME, ADDRESS, E-MAIL ID OF THE CORRESPONDING AUTHOR:
Dr. Meena Gupta,
Associate Professor, Department of Physiotherapy, Amity Institute of Health Allied Sciences, Amity University, Sector-125, Noida-201313, Uttar Pradesh, India.
Email: mgupta9@amity.edu

Abstract No.: PT 25

Effects of Pilates on Urinary Incontinence in Pre-menopausal Females: A Systematic Review

ISHA TYAGI[1], ANKITA SHARMA[2]

ABSTRACT

Introduction: The impaired pelvic floor muscle function and impaired quality of life are associated with urinary incontinence in premenopausal women. Pilates is a controlled core strengthening program effective in improving urinary incontinence symptoms in females.

Aim: The aim of this is to systematically review the effects of Pilates in improving the severity of urinary incontinence, pelvic floor muscle strength and quality of life in premenopausal females.

Materials and Methods: The keywords used for search included, 'Pilates', 'pelvic floor muscle function', 'quality of life', 'urinary incontinence', 'quality of life', 'randomised controlled trials'. Two independent reviewers screened the included databases and extracted the findings based on pre-decided participant characteristics, intervention protocols, outcome measures, and key findings. The databases PubMed, MEDLINE, Clarivate, PEDro, ProQuest, and Cochrane Library were thoroughly searched for data published in the last two decades, i.e., from 2005 to 2025. Included studies were randomised controlled trials, controlled clinical trials, and meta-analyses assessing the effect of Pilates-based treatment on the severity of urinary incontinence, pelvic floor muscle strength and quality of life in premenopausal females. Methodological quality and risk of bias were evaluated using standardised assessment tools.

Results: In the data extracted, seven randomised controlled trials met the inclusion criteria. Pilates interventions have shown significant improvements in urinary incontinence severity, pelvic floor muscle strength, and quality of life compared with baseline measures. Pilates generally reported greater improvements in muscle activation and symptom reduction as compared to the conventional or only pelvic floor musculature strengthening group.

Conclusion: Pilates-based interventions are effective in improving urinary continence in pre-menopausal females. Pilates may represent a feasible programme, particularly when access to supervised rehabilitation is limited.

Keywords: Pilates, Pre-menopausal females, Quality of Life, Systematic review, Urinary incontinence.

PARTICULARS OF CONTRIBUTORS:
1. MPT Student, Department of Physiotherapy, Amity Institute of Health Allied Sciences, Amity University, Noida, Uttar Pradesh, India.
2. Associate Professor, Department of Physiotherapy, Amity Institute of Health Allied Sciences, Amity University, Noida, Uttar Pradesh, India.

NAME, ADDRESS, E-MAIL ID OF THE CORRESPONDING AUTHOR:
Dr. Ankita Sharma,
Associate Professor, Department of Physiotherapy, Amity Institute of Health Allied Sciences, Amity University, Sector-125, Noida-201313, Uttar Pradesh, India.
Email: asharma39@amity.edu

Abstract No.: PT 26

Pulsed Electromagnetic Field Therapy for Anterior Cruciate Ligament Injury: A Pilot Clinical Study

NOORA RIZWAN[1], SANJIB KUMAR DAS[2]

ABSTRACT

Introduction: Anterior Cruciate Ligament (ACL) injuries are common among young and physically active individuals and are frequently associated with pain, restricted knee mobility, and functional limitations that adversely affect quality of life. Pulsed Electromagnetic Field (PEMF) therapy has emerged as a non-invasive electrotherapy modality with potential benefits in musculoskeletal rehabilitation through its effects on pain reduction, inflammation modulation, and tissue repair. However, despite its growing clinical use, there is a lack of studies investigating the efficacy of PEMF therapy in individuals with ACL injuries.

Aim: To assess the effectiveness of PEMF therapy combined with conventional physiotherapy in pain relief and functional recovery among patients with Grade I-II ACL injuries.

Materials and Methods: This pilot clinical study evaluated the effectiveness of PEMF therapy in the rehabilitation of patients with Grade I-II ACL injuries. A total of 20 participants received PEMF therapy using the ALMAG-02 device by Elamed in combination

with conventional physiotherapy rehabilitation for four weeks. Pain intensity was assessed using the Numerical Rating Scale (NRS), functional performance using the International Knee Documentation Committee (IKDC) score, knee range of motion using a goniometer, and quality of life using the Short Form-36 (SF-36) questionnaire.

Results: Statistically significant improvements were observed in pain intensity, knee range of motion, functional performance, and quality of life following treatment. Pain scores decreased significantly, while knee flexion, IKDC functional scores, and SF-36 quality of life scores showed marked improvement after the intervention.

Conclusion: PEMF therapy combined with conventional rehabilitation may be effective in reducing pain and improving functional recovery, knee mobility, and quality of life in patients with Grade I-II ACL injuries.

Keywords: Anterior cruciate ligament injuries, Pain, Physical therapy, Quality of life, Rehabilitation.

PARTICULARS OF CONTRIBUTORS:
1. MPT Student, Department of Physiotherapy, Amity Institute of Health Allied Sciences, Amity University, Noida, Uttar Pradesh, India.
2. Associate Professor, Department of Physiotherapy, Amity Institute of Health Allied Sciences, Amity University, Noida, Uttar Pradesh, India.
ORCID: 0000-0002-5083-5001

NAME, ADDRESS, E-MAIL ID OF THE CORRESPONDING AUTHOR:
Dr. Sanjib Kumar Das,
Associate Professor, Department of Physiotherapy, Amity Institute of Health Allied Sciences, Amity University, Sector-125, Noida-201313, Uttar Pradesh, India.
Email: skdas@amity.edu; sanjib_bpt@yahoo.co.in

Abstract No.: PT 27

Effect of Electrical Stimulation during Functional Proprioceptive Neuromuscular Facilitation Training on Hand Function and Spasticity among Individuals with Sub-acute Stroke

NONGMAITHEM PUJAN[1], MEENA GUPTA[2], ROHIT GUPTA[3]

ABSTRACT

Introduction: Stroke is a leading cause of chronic disability, frequently resulting in upper limb spasticity and impaired hand function that compromise daily independence. While Electrical Muscle Stimulation (EMS) and Proprioceptive Neuromuscular Facilitation (PNF) are both established rehabilitation modalities, evidence on their combined use and the optimal timing of integration remains limited.

Aim: To evaluate the effect of electrical stimulation during functional PNF training to help improve hand function and reduce spasticity in individuals with sub-acute stroke.

Materials and Methods: Thirty-six sub-acute stroke patients (one to six months post-onset) were randomly allocated into three equal groups. Group A received EMS before PNF, Group B received EMS simultaneously with PNF, and Group C received PNF alone. All groups completed 20 sessions over four weeks (five sessions/week). Outcomes of hand function and spasticity were assessed using the Michigan Hand Outcomes Questionnaire (MHQ), Chedoke Arm and Hand Activity Inventory (CAHAI-13), and Modified Modified Ashworth Scale (MMAS) before and after intervention.

Results: All groups improved significantly, but Group B (concurrent EMS+PNF) demonstrated the greatest gains across all measures. Group B achieved the highest hand function scores (MHQ: 86.67±4.09; CAHAI-13: 82.67±4.54) and lowest spasticity (MMAS: 8.29±0.66), outperforming Group A (MHQ: 55.08±3.77; CAHAI-13: 46.75±3.96; MMAS: 11.04±0.72) and Group C (MHQ: 64.12±3.00; CAHAI-13: 55.67±3.11; MMAS: 9.79±0.54). All comparisons involving Group B were statistically significant ($p<0.001$).

Conclusion: Concurrent application of EMS during PNF training yielded superior improvements in hand function and spasticity over PNF alone or pre-applied EMS, supporting its use as a more effective rehabilitation strategy for sub-acute stroke patients.

Keywords: Chedoke Arm and Hand Activity Inventory, Electrical Muscle Stimulation, Michigan Hand Outcomes Questionnaire.

PARTICULARS OF CONTRIBUTORS:
1. MPT Student, Department of Physiotherapy, Amity Institute of Health Allied Sciences, Amity University, Noida, Uttar Pradesh, India.
2. Associate Professor, Department of Physiotherapy, Amity Institute of Health Allied Sciences, Amity University, Noida, Uttar Pradesh, India.
3. Physiotherapist, Osteorehab Clinic, Movement Science Institute, Gurgaon, Haryana, India.

NAME, ADDRESS, E-MAIL ID OF THE CORRESPONDING AUTHOR:
Dr. Meena Gupta,
Associate Professor, Department of Physiotherapy, Amity Institute of Health Allied Sciences, Amity University, Sector-125, Noida-201313, Uttar Pradesh, India.
Email: mgupta9@amity.edu

Abstract No.: PT 28

Effect of Dry Needling on Compensatory Trigger Points in Overhead Athletes with Supraspinatus Tendonitis

YUKTA SINGH[1], JASOBANTA SETHI[2], ZAHEEN KHAN[3]

ABSTRACT

Introduction: Shoulder injuries, particularly supraspinatus tendonitis, are very common among athletes involved in overhead sports such as Cricket, basketball, volleyball, and badminton, due to the repetitive nature of these activities. Such injuries are frequently complicated by the formation of compensatory trigger points within adjacent musculature, slowing the recovery and performance in athletics. There is evidence to suggest that management of these secondary muscular malfunctions may include Dry Needling (DN) that targets myofascial trigger points, but with limited evidence. The present study undertakes research on the clinical effectiveness of DN in the line of treatment of supraspinatus tendonitis among compensatory trigger points in overhead athletes.

Aim: This study aims to assess the effect of DN on compensatory trigger points in overhead athletes with supraspinatus tendonitis.

Materials and Methods: A single-blind, parallel-group Randomised Controlled Trial (RCT) conducted on 52 overhead athletes aged 18-35 years with clinically confirmed supraspinatus tendinitis and active or latent MTrPs in the upper trapezius, infraspinatus, or levator scapulae were randomised (lottery method with opaque sealed envelopes) to two groups of 26 each. Control Group (n=26) received conventional physiotherapy for 4 weeks (5 sessions/week): pulsed ultrasound (1 W/cm^2, 1 MHz, 7 min), interferential current therapy (50 Hz, 15 mA, 15 min), and a structured rehabilitation programme including active-assisted ROM exercises, Thera-band strengthening, and progressive loading. Experimental Group (n=26) received dry needling along with conventional therapy of compensatory MTrPs (upper trapezius, infraspinatus, levator scapulae) using sterile filiform needles with the pistoning technique to local twitch response, 1-2 sessions per week for 4 weeks. Assessed at baseline and at 4 weeks. Outcome measures included pain intensity and shoulder Range of Motion (ROM).

Results: The experimental group demonstrated statistically superior improvements across all clinical parameters compared to the control group. Following the intervention, NPRS scores in the Experimental Group decreased from 7.58±0.5 to 2.35±0.69 (p=0.001), while the Control Group showed a minor reduction from 7±0.8 to 4,73±0.96 (p=0.04). Range of motion (ROM) in the Experimental Group also showed highly significant gains (p=0.001), with flexion increasing from 121.15°±1.67 to 166.27°±2.75, abduction increasing from 109.08°±1.72 to 154.5°±2.53, external rotation increasing from 45.46°±0.95 to 68.27°±1.56, and internal rotation increasing from 46.1±1.8 to 65.08±1.9.

Conclusion: The results of this pilot study indicate that the integration of DN with conventional physiotherapy is significantly more effective than physiotherapy alone in treating overhead athletes with supraspinatus tendinitis. The experimental group achieved superior outcomes in pain reduction and joint mobility. These findings suggest that addressing compensatory myofascial trigger points through dry needling can accelerate the rehabilitation process and improve overall shoulder performance in this population.

Keywords: Dry needling, Overhead athletes, Shoulder rehabilitation, Supraspinatus tendonitis, Trigger point.

PARTICULARS OF CONTRIBUTORS:
1. MPT Student, Department of Physiotherapy, Amity Institute of Health Allied Sciences, Amity University, Noida, Uttar Pradesh, India.
2. Professor and Director, Department of Physiotherapy, Amity Institute of Health Allied Sciences, Amity University, Noida, Uttar Pradesh, India.
3. Physiotherapist, Alpine Physiotherapy Clinic, Sector-12, Noida, Uttar Pradesh, India.

NAME, ADDRESS, E-MAIL ID OF THE CORRESPONDING AUTHOR:
Prof. (Dr.) Jasobanta Sethi,
Professor and Director, Department of Physiotherapy, Amity Institute of Health Allied Sciences, Amity University, Sector-125, Noida-201313, Uttar Pradesh, India.
Email: jsethi@amity.edu; jasobantsethi@yahoo.co.in

Abstract No.: PT 29

A Comparative Study of BOSU Ball Training versus Traditional Balance Exercises on Recurrent Ankle Sprain in University-level Basketball Players

SHALU KUMARI[1], RITIKA KUMAR[2]

ABSTRACT

Introduction: Ankle sprain is one of the most common injuries among basketball players, frequently leading to recurrent episodes and Chronic Ankle Instability (CAI). These conditions negatively affect balance, proprioception, and functional performance. Although rehabilitation programs commonly include balance training, there is limited evidence comparing the effectiveness of BOSU ball training and traditional balance exercises. Enhancing neuromuscular control and postural stability is essential for preventing recurrence and improving athletic performance.

Aim: To evaluate and compare the effectiveness of BOSU ball training and traditional balance exercises on balance performance, ankle stability, and functional outcomes in university-level basketball players with recurrent ankle sprain.

Materials and Methods: A comparative study was conducted on 42 university-level basketball players aged 18-25 years with recurrent ankle sprain. Participants were randomly allocated into two groups: BOSU ball training group (n=21) and traditional balance exercise group (n=21). Both groups underwent a 6-week intervention program (four sessions per week). Outcome measures included the Single Leg Stance Test, Y-Balance Test, and functional performance assessments. Statistical analysis was performed using paired and independent t-tests with significance set at $p<0.05$.

Results: Both groups showed statistically significant improvements in balance and functional performance ($p<0.001$). Within-group analysis demonstrated the effectiveness of both interventions. However, between-group comparison revealed that traditional balance exercises showed significantly greater improvement in dynamic balance (Y-Balance Test) compared to BOSU ball training ($p<0.001$).

Conclusion: Both BOSU ball training and traditional balance exercises are effective in improving balance and functional performance in basketball players with recurrent ankle sprain. However, traditional balance exercises were found to be more effective in enhancing dynamic balance and overall functional outcomes. These findings support the inclusion of structured balance training in rehabilitation programs to prevent recurrence and improve performance.

Keywords: Functional balance, Single leg stance test, Traditional balance exercise, Y-balance test.

PARTICULARS OF CONTRIBUTORS:
1. MPT Student, Department of Physiotherapy, Amity Institute of Health Allied Sciences, Amity University, Noida, Uttar Pradesh, India.
2. Teaching Associate, Department of Physiotherapy, Amity Institute of Health Allied Sciences, Amity University, Noida, Uttar Pradesh, India.

NAME, ADDRESS, E-MAIL ID OF THE CORRESPONDING AUTHOR:
Dr. Ritika Kumar (PT),
Teaching Associate, Department of Physiotherapy, Amity Institute of Health Allied Sciences, Amity University, Sector-125, Noida-201313, Uttar Pradesh, India.
Email: rkumar21@amity.edu

Abstract No.: PT 30

Impact of Spencer's Technique with a Combination of TECAR Therapy in Rehabilitation for Post-operative 6-Week Rotator Cuff Repair (2-4 cm Tear) in Amateur Athletes

ANMOL GULYANI[1], ANU BANSAL[2], SADHANA MEENA[3]

ABSTRACT

Introduction: Conventional physiotherapy may be insufficient to restore shoulder Range of Motion (ROM), pain, and function following 2-4 cm rotator cuff repair. Spencer's technique and Transfer of Energy Capacitive and Resistive (TECAR) therapy have individually demonstrated efficacy in shoulder rehabilitation, yet their combined post-operative use remains unexplored.

Aim: To evaluate the combined effect of Spencer's technique and TECAR therapy, along with conventional physiotherapy, on shoulder ROM, pain, and functional disability in amateur athletes following rotator cuff repair.

Materials and Methods: A parallel-group Randomised Controlled Trial (RCT) (CONSORT 2010) was conducted at the Sports Injury Centre, Safdarjung Hospital, New Delhi. Forty-two amateur athletes (2-4 cm full-thickness tear, 6 weeks post-operative) were randomised to Group 1 (conventional physiotherapy+Spencer's Technique+TECAR; n=21), in which a phased TECAR protocol (capacitive, combined capacitive-resistive, and resistive dynamic modes) was delivered. Group 2 (conventional physiotherapy alone; n=21) was given for 6 weeks (18 sessions). Shoulder ROM (inclinometer), pain {Visual Analogue Scale (VAS)}, and disability {Shoulder Pain and Disability Index (SPADI)} were assessed at baseline and post-intervention and analysed using statistical tools, the Wilcoxon Signed-Rank and Mann-Whitney U tests ($p<0.05$)

Results: Group 1 demonstrated significant improvements across all outcomes ($p<0.001$): with improvement in flexion range by ~133°, abduction range by ~139°, external rotation range by ~ 50°, VAS 5.43, and SPADI reduced by ~ 61%. Group 2 showed no significant change ($p>0.05$), with SPADI marginally worsening. On intergroup analysis, statistically significant differences were observed ($p<0.001$).

Conclusion: Spencer's technique, combined with TECAR therapy as an adjunct to conventional physiotherapy, produced significant improvements in shoulder ROM, pain, and functional disability following rotator cuff repair, indicating clear superiority over conventional physiotherapy alone. These findings support integrating this combined approach into post-operative rehabilitation protocols for amateur athletes with rotator cuff repair.

Keywords: Post-operative rehabilitation, Rotator cuff repair, Shoulder ROM, Spencer's technique, TECAR therapy.

PARTICULARS OF CONTRIBUTORS:
1. MPT Student, Department of Physiotherapy, Amity Institute of Health and Allied Sciences, Amity University, Noida, Uttar Pradesh, India.
2. Assistant Professor, Department of Physiotherapy, Amity Institute of Health Allied Sciences, Amity University, Noida, Uttar Pradesh, India.
3. Physiotherapist, Sports Injury Centre, Safdarjung Hospital, Ansari Nagar West, New Delhi, India.

NAME, ADDRESS, E-MAIL ID OF THE CORRESPONDING AUTHOR:
Dr. Anu Bansal,
Assistant Professor, Department of Physiotherapy, Amity Institute of Health Allied Sciences, Amity University, Sector-125, Noida-201313, Uttar Pradesh, India.
Email: abansal@amity.edu

Abstract No.: PT 31

Effect of Neurobics-based Task Training on Cognition and Balance in Older Adults

BHAVYA KAKKAR[1], MEENA GUPTA[2], VIDHU VARSHNEY[3]

ABSTRACT

Introduction: Aging is commonly associated with a gradual decline in both cognitive ability and postural control, which together increase dependency and fall risk in older adults. Conventional exercise programmes tend to address physical fitness without adequately targeting the cognitive processes that underpin safe mobility. Neurobics is a form of training that combines multisensory stimulation with novel cognitive-motor tasks that has shown

promise in improving brain function. Incorporating these principles into structured task training may better preserve cognition, balance, and real-world functional mobility in older adults.

Aim: To evaluate the effect of neurobics-based task training on cognitive function and balance in older adults, and to compare it against a supervised walking program.

Materials and Methods: Seventy-two older adults aged 60-80 years with cognitive impairment (MoCA 18-25) and balance deficits were randomly assigned to either a neurobics-based task training group or a supervised walking group. Both groups attended three sessions per week for four weeks. Outcomes were assessed at baseline and post-intervention using the Montreal Cognitive Assessment (MoCA), Four-Stage Balance Test (4SBT), and Dual-Task Timed Up and Go (DT-TUG).

Results: The neurobic group showed significantly greater improvements across all outcomes. MoCA scores increased by a mean of 2.89 points in the neurobic group versus 0.66 points in controls ($p<0.001$). 4SBT scores improved by 1.39 points compared to 0.31 points in controls ($p<0.001$). DT-TUG completion time reduced by 2.39 seconds in the neurobic group versus 0.42 seconds in controls ($p<0.001$).

Conclusion: A four-week neurobics-based task training program produced significantly greater gains in cognitive function, static balance, and dual-task mobility compared to supervised walking in older adults with mild cognitive impairment. The intervention is practical, low-cost, and achievable within a short timeframe, supporting its use in geriatric physiotherapy practice.

Keywords: Cognitive dysfunction, Dual-task performance, Postural balance, Task performance.

PARTICULARS OF CONTRIBUTORS:
1. MPT Student, Department of Physiotherapy, Amity Institute of Health Allied Sciences, Amity University, Noida, Uttar Pradesh, India.
2. Associate Professor, Department of Physiotherapy, Amity Institute of Health Allied Sciences, Amity University, Noida, Uttar Pradesh, India.
3. Physiotherapist, NeuroActiv Physiotherapy Clinic, Krishna Nagar, New Delhi, India.

NAME, ADDRESS, E-MAIL ID OF THE CORRESPONDING AUTHOR:
Dr. Meena Gupta,
Associate Professor, Department of Physiotherapy, Amity Institute of Health Allied Sciences, Amity University, Sector-125, Noida-201313, Uttar Pradesh, India.
Email: mgupta9@amity.edu

Abstract No.: PT 32

Comparative Effect of Telerehabilitation and Manual Physical Therapy in the Management of Shoulder Impingement Syndrome

ADNAN WASI[1], RABAB KAUR[2], HOORIYA AFSAR[3]

ABSTRACT

Introduction: Shoulder Impingement Syndrome (SIS) is one of the most prevalent causes of shoulder pain and functional dysfunction. While conventional manual physical therapy remains a cornerstone of conservative management, digital health infrastructure has introduced telerehabilitation as a highly flexible alternative. However, direct comparative evidence regarding their clinical efficacy in localised setups remains limited.

Aim: To evaluate and compare the clinical effectiveness of a structured telerehabilitation program versus conventional manual physical therapy on pain intensity and functional disability in patients with shoulder impingement syndrome.

Materials and Methods: A randomised comparative clinical trial enrolled 40 participants diagnosed with SIS (age 20-50 years; symptoms >4 weeks). Participants were randomly allocated into two equal groups (n=20 each): Group A (telerehabilitation) received a 6-week technology-assisted therapeutic exercise and scapular stabilisation protocol via online video conferencing, while Group B (manual physical therapy) received a 6-week in-person, hands-on joint and soft-tissue mobilisation protocol. All interventions were delivered over 6 weeks at a frequency of 3 sessions per week (approximately 45-60 minutes per session). The primary outcome measures were pain intensity assessed via the Numeric Pain Rating Scale (NPRS) and functional disability quantified via the Shoulder Pain and Disability Index (SPADI) percentage score. Data analysis was executed using paired and independent sample t-tests.

Results: Both groups demonstrated statistically highly significant within-group improvements ($p<0.001$). Group A (n=20): Mean SPADI score decreased significantly from a baseline of 60.59±2.37% to a post-intervention phase of 36.03±6.84% (Cohen's d=4.86), while the mean NPRS score dropped from 7.15±0.75 to 3.10±1.52 (d=3.39). Group B (n=20): Mean SPADI score decreased significantly from a baseline of 60.46±2.29% to a post-intervention phase of 36.68±7.36% (d=4.39), while the mean NPRS score dropped from 7.15±0.75 to 3.05±1.61 (d=3.25). Crucially, inter-group independent sample t-tests revealed no statistically significant differences between the two modalities at the post-intervention phase for either the final SPADI ($p=0.774$) or the final NPRS ($p=0.920$), indicating equivalent clinical efficacy.

Conclusion: Both multimodal protocols produced clinically meaningful and statistically significant gains in pain alleviation and upper-limb function following 6 weeks of structured rehabilitation. The study demonstrates that structured telerehabilitation is clinically non-inferior and achieves functional recovery fully comparable to traditional, hands-on manual physical therapy. Remote digital delivery models represent a scientifically validated, accessible,

and cost-effective paradigm for the conservative management of Shoulder Impingement Syndrome.

Keywords: Numerical pain rating scale, Post-intervention mean, Shoulder Pain and Disability Index.

PARTICULARS OF CONTRIBUTORS:
1. MPT Student, Department of Physiotherapy, Amity Institute of Health Allied Sciences, Amity University, Noida, Uttar Pradesh, India.
2. Assistant Professor, Department of Physiotherapy, Amity Institute of Health Allied Sciences, Amity University, Noida, Uttar Pradesh, India.
3. Physiotherapist, Balance and Move Physiotherapy Clinic, Zakir Nagar, New Delhi, India.

NAME, ADDRESS, E-MAIL ID OF THE CORRESPONDING AUTHOR:
Dr. Rabab Kaur (PT),
Assistant Professor, Department of Physiotherapy, Amity Institute of Health Allied Sciences, Amity University, Sector-125, Noida-201313, Uttar Pradesh, India.
Email: rkaur4@amity.edu

Abstract No.: PT 33

Effect of Core Strengthening on Function, Grip Strength and Core Strength in Racket Sport Athletes with Lateral Epicondylitis

SOUMYABRATA DEV ROY[1], ANU BANSAL[2], HOORIYA AFSAR[3]

ABSTRACT

Introduction: Lateral epicondylitis in racket sport athletes is widely managed through conventional physiotherapy targeting the distal elbow. However, the lumbopelvic core has been largely ignored in rehabilitation protocols. No randomised controlled trial to date has examined this.

Aim: The study aimed to determine whether integrating a structured, progressive core strengthening programme with conventional physiotherapy significantly yields greater improvement in functional disability, grip strength, and lumbopelvic stability in any racket sport athletes with lateral epicondylitis.

Materials and Methods: A parallel group, single-blind, randomised controlled trial was conducted. Fifty-two competitive racket sport athletes (18 to 40 years) with confirmed lateral epicondylitis and core stability deficit - defined as a pressure deviation ≥10 mmHg on the Sahrmann core stability test level 3 with the pressure biofeedback unit were included in the study. The experimental group (Group A,n=26) received a progressive 5-week core strengthening program alongside conventional physiotherapy, while the control group (Group B, n=26) received conventional physiotherapy alone. Patient Rated Tennis Elbow Evaluation (PRTEE), Grip Strength (dynamometry) and SCST level 3 PBU deviations were assessed at baseline and week 5.

Results: There were statistically significant differences between pre-test and post-test results among all subjects ($p<0.001$). The group of subjects A had better performance than group B on functional disability (PRTEE reduced by ~15 points; $t(50)=-8.761$, $p<0.001$) and core stability (SCST PBU deviation reduced by ~7.38 mmHg; $t(50)=-8.94$). Grip Strength improved in both groups with no statistically significant difference.

Conclusion: Conventional physiotherapy with a targeted, progressive core strengthening program produces significantly superior improvements in functional disability and lumbopelvic stability, while grip strength increased equally in both groups.

Keywords: Functional disability, Kinetic chain rehabilitation, Sahrmann core stability test.

PARTICULARS OF CONTRIBUTORS:
1. MPT Student, Department of Physiotherapy, Amity Institute of Health Allied Sciences, Amity University, Noida, Uttar Pradesh, India.
2. Assistant Professor, Department of Physiotherapy, Amity Institute of Health Allied Sciences, Amity University, Noida, Uttar Pradesh, India.
3. Physiotherapist, Balance and Move Physiotherapy Clinic, Zakir Nagar, New Delhi, India.

NAME, ADDRESS, E-MAIL ID OF THE CORRESPONDING AUTHOR:
Dr. Anu Bansal,
Assistant Professor, Department of Physiotherapy, Amity Institute of Health Allied Sciences, Amity University, Sector-125, Noida-201313, Uttar Pradesh, India.
Email: abansal@amity.edu

Abstract No.: PT 34

Effect of Error Augmentation-based Treadmill Training with Functional Electrical Stimulation on Balance and Gait among Post-stroke Individuals

SAKSHI SONI[1], KAVITA SHARMA[2], ROHIT GUPTA[3]

ABSTRACT

Introduction: Stroke is one of the foremost causes of acquired neurological disability globally. Persistent deficits in gait and balance following stroke profoundly impair functional independence, mobility, and quality of life. While treadmill-based gait training and Functional Electrical Stimulation (FES) have individually demonstrated efficacy in post-stroke rehabilitation, the combined influence of these approaches alongside Error Augmentation (EA)- a motor learning strategy that harnesses deliberate perturbation to facilitate adaptive corrections has not been rigorously evaluated, particularly within the Indian clinical context.

Aim: To find out the effect of EA-based treadmill training with FES on balance and gait among individuals with stroke.

Materials and Methods: A multicentre randomised controlled trial enrolled 28 subacute post-stroke participants (age 40-70 years; 4 weeks to 6 months post-stroke). Participants were randomised into Group A (Treadmill Training, n=10), Group B (Treadmill Training+FES, n=9), or Group C (Treadmill Training+FES+EA, n=9). All interventions were delivered over 4 weeks (5 sessions/week, approximately 45-60 minutes/session). The primary outcome measures were gait speed assessed via the 10-Metre Walk Test (1OMWT) and step length and symmetry via instrumented gait analysis. Secondary outcomes included balance measured by the Berg Balance Scale (BBS) and the Timed Up and Go (TUG) test, functional mobility assessed via the Functional Ambulation Category, and endurance measured by the 6-Minute Walk Test.

Results: All groups demonstrated statistically significant within-group improvements ($p<0.05$). Group A (n=10): BBS A +10.20+3.55, TUG A −6.96+1.84 s, speed A +0.381+0.09 m/s. Group B (n=9): BBS A +10.78+2.77, TUG A −5.12+1.55 s, speed A +0.328+0.07 m/s. Group C (n=9): BBS A +10.67+2.40, TUG A −6.69+2.55 s, speed A +0.352+0.06 m/s, cadence A +14.44+4.19 steps/min (highest across groups). Post-intervention walking speed for Groups A and C both attained 0.90 m/s, approaching the community ambulation threshold.

Conclusion: All three multimodal protocols produced clinically meaningful and statistically significant gains in balance and gait following 4 weeks of structured rehabilitation. The EA-based combined protocol (Group C) offered the most comprehensive locomotor improvement profile, particularly in rhythmic gait parameters, suggesting its potential as a preferred intervention for enhancing cadence and overall gait quality in the subacute stroke population.

Keywords: Berg Balance Scale, Motor learning, Neuroplasticity, Stroke rehabilitation.

PARTICULARS OF CONTRIBUTORS:
1. MPT Student, Department of Physiotherapy, Amity Institute of Health Allied Sciences, Amity University, Noida, Uttar Pradesh, India.
2. Assistant Professor, Department of Physiotherapy, Amity Institute of Health Allied Sciences, Amity University, Noida, Uttar Pradesh, India.
3. Physiotherapist, Osteorehab Clinic, Movement Science Institute, Gurgaon, Haryana, India.

NAME, ADDRESS, E-MAIL ID OF THE CORRESPONDING AUTHOR:
Dr. Kavita Sharma,
Assistant Professor, Department of Physiotherapy, Amity Institute of Health Allied Sciences, Amity University, Sector-125, Noida-201313, Uttar Pradesh, India.
Email: ksharma8@amity.edu

Abstract No.: PT 35

Development and Psychometric Validation of a Cognitive–Motor Dual Task Function Scale for Stroke Survivors: A Pilot Study

SABRA MURRAT[1], MEENA GUPTA[2]

ABSTRACT

Introduction: Stroke survivors frequently experience significant cognitive-motor dual-task impairment, whereby simultaneous performance of motor and cognitive activities results in pronounced performance decrements in one or both tasks. This dual-task cost is a critical yet underassessed dimension of post-stroke disability, associated with elevated fall risk, reduced community ambulation, and diminished quality of life. Despite its clinical importance, no psychometrically validated, stroke-specific multi-domain instrument exists to measure cognitive-motor dual-task functional capacity. Existing single-task motor scales and brief cognitive screens fail to capture the attentional resource competition inherent in real-world activities of daily living.

Aim: This pilot study aimed to assess the feasibility, acceptability, and preliminary psychometric properties of a newly developed Cognitive-Motor Dual Task Function Scale (CMDTFS) in a sample of stroke survivors, informing item refinement before a main psychometric validation study.

Materials and Methods: A cross-sectional observational measurement study with a test-retest design was conducted with 20 community-dwelling and inpatient stroke survivors (minimum three months post-onset). The CMDTFS was administered across five functional domains: gait and locomotion, balance and postural control, functional mobility (Timed Up and Go), upper limb activity, and activities of daily living-relevant tasks. Each domain incorporated a single-task motor condition followed by a cognitive-motor dual-task condition using serial subtraction, verbal fluency, or working memory tasks. Outcome metrics included task completion time, Correct Response Rate (CRR), and the Dual Task Effect percentage (DTE%). Concurrent validity was examined against the Montreal Cognitive Assessment (MoCA), Berg Balance Scale (BBS), and Barthel Index (BI). Test-retest reliability was assessed at 14 days using Intraclass Correlation Coefficients (ICC). Item analysis, internal consistency (Cronbach's alpha), Content Validity Index (CVI), and floor/ceiling effects were evaluated according to COSMIN guidelines.

Results: The CMDTFS demonstrated strong feasibility, with 90% of participants completing all five domains within 35 minutes and high patient acceptability scores (mean 4.2/5.0). Preliminary internal consistency was good (Cronbach's α=0.81). Test-retest reliability was good to excellent across domains (ICC=0.76-0.91). The scale-level Content Validity Index was 0.92. Moderate-to-strong concurrent validity was established with MoCA (ρ=–0.61), BBS (ρ=–0.58), and BI (ρ=–0.54). Mean DTE% across domains ranged from 18.4% to 41.2%, indicating substantial dual-task costs. No significant floor effects were observed; minor ceiling effects were noted in two upper limb items requiring revision.

Conclusion: The CMDTFS demonstrated satisfactory feasibility, content validity, internal consistency, and test-retest reliability in this pilot sample of stroke survivors. These findings support the progression to a main psychometric validation study with an adequately powered sample. The CMDTFS offers a novel, clinically feasible instrument to quantify cognitive-motor dual-task functional capacity across multiple domains, with potential utility for fall risk stratification and as an outcome measure in cognitive-motor rehabilitation research.

Keywords: Balance, Dual-task effect, Functional mobility, Gait, Scale development, Stroke rehabilitation.

PARTICULARS OF CONTRIBUTORS:
1. MPT Student, Department of Physiotherapy, Amity Institute of Health Allied Sciences, Amity University, Noida, Uttar Pradesh, India.
2. Associate Professor, Department of Physiotherapy, Amity Institute of Health Allied Sciences, Amity University, Noida, Uttar Pradesh, India.

NAME, ADDRESS, E-MAIL ID OF THE CORRESPONDING AUTHOR:
Dr. Meena Gupta,
Associate Professor, Department of Physiotherapy, Amity Institute of Health Allied Sciences, Amity University, Sector-125, Noida-201313, Uttar Pradesh, India.
Email: mgupta9@amity.edu

Abstract No.: PT 36

Effect of Dry Needling with Core Strengthening in Chronic Low Back Pain in Postpartum Women

AISHA ASLAM[1], RABAB KAUR[2], ASAD MANZOOR[3]

ABSTRACT

Introduction: Chronic Low Back Pain (CLBP) is a disabling condition that is common among postpartum women after the caesarean delivery and is caused by hormonal fluctuations, weakening of core muscles, the presence of myofascial trigger points, and surgical compromises of the anterior abdominal wall. Although the clinical impact of it is high, the best approaches to rehabilitation based on direct myofascial intervention with structured exercise have still not been fully explored.

Materials and Methods: The study was a randomised controlled trial conducted on 50 postpartum women (25-35 years old) who had more than three months of CLBP after a caesarean surgery. Participants were grouped randomly into Group 1, where Dry Needling (DN) would be administered in the form of twice weekly, and a six-week Core Strengthening Exercise (CSE) programme (DN+CSE, n=25), and Group 2 (CSE only, n=25), where the participants only received the exercise programme. The Visual Analogue Scale (VAS), Oswestry Disability Index (ODI), and Core Muscle Strength and Stability Test (CMSST) were used to measure outcomes at baseline and six weeks.

Results: There were significant intra-group improvements ($p<0.001$) in the two groups. The comparisons six weeks later showed a markedly better result in Group 1 on all the measures: VAS reduction 69.4% vs 47.3, ODI reduction 61.1 vs 37.4, CMSST improvement 154.3 vs 73.9.

Conclusion: CSE alone or CSE coupled with DN show significantly better results than either CSE alone or DN alone in postpartum women with CLBP following caesarean delivery, with large clinical effect sizes in all the outcome domains.

Keywords: Caesarean delivery, Core muscles, Myofascial trigger point.

PARTICULARS OF CONTRIBUTORS:
1. MPT Student, Department of Physiotherapy, Amity Institute of Health Allied Sciences, Amity University, Noida, Uttar Pradesh, India.
2. Assistant Professor, Department of Physiotherapy, Amity Institute of Health Allied Sciences, Amity University, Noida, Uttar Pradesh, India.
3. Clinical Physiotherapist, Health Plus Physiotherapy and Rehabilitation Center, New Delhi, India.

NAME, ADDRESS, E-MAIL ID OF THE CORRESPONDING AUTHOR:
Dr. Rabab Kaur (PT),
Assistant Professor, Department of Physiotherapy, Amity Institute of Health Allied Sciences, Amity University, Sector-125, Noida-201313, Uttar Pradesh, India.
Email: rkaur@amity.edu

Abstract No.: PT 37

Effect of TECAR Therapy on Pain and Range of Motion in Athletes after Anterior Cruciate Ligament Reconstruction

KHURSHEED ANWAR[1], JASOBANTA SETHI[2], SADHANA MEENA[3]

ABSTRACT

Introduction: Anterior Cruciate Ligament (ACL) reconstruction using hamstring tendon autografts is frequently performed in young athletes to restore knee stability, mobility, and functional performance. Despite surgical advancement, postoperative rehabilitation is often complicated by pain and restricted Range of Motion (ROM). Transfer of Energy Capacitive and Resistive (TECAR) therapy has recently emerged as a promising adjunctive modality in musculoskeletal rehabilitation; however, evidence regarding its effectiveness following ACL reconstruction remains limited.

Aim: To investigate the effects of TECAR therapy on pain and knee joint ROM in athletes following ACL reconstruction.

Materials and Methods: This study was designed as a single-blind, randomised, parallel-group, active-controlled trial. A total of 78 male and female athletes aged 18-25 years who underwent ACL reconstruction using hamstring tendon grafts were randomly assigned to either an experimental group or a control group (n=39 per group). Rehabilitation was initiated 15 days after surgery. The experimental group received TECAR therapy in addition to conventional physiotherapy, whereas the control group received conventional physiotherapy alone. The TECAR intervention

consisted of capacitive and resistive modes delivered at a frequency of 448 kHz, with an intensity ranging from 90 to 120 watts for 20-30 minutes per session, administered 2-4 times weekly over a six-week rehabilitation period. Pain intensity was assessed using the Numerical Pain Rating Scale (NPRS), while knee ROM was measured using a goniometer. Pre- and post-intervention outcomes were analysed, with statistical significance set at $p<0.05$.

Results: Between-group comparisons revealed significant improvements in the experimental group with respect to pain reduction and knee flexion ROM ($p<0.05$). Post-intervention NPRS scores were substantially lower in the experimental group (1.13±0.34) compared with the control group (2.49±0.56), indicating enhanced pain relief. Likewise, knee flexion ROM was greater in the experimental group (127.74°±2.05°) than in the control group (115.18°±1.39°), reflecting superior restoration of knee mobility. However, no statistically significant between-group difference was observed for knee extension ROM following intervention ($p=0.53$), as both groups achieved near-complete restoration of knee extension.

Conclusion: The findings indicate that TECAR therapy combined with conventional physiotherapy is more effective than conventional physiotherapy alone in improving pain and knee ROM following ACL reconstruction. The addition of TECAR therapy may therefore serve as a valuable adjunctive rehabilitation modality for enhancing postoperative recovery and functional outcomes in athletes undergoing ACL reconstruction.

Keywords: Numerical pain rating scale, Range of motion, Transfer of Energy Capacitive and Resistive.

PARTICULARS OF CONTRIBUTORS:
1. MPT Student, Department of Physiotherapy, Amity Institute of Health Allied Sciences, Amity University, Noida, Uttar Pradesh, India.
2. Professor and Director, Department of Physiotherapy, Amity Institute of Health Allied Sciences, Amity University, Noida, Uttar Pradesh, India.
3. Physiotherapist, Sports Injury Centre, Safdarjung Hospital, Ansari Nagar West, New Delhi, Delhi, India.

NAME, ADDRESS, E-MAIL ID OF THE CORRESPONDING AUTHOR:
Prof. (Dr.) Jasobanta Sethi,
Professor and Director, Department of Physiotherapy, Amity Institute of Health Allied Sciences, Amity University, Sector-125, Noida-201313, Uttar Pradesh, India.
Email: jsethi@amity.edu; jasobantsethi@yahoo.co.in

Abstract No.: PT 38

Time Effect of Transcranial Direct Current Stimulation during Trunk Targeted Neuromuscular Facilitations on Stability and Sitting Balance among Subjects with Stroke

NIRAJ KUMAR MEHTA[1], CHANDAN KUMAR[2], DHARAM PANI PANDEY[3]

ABSTRACT

Introduction: Trunk control and sitting balance are fundamental components of functional recovery following stroke. Transcranial Direct Current Stimulation (tDCS) has emerged as a promising neuromodulatory technique capable of enhancing cortical excitability, thereby potentially augmenting the effects of Proprioceptive Neuromuscular Facilitation (PNF)- based trunk rehabilitation. Despite growing evidence, the optimal timing of stimulation- whether delivered before or concurrently with exercise-remains uncertain.

Aim: This study aimed to evaluate the time-dependent effects of tDCS combined with trunk-targeted PNF on trunk stability and sitting balance in individuals with subacute stroke.

Materials and Methods: A single-blind randomised controlled trial was conducted with 54 individuals in the subacute stage of stroke, randomly assigned into three groups: pre-tDCS with PNF, during-tDCS with PNF, and sham tDCS with PNF. The intervention involved 30 sessions over six weeks, with anodal tDCS applied at 2 mA for 20 minutes in the active groups. All participants performed standardised trunk-focused PNF exercises under supervision. Outcomes were measured using the Trunk Impairment Scale (TIS) and Function in Sitting Test (FIST) at baseline and post-intervention.

Results: All groups showed significant improvements, with the group receiving stimulation during exercise demonstrating the greatest gains, followed by the group receiving stimulation before exercise, while the sham group exhibited comparatively modest improvements. Mixed ANOVA revealed a significant Time×Group interaction ($p<0.001$). Post-hoc Bonferroni analysis confirmed the superiority of Group B over A and C (all $p<0.001$).

Conclusion: Concurrent application of tDCS during trunk-targeted PNF yields the most pronounced improvements in trunk stability and sitting balance, supporting activity-dependent neuroplasticity as a key mechanism for functional recovery.

Keywords: Function in Sitting Test, Neuroplasticity, Trunk stability.

PARTICULARS OF CONTRIBUTORS:
1. MPT Student, Department of Physiotherapy, Amity Institute of Health Allied Sciences, Amity University, Noida, Uttar Pradesh, India.
2. Professor, Department of Physiotherapy, Amity Institute of Health Allied Sciences, Amity University, Noida, Uttar Pradesh, India.
3. Physiotherapist, APARC Health and Motion, Physiotherapy and Neuro-rehabilitation Centre, Janakpuri, New Delhi, India.

NAME, ADDRESS, E-MAIL ID OF THE CORRESPONDING AUTHOR:
Prof. (Dr.) Chandan Kumar,
Professor, Department of Physiotherapy, Amity Institute of Health Allied Sciences, Amity University, Sector-125, Noida-201313, Uttar Pradesh, India.
Email: ptchandan221@gmail.com

Abstract No.: PT 39

Artificial Intelligence-based Prediction of Balance in Postmenopausal Women: A Review of Existing Evidence

NIDHI AGGARWAL[1], NIDHI SHARMA[2]

ABSTRACT

Postmenopausal women commonly experience balance impairment due to age-related physiological changes, hormonal decline, reduced muscle strength, decreased bone density, and altered proprioception. These factors significantly increase the risk of falls, fractures, functional dependency, and reduced quality of life. In recent years, Artificial Intelligence (AI) has emerged as an advanced tool in healthcare for predicting balance deficits and identifying fall risk through data-driven approaches. Existing literature highlights the growing application of machine learning algorithms, wearable sensors, motion analysis systems, and computerised assessment tools in evaluating postural stability among postmenopausal women. The purpose of this review-based study is to analyse and summarise existing evidence regarding the role of AI in predicting balance impairment among postmenopausal women and to explore its potential clinical applications in early assessment and fall prevention. A narrative review of previously published literature was conducted using electronic databases, including PubMed, Scopus, Google Scholar, and Web of Science. Relevant review articles and research studies published in the last 10 years (Jan 2016), Artificial Intelligence-Based Prediction of Balance in Postmenopausal Women: A Review of Existing Evidence, focusing on AI-based balance assessment, fall prediction, and postural control in postmenopausal women, were included. Studies involving machine learning models, wearable technologies, sensor-based assessments, and computerised gait analysis were critically analysed. Existing reviews suggest that AI-based systems demonstrate high accuracy in predicting balance deficits and fall risk in postmenopausal women. Machine learning techniques such as decision trees, support vector machines, neural networks, and deep learning models effectively analyse gait parameters, postural sway, muscle activity, and movement patterns. Wearable sensors and smart technologies further enhance real-time monitoring and early detection of balance impairments. AI-assisted assessment methods were found to be more efficient and sensitive compared to conventional clinical balance tests. AI-based prediction models show promising potential in improving balance assessment and fall risk identification in postmenopausal women. Integration of AI with rehabilitation and physiotherapy practices may support early intervention, personalised treatment planning, and better clinical outcomes. Further large-scale studies are recommended to establish standardised AI-based assessment protocols in this population.

Keywords: Balance prediction, Fall risk, Machine learning, Postural stability, Rehabilitation.

PARTICULARS OF CONTRIBUTORS:
1. MPT Student, Department of Physiotherapy, Amity Institute of Health Allied Sciences, Amity University, Noida, Uttar Pradesh, India.
2. Professor, Department of Physiotherapy, Amity Institute of Health Allied Sciences, Amity University, Noida, Uttar Pradesh, India.
ORCID: 0000-0003-3999-1780

NAME, ADDRESS, E-MAIL ID OF THE CORRESPONDING AUTHOR:
Prof. (Dr.) Nidhi Sharma,
Professor, Department of Physiotherapy, Amity Institute of Health Allied Sciences, Amity University, Sector-125, Noida-201313, Uttar Pradesh, India.
Email: nsharma30@amity.edu

Abstract No.: PT 40

Effect of Pulsed Electromagnetic Field Therapy in Racquet Players with Lateral Epicondylitis

ARUSHI SINGH[1], JASOBANTA SETHI[2], MANISH GUPTA[3]

ABSTRACT

Introduction: Lateral epicondylitis is a common overuse injury among racquet sports players, causing pain and a reduction in range of motion. Pulsed Electromagnetic Field (PEMF) therapy may help to reduce inflammation and promote tissue healing; however, sport-specific evidence remains limited.

Aim: To evaluate the effects of PEMF therapy on pain and range of motion in racquet players with lateral epicondylitis.

Materials and Methods: Sixty-eight racquet sports players aged 18-35 years with clinically diagnosed lateral epicondylitis were randomly assigned to a Control group (n=34) receiving conventional physiotherapy and an experimental group (n=34) receiving PEMF therapy (MAG-30, intensity-30 mT, time period-15 minutes) along with conventional physiotherapy. Both groups received intervention, 5 sessions per week for 4 weeks. Outcome measures included pain using the Visual Analogue Scale (VAS) and the range of motion of the wrist joint using a goniometer, respectively. Pre- and post-intervention data were analysed and presented as mean±SD and significance was set as (p=0.0001).

Results: Baseline values were comparable between groups. Following four weeks of intervention, pain levels decreased more in the experimental group (6.44±1.02 to 2.44±0.66) compared to the control group (6.44±1.08 to 3.35±0.73). Range of motion outcome also shows better improvement in the experimental group (Wrist flexion-46.68±2.07 to 71.00±2.40) as compared to the control group (Wrist flexion-46.65±2.03 to 67.59±1.81) and also shows better improvement in the experimental group (Wrist extension- 55.12±2.23 to 76.00±3.12) as compared to the control group (54.94±1.89 to 71.88±2.33). No adverse events were reported.

Conclusion: This study suggests that PEMF therapy is a safe and effective adjunct to conventional physiotherapy for reducing pain and increasing range of motion in racquet players with lateral epicondylitis. The findings support the need for larger randomised controlled trials to confirm their clinical efficacy.

Keywords: Joint flexibility, Pain, Racquet sports, Tennis elbows.

PARTICULARS OF CONTRIBUTORS:
1. MPT Student, Department of Physiotherapy, Amity Institute of Health Allied Sciences, Amity University, Noida, Uttar Pradesh, India.
2. Professor and Director, Department of Physiotherapy, Amity Institute of Health Allied Sciences, Amity University, Noida, Uttar Pradesh, India.
3. Physiotherapist, Progressive Physiotherapy Centre, Noida, Uttar Pradesh, India.

NAME, ADDRESS, E-MAIL ID OF THE CORRESPONDING AUTHOR:
Prof. (Dr.) Jasobanta Sethi,
Professor and Director, Department of Physiotherapy, Amity Institute of Health Allied Sciences, Amity University, Sector-125, Noida-201313, Uttar Pradesh, India.
Email: jsethi@amity.edu; jasobantsethi@yahoo.co.in

Abstract No.: PT 41

Effect of Myofascial Release and Muscle Energy Technique on Hamstring Tightness among Sedentary Individuals Working from Home

PRIYANSHI AVASTHI[1], SANJIB KUMAR DAS[2]

ABSTRACT

Introduction: The global shift toward Work-From-Home (WFH) culture has increased sedentary behaviour, contributing to chronic hamstring tightness due to prolonged static hip flexion. However, limited research has examined interventions for this population.

Aim: To compare the effects of Myofascial Release (MFR), Muscle Energy Technique (MET), and combined MFR+MET on hamstring tightness in sedentary WFH individuals.

Materials and Methods: A randomised controlled trial included 78 participants (mean age: 29.8-31.9 years). Participants were randomly allocated into three groups of 26 each: Group A (MFR+hot pack), Group B (MET+hot pack), and Group C (MFR+MET+hot pack). Interventions were provided for 4 weeks, 3 sessions per week. Sit and Reach Test (SRT, cm) and Active Knee Extension (AKE, degrees) were measured at baseline and Week 4 post-intervention.

Results: All groups showed significant within-group improvements in SRT and AKE from baseline to Week 4 (p<0.001). Mean SRT improvements were +6.66 cm (MFR), +9.89 cm (MET), and +9.97 cm (MFR+MET), while mean AKE reductions were –6.99°, –10.35°, and –11.28°, respectively. Between-group ANOVA for SRT change scores was significant (F=9.574, p<0.001). Bonferroni post hoc analysis showed Groups B and C were superior to Group A (p=0.001 and p=0.002), with no difference between Groups B and C (p=1.000). ANOVA for AKE change scores (F=35.48, p<0.001) and Week 4 AKE values (F=56.284, p<0.001) further confirmed superior improvements with MET and MFR+MET compared to MFR alone.

Conclusion: MET and MFR+MET produced statistically equivalent and clinically superior outcomes compared to MFR alone. MET may be an effective and time-efficient standalone intervention, while MFR+MET may be preferred for comprehensive hamstring management in WFH individuals.

Keywords: Active knee extension, Hamstring tightness, Muscle energy technique, Myofascial release, Sedentary behaviour, Sit and reach test.

PARTICULARS OF CONTRIBUTORS:
1. MPT Student, Department of Physiotherapy, Amity Institute of Health Allied Sciences, Amity University, Noida, Uttar Pradesh, India.
2. Associate Professor, Department of Physiotherapy, Amity Institute of Health Allied Sciences, Amity University, Noida, Uttar Pradesh, India.
ORCID: 0000-0002-5083-5001

NAME, ADDRESS, E-MAIL ID OF THE CORRESPONDING AUTHOR:
Dr. Sanjib Kumar Das,
Associate Professor, Department of Physiotherapy, Amity Institute of Health Allied Sciences, Amity University, Sector-125, Noida-201313, Uttar Pradesh, India.
Email: skdas@amity.edu; sanjib_bpt@yahoo.co.in

Abstract No.: PT 42

Efficacy of Spencer's Technique on Shoulder Mobility and Disability across Stages of Adhesive Capsulitis

RASHID[1], PRAGYA KUMAR[2], AZEEM AHMAD[3]

ABSTRACT

Introduction: Frozen shoulder, also known as adhesive capsulitis, is a common musculoskeletal disorder characterised by pain, progressive stiffness, and restriction of shoulder joint movements, leading to significant functional disability. The condition progresses through painful, frozen, and thawing stages, each requiring appropriate therapeutic management. Spencer's Technique, an osteopathic manipulative approach, has been increasingly used in physiotherapy practice for improving shoulder mobility and reducing pain; however, limited evidence exists regarding its effectiveness across different stages of frozen shoulder.

Aim: To evaluate the effectiveness of Spencer's Technique combined with conventional physiotherapy on pain, shoulder Range Of Motion (ROM), and functional disability among patients with different stages of frozen shoulder.

Materials and Methods: A quasi-experimental study was conducted on 30 participants diagnosed with frozen shoulder. Participants were categorised equally into Stage 1, Stage 2, and Stage 3 groups. All participants received Spencer's Technique along with conventional physiotherapy interventions for six weeks. Outcome measures included the Visual Analogue Scale (VAS) for pain assessment, shoulder ROM measured using universal goniometry, and the Shoulder Pain and Disability Index (SPADI) for functional disability. Assessments were performed at baseline, 3 weeks, and 6 weeks. Data were analysed using Repeated Measures ANOVA and Bonferroni post hoc comparisons.

Results: The study demonstrated statistically significant improvements in pain, ROM, and functional disability across all stages over time (p<0.001). Mean shoulder flexion improved from 107.50±28.73° at baseline to 143.67±29.91° at 6 weeks, while abduction improved from 96.50±28.65° to 136.00±25.48°. External rotation showed a 94.07% improvement, and internal rotation improved by 57.5%. Mean SPADI scores decreased from 60.50±19.39% at baseline to 36.30±16.82% at 6 weeks, indicating clinically meaningful functional recovery. Significant Stage×Time interactions were observed, with Stage 3 participants demonstrating the greatest improvements.

Conclusion: Spencer's technique, combined with conventional physiotherapy, is effective in reducing pain, improving shoulder ROM, and enhancing functional ability in patients with frozen shoulder. The intervention was beneficial across all stages, with the greatest improvements observed during the thawing stage (Stage 3). The findings support the use of Spencer's technique as an effective rehabilitation approach in the management of frozen shoulder.

Keywords: Frozen shoulder, Physiotherapy, Range of motion, Rehabilitation, Shoulder pain.

PARTICULARS OF CONTRIBUTORS:
1. MPT Student, Department of Physiotherapy, Amity Institute of Health Allied Sciences, Amity University, Noida, Uttar Pradesh, India.
2. Associate Professor, Department of Physiotherapy, Amity Institute of Health Allied Sciences, Amity University, Noida, Uttar Pradesh, India.
3. Senior Consultant and Chief Founder of Ergophy Advance Physiotherapy and Chiropractic Clinic, Gurgaon, Haryana, India.

NAME, ADDRESS, E-MAIL ID OF THE CORRESPONDING AUTHOR:
Dr. Pragya Kumar,
Associate Professor, Department of Physiotherapy, Amity Institute of Health Allied Sciences, Amity University, Sector-125, Noida-201313, Uttar Pradesh, India.
Email: pkumar24@amity.edu

Abstract No.: PT 43

A Comparative Study of Breathing Exercises versus Relaxation Exercises in Individuals with Anxiety Symptoms

ALKA LADHIYA[1], MEENA GUPTA[2]

ABSTRACT

Introduction: Anxiety disorders affect more than 264 million people globally and significantly impair daily functioning and quality of life. Non-pharmacological physiotherapy interventions such as breathing exercises and relaxation techniques have shown promising results in managing anxiety. Breathing exercises influence the autonomic nervous system by reducing sympathetic activity, while relaxation techniques help in reducing muscle tension and mental stress.

Aim: To compare the effectiveness of breathing exercises and relaxation exercises in reducing anxiety symptoms in individuals with moderate anxiety.

Materials and Methods: A comparative study was conducted on 42 participants aged 18-45 years with mild to moderate anxiety symptoms. Participants were selected using convenience sampling and divided into two groups: Group A (n=21): Breathing exercises (diaphragmatic breathing, pursed-lip breathing), Group B (n=21): Relaxation exercises (progressive muscle relaxation, visualisation). The intervention was carried out for approximately 6-8 weeks. Outcome measures included: Generalised Anxiety Disorder Scale (GAD-7), WHO Quality of Life (WHO-QOL) scale. Pre- and post-intervention assessments were recorded and analysed.

Results: The study demonstrated a significant reduction in anxiety levels in both groups after intervention. But groups with breathing exercises were more effective in decreasing anxiety symptoms. Pre-intervention anxiety scores were higher and showed a noticeable decrease post-intervention. Additionally, quality of life scores improved significantly following treatment.

Conclusion: Both breathing exercises and relaxation exercises are effective non-pharmacological interventions for reducing anxiety symptoms and improving quality of life. These techniques can be safely incorporated into physiotherapy management for individuals with anxiety.

Keywords: Anxiety, Breathing exercises, Non-pharmacological treatment, Physiotherapy, Quality of life, Relaxation techniques.

PARTICULARS OF CONTRIBUTORS:
1. MPT Student, Department of Physiotherapy, Amity Institute of Health Allied Sciences, Amity University, Noida, Uttar Pradesh, India.
2. Associate Professor, Department of Physiotherapy, Amity Institute of Health Allied Sciences, Amity University, Noida, Uttar Pradesh, India.

NAME, ADDRESS, E-MAIL ID OF THE CORRESPONDING AUTHOR:
Dr. Meena Gupta,
Associate Professor, Department of Physiotherapy, Amity Institute of Allied Health Sciences, Amity University, Sector-125, Noida-201313, Uttar Pradesh, India.
Email: mgupta9@amity.edu

Abstract No.: PT 44

Effects of Pulsed Electromagnetic Field Therapy on Motor Function in Post-stroke Patients: A Randomised Controlled Trial

ANJALI KUMARI[1], KAVITA SHARMA[2]

ABSTRACT

Introduction: Stroke is a leading cause of long-term disability worldwide, commonly resulting in motor impairment, cognitive deficits, and diminished quality of life. Despite advances in conventional physiotherapy, a substantial proportion of stroke survivors experience persistent functional limitations, highlighting the need for adjunctive neuroplasticity-targeted interventions. Pulsed Electromagnetic Field (PEMF) therapy has emerged as a non-invasive modality with plausible multimodal mechanisms — including attenuation of oxidative stress, upregulation of Brain-Derived Neurotrophic Factor (BDNF), modulation of nitric oxide pathways, and anti-inflammatory effects — that may enhance neural repair and functional recovery.

Aim: To evaluate the effectiveness of PEMF therapy as an adjunct to conventional physiotherapy in improving motor function in post-stroke patients over four weeks, and to compare outcomes with conventional physiotherapy alone.

Materials and Methods: A parallel-group randomised controlled trial was conducted on 22 post-stroke patients (aged 30-60 years) with unilateral ischemic stroke. Participants were randomly allocated in a 1:1 ratio to an experimental group (PEMF+conventional physiotherapy, n=11) or a control group (conventional physiotherapy alone, n=11). The experimental group received PEMF via the DIAMAG (ALMAG-03) device at approximately 40 Hz and 5-7 mT for 10 minutes per session, five sessions per week for four weeks. Outcome measures — Fugl-Meyer Assessment Upper Extremity (FMA-UE), Fugl-Meyer Assessment Lower Extremity (FMA-LE), were assessed at baseline and post-intervention. Statistical analysis was performed using paired samples t-tests (within-group) and independent samples t-tests on change scores (between-group); significance was set at $p<0.05$.

Results: Both groups demonstrated significant within-group improvements across all outcome measures ($p<0.05$). However, the experimental group showed significantly greater improvements in FMA-UE (7.55 vs. 3.18 points) and FMA-LE (8.45 vs. 4.00 points), all $p<0.001$. Large effect sizes were observed across all outcomes (Cohen's d: −1.358 to −2.485). No adverse events were reported.

Conclusion: PEMF therapy as an adjunct to conventional physiotherapy produces statistically significant and clinically meaningful improvements in motor function in post-stroke patients, with a favourable safety profile. These findings support PEMF as a promising, non-invasive neurorehabilitation strategy warranting large-scale, multi-centre trials.

Keywords: Cognitive recovery, Neuroplasticity, Stroke Rehabilitation, Quality of life.

PARTICULARS OF CONTRIBUTORS:
1. MPT Student, Department of Physiotherapy, Amity Institute of Health Allied Sciences, Amity University, Noida, Uttar Pradesh, India.
2. Assistant Professor, Department of Physiotherapy, Amity Institute of Health Allied Sciences, Amity University, Noida, Uttar Pradesh, India.

NAME, ADDRESS, E-MAIL ID OF THE CORRESPONDING AUTHOR:
Dr. Kavita Sharma,
Assistant Professor, Department of Physiotherapy, Amity Institute of Allied Health Sciences, Amity University, Sector-125, Noida-201313, Uttar Pradesh, India.
Email: kavitasharma8.@amity.edu

Abstract No.: PT 45

Combined Burden of Bladder, Bowel and Sexual Dysfunction as Predictors of Quality of Life in Chronic SCI: A Cross-sectional Study

AKANKSHA SRIVASTAVA[1], NIDHI SHARMA[2]

ABSTRACT

Introduction: Bladder, bowel and sexual dysfunction among individuals with chronic spinal cord injury independently impair quality of life. However, their synergistic effect and correlated contribution to quality of life are underexplored in the Indian context of rehabilitation.

Aim: To determine the correlation between bladder, bowel, and sexual dysfunction with QOL in chronic SCI and to ascertain which dysfunctions are the most significant predictors of quality of life.

Materials and Methods: This study was a cross-sectional observational study conducted among adults with chronic Spinal cord injury (SCI). Participants were recruited with the age criteria of 18-64 years, married individuals, Neurological level of injury mid-thoracic, lumbar and lumbo-sacral with AIS grades A-D. Recruitment was done from multiple neuro-rehabilitation centres. Approximately 79 patients were supposed to participate in the study. Assessment of bladder dysfunction was measured by Spinal Cord Injury-Quality of Life bladder management difficulty score (SCI-QOL bladder management difficulty), Bowel dysfunction is measured through Neurogenic Bowel Dysfunction score (NBD Score), sexual dysfunction is measured through Integrated Index for Sexual Function (IISF) and Quality Of Life is measured via World Health Organisation Quality of Life Bref (WHO-QOL Bref).

Results: Data normality was assessed using the Shapiro-Wilk test in the software IBM SPSS. Significant negative correlations were found between quality of life (QoL) and bladder dysfunction (r=-0.210), bowel dysfunction (r=-0.309), and sexual dysfunctions (r=-0.031), at a level of significance 0.05 (p-value=0.05).

Conclusion: Bladder, bowel, and sexual dysfunctions greatly affect the quality of life for those with chronic spinal cord injuries. The interplay of these dysfunctions underscores the importance of integrated multidisciplinary rehabilitation strategies that include management of autonomic and sexual health in addition to standard neurological physiotherapy treatments. Taking a holistic approach to these issues may enhance overall rehabilitation results and long-term quality of life for individuals suffering from chronic SCI.

Keywords: Defaecation disorders, Neurogenic, Quality of life, Sexual dysfunction, Spinal cord injuries, Urinary bladder.

PARTICULARS OF CONTRIBUTORS:
1. MPT Student, Department of Physiotherapy, Amity Institute of Health Allied Sciences, Amity University, Noida, Uttar Pradesh, India.
2. Professor, Department of Physiotherapy, Amity Institute of Health Allied Sciences, Amity University, Noida, Uttar Pradesh, India.
ORCID: 0000-0003-3999-1780

NAME, ADDRESS, E-MAIL ID OF THE CORRESPONDING AUTHOR:
Prof. (Dr.) Nidhi Sharma,
Professor, Department of Physiotherapy, Amity Institute of Health Allied Sciences, Amity University, Sector-125, Noida-201313, Uttar Pradesh, India.
Email: nsharma30@amity.edu

Abstract No.: PT 46

Comparing Tele-monitoring and Self-monitoring Rehabilitation on Pain, Function, Kinesiophobia, Quality of Life, Exercise Adherence, and Patient Satisfaction in Patellofemoral Pain Syndrome: A Randomised Quasi-experimental Trial

HASHMITA TEKCHANDANI[1], PANKAJ KUMAR MALIK[2], SADHANA MEENA[3]

ABSTRACT

Introduction: Patellofemoral Pain Syndrome is a common musculoskeletal disorder causing anterior knee pain, reduced function, kinesiophobia, and poor quality of life.

Aim: To compare the physiotherapist-supervised tele-monitoring with self-monitoring rehabilitation in individuals with PFPS.

Materials and Methods: A prospective randomised quasi-experimental trial was conducted at Amity Institute of Health and Allied Sciences involving 62 participants with PFPS. Participants were allocated into Tele- Monitoring (TM; n=32) or Self-Monitoring (SM; n=30) groups. Both groups completed a 6-week exercise programme including strengthening, stretching, proprioceptive, and functional training. The TM group received real-time physiotherapist supervision via smartphone, while the SM group independently maintained exercise diaries. Outcomes measured at baseline, week 3, and week 6 included pain (VAS), function (Kujala Scale), kinesiophobia (Tampa Scale), quality of life (WHO- QOL-BREF), adherence (ATEMPT), and patient satisfaction (NRS). Data were analysed using repeated measures ANOVA, independent t-tests, and Pearson correlation analysis ($p<0.05$).

Results: Both groups improved significantly across all outcomes ($p<0.001$). The TM group demonstrated significantly superior outcomes at Week 6 across all six domains compared to the SM group (all $p<0.001$): VAS pain (1.93±1.14 vs 3.10±1.12, t=5.97), Kujala function (79.80±6.90 vs 70.50±7.30, t=5.77), TAMPA kinesiophobia (31.60±4.42 vs 38.50±4.76, t=6.48), WHO-QOL (69.40±6.10 vs 61.30±6.80, t=5.54), ATEMPT adherence (92.30±4.80% vs 81.40±5.90%, t=8.84), and patient satisfaction (9.10±0.62 vs 7.60±0.78, t=9.38). Pearson correlation analysis revealed a strong positive relationship between adherence and satisfaction in the TM group ($r=0.87$, $p<0.001$) and a moderate positive relationship in the SM group ($r=0.72$, $p<0.001$), confirming that higher adherence was significant with greater treatment satisfaction.

Conclusion: Physiotherapist-supervised tele-monitoring rehabilitation is more effective than self- monitoring in improving clinical and patient-centered outcomes in PFPS. Structured remote supervision enhances adherence and satisfaction, supporting its integration into routine PFPS rehabilitation practice.

Keywords: Kujala Score, Tampa Scale, Visual analogue scale.

PARTICULARS OF CONTRIBUTORS:
1. MPT Student, Department of Physiotherapy, Amity Institute of Health Allied Sciences, Amity University, Noida, Uttar Pradesh, India.
2. Assistant Professor, Department of Physiotherapy, Amity Institute of Health Allied Sciences, Amity University, Noida, Uttar Pradesh, India.
3. Physiotherapist, Sports Injury Centre, Safdarjung Hospital, Ansari Nagar West, New Delhi, Delhi, India.

NAME, ADDRESS, E-MAIL ID OF THE CORRESPONDING AUTHOR:
Dr. Pankaj Kumar Malik,
Assistant Professor III, Department of Physiotherapy, Amity Institute of Health Allied Sciences, Amity University, Sector-125, Noida-201313, Uttar Pradesh, India.
Email: pkmalik@amity.edu; pankajkrmalik@gmail.com

Abstract No.: PT 47

Effectiveness of TECAR Therapy in Individuals with Chronic Musculoskeletal Pain: A Systematic Review

ALISHA PAUDEL[1], PANKAJ KUMAR MALIK[2], SADHANA MEENA[3]

ABSTRACT

Introduction: Transfer Energy Capacitive and Resistive (TECAR) therapy has emerged as a promising non-invasive treatment for chronic musculoskeletal pain. Despite its widespread clinical use, the supporting evidence remains limited and requires systematic synthesis.

Aim: To comprehensively evaluate the effectiveness of TECAR therapy in reducing pain intensity and improving functional outcomes in individuals with chronic musculoskeletal pain.

Materials and Methods: A systematic literature search was conducted in the Scopus database from inception to January 2026. Only Randomised Controlled Trials (RCTs) investigating TECAR therapy in adults with chronic musculoskeletal pain were included. Methodological quality was assessed using the PEDro scale, and risk of bias was evaluated using the Cochrane Risk of Bias 2.0 tool. Primary outcomes included pain intensity {Visual Analogue Scale (VAS), Numerical Pain Rating Scale (NPRS)}, while secondary outcomes encompassed functional disability, pressure pain threshold, range of motion, and quality of life.

Results: Eight RCTs involving 428 participants with an age range of 18-75 years met the inclusion criteria. Conditions studied included chronic low back pain (n=3), adhesive capsulitis (n=1), chronic neck pain (n=1), myofascial pain syndrome (n=1), knee osteoarthritis (n=1), and chronic groin pain (n=1). TECAR therapy was administered alone or combined with manual therapy, myofascial release, or conventional physiotherapy. All studies demonstrated statistically significant reductions in pain intensity ($p<0.05$), with consistent improvements in functional disability, pressure pain threshold, joint mobility, and health-related quality of life. Methodological quality ranged from fair to good (PEDro scores: 5-8/10), with most studies showing low to moderate risk of bias.

Conclusion: This systematic review provides moderate-quality evidence supporting TECAR therapy as an effective intervention for chronic musculoskeletal pain, particularly when combined with conventional physiotherapy or manual therapy. However, heterogeneity in treatment protocols and outcome measures limits definitive conclusions. Future high-quality RCTs with standardised protocols and long-term follow-up are warranted.

Keywords: Capacitive and resistive electric transfer, Diathermy, Pain management, Transfer energy capacitive and resistive.

PARTICULARS OF CONTRIBUTORS:
1. MPT Student, Department of Physiotherapy, Amity Institute of Health Allied Sciences, Amity University, Noida, Uttar Pradesh, India.
2. Assistant Professor, Department of Physiotherapy, Amity Institute of Health Allied Sciences, Amity University, Noida, Uttar Pradesh, India.
3. Physiotherapist, Sports Injury Centre, Safdarjung Hospital, Ansari Nagar West, New Delhi, Delhi, India.

NAME, ADDRESS, E-MAIL ID OF THE CORRESPONDING AUTHOR:
Dr. Pankaj Kumar Malik,
Assistant Professor III, Department of Physiotherapy, Amity Institute of Health Allied Sciences, Amity University, Sector-125, Noida-201313, Uttar Pradesh, India.
Email: pkmalik@amity.edu; pankajkrmalik@gmail.com

Abstract No.: PT 48

Attitude, Motivation and Coping in Stroke Rehabilitation: A Review of Measurement Instruments

SEHBA SHIRAZ[1], PANKAJ KUMAR MALIK[2]

ABSTRACT

Stroke rehabilitation outcomes are influenced not only by physical recovery but also by psychosocial factors such as attitude, motivation, and coping. Accurate assessment of these domains is essential for understanding patient participation, adherence, emotional adjustment, and rehabilitation outcomes. Numerous measurement instruments have been developed; however, variability exists in their constructs, applicability, and psychometric properties. To review and summarise the available measurement instruments assessing attitude, motivation, and coping among individuals undergoing stroke rehabilitation.

A narrative review of literature was conducted using electronic databases, including PubMed, Scopus, Google Scholar, PEDro, and ScienceDirect. Studies published in English that assessed

instruments related to attitude, motivation, and coping in stroke survivors were included. Information regarding domains assessed, psychometric properties, clinical utility, and applicability in rehabilitation settings was extracted and analysed. The review identified several instruments assessing psychosocial dimensions in stroke rehabilitation. Attitude-related measures primarily evaluated beliefs, perceptions, and readiness toward rehabilitation. Motivation scales focused on participation, engagement, goal orientation, and self-determination during therapy. Coping instruments assessed adaptive and maladaptive coping behaviours, emotional adjustment, and stress management strategies. Most tools demonstrated acceptable reliability and validity; however, many instruments assessed only a single psychosocial construct and lacked stroke-specific applicability. Limited evidence was found regarding comprehensive tools integrating all three domains. Existing instruments provide valuable assessment of attitude, motivation, and coping in stroke rehabilitation; however, gaps remain in the availability of comprehensive, stroke-specific multidimensional tools. Future research should focus on developing and validating integrated assessment instruments to enhance psychosocial evaluation and improve rehabilitation outcomes in stroke survivors.

Keywords: Measurement instruments, Psychometric properties, Psychosocial assessment.

PARTICULARS OF CONTRIBUTORS:
1. MPT Student, Department of Physiotherapy, Amity Institute of Health Allied Sciences, Amity University, Noida, Uttar Pradesh, India.
2. Assistant Professor, Department of Physiotherapy, Amity Institute of Health Allied Sciences, Amity University, Noida, Uttar Pradesh, India.

NAME, ADDRESS, E-MAIL ID OF THE CORRESPONDING AUTHOR:
Dr. Pankaj Kumar Malik,
Assistant Professor III, Department of Physiotherapy, Amity Institute of Health Allied Sciences, Amity University, Sector-125, Noida-201313, Uttar Pradesh, India.
Email: pkmalik@amity.edu; pankajkrmalik@gmail.com

Abstract No.: PT 49

Management of Upper Trapezius Trigger Points using Combined Manual Therapy Approaches

SEJAL JAIN[1], BHUMIKA CHHIBBER[2], RITHIKA AGGARWAL[3]

ABSTRACT

Introduction: Upper trapezius myofascial trigger points commonly cause neck pain, restricted cervical motion, and functional limitation, particularly in individuals with prolonged postural stress and sedentary lifestyles. Physiotherapy interventions such as soft tissue mobilisation, sustained compression, cooling-assisted stretching, and muscle facilitation techniques are frequently used; however, comparative evidence for combined treatment approaches remains limited.

Aim: To compare the effectiveness of two physiotherapy intervention combinations in managing upper trapezius myofascial trigger points.

Materials and Methods: A comparative interventional study was conducted among adults with active upper trapezius trigger points. Participants were randomly allocated into two groups. One group received soft tissue release with sustained compression and conventional electrotherapy, while the second group underwent cooling-assisted stretching with muscle facilitation techniques and conventional electrotherapy. Pain, neck disability, and cervical mobility were assessed pre- and post-intervention using standardised outcome measures. Statistical analysis was performed using appropriate parametric tests with significance set at $p<0.05$.

Results: Both intervention groups demonstrated significant improvements in pain, cervical mobility, and functional performance after treatment ($p<0.05$). The soft tissue release and sustained compression group showed greater reduction in pain and disability, whereas the cooling-assisted stretching and muscle facilitation group demonstrated relatively better cervical mobility. However, intergroup differences in mobility outcomes were not statistically significant ($p>0.05$).

Conclusion: Both physiotherapy intervention combinations were effective in managing upper trapezius myofascial trigger points. However, the soft tissue release and sustained compression approach appeared more effective for pain reduction and functional improvement, while cooling-assisted stretching with muscle facilitation showed slightly better improvement in cervical mobility.

Keywords: Cervical mobility, Myofascial trigger points, Neck pain, Physiotherapy.

PARTICULARS OF CONTRIBUTORS:
1. MPT Student, Department of Physiotherapy, Amity Institute of Health Allied Sciences, Amity University, Noida, Uttar Pradesh, India.
2. Assistant Professor, Department of Physiotherapy, School of Liberal Arts and Sciences, Mody University of Science and Technology, Sikar, Rajasthan, India.
3. Healthcare Physiotherapy and Rehabilitation Centre, Hapur, India.

NAME, ADDRESS, E-MAIL ID OF THE CORRESPONDING AUTHOR:
Dr. Bhumika Chhibber,
Assistant Professor, Department of Physiotherapy, School of Liberal Arts and Sciences, Mody University of Science and Technology, Sikar, Rajasthan, India.
Email: bhumika.fab007@gmail.com

Abstract No.: PT 50

Comparative Analysis of TECAR Therapy Modes for Functional Improvement in Knee Osteoarthritis

SEJAL SINGH[1], BHUMIKA CHHIBBER[2], POONAM DAHIYA[3]

ABSTRACT

Introduction: Knee osteoarthritis is a chronic degenerative condition characterised by pain, reduced physical function, impaired joint position sense, and balance disturbances. Transfer Energy Capacitive and Resistive (TECAR) therapy has emerged as a supportive modality in musculoskeletal rehabilitation; however, comparative evidence regarding different application modes remains limited.

Aim: To compare the therapeutic effectiveness of two TECAR therapy modes combined with conventional exercise therapy in individuals with Grade II knee osteoarthritis.

Materials and Methods: A randomised comparative study was conducted among individuals diagnosed with Grade II knee osteoarthritis. Participants were allocated into two intervention groups. One group received capacitive-mode TECAR therapy with conventional exercises, while the second group received resistive-mode TECAR therapy with the same exercise program. Interventions were administered over multiple treatment sessions. Clinical outcomes, including pain, function, proprioception, and balance, were assessed using standardised outcome measures. Statistical analysis was performed using repeated measures analysis, with significance set at $p<0.05$.

Results: Both intervention groups demonstrated statistically significant improvements in pain, function, proprioception, and balance following treatment ($p<0.05$). Comparative analysis indicated greater improvement in pain relief, function, and proprioception in the resistive TECAR group. However, no statistically significant between-group differences were observed for balance outcomes ($p>0.05$).

Conclusion: Both TECAR therapy modes combined with conventional exercises were effective in improving clinical outcomes in individuals with Grade II knee osteoarthritis. Nevertheless, the resistive mode demonstrated comparatively superior benefits in pain reduction, functional recovery, and proprioception, suggesting greater therapeutic potential in knee osteoarthritis rehabilitation.

Keywords: Balance, Knee osteoarthritis, Proprioception, Rehabilitation, Transfer energy capacitive and resistive therapy.

PARTICULARS OF CONTRIBUTORS:
1. MPT Student, Department of Physiotherapy, Amity University, Noida, Uttar Pradesh, India.
2. Assistant Professor, Department of Physiotherapy, School of Liberal Arts and Sciences, Mody University of Science and Technology, Sikar, Rajasthan, India.
3. Physiotherapist, Quantum Physical Therapy and Wellness Centre, New Delhi, India.

NAME, ADDRESS, E-MAIL ID OF THE CORRESPONDING AUTHOR:
Dr. Bhumika Chhibber,
Assistant Professor, Department of Physiotherapy, School of Liberal Arts and Sciences, Mody University of Science and Technology, Sikar, Rajasthan, India.
Email: bhumika.fab007@gmail.com

Abstract No.: PT 51

Effect of Virtual Reality Assisted Gait Training on Functional Mobility in Individuals with Incomplete Spinal Cord Injury: A Randomised Controlled Trial

SHANTHOSH B.J.[1], MEENA GUPTA[2], NEELAM MEHRA[3]

ABSTRACT

Introduction: Incomplete Spinal Cord Injury (SCI) commonly causes impairments in gait, balance, postural control, and functional mobility, reducing independence and quality of life. Conventional gait rehabilitation remains important in neurorehabilitation; however, limited patient engagement and insufficient task-specific training intensity may affect recovery outcomes. Virtual Reality (VR)–assisted gait training combines repetitive task-oriented practice with real-time multisensory feedback to enhance neuroplasticity and motor relearning.

Aim: To evaluate the effectiveness of VR-assisted gait training on functional mobility in individuals with incomplete SCI.

Materials and Methods: A prospective randomised controlled trial was conducted among 30 participants with incomplete SCI (ASIA Impairment Scale grades C and D), aged 18-60 years, selected from 48 screened individuals. Participants were randomly allocated to either a VR-assisted gait training group (n=15) or a conventional gait training group (n=15). Both groups received supervised interventions for 6 weeks, 4 sessions per week, with

each session lasting 45-60 minutes. Outcome measures included the Functional Ambulation Category (FAC), Berg Balance Scale (BBS), Activities-specific Balance Confidence (ABC) Scale, Two-Minute Walk Test (2MWT), and Barthel Index. Statistical analysis was performed using paired and independent sample t-tests with significance set at $p<0.05$.

Results: Both groups demonstrated significant post-intervention improvements in all outcome measures ($p<0.05$). The VR-assisted gait training group showed significantly greater improvements in ABC Scale, 2MWT, and Barthel Index scores compared with the conventional group ($p<0.05$). No significant between-group differences were observed in FAC or BBS scores.

Conclusion: VR-assisted gait training is an effective neuro-rehabilitation approach for improving functional mobility in individuals with incomplete SCI and may provide additional benefits in walking endurance, balance confidence, and functional independence compared with conventional gait training.

Keywords: Functional mobility, Gait training, Incomplete spinal cord injury, Neurorehabilitation, Virtual reality rehabilitation.

PARTICULARS OF CONTRIBUTORS:
1. MPT Student, Department of Physiotherapy, Amity University, Noida, Uttar Pradesh, India.
2. Associate Professor, Department of Physiotherapy, Amity Institute of Health Allied Sciences, Amity University, Noida, Uttar Pradesh, India.
3. Physiotherapist, Walk N Run Advance Neuro and Paediatric Rehabilitation Centre, Noida, Uttar Pradesh, India.

NAME, ADDRESS, E-MAIL ID OF THE CORRESPONDING AUTHOR:
Dr. Meena Gupta,
Associate Professor, Department of Physiotherapy, Amity Institute of Health Allied Sciences, Amity University, Sector-125, Noida-201313, Uttar Pradesh, India.
Email: mgupta9@amity.edu

Abstract No.: PT 52

Association of Ocular Mobility and Gravitational Insecurity in Children with Down Syndrome: A Cross-sectional Study

PRAMETHA[1], PRIYA CHAUHAN[2]

ABSTRACT

Introduction: Down syndrome is commonly associated with hypotonia, delayed motor development, impaired balance, vestibular dysfunction, and deficits in sensory integration. Impairment in ocular motor control may contribute to gravitational insecurity, characterised by excessive fear, anxiety, or avoidance during movement and positional changes. However, limited studies have investigated the relationship between ocular mobility and gravitational insecurity in children with Down syndrome.

Aim: To determine the relationship between ocular mobility and gravitational insecurity in children with Down syndrome.

Materials and Methods: This cross-sectional observational study was conducted among 70 children diagnosed with Down syndrome aged 8-12 years, recruited from special schools and rehabilitation centres using purposive sampling. Ocular mobility was assessed clinically through evaluation of fixation, smooth pursuit, saccadic eye movements, and gaze stability. Gravitational insecurity was evaluated using standardised sensory processing and observational assessment tools. Statistical analysis was performed using descriptive statistics and Pearson's correlation coefficient. A p-value <0.05 was considered statistically significant.

Results: Among the 70 participants, 42 (60%) children demonstrated moderate-to-severe ocular mobility impairment, while 46 (65.7%) showed features of gravitational insecurity. The mean ocular mobility score was 18.42±4.16, whereas the mean gravitational insecurity score was 27.35±5.28. A significant positive correlation was observed between ocular mobility impairment and gravitational insecurity ($r=0.68$, $p<0.001$). Children with impaired smooth pursuit and gaze stabilisation exhibited significantly higher gravitational insecurity scores compared to children with relatively preserved ocular motor control (31.12±4.21 vs 22.48±3.96, $p<0.001$). Increased movement-related anxiety and vestibular sensitivity were also commonly observed in children with greater ocular motor dysfunction.

Conclusion: The present study demonstrated a significant association between ocular mobility impairment and gravitational insecurity in children with Down syndrome. Children with poorer ocular motor control exhibited greater movement-related fear and vestibular sensitivity.

Keywords: Down syndrome, Gravitational insecurity, Ocular mobility, Paediatric physiotherapy, Sensory integration, Vestibular dysfunction.

PARTICULARS OF CONTRIBUTORS:
1. MPT Student, Department of Physiotherapy, Amity University, Noida, Uttar Pradesh, India.
2. Assistant Professor, Department of Physiotherapy, Amity Institute of Health Allied Sciences, Amity University, Noida, Uttar Pradesh, India.

NAME, ADDRESS, E-MAIL ID OF THE CORRESPONDING AUTHOR:
Dr. Priya Chauhan,
Assistant Professor, Department of Physiotherapy, Amity Institute of Health Allied Sciences, Amity University, Sector-125, Noida-201313, Uttar Pradesh, India.
Email: priyac@amity.edu

Abstract No.: PT 53

Impact of Audio Vestibular Degeneration on Gait Parameters in Elderly Individuals

SONAM BANDANA[1], PRIYA CHAUHAN[2]

ABSTRACT

Introduction: Age-related audio vestibular degeneration is a progressive degenerative condition affecting the auditory and vestibular systems in elderly individuals, leading to impaired locomotor control and altered gait performance. Although gait abnormalities are frequently observed in elderly individuals with vestibular dysfunction, limited studies have comprehensively evaluated the association between audio vestibular degeneration and spatiotemporal gait characteristics.

Aim: To determine the association between audio vestibular degeneration and spatiotemporal gait characteristics in elderly individuals.

Materials and Methods: A cross-sectional observational study was conducted among 60 community-dwelling elderly individuals aged 60-88 years. Participants were categorised into three age groups: Group I (60-69 years), Group II (70-79 years), and Group III (≥80 years). The severity of audio vestibular degeneration was assessed using the B.A.R.E. test. Gait parameters, including step length, stride length, cadence, stance phase duration, and double-support time, were evaluated using a three-dimensional gait analysis system. Statistical analysis included one-way ANOVA, Pearson correlation analysis, and an independent-samples t-test with a significance level set at $p<0.05$.

Results: The findings demonstrated significant deterioration in gait performance with increasing age and severity of audio vestibular degeneration ($p<0.001$). Significant negative correlations were observed between B.A.R.E. scores and gait parameters, including step length ($r=-0.850$), stride length ($r=-0.815$), and cadence ($r=-0.829$), indicating reduced gait efficiency among elderly individuals with greater vestibular degeneration. Conversely, stance phase duration ($r=0.752$) and double-support time ($r=0.805$) increased significantly with worsening vestibular dysfunction, reflecting a more cautious gait pattern and reduced dynamic stability.

Conclusion: Audio vestibular degeneration significantly affects gait performance in elderly individuals and contributes substantially to impaired mobility and increased fall risk. Early identification and targeted vestibular rehabilitation interventions may help improve gait performance and functional mobility in elderly individuals.

Keywords: Ageing, Fall risk, Gait analysis, Locomotion, Vestibular dysfunction.

PARTICULARS OF CONTRIBUTORS:
1. MPT Student, Department of Physiotherapy, Amity University, Noida, Uttar Pradesh, India.
2. Assistant Professor, Department of Physiotherapy, Amity Institute of Health Allied Sciences, Amity University, Noida, Uttar Pradesh, India.

NAME, ADDRESS, E-MAIL ID OF THE CORRESPONDING AUTHOR:
Dr. Priya Chauhan,
Assistant Professor, Department of Physiotherapy, Amity Institute of Health Allied Sciences, Amity University, Sector-125, Noida-201313, Uttar Pradesh, India.
Email: priyac@amity.edu

Abstract No.: PT 54

Correlation of Vestibulo-ocular Reflex with Motor Skills and Functional Performance in Children with Cerebral Palsy: A Literature Review

DENESA NAGPAL[1], PRIYA CHAUHAN[2]

ABSTRACT

The present review aimed to examine the relationship between prefrontal cortex connectivity, Vestibulo-Ocular Reflex (VOR) function, and motor as well as functional performance in children with cerebral palsy. The review also explored how altered cortical activity and vestibular dysfunction contribute to impaired balance, motor coordination, gait, and reduced functional independence in cerebral palsy. A narrative literature review was conducted using electronic databases, including PubMed, Google Scholar, and Scopus. Articles published between 2014 and 2025 were searched using keywords related to cerebral palsy, EEG, fNIRS, vestibulo-ocular reflex, vestibular function, cortical connectivity,

and motor performance. A total of 13 articles were selected based on predefined inclusion and exclusion criteria. Studies assessing cortical activity, vestibular function, balance, gait, motor skills, and functional performance in children with cerebral palsy were included. The reviewed studies showed that children with cerebral palsy have altered cortical connectivity and vestibulo-ocular dysfunction compared to typically developing children. EEG and fNIRS findings indicated reduced prefrontal activation, decreased alpha/beta activity, and increased delta/theta activity, reflecting impaired sensorimotor integration. Functional connectivity studies found disrupted interhemispheric and sensorimotor connections linked to poorer motor control. Vestibular assessments revealed abnormal eye movement responses, reduced VOR gain, and poor fixation stability, contributing to impaired balance, gaze stabilisation, and coordination. Some studies also reported increased cognitive load and compensatory cortical activation during motor tasks. The review highlights that cerebral palsy involves significant alterations in cortical connectivity and vestibulo-ocular control beyond primary motor impairment. Understanding these mechanisms may support the development of targeted rehabilitation approaches focusing on cortical activation, vestibular rehabilitation, and cognitive-motor integration.

Keywords: Cortical connectivity, Motor performance, Ocular motor control, Prefrontal cortex, Vestibular function.

PARTICULARS OF CONTRIBUTORS:
1. MPT Student, Department of Physiotherapy, Amity University, Noida, Uttar Pradesh, India.
2. Assistant Professor, Department of Physiotherapy, Amity Institute of Health Allied Sciences, Amity University, Noida, Uttar Pradesh, India.

NAME, ADDRESS, E-MAIL ID OF THE CORRESPONDING AUTHOR:
Dr. Priya Chauhan,
Assistant Professor, Department of Physiotherapy, Amity Institute of Health Allied Sciences, Amity University, Sector-125, Noida-201313, Uttar Pradesh, India.
Email: priyac@amity.edu

Abstract No.: PT 55

Correlation between Sensory Loss and Ulcers among Leprosy-affected Individuals

MANUSHRI PARMAR[1], PRIYA CHAUHAN[2], ANKIT JAIN[3], JAYA SHANKER TEDLA[4]

ABSTRACT

Introduction: Leprosy is a chronic infectious disease caused by *Mycobacterium leprae* that primarily affects the skin and peripheral nerves. Sensory impairment is one of the earliest and most significant neurological manifestations of the disease. Loss of protective sensation predisposes affected individuals to repeated trauma, leading to ulcer formation, deformities, and long-term disability, particularly in weight-bearing regions of the body.

Aim: To determine the correlation between sensory loss and ulcer occurrence among individuals affected by leprosy.

Materials and Methods: A cross-sectional study was conducted among 300 adults affected by leprosy in Delhi. Sensory assessment was performed using monofilament testing, along with evaluation of light touch, pinprick, pain, and pressure sensations. Information regarding ulcer history, site of ulceration, demographic profile, and WHO disability grading was collected. Statistical analysis was performed using descriptive statistics, Chi-square test, and logistic regression analysis, with a significance level set at $p<0.05$.

Results: Overall, sensory loss was observed in 255 participants (85.0%), while ulcer history was present in 187 participants (62.3%). A highly significant association was found between sensory loss and ulcer history ($p<0.001$). Participants with ulcer history demonstrated markedly higher prevalence of sensory impairment than those without ulcers [97.3% vs. 64.6%]. Logistic regression analysis revealed that sensory loss was a strong independent predictor of sensory loss, with an odds ratio of 7.78 (95% CI: 2.72-22.24). Extremity involvement was significantly higher than facial involvement, with the plantar surface of the foot identified as the most common ulcer site (52.9%).

Conclusion: Sensory impairment is strongly associated with ulcer development in individuals affected by leprosy. Early sensory screening and preventive foot care strategies are essential to reduce ulceration, disability progression, and long-term complications.

Keywords: Cross-sectional studies, Foot ulcer, Leprosy, Peripheral nervous system diseases, Sensory disorders.

PARTICULARS OF CONTRIBUTORS:
1. MPT Student, Department of Physiotherapy, Amity University, Noida, Uttar Pradesh, India.
2. Assistant Professor, Department of Physiotherapy, Amity Institute of Health Allied Sciences, Amity University, Noida, Uttar Pradesh, India.
3. Associate Professor, Department of Physiotherapy, SLAS, Mody University of Science and Technology, Rajasthan, India.
4. Associate Professor, Department of Medical Rehabilitation Sciences, College of Applied Medical Sciences, King Khalid University, Alfara, Abha, Kingdom of Saudi Arabia.

NAME, ADDRESS, E-MAIL ID OF THE CORRESPONDING AUTHOR:
Dr. Priya Chauhan,
Assistant Professor, Department of Physiotherapy, Amity Institute of Health Allied Sciences, Amity University, Sector-125, Noida-201313, Uttar Pradesh, India.
Email: priyac@amity.edu

Abstract No.: MP 01

HIV/AIDS Related Stigma among the General Population: A Cross-sectional Study

PRIYANKA MISHRA[1], SUDESHNA MUKHERJEE[2], SOMNATH PAI[3]

ABSTRACT

Introduction: HIV/AIDS is still an important public health issue worldwide. People living with HIV often face stigma and discrimination. Although awareness regarding HIV/AIDS has improved over the years, incorrect beliefs about transmission and casual contact are still present in society. These misconceptions may affect social behaviour and healthcare practices.

Aim: The present study was carried out to assess awareness, knowledge, attitudes, and stigma related to HIV/AIDS among the general population.

Materials and Methods: A cross-sectional survey-based study was carried out among individuals from different social and educational backgrounds. Data were collected through a questionnaire prepared through Google Forms. The questionnaire included questions related to awareness, transmission, prevention, attitudes, and stigma. Participation was voluntary, and responses were analysed using descriptive methods.

Results: The survey findings indicated that awareness regarding HIV/AIDS was generally present among participants. However, misconceptions regarding casual contact and social interaction were still observed among several individuals. Fear of social judgment and discriminatory attitudes toward people living with HIV were also noted. These perceptions may influence openness regarding HIV testing, treatment, and social support. Many respondents felt that awareness and educational activities could help reduce stigma and improve public understanding.

Conclusion: The study shows that HIV-related stigma is still present despite increased awareness about HIV/AIDS. Misconceptions, fear, and negative social attitudes remain important barriers to acceptance and open discussion. Providing accurate information and improving awareness and educational activities may help reduce stigma and promote a more accepting environment for HIV-positive individuals.

Keywords: Awareness, Discrimination, Public attitude, Social perception.

PARTICULARS OF CONTRIBUTORS:
1. M.Sc. Medical Physiology Student, Department of Physiology and Allied Sciences, Amity Institute of Health Allied Sciences, Amity University, Noida, Uttar Pradesh, India.
2. Assistant Professor, Department of Physiology and Allied Sciences, Amity Institute of Health Allied Sciences, Amity University, Noida, Uttar Pradesh, India.
3. Assistant Professor, Department of Virology and Immunology, Amity University, Noida, Uttar Pradesh, India.

NAME, ADDRESS, E-MAIL ID OF THE CORRESPONDING AUTHOR:
Dr. Sudeshna Mukherjee,
Assistant Professor, Department of Physiology, Amity Institute of Health Allied Sciences, Amity University, Sector-125, Noida-201313, Uttar Pradesh, India.
Email: smukherjee@amity.edu

Abstract No.: MP 02

Xenograft Mouse Models in Cancer Research: Characterisation, Applications, and Future Perspectives: A Narrative Review

AMOLI SHEE[1], ALOK CHANDRA BHARTI[2], AASTHA MITTAL[3]

ABSTRACT

Introduction: Cancer remains a major global health challenge, emphasising the need for reliable experimental models that accurately mimic human tumor biology and therapeutic responses. Xenograft mouse models, including patient-derived xenograft (PDX), cell-derived xenograft (CDX)- subcutaneous and orthotopic models, have emerged as indispensable tools in translational oncology research due to their ability to reproduce tumor heterogeneity, metastatic potential, and treatment responses observed in human cancers.

Aim: This review aims to summarise the methodologies, characterisation approaches, and preclinical applications of xenograft mouse models in cancer research, with emphasis on their translational significance and future prospects.

Materials and Methods: A comprehensive literature-based review was conducted using published studies focused on xenograft mouse

models in cervical, ovarian, and lung cancers. Relevant studies describing tumor engraftment, histopathological characterisation, tumor progression, metastatic behavior, circulating tumor cells, and therapeutic evaluation in immunocompromised mice were critically analysed and compiled.

Results: Published evidence demonstrates that xenograft models serve as valuable platforms for investigating tumor growth, angiogenesis, metastasis, tumor heterogeneity, and drug responsiveness. Orthotopic xenograft models closely mimic the native tumor microenvironment and metastatic progression, whereas subcutaneous models provide reproducible and easily measurable tumor development. Patient-derived xenograft models preserve tumor heterogeneity and enhance translational relevance for therapy evaluation. Additionally, xenograft systems have been widely utilised to study circulating tumor cells and treatment responses in multiple cancer types.

Conclusion: Xenograft mouse models remain essential tools in preclinical oncology research. Their reproducibility, translational relevance, and adaptability continue to advance cancer biology research and facilitate the development of novel therapeutic strategies.

Keywords: Cervical Neoplasms, Drug Evaluation, Nude Mice, Preclinical, Tumor Microenvironment, Xenograft Model.

PARTICULARS OF CONTRIBUTORS:
1. M.Sc. Medical Physiology Student, Department of Physiology and Allied Sciences, Amity Institute of Health Allied Sciences, Amity University, Noida, Uttar Pradesh, India.
2. Professor, Department of Zoology, Molecular Oncology Laboratory, University of Delhi, Delhi, India
3. Research Associate, Department of Zoology, Molecular Oncology Laboratory, University of Delhi, Delhi, India.

NAME, ADDRESS, E-MAIL ID OF THE CORRESPONDING AUTHOR:
Dr. Alok Chandra Bharti,
Professor, Department of Zoology, Molecular Oncology Laboratory, University of Delhi, Delhi, India.
Email: bhartiac2011@gmail.com; alokchandrab@yahoo.com

Abstract No.: MP 03

Prevalence of Paediatric Hypertension among Adolescents in Uttar Pradesh, India

RASHMI LANGEH[1], SANDHYA SINGH[2]

ABSTRACT

Introduction: Paediatric hypertension is becoming a significant public health issue in Uttar Pradesh, linked to future cardiovascular problems and adult hypertension. Recent studies show rising blood pressure rates among urban and overweight adolescents, particularly in Banda, Moradabad, and Aligarh, highlighting the urgent need to assess their causes and prevalence in the region.

Aim: To review the prevalence, associated risk factors, and regional variations of paediatric and adolescent hypertension reported in studies from Uttar Pradesh.

Materials and Methods: Relevant published studies related to paediatric and adolescent hypertension in Uttar Pradesh were searched through PubMed and Google Scholar, and reference screening. Information regarding prevalence, associated risk factors, and study characteristics was extracted and summarised descriptively.

Results: The reviewed studies have indicated a high prevalence of elevated blood pressure and hypertension among adolescents in Uttar Pradesh. In the Banda district, the prevalence of prehypertension and hypertension was reported as 13.28% and 12.24%, respectively. A study among adolescent girls in Moradabad reported 15.8% prehypertension and 2.2% hypertension, while the Aligarh study documented 10.7% elevated blood pressure and 18.5% hypertension. Higher blood pressure levels were significantly associated with increasing age, male gender, urban residence, higher socioeconomic status, overweight and obesity, unhealthy dietary habits, skipping breakfast, soft-drink consumption, high saturated fat intake, and reduced consumption of green leafy vegetables. The difference in prevalence rates was partly because of differences in diagnostic criteria and blood pressure measurement protocols.

Conclusion: Available evidence reveals that nearly one in five adolescents in Uttar Pradesh may have elevated blood pressure or hypertension. Lifestyle-related and nutritional risk factors play a major role in the increasing burden of childhood hypertension. Early identification through standardised blood pressure screening and implementation of school-based nutrition and physical-activity interventions are essential to reduce long-term cardiovascular risk in this population.

Keywords: Adolescent, Blood pressure, Cardiovascular diseases, Child, Hypertension, Paediatric obesity

PARTICULARS OF CONTRIBUTORS:
1. M.Sc. Medical Physiology Student, Department of Physiology and Allied Sciences, Amity Institute of Health Allied Sciences, Amity University, Noida, Uttar Pradesh, India.
2. Associate Professor, Department of Physiology and Allied Sciences, Amity Institute of Health Allied Sciences, Amity University, Noida, Uttar Pradesh, India.

NAME, ADDRESS, E-MAIL ID OF THE CORRESPONDING AUTHOR:
Dr. Sandhya Singh,
Associate Professor, Department of Physiology and Allied Sciences, Amity Institute of Health Allied Sciences, Amity University, Sector-125, Noida-201313, Uttar Pradesh, India.
Email: ssingh42@amity.edu

Abstract No.: MP 04

Prevent, Educate, Support: Advancing Human Immunodeficiency Virus/AIDS Awareness

POONAM THAKUR[1], SUDESHNA MUKHERJEE[2], SOMNATH S PAI[3]

ABSTRACT

Introduction: Human Immunodeficiency Virus and AIDS remain important public health issues worldwide. Many college students have heard about HIV/AIDS, but their knowledge regarding its transmission, prevention, and management is often incomplete or inaccurate. Misconceptions such as transmission through casual contact or mosquito bites still exist and contribute to stigma and discrimination. Young adults are an important target group for awareness programs because they are more exposed to social influences and information from the internet and media. Therefore, this study was conducted to assess the level of awareness, identify misconceptions, and highlight the need for effective educational programs among college students.

Aim: To assess awareness and identify misconceptions regarding Human Immunodeficiency Virus/AIDS among college students.

Materials and Methods: A descriptive cross-sectional survey method was used for this study. Data were collected from college students using a structured questionnaire designed to assess their awareness and knowledge regarding HIV/AIDS.

Results: The findings of the survey showed that although most college students had heard about Human Immunodeficiency Virus, their knowledge regarding its transmission, prevention, and health effects was limited. Many students were aware of HIV/AIDS in general, but lacked an accurate and detailed understanding. Several participants also believed in misconceptions, such as HIV spreading through touching, sharing food, or mosquito bites. These incorrect beliefs contribute to fear, stigma, and discrimination toward people living with HIV. The results highlight the need for proper health education and awareness programs to improve knowledge and eliminate misconceptions among college students.

Conclusion: While basic awareness about HIV is present among college students, there is a need for continuous education to improve accurate knowledge and eliminate misconceptions. The significant improvement observed after the awareness session confirms that structured educational programmes are effective tools in promoting HIV awareness and prevention.

Keywords: Discrimination, Management, Misconceptions, Prevention, Questionnaire, Stigma, Transmission.

PARTICULARS OF CONTRIBUTORS:
1. M.Sc. Medical Physiology Student, Department of Physiology and Allied Sciences, Amity Institute of Health Allied Sciences, Amity University, Noida, Uttar Pradesh, India.
2. Assistant Professor, Department of Physiology and Allied Sciences, Amity Institute of Health Allied Sciences, Amity University, Noida, Uttar Pradesh, India.
3. Assistant Professor, Department of Virology and Immunology, Amity University, Noida, Uttar Pradesh, India.

NAME, ADDRESS, E-MAIL ID OF THE CORRESPONDING AUTHOR:
Dr. Sudeshna Mukherjee,
Assistant Professor, Department of Physiology, Amity Institute of Health Allied Sciences, Amity University, Sector-125, Noida-201313, Uttar Pradesh, India.
Email: smukherjee@amity.edu

Abstract No.: OT 01

Hindi Translation of the Lawton–Brody Instrumental Activities of Daily Living Scale

SRISTI[1], VIDUSHI SHARMA[2]

ABSTRACT

Introduction: With the rapid growth of the ageing population, assessment of functional independence has become essential in geriatric care. Instrumental Activities of Daily Living (IADL) reflect an individual's ability to live independently. The Lawton–Brody IADL Scale is widely used; however, its applicability in India is limited due to linguistic and cultural differences.

Aim: This study aimed to translate and perform content validation of the scale into Hindi.

Materials and Methods: This methodological study followed WHO translation guidelines, including forward translation, synthesis, back translation, and expert committee review. Content validation was conducted using both qualitative and quantitative approaches. A panel of experts evaluated item relevance, clarity, and cultural appropriateness. Quantitative assessment was performed using the Content Validity Ratio (CVR) and Content Validity Index (CVI) according to the Lawshe and McKenzie guidelines. The pre-final Hindi version was pilot-tested on older adults to assess clarity and comprehensibility.

Results: The Hindi version demonstrated strong semantic and conceptual equivalence with the original scale. Expert evaluation indicated high content validity, with acceptable CVR and CVI values for all items. Minor modifications were made in response to qualitative feedback to enhance clarity and cultural relevance.

Conclusion: The translated Hindi version of the Lawton–Brody IADL Scale is linguistically appropriate and demonstrates satisfactory content validity. Further psychometric properties determination of the Hindi- Lawton IADL is already in process.

Keywords: Activities of Daily Living, Ageing, Cultural validation, Functional participation.

PARTICULARS OF CONTRIBUTORS:
1. MOT Student, Department of Occupational Therapy, Amity Institute of Health Allied Sciences, Amity University, Noida, Uttar Pradesh, India.
2. Assistant Professor, Department of Occupational Therapy, Amity Institute of Health Allied Sciences, Amity University, Noida, Uttar Pradesh, India.
ORCID: 0000-0002-0263-1389

NAME, ADDRESS, E-MAIL ID OF THE CORRESPONDING AUTHOR:
Vidushi Sharma,
Head and Assistant Professor III, Department of Occupational Therapy, Amity Institute of Health Allied Sciences, Amity University, Sector-125, Noida-201313, Uttar Pradesh, India.
Email: vsharma7@amity.edu

Abstract No.: OT 02

Impact of Mindfulness Integrated Occupational Therapy in the Recovery of Post Stroke Hand Function: A Literature Review

FAUZIA FAROOQUE[1], BAIJNATH ROY[2]

ABSTRACT

Introduction: Stroke is one of the leading causes of long-term disability worldwide and frequently affects hand function, coordination, muscle strength, and the ability to perform activities of daily living. Occupational therapy plays a significant role in upper limb rehabilitation and functional recovery after stroke. In recent years, mindfulness-based interventions have emerged as supportive approaches in neurorehabilitation because of their potential benefits in improving attention, emotional regulation, stress management, and motor relearning. Techniques such as meditation, breathing exercises, body awareness, and focused attention may enhance patient engagement and participation during rehabilitation sessions.

Aim: This literature review aimed to evaluate the effectiveness of mindfulness-integrated occupational therapy interventions in improving hand function, motor recovery, emotional well-being, and functional performance among post-stroke individuals.

Materials and Methods: A literature review was conducted using electronic databases including PubMed, Google Scholar, Scopus, and the Cochrane Library. Studies published between 2015 and 2026 were reviewed. The selection of studies was guided by the PICO framework, focusing on post-stroke individuals, mindfulness-integrated Occupational Therapy interventions, conventional rehabilitation or standard Occupational Therapy as comparators, and outcomes related to hand function and upper limb recovery.

Results: The reviewed studies used varied intervention protocols and assessed multiple outcome measures. Several studies reported improvements in hand coordination, motor control, concentration, emotional regulation, therapy participation, and functional independence following mindfulness-integrated Occupational Therapy interventions. Mindfulness practices were also associated with reduced stress and anxiety, while supporting motor relearning and enhancing patient engagement during rehabilitation sessions. However, considerable variations were observed in intervention duration, sample size, and outcome assessment methods across studies.

Conclusion: The findings suggest that mindfulness-integrated Occupational Therapy may positively influence post-stroke hand function recovery by improving both motor and psychological outcomes. Although the current evidence demonstrates promising results, further research with larger sample sizes, standardised intervention protocols, and long-term follow-up is necessary to establish the effectiveness of mindfulness-based approaches in stroke rehabilitation.

Keywords: Mindfulness, Occupational Therapy, Stroke rehabilitation, Upper limb recovery.

PARTICULARS OF CONTRIBUTORS:
1. MOT Student, Department of Occupational Therapy, Amity Institute of Health Allied Sciences, Amity University, Noida, Uttar Pradesh, India.
2. Associate Professor, Department of Occupational Therapy, Amity Institute of Health Allied Sciences (AIHAS), Amity University, Noida, Uttar Pradesh, India.

NAME, ADDRESS, E-MAIL ID OF THE CORRESPONDING AUTHOR:
Dr. Baijnath Roy,
Associate Professor, Department of Occupational Therapy, Amity Institute of Health Allied Sciences (AIHAS), Amity University, Sector-125, Noida-201313, Uttar Pradesh, India.
Email: broy1@amity.edu

Abstract No.: OT 03

Sensory Processing and Emotional Regulation in Middle-aged Adults: A Narrative Review

SOUMYA ARORA[1], BAIJNATH ROY[2]

ABSTRACT

Sensory processing has considerable effects on both the development of emotions and behaviour. Problems with sensory processing have the potential to cause problems associated with emotional regulation, anxiety, stress, and problematic reactions to stressors. Middle adulthood is known to involve more occupational and parental responsibilities, which can make individuals susceptible to behavioural problems. This paper aims to gain an understanding of the association between sensory processing, emotion regulation, and behavioural well-being among middle-aged people using the approach of occupational therapy via the literature review technique. Literature review was carried out using search engines like PubMed, Google Scholar, Scopus and Research Gate. Literature related to sensory processing, emotion regulation, self-regulation, behavioural well-being, and occupational therapy was collected within the range of 1995 to 2026. The literature has found strong links between unusual sensory processes and issues such as emotional dysregulation, anxiety, stress response, and social problems. Sensitivities related to auditory stimuli, touch, and movement have been linked to poor emotional regulation and quality of life. Occupational therapy that incorporates sensory integration therapy was shown to enhance adaptive behaviours and mental well-being. Sensory processing impacts emotional regulation and behavioural functioning in adults. This review emphasises the significance of sensory-based evaluation and intervention strategies in the field of occupational therapy. There is little evidence on the subject within India's middle-aged population, necessitating further research into adult-oriented occupational therapy practices.

Keywords: Behavioural health, Emotional regulation, Occupational therapy, Self-regulation, Sensory processing.

PARTICULARS OF CONTRIBUTORS:
1. MOT Student, Department of Occupational Therapy, Amity Institute of Health Allied Sciences, Amity University, Noida, Uttar Pradesh, India.
2. Associate Professor, Department of Occupational Therapy, Amity Institute of Health Allied Sciences (AIHAS), Amity University, Noida, Uttar Pradesh, India.

NAME, ADDRESS, E-MAIL ID OF THE CORRESPONDING AUTHOR:
Dr. Baijnath Roy,
Associate Professor, Department of Occupational Therapy, Amity Institute of Health Allied Sciences, Amity University, Sector-125, Noida-201313, Uttar Pradesh, India.
Email: broy1@amity.edu; broy1503@gmail.com

Abstract No.: OT 04

Transcranial Direct Current Stimulation (tDCS) Intervention on Social Functions in Children and Adolescents with Autism Spectrum Disorder: A Literature Review

NEHA R.[1], RUBY AIKAT[2], BAIJNATH ROY[3]

ABSTRACT

Introduction: tDCS is an emerging non-invasive brain stimulation modality used as an alternative treatment for ASD. This article reviews the effectiveness of tDCS in social functions in children and adolescents with ASD.

Aim: To evaluate the effectiveness and safety of using Transcranial Direct Current Stimulation (tDCS) as a therapeutic intervention for social functions in pediatric populations (less than or equal to 18) diagnosed with Autism Spectrum Disorder (ASD).

Materials and Methods: A literature review was conducted using PubMed and Cochrane databases for studies published between 2015 and 2026. Studies were selected using a PICO framework focusing on pediatric ASD, tDCS intervention, sham stimulation or conventional treatment as a comparator, and social/cognitive outcomes.

Results: The studies reviewed used different stimulation protocols and measured a range of outcomes. Some studies found improvements in social communication, sociability, and behaviour, especially with stimulation of the dorsolateral prefrontal cortex. However, in a few studies, there isa difference between the active and sham groups. Most reported side effects were mild and temporary.

Conclusion: Several tDCS studies report improvements in social domains, although study results vary.

Keywords: Brain stimulation, Non-invasive brain stimulation, Neurodevelopmental disorders, Social cognition, Social communication.

PARTICULARS OF CONTRIBUTORS:
1. MOT Student, Department of Occupational Therapy, Amity Institute of Health Allied Sciences, Amity University, Noida, Uttar Pradesh, India.
2. Associate Professor, Department of Occupational Therapy, Amity Institute of Health Allied Sciences, Amity University, Noida, Uttar Pradesh, India.
3. Associate Professor, Department of Occupational Therapy, Amity Institute of Health Allied Sciences, Amity University, Noida, Uttar Pradesh, India.

NAME, ADDRESS, E-MAIL ID OF THE CORRESPONDING AUTHOR:
Dr. Baijnath Roy,
Associate Professor, Department of Occupational Therapy, Amity Institute of Health Allied Sciences (AIHAS), Amity University, Sector-125, Noida, Uttar Pradesh, India.
Email: broy1@amity.edu

Abstract No.: OT 05

Child Participation and Parental Outcomes in Different Developmental Contexts: A Correlational Study

JUSTIN JOSE[1], RUBY AIKAT[2]

ABSTRACT

Introduction: Children with neurodevelopmental disorders often experience participation restrictions, which may influence parental roles, daily routines, and family experiences. Parent-related outcomes, including occupational balance and quality of life, are important indicators of caregiver well-being and can be associated with the demands of caregiving. Understanding the relationship between child participation and parental outcomes is therefore clinically relevant for developing family-centered rehabilitation approaches that support both child and parent.

Aim: To assess the relationship between child participation, parental occupational balance, and quality of life among parents of children with neurodevelopmental disorders and typically developing children.

Materials and Methods: This cross-sectional survey was conducted at rehabilitation clinics and school settings from 12th December 2025 to 12th February 2026. A total of 204 parents of children aged 5-12 years, diagnosed with Neurodevelopmental Disorders (NDD=102) and typically developing children (TD=102) were included.

Results: In the NDD group, child participation and parental quality of life showed a significant weak positive correlation (r=0.261, p=0.008). However, no significant correlation was found between child participation and parents' occupational balance (r=0.035, p=0.729). In the TD group, child participation didn't have any significant correlation with parents' quality of life (r=0.103, p=0.301) and parents' occupational balance (r=0.045, p=0.653).

Conclusion: In the NDD group, child participation demonstrated a statistically significant weak positive correlation with parental quality of life, whereas no significant association was observed with occupational balance. In contrast, no significant correlations were found within the TD group. These findings indicate that greater participation among children with neurodevelopmental disorders can contribute positively to parental well-being, particularly quality of life. The results underscore the importance of incorporating family-centered and participation-focused approaches within rehabilitation practice, as interventions aimed at enhancing child participation may have broader benefits for overall family functioning and parental well-being.

Keywords: Child participation, Neurodevelopmental disorders, Occupational balance, Quality of life.

PARTICULARS OF CONTRIBUTORS:
1. MOT Student, Department of Occupational Therapy, Amity Institute of Health Allied Sciences, Amity University, Noida, Uttar Pradesh, India.
2. Associate Professor, Department of Occupational Therapy, Amity Institute of Health Allied Sciences, Amity University, Noida, Uttar Pradesh, India.
ORCID: 0000-0002-6999-9655

NAME, ADDRESS, E-MAIL ID OF THE CORRESPONDING AUTHOR:
Dr. Ruby Aikat,
Associate Professor, Department of Occupational Therapy, Amity Institute of Health Allied Sciences, Amity University, Sector-125, Noida-201313, Uttar Pradesh, India.
E-mail: raikat@amity.edu

Abstract No.: OT 06

A Comparative Study on the Predictive Value of Visual-motor Skills in Written Performance in Children With and Without Handwriting Difficulties

RACHNEET KAUR[1], SHIVANI KUNDLIA[2]

ABSTRACT

Introduction: Handwriting is a primary skill needing visual perception, control, and motor execution. Lack of proper visual-motor integration leads to illegible handwriting, slower writing rate, and lower writing performance in kids.

Aim: To study the significance of visual-motor skills in relation to the writing performance of children with and without handwriting difficulties.

Materials and Methods: A quantitative, cross-sectional comparative and correlational study was done with 100 children aged between 4-10 years who had been screened from a sample of 115. Participants were divided into handwriting difficulty and no handwriting difficulty groups by the Screener of Handwriting Proficiency. Visual-motor skills of the sample were evaluated by the Test of Visual-Motor Skills- Third Edition. The collected data was analysed descriptively, tested for normality, and an independent samples t-test test was conducted wherever appropriate. A Pearson/Spearman correlation was done followed by a binary logistic regression analysis with significance set at $p<0.05$.

Results: Participants without handwriting difficulties scored higher in TVMS-3 (mean 102.26, SD 5.32) as compared to children with handwriting difficulties (mean 72.04, SD 7.84). The difference in mean of 30.22 was statistically significant (p=0.000). A strong positive correlation (r=0.805) was found between the SHP and TVMS-3 scores suggesting that higher visual-motor scores correlated to higher writing scores. Logistic regression indicated that TVMS-3 scores were significant in the prediction of handwriting difficulty status, although the stability of the model and classification of difficulty group needed improvement.

Conclusion: Visual-motor skills help in early identification of handwriting difficulty and the association suggests an intervention and assessment for continued visual-motor performance in order to enhance written performance.

Keywords: Child, Handwriting, Learning disabilities, Motor skills, Psychomotor performance, Visual perception.

PARTICULARS OF CONTRIBUTORS:
1. MOT Student, Department of Occupational Therapy, Amity Institute of Health Allied Sciences (AIHAS), Amity University, Noida, Uttar Pradesh, India.
2. Teaching Associate, Department of Occupational Therapy, Amity Institute of Health Allied Sciences (AIHAS), Amity University, Noida, Uttar Pradesh, India.

NAME, ADDRESS, E-MAIL ID OF THE CORRESPONDING AUTHOR:
Dr. Shivani Kundlia (OT),
Teaching Associate, Department of Occupational Therapy, Amity Institute of Health Allied Sciences (AIHAS), Amity University, Sector-125, Noida, Uttar Pradesh, India.
Email: skundlia@amity.edu