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EFFICIENCY OF AQUATIC TREADMILL TRAINING OVER BODY WEIGHT SUPPORTED TREADMILL TRAINING ON IMPROVING BALANCE AND GAIT PARAMETERS IN CHRONIC STROKE PATIENTS.

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Background: Stroke can lead to major movement issues, affecting balance and walking. This study compares aquatic treadmill training (ATT) to body-weight supported treadmill training (BWSTT) in chronic stroke patients in improving balance and gait parameters. These interventions utilize principles of task-specific training and neuroplasticity to enhance motor recovery and functional mobility.

Purpose: To compare the effectiveness of aquatic treadmill training and body-weight supported treadmill training in improving balance, gait parameters, and functional independence in individuals with chronic stroke.

Methods & Materials: Thirty first-ever stroke patients were recruited and randomly allocated to a control group and an experimental group. The control group received 40 minutes of BWSTT (PhysioGait 360) training, while the experimental group performed 20 minutes of ATT (Pooltrack Underwater Treadmill) and 20 minutes of BWSTT. Additionally, all participants received 30 minutes of conventional physiotherapy three times per week for 8 weeks (24 sessions) under supervised rehabilitation settings. Outcome measures included lower limb strength, balance, gait parameters, and functional independence assessed using Berg Balance Scale (BBS), 10 Meter Walk Test (10MWT), and Activities-specific Balance Confidence (ABC) scale.

Results: From pre- to post-intervention, statistically significant improvements were observed in the 10MWT (0.480±0.21 to 0.567±0.23, $p < 0.002$), BBS (38.39±13.46 to 46.93±12.32, $p<0.001$), and ABC (39.66±8.63 to 43.80±5.21, $p<0.001$). Step-length symmetry (1.279±0.23 to 1.211±0.21, $p=0.109$) and overall temporal symmetry (1.504±0.36 to 1.414±0.34, $p=0.218$) showed improvement without statistical significance.

Conclusion: These findings suggest that combining aquatic treadmill training with body-weight supported treadmill training enhances functional gait recovery. This combined approach may improve patient confidence, promote better weight-bearing, and support effective rehabilitation outcomes in chronic stroke populations.

Keywords: Stroke, Balance, Gait motion, Aquatic therapy, Treadmill Training

CODE: ABS 002

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THE RELATIONSHIP BETWEEN LOWER CROSS SYNDROME (LCS) AND FLAT FOOT AMONG OBESE POPULATION: A CORRELATION CROSS-SECTIONAL STUDY.

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Background: Lower Cross Syndrome (LCS) is a postural condition characterized by muscle imbalance in the lumbo-pelvic region, leading to altered lower limb biomechanics. Flatfoot, caused by the collapse of the medial longitudinal arch, results in impaired foot function. Obesity contributes to both conditions through increased mechanical load and muscular imbalance. However, limited evidence exists regarding their interrelationship.

Purpose: To investigate the association between LCS and flatfoot among obese individuals, focusing on the influence of muscle strength and flexibility on foot function and pain.

Materials and Methods: A cross-sectional study was conducted among 135 obese individuals aged 18 to 50 years with a Body Mass Index (BMI) between 30 and 39.9 kg/m². Participants of both genders were included. Lower Cross Syndrome was assessed using Manual Muscle Testing (MMT) based on the Medical Research Council (MRC) grading system, the Modified Thomas Test for hip flexor tightness, and measurement of erector spinae muscle length. Flatfoot and its functional impact were evaluated using the Foot Function Index (FFI) and the Numeric Pain Rating Scale (NPRS).

Results: The analysis revealed moderate positive correlations between abdominal and gluteal muscle strength. A significant association was observed between Modified Thomas Test scores and gluteal muscle strength, suggesting interdependence between hip flexor tightness and gluteal function. The relationship between erector spinae muscle length and other muscle groups was relatively low. Additionally, FFI scores positively correlated with Modified Thomas Test scores, indicating increased foot dysfunction with greater hip flexor tightness.

Conclusion: There is a significant relationship between LCS-related muscle imbalances and increased foot dysfunction and pain associated with flatfoot in obese individuals.

Keywords: Lower Cross Syndrome, Flatfoot, Obesity, Muscle Imbalance, Medial Longitudinal Arch.

CODE: ABS 003

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EXTENDING PHYSIOTHERAPY BEYOND CLINICAL WALLS: FUNCTIONAL RECOVERY THROUGH SELF-PACED HOME EXERCISES FOLLOWING SHOULDER SUBSCAPULARIS RELEASE IN NEGLECTED OBSTETRIC BRACHIAL PLEXUS INJURY – A CASE REPORT.

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Background: Neglected obstetric brachial plexus injury (OBPI) often leads to lasting upper limb dysfunction, especially shoulder internal rotation deformity caused by muscle imbalance. Lack of timely rehabilitation worsens these limitations. Although subscapularis release surgery corrects the deformity, postoperative physiotherapy is essential for functional recovery. Home-based, self-paced rehab programs improve accessibility and adherence, especially for school-going children with limited hospital access.

Purpose: To report functional recovery in a 10-year-old girl with neglected OBPI following structured self-paced home exercises after subscapularis release.

Methods and Materials: A 10-year-old girl with neglected left OBPI presented with Erb's palsy and shoulder internal rotation contracture. Birth history included forceps-assisted delivery for shoulder dystocia. At 9 years, she underwent subscapularis release with postoperative immobilization in an abduction–external rotation splint. A one-year physiotherapy program included ROM exercises, internal rotator stretching, and task-specific training based on Modified Mallet domains, with periodic use of a resting aeroplane splint. Exercises were taught in hospital and continued at home with regular follow-up.

Results: After one-year, notable improvements were observed. Shoulder range increased: abduction from 60° to 150°, external rotation from 0° to 20°, and flexion from 70° to 160°. The Modified Mallet score improved from 10/25 to 15/25, and predicted Active Movement Scale scores improved, with abduction from 3 to 5 and external rotation from 2 to 4.

Conclusion: Self-paced, home-based physiotherapy after subscapularis release can achieve meaningful functional recovery in children with neglected OBPI. Hospital-guided instruction with patient-led home exercises effectively extends care beyond clinics, improving access for school-going children and underserved populations. Structured home-based physiotherapy, combined with hospital instruction and periodic follow-up, can optimize functional recovery in children with neglected OBPI. It ensures continuity of care, improves daily function, and enhances access for underserved populations despite limited hospital visits.

Keywords: Obstetric brachial plexus injury, Internal rotation deformity, Subscapularis release, Self-paced, Home-based physiotherapy.

CODE: ABS 004 https://doi.org/10.37506/1d54gm30

EFFECTS OF A CORE STABILITY EXERCISE PROGRAM ON BALANCE AND GAIT IN CHILDREN WITH CEREBELLAR ATAXIC CEREBRAL PALSY.

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Background: Cerebellar Ataxic Cerebral Palsy (CACP) affects 5–10% of children, causing poor coordination, balance issues, and weak core stability. Core stability training can help improve these areas. This study analyzes the effects of a core stability exercise program on balance, gait, and severity of ataxia in children with cerebellar ataxic cerebral palsy, aiming to enhance functional independence.

Purpose: To evaluate the effectiveness of a structured core stability exercise program on improving balance, gait, postural stability, and reducing the severity of ataxia in children with cerebellar ataxic cerebral palsy.

Methods & Materials: A total of 45 children diagnosed with CACP were recruited from Pediatric Physiotherapy Centers. Participants were randomly assigned into two groups, intervention group received 30 minutes of a core stability exercise program along with 30 minutes of conventional physiotherapy, while the control group received conventional therapy for 1 hour per session, three times per week. The duration of the study was 8 weeks. Outcome measures included gait, severity of ataxia, postural stability, and balance assessed using SARA scoring, Balance Error Scoring System (BESS), and HUMAC Balance System scoring.

Results: From pre- to post-intervention, statistically significant improvements were observed in the intervention group: SARA score (23±1 to 14±4, $p < 0.001$), BESS (31 to 16, $p<0.001$), and HUMAC Balance System score (50.45±8.34 to 73.05±9.11, $p<0.001$) compared with the control group.

Conclusion: Core stability exercise program combined with conventional physiotherapy can effectively improve balance, gait, and reduce severity of ataxia in children with cerebellar ataxic cerebral palsy, supporting its inclusion in pediatric neurorehabilitation programs.

Keywords: Cerebellar Ataxic, Balance Error Scoring System (BESS), HUMAC Balance System scoring, Core stability exercise,Gait.

CODE: ABS 005

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EFFICACY OF CORE STABILITY TRAINING VERSUS CONVENTIONAL EXERCISES IN MECHANICAL LOW BACK PAIN.

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Background: Mechanical low back pain is a common musculoskeletal condition associated with pain, reduced functional capacity, and decreased quality of life. It often results from poor posture, muscle imbalance, and impaired spinal stability. Core stability training focuses on strengthening deep trunk muscles to improve spinal support, while conventional exercises emphasize general strengthening and flexibility. Comparing these approaches may help identify more effective rehabilitation strategies for long-term recovery and prevention.

Purpose: To compare the effectiveness of core stability training and conventional exercises in reducing pain and improving functional outcomes in individuals with mechanical low back pain.

Methods & Materials: A comparative experimental study was conducted on 60 individuals diagnosed with mechanical low back pain, aged between 20–50 years. Participants were randomly allocated into two groups. Group A (n = 30) received core stability training, while Group B (n = 30) performed conventional exercises including stretching and general strengthening of lumbar muscles. The intervention was carried out for 6 weeks, with 5 sessions per week, each lasting 30–40 minutes, under supervised clinical settings to ensure adherence and proper technique.

Results: In Group A (Core Stability Training), NPRS reduced from 7.2 ± 1.1 to 2.1 ± 0.9, and ODI reduced from 48.5 ± 6.3 to 18.2 ± 5.4, showing statistically significant improvement ($p < 0.001$). In Group B (Conventional Exercises), NPRS reduced from 7.0 ± 1.0 to 3.8 ± 1.2, and ODI reduced from 47.2 ± 5.8 to 28.6 ± 6.1, also showing statistically significant improvement ($p < 0.001$).

Conclusion: Core stability training is more effective than conventional exercises in reducing pain and improving functional outcomes in individuals with mechanical low back pain. Incorporating core stabilization exercises into rehabilitation programs enhances spinal stability, promotes better recovery, improves functional independence, and may help prevent recurrence of low back pain.

Keywords: Mechanical low back pain, core stability exercises, conventional exercises, functional disability, physiotherapy, rehabilitation.

CODE: ABS 006 https://doi.org/10.37506/7b7ahm15

EFFECTIVENESS OF SENSORIMOTOR TRAINING ON SENSORY DEFICIT, BALANCE AND FUNCTIONAL MOBILITY IN A STATIN INDUCED POLYNEUROPATHY PATIENT- A CASE REPORT.

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Background: Statins are widely prescribed lipid-lowering agents used in the prevention of cardiovascular diseases. Although statins are generally considered safe, prolonged use has been associated with neuromuscular adverse effects, including peripheral polyneuropathy. Statin-induced polyneuropathy is characterized by sensory impairment, altered proprioception, balance dysfunction, and reduced functional mobility, leading to an increased risk of falls and functional dependence. Rehabilitation strategies targeting sensory integration and postural control are essential to address these impairments and improve overall functional independence and quality of life.

Purpose: To evaluate the effectiveness of sensorimotor training on sensory deficit, balance, and functional mobility in a patient with statin-induced polyneuropathy.

Methods & Materials: This was a single-case interventional study conducted in the physiotherapy rehabilitation department at Sri Balaji Vidyapeeth, Puducherry. A 54-year-old male diagnosed with statin-induced polyneuropathy underwent a structured sensorimotor training program performed four days per week for 6 weeks under supervised conditions. Outcome measures included the Semmes-Weinstein 10 g monofilament test, Berg Balance Scale (BBS), and Timed Up and Go (TUG) test. Pre- and post-intervention comparisons of outcome measures were analysed.

Results: Post-intervention results showed improved sensation (4/10 to 8/10 sites), improved balance (BBS score 36 to 47), and improved functional mobility (TUG 17 seconds to 10 seconds), indicating clinically meaningful improvements in all assessed domains.

Conclusion: Sensorimotor training demonstrated clinically significant improvement in sensation, balance, and functional mobility in statin-induced polyneuropathy. This rehabilitation technique may reduce the risk of falls, enhance functional independence, and serve as an effective non-pharmacological intervention in the management of such patients.

Key-words: **S**tatin-induced polyneuropathy, Sensorimotor training, Balance, Rehabilitation, Functional mobility.

CODE: ABS 007 https://doi.org/10.37506/ht7rcg66

ESTABLISHMENT OF NORMATIVE DATA FOR HANDGRIP STRENGTH USING MODIFIED SPHYGMOMANOMETER AMONG YOUNG ADULTS.

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Background: Handgrip strength (HGS) is widely recognized as a simple, reliable, and non-invasive indicator of overall muscle strength and general health status. It is commonly used in clinical and research settings to assess functional capacity, nutritional status, and risk of morbidity. Reduced handgrip strength has been associated with various health conditions, including musculoskeletal disorders, neurological impairments, and decreased functional independence. Establishing normative reference values is essential for identifying muscle weakness, monitoring rehabilitation progress, and guiding clinical decision-making. Although the hand dynamometer is considered the gold standard for measuring HGS, its high cost and limited availability restrict its use in many low-resource settings. The modified sphygmomanometer offers a practical, low-cost alternative for measuring HGS.

Purpose: To establish normative data for handgrip strength using a modified sphygmomanometer among young adults aged 18–25 years.

Methods & Materials: A cross-sectional study was conducted among 400 healthy young adults (200 males and 200 females). Handgrip strength of both hands was measured using a modified sphygmomanometer in a standardized position. Three trials were taken for each hand, and the average value was analysed using descriptive statistics and an unpaired t-test.

Results: Males demonstrated higher grip strength (right: 176.53 ± 39.39 mmHg; left: 148.22 ± 40.08 mmHg) than females (right: 94.94 ± 26.47 mmHg; left: 80.10 ± 22.78 mmHg), showing a statistically significant difference ($p < 0.0001$). Slight variations were observed across ages 18–25 years, with peak values between 19 and 21 years.

Conclusion: This study established normative reference values for handgrip strength using a modified sphygmomanometer among young adults. The device proved to be a reliable, valid, and cost-effective tool for assessing upper limb strength in clinical and research settings.

Keywords: Handgrip strength, Modified sphygmomanometer, Normative data, young adults, Muscle assessment.

CODE: ABS 008

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PREVALENCE OF UPPERLIMB MUSCULOSKELETAL DISORDER AMONG SILAMBAM PRACTITIONERS-PREVALENCE STUDY.

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Background: Silambam is a traditional martial art practiced widely in South India, characterized by repetitive upper-limb movements such as striking, blocking, gripping, and weapon rotation. These repeated and forceful actions are believed to impose biomechanical stress on the upper-limb joints and soft tissues, which may predispose practitioners to musculoskeletal disorders. However, evidence regarding the prevalence of upper-limb musculoskeletal disorders (ULMSDs) among Silambam practitioners is limited. Understanding the occurrence of such conditions is essential for developing preventive training techniques and improving musculoskeletal health among practitioners.

Purpose: To determine the prevalence of ULMSDs among Silambam practitioners and to assess whether the practice of Silambam is associated with an increased occurrence of ULMSDs**.**

Methods & Materials: A Prevalence study was conducted among the Silambam practitioners and assessed using DASH Questionnaire to collect information regarding pain, discomfort, and functional limitation in upper-limb regions.

Result: Statistically analyzed data revealed that overall prevalence of ULMSDs among Silambam practitioners was low, In this 63.33% DASH SCORE of 0.50 to 10, 34% DASH SCORE of 11 to 20 and 2.66% DASH SCORE of 21 to 30. Indicating no significant musculoskeletal impact attributable to Silambam practice. The analysis showed no significant differences in upper-limb disorder occurrence when compared across different age groups, duration of practice, or training intensity levels. This suggest that regular Silambam practice did not show an increased risk of developing upper-limb musculoskeletal disorders in the study population.

Conclusion: The Prevalence of ULMSDs among Silambam practitioners in the studied population was relatively low, indicating a negative association between Silambam practice and upper-limb musculoskeletal disorder. This suggest that Silambam, when practiced with proper technique and training supervision, may not contribute significantly to upper-limb musculoskeletal strain. Continued emphasis on correct technique, warm-up exercises, and training posture may further help in preventing potential musculoskeletal issues and maintaining practitioners' functional well-being**.**

Key Words: Silambam, DASH questionnaire, Upper-limb musculoskeletal disorders, Posture, Biomechanical stress.

CODE: ABS 009 https://doi.org/10.37506/4negs164

EVALUATION OF WORK RELATED MUSCULOSKELETAL PAIN AND SLEEP HYGIENE AMONG IT PROFESSIONALS IN PONDICHERRY

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Background: Work-related musculoskeletal disorders (WRMSDs) and poor sleep hygiene are emerging as major occupational health concerns among IT professionals due to prolonged sitting, repetitive tasks, improper posture, and suboptimal workstation ergonomics. These factors contribute to chronic pain, fatigue, and sleep disturbances, ultimately affecting productivity and quality of life. Despite the rapid growth of the IT sector, region-specific data on these issues remain limited.

Purpose: To evaluate the prevalence and severity of work-related musculoskeletal pain and sleep hygiene patterns among IT professionals in Pondicherry, and to determine the influence of years of experience (<5 vs. >5 years) and gender on these outcomes.

Methods and Materials: This analytical descriptive study included 140 IT professionals from Lumina Datamatics Limited, Puducherry, selected through randomized sampling. Participants were divided into Group A (n=70, <5 years experience) and Group B (n=70, >5 years experience). Data were collected over six months using the Nordic Musculoskeletal Questionnaire (NMQ) and the Sleep Hygiene Index (SHI). Statistical analysis was performed using unpaired t-tests with significance set at $p < 0.05$.

Results: A high prevalence of musculoskeletal discomfort was observed in both groups, particularly in the neck and lower back. No significant difference was found between Group A and Group B in NMQ scores ($p = 0.34$) or SHI scores ($p = 0.47$), indicating similar levels of pain and sleep issues regardless of experience. However, females reported significantly higher musculoskeletal pain than males ($p < 0.05$).

Conclusion: WRMSDs and poor sleep hygiene are prevalent among IT professionals irrespective of experience. Early workplace interventions, including ergonomic training, postural correction, and sleep education, are essential to improve health and productivity.

Keywords: Work-Related Musculoskeletal Disorders (WRMSDs), Sleep Hygiene, IT Professionals, Nordic Musculoskeletal Questionnaire (NMQ), Sleep Hygiene Index (SHI), Ergonomics.

CODE: ABS 010 https://doi.org/10.37506/99yypy77

COMPARISON OF YOGA AND CORE STRENGTHENING PROGRAMS ON FLEXIBILITY, STRENGTH AND ENDURANCE OF TRUNK MUSCLES IN UNIVERSITY STUDENTS.

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Background: Trunk muscle function is essential for posture, stability, and physical performance. Sedentary lifestyles are commonly observed among university students. Yoga and core strengthening are commonly used interventions, but evidence is limited.

Purpose: To compare the effectiveness of yoga and core strengthening program on trunk muscle flexibility, strength and endurance in female university students.

Methods and Materials: 30 female participants (aged 18-25) were randomly assigned into two groups. Group A performed yoga protocol (45 minutes) while Group B performed core strengthening protocol (45 minutes) for 12 sessions each. Trunk muscle Flexibility (sit and reach test), Strength (Kraus Weber test) and Endurance (Biering Sorenson test and Bent knee sit up) was assessed before and after completion of 12 sessions.

Results: Within-group (pre-post) analysis using paired t test revealed a significant improvement ($p \leq 0.05$) in trunk muscle flexibility, strength and endurance in female university students in both yoga and core strengthening groups. Comparison suggested a significantly greater improvement in trunk flexibility among participants who underwent Yoga program (Sit and Reach, $t = 3.77$) and on the other hand a significantly greater improvement was observed in trunk strength and endurance of participants in Core strengthening group (Kraus Weber 1($t=0.80$), Kraus Weber 2($t=0.41$) Kraus Weber 3($t=2.78$) Kraus Weber 4($t=3.90$) Kraus Weber 5($t=4.96$) Kraus Weber 6($t=2.69$), Biering Sorenson test ($t=2.83$) and Bent Knee Sit up($t=2.57$).

Conclusion: Both yoga and core strengthening exercises are effective in enhancing trunk muscle function in terms of flexibility, strength and endurance in female university students. However, Yoga has advantage or improving flexibility, whereas core strengthening is predominantly more effective to enhance endurance and strength of lower abdominals and back extensors. These interventions are cost effective methods for improving the trunk muscle function in terms of flexibility, strength and endurance which can be effectively used among various populations.

Keywords: Yoga, Core Strengthening, Flexibility, Strength, Endurance.

CODE: ABS 011

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CHANGES IN NERVE CONDUCTION VELOCITIES IN MUSICIANS: A SYSTEMATIC REVIEW.

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Background: Musicians are exposed to repetitive, skilled, and prolonged upper limb movements during practice and performance, which may predispose them to playing-related musculoskeletal disorders (PRMDs). Continuous stress on peripheral nerves due to overuse, repetitive movements, and awkward postures may lead to changes in nerve conduction velocities (NCV), particularly in the median, ulnar, and radial nerves. However, limited information is available regarding peripheral nerve involvement in musicians, especially across different instrument groups and performance demands, and varying levels of expertise.

Purpose: This study aimed to systematically review literature on NCV changes in musicians.

Methods and Materials: A literature search was conducted for studies published between 2010 and 2025 using PubMed, Scopus, ScienceDirect, PEDro, and Google Scholar. Studies with fewer than 20 participants, non-English articles, and non-musician populations were excluded. The review followed PRISMA guidelines, and data extraction was performed using the PICO framework.

Results: Out of 30 identified studies, 20 met the inclusion criteria. Most studies reported altered nerve conduction parameters in musicians, especially in the median and ulnar nerves of the dominant upper limb. Reduced conduction velocity, prolonged distal latency, and decreased amplitude were commonly reported. These changes were frequently observed in instrumentalists exposed to repetitive hand movements and sustained postures. Some studies also reported subclinical neuropathic changes in musicians compared to controls.

Conclusion: Musicians are at increased risk of developing NCV alterations due to repetitive strain and sustained postures. Early identification, preventive strategies, and physiotherapy interventions are important to reduce neuromuscular stress and prevent long-term complications and improve occupational health outcomes, performance efficiency, and career longevity.

Keywords: Musicians, Nerve conduction velocity, Peripheral neuropathy, Repetitive strain, Upper limb

CODE: ABS 012

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ROLE OF PHYSIOTHERAPY IN MANAGEMENT OF FLEXIBLE FLAT FOOT: A SYSTEMATIC REVIEW.

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Background: Flexible flat foot (FFF) is a common musculoskeletal condition characterized by collapse of the medial longitudinal arch during weight-bearing, often causing pain, altered biomechanics, reduced balance, and functional limitations. Untreated FFF may lead to overuse injuries, postural abnormalities, and decreased quality of life. Although surgical and orthotic options exist, conservative treatment remains the first-line, non-invasive, cost-effective intervention. This review systematically examines the evidence for physiotherapy in FFF.

Purpose: To systematically evaluate the effectiveness of physiotherapy interventions in the management of flexible flat foot, with a focus on improving arch height, reducing pain, enhancing muscle strength, and optimizing functional outcomes.

Methods and Materials: A literature search was conducted for studies published between 2010 and 2025 using PubMed, ScienceDirect, PEDro, and Google Scholar. Randomized controlled trials in English were included. Studies with fewer than 20 participants or involving individuals under 18 years were excluded. PRISMA guidelines were followed, and methodological quality was assessed using the PEDro scale. Data were extracted using the PICO framework.

Results: A total of 100 studies were identified, 14 studies met the inclusion criteria while 86 articles were excluded for reasons such as duplicates, articles not published in English language, and a sample size lesser than 20. Short foot exercises (SFE) were commonly used and effective intervention, applied individually (n = 2) and in combination (n= 5). Other effective physiotherapy interventions included NMES (n=2), Russian current stimulation (n=1), Faradic current stimulation (n=1), Kinesio-taping(n=1), sensorimotor training(n=1), use of orthoses(n=1), PNF(n=1) and MFR(n=1).

Conclusion: Exercise-based interventions, particularly SFE targeting intrinsic foot muscles, consistently improved arch height, pain, muscle strength, balance, and foot biomechanics. Adjunct modalities such as electrical stimulation, taping, and orthoses provided additional benefits. Physiotherapy is effective for FFF, supporting functional improvements, pain reduction, and prevention of long-term complications.

Keywords: Balance, Exercise Therapy, Flexible flat foot, Foot biomechanics,short foot exercises.

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ROLE OF PHYSIOTHERAPY IN MANAGEMENT OF CERVICOGENIC HEADACHE: A SYSTEMATIC REVIEW.

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Background: Cervicogenic headache (CGH) is a secondary headache arising from musculoskeletal dysfunctions of the cervical spine, presenting with unilateral head pain, restricted cervical range of motion, and neck muscle tenderness. If untreated, it may lead to chronic pain, disability, and reduced quality of life.

Purpose: To systematically assess the effectiveness of various physiotherapy interventions in reducing pain, improving cervical mobility, and enhancing functional outcomes in individuals with cervicogenic headache.

Methods and Materials: A systematic search of studies published between 2010 and 2026 was conducted using PubMed, ScienceDirect, PEDro, and Google Scholar. Randomized controlled trials in English with sample sizes ≥30 and adult participants were included. The review followed PRISMA guidelines, with quality assessment using the PEDro scale and data extraction based on the PICO framework to ensure methodological rigor.

Results: Out of 112 identified studies, 26 met the inclusion criteria. Manual therapy, including cervical mobilization and manipulation, was the most frequently studied and effective intervention. Other beneficial approaches included deep cervical flexor training, dry needling, Mulligan's SNAGs, Kinesio-taping, postural correction exercises, and electrotherapy modalities such as TENS and ultrasound. Multimodal physiotherapy programs combining manual therapy and exercise showed superior outcomes and long-term benefits in reducing recurrence and improving patient adherence to therapy.

Conclusion: Physiotherapy interventions, particularly the combination of manual therapy and targeted exercises, significantly improved headache intensity, frequency, cervical mobility, and functional outcomes. These findings support physiotherapy as an effective, non-invasive approach for reducing symptoms, enhancing functional recovery, and preventing chronicity in individuals with cervicogenic headache, promoting long-term rehabilitation outcomes and patient well-being.

Keywords: Motion sickness, Vestibular rehabilitation, Gaze stability, Breathing exercises, Cervicogenic headache.

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ROLE OF PHYSIOTHERAPY IN MANAGEMENT OF MOTION SICKNESS: A SYSTEMATIC REVIEW.

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Background: Motion sickness is a multisensory disorder caused by conflict between visual, vestibular, and proprioceptive inputs, leading to symptoms such as nausea, dizziness, and disorientation. It can significantly impair travel tolerance and quality of life, especially in individuals exposed to virtual environments or frequent travel conditions. Pharmacological management is associated with side effects and limited long-term applicability.

Purpose: To systematically evaluate the effectiveness of physiotherapy interventions in managing motion sickness.

Methods and Materials: A literature search was conducted for studies published between 2000 and 2025 using PubMed, PEDro, Scopus, and Google Scholar. Interventional studies in English involving participants with motion sickness or VR-induced motion sickness were included. Studies not involving physiotherapy interventions and non-interventional designs were excluded. PRISMA guidelines were followed to ensure transparency and reproducibility of the review process.

Results: A total of 40 studies were identified, 7 studies met the inclusion criteria while 33 articles were excluded due to duplication or not meeting inclusion criteria. Gaze stability exercises (n=1), vestibular training (n=1), habituation with breathing (n=2), diaphragmatic breathing (n=1), optokinetic training (n=1), and combined balance therapy (n=1) were effective interventions. These interventions demonstrated reduction in motion sickness symptoms, improved balance, enhanced vestibulo-ocular interaction, and better autonomic regulation and sensory integration.

Conclusion: Physiotherapy interventions, including gaze stability, vestibular rehabilitation, habituation, and breathing techniques, consistently demonstrated improvement in motion sickness symptoms, postural control, and functional tolerance. Multimodal approaches showed additional benefits compared to single interventions. Physiotherapy is effective in the management of motion sickness, supporting symptom reduction, functional improvement, and providing a safe, non-pharmacological, and cost-effective treatment option.

Keywords: Motion sickness, Vestibular Rehabilitation, Gaze stability, Habituation, optokinetic training.

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ASSOCIATION OF BODY MASS INDEX WITH ACTIVITY PARTICIPATION AMONG CHILDREN WITH DEVELOPMENTAL COORDINATION DISORDER.

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Background: Children with Developmental Coordination Disorder (DCD) often have motor coordination difficulties that can limit participation in physical activities. Increased Body Mass Index (BMI) may further influence activity levels and contribute to reduced physical fitness, social participation, and overall health outcomes in this population, especially during critical developmental years and school-based activities.

Purpose: To examine the relationship between BMI and activity participation among children with DCD.

Methods & Materials: This non-experimental observational study used convenience sampling. A total of 100 children aged 8–11 years were recruited from selected schools and hospital settings. Children with neurological disorders, sensory impairments, cognitive impairments, epilepsy, or those undergoing physiotherapy were excluded. BMI was calculated using height and weight measurements. Motor coordination was assessed using the Developmental Coordination Disorder Questionnaire (DCDQ) and activity participation using the Physical Activity Questionnaire for Older Children (PAQ-C). Pearson correlation analysis was used to determine the association between BMI and activity participation, with statistical significance set at $p < 0.05$ and appropriate statistical software was used for analysis.

Results: The mean BMI of participants was 26.7±2.3 kg/m², mean DCDQ score was 41.9±5.8, and mean PAQ-C score was 2.3±0.5. Correlation analysis showed a significant negative association between BMI and PAQ-C scores ($p < 0.05$), indicating that higher BMI was associated with lower activity participation among children with DCD.

Conclusion: Higher BMI was associated with reduced activity participation among children with Developmental Coordination Disorder. These findings highlight the importance of early intervention strategies targeting weight management and physical activity promotion to improve functional participation, long-term health outcomes, overall well-being, and reduce risk of future comorbidities.

Keywords: Body Mass Index, Developmental Coordination Disorder, Physical Activity, Participation.

CODE: ABS 016

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PREVALENCE OF ANTERIOR CRUCIATE LIGAMENT INJURY RISK AMONG BASKETBALL PLAYERS USING KINOVEA SOFTWARE ANALYSIS.

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Background: Anterior Cruciate Ligament (ACL) injuries are among the most common knee injuries in athletes, particularly in sports requiring jumping, pivoting, and rapid changes in direction such as basketball. Faulty landing biomechanics significantly increase the risk of non-contact ACL injuries. The Landing Error Scoring System (LESS) is a validated clinical tool used to identify biomechanical errors during jump-landing tasks associated with ACL injury risk. Motion analysis software such as KINOVEA allows detailed assessment of landing mechanics through video-based biomechanical analysis.

Purpose: To determine the prevalence of ACL injury risk among basketball players using LESS assessment analyzed through KINOVEA software.

Methods & Materials: A non-experimental cross-sectional study design was adopted. A total of 162 basketball players aged 18–35 years participated in the study. Participants with recent knee injuries, lower-limb fractures, or previous ACL tears were excluded. Participants performed a standardized jump-landing task from a 30-cm platform. Landing mechanics were recorded and analyzed using KINOVEA software. LESS scoring was used to categorize ACL injury risk levels.

Results: The mean age of the participants was 21.66 ± 1.98 years, with a mean playing experience of 7.88 ± 2.52 years. The mean Body Mass Index (BMI) was 21.73 ± 1.95 kg/m². Based on LESS analysis, 64% demonstrated moderate risk, 21% high risk, and 18% low risk of ACL injury, while no participants were classified under severe risk.

Conclusion: Basketball players demonstrated a moderate prevalence of ACL injury risk based on LESS assessment analysed using KINOVEA software. Early screening of landing biomechanics may assist physiotherapists in identifying at-risk athletes and implementing preventive neuromuscular training strategies.

Keywords: Anterior Cruciate Ligament, Knee Joint, Basketball, Biomechanical Phenomena, Athletic Injuries.

CODE: ABS 017

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EFFICACY OF AEROBIC AND BALANCE EXERCISE TO IMPROVE FUNCTIONAL INDEPENDENCE, RISK OF FALLS AND QUALITY OF LIFE IN GERIATRIC POPULATION - QUASI EXPERIMENTAL STUDY.

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Background: Population aging has led to a growing prevalence of functional limitations and reduced quality of life among older adults, making the promotion of functional independence a major public health priority. Age-related declines in aerobic capacity and balance significantly impair activities of daily living and increase the risk of falls and dependency.

Purpose: To determine the effectiveness of a structured neuromuscular training exercise program on functional outcomes and pain intensity in individuals with knee osteoarthritis. A secondary objective is to compare changes in functional mobility between participants receiving neuromuscular training and those receiving conventional physiotherapy exercises.

Methods and Materials: A single-blinded, parallel-group randomized controlled trial will be conducted to evaluate the effectiveness of neuromuscular training in individuals with knee osteoarthritis. Eligible participants will be randomly allocated to either a neuromuscular training group or a conventional physiotherapy group using a concealed allocation method. The study will run for six weeks, with supervised exercise sessions conducted according to standardized protocols. Outcome measures will include the WOMAC questionnaire to assess pain, stiffness, and physical function, the Visual Analogue Scale (VAS) for pain intensity, and the Timed Up and Go (TUG) test to evaluate functional mobility. Assessments will be performed at baseline and immediately after the intervention period.

Results: It is expected that the neuromuscular training group will show greater improvement in pain reduction, functional outcomes, and mobility compared to the conventional physiotherapy group after six weeks of intervention.

Conclusion: Neuromuscular training may be an effective treatment approach for reducing pain and enhancing physical function in individuals with knee osteoarthritis. By targeting both strength and neuromuscular control, it may offer additional functional benefits compared to conventional strengthening exercises alone. As a result, patients may experience improved mobility, greater confidence during daily activities, and an overall better quality of life.

Keywords: Aerobic exercise, Balance training, Quality of life, Risk of falls, Geriatric population.

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EFFECTIVENESS OF VIRTUAL REALITY IN COMBINATION WITH TASK ORIENTED CIRCUIT TRAINING FOR LOWER LIMB FUNCTION AND QUALITY OF LIFE IN CHRONIC STROKE PATIENTS.

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Background: Task-oriented circuit training (TOCT) and virtual reality (VR) are innovative rehabilitation approaches based on principles of motor relearning and neuroplasticity. These interventions promote repetitive, goal-directed activities and provide enriched sensory feedback, which are essential for recovery in chronic stroke patients. Combining these approaches may further enhance motor recovery and functional outcomes.

Purpose: To analyze the effectiveness of virtual reality combined with task-oriented circuit training in improving lower limb function and quality of life among chronic stroke patients.

Methods and Materials: Fifty chronic stroke patients were recruited and randomly allocated to a control group and an experimental group. The control group received 40 minutes of VR training, while the experimental group performed 20 minutes of VR and 20 minutes of TOCT. In addition, all participants received 40 minutes of conventional physiotherapy five times per week for four weeks under supervised conditions. Outcome measures included the Fugl-Meyer Lower Extremity Scale (FMA-LE), Modified Barthel Index (MBI), and Stroke Impact Scale (SIS), assessed before and after intervention.

Results: Both groups showed significant improvements in lower limb motor function, activities of daily living, and quality of life ($p<0.001$). However, the experimental group demonstrated greater improvements in the FMA-LE (30±10 to 49±16, $p<0.001$), MBI (47±14 to 71±16, $p<0.001$), and strength domain of SIS (31.3±12.5 to 43.8±18.8, $p<0.001$).

Conclusion: The combination of virtual reality and task-oriented circuit training significantly enhances lower limb function and quality of life in chronic stroke patients compared with VR training alone, supporting its integration into comprehensive stroke rehabilitation programs for improved clinical outcomes.

Keywords: Chronic Stroke, Virtual Reality, Task Oriented Circuit Training, Lower Limb Function

CODE: ABS 019

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IMPACT OF AN EXERCISE TRAINING PROGRAM ON HAND–EYE COORDINATION IN COLLEGE BADMINTON PLAYERS: EVIDENCE FROM THE RULER DROP TEST.

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Background: Badminton requires rapid reaction time, visual tracking, and efficient hand–eye coordination. Poor coordination can affect shot accuracy and response during rallies, ultimately impacting overall performance and competitive outcomes. Exercise-based coordination training may improve neuromuscular control and reaction ability, enhancing sport-specific skills and performance.

Purpose: To determine the effect of a structured exercise training program on hand–eye coordination in college badminton players.

Methods & Materials: Fifty-eight badminton players were screened and 42 participants meeting the inclusion criteria were included. Baseline reaction time was assessed using the Ruler Drop Test (RDT) with a 60-cm ruler. Participants were randomly divided into Exercise Training Group (Group A, n=21) and Conventional Training Group (Group B, n=21). Group A performed coordination exercises including tennis ball dribbling, shuttle bouncing with a racket, wall rally drills, and tennis ball targeting drills. Training was conducted three sessions per week for four weeks (12 sessions). Group B continued conventional practice. Post-assessment was done after four weeks. Data were analyzed using paired and unpaired t-tests with significance set at $p < 0.05$.

Results: Pre-test values showed no significant difference between groups ($p > 0.05$). Post-intervention results showed significant improvement in the experimental group with reduced ruler drop distance indicating better hand–eye coordination ($p < 0.01$). The control group showed no significant change. Between-group comparison favored the experimental group ($p < 0.01$).

Conclusion: A four-week structured coordination exercise program significantly improves hand–eye coordination and reaction time in college badminton players, supporting its inclusion in regular training programs to enhance athletic performance and responsiveness.

Keywords: Hand–eye coordination, Reaction time, Badminton players, Exercise training, Ruler Drop Test.

CODE: ABS 020 https://doi.org/10.37506/e3hwdp46

IMPACT OF A STRUCTURED ON-SITE PHYSIOTHERAPY OUTREACH PROGRAM ON WORK-RELATED MUSCULOSKELETAL PAIN AMONG RURAL INFORMAL WORKERS.

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Background: Mechanical low back pain is a common musculoskeletal condition associated with pain, reduced functional capacity, and decreased quality of life. It often results from poor posture, muscle imbalance, and impaired spinal stability. Core stability training focuses on strengthening deep trunk muscles to improve spinal support, while conventional exercises emphasize general strengthening and flexibility. Comparing these approaches may help identify more effective rehabilitation strategies for long-term recovery and prevention.

Purpose: To compare the effectiveness of core stability training and conventional exercises in reducing pain and improving functional outcomes in individuals with mechanical low back pain.

Methods & Materials: A comparative experimental study was conducted on 60 individuals diagnosed with mechanical low back pain, aged between 20–50 years. Participants were randomly allocated into two groups. Group A (n = 30) received core stability training, while Group B (n = 30) performed conventional exercises including stretching and general strengthening of lumbar muscles. The intervention was carried out for 6 weeks, with 5 sessions per week, each lasting 30–40 minutes, under supervised clinical settings to ensure adherence and proper technique.

Results: In Group A (Core Stability Training), NPRS reduced from 7.2 ± 1.1 to 2.1 ± 0.9, and ODI reduced from 48.5 ± 6.3 to 18.2 ± 5.4, showing statistically significant improvement ($p < 0.001$). In Group B (Conventional Exercises), NPRS reduced from 7.0 ± 1.0 to 3.8 ± 1.2, and ODI reduced from 47.2 ± 5.8 to 28.6 ± 6.1, also showing statistically significant improvement ($p < 0.001$).

Conclusion: Core stability training is more effective than conventional exercises in reducing pain and improving functional outcomes in individuals with mechanical low back pain. Incorporating core stabilization exercises into rehabilitation programs enhances spinal stability, promotes better recovery, improves functional independence, and may help prevent recurrence of low back pain.

Keywords: Musculoskeletal Disorders, Physiotherapy, Outreach, Rural Workers, Ergonomics

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EFFECTIVENESS OF NEUROMUSCULAR TRAINING EXERCISES ON FUNCTIONAL OUTCOMES IN ADULTS WITH KNEE OSTEOARTHRITIS: A RANDOMIZED CONTROLLED TRIAL.

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Background: Knee osteoarthritis causes pain, stiffness, and reduced mobility, affecting quality of life. Conventional physiotherapy focuses mainly on strengthening, but may not address neuromuscular deficits. Neuromuscular training improves joint stability, balance, and coordination.

Purpose: To determine the effectiveness of a structured neuromuscular training exercise program on functional outcomes and pain intensity in individuals with knee osteoarthritis. Also to compare changes in functional mobility between participants receiving neuromuscular training and those receiving conventional physiotherapy exercises.

Methods and Materials: A single-blinded, parallel-group randomized controlled trial was conducted to evaluate the effectiveness of neuromuscular training in individuals with knee osteoarthritis. Eligible participants were randomly allocated to either a neuromuscular training group or a conventional physiotherapy group using a concealed allocation method. The study duration was for six weeks, with supervised exercise sessions conducted according to standardized protocols. Outcome measures included were the WOMAC questionnaire to assess pain, stiffness, and physical function, the Visual Analogue Scale (VAS) for pain intensity, and the Timed Up and Go (TUG) test to evaluate functional mobility. Assessments were performed at baseline and immediately after the intervention period.

Results: The neuromuscular training group showed greater improvement in pain reduction, functional outcomes, and mobility compared to the conventional physiotherapy group after six weeks of intervention.

Conclusion: Neuromuscular training may be an effective treatment approach for reducing pain and enhancing physical function in individuals with knee osteoarthritis. This type of training focuses on improving joint stability, muscle coordination, balance, and movement control, which are often impaired in this population. By targeting both strength and neuromuscular control, it may offer additional functional benefits compared to conventional strengthening exercises alone. As a result, patients will experience improved mobility, greater confidence during daily activities, and an overall better quality of life.

Keywords:
Knee osteoarthritis; Neuromuscular training; Pain; Functional mobility.

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SPINOCEREBELLAR ATAXIA – A CASE REPORT.

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Background: Spinocerebellar ataxia (SCA) is a progressive neurodegenerative disorder characterized by impaired coordination, balance deficits, and gait disturbances due to cerebellar dysfunction. These impairments significantly affect functional mobility and activities of daily living, leading to reduced independence and quality of life. Physiotherapy plays a crucial role in managing symptoms and improving functional outcomes in individuals with SCA.

Purpose: To evaluate the effectiveness of a structured physiotherapy rehabilitation program on coordination, balance, and gait in a patient with spinocerebellar ataxia.

Methods & Materials: This case report describes a 63-year-old female presenting with progressive gait unsteadiness, impaired coordination of upper and lower limbs, and reduced balance affecting daily activities. Clinical examination revealed ataxic gait, dysmetria, intention tremors, and decreased postural control. Functional assessment was performed using the International Cooperative Ataxia Rating Scale (ICARS) and Performance-Oriented Mobility Assessment (POMA). The patient underwent a structured physiotherapy program focusing on coordination training, balance re-education, and gait training. Interventions included task-oriented bimanual coordination exercises, Frenkel's exercises, dynamic balance training on unstable surfaces, and gait training with visual and auditory feedback using parallel bars. Strengthening and flexibility exercises targeting lower limb and trunk muscles were also incorporated. A home exercise program was prescribed to reinforce motor learning.

Results: Post-rehabilitation outcomes demonstrated improvements in coordination, balance, and gait parameters, along with a reduction in ataxic symptoms. Functional mobility and independence in daily activities were also enhanced, as reflected in improved ICARS and POMA scores.

Conclusion: Structured, task-specific physiotherapy interventions can improve motor performance and functional mobility in individuals with spinocerebellar ataxia. Early and continuous rehabilitation may facilitate neuroplasticity, optimize independence, and enhance quality of life despite the progressive nature of the condition

Keywords: Spinocerebellar ataxia, Physiotherapy rehabilitation, Coordination training, Gait training, Balance training.

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EFFECTIVENESS OF HIP AND KNEE TARGETED EXERCISES COMBINED WITH ULTRASOUND THERAPY ON PAIN AND FUNCTION IN INDIVIDUALS WITH PATELLOFEMORAL PAIN SYNDROME.

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Background: Patellofemoral pain syndrome (PFPS), caused by injury to the patella or the femur, generally results from overuse of the muscles of the hip and knee that are responsible for stabilizing and moving the patella. Weakness of these muscles can create poor biomechanics that place excess load on the Patellofemoral joint during normal activities. Therefore, adding adjunctive therapeutic modalities such as ultrasound to an exercise regimen that targets strength of the hip and knee musculature may lead to improved, functional outcomes for individuals with PFPS.

Purpose: To evaluate whether the combination of therapeutic ultrasound and a hip and knee strengthening exercises program would improve function and reduce pain in individuals with PFPS.

Methods: This pre-post experimental study was completed with a convenience sample of individuals ages 18-40 years who had a diagnosis of PFPS. Functioning status of participants was assessed using the Kujala Anterior Knee Pain Scale. Pain was assessed at baseline and after completing a 6-week supervised exercise program of therapeutic ultrasound, hip and knee strengthening exercises. Data were collected using numerical pain rating scale (NPRS) ratings and Kujala scores. Data were statistically analyzed with a paired t-test, with significance at $p < 0.05$.

Results: Participants showed statistically significant improvement in their pain ($P < 0.001$) and function ($P < 0.001$) after the intervention. The outcomes demonstrated greater than clinically meaningful improvement (Mean NPRS change 4.4; Mean Kujala score change 19.3).

Conclusion: The effectiveness of hip and knee focused exercises combined with ultrasound therapy significantly reduces pain and improves function for individuals with PFPS.

Keywords: Patellofemoral pain syndrome, Hip strengthening exercises, Knee exercises, Ultrasound therapy, Kujala scale score.

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EFFECTIVENESS OF CLUSTER STRENGTH TRAINING VERSUS TRADITIONAL RESISTANCE TRAINING ON STRENGTH, JOINT STABILITY AND FUNCTIONAL PERFORMANCE FOLLOWING POST-OPERATIVE TIBIAL PLATEAU FRACTURE.

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Background: Tibial plateau fracture is a type of intra-articular fracture occurring in approximately 34.28% of adult fractures. Such fractures significantly impact quality of life by delaying return to work and reducing activity levels. Post-operative complications such as joint stiffness, muscle atrophy, and functional limitations are commonly observed. Effective rehabilitation strategies are crucial for restoring muscle strength, joint stability, and overall functional performance, thereby facilitating early recovery and preventing long-term disability.

Purpose: To evaluate the effectiveness of cluster strength training versus traditional resistance training on strength, joint stability, and functional performance following post-operative tibial plateau fracture.

Methods & Materials: A comparative study was conducted on 24 participants diagnosed with Schatzker type II tibial plateau fractures following surgical fixation. Participants in Group A received cluster strength training, while Group B received traditional resistance training. Outcome measures included muscle strength assessed using handheld dynamometry, joint stability evaluated through the Single-Leg Balance Test, and functional performance measured using the Lower Extremity Functional Scale. Assessments were performed before and after the intervention under supervised rehabilitation conditions.

Results: Post-intervention results showed a statistically significant difference in muscle strength, joint stability, and functional performance ($p < 0.05$), with greater improvements observed in the cluster strength training group compared to the traditional resistance training group.

Conclusion: Cluster strength training is an effective adjunct to traditional resistance training, improving strength, joint stability, and functional performance following post-operative tibial plateau fracture. This approach may enhance rehabilitation outcomes, promote faster return to daily activities, and support long-term functional recovery.

Keywords: Tibial plateau fracture, Strength training, Resistance training, Joint stability, Functional performance.

CODE: ABS 025 https://doi.org/10.37506/2dp09n40

EFFECT OF INTEGRATED PELVIC FLOOR AND CORE MUSCLE REHABILITATION ON SYMPTOMS OF PELVIC FLOOR DYSFUNCTION AMONG YOUNG FEMALE ATHLETES: A PILOT STUDY.

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Background: To evaluate the feasibility and effectiveness of an integrated pelvic floor and core muscle rehabilitation program in reducing symptoms of pelvic floor dysfunction (PFD) among young female athletes.

Purpose: To evaluate the feasibility and effectiveness of an integrated pelvic floor and core muscle rehabilitation program in reducing symptoms of pelvic floor dysfunction and improving functional outcomes in young female athletes.

Materials & Methods: A convenience sample of 15–20 female athletes aged 18–25 years with self-reported urinary incontinence or pelvic pain was recruited. Participants underwent a 12-week supervised rehabilitation program (3 sessions/week) integrating pelvic floor muscle training with progressive core stabilization and sport-specific exercises. Outcome measures included the Overactive Bladder Questionnaire (OAB-q), International Consultation on Incontinence Questionnaire-Urinary Incontinence Short Form (ICIQ-UI SF), and Visual Analog Scale (VAS) for pain, assessed at baseline and post-intervention. Secondary measures included pelvic floor strength and core endurance.

Results: Pelvic pain significantly decreased, with VAS scores reducing from 4.80 ± 1.2 to 1.65 ± 0.8 ($p < 0.001$). ICIQ-UI scores improved by 9.20 points with a large effect size (Cohen's $d = 3.42$). Leakage frequency reduced substantially, with 85% reporting minimal or no episode's post-intervention. OAB-q symptom bothers scores decreased from 24.15 to 9.80 (SRM = 2.31), alongside marked improvements in quality of life. Activity interference scores reduced from 6.85 to 1.20. A strong negative correlation ($r = -0.74$, $p < 0.01$) was observed between core stability and bladder symptoms, with 95% achieving clinically meaningful improvement.

Conclusion: Integrated pelvic floor and core rehabilitation is highly effective in reducing PFD symptoms and improving function. This approach supports inclusion in athletic rehabilitation and prevention programs to enhance performance and reduce reliance on medical interventions.

Keywords: Pelvic Floor, Core Muscle, Urinary Incontinence, Pelvic Floor Dysfunction, Young Female Athletes.

CODE: ABS 026 https://doi.org/10.37506/n6zrty69

EFFECTIVENESS OF MOBILIZATION WITH MOVEMENT IN IMPROVING PAIN AND FUNCTIONAL MOBILITY AMONG PATIENTS WITH KNEE OSTEOARTHRITIS: A RANDOMIZED CONTROLLED TRIAL.

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Background: Knee osteoarthritis was a common degenerative musculoskeletal condition characterized by chronic pain, reduced joint range of motion, stiffness, and functional limitations, significantly affecting activities of daily living and quality of life. Conventional physiotherapy interventions, including strengthening and range of motion exercises, were commonly used and showed beneficial effects; however, they had certain limitations in restoring optimal joint function and movement patterns. Mobilization with Movement (MWM), a manual therapy technique, was used to improve joint mechanics, correct positional faults, and reduce pain. Despite its clinical use, limited evidence existed regarding its effectiveness in improving functional lower-limb strength and overall outcomes in individuals with knee osteoarthritis.

Purpose: to determine the effectiveness of Mobilization with Movement on reducing pain, knee range of motion and functional lower-limb strength among patients with knee osteoarthritis.

Methods and Materials: A single-blinded, parallel-group randomized controlled trial will be conducted. Participants will be randomly allocated (1:1) to either a Mobilization with Movement (MWM) group or a conventional physiotherapy group. The MWM group will receive heat therapy, MWM, structured strengthening and functional exercises, and patient education, while the control group will receive the same program without MWM. Pain (VAS), knee range of motion, and lower-limb functional strength (30-second Chair Stand Test) will be assessed at baseline and after 6 weeks.

Results: Participants receiving MWM are expected to show greater improvements in pain reduction, knee range of motion, and functional lower-limb strength compared with conventional physiotherapy alone.

Conclusion: This study may provide evidence supporting the use of MWM as an adjunct intervention in physiotherapy management of knee osteoarthritis. This study may provide evidence supporting the integration of Mulligan Mobilization with Movement (MWM) as an adjunct intervention in physiotherapy management of knee osteoarthritis and highlight the importance of objective functional outcome measures.

Keywords: Knee osteoarthritis, Mobilization with movement, Pain, Knee ROM, Functional strength.

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COMPARATIVE STUDY BETWEEN THE EFFECTIVENESS OF MENTAL IMAGERY TECHNIQUE AND VIRTUAL REALITY ON MOTOR RECOVERY OF UPPER EXTREMITY FUNCTIONS AMONG STROKE PATIENTS.

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Background: Stroke is a leading cause of long-term disability worldwide, often resulting in significant impairment of upper extremity function. These impairments affect motor control, coordination, and the ability to perform activities of daily living, thereby reducing independence and quality of life, making effective rehabilitation essential. These interventions are based on principles of neuroplasticity and motor relearning to enhance functional recovery. The study aimed to identify which intervention better improves motor performance and functional use of the affected upper limb.

Purpose: The purpose of this study was to compare the effectiveness of mental imagery technique and virtual reality training in improving upper extremity motor recovery in stroke patients.

Methods and Materials: This comparative pre-test and post-test study included 40 stroke patients aged 45–70 years who were randomly divided into two groups. Group A received mental imagery training and Group B received virtual reality training for 40–45 minutes, 5 days per week for 12 weeks under supervised rehabilitation settings. Upper extremity function was assessed using the Fugel-Meyer Assessment (FMA-UE) and the Chedoke Arm and Hand Activity Inventory (CAHAI-13) at baseline and after intervention.

Results: Fugel-Meyer Assessment and CAHAI-13 scores showed significant improvement in both groups ($P \leq 0.05$). However, the Virtual Reality group demonstrated greater improvement than the Mental Imagery group. Pre-test and post-test comparisons within both groups were also significant, leading to rejection of the null hypothesis and confirming effectiveness of both interventions.

Conclusion: Both interventions were effective in improving upper extremity motor recovery after stroke, but virtual reality showed better outcomes. This suggests that incorporating technology-based rehabilitation may enhance patient engagement, promote better motor relearning, and improve functional independence in stroke rehabilitation.

Keywords: Stroke, Upper Extremity, Mental Imagery Technique, Virtual Reality, Motor Recovery, Fugel-Meyer Assessment.

CODE: ABS 028 https://doi.org/10.37506/ewe7xg57

ASSOCIATION BETWEEN INJURY RISK FACTORS AND SELF REPORTED INJURY HISTORY IN UNDER-15 AMATEUR CRICKETERS.

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Background: This study aimed to evaluate the importance of physical fitness and the risk of musculoskeletal injuries among amateur cricket players. Injuries may occur due to impact with a ball or bat, rapid rotational movements, player collisions, and overuse. These injuries can affect immediate performance and hinder long-term physical development and athletic progression.

Purpose: To examine the relationship between physical fitness parameters and the risk of musculoskeletal injuries among amateur cricket players, and to determine the predictive value of Functional Movement Screen (FMS) and Y Balance Test (YBT) in identifying injury risk.

Materials & Methods: A cross-sectional correlational study was conducted in local cricket academies. A total of 107 participants aged 9–15 years were recruited using a non-probability convenience sampling method. Data were collected at a single time point through a questionnaire documenting self-reported injury history. Physical injury risk factors were assessed using the Functional Movement Screen (FMS) and Y Balance Test (YBT).

Results: The mean age of participants was 11.5 ± 1.7 years. YBT scores were significantly higher in non-injured individuals ($p = 0.006$), while FMS scores showed no significant difference. Logistic regression identified YBT as a borderline predictor of injury risk ($p = 0.050$), whereas FMS was not significant. The model demonstrated moderate accuracy (57.0%) and better identification of non-injured cases. A moderate positive correlation was observed between FMS and YBT ($r = 0.5$, $p < 0.001$).

Conclusion: Both FMS and YBT are associated with injury history among under-15 amateur cricketers, with YBT being a better predictor of injury risk. Early identification of at-risk players, inclusion of screening in academies, and development of individualized injury prevention programs are recommended.

Keywords: Injury Risk, Self-Reported Injury History, Amateur Cricketers, Functional Movement Screen, Y Balance Test.

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ASSOCIATION BETWEEN THE DEGREE OF SENSORINEURAL HEARING LOSS(SNHL) AND BASELINE BALANCE PERFORMANCE.

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Background: Sensorineural Hearing Loss (SNHL) in children is often associated with vestibular dysfunction, which can affect balance and mobility. Impairment in the vestibular apparatus can lead to deficits in postural control, balance, and coordination, which are essential for normal motor development and daily functional activities. Children with hearing loss may experience delayed motor milestones, reduced spatial orientation, and difficulties in maintaining stability during both static and dynamic tasks.The degree and type of hearing loss may influence postural control and functional performance differently. Understanding this relationship is essential for early identification and targeted rehabilitation.

Purpose: To determine the association between the degree of sensorineural hearing loss and baseline balance performance in children, and to compare balance and mobility between unilateral and bilateral hearing loss.

Materials & Methods: This cross-sectional correlational study was conducted at Ananda Rangapillai Special School and Shri Patcheappane School for the Hearing Impaired. A total of 85 children aged 7–12 years were recruited using a stratified random sampling method. Data were collected through a single-point assessment including demographic details, audiogram review for hearing severity, Pediatric Balance Scale (PBS), Balance Error Scoring System (BESS), and Timed Up and Go (TUG) test.

Results: Children with unilateral hearing loss demonstrated significantly better functional balance (PBS) but poorer functional mobility (higher TUG scores). No significant difference was observed in static balance (BESS) between unilateral and bilateral hearing loss groups.

Conclusion: The type of hearing loss influences balance performance differently, with bilateral loss affecting functional balance and unilateral loss impacting dynamic mobility. These findings emphasize the need for early identification of at-risk children, comprehensive vestibular assessment, and development of tailored rehabilitation strategies.

Keywords: Balance deficits, Vestibular dysfunction, Sensorineural hearing loss, Pediatric Balance Scale, Timed Up and Go test.

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GAMIFIED BREATHS: MAPPING THE EVIDENCE THROUGH A SCOPING REVIEW.

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Background: Respiratory therapy plays a vital role in improving pulmonary function and maintaining respiratory health. Gamified breathing interventions integrate therapeutic breathing exercises with interactive digital or game-based platforms to enhance motivation and user engagement. These approaches are increasingly being explored across various clinical populations, including pediatric, neurological, and pulmonary rehabilitation settings, where adherence to conventional therapy is often challenging.

Purpose: This scoping review aimed to map the existing evidence on gamified breathing interventions and evaluate their potential role in improving patient engagement, adherence, and respiratory outcomes in rehabilitation settings.

Methods & Materials: A scoping review methodology was used to identify and synthesize relevant literature. Database searches and additional sources yielded 114 records, of which 64 duplicates were removed. The remaining 50 records underwent title and abstract screening, resulting in the exclusion of 18 studies. Thirty-two articles were assessed for eligibility, and 17 were excluded based on predefined criteria. Finally, 15 studies were included for qualitative synthesis to analyze intervention characteristics, target populations, and clinical outcomes, following established methodological frameworks.

Results: The included studies consistently demonstrated that gamified breathing interventions, including digital breathing games and biofeedback-based tools, improved patient engagement. These interventions were associated with improvements in breath control, lung capacity, motivation, and overall compliance with therapeutic programs. Some studies also reported enhanced user satisfaction and reduced dropout rates compared to conventional therapy.

Conclusion: Gamified breathing techniques show promising potential as cost-effective adjuncts to conventional respiratory therapy, enhancing engagement and adherence. Their integration into clinical practice may improve rehabilitation outcomes, particularly in populations with low motivation, although further high-quality studies are needed to establish standardized protocols and long-term effectiveness.

Keywords: Gamified breathing, Respiratory Rehabilitation, Patient engagement, Digital health, Pulmonary function.

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EFFECTIVENESS OF A DIGITAL HEALTH EDUCATION PLATFORM COMBINED WITH A SELF-CARE KIT ON MENTAL AND PHYSICAL WELL - BEING AMONG TRANSGENDER WOMEN: A QUASI-EXPERIMENTAL STUDY.

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Background: Transgender women often experience compromised mental and physical well-being due to stigma, social exclusion, and limited access to healthcare, leading to reduced quality of life. These challenges contribute to increased psychological distress, reduced physical health status, and poor quality of life. Barriers such as lack of awareness, financial constraints, and fear of discrimination further prevent timely healthcare utilization. In recent years, digital health interventions have emerged as innovative tools to bridge gaps in healthcare delivery by providing accessible, confidential, and cost-effective health education. When combined with practical self-care strategies, such as self-care kits, these interventions can empower individuals to take an active role in managing their physical and mental health. Despite this potential, there is limited evidence on integrated approaches targeting both mental and physical well-being among transgender women.

Purpose: To evaluate the effectiveness of a digital health education platform combined with a self-care kit in improving mental and physical well-being among transgender women, and to assess changes in quality of life following the intervention.

Methods and Materials: A quasi-experimental study was conducted among 40 transgender women selected through convenience sampling. Participants were provided access to a structured digital health education platform along with a self-care kit. Mental well-being was assessed using the WHO-5 Well-Being Index, and physical health was evaluated using the SF-36 questionnaire. Pre- and post-intervention scores were compared for significance.

Results: There was a statistically significant improvement in both mental and physical well-being following the intervention ($p < 0.001$), indicating the effectiveness of the digital platform and self-care approach.

Conclusion: The intervention was effective in enhancing overall well-being. Digital health education platforms, combined with self-care strategies, can serve as a scalable and cost-effective approach to promote holistic health among transgender women.

Keywords: Transgender women, digital health, mental well-being, physical health, Self care kit.

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EFFECTIVENESS OF PLAY-BASED AEROBIC AND INTERACTIVE REACTION LIGHT TRAINING ON EXERCISE TOLERANCE, VISUOMOTOR INTEGRATION AND HEALTH-RELATED QUALITY OF LIFE IN CHILDREN LIVING WITH HIV: A PILOT STUDY.

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Background: Children living with Human Immunodeficiency Virus (HIV) often exhibit reduced exercise tolerance, impaired visuomotor integration and poor health-related quality of life due to chronic disease burden and long-term therapy. There is a need for engaging, child-friendly interventions that target both physical and cognitive domains. Play-based interventions, which are inherently motivating and developmentally appropriate, have been shown to improve participation and adherence in children. Similarly, interactive reaction light training provides visual stimuli that enhance coordination, reaction time, and cognitive processing.

Purpose: This pilot study aimed to evaluate the effectiveness of play-based aerobic exercise combined with interactive reaction light training in this population.

Methods and Materials: A randomized controlled pilot study was conducted with 7 participants allocated into an experimental group receiving play-based aerobic and reaction light training and a control group receiving conventional physiotherapy alone. Outcome measures included the 6-Minute Walk Test (6MWT), Bender Gestalt Test (BGT), and QoL-CHAI questionnaire. Data were analyzed using paired and independent t-tests with significance set at $p < 0.05$.

Results: Both groups showed significant improvements ($p<0.05$). However, the experimental group demonstrated greater improvement across all outcomes compared to the control group. Post-test analysis revealed significant differences favoring the experimental group.

Conclusion: Play-based aerobic exercise combined with interactive reaction light training is more effective than conventional physiotherapy in improving physical capacity, visuomotor integration and quality of life in children living with HIV. Integrating play-based aerobic and reaction light training in pediatric HIV rehabilitation to enhance physical, cognitive outcomes, improve engagement, and guide evidence-based physiotherapy practice.

Keywords: Play-based aerobic exercise, Interactive reaction light training, Exercise tolerance, Visuomotor integration, Human Immunodeficiency Virus.

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EFFECT OF BENSON RELAXATION TECHNIQUE IN REDUCING WORKPLACE STRESS AND FATIGUE AMONG STAFF NURSES- EXPERIMENTAL STUDY.

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Background: Workplace stress and fatigue are increasingly recognized as major occupational health concerns among staff nurses, particularly due to demanding clinical responsibilities, long working hours, shift duties, and continuous emotional involvement in patient care. These to physical exhaustion, mental burnout, decreased job satisfaction, and impaired clinical performance, ultimately affecting the quality and safety of patient care. Chronic exposure to stress may also contribute to long-term health issues such as anxiety, depression, and cardiovascular problems. Therefore, effective and practical stress management strategies are essential within healthcare settings. Non-pharmacological interventions, especially relaxation techniques, have gained importance due to their simplicity, cost-effectiveness, and minimal side effects. The Benson Relaxation Technique combines deep breathing, muscle relaxation, and passive attitude, is known to elicit the relaxation response.

Purpose: To evaluate the effectiveness of the Benson Relaxation Technique in reducing workplace stress and fatigue among staff nurses.

Methods and Materials: An experimental study was conducted among staff nurses using a pre-test and post-test design. The Workplace Stress Scale and the Modified Finkel Fatigue Scale were administered to assess levels of stress and fatigue before and after the intervention. The Benson Relaxation Technique was taught and practiced by participants for a specified period. Data were analyzed using descriptive and inferential statistics to compare pre-test and post-test scores.

Results: The findings revealed a significant reduction in both workplace stress and fatigue scores following the intervention. The post-test mean scores were considerably lower than the pre-test scores, indicating the effectiveness of the Benson Relaxation Technique in alleviating stress and fatigue among staff nurses.

Conclusion: The Benson Relaxation Technique is an effective, simple, and non-pharmacological method for reducing workplace stress and fatigue among staff nurses. Incorporating this technique into regular nursing practice can enhance mental well-being, improve job performance, and promote overall health.

Keywords: Benson Relaxation Technique, Workplace Stress Scale, Modified Finkel Fatigue Scale, Mental well-being, Stress.

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ANALYSIS OF FUNCTIONAL ANKLE INSTABILITY AND DYNAMIC BALANCE AMONG KABADDI PLAYERS.

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Background: Kabaddi is one of the most popular traditional contact sports in India and has now gained international recognition due to its unique blend of strength, speed, and strategy. The sport requires players to perform rapid accelerations, quick directional changes, jumps, dodges, and tackles while maintaining balance on an uneven surface, these repeated ankle stresses often leads to lateral strain and functional ankle instability (FAI). Instability may negatively impact proprioception and dynamic balance, increasing the risk of recurrent injuries and reduced performance.

Purpose: To asses functional ankle instability in kabaddi players using the Cumberland ankle instability tool (CAIT). To evaluate dynamic balance using the Y-balance test (YBT).

Methods and Materials: A cross- sectional study design was used. Kabaddi players who fulfilled the inclusion criteria were selected. CAIT scores were recorded to determine the level of ankle instability and YBT reach distances were measured in anterior, posteromedial and posterolateral directions. The collected data was analysed using appropriate statistical tests.

Results: Players with lower CAIT Scores (greater instability) showed reduced Y-Balance test reach distances, indicating impaired dynamic balance. A significant relationship was found between functional ankle instability and dynamic balance performance among kabaddi players.

Conclusion: This study revealed that kabaddi players had a mean CAIT Score of 19.37 ± 2.51, indicating a high prevalence of functional ankle instability. Nearly 85% of the players were found to have unstable ankles. This suggests that repetitive jumping, sudden direction changes and tackling in kabaddi increases the risk of ankle instability. Regular screening and proprioception and balance training are recommended to improve stability and prevent recurrent injuries.

Keywords: Functional ankle instability, Dynamic balance, Kabaddi players, Cumberland ankle instability tool, Y- Balance test.

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ESTABLISHMENT OF NORMATIVE DATA FOR TOE GRIP STRENGTH USING MODIFIED SPHYGMOMANOMETER AMONG YOUNG ADULTS.

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Background: Toe flexor muscles play a key role in foot mechanics by generating propulsive forces and maintaining stability during gait. Toe grip strength (TGS) is important for balance, gait stability, and overall foot function. Establishing normative data for TGS is essential for identifying weakness, guiding rehabilitation, and preventing foot-related disorders. Although tools like isokinetic and handheld dynamometers are reliable, their high cost, limited availability, and need for specialized skills restrict routine clinical use. This creates a need for simple, cost-effective, and accessible assessment methods.

Purpose: To establish normative values for toe grip strength among healthy young adults aged 18–25 years using a modified sphygmomanometer test (MST).

Methods and Materials: A cross-sectional study was conducted on 300 healthy participants (147 males and 153 females) aged 18–25 years. TGS was measured for both right and left feet using the MST in a standardized sitting position. Mean and standard deviation were calculated, and gender differences were analyzed using an independent t-test.

Results: The mean TGS of the right foot was 70.71 mmHg in males and 37.63 mmHg in females. For the left foot, males showed a mean of 70.67 mmHg, while females showed 36.79 mmHg. Males demonstrated significantly higher TGS than females on both sides. A mild increase in strength with age was observed within the study group. The MST proved to be a simple, reliable, and cost-effective tool for assessing TGS.

Conclusion: This study established normative values for toe-grip strength in healthy young adults aged 18–25 years. Males showed significantly greater TGS than females, indicating sex-based differences. The MST is a practical, low-cost, and reliable method for measuring TGS. These values can assist clinicians in identifying weakness, planning rehabilitation, and monitoring progress.

Keywords: Toe grip Strength, Modified Sphygmomanometer test, Foot muscle strength, Normative values, Young adult.

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PHYSIOTHERAPY MANAGEMENT IN A PATIENT WITH PANCREATIC CARCINOMA PRESENTING AS LOW BACK PAIN: A CASE STUDY.

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Background: Low back pain is commonly associated with musculoskeletal conditions; however, it may also be a manifestation of serious underlying pathologies such as pancreatic carcinoma. Pancreatic carcinoma, though primarily associated with abdominal symptoms, can occasionally present as vague, persistent low back pain due to retroperitoneal involvement and neural referral patterns.

Purpose: Case study is to highlight the role of physiotherapy assessment in identifying red flags and to describe the physiotherapy management provided to a patient with pancreatic carcinoma presenting primarily with low back pain, emphasizing early clinical reasoning and referral.

Methods and Materials: A detailed clinical evaluation was performed including subjective history, physical examination, and screening for red flag symptoms. The patient reported persistent low back pain not relieved by rest and associated systemic symptoms. Diagnostic investigations confirmed pancreatic carcinoma. Physiotherapy management included pain-relieving modalities, gentle mobility exercises, breathing exercises, postural education, and functional training aimed at improving mobility and quality of life. Outcome measures included the Numeric Pain Rating Scale (NPRS) and functional mobility assessment to monitor progress over time.

Results: Following physiotherapy intervention, the patient demonstrated a reduction in pain intensity and improved functional mobility. Physiotherapy interventions contributed to symptom relief, better posture, improved activity tolerance, and enhanced participation in daily activities.

Conclusion: This case highlights the importance of thorough physiotherapy assessment in identifying non-musculoskeletal causes of low back pain. Physiotherapy plays a supportive role in managing symptoms and improving the patient's functional status and quality of life. Early identification of red flags by physiotherapists can facilitate timely medical referral and multidisciplinary management. Physiotherapy interventions remain valuable in improving comfort, promoting independence, and enhancing overall patient well-being in cancer-related pain.

Keywords:
Pancreatic carcinoma, Low back pain, Physiotherapy management, Red flags, Case study.

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COMPARISION OF POSTERIOR MYOFASCIAL LINE RELEASE VERSUS POST ISOMETRIC RELAXATION FOR HAMSTRING TIGHTNESS AMONG COLLEGE STUDENTS.

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Background: Hamstring muscle tightness is a common musculoskeletal problem among college students, often resulting from prolonged sitting, reduced physical activity and academic workload. Manual therapy technique such as posterior myofascial line release and post isometric relaxation technique are commonly used to improve muscle flexibility and reduced tightness.

Purpose: To compare the effect of posterior myofascial line release versus post isometric relaxation for hamstring tightness among college students.

Methods & Materials: A total of 44 students with Hamstring muscle tightness were randomly assigned into 2 groups. Group A Posterior myofascial line release and Group B post isometric relaxation. Hamstring muscle tightness was assessed before and after single intervention using the passive knee extension test. The participants continued with active stretching the follow up was conducted on day 5.

Result: A total of 44 participants were divided into MFR (n = 22) and MET (n = 22).The mean age was 19.20 years and mean BMI was 20.41 kg/m². the myofascial line release and post isometric relaxation procedure were administered to the respective groups. The body composition parameters were assessed using a bioelectrical impedance body composition analyzer. The average body fat, bone density, total body water, and P% values were 17.21%, 2.96, 63.72, and 45.75%, respectively. Both groups showed improvement in pre- and post-test values. One-way ANOVA revealed a statistically significant difference between the groups after intervention ($p < 0.05$). Result suggest that was significant improvement immediately after the treatment session with improvement was precised during the follow up after 5 days of treatment.

Conclusion: Both Myofascial Release (MFR) and Muscle Energy Technique (MET) showed improvement in the measured outcomes from pre-intervention to post-intervention values. However, the MET group demonstrated comparatively greater improvement than the MFR group. Therefore, the study suggests that MET more effective in improving hamstring flexibility among the participants.

Key words: Hamstring tightness, Posterior myofascial line release, Post isometric relaxation, Passive knee extension test.

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PHYSIOTHERAPY – INTEGRATED PHYSICAL ACTIVITY AND PSYCHOLOGICAL RESILIENCE PROGRAMS FOR HEALTHY AGING IN EMPTY NEST OLDER ADULTS.

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Background: As the global population ages, promoting healthy ageing among empty-nest older adults has become increasingly important in addressing their physical, psychological, and social challenges and supporting a high quality of life. Physical exercises could be an important potential promoter in achieving healthy ageing. However, the unique characteristics of healthy ageing and physiotherapy among empty-nest older adults.

Purpose: This study explored the current status of healthy ageing and physiotherapy among community-dwelling empty-nest older adults and analyzed their relationship. To investigate the effectiveness of a structured physical rehabilitation program as an intervention to enhance psychological resilience and promote healthy aging among older adults experiencing empty nest syndrome.

Methods & Materials: A case series of 5 cases study design was employed between January to May 2025. Empty-nest older adults were recruited from urban, suburban, and rural communities in Pondicherry, using a convenient sampling method. The outcome measures where Aerobic capacity, Balance, Flexibility and Psychological Resilience assessed through 2 min- walk test, Romberg test and v-sit and reach test, Connor Davidson Resilience Scale respectively.

Results: Five participants (2 Males, 3 Females) completed the 6-week physiotherapy-integrated program. Significant improvements were observed in functional endurance, balance, flexibility, psychological resilience and quality of life. The 2- minute walk distance increased from 118.0±4.95m to 145± 5.32 m ($p < 0.001$). Romberg test (eye open) improved from 26.4± 2.07 sec to 39.4 ±2.30 sec and eyes closed from 11.6± 1.02sec to 20.4 ± 1.02sec. Sit-and-reach scores increased from 6.4 ± 1.02 cm to 13.0 ±1.41 cm. psychological resilience scores improved from 20.0 ± 1.58 to 29.6 ± 2.07 ($p < 0.001$).

Conclusion: The study shows that combining physiotherapy exercises with resilience training effectively improves physical function, mental well-being, and quality of life in empty-nest older adults. This integrated approach is practical and beneficial for healthy aging.

Keywords: Healthy ageing, Empty Nests Syndrome, older adult, Physical Exercises.

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PHYSIOTHERAPY- AWARENESS OF KNOWLEDGE ABOUT VARICOSE VEIN AMONG GENERAL POPULATION OF PONDICHERRY.

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Background: Varicose veins are a common chronic venous disorder characterized by dilated, elongated, and tortuous superficial veins, primarily affecting the lower limbs. They result from incompetence of venous valves, leading to impaired blood flow, venous hypertension, and pooling of blood. Individuals who engage in prolonged standing or sitting, such as teachers, healthcare workers, and office employees, are at a higher risk. Common symptoms include pain, heaviness, swelling, and cosmetic concerns, which may progress to complications like skin changes, ulcers, and reduced mobility if left untreated. Despite its prevalence, public awareness about its causes and prevention remains low.

Purpose: To assess the level of awareness and knowledge regarding varicose veins, including risk factors, symptoms, complications, and preventive strategies, among the general population of Pondicherry, and to analyze its association with selected demographic variables.

Methods & Materials: A cross-sectional descriptive study was conducted among 400 general population using a structured and validated questionnaire. Participants were selected through convenient sampling. The questionnaire assessed knowledge related to causes, symptoms, risk factors, and prevention of varicose veins. Data were analyzed using descriptive statistics, and the association between awareness levels and demographic variables was evaluated.

Results: Most participants had limited awareness of varicose veins, with poor understanding of risk factors and prevention. Awareness was higher among younger individuals and those with a medical background.

Conclusion: The study revealed insufficient knowledge about varicose veins among the general population. There is a need for targeted health education and awareness programs to promote early diagnosis, preventive strategies, and effective management.

Keywords: Varicose vein, Awareness, Knowledge, Prevention, Health education.

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EFFECTIVENESS OF JACOBSON RELAXATION TECHNIQUE COMBINED WITH BALANCE EXERCISE FOR IMPROVING THE SLEEP QUALITY AND TO REDUCE THE ANXIETY OF FALL IN SUBJECTS WITH PARKINSON'S DISEASE

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Background: Individuals with Parkinson's disease, encounter a common non motor symptom as sleep a disturbance which indirectly reduces the balance. Most of the Parkinson affected individuals exhibit the anxiety, depression and fear of fall and reduce their sleep quality and again increase their anxious level. So, there is a need to take measures to improve the sleep quality and the anxiety of fall with treatment of Jacobson's relaxation technique and balance training.

Purpose: To evaluate the effectiveness of Jacobson Relaxation Technique combined with balance exercises in improving sleep quality and reducing anxiety of fall in subjects with Parkinson disease.

Methods and Materials: This pilot study included with total 10 patients are selected, allocated into 2 groups by a convenient sampling method, according to the selected inclusion and exclusion criteria. Group A treated with Jacobson's relaxation technique with balance training weekly 3 sessions for 45–50 minutes for 8 weeks. Group B treated with only balance training weekly 3 sessions 40 minutes for 8 weeks. Three outcome measures were taken as Pittsburgh sleep quality index (PSQI), Hamilton anxiety scale (HAM A) and Fall efficacy scale (FESI).

Result: Pre-test and post-test analysis was done. Statistical analysis shows that both groups were met with significant p value >0.0001. Comparing to GROUP B individuals in GROUP A shows more improvement. Within the group paired and unpaired t test are used to find the difference between the groups.

Conclusion: This study concludes that Jacobson's relaxation technique combined with balance training shows a significant effect on improving sleep quality and to reduce the anxiety of fall in subjects with Parkinson when compared to the balance training group. Limitations of this study were small sample size and recommendation is to include larger sample in future studies.

Keywords: Parkinson's disease, Jacobson, balance training, Fall efficacy scale, Pittsburgh Sleep Quality Index, Hamilton anxiety scale.

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EARLY AND INTEGRATED REHABILITATIVE MEASURES FOR A STIFF ELBOW OF A DOMINANT UPPER LIMB SECONDARY TO MYOSITIS OSSIFICANS: A CASE STUDY REPORT.

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Background: Myositis ossificans and elbow stiffness are common complications following radial head fractures, particularly due to a fall on an outstretched hand (FOOSH) injury involving the proximal elbow. These complications can significantly impair the functional capacity of the dominant upper limb, affecting activities of daily living (ADLs). Multiple factors, including pain, reduced ROM, soft tissue restrictions, psychological distress, and prolonged recovery time, contribute to functional limitations. Early and well-structured rehabilitation plays a crucial role in restoring function and preventing long-term disability.

Purpose: To evaluate the effectiveness of early and integrated rehabilitative measures in improving functional outcomes in a patient with a stiff elbow secondary to myositis ossificans following a radial head fracture.

Methods and Materials: This case study involved a 35-year-old female patient who presented with complaints of difficulty in elbow flexion and impaired ADLs following surgical management of a comminuted, closed, displaced radial head fracture with associated myositis ossificans and neurovascular deficit of the right elbow. Clinical assessment revealed pain during movement, scar tightness at the surgical site, restricted ROM in the elbow, wrist, and fingers, joint stiffness, deformity, numbness in the fingers, and reduced hand grip strength. Based on the identified impairments, a comprehensive and individualized 4-week integrated rehabilitation protocol was implemented. Outcome measures included range of motion, Disabilities of the Arm, Shoulder and Hand (DASH) score, Mayo Elbow Performance Score (MEPS), and psychological status.

Results: Post-intervention assessment demonstrated significant improvements in joint mobility, pain reduction, hand grip strength, and functional performance. Notable enhancement was observed in DASH and MEPS scores, along with improved psychological well-being and independence in ADLs.

Conclusion: This study highlights the importance of early, customized, and integrated rehabilitation in managing stiff elbow conditions secondary to myositis ossificans. Tailored interventions addressing pain, mobility, and functional limitations can significantly enhance recovery and optimize patient outcomes.

Keywords: Myositis ossificans, DASH score, ROM, Mayo Elbow Performance Score, Rehabilitation.

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COMPARASION OF EARLY AND LATE REHABILITATION FOR CERVICAL CORD INJURED PATIENTS FOLLOWED BY ANTERIOR CERVICAL DECOMPRESSION FUSION – A CASE SERIES REPORT.

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Background: Anterior cervical decompression and fusion (ACDF) is a commonly performed spinal surgical procedure used to stabilize cervical spinal cord injuries. It is considered minimally invasive and is associated with fewer post-operative complications compared to other surgical approaches. ACDF is typically indicated when conservative management fails or when symptoms worsen due to conditions such as epidural abscess, spinal instability, cervical spondylodiscitis, herniated disc, spondylolisthesis, compression myelopathy, spondyloptosis, and spinal curvature misalignment. Despite surgical success, postoperative recovery largely depends on timely and appropriate rehabilitation.

Purpose: To identify and compare the effectiveness of early versus late rehabilitation in patients with cervical spinal cord injury following ACDF surgery.

Methods and Materials: This case series included four patients diagnosed with cervical spinal cord injury due to traumatic causes and infective spondylodiscitis who underwent ACDF surgery. Among them, two patients received early rehabilitation immediately after surgery, while the other two experienced delayed rehabilitation due to lack of awareness and presence of complications. Recovery outcomes were assessed pre- and post-rehabilitation using standardized tools, including the American Spinal Cord Injury Association (ASIA) Impairment Scale and the Functional Independence Measure (FIM).

Results: Patients who received early rehabilitation demonstrated faster and more significant improvements in functional outcomes compared to those who underwent delayed rehabilitation. Early intervention contributed to better recovery in terms of muscle strength, sensory function, mobility, and independence. In contrast, delayed rehabilitation was associated with slower recovery and increased risk of secondary complications.

Conclusion: Rehabilitation plays a critical role in enhancing recovery following ACDF surgery. Early initiation of rehabilitation significantly improves functional outcomes, quality of life, and independence by enhancing muscle power, sensory integration, bladder and bowel control, balance, and coordination. Additionally, prevent complications associated with prolonged immobilization. Therefore, early rehabilitative intervention should be considered an essential component in the management of cervical spinal cord injury patients.

Key words: Anterior cervical decompression fusion, Rehabilitation, Spondylodiscitis, Spondyloptosis, Spinal instability.

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ESTABLISHMENT OF NORMATIVE DATA FOR UPPERLIMB FUNCTION PERFORMANCE USING ONE ARM HOP TEST AMONG OVER HEAD ATHLETES.

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Background: Upper limb function is vital for overhead athletes due to repetitive arm motions stressing the shoulder, elbow, and wrist. Overhead sports are characterized by complex biomechanical movements that place substantial stress on the glenohumeral joint, scapular stabilizers, and surrounding musculature. Repetitive motion patterns, such as the throwing or striking motion, often lead to adaptations in strength and mobility, but may also predispose athletes to overuse injuries. The One-Arm Hop Test provides an objective measure of upper limb strength, power, and stability. Establishing normative data helps in performance assessment, injury prevention, and rehabilitation.

Purpose: To establish normative data for upper limb function performance using the One-Arm Hop Test among overhead athletes and to examine the effects of arm dominance, gender, age, and sport type.

Methods and Materials: A cross-sectional study of 300 healthy overhead athletes (aged 18–26 years) from volleyball, basketball and handball was conducted. The One-Arm Hop Test was performed on both arms following standard procedures. Data were analyzed using descriptive and comparative statistics to determine normative values and test reliability.

Results: The test showed high reliability. Dominant arms outperformed non-dominant arms, with sport-specific differences favoring throwing-intensive athletes. Normative ranges were established for performance classification. The results showed a mean performance of 8.37 ± 1.06 sec for the dominant (right) hand and 9.25 ± 1.03 sec for the non-dominant (left) hand, with a statistically significant difference ($t = 9.91$, $p < .00001$).

Conclusion: The One-Arm Hop Test is a reliable tool for evaluating upper limb function in overhead athletes. The normative data can aid in performance monitoring, early deficit detection, and injury prevention. Overall, this study provides a valuable reference for evaluating upper-limb function in male overhead athletes and underscores the need for further research to expand these norms across sexes, age groups, and different sports.

Keywords: Upper limb function, One-Arm Hop Test, overhead athletes, normative data, Arm dominance.

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ANALYSIS OF BURNOUT SYNDROME INDUCED MUSCULOSKELETAL PAIN AMONG ACADEMICIANS - PILOT CORRELATION STUDY.

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Background: Burnout syndrome is a psychological condition caused by prolonged occupational stress, commonly seen among academicians due to heavy workloads, administrative duties, and poor work–life balance. The World Health Organization (WHO) officially recognized burnout as an occupational phenomenon in the 11th revision of the International Classification of Diseases (ICD-11). Persistent burnout can lead to physical health problems, particularly musculoskeletal pain, negatively affecting productivity and overall well-being.

Purpose: To examine the relationship between burnout and musculoskeletal pain among academicians.

Methods and Materials: A total of 70 academicians were selected using convenient sampling based on predefined inclusion and exclusion criteria. Data were collected with informed consent from all participants. Burnout levels were assessed using the Oldenburg Burnout Inventory (OLBI), while the Cornell Musculoskeletal Discomfort Questionnaire (CMDQ) evaluated the prevalence and severity of musculoskeletal pain in different body regions. Statistical analysis was performed to determine the correlation between burnout scores and musculoskeletal discomfort.

Result: The findings revealed a weak positive correlation ($r = 0.1782$) between burnout and musculoskeletal pain. As burnout levels increased, reports of musculoskeletal discomfort also rose. The results suggest that occupational stress and emotional exhaustion may contribute to physical strain and pain, particularly in the neck, shoulders, and lower back.

Conclusion: This study concluded that there is a weak positive relationship between burnout and musculoskeletal discomfort among participants, However, this relationship was not statistically significant. Hence the null hypothesis is rejected. Burnout and musculoskeletal pain are interrelated health concerns among academicians. Prolonged work-related stress can lead to both psychological and physical discomfort, highlighting the need for preventive strategies to address these issues.

Key Words: Burnout Syndrome, Musculoskeletal Pain, Oldenburg Burnout Inventory, Cornell Musculoskeletal Discomfort Questionnaire, Academicians.

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A STUDY ON THE CORRELATION BETWEEN FLATFOOT AND ANKLE INSTABILITY IN COLLEGE STUDENT.

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Background: Flat foot (pes planus) is a common postural deformity characterized by the lowering or absence of medial longitudinal arch of the foot. It can alter lower limb biomechanics, leading to altered gait and postural control. Ankle instability, particularly functional ankle instability, is a frequent complaint among young adults and may be influenced by abnormal foot alignment. College students due to prolonged standing, walking and sports participation are particularly at risk.

Purpose: To assess the prevalence of flat foot among college student using foot print analysis. To measure the level of ankle instability using standardized (CAIT) questionnaire. To analyze the statical correlation between flat foot and ankle instability. To evaluate the presence and degree of ankle instability.

Methods and Materials: A descriptive correlation study was conducted among 85 college students aged 18–25 years. The medial longitudinal arch was evaluated using the Sztriter-Godunow Index, while ankle instability was assessed using the Cumberland Ankle Instability Tool (CAIT) questionnaire. Data were analyzed statistically using Pearson's correlation coefficient to determine the relationship between flat foot and ankle instability. Mean, standard deviation (SD), and total were also calculated.

Result: This study revealed a weak and negative correlation between the Sztriter-Godunow Index and the Cumberland Ankle Instability Tool (CAIT) questionnaire scores among the college students. The calculated Pearson's correlation coefficient (r value) was –0.2465, indicating Sztriter-Godunow Index value increases (suggesting a flatter medial longitudinal arch), CAIT score tends to decrease, reflecting greater ankle instability. Although the relationship was weak, negative correlation suggests that students with lower arch heights were more likely to experience mild symptoms of ankle instability.

Conclusion: This study revealed the correlation between flat foot and ankle instability among college student this is a weak negative relationship between flat foot and ankle instability and calculated r value -0.2465.

Key Words: Flatfoot, Sztriter-Godunow Index, Ankle Instability, Cumberland Ankle Instability, Medial Longitudinal Arch.

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PREVALENCE OF REDUCED THORACIC EXPANSION AMONG PROLONGED MOTORCYCLE RIDERS.

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Background: Thoracic expansion is a crucial indicator of chest wall mobility and respiratory efficiency. Reduced thoracic expansion can limit lung function and affect breathing efficiency. Prolonged motorcycle riding often involves a sustained forward-flexed posture, vibration exposure, and restricted trunk movement, which may contribute to decreased chest wall mobility. Despite these occupational demands, limited data exist on thoracic expansion among prolonged motorcycle riders.

Purpose: To assess the prevalence of reduced thoracic expansion among individuals engaged in prolonged motorcycle riding.

Methods and Materials: A prevalence study was conducted among 226 professional motorcycle riders in Pondicherry using a convenient sampling method. Participants aged 20–50 years who rode for more than 5 hours per day for at least two years were included. Thoracic expansion was measured using an inch tape by recording the difference between maximal inspiration and expiration at the chest level. Data were analyzed descriptively to determine the prevalence of normal and reduced thoracic expansion.

Results: The mean thoracic expansion among the study population was 2.77 ± 1.02 cm, which is below the normal reference range (3–5 cm). 46.02% of the participants demonstrated reduced thoracic expansion (1–2 cm), while 53.98% had normal values (3–5 cm). The highest prevalence of reduced expansion was observed in the 30–40 years age group. Prolonged flexed posture and occupational strain were likely contributing factors.

Conclusion: Nearly half of the prolonged motorcycle riders exhibited reduced thoracic expansion, indicating compromised chest wall mobility. The findings highlight the need for postural correction exercises, ergonomic interventions, and regular respiratory assessments to improve thoracic flexibility and prevent long-term respiratory and musculoskeletal complications.

Keywords: Thoracic expansion, Motorcycle riders, Posture, Respiratory function, Chest wall mobility.

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EXPLORING THE ASSOCIATION BETWEEN CHRONIC NECK PAIN AND HEAD-EYE COORDINATION IMPAIRMENTS IN THE GENERAL POPULATION.

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Background: Chronic neck pain (CNP) is a prevalent musculoskeletal disorder that significantly impacts daily functioning and quality of life. Beyond physical discomfort, CNP is increasingly recognized to cause sensorimotor disturbances, including deficits in proprioception, balance, and visual coordination. The cervical spine plays a critical role in integrating sensory input for coordinated head and eye movements. Altered proprioceptive input due to pain or dysfunction may impair head-eye coordination, leading to reduced postural control and functional stability.

Purpose: To analyse the correlation between chronic neck pain and head-eye coordination impairments in the general population.

Methods and Materials: A cross-sectional correlational study was conducted on 40 participants aged between 25–55 years at the Department of Physiotherapy, Sri Venkateshwaraa Medical College Hospital & Research Centre (SVMCH&RC). Participants were assessed using the Neck Disability Index (NDI) to evaluate the severity of neck-related disability and the Head-Eye Movement Control Test (HEMCT) to measure coordination impairments. Data were statistically analysed using Karl Pearson's correlation coefficient to determine the strength and direction of the relationship between variables.

Results: The mean NDI score was 36.05, indicating moderate neck disability, while the mean HEMCT score was 1.57, suggesting impaired head-eye coordination. Statistical analysis revealed a positive correlation between chronic neck pain and coordination deficits, with a calculated r value of 0.4743, indicating a moderate relationship.

Conclusion: The findings demonstrate a significant positive association between neck disability and head-eye coordination impairment. Chronic neck pain is linked with broader sensorimotor dysfunction, emphasizing the importance of incorporating targeted assessment and rehabilitation strategies focusing on proprioception and head-eye coordination in clinical management.

Keywords: Chronic Neck Pain, Head-Eye Coordination, Sensorimotor control, Neck Disability Index, Proprioception.

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PHYSIOTHERAPY IN CHARLES BONNET SYNDROME: A SUPPORTIVE APPROACH IN LOW VISION REHABILITATION.

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Background: Charles Bonnet Syndrome (CBS) is characterized by visual hallucinations occurring in individuals with significant vision loss but preserved cognitive function. These hallucinations can affect emotional well-being, independence, and quality of life.

Purpose: To explore the supportive role of physiotherapy interventions in the management of CBS within low vision rehabilitation, focusing on improving functional independence, sensory integration, and psychological comfort.

Methods and Materials: A supportive rehabilitation approach was implemented among individuals diagnosed with CBS associated with low vision conditions. The intervention program included physiotherapy-based strategies such as balance and gait training, orientation and mobility exercises, relaxation techniques, sensory stimulation, and functional task training. Patients were assessed through structured interviews, visual function assessments, and quality-of-life questionnaires before and after the intervention period. The program was conducted over a defined rehabilitation period with regular physiotherapy sessions and patient education.

Results: The result of this study shows improvement in participants confidence during mobility, reduced anxiety associated with hallucination episodes, and enhanced ability to cope with visual disturbances. Physiotherapy interventions contributed to better postural stability, improved spatial orientation, and increased engagement in daily activities. Many participants also reported improved understanding of their hallucinations, leading to decreased distress and better adaptation to their visual impairment.

Conclusion: Physiotherapy plays a supportive role in multidisciplinary management of Charles Bonnet Syndrome (CBS) by improving mobility, sensory integration, and coping strategies. It enhances functional independence, reduces psychological distress, and improves quality of life. Integrating physiotherapy into low vision rehabilitation offers holistic care. Further research is needed to establish standardized protocols.

Keywords: Charles Bonnet Syndrome, Low Vision Rehabilitation, Visual Hallucinations, Functional Mobility, Quality of Life.

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ANALYSIS OF PREMENSTURAL DYSPHORIC DISORDER INRELATIONWITH SLEEP DISTURBANCES, NUTRITIONAL BEHAVIOR AND ACADEMIC BURNOUT AMONG FEMALE MEDICAL STUDENTS.

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Background: Premenstrual Dysphoric Disorder (PMDD) is a severe and debilitating form of premenstrual syndrome characterized by significant emotional, behavioural, and physical symptoms that interfere with daily activities and quality of life. It is closely linked to hormonal fluctuations during the menstrual cycle. Female medical students are particularly susceptible due to high academic pressure, irregular schedules, sleep disturbances, and unhealthy lifestyle habits. Poor sleep quality can aggravate mood disturbances, while academic burnout contributes to chronic stress and reduced coping capacity. Nutritional behaviour may also influence hormonal balance and symptom severity. Understanding the interaction between these factors is essential for early identification and management of PMDD in this high-risk population.

Purpose: To evaluate the association of PMDD with sleep disturbances, dietary behaviour, and academic burnout among female medical students.

Methods and Materials: A cross-sectional study was conducted using standardized self-administered questionnaires: Premenstrual Symptoms Screening Tool (PSST), Pittsburgh Sleep Quality Index (PSQI), Food Frequency Questionnaire (FFQ), and Copenhagen Burnout Inventory-Student Version (CBI-SV). Data were statistically analysed to determine correlations among variables.

Results: A significant association was found between PMDD and poor sleep quality as well as academic burnout ($p < 0.05$). However, no significant relationship was observed between PMDD and nutritional behaviour.

Conclusion: PMDD among female medical students showed a substantial association with sleep disturbances and academic burnout, whereas nutritional behaviour did not exhibit any notable connection. These findings emphasize that the importance of implementing interventions focused on improving sleep quality and managing academic stress to enhance the overall well-being of female medical students.

Keywords: Premenstrual Dysphoric Disorder, Sleep Disturbances, Nutritional Behaviour, Academic Burnout, Female Medical Students.

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EFFECT OF TRANSCUTANEOUS TIBIAL NERVE STIMULATION ALONG WITH FELDENKRAIS EXERCISE ON URINARY INCONTINENCE AMONG INDIVIDUAL WITH TYPE II DIABETES MELLITUS.

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Background: Urinary incontinence is a common and distressing complication among individuals with Type 2 Diabetes Mellitus (T2DM), often resulting from diabetic neuropathy and impaired bladder control. Conventional management includes pharmacological and behavioural interventions; however, non-invasive neuromodulation techniques such as Transcutaneous Tibial Nerve Stimulation (TTNS) combined with Feldenkrais exercises may enhance bladder function, pelvic floor coordination, and overall quality of life.

Purpose: To evaluate the combined effect of Transcutaneous Tibial Nerve Stimulation (TTNS) and Feldenkrais exercises on urinary incontinence in individuals with Type 2 Diabetes Mellitus.

Methods & Materials: A case series design was employed on five individuals with T2DM and symptoms of urinary incontinence. Participants underwent a pre-test assessment using the ICIQ-SF questionnaire to evaluate severity. The intervention consisted of TTNS sessions along with Feldenkrais exercises conducted over a specific duration. Post-intervention assessment was again carried out using the same questionnaire. Statistical analysis was performed to compare pre- and post-test scores.

Result: A significant reduction in ICIQ-SF scores was observed post-intervention, indicating improvement in urinary continence and reduction in leakage frequency. Participants also reported enhanced awareness of pelvic control and better functional mobility. These findings suggest that the combined approach of TTNS and Feldenkrais exercise can effectively improve bladder control among diabetic individuals.

Conclusion: The result suggests that TTNS effectively modulated the neural control of the bladder by stimulating the nerve, which shares a common spinal segment with pelvic floor and bladder intervention. Additionally, the Feldenkrais exercise which focuses on body awareness, gentle movement, postural control, enhanced pelvic floor muscle coordination and sensorimotor integration. The present case series concludes that Transcutaneous Tibial Nerve Stimulation (TTNS) combined with Feldenkrais exercises is an effective and non-invasive intervention for reducing urinary incontinence among individuals with type 2 diabetes mellitus.

Keywords: Transcutaneous Tibial Nerve Stimulation, Feldenkrais Exercise, Urinary Incontinence, Type 2 Diabetes Mellitus, ICIQ-SF.

CODE: ABS 051

ANALYSIS OF LOWER EXTREMITY MOTOR COORDINATION IN TYPE 2 DIABETES MELLITUS VERSUS NON-DIABETICS BY USING LOWER EXTREMITY MOTOR COORDINATION TEST (LEMOCOT).

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Background: Type 2 Diabetes Mellitus is a chronic metabolic disorder that affects neural and muscular function. Prolonged hyper glycemia leads to peripheral neuropathy and impaired proprioception, resulting in poor lower-limb coordination and balance. The LEMOCOT test is a simple and reliable tool to assess lower-extremity motor coordination.

Purpose: To compare lower extremity motor coordination between individuals with Type 2 Diabetes Mellitus and non-diabetic individuals using the Lower Extremity Motor Coordination Test (LEMOCOT).

Methods and Materials: A Comparative analytical study was conducted with 140 participants (70 diabetic and 70 non-diabetic) were selected by convenient sampling from Sri Venkateshwaraa Medical College Hospital and Research Centre and community areas. Coordination of both dominant and non-dominant legs was assessed using LEMOCOT. Data were analyzed with SPSS version 23 using frequency, percentage, and independent-sample t-test.

Results: The diabetic group showed lower mean LEMOCOT scores (28.60 ± 7.32 for the dominant leg and 26.47 ± 6.73 for the non-dominant leg) compared to the non-diabetic group (35.97 ± 4.15 and 33.95 ± 4.50. The mean difference was 7.37 for the dominant leg and 7.48 for the non-dominant leg, with a p-value of 0.001, indicating a significant difference. Among diabetics, 62 (88.6%) showed reduced coordination in the dominant leg and 67 (95.7%) in the non-dominant leg. Among non-diabetics, 49 (70%) had normal dominant-leg coordination and 44 (62.8%) had normal non-dominant-leg coordination.

Conclusion: Individuals with Type 2 Diabetes Mellitus exhibit significantly reduced lower-extremity motor coordination compared to non-diabetic individuals. Coordination deficits increase with age and longer diabetes duration. Early screening using LEMOCOT and physiotherapy interventions focusing on strengthening, balance, and coordination exercises are recommended to improve mobility and reduce fall risk.

Keywords: Type 2 Diabetes Mellitus, Lower Extremity Motor Coordination, Dominant leg, non-dominant leg, Coordination.

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STUDY TO EVALUATE THE POSTURE AND FUNCTIONAL IMPAIRMENT OF ANKLE AMONG OBESE AND OVERWEIGHT INDIVIDUAL – AN ANALYTIC STUDY

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Background: Obesity and overweight are growing public health concerns associated with numerous musculoskeletal complications. Excess body weight imposes increased mechanical load on the lower extremities, particularly the ankle joint, leading to altered posture, compromised biomechanics, and reduced functional capacity. These changes may predispose individuals to pain, instability, and a higher risk of injury, ultimately affecting mobility and quality of life.

Purpose: The present study aimed to evaluate the relationship between Body Mass Index (BMI) and ankle posture, as well as functional impairment of the ankle joint among overweight and obese individuals.

Methods and Materials: An analytic cross-sectional study was conducted on 150 participants who were categorized into overweight and obese groups based on BMI criteria. Postural alignment of the foot was assessed using the Foot Posture Index (FPI), while ankle function was evaluated using the Foot and Ankle Disability Index (FADI). All participants underwent standardized assessment procedures. Statistical analysis was performed to identify correlations between BMI, ankle posture, and functional impairment.

Results: The findings revealed a significant negative correlation between FADI scores and BMI, indicating reduced functional ability with increasing body weight. Additionally, ankle posture demonstrated a tendency toward pronation as BMI increased, FADI mean ± standard deviation of 29.74 ± 3.18. Obese individuals exhibited greater pronation and more pronounced functional limitations compared to overweight individuals.

Conclusion: Increased BMI is associated with altered ankle posture and decreased functional performance. Obese individuals are more severely affected than those who are overweight. Early identification and targeted physiotherapy interventions are essential to prevent further complications and improve functional outcomes.

Keywords: Obesity, Overweight, Body Mass Index, Posture, Functional Impairment of ankle.

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PREVALENCE OF CUBITAL TUNNEL SYNDROME AMONG PREGNANT WOMEN IN THE THIRD TRIMESTER – A PILOT STUDY.

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Background: Cubital Tunnel Syndrome (CuTS) is the second most common upper limb entrapment neuropathy after Carpal Tunnel Syndrome and results from compression of the ulnar nerve at the elbow. Pregnancy is associated with physiological changes such as hormonal fluctuations, increased fluid retention, and soft tissue edema, particularly during the third trimester. These changes may predispose pregnant women to peripheral nerve compressions; however, the prevalence of CuTS in this population remains underreported and often overlooked in clinical practice.

Purpose: This study aimed to determine the prevalence of Cubital Tunnel Syndrome among pregnant women in their third trimester and to identify associated risk factors.

Methods and Materials: A cross-sectional pilot study was conducted among third-trimester pregnant women attending antenatal clinics. Participants were evaluated using structured questionnaires to assess symptoms related to ulnar nerve compression. Clinical examination included provocative tests such as elbow flexion test and Tinel's sign. Suspected cases were further confirmed using nerve conduction studies wherever feasible. Data collected were analyzed to determine prevalence and to explore correlations with demographic and obstetric variables such as age, parity, gestational weight gain, and presence of edema.

Results: Preliminary findings indicated that a considerable proportion of participants exhibited symptoms suggestive of CuTS, predominantly mild sensory disturbances such as numbness and tingling along the ulnar nerve distribution. Increased gestational weight gain and peripheral edema were commonly associated factors. Most identified cases were mild in nature and did not necessitate medical or surgical intervention.

Conclusion: Cubital Tunnel Syndrome appears to be an underrecognized condition among pregnant women in the third trimester. Early screening, patient education, and ergonomic modifications may aid in timely identification and prevention of symptom progression.

Keywords: Cubital Tunnel Syndrome, Third Trimester, Ulnar Nerve, Pregnant women, Tinel's sign.

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DEMYSTIFYING ROUND LIGAMENT PAIN IN PREGNANCY: A NARRATIVE REVIEW

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Background: Round ligament pain (RLP) is a common yet often misunderstood musculoskeletal discomfort during pregnancy, affecting 10–30% of women, particularly in the second trimester. It results from stretching of the round ligaments due to uterine enlargement. Hormones such as relaxin, estrogen, and progesterone increase ligament laxity by altering collagen structure, reducing tissue stability and increasing pain susceptibility. Despite being benign, RLP is often confused with serious conditions, requiring proper clinical understanding.

Purpose: This narrative review aims to demystify RLP by exploring its anatomy, pathophysiology, clinical presentation, differential diagnosis, management, and prognosis, while emphasizing the role of physiotherapy in improving maternal quality of life.

Methods and Materials: This review synthesizes existing literature on RLP, focusing on anatomical and physiological changes, hormonal influences, clinical features, diagnostic considerations, and conservative management. Emphasis was placed on non-invasive, physiotherapy-led interventions.

Results: The result of this study shows RLP commonly presents as unilateral or bilateral sharp or dull pain in the groin-to-hip region, often triggered by sudden movements. It may temporarily impair function. Differential diagnosis is essential to rule out conditions such as ectopic pregnancy, ovarian torsion, varicosities, or hematoma, especially with symptoms like fever or bleeding. Evidence supports physiotherapy interventions including pelvic tilts, hip stretching, core stabilization, postural education, kinesio taping, and support belts, with heat and rest as adjuncts.

Conclusion: RLP is a self-limiting condition with excellent prognosis, resolving postpartum. Physiotherapy plays a key role in pain reduction and functional improvement. Early education helps prevent exacerbations, though further randomized controlled trials are needed to strengthen evidence.

Key Words: Round ligament pain, Pregnancy discomfort, Physiotherapy management, Ligament stretching, Second trimester.

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PREVALANCE OF PATELLAR TILT AMONG COLLEGE STUDENTS WITH SEDENTARY SITTING PATTERN.

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Background: Prolonged sedentary behavior among college students has been linked to various musculoskeletal issues, including patellar malalignment. Patellar tilt, a form of malalignment, can lead to anterior knee pain and functional limitations. Understanding its prevalence and associated factors is crucial for early intervention.

Purpose: To determine the prevalence of patellar tilt among college students engaged in prolonged sitting and to analyze its association with muscle imbalances, postural deviations, and knee pain.

Methods & Materials: A cross-sectional study was conducted at Sri Venkateshwara College of Physiotherapy, Puducherry, involving 384 college students aged 18–22 years with sedentary sitting patterns. Participants were selected using a random sampling method. Q-angle measurements were taken in both supine and standing positions using a long-arm goniometer. Anatomical landmarks, including the anterior superior iliac spine (ASIS), center of the patella, and tibial tubercle, were identified for accurate measurement. Participants were also evaluated for muscle imbalances, postural deviations, and reported knee pain. The treatment duration for interventions was set at 4 weeks.

Results: Abnormal Q-angle values were observed in 60% of participants for the left limb and 64% for the right limb, indicating a high prevalence of patellar tilt. Significant associations were found between prolonged sitting, muscle imbalances (such as tightness or weakness in the lower limbs), postural deviations, and the presence of knee pain.

Conclusion: The study highlights a substantial prevalence of patellar tilt among college students with prolonged sitting habits. The findings underscore the importance of addressing muscle imbalances and postural deviations to mitigate knee pain and functional limitations. Implementing physiotherapy interventions, including corrective exercises, stretching routines, and ergonomic modifications, is recommended to prevent and manage patellar tilt in this population.

Keywords: Q-angle, Patellar tilt, Postural deviations, Muscle imbalances, Knee pain.

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PILOT- PREVALENCE OF SCAPULAR DYSKINESIA AMONG NETBALL PLAYERS IN PUDUCHERRY.

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Background: Scapular Dyskinesia is defined as an alteration in the normal position or motion of the scapula during shoulder movement. It is particularly prevalent among athletes involved in repetitive overhead sports. In netball, repetitive actions such as passing, shooting, and defensive overhead movements place significant biomechanical demands on the shoulder complex, predisposing athletes to scapular instability.

Purpose: To determine the prevalence of scapular dyskinesia among netball players in Puducherry using the Lateral Scapular Slide Test (LSST).

Methods & Materials: A pilot cross-sectional study was conducted among 50 male netball players selected through convenient sampling. Participants Scapular positioning was assessed using Lateral Scapular Slide Test at three positions: at rest (0°), 45° abduction (hands on waist), and 90° abduction with internal rotation. A difference of more than 1.5 cm between both sides was considered indicative of scapular dyskinesia. The findings were further classified using Kibler's classification into Type 1, Type 2, Type 3, and Type 4. Data were analyzed descriptively and expressed in percentages.

Results: Out of 50 participants, 39 players (78%) demonstrated normal scapular kinematics (Type 4), while 11 players (22%) exhibited scapular dyskinesia. Among the abnormal patterns, Type 2 dyskinesia (medial border prominence) was the most common (10%), followed by Type 1 (inferior angle prominence) at 8%, and Type 3 (superior border elevation) at 4%. No abnormalities were observed in the resting position, while deviations were primarily noted during dynamic shoulder movements.

Conclusion: The study reveals that the prevalence of scapular dyskinesia among netball players in Puducherry is 22%, indicating a moderate presence of dysfunction. These findings highlight the importance of early screening and targeted rehabilitation programs focusing on scapular stability and neuromuscular control. Incorporating preventive strategies in training may help reduce the risk of shoulder injuries and enhance overall athletic performance.

Keywords: Lateral Scapular Slide Test, scapular dyskinesia, Netball players, Shoulder dysfunction, Biomechanical stress.

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CORRELATION OF HAND EYE COORDINATION AMONG CRICKET BATSMAN WITH FORWARD HEAD POSTURE.

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Background: Cricket batting performance relies heavily on hand–eye coordination (HEC) for precise timing and stroke control. Hand-eye coordination allows for synchronization between visual input and motor output, permitting players to anticipate ball trajectory and adjust their response within milliseconds Forward Head Posture (FHP), a common postural deviation among athletes due to prolonged training and visual focus, may alter cervical alignment and proprioceptive input, potentially affecting coordination and reaction speed.

Purpose: To determine the correlation between hand–eye coordination and forward head posture among cricket batsmen.

Methods & Materials: A cross-sectional study was conducted among trained cricket batsmen aged 18–30 years. Forward Head Posture was measured using a craniovertebral angle (CVA) assessment, and hand–eye coordination was evaluated using the alternate hand wall toss test and on protractor mobile test. Statistical analysis was performed using Karl Pearson's correlation coefficient to examine the relationship between FHP and HEC.

Result: Findings showed a negligible correlation between forward head posture and hand–eye coordination, indicating that batsmen with greater postural deviation (smaller CVA) exhibited slower or less accurate coordination performance. Our findings demonstrated a very weak, non-significant correlation ($r = 0.04$, $p = 0.67$).

Conclusion: This study found negligible relationship between forward head posture and alternate hand wall toss test performance in cricket batsmen. While FHP remains a relevant postural concern for musculoskeletal health, its influence on simple hand–eye coordination tasks appear minimal in this athletic cohort. Future work should employ sport-specific performance measures and larger samples to clarify whether posture affects fine motor and perceptual motor performance in cricket.

Keywords: Hand–Eye Coordination, Forward Head Posture, Cricket Batsmen, Craniovertebral Angle, Motor Performance.

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EFFECT OF CIRCUIT TRAINING PROGRAM USING OBSTACLES ON IMPROVING BALANCE AMONG ELDERLY POPULATIONS.

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Background: According to the world health organization global report on fall prevention people aged 65 years and above fall about 28% - 35% in each year and this proportion increases as age and frailty level increases. The prevalence of fall in India above the age of 60 years reported to range 14% - 53%Balance impairment is a common problem among the elderly population and is a major contributing factor to falls, injuries, and loss of independence. Exercise interventions, particularly circuit training programs involving obstacle-based activities, have been found to enhance strength, coordination, and postural control.

Purpose: A study to find out the effectiveness of circuit training program on improving balance among elderly population.

Methods & Materials: A quasi-experimental study design was adopted, involving 30 elderly participants aged 60 years and above from selected community centers. Participants underwent a six-week circuit training program consisting of obstacle-based exercises designed to challenge dynamic and static balance. Balance performance was assessed before and after the intervention using the POMA. Data were analyzed using paired t-tests to compare pre- and post-intervention scores.

Result: The result of the study indicates that within the group analysis of POMA shows extremely significant improvement in the group. The obtained t-value of POMA is 12.34 demonstrates a statistically significant reduction in balance impairment following the intervention. The p value of POMA is 0.0001 consider extremely significant.

Conclusion: A circuit training program incorporating obstacle-based exercises has a significant positive effect on improving balance among the elderly population. The inclusion of dynamic and functional tasks, such as stepping over, around, and between obstacles, enhances postural control and coordination by challenging the sensory and motor systems. These activities stimulate proprioception, muscle strength, and reaction time-key components required to maintain balance and prevent falls in older adults.

Keywords: Circuit interval training, Balance impairment among elderly population, Postural control, Berg Balance Scale, Performance Oriented Mobility Assessment,

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PHYSIOTHERAPY IN MEDIAL TIBIAL STRESS SYNDROME: A SINGLE CASE STUDY.

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Background: Medial Tibial Stress Syndrome (MTSS), commonly known as shin splints, is a common overuse injury seen in athletes and runners. It is characterized by pain along the tibia due to repetitive stress and inadequate recovery. Physiotherapy interventions play a key role in reducing pain, improving muscle strength, and restoring functional performance, enabling a safe return to activity and sports participation.

Purpose: To evaluate the effectiveness of a structured physiotherapy rehabilitation program in the management of MTSS in a recreational runner.

Methods & Materials: A 25-year-old female recreational runner presented with bilateral MTSS, with pain localized along the distal third of the tibia, aggravated during running. A 6-week structured physiotherapy program was implemented. The acute phase included pain management using cryotherapy, ultrasound therapy, and kinesiology taping. The strengthening and mobility phase involved progressive exercises targeting the tibialis posterior, soleus, and intrinsic foot muscles, along with ankle mobility and calf stretching. The functional phase included gait retraining, proprioceptive training, and a gradual return-to-running protocol. Outcome measures included the Visual Analog Scale (VAS), Single-Leg Hop Test, and Y-Balance Test.

Results: The findings of this study after 6 weeks of intervention, pain significantly reduced (VAS: 6/10 to 1/10), and functional performance improved, with a 20% increase in Single-Leg Hop Test distance and better dynamic balance.

Conclusion: A structured and progressive physiotherapy program effectively reduced pain and improved functional performance in a recreational runner with MTSS. Early intervention, combined with individualized exercise progression, facilitated a safe and successful return to running while minimizing the risk of recurrence.

Keywords: Medial Tibial Stress Syndrome, Visual Analog Scale, Single-leg hop test, Y-balance test, Recreational runners.

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ERGONOMIC ASSESSMENT AND PILATES-BASED PHYSIOTHERAPY FOR PREVENTION OF MUSCULOSKELETAL DISORDERS IN FARMERS.

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Background: Musculoskeletal disorders (MSDs) are highly prevalent among farmers due to prolonged bending, repetitive movements, heavy load handling, and poor ergonomic practices during agricultural activities. Farming tasks often involve awkward postures, sustained physical exertion, and exposure to uneven terrains, which place excessive stress on the musculoskeletal system. In addition, lack of mechanization in many rural settings further increases physical workload and risk of injury. Limited awareness regarding proper body mechanics, insufficient training on ergonomic techniques, and lack of access to preventive healthcare services further increase the risk of chronic pain, functional limitations, reduced work efficiency, and long-term disability in this population.

Purpose: To highlight the importance of ergonomic assessment and to evaluate the effectiveness of Pilates-based physiotherapy in preventing musculoskeletal disorders among farmers.

Methods and Materials: Ergonomic assessment was conducted by evaluating posture, work patterns, and biomechanical stress using observational methods and standardized outcome measures such as the Visual Analogue Scale (VAS) and functional disability indices. Based on assessment findings, targeted interventions were designed.
Pilates-based physiotherapy interventions included exercises focusing on core stabilization, postural alignment, controlled movements, and breathing techniques such as pelvic tilts, bridging, spine stretching, and core strengthening.

Results: The combined approach of ergonomic assessment and Pilates-based physiotherapy demonstrated improvement in posture, flexibility, muscular endurance, and body awareness. It also contributed to reduction in pain, prevention of injury, and enhancement of functional capacity among farmers.

Conclusion: Integrating ergonomic education with Pilates-based physiotherapy is an effective, low-cost strategy for preventing musculoskeletal disorders among farmers. This approach improves overall health, productivity, and quality of life, especially when implemented through community-based programs such as awareness campaigns and physiotherapy camps.

Keywords: Ergonomic assessment, Pilates-based physiotherapy, Farmers' health, Musculoskeletal disorders, Occupational health.

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PREVALENCE OF ULNAR COLLETERAL LIGAMENT (UCL) INJURIES OF THE THUMB (SKIER'S THUMB) AMONG VOLLEYBALL PLAYERS ACROSS DIFFERET PLAYING POSITION.

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Background: The thumb plays a vital role in grip, stability, and hand coordination during sports activities. Injury to the Ulnar Collateral Ligament (UCL) of the thumb, commonly known as Skier's Thumb or Gamekeeper's Thumb, can lead to pain, weakness, and functional limitations. Volleyball players are particularly vulnerable to this condition due to repetitive stress and impact forces during hitter movements. The study also seeks to identify possible risk factor, including duration of play, dominant hand movement and training load. Ultimately, the goal is to minimize the incidence and long-term consequences of thumb UCL injuries.

Purpose: To determine the prevalence of UCL injuries of the thumb among volleyball players and to identify how injury occurrence varies across different playing positions.

Method and Materials: A cross-sectional study was conducted among volleyball players using structured questionnaires and clinical assessments, including range of motion and thumb function evaluation through the Kapandji Scale. Data on player position, hand dominance, and training patterns were also collected and analyzed.

Results: The findings revealed a notable prevalence of UCL injuries among volleyball players, with a higher occurrence in players occupying hitter positions due to repetitive thumb stress during ball contact. Mild to moderate functional limitations were observed in affected athletes.

Conclusion: UCL injury of the thumb is a common yet often underrecognized condition among volleyball players. Early screening, preventive taping, strengthening exercises, and proper rehabilitation can significantly reduce injury risk and enhance athletic performance. The study highlights the need for position-specific preventive strategies and awareness programs to promote joint health and prevent long-term disability among athletes.

Keywords: Skier's thumb, Gamekeeper's thumb, Kapandji scale, Playing position, Ulnar collateral Ligament injury.

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A COMPARATIVE CASE REPORT: GALVANIC STIMULATION, THE MENDELSOHN MANEUVER, AND OROMOTOR STIMULATION FOR DYSPHAGIA TREATMENT IN SUB-ACUTE STROKE PATIENTS.

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Background: Dysphagia (swallowing difficulties) is a common and often debilitating condition following a stroke, particularly in the sub-acute phase (1-6 months post-stroke). Swallowing difficulties can lead to malnutrition, dehydration, and aspiration pneumonia, which contribute to poorer prognosis and reduced quality of life. Swallowing is a complex process requiring coordinated neuromuscular activity involving the oral, pharyngeal, and oesophageal phases. Stroke-related neurological damage often disrupts this coordination, resulting in impaired swallowing safety and efficiency.

Purpose: This case report compares three common therapeutic interventions for dysphagia in sub-acute stroke patients: Galvanic Stimulation (GS), the Mendelsohn Maneuver (MM), and Oromotor Stimulation (OMS). The goal was to assess their impact on swallowing function, aspiration risk, and quality of life.

Method and Materials: Three sub-acute stroke patients with confirmed dysphagia were selected to receive one of the interventions: GS, MM, or OMS. Each patient underwent a structured rehabilitation program, where patient 1 received GS, patient 2 received MM and the patient 3 received OMS and swallowing function was assessed using The Dysphagia Outcome and Severity Scale (DOSS) and Gugging swallowing Scale (GUSS) before and after 4 weeks of therapy.

Results: The findings of the study demonstrate that each of the three treatments resulted in improvement. In that GS demonstrated the most significant improvement in swallowing safety and oral control. MM showed benefits in reducing aspiration risk, and OMS helped in strengthening oropharyngeal muscles.

Conclusion: This case report highlights the potential benefits of personalized dysphagia treatments for sub-acute stroke patients and suggests that Galvanic Stimulation may be a preferred method for improving swallowing safety in severe cases.

Keywords: Stroke, Dysphagia, Galvanic Stimulation, Mendelsohn Maneuver, Oromotor Therapy.

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POPCORN SYNDROME: NEUROCOGNITIVE CONSEQUENCES OF DIGITAL OVERSTIMULATION IN CHILDREN – A SCOPING REVIEW

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Background: The rapid proliferation of digital technology has dramatically increased daily screen exposure among children and adolescents. Continuous interaction with high-velocity digital media—characterized by social networking algorithms, short-form video streaming, and immersive mobile gaming—may fundamentally alter attention regulation and neurocognitive development. "Popcorn Brain" syndrome describes a pervasive mental state where the brain becomes conditioned to constant, high-intensity digital stimulation, resulting in fragmented attention spans and a diminished capacity for sustained focus on non-digital tasks.

Purpose: This review aims to explore the neurocognitive effects of excessive digital stimulation in children and adolescents.

Methods & Materials:A literature search was conducted using electronic databases including PubMed, Scopus, and Google Scholar. Peer-reviewed articles, systematic reviews, and observational studies focusing on screen exposure, cognitive functioning, and behavioral outcomes in pediatric populations were reviewed and synthesized.

Results: Findings indicate that prolonged exposure to hyper-stimulating digital environments may trigger neuroplastic changes, specifically altering dopamine-mediated reward pathways and compromising sustained attention. Functional imaging suggests modifications in the prefrontal cortex and anterior cingulate cortex, areas critical for executive function. Children exhibiting high screen dependency frequently demonstrate reduced concentration, impaired working memory, increased impulsivity, and chronic sleep disturbances, which collectively contribute to a quantifiable decline in academic performance.

Conclusion: Popcorn Brain syndrome represents a significant, emerging neurocognitive concern linked to modern digital consumption patterns. The findings underscore the urgent need for early clinical awareness and the implementation of preventive interventions. Prioritizing balanced digital diets, alongside the promotion of offline physical and cognitive activities, remains an essential strategy for fostering healthy neurodevelopment in the digital age.

Keywords: Popcorn Brain Syndrome, Digital Overstimulation, Screen Time, Cognitive Development, Paediatrics.