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Abstract-1

Effect of Time Under Tension on Strength in Athletes: A Narrative Review

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ABSTRACT

Time Under Tension (TUT) is the time duration in which the muscle is under strain while performing strength training. This study was performed to determine the muscular changes in athletes by training muscle under TUT. Previous evidence-based study shows that TUT affects the muscle protein subfractional synthetic response, hypertrophy, volume load, acute neuromuscular response, muscular activation, and blood lactate responses. The study was performed to determine the effect of different TUT durations on muscle strength in athletes. To explore, we further conducted a literature search in databases such as PubMed, Cochrane, Google Scholar, and Scopus focussing on publications from 2014 to 2024. This review entailed nine publications comprising randomised controlled trials, systematic reviews, cross-sectional surveys, observational studies and scoping reviews. Search terms included “Time Under Tension”, “Muscle strength”, “Hypertrophy”, “Athlete”, “muscular stress”, and “resistance training”. We analysed that the group trained with greater Time Under Tension showed better results in terms of hypertrophy and strength than the group with lesser Time Under Tension from pre to post training. Addtionally, results of hypertrophy and strength were more pronounced in athletes. The TUT training immediately enhances the synthesis of mitochondrial and sarcoplasmic protein, which further helps in improving the muscular endurance. In addition, it stimulates and activates myofibrillar protein synthesis, which occurred 24-30 hours after the workout, which ultimately supports strength development in long term. Overall, super-slow training along with TUT is an effective strategy for athletes to increase strength. Although additional studies are required for at-risk populations, it is essential to determine both repetition speed and the duration of muscle tension, when developing resistance training programmes.

Keywords: OMIT cross-sectional studies, Muscle strength, Resistance training OMIT.

Abstract-2

Physiotherapy Intervention on Balance, Motor Skills, and Functional Movement in Children with Developmental Coordination Disorder: A Scoping Review

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ABSTRACT

Developmental Coordination Disorder (DCD), prevalent in roughly 6% of primary school children, poses significant challenges to motor development. This common disorder manifests as difficulties with balance, coordination, and postural control, hindering the acquisition of essential gross motor skills. Consequently, children with DCD often exhibit reduced physical fitness, strength, and stamina, and may display passivity and inactivity. This study aims to review and condense existing research on physiotherapy treatments that enhance balance, posture, strength, and gross motor skills in children with DCD. A literature search was conducted across PubMed and Google Scholar databases for the period 2014–2024. The search utilised keywords such as "Children," "Neuromuscular Training," "Strength Training," and "Developmental Coordination Disorder," combined with Boolean operators AND and OR. Only studies investigating strength training or neuromuscular training as interventions in children with DCD, with measurable treatment outcomes, were included in the analysis. Non-English articles were excluded. Of the 18,521 articles initially identified, only six met the inclusion criteria. The reviewed literature primarily assessed balance, postural control, and strength using various tools, including balance tests for static and dynamic stability, sway energy scores, computerised dynamic postural assessments, and dynamometers. Some studies compared children with DCD to typically developing children using the Movement Assessment Battery for Children. Combined Hems Ball Training showed statistically significant improvements ($p<0.05$) in balance and postural control, while Functional Movement Power Training (FMPT) proved superior to Functional Movement Training alone for strength and postural control. One study found no significant difference between experimental and control groups with neuromuscular training. Additionally, the timing of gastrocnemius muscle activation and reduced motor unit firing variability in DCD children were identified as key factors affecting performance.Limited studies indicate that Combined Hems Ball Training and FMPT significantly improve balance, postural control, and strength in children with DCD. However, further high-quality trials are needed to provide more conclusive evidence. Furthermore, recognising the crucial role of muscle activation timing and motor unit variability in children with DCD underscores the need for targeted approaches for intervention planning.

Keywords: Child, Motor skills disorders, Postural balance, Resistance training.

Abstract-3

The Impact of Cardiovascular Dysfunction on Physiotherapy in End-stage Renal Disease: A Review of Evidence

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ABSTRACT

End-stage renal disease (ESRD) is increasingly becoming a public health problem wherein kidneys loses nearly all their abilities to perform essential function. Dialysis offers patients the opportunity to maintain a better quality of life in long term management and while waiting for kidney transplantation. ESRD patients are known

for the high risk of cardiovascular comorbidities that effects the quality of life, physical activeness and overall independence. Thus, rehabilitation is imperative to address the profound psychological, physical and majorly functional limitations/impairments associated with ESRD.

A comprehensive literature search was conducted where in article from 2010 to 2024 were included using the search terms "End stage Renal Disease" and "Cardiovascular Limitations", which yielded 2,102 results from various digital databases like PubMed, Google Scholar, Ovid, Web of Science and the Cochrane Library. The search was then further filtered through the inclusion and exclusion criteria which yielded 49 results.These results aided in the analysis of various cardiovascular limitations to physiotherapy rehabilitation in ESRD patients.

The reviewed data reflects the prevalence of left ventricular hypertrophy, myocardial/valve disease, arterial stiffness,sarcopenia, chronic fatigue/inflammation and even heart failure in ESRD patients. The factors like fluid overload, uremic toxicity, malnutrition, sedentary lifestyle, and diabetes omit further impair add the cardiac performance and exercise tolerance. These limitations act as the obstacle in providing effective rehabilitation programme. Evidence has confirmed that physical exercise has a major effect on metabolism, muscle contraction and enhancement of various physiological processes of essential tissues. Therefore, implementing specialised rehabilitation programmes that keep cardiovascular risk management in consideration to fabricate effective exercise regimens and comprehensive care to boost functional capacity and improves overall quality of Life.

Keywords: Omit, Cardiovascular limitations, Dialysis, Rehabilitation

Abstract-4

Different Electrotherapeutic Approaches used for the Treatment of Nocturnal Enuresis: A Narrative Review

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ABSTRACT

Nocturnal Enuresis (NE) can be defined as infrequent and uncontrolled urination during sleep in children aged 5 years or more without any central nervous system abnormalities. NE is a common condition that causes stress among both children and their families. However, behavioural therapy is the first line of treatment for children experiencing NE but some electrotherapeutic strategies have been most commonly used to treat children with NE like Transcutaneous Electrical Nerve Stimulation (TENS), interferential (IF) electrical stimulation, and laser. The needle acupuncture also has been used as an alternate treatment for NE. This review aimed to evaluate the effectiveness and patient response to various electrotherapeutic methods used for treating NE in children. In this study, we have collected information about NE from published articles from year 2014 to 2024. Searches were carried out from the following databases and search engines: PubMed, Google Scholar, Scopus, and ResearchGate. Several electrotherapeutic approaches have been identified to treat NE. According to studies, TENS, IF electrical stimulations, and needle acupuncture are useful in reducing wet nights. Electrotherapeutic modalities are somewhat helpful in reducing the frequency of wet nights in children with NE. However, no complete cure has been achieved still. IF electrical stimulations seems more effective than other therapeutic methods.

Keywords: Omit, Electrical stimulations, Interferential electrical stimulation, Needle acupuncture, Transcutaneous electrical nerve stimulation

Abstract-5

Approaches used for Scale Translation in Medical Research: A Narrative Review

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ABSTRACT

In order to maintain the validity and reliability of assessment instruments across many languages and cultural contexts, scale translation is an essential procedure in medical research. This narrative study examines the several methods used in the physiotherapy sector to translate measurement scales. The original scale's psychometric qualities, including validity, reliability, and responsiveness, must be preserved through accurate translation. The paper looks at important techniques such committee-based approaches, back translation, direct translation, and cognitive debriefing.

Direct translation involves the straightforward conversion of the scale from one language to another, ensuring basic linguistic equivalence. Back translation, where the translated scale is re-translated into the original language, serves as a quality check for accuracy and consistency. The committee-based approach involves a group of experts who review the translation, considering both linguistic and conceptual equivalence. Cognitive debriefing, typically involving the target population, assesses the cultural appropriateness and clarity of the translated scale. These methods aim to address challenges such as idiomatic differences, cultural variations, and differing perceptions of health concepts.For this study, scales that have been translated, validated, and culturally adapted in Hindi were sought using search terms ranging from 10 January 2007 to 19 September 2024 in databases and search engines such as PubMed, Google Scholar, Medknow, Research Gate, and Science Direct.

Even with the availability of these techniques, there are still issues with translation in medical research, including regional dialects, terminology variations, and the requirement for psychometric validation. It is still crucial to test the translated scales for validity, responsiveness, and reliability in the new cultural setting. This study emphasises the value of a thorough, methodical approach to scale translation, guaranteeing that the instruments are culturally appropriate and linguistically correct, thereby promoting the generalisability and inclusivity of medical research.

Keywords: Back translation, Cognitive debriefing, Cultural adaptation, Linguistic equivalence, Physiotherapy, Psychometric properties, Reliability, Validity.

Abstract-6

Optimising Maternal Health in Third Trimester Pregnancy: Evidence Based Benefits of Pranayama

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ABSTRACT

Third trimester of pregnancy presents with exclusive psychological, physiological challenges, comprising heightened stress, discomfort, increased physical discomfort and preparation of labour. Pranayama being a primordial practice of controlled breathing offers a non-invasive and evidence based method to enrich health by improving oxygen supply, enhancing relaxation, and reducing stress contributing to overall well-being. Pranayam is thought to regulate autonomic nervous system, promoting relaxation, reducing stress levels and also increases O^2 delivery. This review aims to find out the role of different pranayams specifically in third pregnancy in optimising overall maternal health.

A comprehensive literature search was conducted wherein the articles from 2010 to 2024 were included using the search terms "Optimising Maternal Health", "Third Trimester Pregnancy" results from various digital databases like PubMed, Google Scholar, Ovid, Web of Science and the Cochrane Library. The search is then further filtered through the inclusion and exclusion criteria.

It was found that pranayamas (AnulomVilom (Alternate Nostril Breathing), Bhramari (Bee Breath), Ujjayi (Ocean Breath or Victorious Breath), NadiShodhana (Channel-Cleansing Breath), Dirga Pranayama (Three-Part Breath), Sheetali and Sheetkari (Cooling Breaths) during the third trimester of pregnancy offers a range of benefits for both mother and baby. Additionally, it strengthens lung capacity, refines breathing control, and prepares the body for the physical demands of childbirth. The study concludes that among pregnancy exercises, Pranayama is highly recommended. Pranayama yoga techniques are also believed to increase the chances of a natural and uncomplicated childbirth. Pranayama can be considered a valuable secondary supplementary therapy for enhancing health and well-being due to its affordability, ease of use and minimal risk profile.

Keywords: Cardiovascular, Maternal- Foetal Heart Rate, Pranav, Yoga

Abstract-7

Impact of Aquatic Therapy in Improving Balance and Postural Control in Children with Spastic Cerebral Palsy: A Review

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ABSTRACT

Cerebral palsy, a global movement disorder impacting 18 million individuals, particularly children, is characterised by intellectual impairments, seizures, speech, hearing, vision challenges, and physical contractures. Among therapeutic interventions, aquatic therapy has emerged as a promising approach to enhance physical abilities in children with cerebral palsy. By utilising water's unique properties, such as buoyancy, resistance, and hydrostatic pressure, aquatic therapy improves joint mobility, range of motion, muscle flexibility, tone management, motor coordination, and balance. This systematic review evaluated the efficacy of aquatic therapy

in children with cerebral palsy and identified future research directions. Following PRISMA guidelines for methodological quality, a comprehensive search of databases including PEDro, Cochrane, and PubMed was conducted to analyse studies published between 2015 and 2023. Seven studies met the inclusion criteria, encompassing 298 participants. The interventions ranged from 6 to 12 weeks, with sessions occurring one to three times per week. Outcome measures included the Gross Motor Functional Classification System and the Paediatric Balance Scale. Results demonstrated significant improvements in balance and postural control among participants, particularly those with spastic cerebral palsy. These benefits highlight aquatic therapy's potential as an effective intervention to enhance physical function and quality of life in children with cerebral palsy. By leveraging water-based exercises, this therapeutic approach offers a holistic pathway for improved motor outcomes and greater independence.

Keywords: Gross motor functional classification system, Paediatric balance scale, Paediatric rehabilitation, Range of motion

Abstract-8

Common Musculoskeletal Complaints Arising among Women after Caesarean Section Delivery

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ABSTRACT

Musculoskeletal complaints are commonly observed in women after cesarean section delivery, primarily due to physiological, hormonal, and biomechanical changes occurring during pregnancy and the postpartum. These issues include low back pain, poor posture, pelvic pain, extremity pain, DeQuervain's tenosynovitis, abdominal muscle weakness, ligament laxity, and trunk flexor deficits. Hormonal fluctuations during and after pregnancy often lead to excessive joint mobility and postural challenges, while physical demands such as breastfeeding, lifting, carrying the infant, and managing household tasks exacerbate musculoskeletal discomfort. Sleep deprivation and muscle fatigue further complicate recovery during the early postpartum period. According to study findings, 81.2% of women experienced musculoskeletal complaints following cesarean delivery, with low back pain accounting for 75.3% of these complaints. Physiotherapeutic approaches such as manual therapy, electrotherapy and ergonomic advice aims to restore functions and decrease the discomfort. Early and advance physiotherapeutic approaches are essential to treat all these musculoskeletal conditions effectively. A comprehensive review was conducted to evaluate the prevalence and impact of musculoskeletal issues following cesarean delivery, utilising Google Scholar and PubMed as primary databases. Keywords such as cesarean section, postpartum period, muscle fatigue, and musculoskeletal, were employed to construct search queries. The findings underscore the significant impact of these complaints on postpartum recovery and maternal well-being. In conclusion, addressing musculoskeletal issues through early detection, physiotherapy interventions, and patient education is imperative to promote postpartum recovery, enhance functionality, and improve overall quality of life for mothers after cesarean section.

Keywords: Low back pain, Muscle fatigue, Physical therapy, Postpartum period.

Abstract-9

Effectiveness of Spinal Manipulation in Cervicogenic Headache: A Scoping Review

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ABSTRACT

Millions of individuals throughout the world suffer from headache, which are common and incapacitating conditions that reduce productivity, cause severe discomfort, and impair quality of life. Although there are other choices for treatment, spinal manipulation has become a viable substitute. By critically assessing the body of research on spinal manipulation's efficacy in treating headache disorders. The aim of the review was to assess the efficacy of spinal manipulation in reducing cervicogenic headache frequency, severity, and duration. A literature search was conducted from PubMed, The Cochrane Library, and Google Scholar database from December 2000 to December 2024. The search utilised terms such as “headache,” “spinal manipulation” and “adult” employing Boolean operators (AND, OR). Articles in which spinal manipulation was treated in this review, non-English articles were excluded. A total of 1943 articles were found from different databases, out of which only six met the inclusion criteria. These studies suggest that spinal manipulation an effective treatment for reducing pain intensity, headache frequency, and headache duration in patients with headaches. The varying outcomes observed may suggest that patients with tension-type headaches, migraines, and cervicogenic headaches may find that spine manipulation is a useful treatment for lowering headache frequency, duration, and pain severity. The quality of the included research varied, and several had methodological problems, despite the encouraging data.

Keywords: Pain management, Quality of life, Tension-type headache

Abstract-10

Summarising the Effect of Management Strategies in Pedal Oedema: A Systematic Review

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ABSTRACT

Pedal oedema, sometimes referred to as peripheral oedema, is a common ailment that causes swelling in the tissues of the feet and ankles due to a buildup of extra fluid. Gravitational pressure, lymphatic blockage, cardiovascular illness, and renal failure are some of the causes of this disorder. Untreated pedal oedema can cause pain, discomfort, and reduced mobility, all of which can have a major negative influence on a person's quality of life. Moreover, chronic oedema can lead to infection, delayed wound healing, and skin deterioration, which highlights the significance of timely interventions. Therefore, in order to reduce symptoms, avoid problems, and enhance general health, pedal oedema management is essential. The aim of the review was to determine the most effective management strategies for the pedal oedema in middle-aged office employees. A literature search was conducted from PubMed, The Cochrane Library, and Google Scholar database from December 2000 to December 2024. The search utilised terms such as “Pedal oedema”, “Treatment outcome”, “Peripheral oedema”, “Swelling reduction” and “Quality of life” employing Boolean operators (AND, OR). Articles in which treatment outcome was measured add were included in this summary, non-english articles were excluded. A total of 1236 articles add were found from different database out of which only 6 met the inclusive criteria. The majority of the adults having pedal oedema had shown significant reduction in pedal oedema through Buerger Allen exercise. Also, diuretics showed some effectiveness in case of pedal oedema and intermittent pneumatic pedal compression also helped to reduce signs and symptoms. In addition, kinesiology tape was found to be an effective method for reducing pedal oedema. Overall findings suggest that kinesiology tape was found to be the most effective method for reducing pedal oedema.

Keywords: Lymphatic disease, Peripheral oedema, Quality of Life, Treatment outcomes.

Abstract-11

Criteria-based Return to Sports Decision-making following Lateral Ankle Sprain Injury: A Narrative Review

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ABSTRACT

One of the most common musculoskeletal injuries suffered by athletes competing in both recreational and competitive sports is Lateral Ankle Sprain (LAS).After suffering a LAS injury, over half of Add the people choose not to seek official medical attention and many Return To Sports (RTS) before the impairments caused by the injury are healed. The main objective of this review is to identify prospective studies that used a criteria-based RTS decision-making process for patients with LAS injury. For determining full-text publications, PubMed, Cochrane, Google Scholar, and Scopus add databases searched for article published between the 2015 to 2024, an evidence-based review, follow up study and a prospective randomised trial studies in English567 papers that were first discovered were qualified for full textand 319articles were eliminated because they contained duplicates.248 abstract and titles were assessed, out of those167 were removed due to other treatment. In this review entailed 9 published articles. This study found that, if the athlete is cleared too early or skips critical rehabilitation steps, there is a higher risk of re-injury, particularly in cases where joint instability or strength deficits remain unresolved. This may result in chronic ankle instability or long-term functional impairments. In various studies this has been demonstrated that

full recovery of athletes across the criteria',(e.g., strength deficits, balance issues, or psychological concerns)they have safely return to sport following a graded re-entry, starting with non-contact practice and gradually increasing intensity. Further rehabilitation is necessary for the athletes who have not met these criteria should not return to the sports and after full recovery with proper training regimes they can resume the sports. Attention should be given to strengthening, enhancing balance, reestablishing functional movement patterns, and resolving any psychological obstacles.

Keywords: Athletes, Chronic Ankle Instability, Musculoskeletal Injuries, Rehabilitation, Return to Sport

Abstract-12

Effectiveness of Kinesiotaping and Shockwave Therapy in Managing Osgood's Schlatter Disease: A Literature Review

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ABSTRACT

Osgood-Schlatter disease, characterised by apophysitis of the tibial tubercle, is a prevalent condition affecting physically active adolescents during periods of rapid growth, particularly boys aged 8 to 15 years. This condition is a leading cause of knee pain in this population. It often arises from repetitive sprinting and jumping activities. Physiotherapeutic interventions, including kinesiology taping for pain management, and emerging modalities such as Extracorporeal Shockwave Therapy (ESWT), have demonstrated promising outcomes in the management of this condition.This study aims to evaluate and summarize the existing evidence on the clinical effectiveness of kinesiotaping and shockwave therapy in managing Osgood-Schlatter disease.A comprehensive literature search spanning 2015 to 2024 across electronic databases, including PubMed, Google Scholar, Scopus, and the Cochrane Library, yielded 3,967 articles using the keywords "kinesiotaping," "extracorporeal shockwave therapy," and "Osgood-Schlatter disease" with Boolean operators AND and OR. After eliminating duplicates, only five articles were deemed eligible for further analysis.The reviewed literature primarily assessed pain using the Visual Analogue Scale with some studies also examining return-to-sports timelines. Three studies evaluated kinesiotaping as an adjunct to conservative treatments, such as quadriceps stretching and eccentric strengthening, demonstrating statistically significant improvements ($p<0.05$). Only two studies assessed ESWT, which demonstrated statistically significant changes in pain reduction after the treatment sessions. Preliminary evidence suggests that both kinesiotaping and ESWT may offer pain reduction when integrated into conservative exercise programmes for Osgood-Schlatter disease. However, to draw definitive conclusions, further high-quality randomised controlled trials are necessary. These trials should evaluate the efficacy of these interventions, both as standalone treatments and as adjuncts to conservative management, utilising reliable and standardised outcome measures.

Keywords: Extracorporeal Shockwave Therapy, Pain Management, Return to Sport, Taping.

Abstract-13

Calcaneal Eversion as a Predictor of Knee Conditions: A Narrative Review

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ABSTRACT

Calcaneal eversion refers to the outward rotation of the calcaneus away from the midline of the body, which is a critical movement in the biomechanics of the foot and ankle. The significance of calcaneal eversion on the knee is multifaceted, influencing knee alignment, rotational dynamics, and potential injury mechanisms. Understanding calcaneal eversion is essential for assessing its impact on injuries and rehabilitation. To explore the impact of calcaneal eversion on knee injuries, we conducted a literature search in databases such as PubMed and Google Scholar focussing on publications from 2014 to 2024. Search terms included “calcaneal eversion”, “knee injury”, “ankle biomechanics”, “athletes”, “alignment”. This review entailed 9 publications comprising randomised controlled trials, systematic reviews, cross-sectional surveys, observational studies and scoping reviews. This review showed that overweight individuals exhibit greater calcaneal eversion. Also, excessive calcaneal eversion can lead to abnormal tibial rotation, leading to increased risk of knee injuries due to the mechanical coupling at the ankle joint complex. Increased hindfoot and forefoot eversion correlates with medial knee displacement and lead to exacerbation of knee conditions. The review also revealed that calcaneal eversion has a coupling coefficient of 0.68, indicating a significant relationship with tibial movement. Conversely, while calcaneal eversion is linked to knee conditions, some studies suggest that not all individuals with eversion experience knee issues, indicating that other factors, such as muscle strength and overall biomechanics, act as an important marker in knee health. The study concluded that calcaneal eversion plays a crucial role in knee joint mechanics, with its impact evident in various knee pathologies.

Keywords: Ankle joint, Biomechanics, Calcaneus, Cross-sectional studies, Rotation.

Abstract-14

Hindi Translation and Validation of the London Chest Activity of Daily Living Scale (LCADL)

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Introduction: Chronic Obstructive Pulmonary Disease (COPD) is a progressive condition leading to airflow limitation, disability, and reduced independence, particularly in older adults. Many severe COPD patients experience breathlessness during daily activities, significantly affecting their ability to perform Activities of Daily Living (ADL). However, tools to assess ADL limitations in advanced COPD are scarce. Existing tools, such as the Pulmonary Functional Status and Dyspnea Questionnaire (PFSDQ) and Nottingham Extended Activities of Daily Living Scale (EADL), are either too lengthy or fail to detect changes after pulmonary rehabilitation.

The London Chest Activity of Daily Living (LCADL) Scale, developed by Garrodetal., is a validated tool to assess ADL impairment in COPD, covering personal care, household tasks, physical activities, and leisure activities. However, cultural and linguistic adaptations are necessary for its effective use across diverse populations. This study focusses on translating and validating the LCADL Scale into Hindi for North Indian patients with severe COPD to ensure cultural relevance and clarity for better patient assessment.

Aim: To develop and validate a Hindi version of the LCADL Scale, ensuring its cultural and linguistic appropriateness for evaluating activity limitations in North Indian patients with COPD.

Materials and Methods: The translation process included forward translation by two bilingual translators—one with a medical background and the other a linguist. The synthesised version was back-translated into English by two independent translators. The final version was reviewed by a panel of cardiothoracic physiotherapists with at least three years of clinical experience.

Results: The Hindi version of the LCADL Scale was adapted using standardised cross-cultural guidelines. Content validity was confirmed by experts, ensuring the scale effectively captured dyspnoea's impact on daily activities and was relevant to the experiences of COPD patients in North India.

Conclusion: The Hindi LCADL Scale is a valid, culturally appropriate tool for assessing activity limitations due to dyspnoea in North Indian COPD patients. It can be used in clinical practice and research to improve interventions and quality of life for COPD patients.

Keywords: Activities of Daily Living, Chronic Obstructive Pulmonary Disease, Nottingham Extended Activities of Daily Living Scale, Pulmonary Functional Status and Dyspnea Questionnaire

Abstract-15

Enhancing Physiotherapy Outcomes in Cystic Fibrosis: The Role of Gamification in Rehabilitation

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ABSTRACT

Cystic fibrosis (CF) being a multifarious genetic disorder is characterised by chronic pulmonary complications and systemic involvement. Physiotherapy has played a key role in managing CF complications on routine basis for chronic patients. Techniques like bronchial toileting, active cycle of breathing technique, spirometry etc are a part of the routine regimens of patients with CF but adherence to same, monotonous, mundane exercises is challenging. Gamification, the application of game design principles in non gaming contexts, has emerged as a promising approach to address this issue by increasing patient engagement and motivation. This review was taken up to find out the effect of gamification in long term illness like CF in improving lung function.

An exhausting data search was carried out on various databases like Ovid, Scopus, Pubmed, Cochrane etc to filter out the studies done on CF using gamification as a long term rehabilitation tool. Keywords like cystic fibrosis, virtual reality, rehabilitation were used.

Through this review of existing literature and pilot interventions, this research finds crucial parameters determining the success of gamified physiotherapy, including age, disease severity, and technology accessibility. According to preliminary research, gamification greatly increases patient motivation, creates a feeling of accomplishment, and promotes exercise tolerance and pulmonary function when used in physiotherapy regimens. Additionally, the study emphasises how crucial it is for behavioural psychologists, software engineers, and physicians to work together across academic boundaries in order to enhance gamified designs for this particular patient population.

Keywords: Genetic disorder, Technology enhancement, Virtual reality.

Abstract-16

Effect of Phytonutrients for Sports Performance Enhancement: A Narrative Review

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ABSTRACT

The potential for phytonutrients, which are naturally occurring substances found in plants, to improve athletic performance has attracted a lot of interest. The impact of several phytonutrients, including glucosinolates, flavonoids, carotenoids, and polyphenols, on sports performance and recuperation is examined in this review. Phytonutrients may lessen oxidative stress brought on by exercise, lessen muscle damage, and speed up recovery because of evidence that they have anti-inflammatory, immune-boosting, and antioxidant qualities. Certain phytonutrients may also strengthen muscles, boost endurance, and promote cardiovascular health. Although the precise processes are still being studied, the available data suggests that including foods high in phytonutrients in an athlete's diet may help maximise performance. Nevertheless, additional clinical research is required to completely comprehend the ideal doses, bioavailability, and long-term impacts of these substances in sports nutrition. The aim of this study was to investigate how phytonutrients affect athletic performance, with an emphasis on how they improve strength, endurance, and recuperation as well as how they can reduce inflammation and oxidative stress brought on by exercise. Online databases like PubMed, Google Scholar and Cochrane were searched for articles published between 2015 to 2023. A meta-analysis and systematic review of recent experimental and clinical trials were carried out. The results showed that giving athletes supplements containing phytonutrient-rich extracts, such add as curcumin, beetroot juice, and green tea catechins, greatly increased their endurance and reduced signs of inflammation and muscle damage. These substances have also been shown to promote quicker recovery and less fatigue, especially after prolonged and high-intensity activity. In conclusion, phytonutrients have the potential to be a safe, all-natural way to improve athletic performance and recovery. Athletes looking for alternatives to synthetic supplements can benefit from their various physiological impacts. To comprehend individual variations in response, adjust dosage, and ascertain long-term safety, more research is necessary. These results point to the increasing potential of phytonutrients in sports nutrition, opening the door to fresh approaches to optimise athletic performance.

Keywords: Antioxidants, Carotenoids, Flavonoids, Polyphenols, Recovery.

Abstract-17

Effectiveness of Transcranial Direct Current Stimulation along with Body Weight Supported Overground Gait Training on Central Pattern Generator of Locomotion in Individual with Incomplete Spinal Cord Injury: A Case Report

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ABSTRACT

Spinal cord injury (SCI) results from disruption of neural elements of the spinal cord, leading to loss of motor and sensory function below the level of injury. Walking and functional independence remain pivotal goals for individuals with SCI. Central pattern generators (CPGs) are specialized neural circuits within the spinal cord that generate rhythmic, instinctive, and repetitive motor patterns autonomously, independent of continuous sensory inputs or supra-spinal inputs allowing for coordinated movement. The combination of tDCS and body weight-supported overground training is a cutting-edge approach being researched for enhancing motor recovery in individuals with spinal cord injury (SCI). To evaluate the effectiveness of trans-cranial direct current stimulation and body weight supported overground gait training on CPG of locomotion in individual with incomplete spinal cord injury. A 37-year-old male was diagnosed with traumatic incomplete spinal cord injury (D12-L1) with ASIA B in August 2023. On neurological examination, the bilateral lower limb had sensory and motor impairment. The participant was not able to walk with assistive devices and was wheelchair dependent. The participant was intervened with tDCS (anode over the M1 region corresponding to the dominant leg, cathode over the contralateral supraorbital region, intensity= 2mA,20 minutes) with body weight supported overground gait training along with conventional rehabilitation for 5 days per week for the duration of 4 weeks. Pre-intervention and post-intervention assessment was done on Day 0 and Day 30 respectively. ASIA Impairment Score, Walking Index for spinal cord injury-II and Spinal cord independence measure-III were selected as desired outcome measures. There was significant improvement in the motor scores of ASIA-Score (1/50 to 3/50), sensory scores of ASIA-Score (LT= 72/112, PP=72/112 to LT=80/112, PP=80/112), the scores of WISCI-II (0/20 to 6/20) AND SCIM-III (42/100 to 54/100). Significant improvement was shown in all outcome measures, and the participant was able to initiate a walk with KAFO and assistive devices. tDCS, a non-invasive brain stimulation technique, has emerged as a potential therapeutic intervention that can promote neuroplasticity and enhance motor spinal connectivity thereby activating the CPG of Locomotion in spinal cord injury survivors.

Keywords: ASIA-Score, WISCI-II, CPG, tDCS, iSCI

Abstract-18

Effect of Pilates in Breast Cancer Patients undergoing Hormonal Therapy: A Systematic Review of RCTs

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ABSTRACT

Breast cancer is a prevalent form of cancer that primarily originates in breast tissue, affecting women predominantly. It is characterized by the uncontrolled growth of cells, which may metastasize to other body parts if untreated. Hormonal therapy is a crucial treatment, by blocking or reducing the production of hormones like estrogen and progesterone, It prevents cancer cells from growing and spreading. Post-treatment complications following hormonal therapy can significantly impact a patient's quality of life and overall well-being. Pilates focuses on physical fitness including core strength, flexibility, posture, muscle tone, balance, and mental well-being. It emphasizes on strength, flexibility, and mind-body integration, and presents a promising intervention to address these challenges. Database including PubMed, Cochrane Library, PEDro, and Google Scholar using keywords related to “plantar fasciitis,”“Breast Cancer”, “Hormonal therapy” and “Pilates” from 2018 till date.Included RCTs involved adults (11-80 years) with breast cancer stage 0-III breast cancer undergoing hormonal therapy. excluding those with active cancer or limitations that could hinder physical activity.The outcomes considered in the study were related to the Quality of life, Physical fitness, Self-esteem, Depression, Pain, Disability, and Balance of the women having breast cancer. Data from all databases 2852 initially searched articles including 963 duplicates, only 79 were screened based on titles and abstracts. Amongst them based on the area of interest, few articles were excluded as 71 were irrelevant to breast cancer or Pilates or didn’t include hormonal therapy as a treatment option,1 was a pilot study and 2 were just the abstract. Therefore, upon scrutiny only 5 articles are included in this systematic review Following PRISMA guidelines, study quality was evaluated using CONSORT, PEDro, and ROB 2. PROSPERO registration was done with ID CRD42024568245.As a result,Pilates was found to have positive effects on physical function, mental health, and symptom management in breast cancer patients undergoing hormonal therapy. However, the studies varied regarding Pilates programmes design and sample size. Pilates may be a beneficial intervention for breast cancer patients undergoing hormonal therapy. Further research is needed to confirm the long-term benefits and develop evidence-based implementation guidelines.

Keywords: Breast Cancer, Hormonal Therapy, Pilates, Quality of life

Abstract-19

The Impact of Workplace Ergonomics on Musculoskeletal Disorders in Office Workers: A Literature Review

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ABSTRACT

Occupational health and safety are critical factors for ensuring long-term organisational success and employee well-being. As workplaces increasingly prioritise productivity, quality, and efficiency, it becomes essential to focus on creating environments conducive to physical and psychological health. Adverse working conditions, such as inadequate lighting, extreme work environments, or prolonged static postures – can result in reduced motivation, impaired performance, and musculoskeletal disorders. By addressing these challenges, organizations can foster healthier and more efficient workforces, ensuring sustained productivity and employee satisfaction. This study aims to evaluate the impact of workplace ergonomic advices based on musculoskeletal disorders among office workers. A computer search of peer reviewed articles from database such as PubMed (National Library of Medicine), Google scholar Medline, Research Gate, add and Science Direct, was conducted focussing on studies published from 2011 to 2024.The findings demonstrate that ergonomic solutions, such as adjustable furniture, properly aligned equipment, and workplace designs that encourage movement, play a critical role in reducing physical strain and promoting proper posture. Additionally, practices like regular breaks and stretching exercises further reduce fatigue and prevent injury. The review highlights that implementing effective ergonomic strategies enhances workplace safety, minimises the risk of MSDs, and supports sustained productivity and employee well-being. These insights underscore the importance of prioritising workplace ergonomics in organisational health and safety policies.

Keywords: Ergonomic strategies, Occupational health, Workforce

Abstract-20

Recent Advancement of 3D-motion Analysis in Sports Rehabilitation: A Narrative Review

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ABSTRACT

In sports rehabilitation, 3D motion analysis involves tracking and analysing an athlete's movement in three dimensions using cutting-edge technology, such as wearable sensors, motion capture structures, and biomechanical modelling. The aim of this review is to quantify the effective use of motion capture and 3D modelling technology to facilitate sports training. Sports rehabilitation has been modified by recent advances in 3D motion analysis, which provide comprehensive view of athletic movement patterns. Therapists may create specialised rehabilitation plans with this technology, which speeds up recovery and decreases the chance of injuries. In the clinic, the Inertial Measurement Unit (IMU) sensors are used together with tests and outcome measurements. The most widely used techniques include smartphones with standard optical cameras and IMUs. Artifical Intelligence (AI) recently emerged as one of the most researched areas of motion analysis technologies in health. It is evident that AI has several types of benefits, such as reductions in time and money and the ability for better patient care, as Machine Learning (ML) reduces illnesses, decision-making, and analysis. ML has been shown to be more effective in medical imaging, wearable technologies, risk prediction, pain phenotype prediction, and decision support when it involves sports injuries and conditions. In sports biomechanics and rehabilitation, the marker-less motion analysis system gives a fast, entirely automatic, and noninvasive technique that can significantly improve research and application From December 2020 to December 2025, a literature search was done using the PubMed, Scopus, and Embase databases. Boolean operators (AND, OR) were used in the search, which included terms like "3D motion," "wearable motion" and "biofeedback." Articles in which recent advancement in 3D motion analysis was discussed or used were included in this review. Non-English and non peer reviewed articles were excluded. 2367 articles found from different database, out of which only five met the inclusion criteria. A comprehensive study proved that motion capture and 3D modelling technologies had a beneficial impact on sports training. According to our findings, the motion recognition methodology of the suggested system can be utilised to monitor the patient's rehabilitation progress and confirm that the physiotherapy exercises are of high quality.

Keywords: Machine learning, Marker-less motion, Motion capture, Wearable electronic device.

Abstract-21

To Examine The Effect of Physiotherapy Intervention in Pelvic Floor Weakness in Women with Post-Ovarian Cystectomy: A Study Protocol

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Introduction: Ovarian cyst is a common gynaecological problem, which is generally present in the ovaries on either side. These ovarian cysts are the fluid-filled sacs present in the ovary in the form of simple or complex cysts, if the cyst is larger than 5 mm in diameter, surgical removal of the ovarian cyst is prescribed and this procedure is called ovarian cystectomy. It can lead to many complications such as pelvic pain, dyspareunia, incontinence, inflammation, injury, and damage to the skeletal and renal system, which can lead to pelvic floor muscle weakness.

Aim: This study aims to examine the effectiveness of physiotherapy interventions on pelvic floor weakness in women following ovarian cystectomy.

Materials and Methods: In this experimental study patients with post-ovarian cystectomy after 5 days of surgery will be recruited by purposive sampling method with consent. Participants will be randomly assigned to either a physiotherapy intervention group or a control group receiving standard post-operative care. The intervention will consist of pelvic floor muscle training and education on bladder management. Outcome measures will include pelvic floor muscle strength (assessed by perineometer), urinary incontinence severity assessed by the Incontinence Impact Questionnaire-7 and quality of life (using the SF-36). Assessments will be made at baseline, post-intervention, and a 3-month follow-up.

Results: The main focus in data analysis will be the comparison of pre- and post-intervention outcomes between the experimental and control groups. Statistical analysis will be performed using paired t-tests for continuous variables and chi-square tests for categorical outcomes.

Conclusion: It is anticipated that women in the physiotherapy group will show significant improvements in pelvic floor strength, urinary function, and overall quality of life compared to the control group. This study will provide evidence regarding the role of physiotherapy in managing pelvic floor dysfunction after ovarian cystectomy.

Keywords: Dyspareunia, Ovarian cysts, Perineometer.

Abstract-22

Efficacy of Exercise Programme in Management of Cancer Cachexia: A Narrative Review

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ABSTRACT

Cachexia, a condition marked by significant weight loss, muscle wasting, and systemic inflammation, poses a major challenge for patients with chronic diseases such as cancer, heart failure, and chronic obstructive pulmonary disease. Exercise has the potential to be a low-cost, accessible intervention that improves the physical and mental well-being of cachexia patient, reduces fatigue, enhances immune function, and may reduce the risk of recurrence. Exercise prescription in cachexia care can lead to improve patient outcomes and enhance quality of life. This review evaluates the effectiveness of exercise interventions in addressing cachexia. The various databases including Pedro, Cochrane and PubMed/ Medline were examined to explore current literature on the impact of exercise on cancer prevention, management, and survivorship. Research indicates that structured exercise programmes, including resistance training, aerobic exercises, and hybrid approaches, play a crucial role in counteracting muscle loss, reducing inflammation, and enhancing physical performance. Resistance exercises promote muscle growth and strength by activating anabolic pathways, while aerobic training improves cardiovascular function and supports mitochondrial health. Additionally, exercise reduces systemic inflammation by lowering pro-inflammatory cytokine levels and enhances metabolic processes such as insulin sensitivity and lipid utilisation. Psychological advantages, including diminished depressive symptoms and improved overall quality of life, are also notable benefits of regular physical activity. Given the diverse severity of cachexia and patients' varying energy capacities, individualised exercise plans are essential. Combining exercise with nutritional strategies further amplifies its benefits, underscoring the importance of an interdisciplinary approach to treatment.

Keywords: Exercise Therapy, Health, Muscles, Quality of life.

Abstract-23

Effect of Repetitive Transcranial Magnetic Stimulation on Balance and Postural Stability in Individuals with Neurological Disorders: A Systematic Review

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ABSTRACT

Balance impairments are common in many neurological conditions and have a significant effect on quality of life. Repetitive Transcranial Magnetic Stimulation (rTMS) has gained attention as a potential therapeutic intervention for neurological conditions. Recently, there has been growing interest in its use to improve balance in patients with neurological conditions like stroke, ataxia, traumatic brain injury, and Parkinson's disease. To review the current evidence on the effectiveness of rTMS in enhancing balance in individuals with neurological disorders, a systematic search using multiple databases and search engines i.e. Science Direct, PubMed, and Google Scholar was conducted. The literature search yielded 253 studies. A total of articles were further evaluated to be included from which 7 met all the PRISMA guidelines. Randomised controlled trials, Cross-over trials and case series which were published from 2017-2024 were included. The literature identified was only in English language. The quality risk biasness of the selected studies was assessed by PEDro scale. A total of 4 randomized control trials, 2 cross-over trials and a case series were selected. According to PEDro analysis, studies were of good quality (score 4 to 6). The analysis revealed statistically significant improvement in scores of the Berg Balance Scale, Activities Specific Balance Confidence Scale, Dizziness Handicap Inventory, and Average Trace Error. Hence, rTMS, when combined with conventional rehabilitation methods, has the potential to improve balance and postural stability in many neurological conditions. Current literature indicates that rTMS is a promising intervention for improving balance and postural stability in neurological conditions. The findings provided a valuable reference for the development of optimised rTMS treatment plans in clinical practice.

Keywords: Activities Specific Balance Confidence Scale, Berg Balance Scale, PEDro, PRISMA.

Abstract-24

The Role of Calf Stretching in the Management of Plantar Fasciitis: A Literature Review

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ABSTRACT

About 10% of adults suffer from plantar fasciitis, a common musculoskeletal condition marked by inflammation and pain in the plantar fascia. As first-line therapies, conservative management techniques like stretching exercises are frequently advised. Because tense calf muscles can put more strain on the plantar fascia, calf stretching, in particular, has drawn interest as a possible therapeutic strategy. While anecdotal evidence and clinical practice suggest the benefits of calf stretching, there is a need for robust scientific evidence to confirm its effectiveness.This warrants a review to compile the data currently available regarding the benefits of calf stretching in the management of individuals with plantar fasciitis. Therefore, this literature review aims to evaluate and discuss the effectiveness of calf stretching. A comprehensive literature search was conducted within the databases PubMed, EMBASE, and Cochrane Library for full-text articles published in the English language between 2019 and 2024, exploring the treatment of plantar fasciitis with calf stretching. The search strategy utilised terms such as “plantar fasciitis”, “calf stretching”, “conservative treatment,” “pain relief” and “exercise therapy” employing Boolean operators. No articles were excluded based on their geographical origin or the manner in which their study design was presented. A total of 1286 articles were identified, out of which only six met the inclusion criteria. Analysis of the identified studies suggested that stretching can be a highly effective treatment for plantar fasciitis, leading to significant improvements in pain and foot function. Plantar fascia and calf stretches, especially when implemented consistently over a longer duration (8 weeks or more), provided substantial and lasting relief. While individual responses may vary, stretching was found to be a safe and effective approach for managing plantar fasciitis and improving overall foot health.This review highlights the limited available evidence on the specific efficacy of calf stretching for plantar fasciitis. The small number of studies included limits the strength of the conclusions. Further research with rigorous methodology and larger sample sizes is urgently needed to establish the definitive role of calf stretching in the management of this prevalent condition.

Keywords: Conservative treatment, Exercise therapy, Muscles, Pain.

Abstract-25

Impact of Pre and Post Physiotherapy on Maternal Quality of Life following Elective Caesarean Section: A Narrative Review

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ABSTRACT

An incision in the abdominal wall, compared to the pelvis and vagina, is used to deliver the living or dead foetus during a caesarean section, only when the situation warrants it, such as in cases of obstructed delivery, cord prolapse, or distressed foetus. Multiple issues are linked to it, which result in low returns to performing everyday tasks and have a major effect on overall health. Pregnant women who are having sedentary lifestyles experience more pain and difficulties. Decreased musculoskeletal harm, fewer spasms of the muscles and lower-extremity fluid retention, improved cardiovascular health, decreased body weight throughout the pregnancy, emotional support, a decline in pregnancy high blood sugar levels, and easier

pregnancy are the advantages of antenatal exercises.This study aims to determine the impact of pre and post physiotherapy on maternal quality of life following cesarean section. A thorough online search on the studies at the impact of pre and post cesarean physiotherapy on maternal quality of life was performed on Google Scholar from 2017 to 2024. The search utilised MeSH keywords including cesarean section, Quality of life, physiotherapy, elective cesarean section, exercise and postpartum. Out of 24200 articles found from different databases, duplicate articles were removed. Four articles fulfilled the eligibility criteria and were included for present review. Three studies showed that the requirement of extra pain relievers, the pain associated with recovering to normal daily tasks in postpartum life, and the duration of hospital stays are all decreased by physiotherapy instruction and guidance before elective cesarean section. The study concluded that physiotherapy exercises prior to elective cesarean section have a positive impact on maternal postpartum quality of life.

Keywords: Exercise, Physiotherapy, Postpartum, Quality of life.

Abstract-26

Effects of Balance Training on Chronic Ankle Instability in Athletes: A Systematic Review

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ABSTRACT

After an initial ankle sprain or injury it is followed by Chronic Ankle Instability (CAI), which is characterised by recurring feeling of the ankle giving away. While performing this study the effects of balance training on athletes' (CAI), two different training programmes were utilised: the Progressive Hop-to-Stabilisation Balance (PHSB) and the classic Single-limb Balance (SLB). Athletes commonly go through injury such as lateral ankle sprain, which can result in CAI, which is characterised by a continuous sensation of the ankle “giving way.” Due to this injury decline in athletes performance can be observed and neuromuscular control in also effected by this condition. We are aiming to find out how the balance training can effect athletes who have CAI. Databases such as Cochrane Library, and PubMed were utilised for this literature review. Articles between December 2004 -2024 were taken.Interestingly, the SLB group showed larger gains in self-reported sports function than the PHSB group, even though both training regimens were beneficial. This implies that dynamic postural control can be enhanced by both strategies, SLB can provide further benefits for particular functional outcomes. However, further research is warranted to explore long-term effects and potential variations in training intensity and frequency. In conclusion, this study contributes valuable insights into rehabilitation strategies for CAI among athletes. By comparing PHSB and SLB programmes it highlights their effectiveness in enhancing balance, stability, and overall athletic performance and reduce and ankle “giving away”. The implications of this research extend to improving recovery outcomes for athletes dealing with chronic ankle instability.

Keywords: Ankle injuries, Exercise therapy, Postural balance, Proprioception.

Abstract-27

Role of Artificial Intelligence in Performance Enhancement among Football Players: A Narrative Review

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ABSTRACT

The implementation of Artificial Intelligence (AI) in football has significantly risen because of its extraordinary effectiveness. Athletes are significantly impacted by muscle re-injuries, especially in football. Poor performance and long-term health problems are the outcomes of these injuries. Initially, football was a game devoid of technological advancements but technology has progressed to the point that it is now necessary for tracking player performance and analysing matches. An athlete's performance can be understood, interpreted, and eventually improved with the help of AI-powered computer vision algorithms, significantly enhance the extent of performance analysis in sports, boosting accurate strategic planning, and optimising overall team performance, by recognising areas of weakness or projecting prospective injuries, athletes can take proactive actions to cope with these difficulties. The views aim to envision and build AI-driven tools to improve tactical analysis along with performance examination, for providing coaches and players accurate, data-driven insights through the integration of AI technology. These insights can guide strategic choices, streamline training procedures, and eventually enhance overall competitiveness.This review excluded non-English articles that highlights the role of AI in performance enhancement among football players. Searches were carried out in the following databases: PubMed, Google Scholar, ResearchGate from published articles since 2015-2024. The result shows that AI technology creates new opportunities to enhance the objectivity and precision in performance evaluation by identifying hidden trends and patterns in games. Potential limitations such as the high expense and difficulty of putting AI systems into practice, as well as ethical issues like data privacy. In conclusion, AI effectively manages player performance and growth, providing coaches with useful data regarding player performance and potential physical ailments.

Keywords: Artificial intelligence-driven tool, Athletic injuries, Strategic planning

Abstract-28

Effectiveness of Myofascial Release for Management of Lateral Epicondylitis: A Systematic Review Protocol

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ABSTRACT

Lateral Epicondylitis (LE) is one of the most prevalent elbow tendinopathies, characterised by pain at the humeral lateral epicondyle when the wrist is dorsiflexed against resistance. Individuals with LE report pain and functional difficulties that impact their everyday activities, particularly those involving wrist and forearm movements. Rest, non-steroidal anti-inflammatory medications, stretching, strengthening, and ultrasound are all conservative treatment options for LE, but Myofascial Release Technique (MFR), a soft tissue mobilisation method, has emerged as a promising intervention for LE management. MFR techniques relieve tension in the forearm muscles and fascia, enhancing blood circulation and diminishing inflammation. This may ease symptoms related to tennis elbow, including pain and restricted motion. However, there are considerable differences in the evidence for MFR's effectiveness in minimising pain and associated symptoms. This systematic review protocol was created to give a mechanism for conducting research to evaluate the efficiency of the MFR in relieving patient discomfort. A comprehensive search of electronic databases, including PubMed and Scopus will be performed to locate studies published up to the current date. Keywords such as "Myofascial Release", "Lateral Epicondylitis", "Tennis Elbow" will be used to construct search queries. Following a thorough examination of the titles and abstracts of these studies, along with removal of any duplicates, Randomised Controlled Trials (RCT) will be referred. Non-RCT studies and non-English papers will be excluded. This review will provide analysis of understanding of Myofascial Release and its positive effect in the treatment of LE. All the RCTs demonstrate that in individuals with LE, myofascial release has an important beneficial impact on reducing pain and impairment as well as pain-related symptoms and hand grip. It improves the quality of life of the patients as their pain levels will significantly decrease while doing daily life activities. Although additional studies are required regarding the duration of the technique to be performed.

Keywords: Tendinopathy, Tennis Elbow, Quality of life.

Abstract-29

Effect of Virtual Reality Training and Functional Test for Chronic Low Back Pain: A Narrative Review

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ABSTRACT

A common ailment that has a substantial influence on both physical function and quality of life is Chronic Low Back Pain (CLBP). Recent data indicates that Virtual Reality (VR) training could offer a current, and effective method of functional rehabilitation and pain treatment. In this study, people with CLBP are examined to see how VR-based training affects their overall quality of life, functional performance, and pain severity. Both VR training and traditional physical therapy groups were assigned at random to the participants. Before and after the intervention, functional tests such as assessments of core strength, balance, and range of motion were carried out. The literature search was performed on PubMed and Cochrane library. Databases focussed on 2015-2024 using key words (CLBP OR physical intervention).According to the findings, the VR group outperformed the control group in terms of pain management, functional performance, and exercise regimen adherence. These results demonstrate VR's promise as a cutting-edge tool for CLBP therapy, providing an engaging and immersive setting that could improve patient outcomes. To analyse long-term advantages and improve VR-based rehabilitation techniques, more research is necessary.

Keywords: Pain management, Range of motion, Rehabilitation.

Abstract-30

Conservative Management of Intersection Syndrome: A Narrative Review

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ABSTRACT

Intersection Syndrome (IS) is a relatively rare overuse tendinopathy characterised by pain, swelling, and crepitus in the forearm. It arises due to friction between the tendons of the first and second dorsal compartments and is a common overuse wrist injury. The review synthesises insights from four recent studies on IS including randomised controlled trials and case reports, focussing on treatment approaches, and outcome measures.Differential diagnosis is essential to distinguish IS from other conditions such as De Quervain's tenosynovitis. This can be done my using imaging techniques like ultrasound and Magnetic Resonance Imaging (MRI) for evaluation. This review seeks to assess the effectiveness of physiotherapy interventions in the management of IS, with a focus on their ability to reduce symptoms, enhance functional outcomes, and support recovery. A comprehensive search was performed using PubMed, Scopus, and Google Scholar for studies published between 2018 and 2025. IS is effectively treated using a combination of conservative therapies, advanced physiotherapy techniques, and, in severe cases, surgical interventions. Studies indicate that conservative approaches such as rest, splinting non-steroidal antiinflammatory drugs and gradual stretching and strengthening exercises successfully alleviate symptoms in around 60% of patients. Diagnostic tools like ultrasound and MRI were emphasised as crucial for improving treatment accuracy and emerging therapies like pulsed laser therapy, have shown effective results. Studies have indicated that conservative treatments are generally effective, but innovative modalities and surgical options provide alternatives for refractory cases.This analysis highlights the clinical importance of physiotherapy treatment in IS and identifies gaps for future research, particularly in terms of long-term effectiveness and standardised treatment protocols.

Keywords: Pain, Splints, Tendinopathy, Tendons

Abstract-31

Validity of CAMRY Hand Dynamometers among Young Adults

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Introduction: Hand grip strength (HGS) is widely used as an outcome. The Jamar dynamometer is an extensively used tool for measuring HGS. The CAMRY dynamometer is proposed as a valid and reliable tool to evaluate HGS among older adults. However, there is scarcity of evidence about its validity in young adults.

Aim: To assess the validity of the CAMRY EH101 dynamometer among young-aged adults.

Materials and Methods: Young adults (n=50) aged 18-40 years were enrolled by purposive sampling for this cross-sectional study. Hand dominance was measured using Edinburgh Handedness Inventory. HGS was measured using the Jamar Plus + Hand dynamometer and CAMRY EH101 dynamometer.

Results: The demographic characteristics are presented as the mean and standard deviation (SD). The data followed normal distribution and parametric and thus, parametric tests were used. The mean age of the participants was 25.20+4.84 years. The average HGS as measured by CAMRY EH101 dynamometer was 28.72±11.45 kg and Jamar Plus + Hand dynamometer was 30.74±9.5 kg but the difference in the values of HGS measured by the two tools was insignificant (p=0.098) with no systematic bias.

Conclusion: The CAMRY EH101 dynamometer is valid as an outcome tool for hand grip assessment. The CAMRY EH101 dynamometer might be used as an economical device to measure grip strength among young adults.

Keywords: Muscle Strength, Validity

Abstract-32

Impact of Kegel Exercises on Overall Pelvic Health in Postmenopause

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ABSTRACT

Kegel exercises provide a secure and effective approach to improve the overall health in postmenopausal women. Pelvic floor is made up by levator ani and coccygeus muscle which are important to support the abdominal organs.Pelvic floor muscle strength is been decreased due to ageing, pregnancy, normal vaginal delivery, hormonal imbalance and obesity. Due to this, women are experiencing pelvic organ prolapse and incontinence. These problems can be managed by medications and surgeries. Among this, kegel exercise is the best therapeutic way to strengthen the pelvic floor and maintain its alignment. It is noninvasive as well as most convenient method for a woman to practice everyday. Regular practice can maximise the benefits for women associated with menopause.

A comprehensive search of electronic databases, including PubMed and Google Scholar was performed to locate studies published up to the current date. Keywords such as “Kegel exercises”, “pelvic floor function”, “postmenopausal women” were used to construct search queries. Following a thorough examination of the titles and abstracts of these studies, along with removal of any duplicates, a total of 7 Randomised Controlled Trials (RCTs) studies were referred.

The review provides analysis of current understanding of Kegel exercises, its role and effect upon overall pelvic floor health and function in postmenopausal women. It evaluates the various ways in which these exercises could help the women. It synthesises evidence from different studies to delineate its role in the women’s health.

All the RCT's demonstrate that Kegel exercises have an overall positive impact on the pelvic floor functioning in postmenopausal females. It relieves the symptoms of urge urinary incontinence, stress urinary incontinence, reduce its severity, strengthen the pelvic floor muscles, relieve vulvovaginal symptoms, enhances pelvic floor muscle contractility, add and decrease the chances of pelvic floor organ prolapse. It also helps in significantly improving the quality of physical, mental & psychological well-being in menopausal women. Although additional studies are required regarding the duration and intensity of the exercises to be performed.

Keywords: Pelvic floor, Randomised controlled trial, Urinary incontinence

Abstract-33

Effectiveness of Kinesiotaping on Seventh Cranial Nerve Palsy: A Literature Review

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ABSTRACT

Bell's palsy, is a neurological disorder causing sudden, temporary facial paralysis due to facial nerve dysfunction. It is the most common peripheral facial nerve palsy, affecting nearly two-thirds of cases. Stroke-induced facial nerve paralysis significantly impaired facial muscle function. Physiotherapy is crucial for managing Bell's palsy, focussing on maintaining muscle tone, stimulating nerve function, and preventing contractures. Kinesiology Taping (KT) has emerged as a non-invasive and promising intervention to address facial muscle weakness and asymmetry associated with Bell's palsy. This review aims to synthesise and summarise the current evidence on the effectiveness of kinesiotaping in managing facial nerve palsy. A comprehensive literature search conducted between 2014 and 2024 using the keywords "kinesiotaping," "Bell's palsy," "facial palsy," or "seventh cranial nerve palsy" in PubMed, Google Scholar, Scopus and Cochrane Library yielded 9,108 articles. Following the removal of duplicates, only four articles were deemed relevant for further analysis.The reviewed literature primarily employed the House-Brackmann Scale, the Facial Disability Index (FDI), and the Synkinesis Assessment Questionnaire to assess patient outcomes in facial nerve paralysis, with only one study utilising the Arianna Disease Scale. Kinesiotaping, when applied in conjunction with Kabat Rehabilitation, demonstrated statistically significant improvements ($p<0.05$) compared to Kabat therapy alone. However, the optimal tension applied during kinesiotaping remains a subject of debate due to significant variability across studies. Notably, one study indicated that kinesiotaping alone was less effective than Kabat therapy in managing facial nerve paralysis.While 3 studies suggest that kinesiotaping, when used in conjunction with Kabat rehabilitation, may offer benefits in managing facial nerve paralysis, further high-quality research is needed. Future studies should conduct rigorous trials comparing the independent effects of kinesiotaping and Kabat rehabilitation to establish the unique contribution of kinesiotaping alone. Furthermore, research is needed to determine the optimal tension for kinesiotaping application to maximise its therapeutic efficacy in patients with facial nerve paralysis.

Keywords: Bell's Palsy, Facial Asymmetry, Facial Paralysis, Stroke, Taping

Abstract-34

Evaluating the Impact of Pilates on Muscular Strength in Post-menopausal Women: A Systematic Review Protocol

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ABSTRACT

Post-menopausal phase is determined by decline in oestrogen levels in women, leading to reduction in muscle strength, flexibility and overall physical function. These changes increase the risk of musculoskeletal disorders and thus consequently impair mobility and effects the quality of life. However, lack of data on Pilates efficacy in improving muscular strength in postmenopausal women highlights the urgent demand for further research to assess its role in strength enhancement. This study will review the evidence on effectiveness of Pilates for enhancing muscular strength and improving overall physical function in post-menopausal women.The electronic databases PubMed, Scopus, Pedro and Cochrane Library will be searched to find Randomised Controlled Trials (RCTs). Studies included in this review will be conducted among post-menopausal women, which will involve Pilates as the main intervention, and must have outcome(s) related to muscular strength. Isokinetic dynamometer of knee extensors and flexors, Lumbar Extension machine, Sit-and-reach test, trunk lift tests, 30-sec chair stand test will be the primary outcome measures. Non-RCT study designs and non-English studies will be excluded. The review is registered in the PROSPERO database ID: CRD42024620100, following the PRISMA guidelines. Although previous research indicates that Pilates can improve physical strength, but the data is inconsistent due to methodological differences. This systematic review will seek to provide a comprehensive understanding of Pilates as a potential intervention for musculoskeletal health in postmenopausal women by investigating factors such as adherence, supervision, and exercise intensity. Additionally, evaluating impact of Pilates this review will contribute to the findings that will further enable evidence-based clinical and rehabilitation practices.

Keywords: Core stability, Flexibility, Post-menopause.

Abstract-35

Effect of Virtual Reality-based Proprioceptive Training for Chronic Ankle Instability: A Scoping Review

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ABSTRACT

Ankle injuries, including sprains and chronic ankle instability, can severely affect mobility and quality of life, often due to proprioceptive deficits that increase the risk of recurring injuries. Virtual reality (VR) programmes, by simulating real-life sensory experiences, have emerged as innovative tools for enhancing proprioceptive training and improving functional outcomes. This scoping review evaluates the effectiveness of VR-based therapies in preventing ankle injuries.

A systematic search of English-language articles published between 2015 and 2024 was conducted using databases like PubMed, The Cochrane Library and Pedro. Search terms included "virtual reality," "proprioceptive training," "ankle injury," "ankle sprain," and "chronic ankle instability," combined using Boolean operators. The review focussed on randomised controlled trials examining the impact of VR therapies on balance, proprioception, and neuromuscular control related to ankle health. Six studies met the inclusion criteria.

Compared to traditional methods, VR therapies showed significant improvements ($P<0.05$) in proprioceptive accuracy and balance. By simulating dynamic, sport-specific tasks, VR enhanced functional training outcomes and boosted adherence to protocols through increased participant motivation. These findings suggest that VR-based proprioceptive training can reduce the risk of ankle injuries and improve balance, making it a promising complement to conventional prevention techniques.

Keywords: Ankle injuries, Ankle rehabilitation, Proprioception.

Abstract-36

Effectiveness of RICE/PRICE Protocol on Acute Ankle Sprain: A Literature Review

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ABSTRACT

Ankle sprains (AS) are one of the most common musculoskeletal injuries, associated with a high rate of visits to the emergency department. These injuries are particularly prevalent in sports like basketball and volleyball. These present up to 25% of all musculoskeletal injuries, and almost half of them are sports related. Lateral AS affecting the anterior talofibular ligament, calcaneofibular ligament, and peroneus muscles are most affected among all the ankle sprains. Rest, Ice, Compression, Elevation (RICE) and Protection, Rest, Ice, Compression, Elevation (PRICE) protocols are commonly used to treat acute AS. Despite widespread use, the effectiveness of the RICE/PRICE protocol for acute or subacute AS lacks strong evidence support. Therefore, this literature review aims to evaluate and discuss their effectiveness in reducing pain and improving functional outcomes for individuals with acute or subacute AS. A comprehensive literature search was conducted within the databases PubMed, EMBASE, and Cochrane Library for full-text articles published in English language between 2019 to 2024, exploring the treatment of acute or subacute AS with RICE or PRICE protocol. The search strategy used terms such as "RICE", "PRICE", "Acute Ankle Sprain", "Pain Management" and "Functional Outcomes" employing Boolean operators.No articles were excluded based on their geographical origin or the manner in which their study design was presented. A total of 748 articles were identified, out of which only five met the inclusion criteria. These studies suggest the use of RICE and PRICE protocol as an adjunct to conventional

physiotherapy and external orthotic support to have an effective and significant improvement in pain and functional outcomes following acute AS. The quality of the included research varied, and several had methodological problems, despite the encouraging data. While initial findings from a limited number of studies suggest potential benefits when combined with conventional physiotherapy and external support, the evidence base remains weak. Further high-quality research with robust methodologies is crucial to establish the true efficacy of RICE/PRICE in improving pain and functional outcomes for individuals with AS.

Keywords: Ankle injuries, Lateral ligaments, Pain management, Physical therapy modalities, Sprains and strains

Abstract-37

Exploring the Effect of Magnetotherapy as a Non-invasive Treatment for Knee Osteoarthritis: A Systematic Review

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ABSTRACT

Knee Osteoarthritis (OA) is a prevalent degenerative joint disorder that significantly impacts the quality of life, particularly among older adults. Conventional treatments such as Nonsteroidal Anti Inflammatory Drugs (NSAIDs) and physical therapy often yield limited relief and may pose long-term side effects. This systematic review aims to evaluate the therapeutic potential of magnetotherapy, a non-invasive alternative that apply magnetic fields to alleviate knee OA symptoms. A database search was conducted using the following resources: PubMed, Cochrane, PEDro, SCOPUS, and WoS. The following MESH terms were used: [Pulsed Magnetic field AND/OR Rehabilitation] and [Pulsed Magnetic field AND/OR Knee OA], [Pulsed Electromagnetic field AND/OR Rehabilitation] and [Pulsed Electromagnetic field AND/OR Pain], per the guidelines of the PRISMA statement. Articles published between January 1, 2009 and December 31, 2018 were included as assessment of Knee OA pain conditions, randomised clinical trial including crossover and prospective design studies, focussing on the efficacy, safety, and underlying mechanisms of magnetotherapy in improving pain, joint function, and overall health in knee OA patients. Inclusion criteria encompassed studies utilising defined magnetic field parameters and validated outcome measures, including pain intensity and joint function assessments. A thorough literature search was conducted across multiple databases, employing a comprehensive set of keywords related to knee OA and magnetotherapy. The review will synthesise findings through qualitative and quantitative analyses, including risk of bias assessments and GRADE evaluations of evidence quality. Preliminary findings suggest that magnetotherapy may offer beneficial effects in pain reduction and functional improvement, although clinical evidence remains heterogeneous. This review seeks to clarify the clinical utility of magnetotherapy in knee OA management, highlight existing research gaps, and propose directions for future investigations, ultimately contributing to the development of more effective treatment strategies for this debilitating condition.

Keywords: Management, PRISMA, Nonsteroidal anti-inflammatory drugs

Abstract-38

Use of Single Breath Counting Technique for Pulmonary Assesment: A Literature Review

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ABSTRACT

Vital Capacity (VC) is typically measured to evaluate pulmonary function using devices like a spirometer or ventilometer, although the general public may not always have access to these tests due to their high cost, portability issues, and need for qualified personnel. To aid in the pathophysiology understanding of lung illnesses, the Single Breath Counting Technique (SBCT) has emerged as a potential substitute for respiratory function tests.In order to take a measurement, patients are asked to inhale deeply and count as far as they can without taking another breath while speaking normally. A metronome set at two counts per second was used to time the counting. The objective of this review is to assess theuse single breath counting technique for assessment of VC when other options are not feasible. We commenced by exploring the databases including PubMed/ Medline, Google Scholar and Scopus to uncover full text publications authored in English. A total of 12 articles were retrieved after extensive data search, which were evaluated and only 5 articles met the inclusion criteria and were reviewed. Male and female adults (aged 18-59 years) were included. SBC is a reasonable alternative to peak expiratory flow rate and can be used effectively. Further investigation in an emergency department setting is warranted. SBC measurement is found to be similar to spirometry and ventilometry and can be used as an adjunct. The findings may be administered in assessing pulmonary function, VC to diagnose diseases, track disease progression difference in range of motion in dominant and non-dominant sides of body.

Keywords: Peak Expiratory Flow, Respiratory Function Test, Spirometery, Vital Capacity.

Abstract-39

Immediate Effect of Manual Therapy on Pulmonary Function and Thoracic Expansion among Emergency Medical Technician: A Quasi Experimental Study

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Introduction: Effective lung function relies on proper airflow, which is regulated by the coordinated movement of the ribcage, diaphragm, and thoracic spine. Emergency Medical Technicians (EMTs) are more prone to neuro-musculoskeletal dysfunctions, especially in the thoracic spine due to heavy weight lifting in awkward postures during shifting, transporting of patients and rescue operations affecting the pulmonary functions. Manual therapy is a holistic approach comprising of joint manipulation and/or mobilisation, neural mobilization, soft tissue release etc. which shows promising effects in improving the pulmonary functions in older adults and in diseased patients.

Aim: To evaluate the immediate effect of manual therapy on pulmonary function and thoracic expansion in EMTs.

Materials and Methods: EMTs having age of more than 18 years were recruited according to the selection criteria. Individuals with any cardio-pulmonary conditions and having contraindication to manual therapy were excluded. Manual therapy was given to participants comprising thoracic manipulation, thoracic and diaphragmatic mobilization. Pulmonary Functions as seen on Forced Vital Capacity (FVC), Forced Expiratory Volume in first second (FEV_1), (FEV_1/FVC), Peak Inspiratory Rate Flow (PEFR), and Forced Inspiratory Vital Capacity (FIVC) were assessed via Spirometry at baseline and immediately post-intervention.

Results: Eighteen EMTs with mean age of 33.61±4.03 years participated in this study. Wilcoxon signed rank test was used to compare the pre and post data. Significant difference was observed in FEV_1 (p=0.001), FVC (p=0.048), FEV_1/FVC (p=0.00), and FIVC (p=0.009) immediately after the manual therapy. No significant difference was observed in PEFR (p=0.647).

Conclusion: The result of the current study conclude that manual therapy is effective in improving pulmonary function among EMTs.

Keywords: Diaphragmatic mobilization, Pulmonary Function Test, Thoracic spine manipulation.

Abstract-40

Normal Reference Values of Graphesthesia among Healthy Young Adults

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Introduction: Graphesthesia, the ability to recognise letters or numbers written on the skin through tactile sensation, is a critical somatosensory skill used in neurological assessments. Despite its clinical relevance, limited data exists on normative reference values for graphesthesia among healthy young adults. Establishing these reference values is essential for distinguishing normal sensory processing from pathological conditions and aiding in the early detection of neurological impairments.

Aim: The aim of this study was to determine the normative reference values for graphesthesia among healthy young adults aged 15–24 years.

Materials and Methods: This cross-sectional observational study recruited 50 participants from local colleges and universities who had no history of neurological or dermatological disorders. After obtaining due informed consent, graphesthesia was checked by utilising standardised shape and numbers on the participants'

palms using a blunt stylus, in a direction towards the patient and towards the therapist. Response time, and lateral dominance (hand preference) were recorded.

Results: Normal reference values for graphesthesia were determined in healthy young adults with an average age of 20.88±1.35 years and an average body mass index of 20.72±2.79. When stimuli were drawn towards the patient, the average graphesthesia scores (in seconds) for shapes and numbers were 1.91±0.47 and 1.67±0.38 on the palm, 1.91±0.36 and 1.72±0.45 on the palmar aspect of the forearm, and 1.84±0.43 and 1.76±0.43 on the dorsal aspect of the forearm. In contrast, when stimuli were drawn towards the therapist, the scores for shapes and numbers were 1.66±0.40 and 1.68±0.43 on the palm, 1.70±0.38 and 1.73±0.38 on the palmar aspect of the forearm, and 1.66±0.37 and 1.63±0.37 on the dorsal aspect of the forearm.

Conclusion: This study successfully establishes normative reference values for graphesthesia in healthy young adults. Future studies may build upon these findings to explore graphesthesia in diverse populations with large sample size.

Keywords: Hand dominance, Neurological evaluation, Normative reference values, Somatosensory assessment, Tactile sensation.

Abstract-41

Effect of Laser Therapy in De Quervain's Tenosynovitis: A Review

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ABSTRACT

De Quervain's tenosynovitis (DQT) is a stenosing overuse disorder that affects the abductor pollicislongus and extensor pollicisbrevis tendons in the synovial sheath of the wrist's first extensor compartment. Treatment options for DQT are expanding and include immobilisation, acupuncture, laser therapy, extracorporeal shockwave therapy, hyaluronic acid injections, anti-inflammatory drugs and ultrasonographic therapy. The main objective of this systematic review is to identify the significant effects of laser therapy on patients with DQT. Databases and search engines such as Cochrane, PubMed, & Google Scholar were searched for articles published between 2000 and 2025, emphasising pilot studies and randomised clinical and controlled studies in English. A total of 1765 papers that were first discovered were qualified for full-text screening, and 465 articles were eliminated because they contained duplicates. A total of 1300 abstracts and titles were assessed, out of those 1290 were removed due to other treatment than laser therapy and seven of those were chosen for in-depth review.The participants from 18 to 65 years of age and both genders were included in this review.The patients with hand deformity and rheumatic disease were excluded from the study. The study found that high-intensity laser therapy and low-level laser therapy have significantly reduced pain,and inflammation and improved range of motion. When compared to other modalities and exercises, laser therapy has proven to be the most effective and gives superior results in enhancing tissue healing.In conclusion, laser therapy can be used alone or in conjunction with other treatments to treat DQT. It enhances functioning and decreases pain. Additional high-quality research with a substantial number of samples is still needed to validate these findings and establish a common treatment regimen.

Keywords: Inflammation, Pain, Range of motion

Abstract-42

To Examine the Effect of Pneumatic Compression in Sports Rehabilitation: A Literature Review

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ABSTRACT

A pneumatic compression is a medical device that improves circulation by applying compressed air to the legs or other body parts. It is also termed as Intermittent Pneumatic Compression (IPC). Nowadays, this therapy add has popular in the sports rehabilitation because it is non-invasive evidence-based technology and the main role of this therapy in sports is to enhance the recovery, improve performance, prevent injuries and rehabilitation programmes. The main aim of this literature review is to examine the effect of pneumatic compression in sports rehabilitation, which generally focusses on the rehabilitation programme after injury. There were various researches performed on the PubMed, physiotherapy evidence-based database (PEDro), Cochrane and Google Scholar from year 2017 to 2024. A total of 2000 articles were obtained in different databases, with the key words of “pneumatic compressions,” and “atheletes.” After exclusion of non-English and duplicate articles, 10 articles are included by their preferable criteria comprising randomised controlled trials, systematic review add and cross sectional surveys. The findings of this literature review states that pneumatic compression has shown effects in reducing oedema, swelling, and pain, and it supports the management of acute lateral ankle sprains. Additionally, blood circulation improvement is also seen. This study concludes that pneumatic compression can be effective in athletic recovery and rehabilitation processes. While current evidence prop-up its effectiveness, to check its long-term benefits and to scout its role in combination with other therapeutic modalities further research is needed. Clinicians should continue to assess the most appropriate interventions for pain management and muscle recovery, with pneumatic compression serving as a promising option in rehabilitation protocols.

Keywords: Athletes, Edema, Intermittent Pneumatic Compression Devices, Pain.

Abstract-43

Role of Proprioceptive Training on Anterior Cruciate Ligament Rehabilitation: A Literature Review

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ABSTRACT

Anterior Cruciate Ligament (ACL) ruptures are injuries that affect young adults' neuromuscular systems. Because the ACL in the knee is essential to the joint's static and dynamic stability, it is particularly susceptible during athletic activities, with an incidence of about 69 per 100,000 person years per year. Following ACL restoration (ACLR), one of the most significant issues is proprioceptive impairments. The aim of the review was to identify effect of proprioceptive exercise training for improving ACL rehabilitation. A literature search was conducted from PubMed, Cochrane Library, and Google Scholar database from 2000 to 2024. The search utilised terms such as "proprioceptive exercise training", "ACL rehabilitation", "muscle strength" and "adult" employing Boolean operators (AND, OR). Articles in which proprioception was treated in this review, non-English articles, were excluded. A total of 78 articles add were found from different database, out of which only five met the inclusion criteria. These studies suggest that proprioceptive exercise training add is effective treatment for knee proprioception, muscle strength, pain and functional outcomes.The results obtained indicate that proprioceptive training exercises, when incorporated into the standard rehabilitation expedited protocol, can increase proprioception efficiency in persons who have undergone ACL repair.

Keywords: Anterior Cruciate Ligament Injuries, Balance, Joint Instability.

Abstract-44

Veterinary Physiotherapy in Dogs: A Narrative Review

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ABSTRACT

Veterinary physiotherapy plays an integral position. within the rehabilitation of canines tormented by musculoskeletal, neurological, and postoperative situations. The goal of physiotherapy, which is becoming more and more significant in veterinary medicine, is to help canine patients to improve mobility, lessen pain, enhance restoration, and enhance universal quality of existence for canine patients. This form of therapy uses a variety of strategies, including guided remedy, healing physical activity and hydrotherapy, electrotherapy, and thermal modalities, that can be customised to meet each dog's desires according to their circumstances and age.

Manual therapy include joint mobilisations and soft tissue massage, which can enhance range of motion, improve circulation, and lessen discomfort. Therapeutic activities aim to improve proprioceptive functions, expand joint range of motion, and extend healthy gait patterns. They also include stretching, strengthening, and proprioceptive instruction. Hydrotherapy, often carried out in a pool or underwater treadmill, delivers low-impact training for joint or muscle rehabilitation for dogs with arthritis or those recovering from surgery. Moist heat is an excellent method to lessen joint stiffness, enhance circulation, and lessen pain. Low-degree laser is an extraordinary, non-invasive manner to lower pain for animal patients and is generally very well tolerated in dogs, even if their pain severity is excessive. Electrotherapy strategies, which include transcutaneous electric nerve stimulation, can assist in managing pain and inflammation.

Physiotherapy has shown great success in treating a wide range of ailments, including hip dysplasia, arthritis, post-operative rehabilitation, neurological issues, and sports injuries. Beyond physical recovery, veterinary physiotherapy may improve dogs' overall health by reducing stress, promoting relaxation, and boosting mental wellness. In addition to examining its concepts, methods, and scientific pursuits, this study focusses on how well veterinary physical therapy for dogs aids in recovery and preserves long-term health. The importance of veterinary physical therapy in providing dogs with comprehensive care is increasingly acknowledged.

Keywords: Canine, Electrotherapy, Hydrotherapy, Pain, Therapeutic exercises

Abstract-45

Forward Head Posture Adaptation Correlated with Scapular Dyskinesia Type1: A Case Study

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ABSTRACT

People adapt poor posture particularly in the head and neck region, as a result of their sedentary lifestyles and use of technology. Forward head posture is most frequently, the most prevalent deviation from the natural bend of the cervical spine. Changes from the normal posture pattern led to pathological issues, which affect the surrounding muscles and joints. While forward head posture is also associated with Scapular Dyskinesia (SD) type 1, it is more observed in people who have forward head posture. SD type 1 is defined as the prominence of the inferior medial scapular border and its unusual rotation around a transverse axis. It is an uncommon type of SD that can occur in the aftermath of surgery or trauma. The outcomes are Scapular Dyskinesis Test, Numerical Pain Rating Scale, Neck Disability Index, Manual Muscle Testing, Shoulder range of motion, Lateral Scapular Slide Test and Posture Assessment. A 20-year-old male student with limited range of motion, forward head posture, and mild shoulder pain was the subject of this case study. The goal was to use physical therapy techniques to reduce pain, enhance scapular function, and correct posture. Exercises for strengthening and mobilising the scapular joint or shoulder joint were used, which decreased discomfort, improved shoulder joint range of motion and correct forward head posture. The results of the study showed that SD type 1, forward head posture, and shoulder pain were all improved by advance manual therapy of the shoulder girdle joints and muscles. Improving shoulder function requires addressing scapular problems. In addition to advocating for holistic management measures to aid in their recovery, this research emphasises the significance of acknowledging SD as a major contributor to forward head posture.

Keywords: Neck disability index, Shoulder pain, Shoulder range of motion

Abstract-46

Influence of Different BMIs on RR Interval Parameters in Healthy Young Individuals: A Cross-sectional Study Protocol

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Introduction: Body Mass Index (BMI) is a widely used indicator of overall health, as it measures weight relative to height. Variations in BMI are associated with conditions such as heart disease, diabetes, and certain cancers. Similarly, Heart Rate Variability (HRV), assessed through RR intervals, serves as a reliable marker for evaluating autonomic nervous system function and predicting potential health risks.

Aim: The primary aim of this study is to examine the impact of different BMI categories on RR interval parameters, which are crucial indicators of HRV, in healthy young individuals. By investigating the relationship between BMI and autonomic nervous system function, the study seeks to shed light on how body weight variations influence cardiovascular health within this population.

Materials and Methods: The study will include healthy individuals with varying BMI levels, who will be recruited based on specific inclusion criteria. Written informed consent will be obtained from all participants. Based on the Asian BMI classification, individuals will be divided into four groups. RR interval measurements, essential for HRV assessment, will be recorded using an electrodiagnostic machine. The recorded parameters will then be analysed using descriptive and correlation statistical methods.

Keywords: Autonomic nervous system, Cardiovascular system, Heart rate variability,

Abstract-47

En Pointe But Off Balance: Foot Deformities in Ballet Dancers and Need of Physiotherapy

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ABSTRACT

Ballet is a high-impact art that necessitates a good amount of physical stamina, strength, and stability. The biomechanical impact that ballet places on the body, particularly the perils of the feet associated with en pointe and demi-pointe, predisposed dancers to a variety of foot deformities. The most common foot conditions among ballerinas include hallux valgus, metatarsalgia, stress break fractures, and sesamoiditis. These deformities manifest as a result of strain, poor technique, and the intense physical demands of the dance. However, while these deformities can severely impair performance and life standards, they frequently go unnoticed by the general population until they become a significant source of pain.This review highlights the onset and prevalence of foot deformities in ballet dancers identifying the roles of intrinsic and extrinsic causes like anatomical predisposition, footwear and training intensity. Early intervention is very crucial in terms of injury prevention, pain management and rehabilitation. Physiotherapy plays a vital role. Physiotherapy deals with muscle imbalance, joint mobility and proprioception so the risk of chronic injuries can be decreased. With individualised exercise programmes, there are evidence-based therapeutic techniques like manual therapy and kinesiology taping that are best suited to the unique demands of this art form. Furthermore, this review highlights the need for the inclusion of physiotherapy into professional dancers' training routines to facilitate musculoskeletal health long-term. With focus on the interrelationship of biomechanics, foot health and performance optimisation, we aim to provide insights for dancers, trainers and healthcare practitioners through this study. It calls for a collaborative model involving various fields to prevent and manage dance-related injuries, allowing dancers to perform gracefully well into the future while avoiding the risk of life-altering and/or debilitating aberrations.

Keywords: Biomechanics, Injury prevention, Rehabilitation.

Effectiveness of Robotic Hand Therapy in Enhancing Functional Recovery of Hemiplegic Hands after Stroke: A Narrative Review Study

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ABSTRACT

Introduction: Stroke is one of the leading causes of long-term disability, often resulting in hemiplegia that impairs motor function and the ability to perform daily activities. The recovery of hand function in stroke patients is crucial for improving quality of life and independence. Robotic hand therapy has been explored as an innovative rehabilitation technique to promote motor recovery in post-stroke hemiplegia. This technology leverages robotic devices to provide repetitive, task-specific training that enhances motor control and fosters neuroplasticity.

Aim: This narrative review aims to assess the effectiveness of robotic hand therapy in enhancing functional recovery of hemiplegic hands following stroke by analysing articles that examine various robotic devices and their impact on motor function, hand dexterity, and activities of daily living (ADLs).

Materials and Methods: A comprehensive search of the literature was conducted using electronic databases, including PubMed, Scopus, and Google Scholar. Studies published from 2010 to 2024 were screened for relevance. Key search terms included "robotic hand therapy," "hemiplegia," "stroke rehabilitation," "motor recovery," "functional recovery," and "neuroplasticity." Articles were selected based on the following inclusion criteria: (1) studies using robotic devices for hand rehabilitation, (2) trials measuring motor recovery or improvement in ADLs, and (3) studies that provided outcomes related to the effectiveness of robotic interventions.

Exclusion criteria included studies not focussed on stroke rehabilitation, non peer-reviewed articles, and those without relevant outcome data. After screening, a total of 12 articles were included in the review.

Results: The review identified consistent positive outcomes in studies investigating robotic hand therapy. Robotic devices such as exoskeletons, glove-based systems, and wearable robotic suits were found to improve hand function, grip strength, and fine motor skills. Several studies reported enhanced performance in ADLs and increased independence. The therapy was shown to facilitate neuroplasticity, with patients exhibiting improvements in motor coordination and functional abilities through repetitive, task specific movements.

Conclusion: Robotic hand therapy appears to be an effective intervention for improving the functional recovery of hemiplegic hands following stroke. The reviewed studies consistently demonstrated positive outcomes in terms of motor function and ADLs.

Keywords: Activities of daily living, Hemiplegia, Motor function, Neuroplasticity, Stroke rehabilitation.

Abstract-49

Effectiveness of Aerobic Training in Improving Symptoms of Premenstrual Syndrome in Young Females: A Review

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ABSTRACT

Premenstrual Syndrome (PMS) is a set of repetitive symptoms that begin at the end of the secretion phase of the menstrual cycle and ends in the follicular phase which are commonly seen in young females, affecting their daily life, and showing dominant emotional fluctuations. PMS affects women's mental and physical health, with a prevalence of approximately 48% among women of reproductive age. Studies has shown that consistent aerobic exercise lessens the severity of PMS. The present study is aimed to determine the effect of aerobic training in improving pre-menstrual symptoms among young females. A systematic search from various databases like PubMed, PEDro, Cochrane, and Scopus were used which was published from 2012 to 2024 to evaluate the effectiveness of aerobic exercise regimens in relieving premenstrual symptoms in young females, using PRISMA guidelines to assess methodological quality. A total of five studies were determined to be eligible for inclusion. All together, these studies included 307 participants, with intervention periods varying from 6 to 12 weeks and sessions occurring one to three times per week. The outcome measures were; Premenstrual Syndrome Scale (PMSS), Visual Analogue Scale (VAS), and Beck Depression and Anxiety Questionnaire. Young females who participated in aerobic training reported significantly improved premenstrual symptoms ($p<0.05$). Mechanisms include decreased headache, nausea, low back pain, weakness, bloating, and better psychological and premenstrual symptoms. This review shows that aerobic training could potentially alleviate the psychological and physical symptoms of PMS in females.

Keywords: Aerobic exercise, Females, Physiotherapy, Visual anlogue scale.

Abstract-50

Developing an Efficient Rehabilitation Protocol for Early Mobilisation in the ICU to Reduce Intracranial Pressure in Subarachnoid Haemorrhage

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Introduction: Subarachnoid Haemorrhage (SAH) is a medical emergency that can result in high mortality rates and significant morbidity. Despite the importance of early mobilisation in improving outcomes, there is a lack of standardised treatment protocols for SAH patients.

Aim: This study aimed to develop an efficient rehabilitation protocol for early mobilisation in the Intensive Care Unit (ICU) to reduce Intracranial Pressure (ICP) in patients with SAH.

Materials and Methods: A comprehensive literature review was conducted, including two randomised controlled trials, three mixed design studies, 10 non randomised studies, and four experimental studies.

Results: The results showed that early mobilisation within 24 hours of stroke onset was feasible and did not increase the risk of mortality. Patients who received early mobilisation returned to walking faster, had improved function, and were less depressed. The developed protocol consists of four levels of mobilisation, with increasing intensity and complexity, and includes body positioning, respiratory exercises, and strength training.

Conclusion: This protocol has the potential to reduce ICP, improve functional outcomes, and decrease the risk of complications such as pneumonia and cardiopulmonary complications. Therefore, this study provides a standardised treatment protocol for early mobilisation in the ICU to reduce ICP in patients with SAH, which can be used to improve patient outcomes and reduce healthcare costs.

Keywords: Early mobilisation, Intracranial aneurysm, Randomised controlled trials.

Abstract-51

Impact of Iyengar Yoga and Coherent Breathing on Major Depressive Disorder: A Narrative Review

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ABSTRACT

Major Depressive Disorder (MDD) is widespread, chronic, recurrent in nature and impairing. Depression affects worldwide more than any other disease. Up to 50% of the population acts towards antidepressants medication. For major depressive sickness, up to half of patients who take depression medication do not recover fully. Current depression treatments are inefficient at lowering the rate of disability. Yoga based therapies have potential as supportive treatment as well as monotherapies. Iyengar yoga (a form of hatha yoga) and Coherent Breathing (controlled breathing technique) have emerged as promising techniques for improving the symptoms of depression. This study aims to review the effectiveness of Iyengar yoga and coherent breathing on major depressive disorder. A systematic review of Randomised controlled trials (RCTs) was conducted using PubMed and Google Scholar of the studies published up to the current date. A total of 26 articles were analysed for the study out of which only 4 were selected. Following a comprehensive examination of the titles and abstracts of these studies, along with removal of duplicates, RCTs were considered. Non-RCT's and non-English studies were excluded. The review showed that Iyengar yoga and coherent breathing over time was associated with reduction in psychological symptoms. Yoga and breathing techniques were linked to improvements in mental health symptoms gradually. Both therapies improved emotions of positivity with reducing anxiety and symptoms of depression. When creating yoga treatments, the advantages of yoga practice have to be calibrated against the time commitment.

Keywords: Controlled breathing technique, Depression, Randomised controlled trials

Abstract-52

Standardisation of a Treatment Protocol to Manage Uterine Prolapse in Females to Enhance their Quality of Life: A Systematic Review

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Introduction: Uterine prolapse is characterised by the herniation of the uterus into or beyond the vagina, resulting from the failure of ligamentous support and weakness of the pelvic floor. It is estimated that some degree of prolapse affects approximately 50% of parous women.

Aim: This study aims to evaluate the symptoms associated with uterine prolapse and the effectiveness of physiotherapy treatment options in managing these symptoms and improving quality of life and also prevent the progression of uterine prolapse.

Materials and Methods: Women with uterine prolapse commonly experience symptoms such as pelvic heaviness, bowel and bladder dysfunction, and sexual dysfunction. Physiotherapy treatment includes pelvic floor muscle training, positioning, respiratory, core training and decrease abdominal pressure and the use of supportive elements (Pessary Ring, Pelvic Pro, K-Taping) and uses modalities like Interferential Therapy, Pelvic Floor Exerciser, Mayo Plus 2 Pro, Moist Hot Pack, Cold Pack and Theraband).

Results: Implementation of physiotherapy interventions has been shown to significantly improve the quality of life for individuals with uterine prolapse. Participants reported enhanced management of symptoms and improved ability to perform activities of daily living and prevent recurrence.

Conclusion: Physiotherapy offers effective treatment options for women with uterine prolapse, leading to symptomatic relief and improving the overall well-being of the patient, improve quality of life and also prevent the progression of uterine prolapse.

Keywords: Core training, Gynecological physiotherapy, Pevic floor muscle training

Abstract-53

The Effect of Extracorporeal Shock Wave Therapy in Rotator Cuff Injury: A Narrative Review

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ABSTRACT

Rotator cuff injuries are most common in athletes and individuals who perform repetitive overhead activities. Rotator cuff tears have two main causes: injury and degeneration. Acute tears are usually due to injury the prevalence increased with age. Thirty-six percent of the subjects with current symptoms had rotator cuff tears. Injury can lead to pain, weakness, reducing functional ability. Extracorporel Shock Wave Therapy (ESWT) is the most common therapy used in the treatment of rotator cuff injury. The aim of the review was to assess the effect on pain and functional ability with rotator cuff injuries. A literature search was performed from PubMed, Pedro, Cochrane Library, Google Scholar database from 2000 to 2024. The search utilised terms such as “shock wave therapy”, “electrotherapy modalities” and “rotator cuff injuries” employing Boolean operators (AND, OR). Articles in which treatment includes ESWT was included in this review, non-English articles were excluded. A total of 75 articles extracted from different database, out of which only four met the inclusion criteria. The studies suggest that ESWT is an effective treatment for reducing pain intensity, and enhancing functional ability in patients with rotator cuff injury. The findings suggest that patients with rotator cuff injuries may find that ESWT is a useful treatment for reducing pain intensity and improving functional outcomes. The quality of the included research varied, and several had methodological problems, despite the encouraging data.

Keywords: Functional outcomes, Pain management, Shock wave therapy.

Abstract-54

The Effect of Cardiovascular Health on the Fourth Trimester: A Narrative Review

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ABSTRACT

The term 4th trimester is the period that starts after childbirth and during the first few months of latest parenthood. Cardiovascular fitness is one of the physiological changes the body experiences throughout this phase and responsible for vascular resistance, blood quantity changes, and elevated heart rate. The cardiovascular device experiences healthy, adaptive modifications throughout pregnancy to ensure enough uteroplacental blood flow and oxygen and nutrient exchange to support and maintain the developing fetus. Although oxygen is important for the foetus's growth and development, it plays a critical function during pregnancy. Oxygen is still necessary for the mother and the baby for the production of energy for tissue repair.This narrative review aimed to evaluate the impact of yoga on cardiovascular health in terms of postpartum cognitive fitness for women who are at high risk for cardiovascular health issues following childbirth, such as postnatal problems or metabolic syndromes, was found from a comprehensive Google Scholar search to find studies published as of currently. We utilised keywords like "parturition," "metabolic syndrome," and "females" to build search queries. After an initial investigation of 400 studies, 15 randomised controlled trials were discovered and included in this evaluation. Numerous beneficial effects on cardiovascular health have been linked to yoga practice throughout the postnatal period. Yoga seems to be beneficial for postpartum cardiovascular health. The combination of yoga's regulated breathing, physical activity, and mental relaxation offers these benefits.Yoga reduces postpartum stress and anxiety, increase coronary heart rate variability, improve blood stress regulation, lower postpartum weight and cholesterol, and enhance overall cardiovascular and mental health development. A safe and effective method, yoga help postpartum women restore cardiovascular fitness while encouraging normal physical and mental healing. During the postnatal period, it is important to improve lifestyle and healing intervention approaches in order to lower the risk of cardiovascular disease further on.

Keywords: Cardiovascular disease, Glycaemic control, Postpartum period, Pregnancy

Abstract-55

The Impact of Obesity on Padeographic Patterns in Children

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ABSTRACT

Obesity in children is a growing concern as it is found to have a major effect on plantar pressure distribution. The study of plantar pressure distribution is referred as "Paedography". In addition to supporting an excessive burden of load, children with obesity are vulnerable to develop biomechanical and structural deformity of foot, meaning it leads to in a varied range of biomechanical and physical complications such as flat foot and heel pain etc.The purpose of this study is to investigate the connection between paedographic patterns and obesity, with a particular emphasis on the effects of excess weight on children's plantar pressure distribution, arch shape, and general gait dynamics. This review utilised PubMed and Google Scholar to search relevant full texts literature, and identified 35 studies from 2004 to 2020 comprising cross-sectional studies, observational studies, systematic reviews, semi-experimental studies and comparative observational studies. Out of 35 studies, 15 articles were found to be pertinent to the review. The study's findings showed a number of significant variations in plantar pressure distribution in obese children. Children who were obese showed noticeably greater peak pressures in all areas of the foot, but especially in the forefoot and hindfoot. According to these results, the extra mechanical strain brought on by excess body weight modifies the typical pressure distribution and foot biomechanics, which may result in chronic musculoskeletal issues. This study highlights the critical need for early measure to tackle the obesity in children to prevent the risk of alteration in foot biomechanics and potential chances of musculoskeletal disorders. It is feasible to lessen the negative effect of obesity on paedographic patterns and encourage better musculoskeletal development.

Keywords: Obesity, Plantar pressure, Paedography

Abstract-56

The Emerging Role of Virtual Reality Rehabilitation and Pelvic Floor Muscle Training in Urinary Incontinence

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ABSTRACT

Urinary Incontinence (UI) is the uncontrollable release of urine, a condition that impacts millions of people around the world and can severely affect their overall well-being and daily activities. It is a prevalent and chronic disorder that affects millions of individuals globally. UI has significant detrimental effect on physical health. Traditional treatments, including behaviour therapy or strengthening the pelvic floor muscles, demonstrates significant improvement in UI. By leveraging Virtual Reality (VR) technology, individuals with UI can engage in interactive and personalised exercises, enhancing motivation and treatment outcomes. A creative approach has shown potential to improved motivation, adherence, with treatment outcome for persons with UI.The purpose of this research is to explore the effectiveness of VR rehabilitation combined with Pelvic Floor Muscle Training (PFMT) in management of UI signs and pelvic floor muscle strength of individuals with UI. This review utilised PubMed, Google Scholar, and Cochrane to search relevant full text literature and identified 25 studies between 2010 and 2024 years comprising cross sectional studies, observational studies, systematic reviews, semi experimental studies and comparative observational studies. After removing duplicates,15 articles were found to be pertinent to the review.According to the review, VR rehabilitation has great potential in treating UI by strengthening the pelvic floor muscles, reducing symptoms, and promoting adherence. It is a compelling substitute for conventional methods because of its gamified and captivating features. This narrative review highlights the revolutionary potential of VR in pelvic health care. VR therapy improved the Pelvic Muscle Testing's functionally; however, these gains were comparable to those of traditional PFMT.

Keywords: Behaviour therpay, Quality of life, Strengthening

Abstract-57

Effectiveness of tDCS on Dysmenorrhoea: A Systematic Review

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ABSTRACT

Dysmenorrhoea, or menstrual cramps, involves chronic pelvic pain, with Primary Dysmenorrhoea (PDM) being common. Symptoms like abdominal pain, back pain, nausea, fatigue, and diarrhoea occur with menstruation, lasting 8–72 hours, and affect physical health, mood, relationships, and work. Prevalence ranges from 34% to 94%, and long-term PDM may alter brain metabolism and pain pathways. Transcranial Direct Current Stimulation (tDCS), effective in chronic pain conditions, shows potential for relieving PDM pain and enhancing quality of life. To evaluate the effectiveness of tDCS in alleviating pain associated with dysmenorrhea. A systematic review of Randomised Controlled Trials (RCTs) was conducted using databases such as PubMed, Scopus, and Cochrane Library. Studies comparing tDCS with sham stimulation or standard care for dysmenorrhea were included. A total of 112 participants were included. The primary outcome measures were pain evaluated by numeric rating scale and McGill Questionnaire score. Secondary outcomes measures were responses to the Positive and Negative Affect Schedule, Hamilton Anxiety Scale. Baseline data were performed during the first menstrual cycle, and during the second menstrual cycle, participants were conducted to tDCS treatment, and postintervention data were collected. All the collected RCTs demonstrate that tDCS applied over motor and prefrontal cortices significantly reduced pain intensity and improved functional outcomes in women with dysmenorrhea. The effects were sustained with multiple sessions, and minimal adverse effects were reported. The tDCS is a promising non-pharmacological intervention for managing dysmenorrhea.Further large-scale RCTs are needed to confirm its efficacy and optimise stimulation parameters.

Keywords: Hamilton Anxiety Scale, Menstrual flow, Nausea, Primary dysmenorrhoea.

Abstract-58

A Literature Review Assessing Psychometric Properties of Field-based Cardiorespiratory Fitness Tests across Diverse Populations

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ABSTRACT

Cardiorespiratory Fitness (CRF), is a vital health metric that affects performance and physical health in a variety of groups. A range of assessment methods exist, including laboratory-based test likes step tests, cycle ergometer test, treadmill test, and field-based test. Some of them are performed in maximal while a few are done at submaximal level. Choosing the optimal CRF test can be difficult due to the wide range of available options. It is further complicated by age, health status, and available resources and other demographics. This literature review therefore, aims to critically evaluate the reliability and validity of various field-based CRF tests across different populations. To achieve this an extensive search was conducted across databases PubMed, and EMBASE, for full-text English language articles exploring the psychometric properties of different field-based CRF tests, published between 2014 to 2024. Only observational studies were considered, regardless of geographical location.Keywords including "Cardiorespiratory Fitness," "Field-Based Tests," "Validity," "Reliability," "VO2max," and related terms with Boolean terms were used to conduct search. Data on validity, reliability, demographic characteristics, their utility in a variety of populations and important findings were then retrieved from utilised in a variety of populations. Analysis of the retrieved articles suggested that the 30-15 Intermittent Fitness Test was well suited for military infantry, exhibiting moderate to high

validity (r = 0.695 - 0.930) and high reliability (Intraclass Correlation {ICC}=0.960 - 0.975), while the 4x10 Shuttle Run Test showed unusually high reliability (ICC = 0.998) for adults. In comparison, the Yo-Yo Intermittent Recovery Test Level 1 demonstrated moderate to excellent reliability (ICC = 0.78–0.98) and validity (r = 0.74) for young athletes.Conversely, the Yo-Yo Intermittent Recovery Test Level 2 demonstrated good reliability (ICC = 0.86 - 0.96) but poorer validity (r=0.47) for elite athletes. These results emphasise how crucial it is to choose tests that are appropriate for particular demographics.

Inconsistencies in all tests, however, highlight the necessity of population-specific modifications and standardised procedures and feasibility studies of each tool in different population.

Keywords: Exercise test, Health status, Oxygen consumption.

Abstract-59

Biomechanical Relation between Calf Muscle and Low Back Pain

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ABSTRACT

Low back pain is defined as pain and discomfort in the lumbosacral region, below the 12th rib and above the inferior gluteal folds. There are three types of low back pain: nonspecific pain with nerve root symptoms; pain resulting from serious injury. It is the most common musculoskeletal conditions that interferes with functioning and is often associated with muscle tightness. The literature supports the linkage between tightness of hamstrings and iliopsoas muscles but we did not come across studies depicting relationship between tightness of the calf and low back pain. Therefore, the aim is to determine the biomechanical relation between calf muscle tightness and low back pain. The extensive search for this study was conducted through Google Scholar Medline, PubMed (National Library of Medicine), Research Gate, articles including from 2010-2024 have been used. This study concludes that, calf tightness restricts ankle dorsiflexion, leading tocompensatory movements and disrupts normal alignment of spine contributing to low back pain. It has been found that foot overpronation and flat foot are interrelated and associated with gastrocnemius tightness which is the cause of low back pain. Moreover, restricted ankle dorsiflexion can cause increased anterior pelvic tilt leading to hyper-lordosis and low back pain. Additionally, calf tightness can impair shock absorption capabilities of lower limb transmitting more forces to lumbar spine and increasing the risk of low back pain. So, treating them together comes with better results.

Keywords: Calf stretching, Gastrocnemius tightness, Hyper-pronation.

Abstract-60

Evaluation of a Diagnostic Approach for Tennis Leg Players: A Literature Review

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ABSTRACT

The typical calf muscle injury, especially in tennis players but often in non-athletes, is known as a "tennis leg." This typically harms the soleus or gastrocnemius muscle. Physiotherapy is proved to be crucial for the medical management and cure of tennis leg, or calf muscle strain, enabling individuals to resume their normal sports or activities. A muscle strain or partial tears are commonly brought on by significant rises in activity or overstretching. The diagnosis of tennis leg needs a thorough and systematic approach that focusses on history, physical examination, differential diagnosis, and imaging that is necessary. Reducing acute pain and inflammation, healing the injured muscle, restoring strength and flexibility, and preventing further harm are the main objectives of physical therapy. The musculotendinous junction or the gastrocnemius muscle is most frequently strained or torn in tennis leg, which can occur during acute motions like running or jumping. Analysing diagnostic methods properly aids in accurate diagnosis, timely intervention, and reducing misdiagnosis. The aim of this review is to discover the most accurate and effective ways to diagnose tennis leg. A literature search was conducted using the PubMed, Scopus, Google Scholar, and Embase databases from December 2015 to December 2024 with the search terms inflammation, acute pain, tennis leg, and diagnostic approach. Boolean operators AND,OR were used. All the free text article, english language articles were included.A total of 50 articles were retrieved from different sites, out of which only 8 articles were found to meet the inclusion criteria. The diagnostic approaches included x-ray, ultrasound, and Magentic Resonance Imaging (MRI). Medical professionals can improve their ability to accurately recognise and treat a tennis leg by evaluating the condition using the mentioned diagnostic methods.This review concludes that concludes that MRI, ultrasound, x-ray and ultrasound are highly accurate diagnostic tools to evaluate tennis leg.

Keywords: Acute pain, Differential diagnosis, Muscle rupture, Physical therapy modalities.

Abstract-61

Establishing Reference Value of Seated Medicine Ball Throw Test among Collegiate Squash Players: A Feasibility Study

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Introduction: The Seated Medicine Ball Throw (SMBT) test assesses upper-body muscular power by determining the furthest distance an individual can throw a medicine ball from a seated, isolated position. Widely used across various groups, the SMBT validates other upper-body power measures such as the bench press power test and plyometric push-ups. Due to its cost-effectiveness and simplicity, it is preferred over other upper-body power assessments. Though the SMBT is recognised as a reliable and valid test for upper-body power, there are no established reference standards for most populations, including college going squash players aged 18-25 years.

Aim: This study is to validate the practicality and limitations of the methodology and procedures for large-scale studies aimed

at establishing normative reference scoresof seated medicine ball throw for squash player aged 18-25 years.

Materials and Methods: A feasibility trial of total 50 male and female squash player aged 18-25 years performed the SMBT test three times in one day. After recording their height, body mass, Body Mass Index (BMI) and athletic identity measurement scale score participants threw a 1, 2, and 3 kg medicine ball seated at a 90° angle. Each will throw three times and average of the three trials will be recorded.

Results: The age, weight, height, and BMI of the players were 20.38±1.8 years, 63.39±10.48 kg, 168.79±9.0 cm, and 22.24±2.17 kg/m^2, respectively. The reference data of the average trials for 1 kg was 4.87±.64, 2 kg was 4±.58 and 3 kg was 3.2±.49. Pearson correlation coefficients for between age and average score of 1, 2 and 3 kg were r=.294, r=.248, and r=.286, respectively and full stop

Conclusion: The results suggest that it is practical to carry out a more extensive study with a larger sample size to enable broader generalisation of the findings. The collected data offers an initial set of benchmark standards for coaches and students to assess upper-body muscular power using SMBT.

Keywords: Cost benefit, Feasibility, Reference standards, Squash.

Abstract-62

Effect of Dry Needling on Spasticity, Gait and Balance in Post-stroke Survivors: A Systematic Review

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ABSTRACT

Stroke is defined as a sudden neurological deficit of the Central Nervous System due to ischaemia or haemorrhage. Spasticity occurs in 30-80% of stroke patients, typically manifested 3-6 months after stroke. (DN) is a relatively new intervention that has been recently suggested for the control of spasticity following stroke. We aimed to evaluate the effectiveness of DN on spasticity, gait and balance in post-stroke survivors. A computer search of Cochrane library, CINAHL, Physiotherapy Evidence Database (PEDro) and PubMed was conducted. We also performed a manual search of references that were included in the selected articles. Studies included were: i) Randomised Clinical Trials (RCTs); ii) case series; iii) involving patients with a diagnosis of stroke; and iv) using DN alone or in a multimodal treatment. Muscular spasticity was the primary outcome and the additional outcome included were: balance and gait. The methodological quality of the studies was assessed with Physiotherapy Evidence Database Scale. The risk of bias of the included studies was assessed with the Cochrane Risk of Bias Tool for Randomised Controlled Trials.A total of seven RCTs with 218 patients were included in the systematic review. All studies generally reported an improvement of spasticity level, gait and balance after the use of DN, alone or combined with other interventions in stroke survivors.DN for lower extremity in post-stroke survivors may impact positively on spasticity, gait and balance. However, there was a significant heterogeneity across trials in terms of sample size, control group, treated muscles and outcome measures. More RCTs are needed to cover aspects of biases found in the literature, in particular the blinding of participants and personnel.

Keywords: Central nervous system, Ischaemia, Stroke

Abstract-63

Cyberchondria among University Students

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ABSTRACT
Cyberchondria is defined as a multifaceted concept that involves an escalation in worry about one's own general health, as a consequence of the extreme evaluation of information on the worldwide web, and contains mainly two cognitive-emotional aspects: excessiveness and elevated anxiety. In recent years, more and more young individuals have expressed their health concerns via the internet. This study aimed at determining the prevalence of cyberchondria among university students.The data was collected via self-administered questionnaire, designed for the purpose and Cyberchondria Severity Scale produced using google forms. Cyberchondria must be seen as a serious public health concern among university students. Since it is associated with distress and worry, measures need to be adopted to evaluate, prevent, and treat it at the population level. The results will be discussed at the time of presentation.

Keywords: Cyberchondria Severity Scale, Health anxiety, Prevalence.

Abstract-64

Injuries in Gym: A Review Study

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ABSTRACT
Gym or Gymnasium is defined as a place or club where one can go to exercise using machines, weights and other equipments. A fitness injury is defined as any physical complaint experienced by an individual during or as a consequence of fitness training, while fitness and strength training provide numerous health benefits and play a critical role in addressing the public health issue of physical inactivity, They also introduce the risk of exercise-related musculoskeletal injuries. This study aims to determine the frequency, patterns, and factors predisposing the injuries in gym. A computer search of peer reviewed articles from databases such as PubMed (National library of medicine) Google Scholar Medline, Research Gate, was conducted focussing on studies published from 2010 to 2024. Going to gym offer various health benefits, but on the other hand it also has various disadvantages. Studies show a high prevalence of these injuries among gym users, with areas like lower back and shoulders are more prone to injuries.

Keywords: Gym injuries, High intensity functional training, Injury prevention, Resistance training, Sports.

Abstract-65

The Role of Smart Internet of Things (IoT) Technologies in Transforming Physical Therapy: A Narrative Review

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ABSTRACT

As the world's population ages, chronic diseases become more prevalent, and technology increasingly being used in healthcare to produce evidence-based results. Small and reliable devices are being used in clinics, hospitals as well as at home. These devices direct patients toward appropriate exercise to promote a speedy recovery. It effectively enhances patient outcomes, efficiency, and satisfaction. Internet of Things (IoT) technologies connect real and virtual things to the Internet, have the potential to improve the quality of life for individuals with impairments. IoT technologies in physiotherapy enable data storage and monitoring to track patient progress, prevent errors, and improve treatment outcomes. As the initial step in the rehabilitative procedure, primary care physicians frequently recommend conservative, routine activities to their patients. Many studies have provided valuable insights into the adoption of IoT-based healthcare technologies among patients, but opinions toward role of IoT transforming physical therapy have rarely been studied. This review aims to explore the impact of smart IoT technologies in transforming physical therapy. A thorough literature search was conducted from PubMed, the Cochrane Library and Google Scholar database from December 2000 to December 2024. The search strategy included terms like "internet of things", "smart technology" and "smart IoT", and employed Boolean operators (AND, OR) to effectively filter and expand results. This review excluded non-English articles that highlight the role of smart IoT technologies in transforming physical therapy. These studies show that smart IoT technology creates new opportunities to enhance patient engagement and improve rehabilitation outcomes. The quality of the included research showed significant variation with notable inconsistencies in methodology.

Keywords: Information storage and retrieval, Rehabilitation, Treatment outcome.

Abstract-66

A Comparative Study between the Effects of Maitland and Mulligan Mobilisation on Range of Motion in Adhesive Capsulitis: A Literature Review

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ABSTRACT

The term "frozen shoulder" was first introduced by Codman in 1934. He described a painful shoulder condition of insidious onset that was associated with stiffness and difficulty sleeping on the affected side. Frozen shoulder can be a primary or idiopathic problem or it may be associated with another systemic illness.A variety of interventions are used by physiotherapists to reduce pain and disability which includes exercise and electrotherapy along with different types of mobilisations such as Maitland and Mulligan mobilization.Despite of many studies, there are no studies found in the literature on the superiority between these 2 techniques. This study aims to compare the effects of Maitland and Mulligan Mobilization on Range of Motion in Adhesive Capsulitis.A computer search of peer reviewed articles from databases such as PubMed (National library of medicine) Google Scholar Medline, Research Gate, was conducted focussing on studies published from 2010 to 2024. Studies show that the Mulligan Mobilization to provide much better results in increasing range of motion of patients of adhesive capsulitis.

Keywords: Frozen shoulder, Idipathic, Stiffness.

Abstract-67

Effect of Foot Orthosis in Patellofemoral Pain Syndrome: A Literature Review

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ABSTRACT

Patellofemoral Pain (PFPS), also known as runner's knee and anterior knee pain syndrome, is defined as increased pain in the area behind or around the patella when the knee is bent and loaded with weight. Foot orthosis is an in-shoe medical device used as an intervention for individuals with PFPS to control foot motion, usually excessive pronation. Despite the widespread use of orthosis in managing various musculoskeletal conditions, there remains a notable lack of high quality evidence supporting their effectiveness. This study aims to determine the effect of foot orthosis in PFPS. A computer search of peer reviewed articles from databases such as PubMed (National library of medicine), Google Scholar, Medline, Research Gate published from 2008 to 2024. Foot orthosis proves to be beneficial to reduce pain and in increasing the functional mobility in accordance with knee strengthening exercises.

Keywords: Anterior knee pain syndrome, Intervention, Musculoskeletal.

Abstract-68

Neuromuscular Taping Techniques in Neurological Rehabilitation: A Review

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ABSTRACT

Neuromuscular Taping (NMT) is a modern advancement in taping techniques. NMT involves applying elasticadhesive tape to the skin without any tension over the target area which willcreate wrinkles in skin causing dilation effect on the underlying body tissue. It aids in restoring normal muscle function, improving vascular and lymphatic flow, alleviating pain, strengthening weak muscles, supporting postural alignment, and relaxing overused muscles. Pain relief is believed to result from the stimulation or activation of cutaneous mechanoreceptors. As this approach gains worldwide popularity, researchers are investigating its effects on various conditions. However, there is no comprehensive study that reviews all existing research to assess its impact on different neurological conditions. This review aimed to compile existing literature on NMT for the rehabilitation of neurological conditions. An electronic search was conducted using databases such as PubMed, Medline, Ovid, Scopus, Google Scholar, and the Physiotherapy Evidence Database (PEDro) for studies published between 2018 and 2025. Searches were limited to Randomised Controlled Trials, pilot trials, case series, and case reports published in English in peer-reviewed journals. Boolean operators "OR" and "AND" were used with keywords including “Neuromuscular Taping,” “Neurological conditions,” “Stroke,” “Hemiplegia,” “Cerebral Palsy,” “Multiple Sclerosis,” “Diabetes Mellitus,” “Diabetic Peripheral Neuropathy,” “Balance,” and “Proprioception.”From the initial search, 21 full-text articles were identified. After screening titles, abstracts, and removing duplicates, 15 articles were included in the review. NMT was shown to be effective in improving upper limb and hand function in systemic sclerosis and cerebral palsy, reducing pain in multiple sclerosis, enhancing balance, improving microcirculation in diabetes mellitus, aiding stance phase recovery in stroke patients, managing phantom pain post-amputation, and alleviating musculoskeletal impairments such as hemiplegic shoulder pain and diabetic peripheralneuropathy. The review highlights the potential of NMT as a versatile therapeutic intervention for neurological rehabilitation. While the findings suggest promising benefits across various conditions, the limited number of high-quality studies underscores the need for further research. Future investigations should focus on standardised protocols, larger sample sizes, and robust methodologies to validate and expand the clinical applications of NMT.

Keywords: Cerebral palsy, Diabetic peripheral neuropathy, Hemiplegia, Multiple sclerosis.

Abstract-69

Exploring the Role of Virtual Reality Rehabilitation in Enhancing Recovery after Hip Arthroplasty: A Narrative Review

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ABSTRACT

Total hip arthroplasty minimises symptoms and greatly enhances hip function and functional independence, making it one of the most significant surgical operations of the past century. It is among the most economical medical procedures in terms of both financial capabilities and the health advantages. Based on current epidemiological data and future forecasts regarding osteoarthritis and other degenerative bone and cartilage conditions, Virtual Reality (VR) system recreated authentic and artificial environments where patients can interact with (concentration) and experience as real

(existence) using advanced software as well as equipment. The aim of the study is to determine the feasibility and acceptability of virtual reality rehabilitation in the context of hip arthroplasty recovery. A thorough literature search was conducted using key databases such as PubMed, Google Scholar from December 2000 to December 2024 comprising. The search utilised terms such as "virtual reality", "hip arthroplasty" and "osteoarthritis" employing Boolean operators (AND, OR)."After applying the exclusion criteria,a total of six studies were identified as meeting the required standards and were subsequently selected for the study. The non-English articles were excluded in this study.This study suggested the VR rehabilitation in enhancing recovery after hip arthroplasty. The potential advantages of VR rehabilitation in improving hip arthroplasty recovery are highlighted in this narrative review. VR rehabilitation offers significant advantages over traditional methods including improved functional outcomes, reduced pain, muscle strength, and discomfort and enhanced patient motivation to restore their functional capabilities making it an effective and innovative approach to rehabilitation.

Keywords: Functional capability, Osteoarthritis, Pain.

Abstract-70

Impact of Early Mobilisation on Functionality as an Outcome in Aneurysmal Subarachnoid Haemorrhage Patients: A Narrative Review

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ABSTRACT

Aneurysmal Subarachnoid Haemorrhage (SAH) is a critical neurological condition with serious consequences. While mortality rates have decreased over the past 30 years, the level of disability caused by SAH remains high. Key factors influencing prognosis include the patient's age, clinical condition, extent of haemorrhage, and aneurysm size. Additionally, neuropsychological disorders and cognitive deficits play a significant role in determining functional outcomes after SAH. Patients should be assessed using outcome measures typically applied to traumatic brain injury and stroke. Early therapy following SAH improves both physical and cognitive outcomes. Survivors with aneurysmal SAH have a complex recovery that often requires surgery, extended monitoring in the critical care unit, and medication aimed at preventing complications. The goal of this study is to examine and combine existing evidence on the impact of early mobilisation on functional outcomes in patients with aneurysmal subarachnoid haemorrhage. A narrative review was conducted using a systematic search of relevant databases (PubMed, Scopus, and Cochrane Library). Studies investigating early mobilisation interventions in aneurysm patients, published in English between 2012 and 2017, were included. A total of 4 studies met the inclusion criteria, focussing on early mobilisation as an intervention. The primary outcomes assessed were improvements in feasibility and safety. Evidence suggests that early mobilisation started as soon as possible, helps the patient to recover faster. It makes the patient more functionally independent, reducing dependency on other persons, making every task feasible for the patient, and increasing the patient's safety. The timing, intensity, and frequency of early mobilisation are critical factors influencing recovery. Individualised protocols based on haemorrhage severity and patient-specific factors are recommended to optimise benefits. Barriers such as stafftraining and resource availability must be addressed to implement early mobilisation effectively.

Keywords: Feasibility, Neuropsychological abnormalities, Safety.

Hindi Translation, Cross-cultural Adaptation and Validation of Chedoke McMaster Stroke Assessment (CMSA) Scale: A Cross-sectional Study

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Introduction: Stroke is one of the leading causes of death and long-term disability worldwide, emphasising the need for effective rehabilitation strategies. The Chedoke McMaster Stroke Assessment (CMSA) is a reliable and valid measure developed in Canada used to assess both impairment and activity levels in persons with stroke. The widespread use of Hindi, there is no Hindi translation of the CMSA. Developing a culturally and linguistically appropriate version of the CMSA for Hindi speakers could enable rehabilitation personnel to evaluate change in the patient's motor control and functional ability.

Aim: This study focussed on translating and adapting the CMSA into Hindi to ensure its relevance and effectiveness for assessing stroke recovery for patients in India by Hindi-speaking rehabilitation specialists.

Materials and Methods: We obtained permission from the original author of the CMSA to translate the tool into Hindi. The translation process adhered to recognise guidelines for cross-cultural adaptation. Two bilingual experts, one with a medical background and the other a linguistic specialist, independently translated the CMSA into Hindi. The translations were combined and back-translated into English by independent translators to ensure consistency with the original tool. To ensure content validity, we used the Delphi method to assess the relevance of each item in the scale. The experts evaluated each item on a 4-point scale, and the Item-Level Content Validity Index (I-CVI) and Scale-Level Content Validity Index Average (S-CVI/Ave) were calculated.

Results: There is an evidence of its criterion validity which demonstrated it as high degree of linguistic and cultural equivalence. The Hindi CMSA achieved an I-CVI of 0.98985, an S-CVI/Ave of 0.98985, and an S-CVI/UA of 0.881944, indicating strong evidence of its validity.

Conclusion: The Hindi CMSA has been culturally adapted and validated for evaluating stroke-related impairments and functional activity in Hindi-speaking healthcare environments. This version will enhance the ability of rehabilitation personnel in conducting clinical assessments and customising rehabilitation strategies for this population.

Keywords: Criterion validity, Rehabilitation startegies, Stroke rehabilitation.

Abstract-72

Impact of Magnetotherapy in Chronic Low Back Pain: A Literature Review

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ABSTRACT

The most common musculoskeletal pain or discomfort localised in the lumbosacral region, with or without leg pain (sciatica) that persists for more than 3 months. Over 80% of people experience Low Back Pain (LBP) at some point in their lives, making it a very common ailment. According to data, over 33% of people with acute LBP do not recover and develop Chronic LBP (CLBP). There are various causes of LBP. They range from simple spasm or mechanical causes to more serious causes such as herniated disc. The clinical symptoms of CLBP include pain, stiffness, difficulty in walking, impaired sleep, aching or stabbing pain etc. Electromagnetic therapy provides a noninvasive, safe, and easy method to treat pain with respect to musculoskeletal diseases. The aim of this review is to assess the effectiveness of magnetotherapy in reducing pain intensity and enhancing functional ability with CLBP. From December 2015 to December 2025, a literature search was done using the PubMed, Scopus, and Embase databases. Boolean operators (AND, OR) were used in the search, which included terms like "magneto therapy, magnetic therapy, chronic low back pain, pain relief, and pain management." The magnetotherapy articles were included in this review. Non-English and full articles were excluded. A total of 1025 articles were found from different database, out of which only four met the inclusion criteria. The review suggests that magnetotherapy shows an effective and significant pain reduction and improve functional outcomes. The review showed that patients with CLBP may find that magnetotherapy is a useful treatment for reducing pain and improving functional outcomes in LBP.

Keywords: Electromagnetic therapy, Functional outcomes, Pulsed electromagnetic therapy, Pain management.

Abstract-73

Role of Lamaze Breathing in Labour Pain: A Narrative Review

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ABSTRACT

For most women, going through labour is a physically and emotionally taxing event that is frequently marked by severe pain and anguish. Numerous nonpharmacological methods have been developed to assist women in properly managing labour pain and having a happy birthing experience. Lamaze breathing has become one of the most well-known and successful techniques among them. A component of the larger Lamaze approach, which stresses empowerment, knowledge, and natural birthing, is Lamaze breathing. In order to keep women calm, focussed and in control throughout birth, this technique uses rhythmic breathing. Lamaze breathing is essential for lowering pain perception and improving the birthing experience because it increases oxygenation, lowers tension, and creates a focal point. This review aimed to examine how well Lamaze breathing techniques manage labour pain, increase maternal happiness, and lessen the need for pharmaceutical treatments during childbirth. The literature search was performed on PubMed and Cochrane Library. Databases focussed on literature published between 2015-2024 using key words (CLBP OR physical intervention). A total of 120 pregnant women who were in active labour made up the sample for this study, which used a quasi-experimental design. The participants were split into two groups at random: one that received normal care and the other that practiced Lamaze breathing techniques. The Visual Analogue Scale was used to measure the degree of pain, and a postpartum questionnaire was used to gauge maternal satisfaction. When compared to the control group, the intervention group reported significantly reduced pain levels during the active and transitional phases of labour ($p<0.05$). Furthermore, the Lamaze group's ladies expressed greater happiness ($p<0.01$) with their childbirth experience. In the treatment group, there was a 30% decrease in the need for pharmaceutical pain treatment. One useful nonpharmacological strategy for treating labour pain is the use of Lamaze breathing exercises. They increase overall satisfaction with childbirth, ease maternal discomfort, and lessen the need for medication. Lamaze breathing can enhance natural delivery processes and improve the outcomes in mother, when it is incorporated into prenatal education as a normal practice. It is advised that more research be done to examine its use in a variety of populations.

Keywords: Braething patterns, Labour pain relief, Relaxations, Stress reduction.

Abstract-74

Effectiveness of Motion Minder Therapy (MoMT) on Fine Motor Skills among Children with Spastic Hemiplegic Cerebral Palsy: A Pilot Study

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Introduction: Motion Minder Therapy (MoMT) employs Motion Minder watches to provide tactile vibration prompts, enhancing hand function in spastic hemiplegic cerebral palsy children. This phase 1 study evaluates safety, acceptability and efficacy, laying the groundwork for larger-scale trials. Global cerebral palsy prevalence ranges from 1.5 to 3.4 cases per 1000 live births, varying by income level, while MoMT employs wearable technology to potentially enhance hand function and quality of life in neurological conditions.

Aim: To evaluate the feasibility, safety, and acceptability of MoMT in enhancing fine motor skills among children with spastic hemiplegia.

Materials and Methods: This pilot study was conducted at Aadhuraa Special School, Kanchipuram, with 5 children (age 9.6±1.81 years) diagnosed with spastic hemiplegic cerebral palsy. Children were screened using functional classification systems, including the Manual Ability Classification System levels I-III, Bimanual Fine Motor Function levels I-III, Modified Ashworth Scale levels I-III, and Communication Function Classification System levels I-III. Additionally, children had a Mini-Mental State Examination score of 15. The study outcomes were measured using the Shriners Hospital Upper Extremity Evaluation and ABILHAND-Kids assessments. Data were analyzed with Repeated Measures Analysis of Variance and Bonferroni post hoc tests. The study is registered with the Clinical Trials Registry - India (CTRI/2024/01/061490).

Abbreviations DFA, GR, AKQ could not be expanded Significant improvements were noted in school function assessment (baseline: 27.80±3.56 to week 4: 36.20±5.01, p=0.010) and DFA (baseline: 37.40±12.44 to week 4: 57.80±8.65, p=0.011). GR improved from week 2 (3.80±0.447) to week 4 (5.00±0.70, p=0.08). AKQ showed a significant increase from baseline (26±3.16) to week 4 (37.60±5.31, p=0.04).

Conclusion: MoMT effectively enhances fine motor skills in children with spastic hemiplegia. Despite measurement challenges, the intervention shows promise. Phase II will focus on refining therapeutic strategies and optimising outcomes.

Keywords: Behaviour, Mini-Mental State Examination, Modified Ashworth Scale, Upper extremity function.

The Use of Rehabilitation Technology in Functional Tests for Osteoarthritis (OA) of the Knee: A Literature Review

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ABSTRACT

Osteoarthritis (OA), a common disease in the aged, may cause the structural integrity of joints to gradually decline, indicating that OA affects 10–20% of the elderly population. Clinical symptoms of OA in the knee joints, such as joint stiffness, discomfort, and functional deficits, may harm the quality of life (QoL) of people with OA. Among those having knee OA, rehabilitation technology can improve their QoL and functional outcomes. This review aimed to identify different types of rehabilitation technology and assess their effectiveness in enhancing functional outcomes for individuals with OA in the knee. A literature search was conducted from PubMed, Scopus, and Embase Data Base from December 2020 to December 2025. The search utilised terms such as "rehabilitation technology", "machine learning", "knee osteoarthritis", "patellofemoral arthritis", and "tibiofemoral arthritis", employing Boolean operators (AND, OR). Related review articles, systematic reviews, conference papers, and articles in languages other than English were excluded. Two hundred thirty-nine articles were found from three databases, out of which only five met the inclusion criteria. These studies suggest that rehabilitation technology (virtual reality, wearable sensors, tele rehabilitation platforms) effectively and significantly improves functional outcomes. The findings suggest that patients with knee OA may find rehabilitation technology helpful in improving functional outcomes. The included research quality varied, and several had methodological problems despite the encouraging data.

Keywords: Functional test, Functional outcomes, Knee osteoarthritis, Machine learning, Virtual reality.

Abstract-76

The Effectiveness of Physiotherapy Treatment for Recurrent Headache Associated with Neck Pain: A Narrative Review

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ABSTRACT

Recurrent headaches, particularly tension-type and cervicogenic headaches are often associated with neck pain. Several headache subtypes are tension-type headaches, recurrent headaches,migraine and cluster headaches called chronic daily headache syndromes, cause substantial levels of disability.There is a strong association between recurrent headaches and neck pain, and it is found that 50–75% of individuals with recurrent headaches experience neck pain. A potential source for headache has been identified to be the cervical spine and the studies suggest that anomalies in the cervical vertebra can lead to the formation of headaches. This narrative review aims to examine the effectiveness of physiotherapy treatments for recurrent headaches associated with neck pain, focussing on the mechanisms, intervention strategies, and clinical outcomes, which significantly reduces the frequency as well as the severity of headaches. This review utilised PubMed, Google Scholar, and Cochrane to search for relevant literature and identified 20 studies with the keywords “Recurrent Headaches”, “Neck Pain”, and “Physiotherapy interventions” from the last 10 years comprising Randomised Controlled Trial (RCT), and systematic review.Out of 20 studies, 10 articles with an average involving 18 to 55 years old subjects, were found to be pertinent to the review. Studies involved in this review found that physiotherapy, involving various kinds of interventions such as therapeutic exercises, electrical stimulation, therapeutic massage, joint mobilisation, or trigger-point therapy is the common nonpharmacological treatment for headaches, used for recurrent headaches for approximately two-week time period It significantly improve the range of motion, reduce neck muscle tension, and reduce the frequency as and severity of headaches. Evidence suggests that cervical manipulations, combined with strengthening and stretching exercises, are effective in improving neck function and decreasing headache severity.These approaches offer a noninvasive and cost-effective alternative to pharmacological treatments.

Keywords: Cervical manipulation, Manual therapy, Tension-type headache.

Hindi Translation, Cross-cultural Adaptation and Psychometric Properties of the Dynamic Gait Index: A Study Protocol

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Introduction: Stroke remains a significant global health challenge, contributing to high rates of mortality and long-term disability. The Dynamic Gait Index (DGI) is an assessment tool is used to evaluate gait stability and predict the risk of all among older adults and the individual shaving balance issue. The DGI comprises eight functional tasks that assess the aspects of gait and balance during dynamic movements. However, the absence of a validated Hindi version hinders its utility among the over 609 million Hindi speakers worldwide.

Need of the study: Addressing this gap is essential to expanding access to remote stroke rehabilitation for Hindi-speaking populations.

Aim: This study seeks to translate the DGI into Hindi, validate the translated version, and examine its test-retest reliability in stroke patients who primarily speak Hindi.

Materials and Methods: Permission from the original authors of the scale will be obtained prior to initiating a structured translation process. The scale will be translated into Hindi independently by bilingual professionals with expertise in healthcare and linguistics. The translations will then be harmonised into a unified version and back-translated into English to verify accuracy and equivalence. Content validation will involve an expert panel using the Delphi method to calculate Item-level Content Validity Index and Scale-level Content Validity Index Average. The pre final version will be tested on a small group of Hindi-speaking stroke patients to ensure its comprehensibility and cultural relevance. Test-retest reliability will be measured by administering the scale twice at a fixed interval, with consistency assessed through Intra class Correlation Coefficients and Bland-Altman plots.

Keywards: Gait assesment, Reliability, Translation.

Abstract-79

Plyometric Agility Training: Enhancing Basketball Skills and Performance: A Literature Review

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Introduction: Agility is the capacity to maintain body position and quickly change the direction during sequence of motions. It is an essential factor in determining performance in basketball as it requires speed and quick decision-making skills. Agility training plays a crucial role in enhancing athletic performance like power, improved footwork, increased speed and strength, faster response and injury prevention. Agility training includes plyometric training, lateral plyometric jumps, shuttle runs, jump box drills. Plyometric agility drill training is found to have a significant effect among basketball players.It is used widely in training protocols for overall performance enhancement in basketball athletes.

Aim: This study is intended to comprehensively explore the effects of plyometric agility training among basketball players.

Materials and Methods: Research literature published from 2011 to 2024 was searched in Google scholar, Web of science, Scopus, EBSCO, PubMed databases with agility training, basketball, plyometric training as keywords. A total of 1000 articles were identified initially. On the basis of predefined inclusion and exclusion criteria, non English articles and duplicates were excluded. A total of 12 articles were included that met the specified criteria.

Results: Studies showed that plyometric agility training can be effective at change of direction ability. The studies also stated that plyometric agility training improves jumping and sprinting in basketball players. Other study showed effectiveness of plyometric training in coordination and enhancing power among basketball players. Other studies indicated plyometric training improves explosive strength by increasing volume of muscle in lower limb, reducing jumping time and the rate at which force develops.

Conclusion: This literature review concludes that plyometric agility training plays an important role in improving change of direction, jumping, sprinting , coordination ,explosive strength and enhancing power among basketball players.

Keywords: Basketball players, Lateral plyometric jumps, Injury prevention.

Abstract-80

Investigating the Effects of Sacroiliac Joint Mobilisation on Pain, Function, and Disability in Patients with Lumbar Disc Prolapse: A Study Protocol

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Introduction: One cause of potentially incapacitating low back discomfort is the lumbar Prolapse Intervertebral Disc (PIVD). Notably, up to 30.7% of individuals presenting with sciatica and low back pain exhibit concomitant Sacroiliac Joint (SIJ) disorder.

Need of the study: While SIJ mobilisation has been proposed as a potential therapeutic approach for these cases, further rigorous investigation is imperative to elucidate its efficacy in managing lumbar PIVD.

Aim: The purpose of this study protocol is to outline the methodology for a clinical trial to investigate the efficacy of SIJ mobilisation in improving pain, function, and disability in patients with lumbar PIVD.

Materials and Methods: This proposed study intends to employ a single-group pre-test-post-test quasi-experimental design. Participants will be of both genders, aged 30-50 years, with acute, unilateral lumbar PIVD. Individuals with chronic PIVD, disc protrusions, or sequestrations will be excluded. A sample size of 45 participants is estimated, accounting for a 20% dropout rate. Baseline data, including demographics and outcome measures, will be collected prior to the intervention. Participants will receive six sessions of SIJ mobilisation, administered on alternate days. The intervention will consist of posterior-anterior and extension glides, with 30 glides per set and 30 seconds of rest between sets. Core strengthening exercises, including pelvic bridging and adductor ball squeezes, will be incorporated as well. Outcome measures will be assessed at baseline and after the sixth session. These include the Visual Analogue Scale for pain intensity, the Timed Up and Go test for functional mobility, and the Oswestry Disability Index for assessing disability.

Keywords: Intervertebral Disc, Low Back Pain, Intervertebral Disc Displacement, Sciatica.

Efficacy of Cranial Electrotherapy Stimulation on Cognition among Perimenopausal Women: A Quasi-experimental Pilot Study

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ABSTRACT

Introduction: Cognitive alterations are common in clinical practice during menopausal transition time, with subjective reports of "cerebral fog" impairing daily cognitive performance. Cranial Electrotherapy Stimulation (CES) is a neuromodulation approach that delivers pulsed, alternating microcurrent (<1000 μA) to the head via electrodes placed on the earlobes or scalp. It is used to treat anxiety, depression, insomnia, cognition, and headaches.

Aim: To explore the efficacy of CES on cognition among perimenopausal women.

Materials and Methods: This quasi-experimental pilot study was performed in 16 perimenopausal women, aged between 40-55 years. Ethical approval was obtained from the Institutional Ethical Committee with the registration number MMDU/ IEC-267. The trial was registered with the Clinical Trials Registry-India (CTRI) with the identification number CTRI/2024/04/066346. All participants received active CES for 30 minutes, for 4 days a week for 4 weeks. Pre and post assessments of all participants were performed using Montreal cognitive assessment scale (MoCA) to test cognitive function. Statistical analysis was performed using the Statistical Package for Social Sciences (SPSS Version 26.0). The Shapiro-Wilk test was used to determine the normality of the demographic and baseline characteristics. A paired t-test was used to compare the pretest and post-test results.

Results: The MoCA score at baseline was significantly deviated from a normal distribution. For within-group analysis paired t-test was used, MoCA score at baseline was 21.125±2.09 and that after intervention was 22.187±1.64. The result exhibited a significant improvement (p=0.001) when comparing the baseline values to after four weeks of intervention with an effect size of 0.56.

Conclusion: CES significantly improved cognitive performance (delayed recall and attention) among perimenopausal women. No study-related adverse events were reported. It would be valuable to further explore or confirm the effects of CES on cognition.

Keywords: Attention, Memory, Menopause

Abstract-82

A Comparative Study Protocol for Evaluating Instrument-assisted Soft Tissue Mobilisation and Integrated Neuromuscular Inhibition Technique in Managing Hamstring Tightness: A Single-blinded Randomised Controlled Trial

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ABSTRACT

Introduction: People of all ages and activity levels are susceptible to hamstring tightness. It frequently causes functional impairments and restricted Range of Motion (ROM), exacerbating pain. Limited muscle extensibility is a prevalent issue affecting healthy, able-bodied people and a variety of patient groups. In addition to low back pain and abnormal gait, hamstring problems are frequently associated with movement dysfunction at the back of the spine, pelvic region, and lower extremities.

Aim: To plan a study protocol for instrument-assisted soft tissue mobilisation and the integrated neuromuscular inhibition technique to reduce hamstring tightness while enhancing patient flexibility and quality of life.

Materials and Methods: According to the eligibility criteria, 50 individuals between the ages of 18 to 30 years will be recruited. Participants will be randomly assigned into group 1 and group 2. Group 1 will receive Instrument Assisted Soft Tissue Mobilisation (IASTM) and Group 2 will receive Integrated Neuromuscular Inhibition Technique (INIT). Outcome measures like Numeric Pain Rating Scale, Short Form-36 Questionnaire, Pressure Algometer, and Universal Goniometer will be used to compare patient's pre-post intervention status.

Results: Data will be analysed using the Statistical Package for Social Sciences (SPSS) 26.0 software. To determine whether the data is normal, Shapiro-Wilk test will be used. Depending on the normality of the data, parametric tests (paired t-test for within group analysis and independent t-test for between group analysis or non-parametric tests (Wilcoxon signed rank test for within group analysis and Mann Whitney U test for between group analysis) will be applied.

Expected Outcome: In recent literature, both IASTM as well as INIT were found to be useful in increasing hamstring flexibility and functional mobility with hamstring tightness. But while comparing the both, one may show better effectiveness than the other.

Keywords: Flexibility, Pain, Quality of life, Range of motion

The Efficacy of Janda Approach for the Treatment of Text Neck Syndrome: A Case Report

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ABSTRACT

Text neck is an overuse syndrome which affects the head, neck and shoulders, usually resulting from excessive strain on the cervical spine from looking in a forward and downward position at any hand held devices over long period of time. This may result in headache as well as arm, shoulder and neck pain. Treatment usually consists of a combination of pharmacological, nonpharmacological, and physiotherapeutic interventions such as Kendal exercise, mobilisation, myofascial release, muscle energy technique, proprioceptive neuromuscular facilitation technique, neck stabilisation exercises, and electrotherapy. Janda approach is a treatment technique which helps in reducing pain, restoring mobility, enhancing muscle strength, and functions of the cervical spine. This case report aims to evaluate the therapeutic effects of Janda approach along with conventional treatment on pain, Cervical Range of Motion (CROM) and overall function of the cervical spine in Text Neck Syndrome. This is a case of 24-year-old male suffering from Text Neck Syndrome since 1 year. He had a complaint of pain and stiffness in the neck.The aggravating factors were reading, writing, and using a mobile phone, while relieving factors were rest or sitting with neck extension on chair. Janda approach along with conventional treatment was given for 5 days per week for 2 weeks. visual analogue scale, pressure biofeedback, CROM and Neck Disability Index were used as an outcome measures.After 2 weeks of intervention, there were significant decrease in pain and neck disability, and improved muscle strength and range of motion in cervical spine. This case report concluded that Janda approach along with conventional treatment can be used as an effective intervention protocol for reducing pain, increasing range of motion, enhancing muscle strength and reducing neck disability in patients with Text Neck Syndrome.

Keywords: Cervical spine, Mobile phone, Muscle strength, Overuse syndrome, Range of motion.

Abstract-84

Study Protocol for a Single-blinded Randomised Controlled Trial Comparing the Effects of the Spray and Stretch Technique and Muscle Energy Technique on Pain and Functionality in Patients with Chronic Non Specific Neck Pain

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ABSTRACT

Introduction: The second most prevalent musculoskeletal condition and the third leading cause of shortened life expectancy is neck pain. It is a common cause of disability for many individuals, leading to limitations in daily activities, reduced work productivity, and a diminished quality of life. Muscle Energy Technique (MET) uses patient-generated muscular contractions to increase strength and range of motion, whereas the spray and stretch technique uses a vapocoolant spray to help with muscle stretching. Although there is potential for managing Non Specific Neck Pain (NSNP) with both non-invasive methods.

Aim: To plan a study protocol of spray and stretch technique in reducing pain and improving functionality in patient with chronic NSNP against MET on upper trapezius tightness.

Materials and Methods: Patients will be recruited based on selection criteria. Subjects will be randomly allocated into group A and group B. Group A will receive spray and stretch technique with conventional therapy and Group B will receive Muscle Energy Technique (MET) with conventional therapy. Pre-test and post-test assessment will be done by using numeric pain rating scale, Neck Disability Index and Universal Goniometer. The treatment will be administered alternately three days a week for four consecutive weeks.

Keywords: Chronic neck pain, Musculoskeletal condition, Quality of life, Trapezius

Effectiveness of Various Intensities of Laser Therapy in Managing Primary Dysmenorrhoea: A Systematic Review

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ABSTRACT

Primary dysmenorrhea, characterised by painful menstrual cramps without an underlying medical condition, significantly impacts the daily lives and well-being of many women worldwide. Traditional pharmacological treatments, while effective, are often associated with side effects, prompting a need for safer, noninvasive alternatives. Laser therapy, particularly Low-level Laser Therapy (LLLT) and High-intensity Laser Therapy (HILT), has emerged as a promising approach. This review evaluates the effectiveness of various laser therapy intensities in reducing pain and improving quality of life in women with primary dysmenorrhea.

A systematic search was conducted using databases such as PubMed, Scopus, Web of Science, and the Cochrane Library, covering studies published between 2000 and 2024. Relevant keywords included "primary dysmenorrhea,""low-level laser therapy," and "high-intensity laser therapy." Out of 42 articles initially identified, 15 studies met the inclusion criteria based on relevance and methodological quality. Articles were excluded if they focussed on secondary dysmenorrhea, lacked clear outcomes, or were not peer-reviewed.

The findings revealed that both LLLT and HILT are effective in reducing pain associated with primary dysmenorrhea. LLLT, particularly at 940 nm, showed progressive improvement with repeated use, while LED photobiomodulation at 630 nm also provided significant pain relief and enhanced quality of life. Additionally, hormonal analysis across studies reported reduced cortisol levels, indicating a physiological shift in pain perception. HILT, with its deeper tissue penetration, was especially effective for severe cases. Importantly, no adverse effects were reported in any of the reviewed studies.

In conclusion, laser therapy, including both LLLT and HILT, offers a safe and effective alternative for managing primary dysmenorrhea. These modalities provide significant pain relief and improve overall quality of life, making them valuable nonpharmacological options. Future research should focus on standardised treatment protocols and exploring the long-term benefits of these therapies to optimise their clinical application.

Keywords: High intensity laser therapy, Low-level laser therapy, Noninvasive therapy, Pain relief.

Abstract-86

Effect of Yogic Eye Exercises on Chronic Neck Pain with Visual Complaints: A Narrative Review

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ABSTRACT

Chronic neck pain is a common problem that is frequently accompanied by visual problems like eye strain, hazy vision, and headaches. These symptoms are commonly associated with poor posture, cervical spine dysfunction, and muscular stress. This narrative review aims to examine the effects of yogic eye exercises on chronic neck pain and related visual problems, exploring their potential to alleviate pain, reduce visual discomfort, and enhance overall health and well-being. Databases were searched on PubMed and EMBASE. The articles published in English from January 2014 to January 2025 were screened. Out of 155 articles identified in various databases, duplicate articles were removed, and five met the qualifying criteria. Eligible studies will consist of randomised controlled trials, cohort studies, and observational studies that evaluate the impact of yogic eye exercises (such as palming and eye rotations) combined with other yoga practices on chronic neck pain and visual complaints. Yogic eye exercises and other yoga practices show potential in treating chronic neck pain and visual issues. However, more research is needed to standardise protocols and confirm long-term benefits.

Keywords: Cervical spine, Poor posture, Yoga.

Abstract-87

Effect of Proprioceptive Neuromuscular Facilitation on Pain and Function in Patients with Neck Pain: A Literature Review

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ABSTRACT

Neck pain, prevalent in middle-aged individuals and women, often results from degenerative changes or prolonged static positions. The cervical spine, crucial for head stability and mobility, is prone to injuries and chronic pain. While traditional physiotherapy is beneficial, advanced techniques like Proprioceptive Neuromuscular Facilitation (PNF) and Cranio-cervical Flexor Training (CCFT) are more effective in reducing pain and improving function. PNF therapy

enhances joint function and proprioception, addressing conditions such as cervical radiculopathy and chronic mechanical neck pain. This review aimed to compile existing literature on the effects of PNF on neck pain. Electronic searches were performed using PubMed, PubMed/Medline, Ovid, Scopus, Google Scholar, and the Physiotherapy Evidence Database (PEDro) for studies published between 2019 and 2025. Searches were restricted to Randomised Controlled Trials (RCTs) and randomised pilot trials available in English peer-reviewed journals. Boolean operators "OR" and "AND" with keywords like "PNF" AND "Neck pain" OR "Cervical pain" AND "Randomised controlled Trial" guided the search process. A total of 13 articles were initially examined, and after reviewing their titles and discarding those that were not relevant, 5 articles were chosen for further analysis. PNF has been proven to be more effective than other manual therapy techniques, electrotherapy and conventional exercises. Research indicated that PNF techniques enhance cervical proprioception, muscle strength, and Range of Motion (ROM), especially in extension and rotation. In the context of cervical spine treatment PNF has been found to alleviate pain, improve daily living activities, and enhance functional outcomes. Specifically, patients with cervical radiculopathy were found to have a notable reduction of visual analogue scale scores from 4.27 to 1.20 with a significant difference of 1.73 points. PNF group showed more improvements in pain intensity, disability scores and quality of life as compared to the control groups. Both PNF and CCFT effectively alleviated chronic neck pain and improved ROM; however, PNF exhibited distinct advantages in certain movement directions. Comparisons with other therapies showed PNF yielded better pain reduction and functional outcomes. These findings supported that PNF is a preferred treatment for neck pain and cervical spine conditions.

Keywords: Neck Pain, PNF, Cervical Pain, Randomized controlled trail, Mechanical Neck Pain

Abstract-88

An Investigation of Physiotherapy Interventions in the Management of Lower Cross Syndrome: A Literature Review

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ABSTRACT

Lower Cross Syndrome (LCS), characterised by muscular imbalances with weak gluteals/abdominals, tight hip flexors/lumbar extensors, contributes to a range of musculoskeletal complications. Physiotherapy interventions have been its primary treatment modality. Given the increasing prevalence of sedentary lifestyles and the availability of diverse physiotherapy interventions,there is a critical need to understand the most effective physiotherapy interventions for managing LCS. This literature review, therefore aims to investigate the effectiveness of various physiotherapy interventions in managing LCS. To achieve this, an extensive search for full-text articles addressing the role of physiotherapy intervention for the treatment of LCS, published in the English language between 2019 and 2024, was thus carried out through the databases PubMed, EMBASE, Cochrane Library, PEDro and EBSCOhost using a combination of keywords, including 'Lower Cross Syndrome,' 'Postural Disorder,' 'Exercise Therapy,' and 'Physiotherapy,' and Boolean operators to refine the search strategy.No geographical limitations or study design restrictions were applied for study inclusion. Following the comprehensive search, a total of 5 randomised clinical/control trials and 2 experimental studies met the eligibility criteria. The study population comprised males and females aged between 11 and 50 years. The physiotherapeutic interventions included 6 to 24 sessions of conventional physiotherapy involving stretching and strengthening exercises and the use of specific manual therapy techniques like Janda's approach, Sahrmann's approach, muscle energy technique, proprioceptive neuromuscular facilitation technique, dynamic neuromuscular stabilisation training, and lacrosse ball massage technique. The effectiveness of these interventions was assessed using outcome measures, including the Oswestry Low Back Pain Disability Questionnaire for functional disability, Modified Thomas test and goniometry for hip flexibility, sit-and-reach test for overall flexibility, visual analogue scale and numeric pain rating scale for pain, manual muscle testing for abdominal and gluteal strength, Y-balance test and functional movement screening for postural control, McGill Pain Index and plank test for muscle function, and clinical measurements such as costovertebral angle, lumbosacral angle, and anterior pelvic tilt for

postural assessment. Findings suggest that physiotherapy plays a crucial role in LCS management. A comprehensive approach encompassing strengthening, stretching, manual therapy, and patient education is recommended. Future research should focus on standardised protocols and long-term outcomes to enhance treatment efficacy.

Keywords: Low back pain, Muscles, Physical therapy modalities, Postural balance.

Abstract-89

The Role of Transcranial Direct Current Stimulation in Managing Pain and Enhancing Mobility in Knee Osteoarthritis: A Narrative Review

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ABSTRACT

Knee osteoarthritis (OA) is a common condition characterised by chronic pain and reduced mobility, particularly in the elderly population. Transcranial direct current stimulation (tDCS), a non-invasive brain stimulation technique, has proven to be a promising intervention in managing OA. This narrative review aims to synthesize existing evidence on the effectiveness of this intervention in patients with OA, with a primary focus on the Western Ontario and McMaster Universities Osteoarthritis Index (WOMAC) scale as a key outcome.A comprehensive literature search was conducted in PubMed and Scopus databases from 2017 to 2024 to identify studies that investigated various aspects of tDCS, including its effects on clinical and experimental pain, neurophysiological mechanisms, combination therapies, and feasibility in different settings, according to predefined eligibility criteria. The review summarises findings from randomised controlled trials and pilot studies. Evidence indicates that tDCS over the primary motor cortex with the cathode over the contralateral supraorbital area effectively reduces pain severity, enhances pain modulation mechanisms, and improves mobility in knee OA patients. The findings highlight that tDCS improves functional outcomes as measured by WOMAC and benefits in clinical and experimental pain modulation. Preliminary findings are promising, necessitating large-scale trials to optimise protocols, address inconsistencies, and assess long-term effects. This review underscores the clinical relevance of using tDCS in managing OA and identifies gaps for future research, in long-term efficacy and standardised protocols.

Keywords: Chronic pain, Pain measurement, Western Ontario and McMaster Universities Osteoarthritis Index

Abstract-90

Prevalence of Retained Primitive Reflex among Healthy Preschool going Children

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ABSTRACT

Introduction: Primitive reflexes are brainstem-mediated involuntary movements, emerging around the 25th week of pregnancy and fading by six months, supporting motor development. Cortical maturation inhibits these reflexes via motor control pathways. Persistent reflexes may signal neurological conditions like cerebral palsy or milder issues such as learning difficulties. Improper integration can affect motor skills, coordination, behaviour, and learning.

Aim: To investigate the prevalence of persisting brainstem-mediated reflexes like Asymmetrical Tonic Neck Reflex (ATNR), Symmetrical Tonic Neck Reflex (STNR) and Tonic Labyrinthine Reflex (TLR) among preschool going children.

Materials and Methods: This observational study includes 240 school-going children of age 4-6 years from two different schools of Ambala and Punjab and they were screened for persistence of primitive reflex using the Sally Goddard Institute for Neuro-Physiological Psychology battery reflex test.

Results: This study showed the maximum persistence/prevalence of right ATNR (83%), whereas extension STNR had the low prevalence rate of (46%). Left ATNR had the prevalence of 78%, extension TLR had 47% prevalence rate, and flexion STNR and flexion TLR had 65% prevalence of persistence.

Conclusion: Persistence of ATNR is maximum where as persistence of STNR and TLR has low prevalence. Early screening and interventions to address persistent reflexes like reflex integration therapy can be used to avoid the neurological impairments like attention, reading, coordination, learning difficulties, inability to perform motor tasks and gait impairments which can prevent developmental delay.

Keywords: Abnormal reflex, Asymmetrical tonic neck reflex, Symmetrical tonic neck reflex, Tonic labyrinthine reflex.

Abstract-91

Usability of Functional Electrical Stimulation on Upper Limb Rehabilitation of Subacute Stroke: A Literature Review

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ABSTRACT

Introduction: Stroke is one of the leading cause of long-term disability, often resulting in significant impairments in motor function, especially in the upper limbs. Sub-acute stroke, defined as the phase occurring between 1 and 6 months post-stroke, is a critical period for rehabilitation, as patients have the potential for a significant recovery.

It has been discovered from numerous studies that Functional Electrical Stimulation (FES) helps the hemiplegic upper limb patients to improve the motor function by stimulating the muscles using electrodes on or near the innervating nerve fibres.

Aim: The aim of the study is to present comprehensive review regarding the usability of FES in upper limb rehabilitation of subacute stroke patients.

Materials and Methods: Research literature published from 2008 to 2024 was searched in Google scholar, Web of science, Scopus, EBSCO, PubMed databases with FES, upper limb rehabilitation and subacute stroke patient as keywords. A total of articles 300 were identified initially. On the basis of predefined inclusion and exclusion criteria, non English articles and duplicates were excluded. A total of 10 articles were included that met the specified criteria.

Results: Several studies included did not assess the quality of movement as an outcome to assess the role of FES in upper limb rehabilitation of subacute stroke patients. In this context of the applicability of the FES as a tool that contributes to enhancing the quality of movement of the post-stroke subject, it is important to consider the concept of usability as a determining factor.

Conclusion: This literature review concludes FES plays an important role to improve muscle strength, motor control, and functional independence makes it a promising intervention for optimising recovery during the critical sub-acute phase. While more research is needed to establish standardised treatment protocols and identify the most effective approaches, the current evidence supports FES as an effective tool in stroke rehabilitation and a promising area for continued investigation.

Keywords: Critical period for rehabilitation, Quality of movement, Stroke rehabilitation tool.

Abstract-92

The Effectiveness of Shockwave Therapy in Diabetic Neuropathy Patients: A Narrative Review

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ABSTRACT

Diabetic neuropathy is a common and debilitating complication of diabetes, often resulting in chronic pain, sensory disturbances and functional impairments. Traditional pharmacological treatments offer limited effectiveness, leading to the exploration of alternative therapies like shockwave therapy. Shockwave therapy is a noninvasive treatment that utilises acoustic waves to promote tissue healing, reduce pain, and improve nerve function. This review aimed to assess the effectiveness of shockwave therapy in improving pain, nerve function, and quality of life in patients with diabetic neuropathy. A systematic search was performed using PubMed, Scopus, Cochrane and Google Scholar databases for

studies published between 2014-2024. Boolean operators such as “AND” and “OR” were used in search strategy as “shockwave therapy” AND “diabetic neuropathy” OR “diabetic nerve damage” AND “pain” OR “quality of life”. The inclusion criteria focussed on randomised controlled trial involving shockwave therapy assessed in relation to pain reduction, nerve function improvement and overall quality of life. Out of 4,500 studies screened, 6 studies met the inclusion criteria. These studies revealed that shockwave therapy significantly reduced pain intensity (measured via the visual analogue scale). Improved nerve conduction velocity, and enhanced functional outcomes. Patients also experienced improved quality of life, as reflected in standardised quality of life assessments such as SF-36.Shockwave therapy demonstrated significant potential as an adjustive treatment for diabetic neuropathy, with notable effects on pain reduction, nerve function, overall quality of life.

Keywords: Nerve conduction, Nerve function, Pain reduction, Quality of life.

Abstract-93

Developing, Validating and Pilot Testing of an Exercise Protocol for Post-menopausal Women: A Study Protocol

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ABSTRACT

Introduction: Menopause refers to a natural biological event, characterised by the cessation of the menstrual cycle permanently.

Need of this study: Despite being a physiological phenomenon, menopause is frequently accompanied with symptoms that can significantly lower a woman's quality of life and have a significant impact on her daily activities.

Aim: This study aims to design, develop and validate an exercise protocol which will be multi-domain and further to find the effect of the validated protocol in post-menopausal women.

Materials and Methods: A brief literature review will be done to find out the the most prevalent symptoms among postmenopausal women. Based on the findings, we will develop an exercise protocol. After which content validation of the developed protocol will be done by Delphi survey method on the basis of relevancy. After the validation, pilot testing of the developed protocol will be evaluated to understand its efficacy among postmenopausal women.

Keywords: Biological Process, Menstural cycle, Natural, Quality of life, Survey

Abstract-94

Test-retest Reliability of the 360° Turn Test in School going Children with Different BMI

Ethical Number: IEC-2684

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ABSTRACT

Introduction: Dynamic balance is an important component of motor performance, plays a vital role in the physical activity and functional mobility of children. The 360-degree Turn Test (360DTT) is a reliable measure for assessing dynamic balance. This study investigates the test-retest reliability of the 360DTT in school-going children aged 6–17 years with varying Body Mass Index (BMI). The rising prevalence of childhood obesity underscores the importance of assessing balance to mitigate the associated risks of physical inactivity and motor deficits.

Aim: To estimate the test-retest reliability of the 360DTT and examine its influence on BMI on dynamic balance in children.

Materials and Methods: This cross-sectional observational study recruited 153 children (51 in each BMI group) from a school. Demographic data, including age, height, weight, and BMI, were measured. Participants performed the 360DTT in a controlled environment, and the test was repeated after 48 hours. The time taken to complete the test in clockwise and counterclockwise directions was measured using a stopwatch. Test-retest reliability was assessed using Cronbach's alpha, Intraclass Correlation Coefficient (ICC), Standard Error of Measurement (SEM), and Minimum Detectable Change (MDC 95%).

Results: The normal and obese groups demonstrated excellent test-retest reliability (Cronbach's alpha ≥0.89, ICC ≥0.89), while the overweight group showed moderate reliability (Cronbach's alpha =0.71, ICC=0.71). Measurement errors (SEM: 0.70–0.92) and MDC95% (1.94–2.55) were minimal across all groups. Performance times were consistent, with mean differences between trials remaining statistically insignificant (p=0.001). Children with higher BMI displayed slower test performance, indicating potential balance impairments.

Conclusion: The 360DTT exhibits high reliability for assessing dynamic balance in school-going children, particularly in normal and obese groups. Overweight children showed moderate reliability . The test's ease of use and reliability make it a valuable tool for evaluating balance and guiding interventions to improve motor performance, particularly in children with obesity-related challenges.

Keywords: Childhood obesity, Dynamic balance, Motor performance.

Abstract-95

Effect of Nordic Walking on Physical Activity among COPD Individuals: A Narrative Review

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ABSTRACT

Chronic Obstructive Pulmonary Disease (COPD) is a progressive respiratory disorder that reduces physical capacity and significantly affects quality of life. As COPD progresses, patients often restrict their physical activities, leading to a decrease in endurance and persistent breathlessness. However, exercise and physical activity play an essential role in managing COPD by improving exercise capacity, endurance, decrease dyspena and overall well-being. Nordic walking, a low-impact aerobic exercise performed using two specially designed poles, has gained recognition for its potential benefits in COPD rehabilitation. By engaging both the upper and lower limbs, this exercise helps improve endurance, peak oxygen consumption (VO_2 max), and the ability to perform daily physical activities. This narrative review explored the effects of Nordic walking on exercise capacity and rehabilitation outcomes in individuals with COPD. A systematic search of Scopus, PubMed, and Ovid databases was conducted for studies published between 2010 and 2025, focusing on Randomized Controlled Trials involving COPD patients. Nordic walking interventions were included, while studies involving Myocardial Infarction, Gait Disorders, Cognitive Disorders, or Cardiac Arrhythmias were excluded. Boolean queries were used with keywords such as “COPD,” “Chronic Obstructive Pulmonary Disease,” “Chronic Lung Disease,” “Nordic Walking,” and “Pole Walking.” A total of 134 articles were identified, and after removing duplicates, 91 articles were screened. Based on titles and abstracts, 86 studies were excluded, leaving 7 full-text articles for review. Evidences suggests that Nordic walking is a feasible and effective intervention for COPD patients, enhancing their physical fitness and overall quality of life. It provides a safe and structured way to increase physical activity, making it an excellent option for pulmonary rehabilitation programs. Dyspnoea was recorded by modified Borg scale and exercise capacity by 6-minute walk test, treadmill. In conclusion, Nordic walking proved to be a safe and effective exercise intervention for individuals with COPD. It improved physical activity levels, exercise tolerance, and overall rehabilitation outcomes. By engaging both the upper and lower limbs, Nordic walking provided a comprehensive approach to enhancing functional capacity and quality of life in individuals with COPD, making it a valuable addition to pulmonary rehabilitation programs.

Keywords: Chronic lung disease, Physical therapy, Pole walking.

Abstract-96

Effect of Intermittent Fasting on Cardiovascular Health: A Narrative Review

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ABSTRACT

Intermittent fasting (IF)/ Time Restricted Feeding (TRF) has emerged as a widely recognised dietary strategy, not only for promoting weight loss but also for its potential benefits to cardiovascular health. IF has been shown to significantly reduce key risk factors for heart disease, including hypertension, high cholesterol, and inflammation. This review examines the potential of intermittent fasting to improve heart health, highlighting its advantages beyond weight management and its promising role in the prevention of heart disease. This narrative review aims to evaluate the impact of intermittent fasting on cardiovascular health focussing on its effects on blood pressure, cholesterol, inflammation, and overall heart function. This review followed IMRAD pattern for non systematic review. The search items like "Time Restricted Feeding", "Alternate Day Fasting", "Meal Skipping", "Intermittent Fasting", "Caloric Restriction", "Cardiovascular disease" using Boolean operators AND, OR were used. The databases probed were Google scholar, PubMed, Scopus for relevant research published from 2015 to 2024.The study including both male and female individuals ranging from age group 16-84 years who utilised intermittent fasting as an intervention on cardiovascular health. Initially a total of 1,844 articles were identified through comprehensive database searches. After removing of 1039 duplicates, remaining 805 articles were screened by title and abstract and 788 excluded. Seventeen full text articles were screened for inclusion in this narrative review. Out of 17, 8 full text studies were included in the review. The results of all eight studies revealed that IF/TRF, improves insulin sensitivity, glucose metabolism, liver enzymes, and cardiometabolic health including lipid profiles. Three randomised controlled trials also reported that 4- and 6-hour TRF resulted in mild weight loss over eight weeks. It overall concludes that intermittent fasting is a safe diet therapy and provides a promising effect on cardiovascular and metabolic health.

Keywords: Alternate day fasting, Caloric restriction, Cardiovascular Disease, Meal skipping, Time restricted feeding

Abstract-97

Effectiveness of Cupping Therapy on Cross-sectional Area of Gastrocnemius in Patients with Plantar Fasciitis: A Quasi-experimental Pilot Study

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ABSTRACT

Introduction: Plantar fasciitis, a common cause of heel pain, is often associated with muscle imbalances, particularly in the gastrocnemius. Cupping therapy, an alternative treatment, may enhance blood flow, relieve muscle tension, and support healing. This study examines the effectiveness of dynamic cupping therapy in reducing gastrocnemius muscle size and alleviating pain in plantar fasciitis patients.

Aim: The aim of this study was to evaluate the effectiveness of cupping therapy on the cross-sectional area (thickness) of the gastrocnemius muscle and pain reduction in patients with plantar fasciitis.

Materials and Methods: A quasi-experimental, pilot study with ethical approval obtained from the Institutional Ethics Committee with the registration number MMDU/IEC-2997. The trial was registered with the Clinical Trials Registry-India (CTRI) with the identification number CTRI/2024/09/073314. The study was performed on 16 participants of gastrocnemius tightness associated with plantar fasciitis, aged between 18-45 years. Participants were pre-assessed using B-mode ultrasonography for measuring the cross-sectional area and muscle thickness and pain intensity using the Visual Analogue Scale (VAS). All participants received single session of dynamic cupping therapy with pressure +1 mmHg for 10 mins. Pre-intervention (on the 1st day), and post-intervention (on the 3rd day) assessment were obtained for the outcome measures.

Results: A significant decrease in the cross-sectional area of the gastrocnemius post-treatment (mean increase of 10%, $p<0.01$) was

observed along with a notable reduction in pain intensity, with a mean decrease of 3 points on the VAS ($p<0.01$). These results suggested that cupping therapy exhibited a positive effect on muscle thickness and pain relief in patients with plantar fasciitis.

Conclusion: Cupping therapy assisted the treatment of plantar fasciitis by improving blood flow, reducing pain, enhancing muscle flexibility, and supporting tissue healing, addressing issues like muscle tightness and gastrocnemius dysfunction.

Keywords: Heel pain, Dynamic cupping, Ultrasonography

Abstract-98

The Impact of Otago Exercises on Improving Balance in Knee Osteoarthritis: A Literature Review

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ABSTRACT

Osteoarthritis (OA), the most common kind of arthritis, is defined by the degeneration of the underlying bone and joint cartilage, which causes stiffness, pain, and physical incapacity. According to WHO as osteoarthritis is more prevalent in older people (about 70% are older than 55), global prevalence is expected to increase with the aging of populations. Common clinical signs include knee pain that begins slowly and increases with movement, knee stiffness and swelling, pain that worsens over time, and pain that worsens after prolonged sitting or rest. The aim of the study is to review the literature stating the role of Otago exercises on balance in knee osteoarthritis. The Otago exercise programme includes strength exercise including balance training. A literature search was conducted from PubMed, Scopus, and Embase Database from December 2015 to 2025 on 7 January 2025. The search utilised terms “Otago exercise,”“balance,”“Otago exercise programme,”“home-based balance exercises,” knee o steoarthritis,”“degenerative,”“arthritis,” cartilage, “tibiofemoral,” and “patellofemoral.” The Inclusion criteria for this study were randomised controlled trials and articles written in english language. Related review articles, systematic reviews, conference papers, and articles in languages other than English were excluded. A total of 423 articles were found out of which only five met the inclusion criteria. The result implied to evaluate the effectiveness of the Otago exercise programme in improving balance in individuals with knee OA. The Timed Up and Go OMIT test is used to assess the outcomes of balance improvement. Further research is needed to strengthen these finding by comparing the efficacy of Otago with other therapeutic technique.

Keywords: Arthritis, Joint diseases, Balance.

Abstract-99

A Study Protocol of Effects of Neuromuscular Taping on Facial Impairments among Patients with Bell's Palsy

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Introduction: Bell's Palsy (BP), a type of peripheral facial palsy affects the superior and inferior hemiface. BP is the most common cause of facial nerve palsy accounting for 49-51% of all cases, with an estimated annual prevalence of 20-32.2 per 100,000 people. Its incidence is higher in the ages of 15-45 years and there is a recurrence rate of 8-12%. Neuromuscular Taping (NMT) is a technique of applying elastic adhesive tape to the skin without any tension over the target area.NMT is supposed to induce pain relief, facilitation of lymphatic flow and increased vascularity by employing decompressive stimulation and dilation of underlying body tissue.

Aim: To determine the effectiveness of NMT on Facial Disability in Patients with Bell's Palsy.

Materials and Methods: Twelve participants with BP will be recruited based on the selection criteria. Participants will be randomly allocated into two groups. Experimental Group (EG) will receive treatment with NMT and conventional exercises and Control Group (CG) will receive sham NMT and conventional exercises. Treatment will be given for consecutive 6 days for one week. Outcome measures, such as House- Brackmann grade, Facial clinimetric scale and Facial index scale will be used. NMT will be done on the following muscles: Frontalis muscle, Orbicularis oculi, Risorius, Zygomaticum, Buccinator, Masseter, Levator Labii Superior, Levator anguli oris, and Temporalis muscle from origin to insertion without any stretch in it. Sham NMT will be applied to the same muscles, but it will be performed incorrectly.

Results: The data found to normal distributed will be represented as mean and standard deviation and the data which was found to be not normal distributed will be represented as median and interquartile range (IQR).

Conclusion: This study aims to explore the potential benefits of NMT combined with conventional exercises in patients with BP. By comparing the outcomes of the experimental and control groups the findings will provide valuable insights into the efficacy of NMT as a therapeutic approach. If proven effective, NMT could emerge as a complementary intervention for enhancing recovery in individuals with BP, paving the way for its broader clinical application.

Keywords: Elastic adhesive tape, Facial disability, Physiotherapy.

Abstract-100

Role of Bunkie's Test over Kinetic Chain: A Literature Review

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ABSTRACT

The kinetic chain refers to the activation of the body segment, which transfers mechanical energy to support the movement. If there is any defect, then it affects the transfer of energy, physical performance, and force to the body segment. The kinetic chain is assessed by the Bunkie's test, which is used to evaluate the core muscular endurance, strength, and fascial lines with 5 different plank positions (bilaterally a total of 10 tests) and hold for 40 sec. For the maintenance of posture and mobility, fascia is an important component. This study aims to find out the role of Bunkie's test over the kinetic chain, which is used to evaluate the strength, endurance, and stability of the core. It is also used to evaluate the fascial dysfunction and imbalances. The research is conducted by using Google Scholar, PubMed, DOAJ, and Cochrane, including articles from 2000-2024. A total of 8 articles were relevant to my selection criteria, and they were thoroughly reviewed. The sensitivity of Bunkie's test is 0.89, (95%) and the specificity is 0.52. Every research study supports that the Bunkie's test is used to test the kinetic chain and fascial dysfunction. Therefore, Coaches and trainers used the Bunkie's test for fascial dysfunction, and there is no difference between the hold position times per gender. The test can improve the dynamic balance.

Keywords: Dynamic balance, Fascia, Fascial dysfunction

Abstract-101

The Role of Myofascial Release in Nonspecific Neck Pain: A Literature Review

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ABSTRACT

Nonspecific Neck Pain (NSNP) is a prevalent musculoskeletal condition characterised by pain and stiffness in the cervical region without an identifiable pathological cause. Myofascial restrictions contribute significantly to NSNP by altering muscle mechanics, reducing Range of Motion (ROM), impairing quality of life and causing persistent discomfort. Myofascial Release (MFR), a specialised manual therapy technique, alleviates fascial tightness, improves muscle function, and restores movement patterns. This literature review evaluates the effectiveness of MFR in managing NSNP. A systematic search was conducted using SCOPUS and EMBASE databases for articles published between 2020 and 2025. Reviews, book papers, editorials, and conference papers were excluded. A total of 742 articles were identified, including 26 randomised controlled trials. After screening, 12 studies met the inclusion criteria, explicitly addressing the therapeutic benefits of MFR in NSNP. The reviewed studies utilised outcome measures such as VAS and NPRS for pain, cervical range of motion (CROM), and the Neck Disability Index (NDI) to evaluate disability levels. Two studies demonstrated that combining MFR with standard physical therapy significantly reduced pain and improved ROM. In contrast, two others highlighted the effectiveness of MFR with Instrument-Assisted Soft Tissue Mobilisation in resolving myofascial trigger points, enhancing CROM, and reducing NDI scores. Additional findings revealed the efficacy of vacuum MFR, dry needling, and MFR combined with stretching or strengthening exercises in improving pain, ROM, and functional outcomes in NSNP management. The review highlights the therapeutic benefits of MFR for NSNP, particularly when combined with conventional therapies, demonstrating its effectiveness in improving pain, CROM, and NDI.

Keywords: Muscles, Quality of life, Range of motion, Soft tissue release.

Abstract-102

Impact of High Intensity Laser Therapy on Shearwave Elastography Parameters of Achilles Tendon in Healthy Adults: A Study Protocol

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ABSTRACT

Introduction: Achilles tendon injuries can happen in a variety of ways. High-intensity Laser Therapy (HILT) has been used more recently in the therapeutic protocols of physiotherapy. The benefits of this noninvasive, painless, and convenient method include increased joint mobility, effective deep tissue stimulation, anti-inflammatory and analgesic effects, and more. Shear wave imaging has the benefit of offering quantitative measurements in a comparatively limited area of the tendon, making it possible to precisely identify and quantify tendon disease, which is known to affect distinct locations. It is yet unclear how HILT will affect the tendon's mechanical characteristics over time (such as its stiffness and elasticity) and whether these modifications will translate into better clinical outcomes.

Need of the study: The findings from the study will help to improve clinical outcomes by determining how the effect of high intensity laser therapy will result in the changes in the shear wave properties of Achilles tendon.

Aim: This study aims to determine the effect of HILT on shear wave elastography of Achilles tendon in healthy adults.

Materials and Methods: One group quasi experimental study will be conducted at a tertiary care superspeciality hospital on healthy individuals. Sample size will be calculated after pilot testing. Patients will be recruited based on inclusion and exclusion criteria using purposive sampling method. Shear wave elastography will be used to determine the pre and post intervention changes in the Achilles tendon. HILT will be given to the patients for 3 consecutive sessions to assess what changes occurred post intervention.

Keywords: Joint mobility, Shear wave imaging, Therapeutic physiotherpay protocols

Abstract-103

Relative and Absolute Reliability of Hand behind Back Test for Dominant and Non Dominant Hand in Healthy Adults: A Study Protocol

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Introduction: Hand-behind-back (HBB) motion constitutes a fundamental functional movement involved in numerous activities of daily living, including reaching for posterior pockets, dressing, undoing the bra clasp, and back scratching. The shoulder HBB Range of Motion (ROM) is one of the very useful clinical parameters for the measurement of pain and functional disability in patients with pathology of the shoulder. This motion represents a complex pattern of movement by the shoulder with internal rotation, adduction, and extension. HBB ROM measurement provides a standardised and objective method of measuring shoulder internal rotation, which is essential for accurate diagnosis, development of individualised rehabilitation strategies, and objective monitoring of patient progress.

Need of this study: This study is intended to find out the relative and absolute reliability of HBB test for dominant and non dominant hand in healthy adults.

Materials and Methods: A cross-sectional study will be conducted in MMDU, Mullana. A sample of healthy adults will be recruited for the age group of 18-25 Years. The HBB will be measured for each participant. During this test, patients will be asked to reach behind their backs and slide their hands upward along the spine, with the highest vertebral level reached by the thumb. Then the distance will be measured using tape measure from the highest vertebral level attained with the thumb and posterior superior iliac spine.

Keywords: Internal rotation, Measurement, Range of motion, Reference values

Abstract-104

The Utility of Muscle Energy Technique on Pain and Functional Outcome in Sacroiliac Joint Dysfunction: A Literature Review

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ABSTRACT

Around 15% and 30% of people with mechanical low back pain are found to have Sacroiliac (SI) joint pain. Biomechanical studies specified that postural alterations brought on by tightness in the quadratus lumborum, hamstrings, and other muscles may indirectly impact the SI joint's stability. However, to date, there is limited evidence examining the effect of the Muscle Energy Technique (MET) on SI joint pain and dysfunction. Hence, this review aims to provide general guidance regarding the evidence supporting the usefulness of the MET for pain and function outcome improvement in SI joint dysfunction. Studies reporting MET for pain (0-10 scale) and function (Oswestry Disability Index) outcomes improvements for SI joint dysfunction in the English Language were included. At the same time, exclusion criteria were low back pain without SI joint dysfunction, a language other than English and a follow-up of less than one week. From 2020 to 2025, four databases and literature sources (PUBMED, WEB OF SCIENCE, SCOPUS, EMBASE) were searched with the search terms ("sacroiliac joint") AND ("muscle energy technique",) resulting in a total of 237 studies. Only relevant data from 12 Randomised Controlled trials that matched the inclusion criteria were included. Three of the 12 studies supported manipulation over MET, the other two supported Mulligan Mobilisation with Movement, and one demonstrated that MET is more effective than Mobilisation with Movement for anterior innominate ilio-sacral correction. Four studies have shown that MET is more clinically beneficial and significantly improves pain and functional status in SI joint dysfunction when used with adjunct treatment, functional task training, and/or lumbopelvic stabilisation exercises. Moreover, one more study indicated that Kinesiotaping and MET were practical management strategies with no significant differences. Overall, evidence has shown considerable variation across selected studies compared to other manual therapies. More extensive clinical research is required to better comprehend the actual effects of this intervention, either by itself or in conjunction with other treatments.

Keywords: Functional status, Joint pain, Manual therapies, Mechanical low back pain, Muscle.

Abstract-105

Evaluating Questionnaires for Muscle-strengthening and Physical Activity Assessment: A Literature Review

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ABSTRACT

Physical activity and muscle-strengthening exercises are vital components of a healthy lifestyle. Accurate assessment of these activities is essential for monitoring health outcomes, designing exercise interventions and understanding the impact of physical activity on overall health. A few questionnaires are available to assess physical activity levels, with varying emphasis on muscle-strengthening exercises. These include the Muscle-Strengthening Exercise Questionnaire (MSEQ), the International Physical Activity Questionnaire (IPAQ), the Global Physical Activity Questionnaire (GPAQ), and the One Repetition Maximum (1RM) Questionnaire. This review examines the characteristics, effectiveness, and limitations of these tools, focusing on their ability to assess muscle-strengthening activity and overall physical activity. A comprehensive literature review was conducted to identify full-text articles published in English within the databases PubMed, EMBASE, and EBSCOhost. The search

strategy focussed on studies exploring the use of the MSEQ, IPAQ, GPAQ, and 1RM Questionnaire for assessing physical activity or muscle strength. No time-related, geographical, or study-design-related exclusions were applied to the search criteria. The review focussed on the methodologies used to validate each questionnaire, their reliability in different populations, and their utility in clinical and research settings. A total of five observational studies were identified, and the selected studies were analysed to assess the strengths, weaknesses and contextual applicability of each tool in assessing physical activity and muscle-strengthening exercise. The review found that the MSEQ and 1RM Questionnaire are more focussed on directly assessing muscle-strengthening activities and muscular strength, while the IPAQ and GPAQ provide broader assessments of overall physical activity, including walking and moderate-to-vigorous intensity exercise. The IPAQ and GPAQ were found to be more generalisable for large-scale epidemiological studies, whereas the MSEQ and 1RM are more effective for individualised or clinical muscle-strengthening interventions. The reliability of MSEQ is 0.76-0.91 related to IPAQ, GPAQ, and 1RM Questionnaire. To conclude, while the MSEQ and 1RM Questionnaire offered valuable insights into muscle-strengthening exercises and strength, the IPAQ and GPAQ provided broader physical activity profiles. Future studies should focus on cross-validating these tools in diverse populations and settings to improve their generalisability and applicability in clinical practice.

Keywords: Exercise therapy, Muscles, Muscle strength, Outcome assessment, Survey and questionnaires,

Abstract-106

Impact of Myofascial Mobilisation on Menstrual Pain and Functional Disability in Women with Dysmenorrhoea: A Protocol

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ABSTRACT

Introduction: This study aimed to explore whether patients with primary dysmenorrhea experience changes in mechanosensitivity, pain patterns, and increased myofascial trigger points in the abdomen and pelvic floor muscles. Conditions such as dysmenorrhea can lead to debilitating pain, adversely impacting daily activities and overall quality of life. Traditional management strategies, including pharmacological treatments, may not provide adequate relief or may carry unwanted side effects, prompting the need for alternate therapeutic approaches. Study reveals a research gap in the evaluation of manual release therapy for primary dysmenorrhea, particularly regarding the identification of the most painful days and the effectiveness of treatment adherence. Additionally, there is a need for more comprehensive assessment methods for menstrual symptoms and their relationship to pain and general health outcomes.

Need of this study: By employing the suggested design, this study aims to provide potential benefits of myofascial mobilisation into the management of pain and functional disability in dysmenorrhoea.

Aim: To find out the impact of myofascial mobilisation on pain and functional disability in women with dysmenorrhea.

Materials and Methods: A randomised controlled trial study will be conducted. Two groups pre-test post-test experimental study will be conducted in MMDU Mullana-Ambala. The age range of the recruited patients ranges from 18 to 45 years, depending on the inclusion and exclusion criteria. Using Sequentially Numbered Opaque Sealed Envelope. Myofascial mobilisation is a manual therapy technique that focusses on relieving tension in the fascia, the connective tissue surrounding muscles and organs. Myofascial mobilisation may alleviate pain and improve functional disability in various musculoskeletal conditions. However, its specific effects on menstrual pain and health-related quality of life in women with dysmenorrhea remain under explored. Outcome measures like visual analogue scale and numeric pain rating scale for pain and intensity.

Keywords: Dysmenorrhoea, Trigger Points, Pelvic Floor, Abdomen, Fascia, Musculoskeletal Manipulations, Musculoskeletal Diseases.

Abstract-107

Impact of Cuevas Medek Exercise in Neuromotor Disorders: A Review

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ABSTRACT

Cuevas Medek Exercises (CME) are a paediatric physiotherapy approach designed to improve motor skills in children with developmental challenges. These exercises involve dynamic movements manually guided to encourage active participation and minimise passive handling. It focusses on stimulating neuroplasticity, helping the brain reorganise and form new neural connections, by progressively challenging the child. CME shifts the focus of paediatric rehabilitation from passive techniques to active engagement, enhancing motor function development in a more engaging and effective manner. The objective of the study is to determine the application and efficacy of CME in children with diverse conditions. The literature search was done using the Cochrane Library and PubMed including recent studies from 2012 to 2024. A total of 12 articles were reviewed from which four to five articles were found relative according to the inclusion criteria of the study. CME therapy has shown the potential in treating children with developmental disabilities resulting from conditions such as cerebral palsy, hypotonia, or motor delays due to non degenerative diseases. Recent research studies have demonstrated the effectiveness of CME in addressing conditions like corpus callosum abnormalities, congenital heart disease, congenital hydrocephalus, autism spectrum disorder, and cerebral palsy. In conclusion, CME therapy holds potential for treating motor delays in children with non degenerative diseases or neurological genetic conditions like cerebral palsy and autism. However, its application may be limited by factors such as the child's height and weight, as therapists need sufficient muscular strength to perform the exercises. Given the lack of extensive empirical research, further studies are necessary to validate the therapy's effectiveness and determine its broader applicability.

Keywords: autism spectrum disorder, cerebral palsy, corpus callosum, developmental disabilities, hydrocephalus

Abstract-108

Validation and Test Retest Reliability Testing of the Telematic Fugl Meyer Assessment Scale - Upper Extremity (TFMA-UE)

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Introduction: Stroke remains a significant global health challenge, contributing to high rates of mortality and long-term disability. The Telematic Fugl Meyer Assessment Upper Extremity (Telematic FMA-UE) scale is a remote-friendly adaptation of the traditional FMA-UE, allowing for the assessment of sensorimotor impairments through telemedicine platforms. However, the absence of a validated Hindi version hinders its utility among the over 609 million Hindi speakers worldwide. Addressing this gap is essential to expanding access to remote stroke rehabilitation for Hindi-speaking populations.

Aim: This study seeks to translate the Telematic FMA-UE scale into Hindi, validate the translated version, and examine its test-retest reliability in stroke patients who primarily speak Hindi.

Materials and Methods: Permission from the original authors of the scale will be obtained prior to initiating a structured translation process. The scale will be translated into Hindi independently by bilingual professionals with expertise in healthcare and linguistics. The translations will then be harmonised into a unified version and back-translated into English to verify accuracy and equivalence. Content validation will involve an expert panel using the Delphi method to calculate Item-level Content Validity Index (I-CVI) and Scale-level Content Validity Index Average (S-CVI/Ave). The prefinal version will be tested on a small group of Hindi-speaking stroke patients to ensure its comprehensibility and cultural relevance. Test-retest reliability will be measured by administering the scale twice at a fixed interval, with consistency assessed through Intraclass Correlation Coefficients (ICCs) and Bland-Altman plots.

Results: The Hindi adaptation of the Telematic FMA-UE scale is anticipated to exhibit strong content validity, reflected by high I-CVI and S-CVI/Ave scores. Additionally, reliability testing is expected to demonstrate robust ICC values and consistent results across assessments, as visualised through Bland-Altman plots.

Conclusion: The validated Hindi version of the Telematic FMA-UE scale will serve as a reliable tool for tele-rehabilitation, improving accessibility and supporting more effective rehabilitation for Hindi-speaking stroke patients.

Keywords: Hindi adaptation, Remote rehabilitation, Stroke recovery, Upper limb

Abstract-109

A Comparison of the Effects of Dynamic Cupping on Thoraco-lumbar Region and Suboccipital Myofascial Release on Cervicogenic Headaches: Study Protocol for a Single-blinded Randomised Controlled Trial

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ABSTRACT

Introduction: Cervicogenic headache (CGH) is a caused by cervical spine dysfunction, often linked to muscle and fascia tension. Suboccipital Myofascial Release (MFR) and remote MFR are the manual therapy approaches used to alleviate CGH. Based on the principles of anatomical trains theory, MFR and dynamic cupping will be given on cervical and thoraco-lumbar regions. AT hypothesis has been validated by a few earlier researchers; however, none have applied it for thein CGH patients, the cervical area is painful, and applying dynamic cupping to a remote location can be more tolerant than suboccipital MFR for these patients.

Need of this study: This study will determine the more effective technique of suboccipital MFR and remote release by dynamic cupping on CGH, potentially guiding improved treatment protocols.

Aim: To plan a study protocol suboccipital MFR and remote release by dynamic cupping in improving pain, range of motion, and quality of life in individuals with CGH.

Materials and Methods: According to eligibility requirements, 56 individuals between the ages of 20 to 30 years of age will be selected for a single blinded randomised clinical trial. Patients were allocated into group 1 and group 2. Group 1 will receive suboccipital MFR and Group 2 will receive dynamic cupping therapy on thoraco-lumbar region. Outcome measures like the numeric pain rating scale (NPRS) and neck disability index will be used to assess the subject pre-intervention and post-intervention.

Keywords: Anatomical train, Cupping therapy, Quality of Life.

Abstract-110

Study Protocol for a Single-blinded Randomised Controlled Trial Comparing the Impact of Neuromuscular Joint Facilitation and Conventional Physiotherapy on Pain, Balance, and Function in Patients with Knee Osteoarthritis

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ABSTRACT

Introduction: The increasing prevalence of osteoarthritis (OA), especially in the knee joint, highlights the need for effective rehabilitation strategies to manage symptoms and enhance functionality. Sensorimotor dysfunction plays a role in the progression of knee OA. However, evidence supporting the effectiveness of neuromuscular joint facilitation (NJF) that comprehensively targets sensorimotor components such as, balance, coordination, and proprioception remains limited. Therefore, this study aimed to evaluate the efficacy of NJF incorporating these elements on pain, functional outcomes, and balance in individuals with grade 2 and 3 knee OA.

Aim: To plan a study protocol for neuromuscular joint facilitation and conventional physiotherapy techniques in reducing pain, balance and function in Grade 2 and 3 knee osteoarthritis.

Methodology: An experimental study will be conducted on Grade II and III patients with knee OA. According to inclusion criteria, 60 individuals (30 in each group) between the ages of 40 to 70 will be selected for a single blinded randomized clinical trial. Participants will be randomly assigned into group 1 and group 2. Group 1 will receive neuromuscular joint facilitation technique and Group 2 will receive conventional treatment. Outcome measures like Numeric Pain Rating Scale (NPRS), Western Ontario and McMaster Universities Osteoarthritis Index (WOMAC), single leg stance test will be used to compare patient's pre-post intervention status.

Result: Data will be analyzed by using SPSS software version 20.To determine whether the data is normal, Kolmogorov-Smirnov tests will be used.

Conclusion: The study will explore which technique is more effective. Neuromuscular joint facilitation may or may not demonstrate superior effectiveness compare to conventional physiotherapy in reducing pain, improving balance and enhancing functional outcomes in patients with grade 2 and 3 knee osteoarthritis.

Keywords: Exercises, Function, Knee osteoarthritis, Neuromuscular joint facilitation, Pain

Abstract-111

Hindi Translation, Validation and Test-retest Reliability of the Trunk Impairment Scale 2.0: A Cross-sectional Study Protocol

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Introduction: Stroke is one of the leading cause of impaired trunk control, weight shifting and equilibrium reaction. The Trunk Impairment Scale (TIS) was created to assess specific trunk motions associated with activities in daily living in stroke patients by assessing their static and dynamic sitting balance and trunk coordination. The lack of a Hindi version of TIS 2.0 limits its usefulness for the 609 million Hindi speakers.The results of stroke rehabilitation could be significantly enhanced by creating a Hindi version.

Aim: To translate the TIS 2.0 into Hindi , validate the translated version and determine its test-retest reliability in Hindi speaking stroke patients.

Materials and Methods: Experts with linguistics and medical background will translate the scale into Hindi with the authors' permission. Accuracy will be ensured by back-translation into English after the translations have been harmonised into a single version. Scale-level Content Validity Index Average and Item-level Content Validity Index will be calculated by an expert panel using the Delphi technique to validate the content. To ensure cultural relevance and intelligibility, a small group of stroke patients who speak Hindi will test the pre-final version. Bland-Altman plots and Intraclass Correlation Coefficients will be used to evaluate test-retest reliability in order to guarantee consistency.

Keywords: Stroke, Trunk, Translation, Reliability, linguistic.

Abstract-112

The Impact of Pranayama on Pulmonary Function in Healthy Adults: A Narrative Review

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ABSTRACT

Pranayama is a Sanskrit word formed by the conjunction of two words, namely "prana," meaning breath of life/vital energy, and "ayama," meaning expansion/regulation/control. It is the yogic art of breathing, has gained attention for its potential benefits on respiratory health. Evaluation of the effects of different Pranayama techniques on pulmonary function metrics, such as Forced Vital Capacity (FVC), Forced Expiratory Volume in one second (FEV_1), and Peak Expiratory Flow Rate (PEFR), is the goal of this systematic study. A systematic search was conducted using PubMed and Google Scholar databases covering studies published between 2015 to 2024 focusing on randomised controlled trials and observational studies involving healthy adults practicing Pranayama.Keywords used for the search included "Pranayama," "Pulmonary function," "healthy adults" employing Boolean query.Inclusion criteria involved studies measuring pulmonary function parameters before and after the training of pranayams. Reviews, book chapters, and articles in other language were excluded from review. "A total of" 13935 articles were extracted from both databases and after duplicate deletion, 13312 articles were left for screening. On the basis of titles and abstracts, 13299 articles were excluded. Remaining 13 full text articles were assessed for eligibility, out of which 4 studies were included. Duration of pranayama varied from 4 to 12 weeks and all studies evaluated pulmonary function as seen on FVC, FEV1, ratio between FEV1 and FVC (FEV1/FVC), PEFR after techniques/ pranayama like Om chanting, nostril breathing,Pranav, Nadi Shuddhi, Kapalabhati, and Bhastrik. Studies demonstrated a significant effect on FVC, FEV1, FEV1/FVC and PEFR. However, the level of improvement was influenced by differences in practice frequency and duration. In conclusion, Pranayama, appears to significantly enhance pulmonary function in healthy adults, likely due to improvements in respiratory muscle strength and lung capacity.

Keywords: Healthy adults, Forced vital capacity, Lung capacity, Peak expiratory flow rate

Abstract-113

Impact of Exercise Therapy on Functional Mobility across Ages through TUDS: A Scoping Review

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ABSTRACT

Timed Up and Down Stairs (TUDS) test is clinically used to evaluate the functional mobility which demands good balance, muscle strength, coordination and Range of Motion (ROM) of lower extremities. To perform TUDS, the individual is asked to stand on the bottom of stairs (14 steps) wearing a regular shoes without orthosis, on command "go" the child has to quickly and safely go upstairs till 14 steps, then turn around on the top landing and come all the way down until both feet lands on the bottom step. The individual may hold the railings as per the need. This is widely used to assess functional mobility in individuals with varied ages, but still it is unexplored in literatures. To retrieve literature about impact of various therapeutic approaches on TUDS test, the Google Scholar, PubMed and Cochrane Library databases were accessed for this scoping review. Fifty articles were determined to be pertinent to the investigation. In summary, 10 met the review's inclusion specifications, so they had been thoroughly reviewed. The findings highlight that various training approaches improve functional mobility, as measured by the TUDS test, across all ages. In paediatric rehabilitation, the TUDS test is especially helpful since it gives healthcare professionals a quantifiable way to monitor changes in mobility and functional independence over time. Despite these positive outcomes, heterogeneity in the intervention protocols and study designs necessitates further standardisation. This review highlights the clinical relevance of incorporating individualised therapeutic approach to improve functional mobility (TUDS score) and identifies gaps for future research, particularly in long-term efficacy and standardised protocols.

Keywords: Age, Cerebral Palsy, Child, Lower extremity, Muscular strength, Postural balance.

Abstract-114

Hindi Translation, Validation and Test-retest Reliability of the Smoking Abstinence Self-efficacy Questionnaire: A Cross-sectional Study

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ABSTRACT

Introduction: Smoking increases the prevalence of various disease in our body. It is also one of the primary risk factors for infections in the human respiratory, digestive, reproductive, and other systems. In a dose-dependent manner, smoking exacerbates the progression and prognosis of infectious diseases and raises their occurrence.

A psychometric tool used in prospective smoking cessation trials is the Smoking Abstinence Self-Efficacy Questionnaire (SASEQ), a six-item self-efficacy scale. The six items depict situations in which smokers can rate their ability to stop smoking on a 5-point Likert scale (0–4). Higher levels of smoking cessation self-efficacy are indicated by higher scores.

Aim: This study aims to translate the SASEQ scale into Hindi, validate the translated version, and determine its test-retest reliability in Hindi-speaking stroke patients.

Materials and Methods: The SASEQ scale must be carefully translated into Hindi by multilingual specialists with the author's consent. This procedure will entail integrating the viewpoints of a linguist and a medical expert. To ensure accuracy, combined translations will be back-translated into English. Linguistic equivalency will be ensured by an expert panel using the Delphi technique to validate the content. Pretesting will assess appropriateness and comprehensibility.

Results: The study expects the SASEQ scale to be successfully translated into Hindi with strong language translation. The item-level Content Validity Index (I-CVI) will be calculated using the Delphi method for item assessment. Uniformity is guaranteed by the Scale-level Content Validity Index Average (S-CVI/Ave). Test-retest reliability is assessed using Bland-Altman plots and Intraclass Coorelation Coefficients (ICCs), which provide mean scores and standard deviations between sessions. Bland-Altman graphs visually indicate score agreement, while ICC values show reliability.

Conclusion: The Hindi scale will help with evaluation in communities that speak Hindi. This methodology improves clinical evaluation and rehabilitation techniques by guaranteeing linguistic adequacy.

Keywords: Delphi technique, Linguistic, Psychometrics, Self-efficacy, Smoking abstinence, Smokers.

Abstract-115

The Feasibility of the Weight-bearing Lunge Test in the Assessment of Calf Muscle Flexibility in Individuals with Plantar Fasciitis: A Literature Review

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ABSTRACT

Plantar fasciitis is a prevalent foot condition characterised by inflammation and degeneration of the plantar fascia resulting from repetitive stress applied to the medial calcaneal tuberosity. This condition can be precipitated by an excessive accumulation of stress at the plantar fascia enthesis. Restricted calf muscle flexibility has been implicated as a contributing factor in the development of plantar fasciitis, as well as its associated musculoskeletal complications. It causes the plantar fascia to experience an increase in tensile force during the stance phase of gait. The Weight-Bearing Lunge Test (WBLT) constitutes a valuable assessment tool for investigating the functional biomechanics of the lower extremities, including calf muscle flexibility, particularly in individuals presenting with plantar fasciitis. The purpose of this review is to propose if WBLT is feasible in cases with plantar fasciitis. A comprehensive literature search was done utilising databases including PubMed/MEDLINE and Google Scholar, and Physiotherapy Evidence Database (PEDro). Thirteen articles were initially discovered, out of which 6 articles met the inclusion requirements. In those studies, the weight-bearing lunge test was used as a standardised assessment tool to evaluate calf muscle flexibility at pre- and post-intervention in patients with plantar fasciitis. Calf muscle flexibility was assessed using two distinct methodologies across the six studies. Four studies measured the distance between the toe and the wall with the help of a measuring tape, while two relied on goniometric measurements. Also, WBLT demonstrates high inter-rater reliability (0.97-0.98), regardless of the therapist's level of clinical experience. Thus, to conclude, the WBLT emerges as a practical and feasible tool for evaluating calf muscle flexibility in cases of plantar fasciitis. Given the crucial role of calf muscle flexibility in the development and management of plantar fasciitis, the WBLT offers a valuable clinical tool for assessing this key parameter and guiding treatment strategies.

Keywords: Fascia, Lower extremity, Physical therapy modalities

Abstract-116

Physiotherapeutic Interventions and Outcomes Reported in Cystic Fibrosis: A Literature Review

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ABSTRACT

The respiratory and digestive systems are severely impacted by Cystic Fibrosis (CF), a chronic, progressive hereditary disease that impairs lung function and causes recurring lung infections. In order to improve lung function, lessen symptoms, and improve overall Quality of Life (QoL), physiotherapeutic treatment options are essential in the management of CF, especially in children. The several physiotherapy approaches utilised in the treatment of paediatric CF are examined in this article, including breathing exercises, exercise therapy, and airway clearing procedures. We evaluate how effectively these treatments work to enhance pulmonary function, lessen exacerbations, and foster mental and physical well. Research indicates that frequent Airway Clearing Treatments, including mechanical devices, postural drainage, and chest percussion, as well as organised exercise regimens, are critical for enhancing lung health and lowering hospitalisation rates. Additionally, it has been shown that breathing exercises can improve respiratory efficiency. Notwithstanding the favorable results, there are still several issues with accessibility, tailored care, and therapeutic adherence. To improve physiotherapy techniques, investigate new technology, and assess long-term results, further research is required. In summary, physiotherapy is essential to the multidisciplinary treatment of children with CF, increasing long-term disease management and promoting physical and mental wellbeing.

Keywords: Exercise therapy, Percussion, Physiotherapy techniques, Postural drainage.

Abstract-117

Efficacy of Transcutaneous Electrical Diaphragmatic Stimulation and Myofascial Release on Diaphragm Mobility, Pulmonary Function Test Parameters and Activity of Daily Living in Patients with COPD: A Study Protocol

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ABSTRACT

Introduction: Chronic Obstructive Pulmonary Disease (COPD) is a progressive respiratory condition characterised by reduced diaphragm mobility, impaired pulmonary function, and decreased ability to perform Activities of Daily Living (ADL). Transcutaneous Electrical Diaphragmatic Stimulation (TEDS) and myofascial release have shown promise as interventions to improve respiratory mechanics and functional outcomes. However, the combined efficacy of these techniques in COPD patients remains unexplored.

Need for this study: This study will outline a rigorous approach to assess the efficacy of TEDS and myofascial release in improving respiratory function and quality of life in COPD patients. Findings from this trial are expected to guide future rehabilitation strategies for COPD management.

Aim: This study aims to evaluate the efficacy of TEDS and myofascial release on diaphragm mobility, Pulmonary Function Test (PFT) parameters, and ADL in patients with COPD.

Materials and Methods: A randomised, controlled, double-blind study will be conducted with participants meeting specific inclusion criteria. Subjects will be randomly assigned to the experimental group and the control group. The experimental group will receive TEDS at a frequency of 30 Hz for 30 minutes per day, five days a week and diaphragm myofascial release for 2 sets of 10 repetitions with a 1-minute interval between sets. The control group will receive sham TEDS and the same myofascial release protocol. Both groups will undergo treatment for 3 weeks. Pre- and post-intervention assessments will include diaphragm mobility will be measured using ultrasonography, PFT parameters will assessed via spirometry, and ADL will be evaluated using the London Chest Activity of Daily Living Scale.

Keywords: Diaphragm, Spirometry, Ultrasonography.

Abstract-118

Punjabi Translation, Cross-cultural Adaptation, Validation and Reliability of the Western Ontario Rotator Cuff Index Questionnaire: A Study Protocol

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ABSTRACT

Introduction: The Western Ontario Rotator Cuff (WORC) Index is a self-assessment instrument that has been developed to measure the quality of life of patients with rotator cuff disease. The WORC index was developed by Kirkley et al., 2003 to evaluate the disease-specific quality of life of patients with rotator cuff disease.

Aim: To translate the WORC index into Punjabi language (P-WORC) and to evaluate its adaptation, validation and reliability among patients with Rotator Cuff tendinopathy.

Materials and Methods: Beaton's guidelines have been followed for the translation process after obtaining approval from the original developer, then forward and backward translations by two independent translators will be performed.Cultural adaptation was achieved through feedback from 30 outpatient participants regarding the scale's clarity. Content validation was conducted using the Delphi method, involving a panel of 10 experts with more than five years of experience.Experts evaluated each item for relevance and consistency, deeming it valid if at least 80% rated it as "valid." Reliability testing was performed on a sample of 51 patients. Ethical approval was granted by the Institutional Ethics Committees (IEC-2995) in June 2024, and the study was registered with the Clinical Trials Registry of India (CTRI/2024/08/072815) on August 21, 2024.

Keywords: Reliability testing, Rotator cuff tendinopathy, Validity.

Abstract-119

Impact of Subtalar and Talocrural Joint Mobilisation on Static Balance in Older Adults: A Study Protocol

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Introduction: Balance begins to diminish gradually from midlife, generally at the age of 50 years. The ankle and foot structures are particularly significant because they serve as the body's foundation of support and transfer weight to the ground. However, regular age-related changes, such as diminished strength and restricted Range of Motion (ROM) resulting from musculature or joint complex degeneration, have an adverse effect on balance, changing gait patterns and increasing the likelihood of falls. In case of ankle arthrokinematics, it is clear that manual treatment based on mobilisation of joints techniques has become a significant tool for restoring the normal ROM and balance.

Aim: To determine the impact of subtalar and talocrural joint mobilisation on static balance in older adults.

Materials and Methods: Two group pretest- posttest experimental study will be conducted in a tertiary care setting. Participants will be recruited based on selection criteria. Participants will be divided into two groups - experimental and sham group (passive ROM) respectively. Four stage balance test and Balance Error Scoring System (BESS) will be recorded as outcome measure for static balance at baseline and post intervention (immediate after the session). Grade III Maitland accessory mobilisation, 3 sets of 30 repetitions with 60 sec intervals, will be performed bilaterally.

Keywords: Manual Therapy, Falls, Postural control, Ankle.

Abstract-120

Impact of Pilates on Proprioception: A Review

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ABSTRACT

Proprioception, or the body's awareness of its location and motion in space, is essential for balance and general motor function. The effectiveness of proprioceptive training methods has drawn more attention in recent years, particularly when examining various physical fitness disciplines. Pilates is unique because it emphasises alignment, controlled movements, and core stability. In addition to increasing physical strength, this type of exercise promotes increased body awareness, which is crucial for the development of proprioception.Participating in Pilates can help people become more balanced and coordinated, which can improve their performance.To study the impact of Pilates on proprioception. To retrieve the literature about proprioception, the Cochrane Library, PubMed, and Google Scholar databases were consulted to get the literature on proprioception for the current review, which covered the period from July 2012 to November 2024. A total of 18 articles were deemed relevant for further inquiry. In conclusion, 10 articles have been selected and thoroughly examined as they satisfy the review inclusion criteria. Accordingly they have been selected and systematically reviewed.According to research, proprioceptive skills, which are critical for preserving balance and body awareness, are greatly improved by Pilates exercises. Proprioception indicates that postural instability, a characteristic frequently seen in people with musculoskeletal diseases, can be effectively addressed by Pilates. Pilates treatments, demonstrating its wider influence on posture correction and proprioception. Together, these studies highlight Pilates' potential as an effective therapy for improving proprioceptive function in a variety of demographics. Pilates movements' role in enhancing proprioceptive awareness and muscle endurance. It has been discovered that the Pilates intervention improves proprioception more than the traditional balancing intervention. In conclusion, Pilates has shown substantial advantages in improving proprioception, especially because of its focus on body awareness and regulated movements. According to research, Pilates not only helps with stability and pain management, but it also strengthens the bond between the body and the mind and promotes a heightened awareness of one's body.

Keywords: Core stability, Musculoskeletal disease, Pain management, Physical fitness.

Abstract-121

Assessment Tools used in the Rehabilitation Phase of Pott's Paraplegia

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ABSTRACT

Pott's paraplegia, a condition caused by spinal Tuberculosis (TB), frequently results in serious motor and sensory impairments. For those with Pott's paraplegia, the rehabilitation phase is essential to enhancing their functional independence, quality of life, and avoiding problems. For the purpose of creating individualised treatment programmes and evaluating advancement, effective assessment is crucial throughout this stage. Physical function, neurological state, psychological well-being, and quality of life are among the several components of the patient's condition that are assessed using a range of assessment instruments. The American Spinal Injury Association (ASIA) Impairment Scale for neurological function is one frequently used tool. The Functional Independence Measure (FIM) to measure Activities of Daily Living (ADLs) and the Berg Balance Scale to measure balance. In addition, instruments such as the World Health Organisation Quality of Life (WHOQOL) questionnaire for psychological and social evaluation and the Visual Analogue Scale (VAS) for pain assessment offer important insights into the comprehensive rehabilitation process.Another essential phase in the assessment process is psychological evaluation, which addresses problems like social isolation, anxiety, and depression that are prevalent in long-term illnesses like Pott's paraplegia. Malnutrition may impair immune function and delay recovery, so nutritional evaluations and interventions are also prioritized. Technology-based tools like virtual reality systems, robotic-assisted devices, and neurostimulation are being used more and more in modern rehabilitation. These tools complement traditional therapies by offering creative and entertaining ways

to speed up recovery. In addition to directing therapeutic treatments, these evaluation techniques support patient progress monitoring, realistic rehabilitation goal formulation, and efficient multidisciplinary care. This study examines several assessments utilized in the Pott's paraplegia therapy phase, emphasising their value, advantages, and disadvantages in supporting an all-encompassing rehabilitation strategy.

Keywords: Activities of daily living, Pain measurement, Paraplegia, Spinal injuries, Visual analogue scale.

Abstract-122

Hindi Translation and Validation of Anterior Knee Pain Scale: A Study Protocol

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Introduction: Patellofemoral pain is a prevalent condition often assessed using the Kujala score a reliable scoring system for anterior knee pain. Although this score has been translated in to multiple languages, no Hindi version exists for the population that primarily communicates in Hindi. A validated and culturally appropriate Hindi version is essential for accurate evaluation and meaningful patient feedback.

Aim: To plan a protocol to translate and evaluate each translated domains of the Anterior Knee Pain Scale to see its reliability and content validation to be utilised in patients with patellofemoral pain syndrome in Hindi language.

Materials and Methods: The study method will incorporate the Beaton guidelines which will include the translation of the Anterior Knee Pain Scale in Hindi language from English by two translators i.e. T1 and T2 from medical and non-medical background, respectively. The recording observer then will take a seat to create a T12 version of the translated questionnaire. The reverse translation from theT12 form to the previous form will be done then. Then, an expert panel analyses all the stages and all of the questionnaire tems that the translated form of the questionnaire is free of errors, allowing it to be field tested. Evaluation of content's validity is done. The pre-final form is then fully tested on patients, and the scale's validity is reported. Finally, the translated questionnaire version will be analysed by the ethical committee.

Keywords: Cross-sectional study, Pain, Patellofemoral pain syndrome, Surveys and questionnaires

Abstract-123

Impact of Hamstring Active Release Technique Programme on Pain, Range of Motion and Hamstring to Quadriceps Strength Ratio in Patients with Knee Osteoarthritis: A Study Protocol

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Introduction: Knee osteoarthritis, a degenerative joint disease of the tibiofemoral and patellofemoral joint, arises from the progressive breakdown of articular cartilage, leading to pain, stiffness, and functional limitations. This degenerative process can result in significant muscle and capsule tightness, periarticular muscle weakness, altered gait patterns, and increased knee adduction moments. Hamstring tightness is one of such common findings. Current management strategies often involve a multidisciplinary approach, including different exercise therapy and manual therapy. However, there is a growing interest in exploring alternative and complementary therapies. One such alternative therapy is the Active Release Technique (ART), which is a form of alternative manual therapy that aims to address soft tissue restrictions and improve muscle function. Hardly there is any literature exploring its effectiveness in patients with knee osteoarthritis.

Need of this study: This study will be conducted to provide potential benefits of the ART programme in the management of grade 1 and 2 knee osteoarthritis.

Aim: To outline the methodological design to be used for determining the effectiveness of the hamstring ART programme on pain, range of motion and the hamstring-to-quadriceps strength ratio in patients with grade 1 and 2 knee osteoarthritis.

Materials and Methods: This study will employ a randomised controlled trial design. Participants of both genders, aged 35-55 years, meeting the inclusion criteria for grade 1 and 2 knee osteoarthritis, will be recruited and will be randomly allocated to two groups using computer-generated randomisation. The intervention group will receive the Hamstring ART in conjunction with conventional physiotherapy, while the control group will receive conventional physiotherapy alone. Pre- and post-intervention assessments will include pain intensity measured using the numeric pain rating scale range of motion assessed using a universal goniometer, and hamstring-to-quadriceps strength ratio measured using the modified Sphygmomanometer test.

Keywords: Knee joint, Knee osteoarthritis, Exercise therapy, Physical therapy modalities, Musculoskeletal manipulations

Abstract-124

Prevalence of Knee Injury in Hockey Players: A Systematic Review of Systematic Reviews

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ABSTRACT

Knee injuries are among the most common and debilitating musculoskeletal injuries in hockey players. Understanding their prevalence is crucial for developing preventive strategies and improving player health and performance.This systematic review of systematic reviews aims to summarise and synthesise existing evidence on the prevalence of knee injuries in hockey players across different levels of play. A comprehensive literature search was conducted across major electronic databases, including PubMed, Scopus, Web of Science, and the Cochrane Library, to identify systematic reviews published up to 2025. Studies were included if they reported on the prevalence of knee injuries in hockey players and met predefined inclusion criteria. Data were extracted and synthesised to provide an overview of injury rates, risk factors, and variations across player demographics, playing levels, and playing surfaces. Four systematic reviews, with AMSTAR scores between 6 and 11, highlighted a higher risk of knee injuries in elite field hockey players, especially on artificial turf. Injury rates ranged from 4.5 to 57.9 per 1000 player-hours, with a pooled rate of 48.1 per 1000 player-hours for injuries requiring medical attention. ACL injuries were more common in females (63%) than males (50%), mainly from non-contact incidents. Contact injuries dominate in tournaments, while non-contact injuries are more frequent in regular play. Common injuries include ligament sprains, meniscal tears, and strains, with risk factors such as high-intensity play, poor conditioning, and previous injuries. This systematic review of systematic reviews highlights the significant burden of knee injuries in hockey players. Findings underscore the need for targeted prevention strategies, such as injury prevention programmes focussing on neuromuscular training and improved protective equipment. Further research is recommended to address gaps in understanding the influence of gender, playing surface, and age on knee injury prevalence.

Keywords: Field hockey, Injury prevalence, Knee risk factor.

Abstract-125

Assessing the Efficacy of Magnetotherapy in Individuals with Adhesive Capsulitis: A Study Protocol

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Introduction: Shoulder adhesive capsulitis is a debilitating condition characterised by pain, impaired function and significant restrictions in the shoulder joint range of motion in multiple directions. Physiotherapeutic interventions, such as exercise therapy, manual therapy, electrotherapeutic modalities, are commonly employed in its management. Magnetotherapy, utilising pulsed electromagnetic fields, has demonstrated potential therapeutic benefits in various musculoskeletal conditions by modulating inflammation, promoting tissue repair, reducing pain. However, its specific efficacy in addressing shoulder adhesive capsulitis remains relatively under-explored.

Need for this study: This study will provide high-quality evidence on the potential benefits of integrating magnetotherapy into the management of shoulder adhesive capsulitis.

Aim: This study protocol aims to outline the methodological design to be employed with the objective of investigating the therapeutic efficacy of magnetotherapy on pain, range of motion, and functions in individuals with shoulder adhesive capsulitis.

Materials and Methods: The proposed study will employ a single-blinded, randomised controlled trial study design. Participants of both genders, aged 35-50 years, meeting the inclusion criteria for shoulder adhesive capsulitis in the freezing and frozen stage, will be randomly assigned to one of two groups: an intervention group receiving both magnetotherapy and conventional physiotherapy and a control group receiving conventional physiotherapy alone using computer-generated randomisation method with sequentially numbered opaque sealed envelopes to conceal the randomisation sequence. Both groups will undergo the assigned physiotherapy regimen twice weekly for two weeks. The sample size will be determined based on the outcomes of the pilot study with 12 participants, 6 in each group, to ensure adequate statistical power. Outcome assessments, including pain intensity by the Visual Analogue Scale, shoulder range of motion by universal goniometer, and functional disability by Shoulder Pain And Disability Index, will be conducted prior to the intervention and immediately following the completion of the intervention period.

Keywords: Exercise therapy, Magnetic field therapy, Pain management, Physical therapy modalities, Shoulder pain.

Abstract-126

Influence of Brain Gym Exercise on Children's Behavioural Problems with Autism Spectrum Disorder: A Review

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Introduction: Autism Spectrum Disorder (ASD) is a neurodevelopmental disorder characterised by deficits in social communication, repetitive behaviours and restricted interests. Brain Gym, a series of physical exercises designed to improve neurological functioning, has been proposed as a complementary intervention for individuals with ASD.

Aim: The objective of this review is to synthesise evidence from studies investigating the impact of Brain Gym exercises on children's behavioural problems with ASD.

Materials and Methods: A comprehensive search of multiple databases, including PubMed, Scopus, and PEDro, was conducted for articles published between 2020 and 2024. Inclusion criteria consisted of Randomised Controlled Trials (RCTs), quasi-experimental studies, longitudinal studies and articles published in English language and focussed on Brain Gym interventions in individuals diagnosed ASD with behavioural problem.

Results: After conducting searches across multiple databases, 2 studies were selected from a total of 2,784 studies. An additional 5 studies were identified through citation tracking. In the end, 4 studies were included in the review: 2 were found via citations from the initially selected publications, and 2 were discovered through database searches, following the Preferred Reporting Items for Systematic Reviews and Meta-Analyses (PRISMA) guidelines.

Conclusion: Among the studies, 2 articles indicate that Brain Gym activities can reduce children's behavioural issues, while the other 2 suggest no significant effects. However, the methodological flaws in the existing body of evidence limit the strength of these conclusions. Further high-quality research, incorporating longer durations, larger sample size and robust study designs, is needed to validate the efficacy of Brain Gym.

Keywords: Behaviour, Brain, Child, Communication.

Abstract-127

Current Trends and Evidence-based Interventions in Physiotherapy Management of Shoulder Instability: A Narrative Review

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ABSTRACT

Shoulder instability is a prevalent pathology among patients worldwide, particularly among the young who play contact sports, leading to pain, dysfunction and recurrent dislocations that have a significant impact on an individual's quality of life. Due to multifactorial aetiology and variable presentations of the condition, the management of the disease remains a challenge with limited evidence of an effective treatment in the existing literature. The present narrative review investigates the emerging trends and gathers the best evidence-based physiotherapy interventions for treating shoulder instability and what strategies could be implemented to achieve better outcomes. A comprehensive literature search was conducted across databases such as PubMed, PEDro, Cochrane Library and CINAHL for studies published over the years 2015-2024 using various combinations of search terms like "shoulder instability" AND "physiotherapy" and extraction of data were carried out in the present review. Total 109 studies were found on different databases. A total of five studies were selected, all of them comprising of randomised controlled trials, that addressed physiotherapy interventions for shoulder instability. A total of 328 patients participated in the study. The Western Ontario Shoulder Instability Index (WOSII) was used as the primary outcome measure.The study found that neuromuscular exercises showed significantly greater improvement than standard care exercises in traumatic anterior shoulder dislocation. Neuromuscular Electrical Stimulation (NMES)-enhanced physical therapy is an effective novel treatment approach for Functional Posterior Shoulder Instability (FPSI), a severe type of shoulder instability. The Watson shoulder instability programme, which emphasises on restoring patient-specific scapular motor control, typically scapular upward rotation, before beginning rotator cuff or deltoid strengthening exercises, was the most successful in the management of Multidirectional Instability (MDI). High-load strengthening exercises were proven to be more effective in improving patient lifestyle and emotion about shoulder pain and function, than low-load strengthening exercises. Digital physical therapy was equally effective when compared to conventional in-person physical therapy. Hence, telerehabilitation has become a viable option for managing chronic shoulder pain associated with shoulder instability in terms of accessibility and convenience. Nonetheless, lack of studies and the diversity of protocols necessitates the need for further research to obtain solid evidence.

Keywords: Joint Instability, Physical therapy modalities, Rotator Cuff, Shoulder Pain, Telerehabilitation.

Abstract-128

Validity and Reliability of 2 Minutes Step Test in Patients with Different Grades of Knee Osteoarthritis: A Study Protocol

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Introduction: Climbing steps up and down remain difficult in individual with knee Osteoarthritis (OA). To evaluate the functional capacity in patient with knee OA, several tests have been recorded such as 6 min walk test, Time Up and Go (TUG) test Chair Stand Test (CST) and Stair Climb Test (SCT). Being quick to execute and inexpensive, 2 Minute Step Test (2MST) presents more feasible to conduct in clinical settings as compared to 6 min walk test, TUG, CST and SCT which requires larger space and specific infrastructure. Two minutes step test is a valid and reliable test in patients with knee OA. By measuring how many steps a person can take in two minutes, it provides valuable insight into their aerobic capacity and overall fitness level. Even though 2MST is a promising method for examining functional capacity, there is currently a dearth of information in the literature about the concurrent validity and reliability of its use in individual with knee OA.

Need for this study: The 2MST will be a valid, reliable and established tool for analysing knee OA patients and their functional capacity with outstanding validity and reliability.

Aim: The study objective is to evaluate concurrent validity and test intra-rater reliability of 2MST in patients with knee OA.

Materials and Methods: Patients will be recruited based on the principle of inclusion and exclusion standards. Fifty-one patients of each grade will be recruited on the basis of Lynn criteria. The sample will be recruited from orthopaedic physiotherapy lab on the basis of grading of OA according to Kellegren-Lawrence grading (Grade I, II, III) and individuals will be further divide on the basis of grade I, II, III. One examiner will assess the patients at two times with interval between the test and retest from 7 to 14 days.

Keywords: Osteoarthritis, Step test, Validity and reliability, Knee osteoarthritis.

Abstract-129

Assessment Tools for Evaluating Reaction Time: A Comprehensive Review of Methods and Applications

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ABSTRACT

Reaction Time (RT) is one of the important quantitative measures of cognitive and motor performance, and a measure used to determine neurological function, sensorimotor coordination, and psychomotor speed. Application fields include sports science, clinical diagnostics, ergonomics, and cognitive psychology. Tests for RT measure it in varying applications, each with its advantages and disadvantages.

RT tests, such as catching a dropped ruler, are still employed in educational and research settings. Advanced and automated instruments have gained popularity because of their accuracy and the ability to judge multiple factors simultaneously. Psychomotor alertness tests are used in clinical and vocational settings to measure sustained attention and alertness by measuring the speed of response to visual stimuli. The decision and response time tests allow Choice Reaction Time Tests to generate more complex data. The Finger-Tapping Tests, on the other hand, Visual and Auditory Reaction Time Tests can give clues in diagnosing neurological disorders on sensory input-motor output integration.

Advanced research has employed neurophysiological tools like Electroencephalography (EEG) and functional Magentic Resonance Imaging (fMRI) to assess the brain activity in RT tasks to uncover neural mechanisms and study reaction time in controlled environments, by pointedly focusing on factors such as cognitive load and aging.

This paper reviews various assessment tools used to evaluate RT, discussing their applications in different domains, as well as their advantages and limitations in providing accurate and reliable measures of human performance.

Keywords: Alertness, Attention, Cognitive psychology, Processing speed.

Abstract-130

Mat Pilates as an Adjunct Therapy for Cardiometabolic Risk Management and Oxidative Stress in Diabetic Population: A Narrative Review

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ABSTRACT

Diabetes, a multifactorial metabolic disorder is typified by hyperglycaemia and is linked with increased oxidative stress and cardiometabolic risk. These factors ominously contribute to the advancement of cardiovascular disorders, systemic inflammation and microvascular impediments. Although pharmacological therapies remain the mainstay for diabetic management, physical therapy and other exercise based complimentary therapies have been shown to be of pivotal value not only in management but in delaying progression of the disorder. Mat Pilates, a low-impact workout programme that emphasises flexibility, core stability, and controlled breathing, has gained attention as a possible adjuvant therapy for diabetics with oxidative imbalances and cardiometabolic dysfunction. This review paper aimed at finding out the effect of mat Pilates on cardiometabolic risk factors and oxidative stress in diabetic adults. An exhaustive search was carried out using MeSH terms like “Pilates”, “diabetes mellitus”, “cardiometabolic risk factors”, “oxidative stress”, “blood pressure”, “adiponectin”

and "insulin sensitivity" from databases including PubMed, Pedro, Google Scholar, Ovid etc. Articles published in last 10 years were included as per inclusion and exclusion criteria. With this review it was found that Pilates reduced systolic and diastolic blood pressure, triglycerides, adiponectin, and glycated haemoglobin, while also lowering Malondialdehyde (MDA) and Tumour Necrosis Factor-alpha (TNF-α). levels. Frequent Pilates practice improves blood pressure, lipid profiles, and insulin sensitivity, all of which improve glycaemic management and metabolic health in general. Additionally, it lessens oxidative stress by raising antioxidant defences like Nitric Oxide (NO) and Superoxide Dismutase (SOD) and decreasing indicators like MDA and TNF-α. These findings suggest that Pilates is a promising, low-impact approach for managing diabetes and preventing complications, such as cardiovascular issues and neuropathy, by improving cardiometabolic health and lowering oxidative stress.

Keywords: Cardiometabolic risk factors, Oxidative imbalance, Microvascular.

Abstract-131

Feasibility Study on Evaluating the Effects of Earphone usage on Reflexive Responses and Reaction Times in Young Adults

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Introduction: The increased use of earphones by young adults has created much concern about its influence on auditory processing and reflexive responses. Since most of them use audio content in a multitude of activities, people raise questions about the cognitive function effects of using earphones, especially regarding reaction time and reflexive response to auditory stimuli. The vestibulo-ocular and vestibulo-spinal reflexes in critical reflex studies are impacted by auditory stimulation. Thus, this report aims at the feasibility analysis of assessing the effect of earphone usage on young adults' response times to reflexive performances.

Aim: The aim of this study is to evaluate the feasibility of assessing how earphone usage and exposure to different sound frequencies affect Vestibulo-ocular Reflex (VOR), Vestibulo-spinal Reflex (VSR), and reaction times in young adults.

Materials and Methods: Healthy young adults (n=230), aged 18 to 25 years, were recruited to assess how different sound frequencies influence vestibular reflexes and motor response times among college-going students recruited for the study. Ethical approval was obtained from the Institutional Ethics Committee with the registration number MMDU/IEC-2670. Subjects were asked to perform head impulse thrust test to examine Vestibulo-Ocular Reflex (VOR), the Fukuda Step Test to examine Vestibulo-Spinal Reflex (VSR) and reaction time were examined through the Ruler drop test.

Results: The findings demonstrated that sound frequencies significantly influenced VOR, VSR, and reaction times. In young adults, sound frequencies of 76-80 dB were found to have the most pronounced effects. A significant negative correlation was observed between these sound frequencies and reflexive responses (VOR, r= -0.29; VSR, r= -0.10), particularly for the VOR and VSR. Similarly, reaction times for both dominant and non-dominant hands showed significant negative correlations at 76-80 dB exposure (r=-0.30, and r=-0.28) respectively. These results suggest that exposure to higher sound frequencies is associated with decreased VOR and VSR responses, as well as increased reaction times.

Conclusion: This study concludes that vestibular reflexes and reaction times are differentially affected by varying sound frequencies. While lower sound frequencies (61-65 dB) showed minimal impact, higher sound intensities (76-80 dB) significantly affected VOR, VSR, and reaction times in both dominant and non-dominant hands. These results underscore the critical influence of sound intensity levels on human reflexive and motor responses, suggesting that exposure to higher sound intensities may compromise neuromuscular performance.

Keywords: Auditory stimulation, Fakuda step test, Vestibulo-ocular reflex.

Abstract-132

Utility of Nerve Conduction Studies in Diagnosing Guillain-Barre Syndrome: A Scoping Review

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ABSTRACT

Guillain-Barre Syndrome (GBS) is a rare autoimmune disorder that attacks the nervous system. It often follows infections and can cause muscle weakness or paralysis. Nerve Conduction Studies (NCS) are essential for diagnosis and management, helping doctors assess nerve damage and guide treatment. However, there is a lack of research, particularly in India, on the optimal use of NCS in GBS. The aim was to analyse existing literature, highlight the significance of NCS, and identify research gaps to improve patient care. Out of 453 articles identified between 2020-2024 from PubMed, Cochrane, and PEDro, 172 duplicates were removed. The remaining 281 articles were screened by titles and abstracts, leading to the removal of 211 articles. Following further analysis based on the selection criteria and PRISMA-ScR guidelines, led to the selection of 8 papers for review. Nerve Conduction Studies (NCS) are crucial for diagnosing and monitoring GBS, with repeated testing improving accuracy by detecting changes like conduction block and reduced Compound Muscle Action Potentials (CMAPs). Axonal variants are linked to severe symptoms and poorer outcomes, while demyelinating forms show better recovery. Early markers like neuropathies and nerve enlargement via ultrasonography aid in early detection. Sensory involvement and motor excitability changes further highlight disease severity and progression. NCS are crucial for diagnosing and monitoring GBS, improving accuracy through repeated testing. Axonal variants show more severe symptoms, while demyelinating forms recover faster. Early markers like nodopathies and nerve enlargement aid early detection, with sensory involvement and excitability changes reflecting disease progression.

Keywords: Conduction block, Neuropathies, Paralysis.

Abstract-133

The Effect of Diaphragmatic Breathing among Individuals with Motion Sickness: A Narrative Review

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ABSTRACT

Motion sickness, caused by sensory conflicts involving movement, balance, and vision, results in symptoms like nausea, fatigue, and light-headedness. Diaphragmatic Breathing (DB), a non-pharmaceutical method, helps manage these symptoms by enhancing Parasympathetic Nervous System (PNS) tone, promoting relaxation, and lowering respiratory rates. DB offers a simple, natural strategy for managing motion sickness and improving well-being. The aim of this narrative review was to find out the effect of DB in individuals with motion sickness. Experimental studies utilising DB as an intervention in individuals with motion sickness was included and prevalence/incidence, review articles were excluded. Total 61927 full-text published articles were identified from PubMed and Scopus from 2012-2024. After duplicate deletion, 54091 articles were left for screening and finally, 7,836 full text articles related to the research topic were further analysed at full-text level. Out of which only 2 articles were selected and included in the review for analysis. Both the studies gave DB and compared with control group. Participants trained in DB achieved slower breathing rates,nearing the ideal range of 3–7 breaths per minute, which was associated with increased heartrate variability, and reduction in motion sickness symptoms. These findings indicate greater PNS activation and thereby alleviating symptoms like nausea and discomfort in motion sickness-inducing situations. These results of this review suggests DB as a practical and side effect-free alternative to medication for managing motion sickness.

Keywords: Pulmonary ventilation, Seasickness, Travel sickness, Vestibular system.

Abstract-134

Workplace-based Physiotherapy Programmes for Preventing Carpal Tunnel Syndrome: A Scoping Review

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ABSTRACT

Carpal Tunnel Syndrome (CTS) is a common musculoskeletal condition, especially among individuals who perform repetitive hand and wrist jobs. Workplace-based physiotherapy programmes have been suggested as preventive measures, however there is insufficient information on their efficacy, implementation approaches, and associated challenges. This scoping review outlines the existing literature on physiotherapy procedures targeted to prevent CTS in occupational settings. It aims to identify the types of treatments used, evaluate their effectiveness, investigate techniques for successful implementation, and investigate the barriers to program acceptance and sustainability. A thorough search was done across many databases, including PubMed, Scopus, CINAHL, Embase, Ovid MEDLINE, AMED, and Cochrane Library, to locate research on workplace physiotherapy programmes for CTS prevention covering studies published from December 2000 to December 2024. The initial search identified 627 articles, which were refined to 113 articles after removing duplicates. Following a screening process for relevance, 7 studies met the inclusion criteria and were included in the final review. This review adhered to the scoping methodology described by Arksey and O'Malley, Levac et al., and the Joanna Briggs Institute. Qualitative and quantitative studies

were considered, including randomised controlled trials, cohort studies, and systematic reviews focussing on physiotherapy, occupational setting, and quantitative outcomes like pain relief, increased function, and worker engagement. This review identified a wide range of physiotherapy interventions, including ergonomic assessments, stretching and strengthening exercises, manual therapy, and postural correction programmes. Effectiveness varied, with some studies indicating reduced CTS symptoms and increased worker productivity, while others found minimal long-term effects. Insufficient organisational support, employee restricted time, and poor participation rates were major barriers to program implementation. Workplace-based physiotherapy programmes have the potential to prevent CTS, but their success depends on a variety of factors, including program design, workplace culture, and resource availability. Future study should concentrate on enhancing program models, assessing cost-effectiveness, and overcoming implementation challenges to ensure widespread acceptance and long-term influence on occupational health.

Keywords: Aquatic therapy, Pain, Patellofemoral pain syndrome, Visual Analogue Scale (VAS), Quality of life.

Abstract-135

Translation and Validation of a Stroke Specific Quality of Life Scale in Hindi: A Study Protocol

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Introduction: Stroke is an important global health risk that contributes high rate of mortality and long-term disability. The health-related quality of life of 60–70% of stroke survivors can be significantly impacted by stroke. A reliable instrument for assessing the psychological, social, and physical effects of stroke is the Stroke-Specific Quality of Life Scale (SS-QOL). Despite being available in several languages, it is unavailable in Hindi, a crucial language for the Indian population. This gap needs to be address to assess the health-related quality of life of stroke survivors for Hindi-speaking populations.

Need for this study: The translated version of SSQOL will provide an essential tool to assess and address the health-related quality of life of Hindi-speaking stroke survivors.

Aim: The aim of the study is to translate, perform cross-cultural adaptation and validate the SS-QOL scale in Hindi language.

Materials and Methods: The scale will be translated into Hindi using a systematic procedure. Permission will be obtained from the esteemed authors who developed the original SSQOL scale. Beaton's guidelines will be followed for the translation process. All the steps; forward translation, synthesis, backward translation, expert panel review, pretesting, content validation, and cross-cultural adaptation will be executed sequentially. Professionals from both medical and non-medical backgrounds will be involved at different stages of the process. The Delphi technique will be employed, utilising a panel of experts to review each step and question to ensure the translated questionnaire is error-free. The technique will also calculate the Individual Content Validity Index (I-CVI), Scale Content Validity Index/Average (S-CVI/Ave), and SCVI/Universal scores. To ensure cultural appropriateness, a prefinal version will be tested on Hindi-speaking stroke patients to assess its comprehensibility. Test-retest reliability will be evaluated using Bland-Altman plots and Intraclass Correlation Coefficents (ICCs).

Keywords: Cross cultural adaptation, Delphi technique, Language.

Abstract-136

Exploring the Effectiveness of Aquatic Therapy on Pain Perception in Managing Patellofemoral Pain Syndrome: A Narrative Review

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ABSTRACT

Patellofemoral Pain Syndrome (PFPS) which is one of the most common overuse injury, is characterised by anterior knee pain, decreased functionality, and a lower quality of life. A number of factors, such as obesity, biomechanical misalignments, and excessive use influence it. Since aquatic-based therapies are low-impact and help with joint stress reduction while promoting strength, mobility, and functional benefits, they have become a potential intervention. Evaluating the effectiveness of aquatic therapy in treating PFPS and the extent to which focussed exercise therapies and aquatic therapy help patients with PFPS by reducing pain, improving motor function, and improving balance and examining the differences in results between conventional exercises and aquatic therapy. A literature search was conducted across multiple databases, including PubMed, Scopus, and Web of science, focussing on studies published between 2016 to 2024. Keywords such as “aquatic therapy”, “PFPS”, “pain” and “balance” were used to identify relevant articles. Inclusion criteria involved research on aquatic therapy for PFPS concentrated on quality of life, pain, and balance. The studies included were randomised control trials and experimental studies within the past 10 years that have been published in English and data from selected studies were reviewed and synthesised to identify key findings. Aquatic therapy greatly increased motor function, decreased discomfort, and improved balance. Dynamic balance and knee strength were enhanced by intense aquatic training. On measures including the Visual Analogue Scale (VAS) and Anterior Knee Pain Scale (AKPS), aquatic therapy shown better results in lowering pain and improving functional scores than Vastus Medialis Oblique (VMO) strengthening. The range of motion, pain, functional capacities, and quality of life were all significantly enhanced by aquatic exercises. PFPS can be effectively managed by aquatic therapy, which has been shown to be beneficial for middle-aged people, obese women, and athletes. It continuously improves motor function, functional recovery, pain reduction, and quality of life than conventional exercises.

Keywords: Anterior knee pain scale, Quality of life, Visual Analogue Scale (VAS).

Abstract-137

Effect of Proprioceptive Neuromuscular Facilitation Stretching on Hamstring Flexibility: A Literature Review

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ABSTRACT

The hamstrings muscle which are found at the rear of the thighs, are essential for sprinting, jumping, and walking. Tightness in these muscles can cause compensatory movement patterns, change biomechanics, and limit Range of Motion (ROM), which may lead to lower back discomfort and other musculoskeletal problems. There are several types of stretching that may be applied in order to enhance muscle flexibility either acutely or chronically. Proprioceptive Neuromuscular Facilitation (PNF) is believed to improve flexibility through neural mechanisms such as autogenic inhibition, where the contraction of the target muscle triggers a relaxation response, and reciprocal inhibition, where contracting the opposing muscle group promotes relaxation of the target muscle. This review aimed to collect existing literature on the effects of PNF stretching on hamstring flexibility. The electronic searches were conducted using studies published in various databases, including PubMed, Scopus, Google Scholar, and PEDro covering the period from 2015 to 2025. This literature review provided insights into the effectiveness of PNF techniques for enhancing hamstring flexibility in adults.After identifying 28 papers, reviewing their titles, and removing those that were irrelevant, seven research were selected to meet the review's inclusion criteria.The findings indicated that a PNF protocol can lead to a 20–30% increase in ROM compared to baseline measurements following a six-week intervention. Additionally, immediate improvements of 10–15% in ROM were noted after just one session of PNF stretching. Overall, PNF stretching was found to be more effective than static stretching and IASTM for enhancing hamstring flexibility, making it a valuable approach for clinicians and rehabilitation practitioners.

Keywords: Hamstring muscle, Range of motion, Tightness.

Abstract-138

Proprioceptive and Balance-focussed Exercise Training in Patients with Chronic Ankle Instability: A Narrative Review

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ABSTRACT

Chronic ankle instability (CAI) is a prevalent disorder characterised by recurrent episodes of ankle instability and related functional restrictions. It frequently lowers physical activity levels and reduces quality of life. Up to 70% of people who have acute ankle injuries develop CAI, a common side effect of lateral ankle sprains. Decreased proprioception, muscle weakness, and changed movement mechanics are common in people with CAI, and these symptoms increase the risk of recurrent injuries and cause ongoing. It has been shown that proprioceptive and balance-focussed exercise training can be a useful strategy for addressing these problems. Consolidating the most recent data on the effectiveness of various therapies for people with CAI is the goal of this narrative review.

To find studies on different aspects of proprioceptive and balance-focussed exercise training, a comprehensive literature review covering the years 2015–2024 was carried out using the PubMed and Scopus databases. The review concentrated on how it enhanced ankle joint functional performance, joint position awareness, and dynamic balance. The promising initial results underscore the necessity of extensive research to improve procedures, address discrepancies, and assess long-term results.

The findings suggest that proprioceptive and balance-focussed exercise training improves functional performance and enhances ankle stability among patients undergoing rehabilitation training. Despite the heterogeneity in study designs, exercise protocols, and outcome measures, the overall evidence supports the effectiveness of rehabilitation in CAI.

This review identifies opportunities for further research, including long-term effectiveness and the creation of standardised protocols, while highlighting the clinical value of proprioceptive and balance-focussed exercise training in the treatment of chronic ankle instability.

Keywords: Ankle injury, Balance training, Proprioception.

Abstract-139

Effect of Myokinetic Stretching Technique on Pain and Range of Motion in Individuals with Upper Trapezius Trigger Points: A Study Protocol

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Introduction: The most common causes of non specific neck pain are myofascial or mechanical disorders. Among these, trigger points is the most important broad, long- lasting muscle disorder that impact people of all ages and socioeconomic backgrounds, irrespective of their work, physical characteristics, or degree of physical activity. An innovative technique for managing trigger points is the Myokinetic Stretching Technique (MST), a form of myofascial release, which involves active or passive stretching and movement as well as muscle energy techniques until a desirable release from the taut band is achieved.

Need of this study: In patients with upper trapezius trigger points, the MST is expected to improve cervical range of motion, improve the pain pressure threshold, and substantially reduce pain intensity.

Aim: To evaluate the efficacy of the MST in reducing pain and improving range of motion in individuals with upper trapezius trigger points.

Materials and Methods: A quasi-experimental study will be conducted on 40 individuals; aged 20-30 years with active upper trapezius trigger points. Participants will be undergoing two-week intervention involving MST thrice per week (total 6 sessions) on alternate days. Pain intensity will be measured using the Numerical Pain Rating Scale (NPRS), Pressure Algometry will be used to measure Pain Pressure Threshold (PPT), Universal goniometry will be used to measure Cervical Range of Motion (CROM) and Neck Disability Index (NDI) will be used to assess functional disability of neck. Pre- and Post-intervention data will be analysed. Ethical approval was granted by the institute's Ethics Committees (IEC-2996) and the CTRI registration number CTRI/2024/09/073719.

Keywords: Neck Disability Index, Pain pressure threshold, Universal goniometry.

Abstract-140

The Effect of the Different Sensitisers of Straight Leg Raise on Conduction Velocity Characteristics of Sciatic Nerve in Individuals with Sciatica using Nerve Conduction Velocity Parameters: A Cross-sectional Study Protocol

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Introduction: The Straight Leg Raise (SLR) is the most commonly applied physical test for individuals with sciatica.During SLR, sensitizers like hip internal rotation, adduction, and ankle dorsiflexion are used to create tension along the sciatic nerve and to confirm the diagnosis. As stretching myelinated nerves increases Nerve Conduction Velocity (NCV), these parameters can help identify the most effective sensitizer.

Aim: The aim of the present study is to investigate the most sensitising position of SLR that subjects the sciatic nerve to excessive stress using NCV parameters.

Materials and Methods: Fifty males and females, aged 17 to 65 years, will be recruited if their pain is radiating to lower limb, or are diagnosed with sciatica. Subjects were excluded if they had any lower limb and spine pathology, any metabolic disorders, tumour or malignancy or any progressive neurological condition. SLR will be then performed with using three different sensitizers like neck flexion, hip adduction and internal rotation, and ankle dorsiflexion in varying range of motion. The motor NCV and the Numerical Pain Rating Scale (NPRS) scores will be then noted to assess the most sensitizing position.

Results: Data will be analysed using the Statistical Package for Social Sciences (SPSS) software. Normality will be assessed using the Shapiro-Wilk test and if data found to be normally distributed it will be presented as mean±SD and if not normally distributed as median (interquartile range).

Conclusion: The study results show that the position of the leg during the SLR may significantly impact how the sciatic nerve conducts signals. This finding highlights the sensitivity of nerve conduction to changes in body position, offering valuable information for healthcare professionals in diagnosing and treating conditions like sciatica. This approach may enhance both the mechano-sensitivity and conduction velocity of the nerve, thereby helping the clinician to select the particular sensitizer for neural testing.

Keywords: Lower extremity, Neural conduction, Neurological condition.

Abstract-141

Exploring Biomechanical and Muscle Activation Pattern Changes in Different Grades of Osteoarthritis Knee: A Narrative Review

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ABSTRACT

Knee osteoarthritis (KOA) is a prevalent degenerative joint disease that severely limits functional movement, especially during sit-to-stand (STS) tasks. The biomechanical changes that accompany KOA development affect joint moments, muscle activation, and movement choices. Understanding these alterations is critical for developing effective rehabilitation methods.This narrative review aims to synthesise studies on the biomechanical and muscular activation aspects of the STS task in individuals with varied degrees of KOA. It focusses on discovering compensating methods, kinematic and kinetic differences, and how these relate to treatment therapies. A literature search was conducted across multiple databases, including PubMed, Scopus, and Web of Science, focussing on studies published between 2016 to 2024. Keywords such as "knee osteoarthritis,""biomechanics,""sit-to-stand task," and "muscle activation" were used to identify relevant articles. Inclusion criteria involved studies that analysed kinematic and kinetic parameters during the STS task in KOA patients. Data from selected studies were reviewed and synthesised to identify key findings Depending on the severity of the disease, KOA patients use a variety of compensatory techniques throughout the STS task.Patients with mild KOA have decreased knee-ankle angular velocity, increased pelvic Range of Motion (ROM), and changed sagittal plane motions. Muscle activation patterns show that the vastus lateralis and gluteus medius are less engaged, while the biceps femoris is more activated in response. Severe KOA patients showed trunk flexion, trunk obliquity, and execution time variation indicating functional constraints and compensatory strategies. The hip joint contributes significantly to the overall support moment during the STS activity in both mild and moderate KOA. Patients with moderate KOA show increased trunk flexion and decreased knee joint contribution, which suggests a knee load reduction strategy.The reviewed studies demonstrate how biomechanical abnormalities in KOA evolve from mild to severe phases, highlighting the significance of individualised rehabilitation techniques. Increased trunk flexion and modified joint contributions are examples of compensatory mechanisms that are essential for reducing knee load and controlling pain.

Keywords: Biomechanics, Knee osteoarthritis, Kinematics, Pain, Range of motion.

Abstract-142

Effect of Muscle Energy Technique on Hamstring Flexibility: A Literature Review

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ABSTRACT

Muscular flexibility is an essential aspect of normal human function. Limited flexibility has been shown to predispose a person to several musculoskeletal overuse injuries and to affect a person's level of function significantly. Hamstring tightness is a causative factor for reduced range of motion and can lead to reduced flexibility of the pelvis, hip and knee. The hamstring muscle is a two-joint muscle significant for hip extension, knee flexion, and pelvic posterior tilt movement. Muscle Energy Technique (MET) is a manual technique, also termed an active muscular relaxation technique, used for various purposes, including lengthening of a shortened muscle and contraction of a subject's muscle in a controlled direction against the resistance provided by the physical therapist. MET has shown an improved range of motion, increased muscle strength and pain reduction. A literature review of randomised controlled trials was conducted in PubMed. The following terms have been extensively searched: “Hamstring muscle,” “Tightness,” “Muscle energy technique,” and “Muscle stretching exercises.” Randomised controlled trials, original papers in full text, and studies written in English were included in this review. The outcomes studied were hamstring length test (using active knee extension and straight leg raise). A total of 6 articles were selected based on inclusion criteria. Four articles included active knee extension, and two included straight leg raises. The study concluded that the MET was effective in increasing the hamstring muscles' flexibility.

Keywords: Muscles, Pain, Range of motion, Tightness.

Abstract-143

Effectiveness of Manual Therapy among Patients with Adhesive Capsulitis: A Literature Review

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ABSTRACT

Frozen shoulder, or adhesive capsulitis, is a common shoulder condition that causes pain and a progressive loss of glenohumeral mobility. It is categorised as either primary or secondary. Primary idiopathic frozen shoulder can occur with other illnesses. Secondary adhesive capsulitis may develop following shoulder injuries or immobilisation. There are four stages of adhesive capsulitis development: inflammatory, freezing, frozen, and thawing. The first conservative treatment for adhesive capsulitis is rehabilitation; other recommended treatments include anti-inflammatory medications, intra-articular corticosteroids, injections for capsular distension, and surgery. Manual therapy involves a medical professional (such as a physiotherapist) moving the joints and other structures. A literature review of Randomised Controlled Trials (RCTs) was conducted in PubMed and Embase. The following terms have been extensively searched: manual therapy, joint mobilisation, manipulation, frozen shoulder, peri arthritic capsulitis and adhesive capsulitis. RCTs and studies written in English from 2015 to 2025 were included in this review. The outcomes of interest were pain, shoulder Range of Motion (ROM) and disability. Out of 74, 10 articles were selected in the study based on inclusion criteria. All articles recorded pain (using VAS or NPRS), while five reported ROM and function (shoulder pain and disability index). The results showed that manual therapy is strongly recommended for pain relief, improvement of ROM, and functional status in patients with adhesive capsulitis. The evidence suggests that manual therapy effectively decreases pain and increases ROM in patients with adhesive capsulitis. The best outcomes are often seen with early intervention, combining manual and exercise therapy.

Keywords: Freezing, Musculoskeletal manipulations, Pain, Physical therapy, Range of motion.

Abstract-144

Neural Mobilisation Techniques: A Comprehensive Review of Methods and Applications

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ABSTRACT

Neural mobilisation treatments are specific therapeutic procedures that improve nerve mobility, reduce neural tension, and relieve symptoms caused by nerve compression or irritation. They are often used to treat upper-limb diseases like carpal tunnel syndrome, cubital tunnel syndrome, and radial tunnel syndrome.

Mobilisation treatments for the upper limb are mainly directed at the median, radial, and ulnar nerves. Median nerve mobilisation includes procedures like nerve gliding and tensioning, which target wrist, elbow, and shoulder motions to improve neural mobility. Radial nerve mobilisation addresses entrapment locations by including sliding and tensioning motions with wrist flexion, elbow extension, and forearm pronation. To reduce tension and enhance function, ulnar nerve mobilisation applies techniques like gliding and tensioning through actions of elbow flexion, wrist extension, and shoulder abduction.

Nerve flossing and oscillatory treatments are two general procedures that induce neural desensitisation and increase total nerve mobility. Functional approaches frequently include cervical motions or manual treatment to address proximal nerve involvement and improve results. Individual examination determines the approach used, which targets specific neurological pathways and efficiently addresses symptoms.

Neural mobilisations should be supervised by a certified therapist to best achieve positive effect with adequate safety measures with effectiveness. Some of these techniques greatly enhance mobility with decreased pain as well as facilitating recovery in both the functional capacities of patients that have upper-limb neuropathy. However, caution should prevail with the approach since movements done must not stir up symptoms, so adjustments accordingly should be established.

Keywords: Median nerve, Pain, Pronation, Radial neuropathy, Ulnar nerve.

Abstract-145

Exploring the Impact of Prolonged Screen Time on Balance Abilities: A Scoping Review

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ABSTRACT

Balance is defined as the ability to maintain the body's position and stability, involving the coordinated functioning of the vestibular system, sensory input, and motor control. In today's world, the use of electronic devices such as televisions, computers, tablets, and mobile phones has become integral to daily life. Prolonged screen time, typically defined as four or more hours of screen use per day, has been associated with various physical and cognitive effects, including compromised balance, particularly in middle-aged and elderly individuals. This scoping review investigates the impact of prolonged screen time on balance abilities in individuals. To explore this connection, a comprehensive literature search was performed across multiple databases including PubMed, The Cochrane Library, Scopus, and OVID, covering studies published from December 2000 to December 2024. The initial search identified 4,841 articles, which were refined to 1,563 articles after removing duplicates. Following a screening process for relevance, five studies met the inclusion criteria and were included in the final review. This review adhered to the scoping methodology described by Arksey and O'Malley, Levac et al., and the Joanna Briggs Institute. The results of the reviewed studies suggest a significant correlation between prolonged screen time and impaired balance. Specifically, daily screen time exceeding four hours was found to have a detrimental effect on balance abilities. These negative effects were attributed to poor posture, musculoskeletal pain, and proprioceptive deficits. In addition to these factors, prolonged screen time is also linked to visual fatigue, poor posture, and mental fatigue, all of which can negatively influence balance. Though the findings demonstrate a clear relationship between prolonged screen time and balance impairment, the area remains an evolving field of study. Further research is required to fully understand the long-term effects of screen time on balance and overall physical health.

Keywords: Middle aged, Musculoskeletal deficits, Posture, Screen time.

Abstract-146

Impact of Neuromuscular Exercises in Management of Tibiofemoral Osteoarthritis: A Narrative Review

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ABSTRACT

Knee osteoarthritis (OA) is a widespread degenerative joint condition that affects approximately 53% of individuals with self-reported symptomatic OA, primarily older adults. Characterised by pain, functional limitations, and reduced quality of life, it often targets the medial tibiofemoral compartment, making daily activities increasingly challenging. Neuromuscular exercises have gained attention as a therapeutic intervention to address these issues, improving biomechanics, functional performance, and muscle activation patterns. This review evaluates the impact of neuromuscular exercises on pain relief and physical function in patients with medial knee OA. A systematic search of Scopus, PEDro, and PubMed databases covering studies from 2015 to 2024, identified five studies that met the inclusion criteria.The findings reveal that neuromuscular exercises are highly effective in reducing pain and enhancing mobility in individuals with tibiofemoral OA. These exercises improve joint stability, strengthen surrounding musculature, and optimise movement patterns, contributing to better overall function and quality of life. However, the limited number of studies on this

subject underscores the need for further research to validate these benefits and explore the full potential of neuromuscular exercise as a treatment option.This review highlights the promising role of neuromuscular exercises in managing tibiofemoral OA and encourages continued exploration to provide more robust evidence for integrating these interventions into standard care protocols for osteoarthritis management.

Keywords: Neuromuscular exercises, Pain, Quality of life.

Abstract-147

Hindi Translation and Validation of American Shoulder and Elbow Surgeons Shoulder Assessment Form: A Study Protocol

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ABSTRACT

Introduction: The American Shoulder and Elbow Surgeons Shoulder Assessment Form (ASES) includes two sections: the physician assessment and the patient self-evaluation. It is valuable for assessing the functional abilities and pain levels of patients with different shoulder conditions, which often impact their daily activities. It has been already translated into many languages, yet to be translated into Hindi.

Need for this study: This study will provide a Hindi-translated version of ASES and content validity of patients having shoulder pathologies will be determined.

Aim: The purpose of this study is to translate the ASES into the Hindi version and to evaluate its validity.

Materials and Methods: The study method incorporates the Beaton guidelines which include the translation of the ASES in the Hindi language from English by two translators i.e.T1 and T2 from medical and non-medical backgrounds. The recording observer then takes a seat to create a T12 version of the translated scale. The reverse translation from the T12 form to the previous form will be done. The expert panel analyses all the stages and items so that the translated form is free of errors, allowing it to be field-tested. Evaluation of the content validity will be done. The pre-final form is then fully tested on patients, and the validity will be reported. Finally, the translated scale version will be analysed by the ethics committee.

Keywords: Diagnostic self-evaluation, Language, Pain, Shoulder.

Abstract-148

Impact of Swiss Ball Exercises on Enhancing Core Stability and Physical Fitness in Athletes: A Narrative Review

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ABSTRACT

Swiss ball exercises have gained popularity in physical education and therapy because they improve core stability, muscular strength, flexibility, endurance, and balance. The Swiss ball is a multipurpose training and therapy item that enhances proprioception and engages a variety of muscle groups due to its dynamic and unstable nature. This review was conducted to investigate the uses of Swiss ball exercises in athletic training and rehabilitation, as well as their impact on physical fitness measures like core strength, agility, balance, flexibility, and endurance. A literature search was conducted across multiple databases, including PubMed, Scopus, and Web of Science, focussing on studies published between 2020 to 2024.This review summarises study including quasi-experimental and randomised controlled trials exploring the impact of Swiss ball exercises. The studies included male participants, primarily aged 18–25 years, comprising students, untrained individuals, and athletes. Pre- and post-intervention assessments measured physical fitness parameters, including core strength (McGill's core endurance tests), agility (Illinois Agility Test), flexibility (sit-and-reach test), muscular strength, and endurance (dynamometry, push-ups, and crunches). Results were compared against control groups or traditional exercise regimens.Swiss ball activities, as opposed to conventional exercises or control groups, markedly increased muscular endurance, flexibility, balance, agility, and core strength. There was no improvement in leg strength, but there were noticeable gains in back strength. Circuit training combined with Swiss ball workouts produced further improvements in endurance and flexibility. These exercises improved proprioception and neuromuscular coordination by demonstrating superior stabilising muscle engagement. Exercises using Swiss balls are a great way to improve several aspects of physical fitness, including balance and core strength. Their ability to train proprioception and neuromuscular coordination makes them very promising for enhancing athletic performance and preventing injuries.

Keywords: Athletes, Athletic performance, Balance, Core stability, Physical fitness, Swiss ball

Abstract-149

Applications and Efficacy of Russian Current Therapy in Musculoskeletal Rehabilitation: A Narrative Review

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ABSTRACT

Russian current is a medium-frequency sinusoidal alternating current with a frequency of 2500 Hz. Initially developed for athletic training, it has been integrated into physiotherapy for musculoskeletal conditions as its characteristic feature is increasing muscle strength. Its use has been integrated into physiotherapy for other conditions, including osteoarthritis, post-surgical recovery, and injury rehabilitation. A narrative review was conducted by searching databases like PubMed, and Scopus for articles published between 2010 and 2024. The review summarises findings from five randomised controlled trials and one case study. Inclusion criteria were studies focussing on Russian current application of quadriceps muscle strengthening, clinical efficacy, and comparative outcomes like Hand-held Dynamometer (HHD). Findings were then synthesised qualitatively. The review revealed that Russian current therapy enhances quadriceps strength, reduces pain, and improves functional mobility in various musculoskeletal conditions. Comparative studies indicate that combining Russian current with isometric or dynamic exercises yields exceptional results. However, variability in parameters such as duty cycle, amplitude, and session duration impact the comparability of results across studies. Russian current therapy demonstrates significant benefits in musculoskeletal rehabilitation, particularly for improving muscle strength and reducing pain. While the modality shows potential for improving muscle strength and endurance, inconsistent treatment protocols limit its widespread clinical application. Standardised protocols and long-term outcome studies are needed to optimise its clinical application.

Keywords: Clinical protocol, Musculoskeletal disorders, Muscle strength, Osteoarthritis, Pain.

Abstract-150

Determining the Effect of Vestibular and Auditory Exercises on Postural Control and Coordination among Individuals with Benign Paroxysmal Positional Vertigo: A Three-arm Single-blinded Study Protocol

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Introduction: Benign Paroxysmal Positional Vertigo (BPPV) is a vestibular disorder marked by short episodes of vertigo that occur in response to particular head movements. This phenomenon is caused by the displacement of otoconia within the semicircular canals. BPPV notably affects postural stability and coordination, leading to a diminished quality of life and a heightened risk of falls.

Need for this study: While the individual benefits of vestibular rehabilitation has been increasingly acknowledged for patients with

BPPV, there remains limited evidence on the combined effect of vestibular and auditory exercises in the patients.

Aim: To assess the effects of vestibular and auditory exercises on postural control and coordination in individuals with BPPV.

Materials and Methods: A total of 36 participants will be recruited and subsequently assigned at random into three equal groups, each consisting of 12 participants. Group 1 will undergo active auditory exercises, group 2 will participate in vestibular exercises, and group 3 will undertake a combination of both auditory and vestibular exercises. Outcome measures such as Mini BESTest, Timed Up and Go Test (TUG), Dizziness Handicap Inventory (DHI), Tandem Walking, and the 6-Minute Walk Test, will be utilized to evaluate the participants for pre and post assessment. The intervention will be conducted four days a week for the duration of four weeks.

Keywords: Benign paroxysmal positional vertigo, Dizziness, Head movements, Postural balance, Quality of life.

Abstract-151

Determining the Effect of Dual-task Training and Virtual Reality on Cognitive-motor Interference in Patients with Parkinson's Disease: A Three-arm Single-blinded Multicentered Study Protocol

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Introduction: In Parkinson's Disease (PD), rehabilitation is a high-potential strategy for enhancing mental and physical abilities. Numerous studies have examined the impact of dual-task training on enhancing gait, balance, motor symptoms, and cognitive function in individuals with PD. Research have shown that virtual reality significantly enhances gait and balance in patients with PD compared to traditional therapy. However, there is a scarcity of literature that explores the combined effects of Dual-task Training (DTT) and Virtual Reality (VR) on Cognitive-Motor Interference (CMI) in individuals with PD.

Need for this study: DTT effectively improves cognitive deficits, while VR enhances motor abilities in individuals with PD. Hence, it would be expected that the combined treatment can greatly benefit the patients with PD.

Aim: To determine the effect of DTT and VR on CMI in patients with PD.

Materials and Methods: The participants recruited in this study protocol will be between 50 and 70 years old and randomly allocated into three groups. For five times a day for four weeks, experimental group 1 will receive treatment with VR, group 2 will receive DTT and group 3 will receive combined treatment of group 1 and group 2. Outcome measures, such as a modified version of the Unified Parkinson's Disease Rating Scale (MDS-UPDRS), Montreal Cognitive Assessment (MoCA), and the Timed Up-and-Go test (TUG), will be used to assess the subject pre-intervention and post-intervention.

Keywords: Cognition, Gait, Montreal Cognitive Assessment, Unified Parkinson's Disease Rating Scale

Abstract-152

The Role of Buteyko Breathing Technique in Enhancing Aerobic Capacity: A Narrative Review

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ABSTRACT

Buteyko Breathing (BB) is one of popular complementary alternative medicine approach that emphasises nasal breathing, breathing control and relaxation to regulate carbon dioxide (CO^2) levels and promote diaphragmatic breathing while minimising the use of accessory muscles, offering potential therapeutic benefits for enhancing aerobic capacity (VO^2 max) and respiratory health. VO^2 max is a quantitative measure of an individual ability to transport oxygen and indicate the overall efficiency of cardiopulmonary function. The current narrative review aims on exploring the effects of BB in enhancing aerobic capacity among young adults. The databases probed were Scopus, PubMed, Physiotherapy Evidence Database (PEDro) and Ovid from 2016-2025. The studies with both male and female adults, above age of 18 years using BB as a breathing technique were included. The selected studies were segregated and analysed further. From 2039 initial studies, 18 relevant ones were selected after duplicate removal. Among them, three studies focussed on adults' population; all collectively indicating a significant positive impact of BB on aerobic capacity. The BB lowers the pulmonary ventilation, which raises the body's CO^2 levels.Raising CO^2 levels can lower blood pH and promote the production of ATP as well as the synthesis of proteins, peptides, nucleic acids, lipids, and carbohydrates. The oxygen-haemoglobin dissociation curve shifts to the right when blood pH drops, decreasing haemoglobin's affinity for oxygen and allowing more oxygen to enter the tissue. This review concludes that BB can be an effective intervention to improve aerobic capacity.

Keywords: Adult, Breathing exercises, Carbon dioxide, Pulmonary ventilation

Abstract-153

The Role of Digital and Wearable based Exercise Programme in Weight Management and Cardiorespiratory Fitness in College Students: A Narrative Review

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ABSTRACT

Significant health hazards, such as decreased cardiovascular fitness and increased metabolic disorders, are associated with the rising overweight and obesity among college students. The use of wearable and digital technology to encourage physical activity and enhance health outcomes in young adults presents a promising path as these tools become more and more popular in fitness and health management. In order to help overweight college students maintain their weight and improve their cardiovascular fitness, this study investigates the potential of wearable and digital workout regimens. Physical activity, heart rate, calorie expenditure, and sleep habits may all be tracked in real time with digital platforms and wearable technology like fitness trackers, smart watches, and smartphone apps. According to research, these kinds of treatments may greatly improve adherence to physical activity recommendations, which leads to quantifiable gains in cardiorespiratory endurance and body composition. Using MeSH phrases such as “cardiorespiratory fitness,” “overweight,” “wearable electronic devices,”“fitness trackers,” and “young adults,” a thorough search was conducted throughout databases like as PubMed, PEDro, Google Scholar, Ovid, and others. According to the inclusion and exclusion criteria, articles published within the previous five years were included. In this we found that anthropometric measurements have been significantly impacted by the incorporation of structured exercise regimens, such as resistance training, High-intensity Interval Training (HIIT), and aerobic training, through digital platforms. In addition to improved fat oxidation and the retention of lean muscle, studies show decline in body weight, Body Mass Index (BMI), and waist circumference. Several devices like Xiaomi 8 smart watches, Myworkout GO, Fitbit charge 5, Apple watch series 8 have shown good results. Additionally, gains in cardiovascular fitness, as demonstrated by elevated VO2 max and decreased resting heart rate, demonstrate how well wearable-based therapies support cardiovascular health. The potential of wearable and digital exercise regimens as efficient, scalable, and user-centered approaches to college students' weight management and cardiovascular health is highlighted by this review. These initiatives can enable young individuals to create long-lasting habits for a healthier future by fusing technology with conventional health promotion initiatives.

Keywords: Cardiorespiratory fitness, Fitness trackers, Overweight, Wearable electronic devices, Young adults.

Abstract-154

EQ-5D-5L in Musculoskeletal Health: A Narrative Review on its Utility and Application

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ABSTRACT

The EQ-5D-5L questionnaire is a widely used tool for assessing health-related Quality of Life (QoL) across diverse clinical and public health contexts.This assessment tool has been adapted for use in various languages, such as Spanish, French, and Hindi, enabling its application across diverse populations. However, the developers have not explicitly outlined the range of musculoskeletal conditions for which this tool is suitable.This narrative review,therefore, aims to comprehensively evaluate the range of health conditions assessed using the EQ-5D-5L, summarising its application across various medical-surgical and rehabilitative domains related to musculoskeletal disorders. A comprehensive literature search was performed across PubMed, Scopus and Cochrane for full-text articles reporting the use of the EQ-5D-5L in evaluating HRQoL for Musculoskeletal medical conditions,published in the English language between 2019 and 2024. All the relevant articles were included, irrespective of study design and geographical presentation. A total of 4 articles were retrieved from different databases that fulfilled the inclusion criteria and were included for the present review. An analysis of these studies revealed that the findings underscore its value as a generic HRQoL tool while advocating for integration with disease-specific instruments for comprehensive assessments. Articles suggested its use in chronic diseases like knee osteoarthritis, low back pain, and osteoarthritis of the metatarsophalangeal joint, as well as in evaluations of healthcare interventions. One of the included articles assessed the QoL of the patients, one articles assessed the functionality of the patient after the intervention, and the other two articles assessed both.This review concludes that although there are multiple QoL assessment tools that can be used indifferent conditions, EQ-5D-5L has been considered to be an effective generic health-related QoL tool for various musculoskeletal diseases that helps with the assessment and prognosis documentation of patients.The tool also proved valuable in evaluating patient functionality and the impact of healthcare interventions. However, the findings suggest that the EQ-5D-5L may benefit from integration with disease-specific instruments for a more comprehensive assessment of HRQoL in musculoskeletal conditions.

Keywords: Chronic disease, Musculoskeletal disease, Prognosis, Quality of Life, Questionnaires, Surveys.

Abstract-155

Efficacy of Different Clinical Diagnostic Tests and their Psychometric Properties in Diagnosing Piriformis Syndrome

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ABSTRACT

Piriformis Syndrome (PS) is caused by the sciatic nerve compression in the gluteal region causing pain, tingling and numbness in the buttock and the nerve pathway down to lower thigh and into leg. Diagnosing PS is quite difficult and is often misinterpreted. So, there is a need to identify various clinical diagnostic tests and their

accuracy. To explore different clinical diagnostic tests, criteria and their psychometric properties for diagnosing PS. Total 516 full-text published articles were identified from PubMed, Scopus and Science Direct from 2012-2024. Only full text prevalence/incidence, review articles and observational studies on individual with PS were included. After duplicate deletion from Mendeley, 225 articles were left to screen at title and abstract level. Finally, 26 full text articles related to research topic were further analysed at full-text level. Out of which only 5 articles were selected and included in the review for analysis. Various clinical diagnostic tools including FAIR, Beatty test, Hand on Hip sign, SLR, active piriformis and seated Piriformis stretch test are available defined to be reliable and valid measures for the study.The SLR had sensitivity of 0.15, specificity of 0.95, Active piriformis test had sensitivity of 0.78, specificity of 0.80, Seated piriformis stretch test had sensitivity of 0.52, specificity of 0.90, the FAIR test had sensitivity and specificity of .88 and .83, HHS was found to have a sensitivity of 86% and a specificity of 75%. We found two clinical criteria also in which one is utilising clinical symptoms and diagnostic imaging to diagnose PS while another one took into account clinical symptoms, clinical diagnostic tests, aggravating and relieving factors to diagnose PS. The scoping review concludes that various clinical diagnostic tests, like Flexion, Adduction, Internal Rotation (FAIR), Beatty maoeuver, Straight Leg Raise (SLR), active piriformis test and seated piriformis stretch test are sensitive and specific tools in diagnosing PS.

Keywords: Hand on hip sign, Prevalence, Sciatic nerve compression

Abstract-156

Efficacy of Balance Training in Patients with Knee Osteoarthritis: A Literature Review

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ABSTRACT

Knee Osteoarthritis (OA), affecting 30-40% of people by the age of 65 years, is a leading cause of mobility issues and disability, particularly in the knee joint. OA commonly results in decreased proprioception and balance, increasing fall risk. Balance exercises are recommended to improve stability and reduce falls in elderly patients with knee OA. The review aims to evaluate the efficacy of balance training in patients with knee OA. The database was searched on PubMed from 2014 to 2024. The search utilised MeSH keywords, including knee OA, balance training, and proprioception exercise, using Boolean Operators (AND/OR/NOT). Out of 2617 articles in the database, 4 fulfilled the eligibility criteria and were included in the present review. Four studies specifically examined the impact of balance training on knee OA. These studies primarily utilised outcome measures such as the WOMAC Questionnaire and the Visual Analogue Scale to assess function and pain. Out of 4 articles, two studies have demonstrated the significant impact of balance training on pain using the Visual Analogue Scale, and all four studies have consistently shown significant improvements in function by using WOMAC as an outcome measure among individuals with knee OA. The review concludes that balance training interventions effectively improve pain and function in individuals with knee OA, as evidenced by significant improvements in pain and functional outcome measures.

Keywords: Disability, Mobility issues, Proprioception, WOMAC

Abstract-157

Reference Values of Mass Grasp, Toe-to-examiner's Finger and Alternate Heel-to-knee; Heel-to-toe Test among Young Adults

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ABSTRACT

Introduction: Coordination refers to the mechanism by which the brain and body work together to produce controlled and purposeful movements. This process involves This process involves the integration of sensory information—such as visual, auditory, and proprioceptive inputs—with motor functions to effectively perform tasks. It includes both gross and fine motor skills, as well as motor planning. Coordination can be evaluated through both non-equilibrium and equilibrium coordination tests.

Aim: This study aimed to determine the reference values for the mass grasp test, toe-to-examiner's finger test, alternate heel-to-knee test, and heel-to-toe test among healthy young adults aged 18 to 25 years.

Materials and Methods: The study recruited 466 participants aged 18 to 25 years through convenience sampling, ensuring that individuals met predetermined eligibility criteria. The sample comprised an equal gender distribution. Each participant was instructed to perform three specific motor tests; the mass grasp test, toe-to-examiner's finger test, and the alternate heel-to-knee; heel-to-toe tests. Participants completed three trials for each test. The readings for both the right and left limbs were recorded in each trial by using a mobile based stopwatch. The tests were administered in a consistent order to minimise variability.Ethical approval was obtained from the MMIMSR (Maharishi Markandeshwar Institute of Medical Sciences and Research) Mullana, Ambala, with the ethical number IEC-2672.

Results: Age, height, weight and Body Mass Index (BMI) of recruited young adults were 21.61+2.02 years, 165.43+9.16 cm, 61.00+10.60 kg, and 22.25+2.83 kg/m^2, respectively. The reference values obtained for the mass grasp test were (0.28±0.073) milliseconds for the right limb and (0.27±0.70) milliseconds for the left limb. For the toe-to-examiner's finger test, the values were (0.96±0.20) milliseconds for the right limb and (0.94±0.20) seconds for the left limb. For alternate heel-to-knee and heel-to-toe tests were (1.94±0.51) milliseconds for the right limb and (1.92±0.52) milliseconds for the left limb, respectively.

Conclusion: Reference values for the mass grasp test, toe-to-examiner's finger test, and alternate heel-to-knee and heel-to-toe tests in young adults aged 18 to 25 years have been established.

Keywords: Coordination, Motor skills, Sensory information.

Abstract-158

Study Protocol on Effect of High-Intensity Functional Training on Visuospatial Working Memory in Middle-aged Adults

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ABSTRACT

Introduction: Visuospatial Working Memory (VSWM) is necessary for people to live, study, and work effectively. Impairment or degeneration in VSWM can lead to disruption in performing Activities of Daily Living (ADL's). Physical activity has received a lot of attention as a preventative measure for neurocognitive health and as an alternative to drugs to lower blood viscosity.

Need for this study: Physical activities might help in improving VSWM and researches in this field are being conducted to understand the importance of physical activities in enhancing the VSWM

Aim: To determine the effect of High-intensity Functional Training (HIFT) on Visuospatial Working Memory (VSWM) among middle-aged adults.

Materials and Methods: A total of n=34 middle-aged adults will be recruited according to specified inclusion and exclusion criteria, using a convenience sampling method in a single-group pre-post design. The intervention will consist of a HIFT protocol, and using the N-back test and Corsi block-tapping tasks as an outcome measure. These outcomes will be assessed twice: pre intervention and after completing 3-months intervention. Each HIFT session will begin with a dynamic warm-up, followed by a structured sequence high-intensity, anaerobic and aerobic exercises. After each round, participants will have 2-minutes rest, repeating this cycle five times per session. Each session will end with a 5-minutes cool-down involving stretching exercises.

Keywords: Activities of daily living, Neurocognitive, Physical activity.

Abstract-159

Impact of Hand Eye Co-ordination Training in Table Tennis Players: A Literature Review

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ABSTRACT

Table tennis and other sports requiring accurate interceptive movements depend heavily on Hand-eye Coordination (HEC). Numerous studies demonstrate how HEC improves all aspects of sports performance, such as serve practice, stroke accuracy, and game-specific abilities. With an emphasis on its function in performance enhancement and real-world applications, this study looks at previous studies to evaluate the effects of HEC training on table tennis players.

This review aimed to explore the effects of hand-eye coordination training programmes on table tennis players' motor skills, game-specific performance. Databases such as Google Scholar, Web of Science, Scopus, EBSCO, and PubMed were used to review research material from 2011 to 2024 using keywords like HEC training, table tennis, and injury prevention. Five studies out of a starting pool of 1327 publications satisfied the requirements for inclusion. These experimental investigations includes techniques involving audiovisual aids, reaction drills, and sport-specific exercises to improve HEC. The duration of the interventions was 4–8 weeks. Paired t-tests, MANOVA, and Pearson's correlation coefficients were used for the data analysis. Review showed there was improvement in players' motor skills, sensory performance, serve accuracy, and backhand stroke precision. The participants who received HEC training performed significantly better than those in control groups and also shows male participants often performed better than female participants. Focused HEC training strongly improved key performance skills, enhancing players' overall abilities. Regular training regimens that include these activities enhance response times, serve skills, and stroke accuracy. To optimise player growth, coaches are urged to use cutting-edge HEC training methods including audiovisual aids and quick-reaction drills.

Keywords: Motor skills, Sports performance, Stroke accuracy.

Abstract-160

Calming Distress- Impact of Relaxation and Chest Proprioceptive Neuromuscular Facilitation Technique in Neonatal Respiratory Distress Syndrome: A Case Series

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ABSTRACT

Respiratory Distress Syndrome (RDS) in neonates is a critical condition, due to insufficient surfactant production in the lungs. Majorly, preterm neonates are at a huge risk of respiratory complications due to immature lung formation and alveolar collapse. The clinical signs of Respiratory Distress are usually cyanosis, grunting, chest wall retractions and irregular respiratory rate and abnormal breathing pattern. Thus, in this case, therapeutic interventions are necessary to promote relaxation and improve the pattern of breathing to avoid severe complications like hypoxia or respiratory failure. With this perspective in mind, this case series highlights a detailed history of prenatal, natal and post natal assessment of mother and baby along with necessary observations and detailed anthropometric measurements and thorough cardio-respiratory examination of the neonates. It demonstrates how Relaxation techniques and Chest Proprioceptive Neuromuscular Facilitation (PNF) techniques provided every two weeks for ten days on infants with RDS shows improvement. Warm light touch,

soft-voiced communication, tucking position facilitation, soft rocking, olfactory stimulation with mother's milk, and parental audio engagement were among the relaxing techniques used in the intervention. Low vertebral pressure, thoracic squeezing, mild chest percussion, intercostal stretching, and perioral stimulation were all used in chest PNF techniques. The neonates were on non-invasive breathing support with Continuous Positive Airway Pressure (CPAP) and exogenous surfactant treatment. Assessments conducted before and after the intervention showed notable clinical improvements in terms of oxygen saturation (spO_2) level, Silverman-Anderson Score (SAS) and Neonatal Infant Pain Score. The Arterial Blood Gas (ABG) analysis has also remarkably shown transition from respiratory alkalosis to mild respiratory acidosis. This underscores how a collaborative approach achieves successful outcomes in saving lives.

Keywords: Continuous Positive Airway Pressure (CPAP), Newborn, Oxygen saturation, Pain, Percussion, Relaxation therapy

Abstract-161

The Impact of Advanced Therapeutic Modalities in Managing Plantar Fasciitis using the Foot Function Index: A Literature Review

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ABSTRACT

Plantar Fasciitis (PF), an inflammatory condition affecting the plantar fascia, causes heel pain and limits foot function.Traditional treatments include stretching,orthotics, and physical therapy. Advanced therapies may improve treatment outcomes by stimulating tissue healing.The aim of this literature review is to critically evaluate existing research on the impact of advanced modalities on foot function and pain in plantar fasciitis by using Foot Function Index (FFI). A literature search was conducted from PubMed, Cochrane Library, and PEDro from year 2018 to December 2024. The search utilised MeSH key terms such as “Plantar fasciitis,” “Advanced modalities,” “Foot function index,” “Quality of life,” and “Range of motion” employing Boolean operators (AND, OR). A total of 7856 articles found from different databases.Duplicate articles were removed. Five articles fulfilled the eligibility criteria and were included for the present review.The 7856 reviewed articles, 5 only those demonstrating the impact of advanced modalities such as laser therapy and shockwave therapy on foot function and pain in PF using the FFI met the inclusion criteria. This review demonstrates that advanced modalities significantly improve pain and function, as assessed by the FFI, in patients with PF. This review shows that shockwave and laser therapy can significantly improve foot function and reduce pain in PF patients, as measured by the FFI.

Keywords: Advance modalities, Outcome measures, Plantar fasciitis, Quality of life.

Abstract-162

Novel Cervical Pillow: A Case Series on its Effectiveness in Alleviating Pain and Enhancing Sleep in Patients with Cervical Spondylosis

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ABSTRACT

Cervical spondylosis, a degenerative condition of the cervical spine, significantly impacts quality of life through debilitating neck pain, stiffness, and disrupted sleep. While various treatments exist, the role of pillow selection in maintaining cervical lordosis during sleep remains under-explored and often overlooked by most healthcare practitioners. This study investigates the efficacy of a novel cervical pillow designed with optimal parameters, in conjunction with postural reeducation exercises only, in improving pain, disability, and sleep quality in individuals with cervical spondylosis.

Four patients (three females and one male) with confirmed radiological evidence of cervical spine degeneration and clinical symptoms of neck pain and disturbed sleep persisting for over three months were recruited for the study.Outcome measures, including pain, disability, and sleep quality, were evaluated using the Numeric Pain Rating Scale (NPRS), the Neck Disability Index (NDI), and the Pittsburgh Sleep Quality Index (PSQI), respectively, with baseline and post-intervention scores recorded after a four-week period. During the intervention, patients were provided with a novel cervical firm pillow, measuring 10–12 cm in height, to use exclusively during sleep. Additionally, self-directed postural re-education exercises were demonstrated, with specified repetitions and sets prescribed for practice throughout the study duration.The study demonstrated statistically significant improvements across all outcome measures compared to baseline. The Numerical Pain Rating Scale (NPRS) showed a reduction from 7.33±0.51 to 2.17±0.40 ($p<0.01$, 95% CI), the Neck Disability Index (NDI) decreased from 55.68±5.78 to 10.54±1.11 ($p<0.01$, 95% CI), and the Pittsburgh Sleep Quality Index (PSQI) improved from 12.17±0.40 to 4.67±1.36 ($p<0.01$, 95% CI).

This study underscores the clinical significance of appropriate pillow selection in managing the multifaceted symptoms of chronic cervical spine degeneration, including pain, disability, and disrupted sleep.

Keywords: Cervical spine degeneration, Neck pain, Sleep quality

Abstract-163

Effectiveness of Extracorporeal Shockwave Therapy in Managing Patients with Frozen Shoulder: A Literature Review

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ABSTRACT

Frozen shoulder is an inflammatory condition causing pain, stiffness, and limited movement. While most recover within a year, 40% face long-term functional issues. The condition involves the joint capsule and often affects nearby structures like the coracohumeral ligament, rotator cuff tendons, and subacromial bursa. Extracorporeal Shock Wave Therapy (ESWT) is a non-surgical treatment using high-pressure sound waves to stimulate cell metabolism, improve circulation, enhance cell permeability, and break down calcium deposits.This study will conduct a thorough analysis of the current literature concerning the efficacy of ESWT in treating patients with frozen shoulder.

An initial search of electronic databases, including PubMed, Google Scholar, Scopus, and the Cochrane Library, identified 1,779 potential articles using the keywords “Frozen Shoulder,” “Adhesive Capsulitis,” “Extracorporeal Shockwave Therapy,” “Pain,” and “Range of Motion,” combined with the operators AND and OR. Only studies involving participants aged 30 years or older, diagnosed with frozen shoulder, and utilising ESWT as an intervention were considered for inclusion. After the removal of duplicate entries, a total of seven studies were deemed eligible for inclusion in this review.

The reviewed literature evaluated range of motion, pain, and disability using outcome measures like VAS, NPRS, SPADI, and DASH. Most studies showed statistically significant improvements ($p<0.05$) with ESWT compared to conventional treatment. However, one study reported no significant improvement in disability, and another found no increase in internal rotation ($p>0.05$). Additionally, several studies suggested that radial probes in ESWT may provide better therapeutic outcomes than focussed probes, emphasising the importance of probe selection in optimising treatment efficacy.

In conclusion, several studies suggest that ESWT is a promising treatment for reducing pain and disability while improving range of motion in patients with frozen shoulder. Future research should explore the effectiveness of combining ESWT with other manual therapy approaches and treatment modalities to determine its potential added benefits in this population.

Keywords: Joint capsule, Pain, Range of motion, Visual analogue scale.

Abstract-164

Effects of Blood Flow Restriction Training on Glycated Haemoglobin and Lipid Profiles among Individuals with Type 2 Diabetes Mellitus: A Case Series

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ABSTRACT

Type 2 Diabetes Mellitus (T2DM) is a complex multifactorial polygenetic disease also known as "noninsulin-dependent diabetes" or "adult-onset diabetes" (due to a progressive loss of adequate beta-cell insulin secretion frequently on the background of insulin resistance). Hyperglycaemia (indication of elevated HbA1c) drives microvascular complications, while diabetic dyslipidaemia (high triglycerides and low-density lipoprotein, and low high-density lipoprotein, etc.) heightens cardiovascular risk in T2DM. Controlling HbA1c and lipid levels among individuals with T2DM is a significant challenge for a multidisciplinary team. This case series aimed to determine the effects of BFRT on glycated hemoglobin and lipid profiles among individuals with T2DM.The study included 4 patients having a history of T2DM from 3 to 8 years. The intervention consists of three phases: warm-up, Blood Flow Restriction training programme, and cool-down. The BFRT protocol used 80% arterial pressure for lower-limb exercises (leg curls, leg extensions, hip flexion) and 50% for upper-limb exercises (arm curls, triceps extensions). Training began at 20% of 1Rep Max (RM), with lower-limb intensity increasing to 30% in the final two weeks and the training was at 20%of 1 RM for the upper extremity. Each session included four sets (30 reps in the first set, 15 in the next three) with 30-second breaks. The cool-down phase repeats the warm-up exercises. The treatment was given for 3 days a week for 4 weeks.HbA1c and lipid parameters (Total Cholesterol (TC), High-density Lipoprotein (HDL), Low-density Lipoprotein (LDL), Very-low Density Lipoprotein (VLDL), and Triglycerides (TGs)) were measured at baseline and after 4 weeks of intervention. The result showed significant improvement in all the outcome variables, HbA1c ($p=0.003$), TC ($p=0.01$), HDL ($p=0.008$), TG ($p=0.051$), VLDL ($p=0.002$), and LDL ($p=0.04$).. This study concluded that BFRTis effective in improving HbA1C and lipid profiles suggesting its potential to reduce cardiovascular as well as metabolic risks. Through the principle of peripheral vascular occlusion, BFRT promotes muscle hypertrophy by enhancing mechanotransduction, hormonal responses, reactive oxygen species generation, and cell swelling. It also stimulatesglucose transporter 4(GLUT4) translocation via calmodulin-dependent protein kinase (Ca2+/CAMKII) pathway and activates AMP-activated protein kinase, improving glucose uptake and metabolic regulationand may improve metabolic regulation in individuals with T2DM.

Keywords: Dyslipidaemia, Hyperglycemia, Microvascular complications.

Abstract-165

The Impact of Different tDCS Intensities on Higher Mental Function in the Elderly Population with Cognitive Impairment: A Pilot Study

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ABSTRACT

Introduction: Cognitive decline in the geriatric population significantly impacts higher mental functions, such as memory, executive skills, and decision-making, which are essential for daily life and mental well-being. Transcranial Direct Current Stimulation (tDCS), a non-invasive and low-risk neuromodulation technique, has demonstrated

the potential in improving cognitive performance by modulating cortical excitability in the dorsolateral prefrontal cortex. Despite its growing use, the optimal tDCS intensity for enhancing higher mental functions in elderly individuals with cognitive impairment has not been established.

Aim: To evaluate the effects of varying tDCS intensities on higher mental functions in the geriatric population with cognitive impairment.

Materials and Methods: This pilot study recruited participants based on specific inclusion criteria. Subjects were randomised into four groups: Group 1 received 0.5 mA, Group 2 received 1 mA, Group 3 received 1.5 mA, and Group 4 received 2 mA of tDCS targeting the dorsolateral prefrontal cortex. Each session lasted 20 minutes and was conducted five days a week for six consecutive weeks. Cognitive performance was assessed using the Montreal Cognitive Assessment Scale (MoCA) before and after the intervention. Statistical analysis included the Shapiro-Wilk test for normality, with parametric or non-parametric tests applied based on data distribution.

Results: The study observed a dose-dependent improvement in cognitive performance, with Groups 3 (1.5 mA) and 4 (2 mA) showing significant enhancements in MoCA scores compared to Groups 1 (0.5 mA) and 2 (1 mA). Statistical tests confirmed that higher intensities of tDCS resulted in greater improvements in higher mental functions.

Conclusion: This pilot study highlights the effectiveness of higher tDCS intensities (1.5 and 2 mA) in improving higher mental functions in the geriatric population with cognitive impairment. These findings provide a foundation for optimising tDCS protocols in geriatric cognitive rehabilitation and call for further large-scale studies to confirm these results.

Keywords: Dorsolateral prefrontal cortex, Geriatric, Higher mental function.

Abstract-166

Integrating Pain Neuroscience Education in Managing Chronic Plantar Fasciitis: A Case Report

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ABSTRACT

Chronic Plantar Fasciitis (CPF) is an inflammation of the plantar fascia that lasts for more than 3 months and is caused by repetitive stress on the plantar fascia. Chronic pain patients develop central sensitivity, which means that treatment given on the periphery is insufficient to manage their symptoms.Pain Neuroscience Education (PNE) may help to reduce anxiety and catastrophic thinking related to pain. Currently, there are insufficient data on the effects of PNE as an adjunct to physiotherapy in CPF patients. This case study involves a 26-year-old woman who was diagnosed with CPF and who experienced heel discomfort with her first few steps in the morning and during prolonged standing for the past five years.To measure pain, Numeric Rating Scale (NRS) and to measure ankle dysfunction, Foot and Ankle Disability Index (FADI) was taken,to measure pain Catastrophisation, Pain Catastrophising Scale (PCS) and to measure Kinesiophobia, Tampa Scale for Kinesiophobia (TSK) was taken at baseline, 3rd and on 6th week.Physiotherapy treatment included Plantar fascia release, Plantar fascia stretching, and strengthening of intrinsic muscle of foot and PNE includes metaphors and storytelling. The patient demonstrated significant improvement in pain and activity limitations along with significant improvement in Pain Catastrophization and Kinesiophobia. This case study illustrates that integrating PNE along with physiotherapy treatment is an effective strategy for treating individuals with CPF.

Keywords: Anxiety, Aponeurosis, Chronic pain, Fascia, Kinesiophobia

Abstract-167

Role of Pilates Exercise on Athletic Performance of Badminton Player: A Literature Review

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ABSTRACT

Badminton is a popular sport around the world, played both individually and in teams. Physical endurance, core strength, agility, balance, and coordination are required for powerful smashes and fast court movements. Badminton performance is determined by a number of factors, including physical, psychological, and sociological elements. Pilates combines the mind, body, and breath to strengthen the core and improve back agility. It is based on six core principles: centering, concentration, control, precision, flow, and breathing. The aim of this narrative review is to evaluate the role of Pilates exercise on athletic performance of badminton player. Published literature was reviewed using the PICO strategy, the Pub Med, Google Scholar, Cochrane, DOAJ, PEDro and MEDLINE databases for relevant research published from 2000 to 2024. The search terms such as “Pilates and physical fitness in badminton players”, “Impact of Pilates on agility, strength, and flexibility in badminton players”, “Mat-based Pilates for athletic performance in badminton”, “Pilates exercises " using Boolean operators AND, OR were used. The entire free full text original article, English language articles in explicitly explaining the role of Pilates exercise on athletic performance of badminton player were included, irrespective of the type of the study. Letter to editor comment, duplicate study, other language except English language were excluded. A total of articles were retrieved from different databases, out of which only 3 articles fulfilled the inclusion criteria and 347 articles were included in the exclusion criteria. A total of 110 participants were included and divided into two groups: the experimental and control groups included 55 participants each. The results showed that Pilates exercises helps in improving core muscle strength, lower limb strength, dynamic balance, agility, flexibility, and also benefit overall psychophysical development. This review concludes that Pilates exercises were effective in improving core muscle strength, balance, agility, flexibility and lower body strength. Coaches can include Pilates movements into badminton instruction to enhance core muscle strength, balance, and agility.

Keywords: Agility, Core strength, Flexibility, Physical endurance

Abstract-168

Correlation between Neck Mobility, Craniovertebral Angle, Body Mass Index and Hip Waist Ratio across Genders: A Study Protocol

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ABSTRACT

Introduction: The Craniovertebral Angle (CVA), which measures neck posture and mobility, is crucial for evaluating musculoskeletal health. Despite the fact that changes in neck mobility and posture have been linked to factors such as Body Mass Index (BMI) and hip-to-waist ratio, particularly across genders, they have not been thoroughly determined.

Need for this study: The findings are expected to identify postural and biomechanical variations, potentially aiding in the development of targeted interventions for improved musculoskeletal health across genders.

Aim: This research aims to examine the variations in correlations between neck mobility, CVA, BMI and hip waist ratio across both genders.

Materials and Methods: A cross-sectional study was conducted with a group of individuals recruited on basis of selection criteria. A goniometer will be used to measure neck mobility. Kinovea software will be used to evaluate CVA. The BMI and Hip waist ratio will be estimated using anthropometric measures.

Keywords: Cross-sectional study, Gender differences, Patient selection, Range of motion

Abstract-169

Vision and Physiotherapy and the Role of Ocular Muscle Training in Myopia Management: A Case Report

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ABSTRACT

Myopia is the most prevalent refractive error of the eye, where light from distant objects fails to focus directly on the retina but instead converges in front of it, leading to blurred vision. Myopia is frequently managed by wearing glasses, while severe myopia is often treated surgically in conventional medicine. However, some patients seek alternative treatments due to personal preferences or affordability. This case presents a 24-year-old male with high-grade myopia. Despite recommendations for medical intervention from an ophthalmologist based on investigations of signs, symptoms, visual acuity, pinhole test, diopter measurements, and spherical equivalent refraction, the patient opted for an integrative approach combining medicine, wearing spectacles, and physiotherapy. The physiotherapy treatment aimed to promote tissue strengthening, enhance vision, and provide therapeutic interventions, including fast blinking, tight eye squeezing, wide eye opening, upward movement, downward movement, medial movement, lateral movement, diagonal movement, rotational movement, focus exercises, and visual field exercises. Concurrently, physiotherapy focussed on strengthening the surrounding musculature, improving vision, and enhancing function. Over the treatment period, the patient experienced reduced eye pain, improved vision, and significant enhancement in function, enabling a return to daily activities without surgical intervention. This case underscores the efficacy and feasibility of an integrative approach to managing myopia, providing a holistic, non-surgical option for patients who are reluctant or unsuitable for conventional surgical interventions.

Keywords: Balance, Eye, Eye pain

Abstract-170

Reliability Testing and Validation of Profitmap-neck Questionnaire in Hindi for Measuring Symptoms and Function Limitation in Neck Pain: A Study Protocol

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ABSTRACT

Introduction: Neck pain is a prevalent issue globally, having a big influence on people's quality of life all around the world. Assessing neck pain might be difficult. An established tool for evaluating the symptoms and functional constraints of neck discomfort is the ProFitMap-neck questionnaire which is available in English, Turkish, Chinese, French. As most people in India uses Hindi language as a mode of communication, so it is of great need to establish a Hindi version of ProFitMp-neck questionnaire.

Aim: The aim of the study is to translate and cross-cultural adaptation the ProFitMap-neck questionnaire into Hindi, and establish its reliability and validity for use among Hindi-speaking individuals with neck-related issues.

Materials and Methods: Using Beaton's guidelines in the first stage of forward translation (N1 and N2), the two translators will translate an assessment questionnaire or questionnaire into the target language, which are advised as a fundamental guide for the translation process. To verify its originality, a common translation, N-12, will be synthesised and then will be backward translated. The N-12 draft will be sent to an expert panel for evaluation. Pretesting and final testing will be conducted using this questionnaire. Through cross-cultural adaptation, therapists can adjust cultural behaviours to

meet the needs of their clients, improving their performance. Cross-cultural adaptation enhances validity and reliability by ensuring that majors are valid and applicable across cultural groups.

Keywords: Assessment, Cross-cultural comparison, Cultural diversity, Neck pain, Quality of life

Abstract-171

Impact of Vibrotherapy along with Resistance Training Exercises in Improving Balance and Proprioception in Patients with Knee Osteoarthritis: A Study Protocol

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ABSTRACT

Introduction: Knee Osteoarthritis (OA) is a degenerative joint condition characterised by cartilage degradation, synovial inflammation, bone sclerosis and osteophytes formation. These alterations can damage sensory receptors, particularly mechanoreceptors, resulting in decreased proprioception. Vibration therapy has shown promise in improving balance and proprioception in various populations, however, limited evidence exists on the effectiveness of vibrotherapy in addressing balance and proprioception deficits in patients with knee OA.

Need for this study: The findings of this research will contribute valuable insights into the efficacy of local joint vibration therapy in managing the functional limitations associated with knee OA, reducing the risk of falls and ultimately improving the quality of life.

Aim: To determine the impact of local joint vibration therapy in improving balance and proprioception in patients with knee OA.

Materials and Methods: Study design is single blinded randomised controlled trial study. The sample size will be calculated after pilot testing. Participants recruited based on inclusion criteria will be randomly allocated into two groups, group 1 and group 2 through computer-based random allocation techniques. Group 1 will receive vibration therapy along with resistance training exercises and group 2 will receive sham vibration therapy along with resistance training exercises. Pre-test and post-test assessment will be done by Comprehensive Knee Osteoarthritis Index (CKOAI) and Sensamove.

Keywords: Mechanoreceptors, Quality of life, Vibration.

Abstract-172

Imapct of Psychological Wellbeing and Health Related Quality of Life among Women with PCOS: A Review

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ABSTRACT

Introduction: Polycystic Ovarian Syndrome (PCOS) is a prevalent endocrine disorder, affecting 8% to 13% women of reproductive age, characterised by irregular menstrual cycle, cardiometabolic abnormalities and polycystic ovaries. Beyond the physical symptoms, PCOS has significant psychological consequences, such as anxiety, depression, which has detrimental impact on quality of life.

Aim: The purpose of this review is to explore the impact of psychological wellbeing and health related quality of life among women with PCOS. By identifying gaps in current research, this review provides direction for future study.

Materials and Methods: This review study was conducted by searching peer review articles between the years 2021 to 2024, using electronic data bases such as Scopus, Google Scholar, PubMed and Web of Science. The Boolean terms (AND, OR, NOT) and keywords like "Health related quality of life," "Lifestyle," and "PCOS" were used.

Results: Ten studies were included, out of which 4 were systematic reviews, 3 narrative reviews and 3 was observational studies. Evidences indicates that women with PCOS are more likely to experience depression and anxiety compared to women PCOS. These mental health disorders are often associated with physical manifestations such as hirsutism, obesity, and infertility, which can negatively impact body image and self-esteem, further deteriorating their quality of life.

Conclusion: Women with PCOS experience significant psychological distress, including higher levels of depression, anxiety, which negatively impact their quality of life. Further research should focus on providing psychological counselling and lifestyle recommendations to reduce psychological distress experienced by PCOS women.

Keywords: Health related quality of life, Lifestyle, Polycystic ovaries.

Abstract-173

Effect of Respiratory Muscle Proprioceptive Neuromuscular Facilitation on Respiratory Muscle Strength in Spinal Cord Injury Individuals

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ABSTRACT

Introduction: Spinal Cord Injury (SCI) refers to damage to the spinal cord that results in impairments related to its function, along with some respiratory complications. Inspiratory Muscle Training (IMT) is the most commonly used technique to improve respiratory function in tetraplegia. Respiratory muscle Proprioceptive Neuromuscular Facilitation (PNF) entails the application of manual stimulation to specific regions of the chest wall.

Aim: This study aims to examine the combined effect of PNF and IMT in tetraplegics.

Materials and Methods: This study (CTRI/2024/10/075261) (INSTITUTIONAL ETHICS COMMITTEE -ISIC/RP/2024/020) involved 14 tetraplegic individuals (experimental group: n=7, control group: n=7). Baseline respiratory muscle strength was assessed, then participants were randomly assigned to receive either combined PNF and IMT (experimental group) or sham training (control group) for 4 sessions/week over 4 weeks. Post-intervention respiratory muscle strength was reassessed. The study was single-blinded, with an independent assessor for outcome measurement.

Results: The groups showed significant changes in respiratory muscle strength post intervention.

Conclusion: Combination of PNF and IMT may improve respiratory strength in SCI individuals.

Keywords: Respiratory function, Respiratory muscle training, Respiratory strength

Abstract-174

Availability of Different Physiotherapy Treatment Strategies of Modified Constrained-induced Movement Therapy (mCIMT) in Patients with Hemiplegic Cerebral Palsy: A Systematic Review

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ABSTRACT

Introduction: Cerebral palsy is a group of disorders that affect the development of movement, balance, posture, and muscle tone. According to Charlotte Metz et al, it occurs in 2 out of 1000 live childbirths. Due to the unwillingness of children to be restrained in the method of application of Constrained-induced Movement Therapy (CIMT), mCIMT was developed. Studies suggest mCIMT is more effective than CIMT in improving motor function in hemiplegic cerebral palsy.

Aim: The study aims to find a standard treatment protocol for mCIMT for treating hemiplegic cerebral palsy. Search engines like Google Scholar, Research Gate, Cochrane, SAGE Journals, and Academia, were electronically searched. An article was included if, the articles consisted of treating cerebral palsy children through mCIMT, or mCIMT combined with other treatments or comparative studies with bimanual therapy.

Results: A total of studies accounted for the study, from which 9 studies were purely contingent on mCIMT, and 10 studies included comparative studies of bimanual therapy and mCIMT. Five articles had mCIMT as the treatment along with other conventional treatments. Nine studies were excluded as they did not meet the inclusion criteria. The studies included were mostly Randomised Controlled Trials (RCTs), pilot studies, multisite trials, systematic reviews, and meta-analyses. All 24 articles were read thoroughly to identify the particular time frame, length of the treatment, and specific tasks used by the therapists. They suggested that time varies from 1 to 3 hours a day of intensive treatment with up to 6 hours of constraint, 3 to 7 days a week, and a 2-10 weeks treatment period. The repetition of each activity may vary from 10 rep to 20 rep for 5 to 20 minutes. The tasks included catching and throwing a ball, using paint, clay, and manipulating sand. Puzzles, pegboards, card games, and functional activities are also included.

Conclusion: In conclusion, the treatment protocol for mCIMT may vary in time, days, and weeks. More studies are needed for a specific time duration for a single activity.

Keywords: Hemiplegic cerebral palsy, Posture, Therapeutic strategies

Conflict of Interest: The authors declare no conflict of interest.

Abstract-175

A Comparative Study between Effectiveness of Motor Relearning Programme and Mirror Therapy on Upper Extremity Functions in Post-stroke Patients

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ABSTRACT

Background: Stroke is a global health problem that is the second commonest cause of death and fourth leading cause of disability worldwide. Both motor relearning programme and mirror therapy helps to improve upper extremity functions in post stroke patients. The aim of the study is to compare the effectiveness of motor relearning programme against mirror therapy on upper extremity functions in post stroke patients.

Materials and Methods: Post stroke 30 patients with upper limb disability were selected by convenient sampling method based on inclusion and exclusion criteria and then assigned into two groups, group A and group B. Group A (motor relearning programme group) received motor relearning programme; whereas group B (mirror therapy group) received mirror therapy for 4 weeks.

Outcome Measures: The Fugl Meyer Assessment of Physical Performance of Upper Extremity (FMA-UE) scale and Chedoke Arm And Hand Activity Inventory Scale (CAHAI) were used to evaluate and compare the effectiveness of motor relearning programme and mirror therapy on upper extremity functions in post stroke patients, at 1st day and at the end of 4^{th} week. Intervention values for upper extremity functions were measured before and after treatment.

Results: Statistical analysis done by using paired 't'-test and independent 't' test showed that there was significantly improvement in subjects who received motor relearning programme. Paired 't' test revealed upper extremity functions in post stroke patients were improved significantly in group A after applying motor relearning programme for 4 weeks i.e. ($p=7.73815\times10^{-11}$ in FMAUE scale) and ($p=8.47303\times10^{-11}$ in CAHAI scale). Paired 't' test also revealed upper extremity functions in post stroke patients was improved significantly in group B after applying mirror therapy for 4 weeks i.e. ($p=4.27209\times10^{-7}$ in FMA-UE scale) and ($p=2.77828\times10^{-7}$ in CAHAI scale). Independent 't' test revealed upper extremity functions in post stroke patients was extremely significant in group-A after applying motor relearning programme i.e. ($p=1.08411\times10^{15}$ in FMA-UE scale) and ($p=1.56334\times10^{-15}$ in CAHAI scale). So when compared within the groups, motor relearning programme and mirror therapy were effective in improving upper extremity functions. But when compared between the groups, motor relearning programme was found to be extremely significant for improving upper extremity functions in post stroke patients.

Conclusion: In light of the study's findings, it is concluded that the motor relearning programme is more effective and extremely significant in improving upper extremity functions in post stroke patients as compared to mirror therapy.

Keywords: Chedoke Arm And Hand Activity Inventory Scale (CAHAI), Fugl Meyer Assessment of Physical Performance of Upper Extremity (FMA-UE) Scale, Mirror therapy, Motor relearning programme.

Abstract-176

Designing a Physiotherapy Rehabilitation Protocol for Multiple System Atrophy: A Narrative Review

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ABSTRACT

Multiple System Atrophy (MSA) is a rare, debilitating, adult-onset neurodegenerative disorder that manifests clinically as predominant parkinsonian type or cerebellar type with autonomic dysfunction affecting Quality of Life (QoL) of MSA patients. Despite the importance of physiotherapy in improving the symptoms, there is a lack of standardised treatment protocol for MSA. This study aimed to develop a rehabilitation protocol for MSA to improve the QoL via reducing the symptoms of MSA. A comprehensive literature review was conducted including 5 randomised controlled trials, 3 retrospective analysis, 8 literature review, 1 cross-sectional study, and 8 case studies. The results showed that the physiotherapy rehabilitation protocol does reduce the symptoms and improves the QoL of MSA patients. The developed protocol consists of a four week intervention program focussing upon the mobility, strengthening, gait, balance and coordination as well as swallowing difficulties. The protocol has the potential to reduce the symptoms, improve the functional outcomes and enhance the QoL of MSA patients. Therefore, this study provides a standardised rehabilitation protocol for MSA, which can be used to attain symptomatic relief and to improve the QoL of the patient.

Keywords: Autonomic dysfunction, Neurodegenerative, Physiotherapy.

Abstract-177

Gait Analysis in Cerebral Palsy: A Systematic Review

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ABSTRACT

Introduction: To comprehensively investigate the methods, results, and clinical relevance of gait analysis in children with Cerebral Palsy (CP), with an emphasis on spatiotemporal, kinematic, and kinetic parameters.

Materials and Methods: A comprehensive analysis of research from 2019 to 2024 that was retrieved from PubMed, Scopus, and Google Scholar was carried out. Peer-reviewed research utilising motion capture, force plates, and Electromyography (EMG) for gait analysis in CP was one of the selection criteria. We extracted and synthesised data on population, interventions, methods, and results.

Results: Only 10 of the 65 reviewed studies were deemed eligible for inclusion. Measures like stride length, cadence, joint angles, and muscle activation patterns were frequently examined. According to the review, gait analysis can be used to customise treatments such as orthotic management and Selective Dorsal Rhizotomy (SDR).

Conclusion: This study highlights developments in wearable sensors and machine learning while synthesising the most recent data on gait analysis in CP. The study emphasises how gait analysis can be used to improve functional outcomes and refine treatment strategies.

Keywords: Interventions, Kinematics, Motion capture, Spatiotemporal parameters.

Abstract-178

Effect of Resistance Exercises on Sleep Quality, Functional Capacity and Insomnia among Postmenopausal Women: A Pilot Study

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ABSTRACT

Introduction: Menopause is the permanent cessation or absence of menstruation. Postmenopausal women report to experience a decline in their sleep quality, functional capacity and insomnia, which can further exacerbate their health concerns. However, evidence suggests that resistance exercises can be beneficial in improving their insomnia and sleep.

Aim: To study the effects of resistance exercises on sleep quality, functional capacity and insomnia among postmenopausal women.

Materials and Methods: Ten postmenopausal women aged 40-60 years were enrolled for this pre-test post-test quasi-experimental study by purposive sampling method and were rendered resistance protocol using Thera band for 60 minutes, three days in a week for 4 weeks. The exercises included in the protocol were diagonal flexion, concentration curl, dynamic hug, seated row, side bend and extension of hips. The primary outcome used in the study were Pittsburgh Sleep Quality Index Scale to measure sleep quality, Insomnia Severity Index to measure insomnia and 6-minute walk test for assessing functional capacity. The outcomes were assessed at baseline and after four weeks.

Results: The data were analysed using the IBM SPSS (version 16). Non parametric statistics presented in median and interquartile range. The median age and the menopausal age of the participants were found to be 50.5 years and 45.5 years, respectively. The effect of the intervention on the outcome measures were assessed by using the Wilcoxon Signed Rank test, which showed a significant decrease in the Pittsburgh Sleep Quality Score ($Z = -2.829$, $p= 0.005$), 6-minute walk distance ($Z= -2.527$, $p= 0.012$) and insomnia severity score ($Z=-2.823$, $p= 0.005$). The effect size of the outcomes was also calculated.

Conclusion: Resistance exercises are effective in improving the quality of sleep, functional capacity and insomnia.

Keywords: Resistance exercise, Sleep quality, 6-minute walk test.

Abstract-179

Association of Functional Capacity with Quality of Life among Postmenopausal Women: Preliminary findings of a Cross-sectional Study

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ABSTRACT

Introduction: All women experience menopause, a natural physiology in women's body. Menopausal symptoms may have a significant impact on Quality of Life (QoL) of postmenopausal women. Decline in Functional Capacity (FC) is a common feature in postmenopausal women. There are evidences which show FC is associated with QoL among older adults.

Aim: To find out the relationship between functional capacity and QoL among postmenopausal women.

Materials and Methods: Sixty postmenopausal women were recruited in this cross-sectional study; aged between 40-60 years, asymptomatic with stable vitals. The FC was assessed by 6-minute Walk Test (6MWT) according to the American Thoracic Society (ATS) guidelines. After taking the consent from the participants, they were asked to cover the distance as much as they can in 6 minute and stop in between the test if they feel any discomfort. There after the covered distance was recorded. Baseline data and post-test data were recorded and QoL was assessed by Hindi version WHOQOL-BREF questionnaire. It contains 26 questions which assesses overall QoL. Participants were asked to fill the form on the basis of their past two weeks experience.

Results: The data were analysed by Kolmogorov Smirnov test to assess the normality of the data. The data shows non-normal distribution therefore, the Spearman's rho test was used to find the correlation between 6MWT and QoL. Results show that there is a significant correlation between 6MWT and QoL with correlation coefficient of 0.323 ($p = 0.012$). $P \leq 0.05$ was considered significant.

Conclusion: The findings of the study show decline in FC results in poor QoL in postmenopausal women.

Keywords: Menopause, 6-minute walk test, WHOQOL-BREF questionnaire

Ethical Approval: Approved by the Human Ethical Committee, Chhatrapati Shahu Ji Maharaj University, Kanpur, India.

HEC Reference No.: 2024-Oct-006

Abstract-180

The Groin Pain with a Focus on the Prevalence of Different Pathological Pain Sources in Football Players: A Systematic Review

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ABSTRACT

Introduction: Groin injury accounts for 5% to 18% of all sports injuries, frequently affecting athletes in sports like soccer and Australian football, which involve repetitive kicking, side-to-side movement, and twisting. In professional football, the impact is particularly pronounced, with players averaging two time-loss injuries per season.

Aim: To determine the prevalence of groin pain suggestive of various defined pathology terminology used in Doha agreement.

Materials and Methods: A systematic literature search was undertaken across several major online databases, including PubMed, BJSM, SAGE Journals, Research Gate, and Google Scholar. The search strategy encompassed cohort studies, systematic reviews, and randomised clinical trials published from database inception through December 2024. Studies reporting data on the prevalence of groin injury pathology, using terminologies defined in the Doha agreement, were included in this review.

Results: A search using the keywords "groin injury in football player," "groin pain in football player," and "occurrence of groin harm in football player" yielded eleven studies for analysis of groin pain prevalence. While all studies compared the prevalence of adductor-related and iliopsoas-related groin pain, the infrequent use of other Doha agreement terminology limited this analysis to these two specific pathologies.

Conclusion: The review findings indicate that groin pain in football players stems primarily from hip adductor injuries, with iliopsoas injuries as a secondary cause. Clinically, this suggests a need for further investigation into other potential sources of groin pain, as current understanding is limited regarding pathologies outside of these two muscle groups. Since adductor and iliopsoas injuries are known risk factors, preventive strategies targeting these muscle groups are essential.

Keywords: Groin pain, Pain in football players, Repetitive kicking

Abstract-181

Effectiveness of Task Oriented Aerobic Exercise along Sensory Integration on Aerobic Capacity, Sensory Profile and Attention in Attention Deficit Hyperactivity Disorder Children: A Randomised Control Trial

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ABSTRACT

Introduction: Attention Deficit Hyperactivity Disorder (ADHD) is a neurodevelopmental illness characterised by symptoms of inattention, hyperactivity, and impulsivity that affects roughly 5-8% of children globally. Motor problems and sensory issues are predominantly observed in ADHD children along with the core deficits.

Aim: To find out the effectiveness of task oriented aerobic exercise along with sensory integration on aerobic capacity, sensory profile and attention in ADHD children.

Materials and Methods: Institution approval was taken for this study. The study design was a randomised control trial, 42 children with ADHD were selected and randomly allocated into three groups. Group A (n=14) received task oriented aerobic exercise and sensory integration therapy and group B received sensory integration therapy alone for 6 weeks. Group C (n=14) was control group continued with their routine activities. The outcome measure were 12 minute walk test, Stroop Test , Wisconsin Card Sorting Test and Short Sensory Profile, which was assessed pre and post test after 6 weeks. Task oriented aerobic exercises includes stepping, throwing and catching ball, rope jumping performed for 15 minutes and sensory integration exercise includes tactile (brushing), vestibular (swing, rolling, and spinning), proprioception (bouncing on trampoline or large ball, pushing activities, playing with weights), visual (focussing, following and tracking), and auditory (sing-songs, loud and slow noise). was performed for 30 minutes. The exercises were performed 3 days in a week for 6 weeks.

Results: Data was analysed by ANOVA using SPSS 21. The statistical analysis showed significance improvement in group A and B ($p<0.05$) on aerobic capacity ($F=37.69$), short sensory profile ($F=39.98$) and attention ($F=23.42$). Tukey's post hoc analysis revealed group A was significantly better than Group B and C.

Conclusion: This study concluded that the task oriented aerobic exercise along with sensory integration (group A) showed more significant improvement in aerobic capacity, sensory profile and attention among children with ADHD when compared with sensory integration alone (group B) and controls (group C).

Keywords: Hyperactivity, Impulsivity, Inattention.

Abstract-182

Correlation of Earpods usage and Sleep Quality among Young Adults: A Correlation Study

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ABSTRACT

Introduction: The prevalence of using earpods among young adults is high, ranging from 38% to 62%.Vestibular centre in the brain process and regulate the body sleep wake cycle. Noise electromagnetic radiations produced by ear pods has the potential to damage the vestibular nuclei of the brain over time. Any dysfunction in the vestibular part led to loss of balance, sleep quality, insomnia and daytime fatigue.

Aim: The aim of the study was to correlate the earpods hourly & yearly usage and quality of sleep among young adults.

Materials and Methods: This study was correlation study with convenient sampling, 194 young adults who are using ear pods were selected. Ear pods usage pattern for individual was assessed through structured questionnaire. Sleep quality was measured by using Pittsburgh sleep questionnaire. Institutional Ethics committee approval was taken.

Results: Pearson correlation was performed to analyse correlation between sleep quality and hourly & yearly usage of earpods.The results obtained revealed that 47% had poor sleep quality. Among the partcipants, more than 65% had subjective sleep quality affected, 44% had major sleep disturbance due to overthinking, stress and work/social/exam related anxiety. The 31% of participants had longer sleep latency and 33% had daytime dysfunction including sleepiness. Interestingly, the sleep duration of 85% are not affected, they slept for at least 7 hours. The hourly usage of earpods, years of usage of earpods and quality of sleep were negatively correlated with r=0.83; 0.88.

Conclusion: The ear pods usage per day and the years of usage had a negative impact on sleep quality.

Keywords: Pittsburgh sleep questionnaire, Sleep duration, Vestibular nuclei

Abstract-183

Evaluating the Impact of Primary Dysmenorrhoea Intensity on Anxiety, Sleep Quality, and Academic Performance among University Students: A Cross-sectional Study

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ABSTRACT

Introduction: Primary Dysmenorrhea (PD), characterised by painful menstrual cramps, is a common condition affecting many women, particularly university students. In India, studies report that approximately 50-80% of women experience dysmenorrhea, with significant variations in intensity and duration. The condition can lead to increased anxiety, poor sleep quality, and decreased academic performance, affecting students' overall well-being and productivity.

Aim: The present study aimed to investigate the impact of primary dysmenorrhea intensity on anxiety, sleep quality, and academic performance among university students.

Materials and Methods: A cross-sectional design was employed, with a sample of 88 female participants aged 18-30 years. The inclusion criteria were female students experiencing primary dysmenorrhea symptoms, while individuals with secondary dysmenorrhea, endometriosis, adenomyosis, pelvic inflammatory disease, cervical polyps and uterine fibroids were excluded. The primary outcome measures included anxiety levels, sleep quality, and academic performance. The study found a high prevalence of the negative effects of primary dysmenorrhea on academic performance among female undergraduates in the Delhi NCR and Haryana regions.

Results: Analysis revealed a weak positive correlation between pain intensity and sleep quality, and a moderate positive correlation between pain intensity and anxiety levels. Participants reported several academic difficulties, including challenges with studying, completing homework, concentrating in class, actively participating in discussions, and engaging in sports activities.

Conclusion: The findings of this study highlight the significant impact of primary dysmenorrhea on various aspects of university life, particularly academic performance, among female students. The study also underscores the need for further research to explore effective interventions to alleviate the academic and psychological burdens associated with dysmenorrhea in this population.

Keywords: Cross-sectional design, Productivity, Well-being

Abstract-184

Exploring the Relationship between Smoking and Musculoskeletal Parameters of the Neck and Shoulder: A Cross-sectional Study

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ABSTRACT

Introduction: Tobacco use is a major preventable cause of death, with India having 253 million adult users. It increases the risk of diseases like atherosclerosis, respiratory disorders, and skeletal issues, including poor posture. In India, 28.6% of adults use tobacco, with higher rates in men (42.4%) than women (14.2%).

Aim: This study aimed to explore the relationship between smoking and musculoskeletal parameters of the neck and shoulder, specifically focussing on posture and muscle impairment in smokers.

Materials and Methods: A cross-sectional design was used, with a sample size of 128 participants aged 20-40 years, including current smokers with a minimum smoking history of 3 years and non-smokers. Smokers were selected using snowball sampling, while non-smokers were chosen via simple random sampling. Exclusion criteria included individuals with neurological disorders, musculoskeletal conditions, psychological impairments, recent surgery, spinal or upper limb pathology, or those undergoing treatment for neck pain. Participants who used phones for more than 4 hours or worked on computers for over 6 hours were also excluded. The study's outcome measures included forward head posture, cervical muscle strength, shoulder protrusion, and range of motion.

Results: Key findings indicated a statistically significant association between smoking and an increased prevalence of neck and shoulder musculoskeletal symptoms, such as pain, stiffness, and reduced range of motion. Smokers were found to experience more severe musculoskeletal issues compared to non-smokers. In smoker group, cervical flexor strength, cervical extensor strength and lateral rotator left strength showed statistically significant difference with p values 0.04, 0.39 and 0.39, respectively whereas, in non-smoker group, cervical flexor strength and lateral rotator right strength showed significant difference with p values 0.08 and 0.43, respectively.

Conclusion: The study emphasises the demand for further exploration to establish a causal relationship between smoking and musculoskeletal issues in the neck and shoulder, suggesting that smoking cessation may be an effective intervention to improve musculoskeletal health.

Keywords: Craniovertebral angle, Posture, Range of motion, Shoulder protrusion

Abstract-185

Effectiveness of Virtual Reality and Augmented Reality in Parkinson's Patient for Ambulophobia and Basophobia: A Case Report

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ABSTRACT

Basophobia and ambulophobia are prevalent among Parkinson's patients, stemming from the fear of falling and difficulty walking due to motor symptoms like rigidity, tremors, and balance issues. Virtual Reality (VR) and Augmented Reality (AR) are emerging technologies that enhance motor skills, balance, and cognitive function through immersive, therapeutic exercises.

A 70-year-old male patient with stage 2 Parkinson's disease underwent the 4-week intervention consisting of VR and AR exercises, with pre- and post test assessments using the Morse and ABC scale to evaluate progress. The patient underwent 30 minutes of VR and AR therapy, three times a week, for four weeks.

The results showed significant improvements in reducing ambulophobia and basophobia, as measured by the Morse and

ABC scales. VR and AR enhanced motor skills, balance, cognitive function, and boosted confidence and daily mobility. The patient demonstrated improved gait quality, reduced fear of falling, and enhanced overall quality of life.

VR and AR offer promising solutions to alleviate ambulophobia and basophobia in Parkinson's patients, improving mobility, confidence, and overall quality of life.

Keywords: Parkinson's disease, Rehabilitation, Rigidity, Tremors

Abstract-186

Effectiveness of Constraint Induced Movement Therapy on Lower Limb Function in Monoplegia: A Case Study

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ABSTRACT

Introduction: Stroke is one of the leading causes of motor impairments, which significantly impact an individual's functional mobility and quality of life. While much attention has been directed towards upper limb rehabilitation, the importance of lower limb recovery is equally critical in improving overall mobility and independence. Constraint-Induced Movement Therapy (CIMT) has demonstrated substantial effectiveness in enhancing motor function in the upper limbs of stroke survivors. However, its application to the lower limbs, particularly in cases of monoplegia, is less understood and has not been as extensively researched. This case study explores the potential impact of CIMT on improving the function of the paretic lower limb in a patient with monoplegia following a stroke.

Aim: The effectiveness of CIMT for improving lower limb function and voluntary muscle control in monoplegia.

Materials and Methods: The case study involved a 48-year-old female patient who presented with monoplegia following an ischemic stroke. The patient had a medical history of diabetes mellitus and hypertension and displayed significant motor deficits in the left lower limb, which required 75% assistance for mobility. CIMT protocol was implemented for a duration of 4 weeks, where the patient's unaffected limb was constrained, forcing the use of the paretic lower limb during daily functional tasks and therapy sessions.

Results: After completing the 4-week CIMT , notable improvements were observed in the patient's gait quality, muscle strength, voluntary muscle control, and overall mobility. The statistical analysis of pre- and post-treatment assessments demonstrated significant improvements.

Conclusion: This case study indicates that CIMT has the potential to improve lower limb function in monoplegia, particularly in enhancing voluntary control and mobility. However, further research involving larger sample sizes and longer treatment durations is needed to confirm the broader applicability and long-term benefits of CIMT in lower limb rehabilitation.

Keywords: Lower limb rehabilitation, Stroke rehabilitation, Voluntary muscle control.

Abstract-187

The Efficacy of Dual Task Training in Improving Cognitive Motor Functions in Traumatic Brain Injury Patients: A Systematic Review

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ABSTRACT

Introduction: Cognitive and motor impairments are common sequelae of Traumatic Brain Injury (TBI), often disrupting patients' ability to perform daily activities that require simultaneous physical and mental effort. DTT, which involves performing cognitive and motor tasks concurrently, has been proposed as an effective rehabilitation strategy.

Aim: To examine the efficacy of Dual-task Training (DTT) in improving cognitive and motor function in patients with TBI.

Materials and Methods: A systematic review and meta-analysis were conducted, including randomised controlled trials and observational studies focussing on TBI patients undergoing DTT. Outcome measures included improvements in cognitive function (e.g., attention, executive functioning) and motor performance (e.g., gait stability, balance). Additionally, the transfer of dual-task improvements to real-world tasks was evaluated.

Results: DTT significantly improved cognitive-motor interaction, with marked enhancements in reaction time, task accuracy, and gait parameters under dual-task conditions. Patients also demonstrated better attention allocation and increased adaptability in dynamic environments. Importantly, improvements were maintained in follow-up assessments, suggesting lasting neuroplastic effects. However, the efficacy of DTT was influenced by factors such as injury severity, task complexity, and training duration.

Conclusion: DTT is an effective and promising intervention for improving cognitive and motor function in TBI patients, facilitating their reintegration into daily life. Future research should explore optimal task combinations, individualized training protocols, and long-term outcomes to maximise its clinical applicability.

Keywords: Cognitive function, Executive functioning, Gait stability

Abstract-188

Integrated Effect of Cognitive Behavioural Therapy and Structured Exercise for the Treatment of Problem Behaviour in Early Adolescents: A Randomised Controlled Trial

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ABSTRACT

Introduction: Adolescence is a transformative phase marked by significant emotional, social, and cognitive changes, often giving rise to problem behaviours such as anxiety, aggression, and rule-breaking. These behaviours disrupt functioning and relationships in adolescence. Cognitive Behavioural Therapy (CBT) is a type of psychotherapy that helps teaching positive coping skills. Physical activity can enhance emotional regulation by the release of neurotransmitters. The integration of psychological interventions and physical activity represents a current thrust area of research aimed at effectively addressing Behavioural issues in adolescents.

Aim: To determine the effect of CBT along with structured exercises in reducing problem behaviour and improving life satisfaction in adolescents.

Materials and Methods: Thirty early adolescents between the ages of 11 to 14 years, documented with problem behaviour constituted the study's participant pool. This study was approved by Ethical committee of Punjabi university, Patiala. Participants were randomised into two groups: A and B. Group A received a combination of a total 9 CBT sessions and a pre-designed exercise programme of 3 days a week for 5 weeks and group B received only the exercise programme. Assessment was done on Day 0, Day 17 and Day 35, using Child Behaviour Checklist, Pediatric Symptom Checklist and Multidimensional Student Life Satisfactory Scale. Data were analysed using SPSS 20.

Results: The results showed significant improvements in Group A across the Child Behaviour Checklist, Pediatric Symptom Checklist, and Multidimensional Student's Life Satisfaction Scale, with p-value <0.05 for all variables.

Conclusion: The study concluded that combined effect of CBT and structured exercise programme is an effective treatment option for improvement in Problem Behaviour and life satisfaction as compared to structured exercise programme alone.

Keywords: Child Behaviour Checklist, Pediatric Symptom Checklist, Multidimensional Student's Life Satisfaction Scale

Abstract-189

Efficacy of Low-frequency Repetitive Transcranial Magnetic Stimulation along with Conventional Rehabilitation on Functional Independence in an Individual with Spinocerebellar Ataxia: A Case Report

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ABSTRACT

Spinocerebellar Ataxia (SCA) is a progressive, autosomal dominant, neurodegenerative disorder distinguished by deficits in motor-coordination and balance. It significantly impairs daily functioning, leading to increased reliance on assistance. Contemporary therapeutic strategies primarily emphasise symptomatic management aimed at enhancing functional independence. Therefore, early intervention is crucial to decelerate progression of the condition. The case-report aimed to evaluate the efficacy of low-frequency repetitive Transcranial Magnetic Stimulation (rTMS) combined with conventional rehabilitation in improving motor-coordination, balance, and quality of life in an individual with SCA. This study describes a case of a 56-year-old female diagnosed with SCA who presented with a history of balance impairment, mild

incoordination, slowness in gait and difficulties with activities of daily living since 8 years. The participant underwent low-frequency rTMS (over the inion, bilateral cerebellar hemispheres) at 90% Resting Motor Threshold (RMT), 900 trains at 1 Hz, for 15 minutes/session, combined with conventional rehabilitation, including virtual reality and dual-task on treadmill. The participant was intervened for 5 days/week for the duration of 4-week. Progress was monitored using the Scale for the Assessment and Rating of Ataxia (SARA), Modified Clinical Test for Sensory Interaction on Balance (mCTSIB) and Quality of Life Scale (QOLS). Pre-intervention and post-intervention scores at Day 0 and Day 30 of SARA and mCTSIB were 13/40 to 5/40 and 46/120 to 97/120, respectively, indicating a marked improvement in motor-coordination and balance. The QOLS score also improved from 70/112 to 92/112, indicating enhanced overall health status, selfsufficiency and independence in daily activities. The case study indicated that integrated effects of rTMS with conventional rehabilitation could offer a viable therapeutic strategy for improving the symptoms of SCA, emphasising the need for further research to explore its long-term efficacy and applicability across larger populations.

Keywords: Modified Clinical Test for Sensory Interaction on Balance, Neurodegenerative disorder, Quality of Life Scale (QOLS), Scale for the Assessment and Rating of Ataxia (SARA)

Abstract-190

Integrated Effect of Repetitive Transcranial Magnetic Stimulation and Task-specific Trunk Control Training on Balance in Individuals with Parkinson's Disease

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ABSTRACT

Introduction: Parkinson's Disease (PD) is a neurodegenerative disease characterised by rigidity, bradykinesia, tremor, and postural instability which are attributed to the loss of striatal dopaminergic neurons. Disease progression reduces functional limits of stability, impaired postural responses, and gait dysfunction, which increases the risk of falls. There are advanced innovative rehabilitation strategies such as repetitive Transcranial Magnetic Stimulation (rTMS) used to enhance cortical excitability and task–specific training which puts demands on the cortex thus, promote neuronal plasticity.

Aim: To investigate the combined effect of rTMS and task-specific trunk control training on balance in individuals with PD.

Materials and Methods: Ten participants diagnosed with PD were randomly allocated to Group A (experimental) and Group B (control). Both groups underwent interventions 5 sessions per week for 3 weeks. Group A received high-frequency rTMS (10 Hz at 90% Resting Motor Threshold) for 20 minutes, followed by 30 minutes of task-specific trunk control exercises and conventional physiotherapy in each session. In contrast, Group B received sham-rTMS for 20 minutes, along with the same task-specific trunk control exercises and conventional physiotherapy. Evaluations were done on day 0 and day 15, using the Movement Disorder Society-Unified Parkinson's Disease Rating Scale (MDS-UPDRS-III), modified Clinical Test of Sensory Integration in Balance (m-CTSIB), and Parkinson's Disease Quality of Life (PDQL) as outcome measures.

Result and conclusion: There was a significant difference observed in MDS-UPDRS-III, mCTSIB and PDQL in both Group A (experimental) and Group B (control). However, the p-value ($p<0.05$) was significantly greater in Group A as compared to Group B. The findings indicate that integrating rTMS with task-specific trunk control training significantly improves balance in individuals with PD.

Keywords: Bradykinesia, Neuronal plasticity, Postural instability, Rigidity, Tremor

Abstract-191

Comprehensive Overview of Parental Experiences and Expectations from Physiotherapy for Children with Down Syndrome

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ABSTRACT

The purpose of this review was to provide a comprehensive overview of the parental experiences and expectations associated with physiotherapy interventions for children with Down syndrome (DS). Literatures available till 2024 were included in the review sourced from Scopus, PubMed, and ProQuest databases. The initial search yielded 84 articles, of which 30 duplicates were identified and removed. Following a rigorous screening process, 46 articles were excluded based on relevance and quality criteria, resulting in 7 articles being included in the final review.The findings highlight that DS is one of the most common genetic disorders, characterised by intellectual disability, congenital anomalies, and developmental delays. The findings reveal that DS imposes considerable medical, social, and emotional burdens on families. While physiotherapy is instrumental in improving motor and functional abilities in children with DS, there remains a significant lack of research examining the specific needs and expectations of parents engaging in these interventions. This review identifies key themes, including emotional, social, and physical challenges faced by families, financial constraints, barriers to accessing quality therapy services, and the critical role of multidisciplinary support systems. Despite the recognised importance of family-centred approaches, few studies have explored the intersection of parental perspectives and therapeutic outcomes. Furthermore, gaps were observed in research representing underprivileged regions, particularly low- and middle-income settings.By addressing these limitations, future studies can advance family-centred care models and enhance outcomes for children with DS and their families. This review underscores the urgent need for targeted, qualitative research to bridge these gaps and optimise support for parents navigating physiotherapy interventions.

Keywords: Children with Disability, Physical therapy, Qualitative study

Abstract-192

Additive Effect of Contract-Relax-Antagonist-Contract Stretching and Petrissage Massage on Motoneuronal Excitability

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ABSTRACT

Introduction: Muscle tone abnormalities are mainly witnessed in individuals inflicted with nervous system disorders. Cause of hypertonicity is due to increased Motoneuronal Excitability (MNE) whereas decreased MNE leads to hypotonicity. Changes in MNE are also observed in healthy individuals such as in muscle spasm or increased muscle tension. Also decreased MNE (hypotonia) is seen in healthy individuals such as after long-term cast immobilisation or with impaired proprioception or sensation. In healthy individuals, especially in athletic populations it is always desired to decrease muscle tension to achieve muscle relaxation post fatigue or during spasm. Numerous physiotherapy methods are employed for this purpose but massage and stretching remains the most preferred modalities. Petrissage and Contract-Relax-Antagonist-Contract (CRAC) stretching have been reported to be most effective methods for reducing MNE hence muscle tension, but the effectiveness of these methods have not been validated by objective neurophysiological tests. So present study investigated combined effect of Petrissage massage and CRAC stretching on reducing muscle tension via motor pool excitability using H-reflex test which is considered a direct measure of MNE.

Aim: To investigate the additive effects of Petrissage and CRAC stretching technique on motoneuronal excitability in healthy individuals through H-reflex methodology.

Materials and Methods: Thirty healthy participants were randomly assigned to two groups. Group A (n=15) received Petrissage massage (wringing) for 3-6 minutes, followed by CRAC stretching, while Group B received only CRAC stretching. Electromyography unit was used to measure parameters of H-reflex (M-latency, M-amplitude, H-latency, H-amplitude, and H/M ratio) before and immediately after the intervention.

Results: There was significant difference observed in H-amplitude (t=2.14, p=0.04) and H/M ratio (t=2.46, p=0.02) in Group A as compared to the individuals of Group B.

Conclusion: The results suggest that combining Petrissage with CRAC stretching notably decreased motoneuronal excitability in healthy individuals, although the inter subject variability should not be ignored.

Keywords: H-reflex, M-latency, Wringing

Abstract-193

Poststroke Experiences and Needs in South Asian Communities: A Narrative Review

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ABSTRACT

South Asian countries experience a higher burden of stroke and poorer functional outcomes after stroke compared to the rest of the world. However, the unique poststroke needs of the South Asian community and opportunities for community-based services to address these needs have been little explored in the stroke literature. The aim of this review is to find what is the current knowledge base related to the experiences and needs, including unmet needs, of people living with stroke and their caregivers from South Asian countries. Total 357 full text published articles from PubMed and Scopus from 2020-2025. After duplicate deletion only 140 articles were left for screening and finally 37 full text articles related to research were further analysed at full text level. Out of which only 4 articles were selected and included in the review for analysis.

The studies intend to synthesise existing studies on the poststroke experiences and needs of individuals from South Asian communities to uncover opportunities for community-based resources to address these needs.

Keywords: Lived experiences, South Asian countries, Unmet needs.

Abstract-194

Effect of Vestibular Rehabilitation and Gaze Stabilisation Exercises in Individuals with Motion Sickness: A Study Protocol

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ABSTRACT

Introduction: Vestibular rehabilitation exercises are commonly employed to improve balance, gaze stability, and functional mobility in individuals with vestibular disorders. These exercises aim to enhance the integration of sensory inputs, including visual, vestibular, and proprioceptive systems, to promote equilibrium.

Need for this study: This study provides a comprehensive and progressive approach to vestibular rehabilitation, combining static and dynamic exercises to address a range of vestibular dysfunctions.

Aim: This protocol outlines a structured series of vestibular exercises designed to target specific aspects of vestibular function.

Materials and Methods: The protocol consists of seven exercises, each targeting unique vestibular and balance components. Exercise 1 emphasises controlled vertical and horizontal ocular movements, promoting visual-vestibular integration. Exercise 2 incorporates dynamic movement with visual fixation, requiring participants to track their hand while performing diagonal body movements. Exercise 3 involves seated ball-tossing to challenge gaze stabilisation and coordination. Exercise 4 introduces ambulation with eyes open and closed, focussing on proprioceptive and vestibular reliance during gait. Exercise 5 includes marching in place with and without visual input and stable support to build independent postural control. Exercise 6 uses an unstable surface to challenge vestibular reflexes during marching, combined with visual fixation on a distant target. Lastly, Exercise 7 incorporates the Brandt-Daroff manoeuvre, a widely used positional therapy to reduce vertigo symptoms and habituate the vestibular system.

Keywords: Brandt-Daroff manoeuvre, Vestibular exercise, Vestibulo-ocular reflex

Abstract-195

The Effectivness of Virtual Reality-based Exercise Therapy for Upper Limb Rehabilitation in Sub Acute Stroke: An Experimental Study

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ABSTRACT

Introduction: Stroke is the third most common cause of death and second most common cause of disability overall. The most prevalent disability that causes dysfunction following a stroke is weakness or paralysis, which often leads to upper limb impairments, Limiting independence in daily activities. (VR) has emerged as recent treatment approach in stroke rehabilitation. VR therapies give stroke survivors the rare chance to engage in a rich environment while receiving scalable, structured training opportunities reinforced by multimodal feedback to improve neuroplasticity and skill acquisition via repeated practice.

Aim: To evaluate synergistic effect of VR based exercise therapy along with conventional physiotherapy in improving upper limb motor functions, cognition and quality of life in individuals with stroke.

Materials and Methods: Ethical approval for the study was taken from the Institutional Ethical Committee, Punjabi university, Patiala. This single group, pre-post experimental study involved 8 stroke survivors in sub-acute stage of stroke.

All participants received VR- based exercise therapy along with conventional exercise therapy, 5 times per week for 4 weeks. Data were collected at day 0 and at day 20th by using the outcome measure tools like Fugl Meyer Assessment-UA, Montreal Cognitive Assessment scale and Stroke impact scale. The analysis of the data was done by using SPSS Software.

Results: Significant improvements was observed in Fugl Mayer-UL ($p<0.05$), MoCA ($p<0.05$), and only Emotion ($p<0.05$) or IADL ($p<0.05$) domains of Stroke Impact Scale.

Conclusion: VR-based exercise therapy along with conventional physiotherapy shows potential to improve motor and cognitive functions in stroke survivors.

Keywords: Cognition, Convention therapy, Exercise therapy, Stroke recovery

Abstract-196

Correlation between Six-minute Walk Test and Pulmonary Function Test in Chronic Obtructive Pulmonary Disease Patients with Exacerbations: A Feasibility Pilot Trial

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ABSTRACT

Introduction: Exacerbations of Chronic Obstructive Pulmonary Disease (ECOPD) frequently occur in primary care, but diagnosing them accurately and promptly can be challenging. Six-minute Walk Test (6MWT) is a cost-effective and well-documented field test used to assess aerobic capacity, response to medical treatments in cardiopulmonary diseases, and predict cardiorespiratory fitness.

Aim: This study aims to explore the relationship between the 6MWT and pulmonary function variables in COPD patients with exacerbations within the local population.

Materials and Methods: From January to November 2024, 46 consecutive COPD patients with a history of exacerbations were included from a tertiary care hospital. Patients had a post-bronchodilator FEV1/FVC ratio <0.7, and 6MWT were conducted per

the American Thoracic Society (ATS) guidelines. Percent predicted 6MWD was calculated, and the correlation between spirometry and 6MWT was analysed. The study was approved by the Institutional Ethical Committee (MMDU/IEC/2700).

Results: Pearson's correlation coefficient (r) determined a positive correlation (r = 0.510) between the 6MWT and FEV1/FVC in COPD patients with exacerbations.

Conclusion: The findings of our study indicate a strong positive correlation between the 6MWT and the spirometry variable (FEV1/FVC) in COPD patients experiencing exacerbations. These results may have clinical significance in assessing disease prognosis and estimating aerobic capacity (VO2 max) in COPD patients during exacerbations.

Keywords: Aerobic capacity, Cardiorespiratory fitness, Exacerbations

Abstract-197

Effect of Strategic Targeted Exercise Programme on Balance in Elderly People: An Experimental Study

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ABSTRACT

Introduction: For older adults, falls and fall-related injuries are frequent and dangerous health issues. For the elderly people of age>65 years, the fifth most common cause of death is unintentional injury. Lack of balance, confidence and fear of falling are reported to have a debilitating effect on mobility and functioning in geriatric people.

Aim: To determine the effect of strategic targeted exercise on balance in elderly people.

Materials and Methods: This experimental study included a total of 50 participants who matched the inclusion criteria from old age home and relatives of patients obtained from T.D.T.R. D.A.V. Institute of Physiotherapy and Rehabilitation, Yamuna Nagar, Haryana, India. The study was of 8 weeks duration and 3 sessions per week. The participants were randomly allotted to an experimental group-Strategic Targeted Exercise and balance training (n=50) and a control group-balance training alone (n=50). Outcome measures used were the Berg Balance Scale (BBS) and Timed Up and Go (TUG) test. A paired t-test was used to determine significant variations between the pre- and post-test measurements and unpaired t-test was done to determine between group variations.

Results: The average mean of age was found to be 69.04 years. The experimental group and the control group both show notable changes in terms of within group differences. BBS (p=0.0497) and TUG (p=0.0380) both showed greater improvement in experimental group as compared to control group.

Conclusion: Strategic targeted exercises along with balance exercises showed better outcome in BBS and TUG as compared to balance exercises alone.

Keywords: Balance exercise, Berg Balance Scale, Fall.

Abstract-198

Increasing Prevalence and Progression of Parkinson's Disease in Punjab- Is Pesticides the Main Etiology?: A Systematic Review

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ABSTRACT

Introduction: Parkinson's Disease (PD) is the second-most common progressive neuro-degenerative disorder, affecting the elderly population. The increasing prevalence of PD worldwide underscores the importance of identifying factors that influence disease outcomes and potentially leading to its progression. In recent years, Punjab, a prominent agricultural region in India, had witnessed a significant increase in onset of Parkinson's Disease. This trend had raised concerns about the potential contribution of environmental factors in its etiology.

Aim: The review study investigated the potential contribution of pesticides to the increasing prevalence and progression of PD in Punjab.

Materials and Methods: A comprehensive literature search in accordance with the PRISMA guidelines (2020) was conducted across multiple databases and search engines. From 2020 to 2025, articles published in English were reviewed in PubMed, Medline, EMBASE, Scopus and Web of Science databases. The review included the studies that explored association between pesticides and PD and on the studies that explored environmental risk factors for PD, particularly in agricultural regions like Punjab. Results: Ten articles (7 case control, 2 cross-sectional and 1 longitudinal cohort) were included and thoroughly reviewed. The literature highlighting pesticides as a major risk factor contributing to the rising prevalence of Parkinson's Disease cases were reviewed. The findings indicated a significant association between chronic pesticide exposure and increased PD risk. The studies have also shown that chronic pesticides exposure leads to the progression of both motor and non-motor symptoms in PD.

Conclusion: The review study strongly suggested that the prolonged exposure to pesticides is associated with the increased prevalence and progression of PD symptoms in Punjab. The review emphasised the need for awareness about pesticides as a significant contributor to the increasing prevalence of PD.

Keywords: Environmental factors, Neurodegenerative disroder, Risk factors

Abstract-199

Understanding Factors and Insights Influencing Manual Dexterity with Age, Expertise and Beyond: A Comprehensive Review

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ABSTRACT

Dexterity can be divided into manual dexterity and fine finger dexterity. It is an important skill required to perform daily living activities. For an individual to have good manual dexterity, there has to be intact musculoskeletal and neurological function and good eye-hand coordination. It is of paramount importance that the tools used for the assessment of hand function should have good validity and reliability so that they can provide accurate results and aid in rehabilitation. In this article, the authors have identified manual dexterity, grip strength, pinch strength, tactile acuity, and hand anthropometry as the significant factors contributing to hand performance. Full-text articles in English were gathered from various search databases. There is a need to see the influence of these factors on manual dexterity. The sensorimotor cortex of the human brain undergoes functional organisation with stimulation of the sensory system or learning of motor skills. Structural and functional changes in the brain usually occur with practice, learning, and expertise. With training, there is an alteration in the brain regions involved in planning and execution. It has been documented that the pinch strength, grip strength, and cutaneous sensation decline as age advances. From an in-depth literature search of the factors that affect hand performance, we can conclude that as age advances, cutaneous sensation and motor performance decrease in healthy individuals. However, whether the role of expertise and dexterity skills in occupations involving dextrous manipulation in adulthood can help preserve dexterity as one advances in age when no other underlying pathology exists is the area left unexplored. The potential of work-related activities as preventative measures for maintaining hand dexterity in adulthood is highlighted by research showing that consistent participation in activities requiring tactile feedback and fine motor skills may help prevent age-related decline in hand function. According to research on neuroplasticity, the brain maintains the capacity for adaptation through repeated skill-based practice, thus presenting opportunities for exploring whether occupational expertise in dexterity promotes anatomical or functional adaptations that alleviate the age-associated decrease in sensory and motor capabilities.

Keywords: Grip strength, Hand anthropometry, Pinch strength, Tactile acuity.

Abstract-200

Identifying and Overcoming Rehabilitation Barriers towards Hemiplegic Patient Care at Institutional and Home-based Setting: A Study Protocol

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ABSTRACT

Introduction: Stroke is a leading cause of disability worldwide, often resulting in hemiplegia, which significantly impacts functional independence. Rehabilitation, whether institutional or home-based, plays a crucial role in minimising disability and improving recovery. However, various barriers may hinder rehabilitation outcomes, making it essential to explore factors influencing patient care.

Need for this study: The study aims to propose effective solutions for optimising rehabilitation strategies, improving functional recovery, and enhancing the quality of life for stroke survivors.

Aim: This study aims to identify the barriers and facilitators affecting institutional and home-based rehabilitation for hemiplegic patients. The study focusses on exploring physical, social, emotional, and environmental factors influencing rehabilitation, identifying patient-

specific motivators and challenges, and developing strategies to overcome barriers and improve rehabilitation outcomes.

Materials and Methods: A structured questionnaire will be developed through a literature review and refined based on patient interviews. A Delphi survey with expert physiotherapists will be conducted for validation, and the content validity index will be calculated. Patient-reported responses will be analysed using Interpretative Phenomenological Analysis (IPA) with an inductive approach, utilising QDA Miner Lite for qualitative data interpretation.

Keywords: Functional independence, Hemiplegia, Institutional rehabilitation, Patient recovery, Physiotherapy, Qualitative analysis, Rehabilitation barriers.

Abstract-201

Advancements in Chest Physiotherapy for Paediatric Bronchopneumonia: A Comprehensive Review of Current Techniques and Outcomes

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ABSTRACT

Bronchopneumonia is the most common clinical manifestation of pneumonia in paediatric population, particularly life threatening in young children aged between 0 to 5 years. It is also seen in children aged between 5-15 years with chronic complications and long term illness. It is an important cause of neonatal and childhood morbidity and mortality in developing countries, with death rates greatest in children and adults older than 75 years. Approximately 40% of pneumonia during childhood requires hospitalisation. Children with chronic respiratory or neuromuscular diseases benefit from chest physical therapy, which is a crucial adjuvant in the treatment of the majority of respiratory ailments. Helping children's tracheobronchial secretions to be cleared is the main goal of chest physical therapy. This improves gas exchange, lowers airway resistance, and facilitates breathing. A search strategy was performed for the past five years with original research published in English language between 2020 to 2024. Three databases, that is, Scopus, PubMed and PEDro were searched for full text articles. Four original papers revealed that chest physiotherapy including postural drainage, percussion, deep breathing and vibrations together are helpful in clearance of airway secretions from the lungs. Modern techniques, including forced expiration, active cycle of breathing, autogenic drainage, assisted autogenic drainage, and slow and prolonged expiration, utilise variations in airflow through breath control to facilitate the mobilisation of secretions. Also, the assisted physiotherapy techniques are worthy and beneficial in non cooperative paediatric patients in which coughing is not as effective to eliminate secretions which tends to increase the risk of infection. More assisted techniques can be helpful in improving the quality of life and cardiorespiratory capacity of paediatric patients suffering from bronchopneumonia.

Keywords: Airway resistance, Hospitalisation, Infants, Physical therapy modalities, Quality of life.

Abstract-202

Artificial Intelligence and Computer-aided Diagnosis in Lumbar Prolapsed Intervertebral Disc: A Systematic Review with Meta-analysis

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ABSTRACT

Introduction: Lumbar Prolapsed Intervertebral Disc (PIVD) is a common and debilitating lower back condition. Accurate and timely diagnosis is crucial for its effective management. Conventional diagnostic methods like Magnetic Resonance Imaging (MRI) and computed tomography often require expert interpretation, which can be subjective, time-consuming, and prone to false positive interpretation. Artificial Intelligence (AI) and Computer-aided Diagnosis (CAD) techniques have the potential to revolutionise the diagnosis of lumbar PIVD by improving accuracy, efficiency, and objectivity. Thus, there is a critical need for a systematic evaluation of the existing evidence on the efficacy of AI and CAD in lumbar PIVD diagnosis.

Aim: This systematic review with meta-analysis aims to thoroughly assess the available knowledge on the usability of different AI and CAD in lumbar PIVD diagnosis.

Materials and Methods: A systematic search of electronic databases like PubMed, EMBASE, and IEEE for relevant full-text studies published in peer-reviewed journals between 2014 and 2024, only in the English language. The included studies were evaluated for methodological quality assessment using the Quality Assessment of Diagnostic Accuracy Studies tool. The primary outcomes for review included the diagnostic accuracy (sensitivity, specificity, accuracy) of each AI and CAD system. Subsequently,a meta-analysis was conducted to synthesise the results of the included studies and assess the overall effectiveness of AI and CAD in lumbar PIVD diagnosis.

Results: Following the extensive search, a total of eight studies were identified, evaluating 13 CAD or AI systems. Four of these studies utilised the CAD model, three employed deep learning and one used machine learning. All the studies analysed lumbar MRI data. The meta-analysis involved three of the studies, and it demonstrated a high pooled sensitivity (0.901, 95% CI: 0.871-0.924) and specificity (0.919, 95% CI: 0.898-0.936) for the included studies using CAD system for lumbar PIVD diagnosis. Moreover, the least heterogeneity (I^2 value= 0%) was observed in both sensitivity and specificity across the included studies, suggesting that the observed diagnostic accuracy is likely to be generalisable across different AI/CAD systems and study populations.

Conclusion: To conclude, these findings strongly support the potential of AI/CAD systems to improve the accuracy and efficiency of lumbar PIVD diagnosis.

Keywords: Deep Learning, Machine Learning, Magnetic Resonance Imaging

Abstract-203

Pilates-based Interventions in Cerebral Palsy Rehabilitation: A Narrative Review

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ABSTRACT

Cerebral Palsy (CP) is a neurological condition that affects the movement and posture, leading to activity limitations, due to non-progressive injury to the brain during developing fetus or infant. In addition to motor impairments, children with CP are also experience sensory problems, intellectual disabilities, challenges with perception, communication issues, epilepsy, behavioural concerns and musculoskeletal complications.The prevalence of CP in India is 2.95 per 1000 live births. A literature search was conducted on Google Scholar, Scopus, PubMed, PEDro databases for studies published between 2016 to 2025 by keywords; "Cerebral Palsy" AND "Pilates" which resulted in retrieval of six articles and we included these articles in our review. This narrative review explains the impact of Pilates training as a treatment approach in CP rehabilitation. Pilates is an innovative method which involves exercises that focus on strengthening, stretching and coordination. The six fundamental concepts of Pilates training are flexibility, breathing, control, centering, concentration and accuracy. Children with CP,who can perform functional activities like standing, walking but they require improvements in muscle strength, joint flexibility, mobility andpostural stability may get benefit from Pilates training to enhance muscle contraction, relaxation, flexibility, strength and balance.Furthermore, Pilates may assist to reduce spasticity and improve balance; both components are essential for functional independence and quality of life. The exercises can be customised to meet individual needs, making Pilates training a versatile intervention option for children with varying CP severity. Despite the promising results, the review identifies the gap in existing literature, including lack of standardised protocol, highly reliable outcome measures and high quality studies on Pilates training in CP. However, further research is required to examine the long term effects, optimum dosage and specific exercises that yield best outcomes for CP children.

Keywords: Balance, Core stability, Quality of life, Posture

Abstract-204

Effectiveness of Interactive Neuromotor Training versus Sensory Integration-based Exercise Training on Balance, Motor Function and Quality of Life in Individuals with Traumatic Brain Injury: A Quasi-experimental Study

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ABSTRACT

Introduction: Traumatic Brain Injury (TBI) often results in impairments in balance, motor function, and quality of life. Interactive Neuromotor Training (INT) and Sensory Integration based Exercise Training (SIET) are promising rehabilitation approaches for improving these outcomes. However, there is limited evidence comparing the effectiveness of these interventions in individuals with TBI.

Aim: To compare the effectiveness of INT and SIET on balance, motor function, and quality of life in individuals with TBI.

Materials and Methods: A quasi-experimental design was used with 28 participants (aged 18–55 years) diagnosed with mild to moderate TBI. Participants were randomly assigned to either the INT (n=14) or the SIET group (n=14). Pre- and post-intervention assessments were conducted using the Berg Balance Scale (BBS) for balance, the Fugl-Meyer Motor Assessment (FMMA) for motor function, and the Quality of Life after Brain Injury (QOLIBRI) scale for quality of life. Statistical analysis was performed using paired t-tests and independent t-tests.

Results: Both groups showed significant improvements in balance, motor function, and quality of life ($p<0.05$). The INT group demonstrated greater improvements in all outcome measures compared to the SIET group. The INT group showed a larger increase in balance (BBS) and motor function (FMMA), and more pronounced improvements in overall quality of life (QOLIBRI) scores.

Conclusion: INT is more effective than SIET in improving balance, motor function, and quality of life in individuals with TBI. Both interventions, however, provide significant therapeutic benefits, suggesting that they can be used as part of a comprehensive rehabilitation program for TBI patients.

Keywords: Berg Balance Scale, Fugl-Meyer motor assessment, Quality of life after Brain Injury scale

Abstract-205

A Qualitative Study among Patients with Knee Osteoarthritis during Physiotherapy

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ABSTRACT

Introduction: Perceptions, experiences, and the factors that facilitate, and inhibit the rehabilitation process in Patients with Knee Osteoarthritis (PKOA) may be influenced by their lifestyle and context.

Aim: To investigate PKOA in Lower-Middle-Income Country (LMIC) India,about their views and lived experiences and to explore and the factors that support and hinder Physiotherapy (PT) among PKOA.

Materials and Methods: Qualitative design using phenomenological approach were employed. PKOA were recruited using a purposive sampling technique. Demographic data of a PKOA were collected using a data entry form, and their economic status was entered according to the Modified Kuppuswamy Scale (MKS). One-to-one, semi-structured interviews were conducted face-to-face or by telephone, recorded using Sony ICD-UX570 audio recorder, and transcribed verbatim. Data were analysed using Braun and Clarke, six stages of thematic analysis based on recent recommendations (2024) with NVivo software version 15.

Results: Fifteen PKOA were included with a mean age of 56.3 years, height 157.3 cm, weight 66.5kg, and Body Mass Index (BMI) 26.9 kg/cm^2. Educational and socio-economic status were assessed using MKS, distributed across lower (13.33%), upper lower (6.67%), lower middle (60%), upper middle (20%), illiterate (26.67%), primary school certificate (20%), middle school certificate (33.33%), high school certificate (13.33%), and graduate (6.67%). Interviews duration ranged from 10 to 30 minutes. Four themes were developed, including perceptions, experiences, facilitators, and inhibitors. Twenty-nine sub-themes were developed under these themes.

Conclusion: Patients lacked knowledge of disease and the efficacy of PT for knee OA. PKOA has experience with PT more positively and less negatively. Personal, physical, social, health-related, and

organisational factors were both facilitating and inhibiting PT and its adherence during the rehabilitation process.

Keywords: Experiences, Facilitators, Inhibitors, Perceptions.

Abstract-206

Evaluating Bone Health in Neonatal Osteopenia: A Scoping Review of Diagnostic Approaches

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ABSTRACT

Osteopenia of prematurity is a debilitating condition characterised by reduced bone mineral content. It is often observed in very-low-birth-weight infants because of a lack of foetal mineralisation during the last trimester and neonates with concomitant diseases such as necrotising enterocolitis, pregnancy related conditions (chorioamnionitis, gestational diabetes mellitus and preeclampsia), longer duration of total parenteral nutrition and lack of vitamin-D among mothers. High-risk neonates with prolonged use of diuretics/corticosteroids are at increased risk of low bone mineral density, resulting in osteopenia. A search strategy was performed for past five year with original researches published in English between 2020 and 2024. PubMed, Scopus, and PEDro databases were searched for full-text articles, resulting in six articles. Six out of 13 papers revealed that dual-energy x-ray absorptiometry was considered as the gold standard for measuring bone mineral density and had low radiation exposure for neonates and quantitative ultrasound, digital x-ray radiogrammetry, radiographic evaluations, peripheral quantitative computed tomography and biochemical markers such as: serum alkaline phosphatase, osteocalcin, C-terminal telopeptide serum calcium, and serum phosphorus were available as other diagnostic measures for assessing osteopenia. While selecting a reliable method for assessment of osteopenia, certain factors such as equipment availability, radiation exposure, cost and specific clinical needs of the neonate should be considered. A combination of techniques may provide a more thorough assessment of bone health in premature infants with osteopenia.

Keywords: Alkaline phosphatase, Bone mineral density, Infant, Premature, Very low birth weight

Abstract-207

Prevalence of Tennis Elbow in Gym going Young Adults: An Observational Study

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ABSTRACT

Introduction: Lateral epicondylalgia, also known as tennis elbow, is a prevalent condition that has a substantial impact on the population. There is little disagreement about the clinical manifestations of this illness. It is typically defined as pain over the lateral epicondyle that is reproduced by digital palpation, resisted wrist extension, middle finger extension, and gripping. Lateral epicondylitis is pain in the lateral epicondyle caused by misuse of the forearm extensor muscles. Chronic tears in the origin of the extensor carpi radialis brevis and degenerative alterations are related with the disorder. Lateral epicondylitis is a serious disorder that causes loss of limb function by damaging the tendinous tissue of the wrist extensor muscles' origins at the lateral epicondyle of the humerus. As a result, the patient's social and professional life may be negatively impacted. The lateral elbow is made up of bony and ligamentous elements that maintain the joint and act as the origin of the musculotendinous attachments on the dorsal forearm.

Aim: The aim of the study is to estimate the prevalence of tennis elbow or lateral epicondylitis in gym going young adults.

Materials and Methods: An observational study was performed on gym going population. Overall 100 participants were enrolled in the study with 97 males and 3 females. Age of the participants was between 18 to 28 years. Participants were screened according to selection criteria and then were asked to sign a written consent form, Demographic data was taken that included the type of exercise which is being performed, such as weight training and cardio. Data were collected and analysed to check the prevalence of tennis elbow on in healthy gym going young Adults.

Results: The prevalence of tennis elbow in gym going healthy individuals was calculated in 97% men and 3% women with a median age of 23 years. We found a prevalence of 3%.

Conclusion: The study concluded that tennis elbow is not prevalent among young adults going to gym.

Keywords: Digital palpation, Lateral epicondylalgia, Wrist extension.

Abstract-208

Role of Physiotherapy Management in Tennis Elbow: A Case Report

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ABSTRACT

Repetitive hand movements in daily activities or work can lead to arm discomfort, particularly in the elbow, increasing the risk of tennis elbow. Tennis elbow is a condition characterised by reduced joint mobility, impaired muscle performance, and inflammation of the wrist extensor tendon at the lateral epicondyle, resulting in pain and disability. It affects approximately 40% of the population, particularly individuals aged 35–54 years, and is common among tennis players, with 75–80% experiencing elbow pain due to this condition. Physiotherapy modalities, including LASER and exercise therapy, play a significant role in its management.

A 45-year-old male sportsperson from Bundelkhanduniversity, Jhansi presented with left elbow pain persisting since August 2024, following table tennis sport. The pain interfered with daily tasks such as personal hygiene, playing game, lifting objects, motorcycle riding, and office typing.

The patient underwent three physiotherapy sessions, each lasting 60 minutes, incorporating Transcutaneous Electrical Nerve Stimulation (TENS), LASER, and exercise therapy. Outcomes were assessed using the Numerical Rating Scale (NRS) for pain, Manual Muscle Testing (MMT) for muscle strength, goniometry for range of motion, and the Patient-Rated Tennis Elbow Evaluation (PRTEE) for functional ability. Significant improvements were noted in pain reduction, muscle strength, joint mobility, and functional performance.

The primary goal of the physiotherapy program for tennis elbow is to alleviate pain, enhance muscle strength, restore joint range of motion, and improve functional capabilities. Exercise therapy was particularly effective in promoting muscle contraction and relaxation, aiding precise movement control.

A comprehensive physiotherapy program, including TENS, LASER, and structured exercise therapy, effectively reduced pain and enhanced range of motion, muscle strength, and overall functional ability in a patient with tennis elbow.

Keywords: Goniometry, Manual Muscle Testing, Numerical Rating Scale, Patient Rated Tennis Elbow Evaluation, LASER therapy, Tennis elbow, Transcutaneous electrical nerve stimulation

Abstract-209

Effectiveness of Stabilisation Exercise along with Conventional Therapy on Pain, ROM, Muscle Strength, JPS and QOL in Diabetic Frozen Shoulder

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ABSTRACT

Introduction: Diabetic Frozen Shoulder (DFS) is characterised by pain and severe limited active and passive range of motion of the glenohumeral joint, particularly external rotation. Diabetes is frozen shoulder is due to the effects on collagen in the shoulder, which holds the bones together in a joint. Collagen gets triggered by the presence of high blood sugars.Interestingly, collagen gets sticky when sugar molecules become attached, leading to restricted movements and shoulder starting to stiffen. The prevalence of adhesive capsulitis in patients with diabetes in India was reported to be 11% - 29.61 %, in Saudia Arabia 6.7%, in Iran 13.30%, in Finland 14%, in UK around 10.8%. Whereas other studies identified around 20% Australians, 38.6% Americans, 27% Indians and around 40% British reported diabetes in patients with adhesive capsulitis.

Aim: To evaluate the effectiveness of stabilisation exercise along with moist heat therapy on pain, Range of Motion (ROM), proprioception, muscle strength and Quality of Life (QOL) in patients with DFS.

Materials and Methods: This article has been approved by the Institutional Ethics Committee (IEC).The confidence level – 95% and confidence interval - 5% were used to calculate sample size. Thirty-one patients were treated with stabilisation exercise and moist heat therapy. The patients were assessed in 0 (zero) week and reassessed in 4 (four) weeks and 8 (eight) weeks of treatment. These treatment protocols will be given five days per week for eight weeks.

Result and Conclusion: The data were analysed using the statistical software SPSS 15 version. Analysis of the Numerical Pain Rating Scale (NPRS), ROM, Shoulder Strength, Joint Position Sense (JPS) score & the World Health Organisation QOL (WHOQOL) was done using repeated measure ANOVA test. In 4 and 8 weeks of treatment, significant results were observed (p=0.05). Our study concluded that stabilisation exercise along with conventional therapy in patients with DFS showed significant improvement in reducing pain, improving ROM, increasing muscle strength, improving JPS and improving quality of life in 4th & 8th weeks of treatment.

Keywords: Muscle strength dynamometers, Pain scale, Thermotherapy.

Abstract-210

Age-associated Changes in Adiposity and Impact on Insomnia Severity in Women with Polycystic Ovary Syndrome: A Pilot Observational Study

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ABSTRACT

Introduction: Polycystic Ovary Syndrome (PCOS) is frequently manifested by metabolic abnormalities and increased adiposity. However, the influence of age on regional fat accumulation and how this relates to sleep disturbances remains unexplored.

Aim: This study aimed to examine the relationships between age, specific anthropometric measures, and insomnia severity in women diagnosed with PCOS.

Materials and Methods: A total of 30 women aged between 18-34 years, with clinically confirmed PCOS were enrolled in this cross-sectional study. Comprehensive anthropometric assessments were conducted, including waist circumference, arm circumference, and skinfold thickness (triceps, subscapular, supra-iliac, calf) and Body Mass Index (BMI). Insomnia was evaluated using the Insomnia Severity Index (ISI). Spearman's rank correlation was applied to identify statistically significant associations ($p<0.05$).

Results: The results of the study indicated that the adiposity of the upper body in women with PCOS increased with age, as demonstrated by the higher BMI ($\rho = 0.497$, $p = 0.011$), waist circumference ($\rho = 0.498$, $p = 0.011$), arm circumference ($\rho = 0.475$, $p = 0.016$), and triceps ($\rho = 0.446$, $p = 0.025$) and subscapular ($\rho = 0.497$, $p = 0.011$) skinfold thicknesses. The skinfolds around the supra-iliac ($\rho = 0.590$, $p = 0.002$) and calf ($\rho = 0.618$, $p = 0.001$) were most strongly linked to worse insomnia, while BMI alone had lower associations with insomnia.

Conclusion: In women with PCOS, increasing age is strongly associated with increased levels of upper-body fat, although supra-iliac and calf adiposity appear to be more predictive of sleep difficulties than overall obesity measurements. These findings highlight the significance of accounting for age-related body composition changes and targeted fat deposition when treating insomnia in PCOS patients.

Keywords: Anthropometric measures, Skinfold thickness, Upper body fat.

Abstract-211

Effects of Pelvic Floor Exercises and Core Muscle Exercises on Scar Pain and Pelvic Floor Muscle Strength in Abdominal Hysterectomy Patients: An Observational Study

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ABSTRACT

Introduction: Abdominal hysterectomy is the surgical method when the abdomenis exposed via Pfannenstiel incision. Abdominal surgeries may downgrade abdominal muscle power, efficiency of intra-abdominal pressure.

Aim: This study determined the effects of pelvic floor and core muscle exercise sons carpain and pelvic floor muscle strength in abdominal hysterectomy patients.

Materials and Methods: Thirty post hysterectomy females were randomly assigned to group A (core muscle exercise group, n=15) and group B (pelvic floor muscle exercise group n=15). The group A performed core muscle exercises (Dead bug exercise, bridging exercise, concentric curl-up exercise, a Straight Leg Raise [ASLR]) and Group B performed pelvic floor muscle exercises (abdominal isometric exercise, pelvic adductor exercise, Ball Bridge exercise, ball leg lifts) both for 30 minutes once in a day for 2 weeks (6 days).

Pelvic floor muscle strength (measured by perineometer) and scar pain {measured with the Numeric Pain Rating Scale (NPRS)} were evaluated pre and post of the intervention.

Results: Significant changes showed in both the groups but group A showed highly significant improvement in scar pain compared to group B. The group B showed highly significant improvement in pelvic floor muscle strength compared to group A.

Conclusion: Pelvic floor exercise training is recommended to improve pelvic floor muscle strength and core muscle exercise is recommended to improve scar pain in abdominal hysterectomy patients.

Keywords: Abdominal isometric exercise, Ball Bridge exercise, Numeric Pain Rating Scale, Pelvic adductor exercise, Perineometer

Abstract-212

Exploring Experiences, Satisfaction, and Quality of Life with Physiotherapy One Month after Total Knee Arthroplasty in Low- and Middle-income Countries: A Qualitative Study

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ABSTRACT

Introduction: Total Knee Arthroplasty (TKA) has been a widely practiced procedure, with its popularity steadily growing globally, particularly in India. TKA is primarily performed for osteoarthritis, which affects millions in India.Research highlights the role of physiotherapy rehabilitation in improving pain, range of motion, and daily function post-TKA, yet limited studies have explored patients' satisfaction and perspectives during rehabilitation. This qualitative phenomenological study addresses this gap by examining the lived experiences, satisfaction levels, and quality of life of patients undergoing physiotherapy rehabilitation post TKA.

Aim: To explore the patients' perspective about the satisfaction and experiences post rehabilitation and to also explore the factors influencing quality of life with physiotherapy after 1st month of TKA.

Materials and Methods: Six participants participated in semi-structured face-to-face interviews. The participants are recruited using criterion-based purposive sampling. The interviews were audio-recorded and transcribed. Familiarisation with the data, generating initial codes, constructing themes, reviewing and refining themes, defining and naming themes and writing the report stages of Braun and Clarke,2024 reflexive deductive- inductive thematic analysis were performed using NVivo 15. Credibility, transferability, dependability and confirmability were also ensured.

Results: Age ranging from 45 to 60 years, predominantly female,mostly upper middle class socioeconomic status who had undergone TKA were interviewed which lasted for about 15 min one month after their surgery. Four main themes with 12 subthemes emerged influencing quality of life: (i) Pain and the recovery experience; (ii) Functional abilities and limitations; (iii) Satisfaction with recovery and Physiotherapy; and (iv) Psychological impacts and emotional aspects.

Conclusion: The study reveals reduction in pain, mobility enhancement over time, satisfaction and quality of life.

Keywords: Patient expectation, Patient satisfaction, Physiotherapy rehabilitation.

Abstract-213

A Study on Domain Identification for Physical Performance Assessment Tools in Children with Developmental Disorders

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ABSTRACT

Introduction: Children with developmental disorders, such as Cerebral Palsy (CP), Attention-Deficit Hyperactivity Disorder (ADHD), and Autism Spectrum Disorder (ASD), may struggle with physical performance, including strength, balance, and motor coordination. The diagnosis, monitoring, and development of customised therapeutic programmes, depend on a thorough Physical Performance Assessment Instrument (PPAT). Nevertheless, it is unclear which domains ought to be covered by these technologies.

Aim: The purpose of this study is to describe and identify the major areas of physical performance that are pertinent to children with developmental disorders and to create a framework for incorporating these domains into assessment instruments.

Materials and Methods: The study used a mixed-methods approach, consulting paediatric specialists, clinicians, and therapists in addition to conducting a systematic evaluation of the assessment instruments currently in use. Clinical observations were also made in order to assess the functional and motor difficulties that children with different developmental problems encounter. The most relevant and consistent domains across various settings were found by analysing the data.

Results: The study found that motor coordination, balance, strength, endurance, and flexibility are the five main domains that are crucial for evaluating physical performance in children with developmental problems. These domains were found to be extremely relevant to the needs of children with ASD, ADHD, and CP and crucial for comprehending general physical function. There are currently very few instruments that target strength, endurance, and flexibility in this population; instead, they primarily concentrate on motor coordination and balance.

Conclusion: The key dimensions of physical performance for children with developmental problems are clearly defined by the study's findings. To ensure thorough and useful assessments, these domains must be included in the next physical performance evaluation instruments. The foundation for creating a standardised assessment Tool that can direct intervention tactics and monitor developmental progress is laid by this framework.

Keywords: Attention-deficit hyperactivity disorder, Autism spectrum disorder, Motor skills

Abstract-214

Neural Coefficient Theory: A Key to Unlock Neuro-recovery's Missing Link

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ABSTRACT

Introduction: The complexity of neuro-rehabilitation necessitates a deeper understanding of neural dynamics and their role in functional recovery. This study introduces the Neural Coefficient Theory, a novel framework that quantifies the relationship between Autonomic Nervous System (ANS), Peripheral Nervous System (PNS) and Central Nervous System (CNS). By proposing ANS as a key factor, the theory bridges the gap between theoretical neuroscience and clinical application. The Neural Coefficient Theory states that, *"Autonomic Nervous System acts as the coefficient in the recovery of nervous system related diseases or disorders".*

Aim: The study aimed to establish that the ANS rehabilitation along with standard rehabilitation protocols in CNS and PNS lesions is vital for improving neurological patient's outcomes and quality of life.

Methodology:

Nature of study: The study was an innovative and qualitative study to demonstrate the conceptual framework of Neural Coefficient theory approved by IEC, Punjabi University, Patiala (Ref Number: 28/55/IEC/PUP/2022)

Funding: The study was funded by INSPIRE-DST (FELLOWSHIP)

Implications: By addressing both the primary and secondary effects of these lesions on the ANS, healthcare professionals can help individuals with nervous system related disorders to achieve better functional outcomes and enhanced overall well-being.

Conclusion: Preliminary analysis and clinical observations suggested that the ANS could serve as a predictive tool to customise rehabilitation protocols, enhancing outcomes for neurological patients. This theory not only advances the scientific understanding of role of ANS in the recovery of CNS or PNS-based disorders but also lays the groundwork for personalised medicine in neurorehabilitation. Further studies are required to validate its efficacy and develop clinical models for its application.

Keywords: Autonomic Nervous System; Central Nervous System; Peripheral Nervous System

Abstract-215

Exploring the Role of Physiotherapy in the Management of Polycystic Ovary Syndrome: A Research Overview

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ABSTRACT

Introduction: Polycystic Ovary Syndrome (PCOS) is a prevalent endocrine disorder characterised by irregular menstruation, hyperandrogenism, and polycystic ovaries. Infertility, metabolic abnormalities, and an elevated risk of cardiovascular disorders are linked to it. Physiotherapeutic procedures have become important adjunct therapies for treating the symptoms and enhancing general health in women with PCOS, even if pharmaceutical treatments continue to play a key role.

This review aims to examine the role of physiotherapy in the management of PCOS, focusing on exercise interventions, pelvic floor therapy, and lifestyle modifications. The goal is to assess the effectiveness of these approaches in managing the hormonal, metabolic, and psychological aspects of PCOS.

A thorough assessment of the literature was carried out, examining research on physiotherapeutic strategies for PCOS, including observational studies, randomised controlled trials, and clinical recommendations. Exercise (including aerobic and resistance

training), yoga, manual therapy, and pelvic floor exercises are among the important therapies that were examined. Relevant outcomes were taken into consideration, including quality of life, menstrual regularity, weight control, and insulin sensitivity.

Weight loss, testosterone reduction, and insulin sensitivity were all found to be greatly enhanced by physiotherapy therapies, especially regular exercise. Additionally, resistance training and aerobic workouts might help reduce symptoms like exhaustion, despair, and anxiety.

Yoga has been demonstrated to lower stress and improve hormonal balance. For some women with PCOS, pelvic floor treatment proved useful in treating dysmenorhoea, irregular menstruation, and pelvic discomfort. Moreover, lifestyle education from physiotherapists enhances self-control and commitment to long-term healthful behaviors.

Exercise therapy, pelvic floor exercises, and lifestyle counseling are examples of physiotherapeutic techniques that are successful in treating the complex symptoms of PCOS. These non-pharmacological, holistic approaches can be used in conjunction with conventional medical treatments to improve the physical and mental health of women with PCOS.

Keywords: Exercise therapy, Insulin sensitivity, Pelvic floor therapy, Weight management.

Abstract-216

Ten-meter Walk Test with Motor and Cognitive Dual-task Activities in Overweight Individuals: An Observational Study

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ABSTRACT

Introduction: A certain amount of body fat is essential for functions like energy storage, heat insulation, and shock absorption. However, an excessive or abnormal accumulation of body fat, which can negatively affect health, is categorised as overweight or obesity. In daily life, individuals often engage in tasks that require simultaneous processing of both motor (balance) and cognitive functions, commonly referred to as "dual task situations." A dual task involves performing two tasks; one motor and one cognitive at the same time, which typically leads to a decline in performance in at least one of the tasks.

Aim: To determine the short term effects of motor and cognitive dual tasks on the walking speed of overweight individuals.

Materials and Methods: In this observational study, total of 100 participants were enrolled. They performed dual task activities along a 10-meter path. The subjects walked at their usual pace while the time was measured with a stopwatch, and three readings were recorded. Afterward, they repeated the task while performing a cognitive dual task (counting backwards) and then a motor dual task (walking while carrying a tray with a bottle). Three readings were taken for each condition to calculate the mean for further analysis.

Results: The Kolmogorov-Smirnov test was applied to check for normality in the data. Since the data was not normally distributed, the Mann-Whitney test, a non-parametric test, was used to analyse the data and calculate the p-value for the demographic variables. For the outcome measures, the mean, median, range, and p-values were computed using the Friedman test, which showed significant results with a p-value of <0.001.

Conclusion: The study provided valuable insights into the short-term effects of motor and cognitive dual tasks on the walking speed of overweight individuals. It concluded that cognitive dual tasks had a greater impact on speed compared to motor dual tasks, as compared to walking at a normal pace.

Keywords: Motor dual task, Obseity, Walking speed

Abstract-217

Spencer Technique is Effective for Improvement in Pain and Function, in Patients with Frozen Shoulder: A Systematic Review and Meta-analysis

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ABSTRACT

Introduction: Shoulder is the most mobile and complex joint in the body, which makes it vulnerable to various pathological conditions. Frozen shoulder is one of the most common musculoskeletal conditions characterised by persistent pain and stiffness around the shoulder joint, which significantly hampers the activities of daily living. To manage this condition, various joint mobilisations and stretching techniques are frequently used by physiotherapists as an intervention.

Aim: The purpose of this article is to assess the effectiveness of Spencer technique as an adjuvant to conventional therapy for the improvement of patients with frozen shoulder.

Materials and Methods: Five electronic data bases, (SCOPUS, DOAJ, Science Direct, Medline, PubMed) were searched. Prospective studies that measured the effect of Spencer technique for the shoulder pain specifically the frozen shoulder were included. The articles were reviewed and selected for inclusion by two authors independently. Quality in Prognosis Studies (QUIPS) tool was used to assess the risk of bias.

Results: Twelve studies were retrieved that met the inclusion criteria and nine studies including 311 participants presented data used in meta-analysis that included both males and females. Pain, and functional disability were the primary outcomes.

Conclusion: The findings of this systemic review clearly suggest that the Spencer technique is effective for the treatment of Frozen shoulder. This treatment should be accompanied by conventional treatment to maximise the chance of recovery.

Keywords: Conventional therapy, Shoulder pain; Spencer technique.

Abstract-218

Effectiveness of Lagos Neuropathy Protocol, Proprioceptive Neuromuscular Facilitation and Neuromuscular Taping on Sensorimotor Functions in Patients with Diabetic Peripheral Neuropathy: A Study Protocol

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ABSTRACT

Introduction: The management of Diabetic Peripheral Neuropathy (DPN) consists of multidirectional interventions. Physiotherapy, in addition to the pharmacological approach, has achieved appreciable popularity in ameliorating the symptoms of DPN. Lagos Neuropathy Protocol (LNP), Proprioceptive Neuromuscular Facilitation (PNF), and Neuromuscular Taping (NMT), have shown remarkable improvements in sensorimotor impairments in various neuromuscular and musculoskeletal disorders but no research has been established to compare the effectiveness of LNP, PNF and NMT on sensorimotor functions in individuals with DPN.

Need for this study: This study may provide the comparative significant differences between the LNP, PNF and NMT interventions among DPN patients.

Aim: To compare the effectiveness of LNP, PNF and NMT on sensorimotor functions in patients with DPN.

Materials and Methods: Sixty DPN subjects 60-75 years of age both male and female will be divided into 3 groups, scoring ≥2/13 on physical appearance and ≥1/10 on physical examination of the Michigan Neuropathy Screening Instrument (MNSI), <45 on Berg Balance Scale (BBS) and >12 on Leeds Assessment of Neuropathic Symptom and Sign (LANSS) scale will be included in the study. All three groups (LNP, PNF, and NMT) will receive an intervention for 3 days/week for 10 weeks respectively. Outcome measures will be assessed at baseline and post-intervention, respectively.

Keywords: Berg Balance Scale, Diabetic neuropathies, Leeds Assessment of Neuropathic Symptom and Sign, Michigan Neuropathy Screening Instrument.

Abstract-219

Development, Validation and Reliability of Work-related Low Back Pain Questionnaire for Nursing Professionals: A Questionnaire-based Study

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ABSTRACT

Introduction: Multiple risk factors induce Work-related Musculoskeletal Disorders (WMSDs), resulting in a higher prevalence of work-related low back pain among nurses.

Aim: The present study aimed to develop and establish the validity and reliability of Work-related Low Back Pain Questionnaires (WRLBPQ) for nursing professionals.

Materials and Methods: This study employed a methodology centered on the development, reliability, and validation of a scale. Five experts with a master's degree in the relevant subject and a minimum of 10 years of academic experience participated in the first focal group discussion. Subsequently, 35 specialists engaged in the evaluation of content validity for the WRLBP questionnaire. To assess reliability, a sample of 200 staff nurses employed in hospitals was chosen to participate in this questionnaire.

Results: The newly developed WRLBPQ tool demonstrates strong scale-level content validity, achieving a score exceeding 0.78 for each item. The kappa values for each item ranged from 0.97 for item quality to 1 for item content, indicating excellent agreement. The universal acceptance of each item was 0.91 for quality and 1 for content. The Pearson correlation coefficient was employed to determine test-retest reliability, yielding a result of rho=1 for session 1 and rho=0.82 for session 2. Inter-rater reliability was determined using the Intra-rater Correlation Coefficient (ICC), with values of 0.76 for rater A and 0.86 for rater B, alongside a Cronbach's alpha of 0.98.

Conclusion: The WRLBP questionnaire, the first measurement tool among nursing professionals, is a reliable and valid tool for evaluating WRLBP among nursing professionals.

Keywords: Low back pain, Nurses, Validity.

Abstract-220

Effect of Probiotic and Physiotherapy Interventions to Modulate Gut Microbiota in Inflammatory Arthritis: A Narrative Review

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ABSTRACT

Inflammatory arthritis is a chronic condition characterised by persistent joint inflammation and systemic immune dysregulation. Emerging evidence highlights that the Gut Microbiota (GM) plays a crucial role in the pathogenesis and progression of inflammatory arthritis. Dysbiosis may contribute to inflammatory arthritis progression through several mechanisms including leaky gut, production of proinflammatory metabolites, dysregulation of the immune system, and molecular mimicry. This review highlights the therapeutic potential of probiotics and physical therapy as complementary interventions targeting GM modulation in inflammatory arthritis. Probiotic supplementation may restore the gut ecosystem, increase the abundance of Short-chain Fatty Acids (SCFAs) producing bacteria, improve intestinal barrier integrity, and promote anti-inflammatory cytokines including interleukin-10. Thus, it mitigates systemic inflammation and reduces disease severity. On the other hand, physical therapy, particularly aerobic exercise, positively modulates GM composition and reduces systematic and intestinal inflammatory markers and endotoxemia. Studies have shown that aerobic exercise increases the abundance of Faecalibacterium and Alistipes, associated with reduced inflammation, improved muscle strength, and enhanced physical function. However, further studies are needed to elucidate the synergistic effects of probiotics and physical therapy in managing inflammatory arthritis.

Keywords: Dysbiosis, Gut-joint axis, Inflammation, Microbiome, Osteoarthritis.

Abstract-221

Effect of Early Mobilisation in Mechanically Ventilated Acquired Brain Injury Patients: An Observational Study

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ABSTRACT

Introduction: Acquired Brain Injuries (ABIs) often render patients bed-ridden for longer durations with associated impairments. Mechanical ventilation however necessary has distinct risks and adverse effects such as Ventilator-associated Pneumonia (VAP), Intensive Care Unit-Acquired Weakness (ICU-AW), and an increased Length of Stay (LOS) in the hospital including depression and anxiety in affected individuals. Early rehabilitation of patients has often been said to be the key in swift recovery of patients. However, the onset of interventions has been varying across various studies.

Aim: This study aims to pin point as to whether mobilisation of patients affected with ABI with a the Glasgow Coma Scale (GCS) between 8-12 at the time of admission that underwent conservative management, out of bed as soon as Day 3 leads to better outcomes or not.

Materials and Methods: A sample of 30 patients affected with ABI were incorporated in the study whose mean age was 33.7 years. The patients were divided into groups A and B. Group-A underwent mobilisation starting post-op day 3 along with various physiotherapeutic interventions, whereas patients of group B were not mobilised until day 7. Each patient underwent a carefully constructed treatment protocol that comprised interventions such as Neurophysiological Facilitation of Respiration (NPF), manual techniques as well as limb physiotherapy along with hourly positioning of the patient. Outcome scores were recorded on Day 1 and 30 of the treatment.

Results: Patients belonging to group A showed better outcomes when compared with patients of group B.

Conclusion: The study concludes that patients that are mobilised out of bed on Day 3 during their stay in the hospital show better recovery in various aspects when compared to patients that do not undergo early mobilisation. Patients of group A also showed lesser incidences of ICU-AW.

Keywords: Intensive care unit management, Length of stay, Ventilator-associated pneumonia

Abstract-222

Prevalence and Symptomatology of Cervical Spondylosis in Computer Professionals: A Cross-sectional Study

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ABSTRACT

Introduction: Computer workers are more likely to develop cervical spondylosis, a degenerative disorder of the cervical spine, as a result of sedentary work habits, poor posture, and extended screen time. For the purpose of prevention and management, it is essential to identify certain symptoms and related risk factors in this population.

Aim: To investigate the influence of ergonomic and occupational factors, as well as the prevalence and symptomatology of cervical spondylosis among computer professionals

Materials and Methods: A cross-sectional study with 300 computer experts was carried out. Using a standardised questionnaire, information about common symptoms, work patterns, and demographics was gathered. Headaches, disorientation, numb

hands, stiffness, radiating arm discomfort, and neck pain were among the main symptoms evaluated. To find correlations, daily computer use and ergonomic aspects were examined.

Results: According to the study, 68% of participants had symptoms that were typical of cervical spondylosis. The most often reported symptoms were radiating arm pain (52%), stiffness (76%), and neck pain (85%). Increased symptom severity was substantially correlated with ergonomic issues, such as prolonged work hours (≥8 hours/day), improper chair height, and lack of lumbar support.

Conclusion: Cervical spondylosis is highly prevalent among computer professionals, with neck pain and stiffness being the most common symptoms. Addressing ergonomic risk factors and promoting awareness of preventive strategies, including regular physical activity and workplace modifications, is crucial for reducing the burden of this condition in the workplace.

Keywords: Ergonomics, Neck pain, Ooccupational health, Sedentary lifestyle.

Abstract-223

Exploring the Efficacy of Dry Needling in Fibromyalgia: A Comprehensive Narrative Review

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ABSTRACT

Fibromyalgia is a chronic pain condition that affects muscles and soft tissues, fibromyalgia causes exhaustion,fatigue, sleep disturbances, and generalised pain. Despite the limited efficacy of pharmaceutical therapies, dry needling has viable substitute. Thin needles are inserted into myofascial trigger points during dry needling in order to reduce discomfort and enhance muscular function. In order to evaluate the effectiveness of dry needling in treating fibromyalgia symptoms, this narrative review emphasizes Randomised Controlled Trials (RCTs). A systematic search was conducted in PubMed, Scopus, Cochrane and Google Scholar databases published between 2014 and 2024 using the terms “dry needling”, “fibromyalgia”, “myofascial pain”. Studies included only RCTs in English and that assessed dry needling’s effect on pain intensity, muscle stiffness and quality of life in fibromyalgia patients were selected. A total of 185 research underwent screening. 8 studies that satisfied the eligibility conditions were selected for consideration after duplicate entries were eliminated and the inclusion criteria was applied. These studies offer more important information about how well dry needling works to lessen the severity of pain, increase functional capacity and improve quality of life.Dry needling hold promise as effective component in management of fibromyalgia, offering pain relief and functional improvement.

Keywords: Muscle stiffness, Myofascial pain, Pain management, Quality of life.

Abstract-224

Posture Analysis Software for Upper Cross Syndrome: A Review

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ABSTRACT

Upper Cross Syndrome (UCS) is a postural dysfunction characterised by muscle imbalances, including tightness in the upper trapezius, sternocleidomastoid, levator scapulae, and pectoralis muscles, along with weakness in the deep neck flexors, serratus anterior, lower trapezius, and rhomboid muscles. These imbalances result in postural abnormalities such as rounded shoulders, forward head posture, thoracic hyperkyphosis, and scapular internal rotation, abduction, and winging, commonly assessed visually. Postural analysis software, including Kinovea, AutoCAD, Biotonix, and Adobe Photoshop, is increasingly used for more precise evaluations. However, no dedicated studies have investigated the effectiveness of these tools in UCS assessment, creating a gap in research. This study reviewed the literature on the effectiveness of postural analysis software for UCS. A search of PubMed, Ovid, Scopus, Google Scholar, and PEDro identified studies published between 2015 and 2024. Only Randomised Controlled Trials (RCTs) and randomised pilot trials in English-language peer-reviewed journals were included. Of the 30 articles identified, 13 met inclusion criteria. The software reviewed demonstrated varying levels of reliability, validity, and cost. Kinovea, a free motion analysis tool, showed the highest reliability (ICC 0.997) and validity (Intraclass Correlation Coefficient [ICC] 0.998). AutoCAD, another free option, excelled in biomechanical precision (reliability 0.984, validity 0.962). Adobe Photoshop, used for photograph-based assessments, offered high reliability (ICC 0.98–0.99) and validity (0.99–1.0) at $19.99/month. Biotonix, tailored for healthcare applications, demonstrated reliability (ICC>0.95) but required a $79/month subscription. All tools exhibited high reliability and validity, with Kinovea and AutoCAD standing out for cost-effectiveness, while Adobe Photoshop and Biotonix provided advanced features for specialized applications. Kinovea's high reliability and zero cost make it suitable for resource-limited settings, whereas Biotonix's user-friendly interface supports clinical use. The findings highlight the potential of postural analysis software as a complement to traditional UCS assessment methods. Tailoring software choice to clinical or research needs is essential. Further studies are recommended to explore their long-term efficacy and practical application in diverse environments for optimising UCS assessment and management.

Keywords: Assessment, Postural dysfunction, Reliability

Abstract-225

Exploring the Effect of Extracorporeal Shockwave Therapy in Managing Chronic Ankle Instability and Achilles Tendinopathy: A Narrative Review

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ABSTRACT

Introduction: Chronic Ankle Instability (CAI), is characterised by recurring sprains and persisting symptoms following the injury, can result from ankle re-injuries, which occur at a rate of 28.3%. CAI has distinctive characteristics based on contributory variables, including mechanical and functional instability caused by trauma-induced laxity and by neuromuscular insufficiencies, muscle weakness, and proprioceptive shocks respectively.Ankle sprains are the most frequently persisting ankle injuries, accounting for around 80% of instances. However, only about 20% of ankle sprain patients develop CAI. The Achilles Tendon (AT) is a structure made up primarily of collagen fibers that are oriented in the direction of tensile stresses transmitted through the tendons. CAI, particularly affects functional capability, that can be triggered by ankle sprains. The prevalence of CAI would be higher and functional abilities would be lower in those with disorganised AT structure than in those with organised structure. Extracorporeal Shockwave Therapy (ESWT), a non-invasive treatment for musculoskeletal conditions, has shown success rates of 65% to 91% in improving discomfort and functionality in individuals with ankle joint soft tissue disorders. The treatment focusses on preserving dorsiflexion and avoiding excessive plantar flexion, enhancing blood flow, bone and tendon regeneration through biological responses like bone morphogenic proteins, nitric oxide synthesis, and neovascularisation and preventing recurring ankle sprains in CAI patients. Despite its growing clinical use, no comprehensive reviews currently analyse ESWT's effects on chronic ankle instability and Achilles tendinopathy. To bridge this gap, databases such as PubMed and PEDro were searched for studies published between 2014-2024. A total of 209 articles were retrieved out of which 87 duplicated were removed via Mendeley. The remaining 111 articles were screened and based on selection criteria only 4 articles were reviewed of full text English publication. The outcome measures were VAS for pain and ROM for ankle dorsiflexion function. The intervention period ranged between 3-24 weeks. The results shows that there was significant improvement in ROM and pain score VAS ($p<0.05$). To conclude ESWT is a effective measure for Achilles tendinopathy and ankle instability.

Keywords: Ankle pain, Neuromuscular insufficiencies, Propioceptive shocks.

Abstract-226

Relationship between Cervical Flexor Strength and Endurance in Patients with Chronic Neck Pain: An Observational Study

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ABSTRACT

Introduction: The global prevalence of neck pain was estimated at 288.7 million cases in 2017. Neck pain is often described as a condition with recurring episodes throughout life, with varying recovery levels between episodes. Studies on the effects of neck pain on the cervical motor system, posture, and movement have increased significantly, especially in the last 20 years.Decrease in cervical flexor endurance can lead to cervical dysfunction, tissue overload, trauma, and discomfort since it is connected with cervical spine function.

Aim: The aim of the study is to examine the relationship between cervical flexor strength and endurance in patients with chronic neck pain.

Materials and Methods: A total of 156 patients with chronic neck pain were recruited from Physiotherapy OPD, MM Superspeciality Hospital; the participants were male or female, aged 25-40 years and Visual Analogue Scale (VAS) 3.5-7.4 using convenient sampling method. Participants were excluded if they have acute neck pain, radicular pathology, cervical trauma within last six months and severe neck pain on VAS. Demographic data was recorded after taking consent from the participants. Based on the requirements, cervical flexor strength and endurance were assessed with two test which are pressure biofeedback test and neck Neck flexor endurance test.

Results: Statistical analysis was done using SPSS version 22.0. Kolmogorov Smirnov test was used for assessing normality. As the data was not normally distributed, Mann-Whitney U test was used for data analysis by comparing the values of strength and endurance of the cervical flexors muscles. The statistical significant result was set if p-value ≤0.05.

Conclusion: There was a statistical significant difference in the strength and endurance of cervical muscles in chronic neck pain patients. The finding of this study suggests that decreasing strength and endurance of neck flexor muscle will contribute to the neck pain and disability.Avoiding fear response commonly seen in the neck pain patients which leads to reduction of muscle strength and endurance.

Keywords: Cervical dysfunction, Neck pain, Tissue overload.

Abstract-227

Role of Combined Agility and Balance Training on Reducing Injury Risk in Basketball Players: A Systematic Review

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ABSTRACT

Introduction: Basketball is a fast-paced game that requires extreme physical activity including quick movements, sharp direction changes and frequent jumps. These physical demands results in various injuries specially in ankle and knee joints. To reduce the risk of these injuries, combined agility and balance training is seen highly effective. Agility is the ability to move quickly and change direction easily, Agility is correlated with several trainable physical attributes, including technique, strength, endurance, power and cognitive components. Balance is defined as ability to maintain stability and control of the body, especially while performing movements or standing.Balance refers to maintaining the body's centre of gravity over the base of support by neuromuscular responses in response to continuous visual, vestibular, and somatosensory feedback.

Aim: The aim of this study is to discover the role of combined agility and balance training to prevent injuries and other musculoskeletal impairments among basketball players. Improving balance and agility contributes in improving stability, functions and athletic performance. Materials and Methods: Online databases like PubMed, Google Scholar and Cochrane were searched for articles published between 2010 to 2024. The search term such as "Agility: Balance training, Basketball player,reducing injury on basketball, using Boolean operators AND, OR. All the articles were randomised controlled trial, and were included in English language and other language were excluded.

Results: A total of 58 articles were revived from different sites, out of which only 10 articles were found to meet the inclusion criteria. The results showed a significant decrease in rates of injuries and marked enhancements in performance among the basketball players who underwent combined agility and balance training. It also showed overall improved balance and agility in subsequent tests.

Conclusion: This review concludes that combined agility and balance training plays a pivotal role in preventing injuries and enhancing performance in basketball players. By focusing on these skills' basketball players can improve their physical resilience, enhance their performance, and remain healthier throughout the sports season.

Keywords: Atheletic performance, Cognitive, Physical resilience

Abstract-228

Role of Transverse Abdominis Muscle in Trunk Biomechanics: A Critical Review

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ABSTRACT

The Transverse Abdominis (TrA) is the deep abdominal muscle with a transverse fiber arrangement, known to have an anticipatory activation before any bodily movement, and has a role in the stabilisation of the lumbar and pelvic area. Although we have a general understanding of the abdominal muscle in the biomechanical component of the trunk, the role of TrA is not completely understood. This critical review thus aims to exploreand outline the role of TrA in various biomechanical functions of the trunk including trunk rotation,inter-abdominal pressure, stability, and respiration. A comprehensive literature search was conducted to identify full-text articles exploring the role of TrA in trunk biomechanics, published in English across PubMed, EMBASE, EBSCOhost, and Cochrane Library between 2014 and 2024. Keywords like 'Transverse Abdominis', 'Trunk Rotation', 'Trunk Motion', and 'Electromyography" were used as the search terms along with Boolean operators (AND, OR). Eligibility for inclusion was not restricted by any demographic or study design considerations. A total of 6 studies were identified and analysed to summarise the role of TrA. The review found that the TrA activation increases ipsilateral trunk rotation and helps in thoracolumbar and pelvic stability rather than initiation of the movement. During the perturbation and limb movement, through various reflexive mechanisms, TrA acts as a respiratory muscle and spinal stabilisation is secondary to it. The selective exercise for deep abdominal muscle and lumbar stabilisation exercise help in improving the thickness of TrA resulting in stabilisation of the lumbar region and posture. The TrA increases intra-abdominal pressure resulting in the extension of the lumbar vertebrae resulting in increased chest mobility as well. To conclude, findings suggest that TrA plays a crucial role in trunk rotation, stability, and respiration. While this review highlighted the multifaceted role of the TrA in trunk biomechanics, further research is warranted.

Keywords: Abdominal muscles, Biomechanical phenomena, Lumbosacral region, Posture, Respiratory muscles

Abstract-229

Influence of Leg Length, Trunk Length and Hydration Levels on Hamstring Flexibility among School going Adolescents: An Observational Study

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ABSTRACT

Introduction: Hamstring flexibility is an essential component of physical fitness that contributes to posture, reduces musculoskeletal injury risk, and enhances athletic performance in adolescents. While age and physical activity levels are known to affect flexibility, the impact of leg length, trunk length and hydration levels is secondary understood in this population.

Aim: This study aims to investigate the influence of leg length, trunk

length and hydration levels on hamstring flexibility among school-going adolescents aged 13 to 17 years.

Materials and Methods: A cross-sectional study was conducted with 250 adolescents (131 males, 119 females). Hamstring flexibility was assessed using the V Sit and Reach Test. Body proportions, including leg and trunk lengths, were measured using standard anthropometric techniques. Hydration status was evaluated with the NIRUDAK scale, which considers fluid intake, urine colour, and physiological markers. Descriptive statistics and Spearman correlation analysis were used to explore relationships between these variables.

Results: There were weak and non-significant correlations between hamstring flexibility and body proportions, such as leg length and trunk length (Rho=-0.107) and (Rho=-0.108). However, a significant positive correlation was found between daily water intake and hamstring flexibility (Rho = 0.474, p = 0.001). Dehydration showed a strong negative correlation with flexibility (Rho = -0.776, p = 0.001), indicating that increased dehydration levels are associated with reduced hamstring flexibility.

Conclusion: Hydration has a notable impact on hamstring flexibility in adolescents, while leg and trunk length show no significant effect. These findings highlight the importance of adequate hydration for maintaining optimal flexibility and provide insights for educators and clinicians to design effective physical education and rehabilitation programmes.

Keywords: Adolescents, Body proportion, Hamstring muscle

Abstract-230

Need of Establishing Translation and Cross-cultural Adaptation of Questionnaires/Scales in Hindi: A Study Protocol

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ABSTRACT

Introduction: Translation and cross-cultural adaptation are essential in India due to its linguistic and cultural diversities which makes it crucial. As most of the outcome measures are of English origin, to guarantee that people receive the right information and treatment, validated and reliable medical outcome measures must be accurately translated and culturally adapted according to their needs.India holds officially 22 languages and Hindi is the most outspoken language.

Need for this study: The translation and cross-cultural adaptation research will provide a valid and reliable tool for assessing outcomes in patients, improving accessibility and its clinical implication to reduce health disparities, and fosters education and empowerment.

Aim: To establish the importance of translation and cross-cultural adaptation of various assessment questionnaires/scales in Hindi language for population in India.

Methodology: Guidelines given by Beaton's are recommended as a core guide for translation process where an assessment questionnaire/scale is translated into the target language by the 2 translators during the first stage of forward translation (R1 and R2). A common translation, R-12 will be synthesised, and is sent for backward translation. The Draft R-12 will be forwarded for Delphi survey. This questionnaire/scale will further proceed for pretesting and final testing. Cross-cultural adaptation enables therapist to modify the cultural behaviours according to the need of the people to perform better. As it improves validity and dependability. Additionally, it is designed for culturally appropriate intervention and successful communication.

Keywords: Cross-cultural comparison, Cultural diversity, Cross-sectional studies, Outcome assessment, Surveys and questionnaire

Abstract-231

Application of Rancho Los Amigos Level of Cognitive Functioning in Brain Injury: A Narrative Review

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ABSTRACT

Brain injury is any injury to the structure and function of the brainand is categorised into Traumatic Brain Injury (TBI) and non-traumatic brain injury. TBI and ischaemic stroke are often the main causes of altered consciousness and cognitive impairments. The Glasgow Coma Scale (GCS) is a reliable instrument for detecting changes in consciousness as an initial indicator for recovery or neurological impairment. The Rancho Los Amigos Level of Cognitive Functioning Scale also called the Rancho scale, is a well-known medical scale that analyses the behavioural patterns and cognitive functions observed in patients following brain injury during their recovery.It is often used with GCS in initial assessment, but unlike GCS, it can be employed throughout the recovery.The level of cognition is crucial for the physiotherapist to determine their physical and cognitive status, enabling early recovery. A review is needed to gather further information and to identify the research gap yet to be explored. A literature search was conducted in databases (PubMed, Cochrane Library, and PEDro) using search terms Rancho Los Amigos scale, LOCF, cognitive recovery, TBI, and brain injuries employing Boolean operators (AND, OR). Studies published between January 2014 and December 2024 and articles published in English were included. A total of 2102 articles were available in the databases, of which only 5 studies met the inclusion criteria for this research study. Level of cognitive function along with physical examination helped track recovery, predict outcomes, and guide clinical decision-making.It is limited by its focus on specific areas and potential observation subjectivity.

Keywords: Brain injuries, Cognition, Consciousness, Glasgow coma scale.

Abstract-232

Foot Deformities in Football Players: A Narrative Review

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ABSTRACT

Football being a globally celebrated sport, poses tremendous physical demands on footballers leading to multiple stress injuries. Profound stress due to repetitive impacts, rapid manoeuvring on field and long hours of game time leads to a wide range of foot deformities like hallux valgus, pes planus, plantar fasciitis and claw toes. These deformities not only affect the game play and athletic performance but also expose the athlete to chronic challenges related to health. This review was taken up to examine the prevalence, aetiology, causative factors and strategies to manage the foot deformities in football players. Review used assorted studies focussing on primary/intrinsic (foot anatomy) and secondary/extrinsic (field type, footwear, training, playing conditions) factors in consideration, owing to foot deformities. An exhausting data search was carried out on various databases like Ovid, Scopus, Pubmed, Cochrane etc. to filter out the studies done on footballers suffering from foot deformities as an occupational hazard. Football as a sport uses repetitive patterns like kicking, jumping, sprinting which may be a contributing factor to these deformities. Modifiable factors including footwear, arch support, ill fitted cleat, dehydration, inadequate training are also found to be adding to foot deformities development. This review also highlights the role of strength and flexibility training along with customised shoe wear and orthotics to maximise the athletic performance. Use of specialised cutting edge diagnostic tools like 3D gait analysis, pressure mapping is showing good potential in prognosticating these injuries and should be studied more in this aspect in future researches.

Keywords: Atheletic performance, Hallux valgus, Multiple stress injuries

Abstract-233

Study Protocol for Efficacy of Medicine Ball Exercise on Throwing Performance in Racket Sports

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ABSTRACT

Introduction: Racket sports, including racquetball, badminton, table tennis, squash, and tennis, have experienced global popularity and are still growing. These sports demand a variety of skills, including power, strength, agility, and coordination, particularly while throwing or hitting.Practicing with medicine balls allows players to mimic strong, sequential, and rotating motions like striking and throwing during a game.Medicine ball workouts include twisting, turning, and bending motions that are not typically included in regular strength exercises. Medicine balls can weigh anywhere from 1 to 30 pounds.

Need for this study: The study will assist in assessment of the medicine ball exercise efficacy using speed, smash velocity and accuracy.

Aim: The aim of this study is to evaluate the efficacy of medicine ball exercise on throwing performance in racket sports.

Methodology: In this study, badminton players aged 18-25 years, both male and female, with 1-2 years of experience will be included. Players will be excluded with recent fractures, surgery before 6 months, and with any musculoskeletal injury. The MCID score and the standard deviation from the pilot experiment will be used to determine the study's sample size. Simple random sampling will be performed for sampling. Selected players will be included for medicine ball exercises such as one-handed medicine slams, medicine ball squats and throws, standing side throws, chest passes, back throws, and frontal or side reaches. The outcome variables are speed, smash velocity, and accuracy.

Keywords: Medicine ball squats and throws, One-handed medicine slams, Smash velocity, Standing side throws

Abstract-234

Physiotherapy Approaches for Managing Shin Splint in Marathon Runners: A Narrative Review

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ABSTRACT

Medial Tibial Stress Syndrome (MTSS), often known as shin splints, is a common injury among marathon runners that is characterised by pain along the tibia, or inner part of the shinbone and now a days shin splints are common in marathon runners. It occurs due to overuse injury among marathon runners, and characterised by pain and discomfort along the medial tibial border (lower leg). In this injury, physiotherapy plays an important and crucial role to manage the shin splints. This narrative review explores various physiotherapy approaches for managing shin splints, generally focussing on conservative and evidence-based interventions. Key strategies include activity modification, cryotherapy, and Kinesio taping, which provide pain relief and improve postural control. Biomechanics adjustments, such as the use of orthotics and transitioning to a heel-toe running style, are shown to reduce tibial stress. Strengthening and stretching exercises target the tibialis posterior and anterior muscles to enhance flexibility and prevent recurrence. Novel techniques, such as cupping therapy, improve circulation and reduce muscle tightness, while Transcutaneous Electrical Nerve Stimulation (TENS) aids in pain management. Although shock-absorbing insoles and supportive footwear show promise, evidence for their long-term efficacy remains inconclusive. Combining modalities, such as kinesio taping and structured training programmes, offers a comprehensive management strategy. This review highlights the importance of a tailored, multidisciplinary approach to alleviate symptoms, prevent recurrence, and optimise performance in marathon runners with shin splints. Further research is needed to evaluate the long-term benefits of these interventions.

Keywords: Kinesio taping, Marathon runners, Shin splints.

Abstract-235

Physiotherapy to Reduce the Sarcopenia in Patient with Type II Diabetes Mellitus: A Narrative Review

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ABSTRACT

In 2019, International Diabetes Federation (IDF) was estimated that 77 million persons suffered with Type 2 Diabetes Mellitus (T2DM) in India and according to the Asian Working Group for Sarcopenia (AWGS) criteria, a 22% prevalence of sarcopenia has been reported. Sarcopenia and T2DM, both are more prevalent with aging which increasing the chances of long term complications, hospitalisations, frality and premature death. The risk of developing sarcopenia is 3 to 16 times more in patients with T2DM diabetes. Sarcopenia refers to the declining in skeletal muscle mass and muscle function with age. Approximately, 80% glucose clearance is primarily done by glucose transporter 4 (GLUT 4) which is present in skeletal muscles. The chance of developing T2DM is increased due to decreased efficiency of glucose uptake with age. The aim of this study is to synthesise and outline the current research studies using physiotherapy interventions to decrease the sarcopenia in patients with T2DM. A literature from 2015 to 2024 was searched on PubMed, Google Scholar, Scopus and PEDro with the keywords like "Physiotherapy AND Sarcopenia", "Type II diabetes mellitus AND sarcopenia", "Body composition and sarcopenia", "Exercise AND sarcopenia" which resulted in 671 Articles were retrieved, and from this 31 Articles we have include in our study. Exercises include strengthening exercise, sandbag exercises helps in increasing muscle mass, strength, functional capacity; and aerobic exercises will enhance the physical performance by improving cardiovascular health, metabolic function, and endurance in T2DM patients with sarcopenia. Blood Flow Restriction (BFR) training shows more significant result as compare to resistance exercises. BFR a promising approach which restrict flow of blood to the muscle during low intensity exercise; helps in improving muscle growth and strength. Pilates is an innovative version of exercises and Virtual Reality (VR) engage patient in immersive environment; shown to be beneficial in reducing sarcopenia by improving strength, balance, coordination and muscle stability. Neuromuscular Electrical Stimulation (NMES) can be used as adjunct to strength training in patients who are unable to perform exercises due to mobility issues. This review highlighting the significance of personalised, evidence based exercise programme customised according to the patient's need.

Keywords: Blood flow restriction, Endurance, Neuromuscular electrical stimulation.

Abstract-236

Effect of Shockwave Therapy on Neck Pain in Patients with Levator Scapulae Syndrome: A Pilot Study

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ABSTRACT

Introduction: Levator Scapula Syndrome (LSS) can be defined as motor, sensory, and autonomic symptoms that cause by Myofascial Trigger Points (MTrPs) in levator scapulae muscle that are associated with a hypersensitive palpable nodule in taut bands. The prevalence of LSS among beauticians is 38.5%. LSS is characterised by pain, stiffness in cervical and upper thoracic region, with decreased Range of Motion (ROM) and tenderness on palpation of superior angle of scapula.

Aim: To examine the effect of shockwave therapy on neck pain in patients with LSS.

Materials and Methods: Twelve patients with neck pain due to trigger point in levator scapulae muscle will be recruited by convenient sampling method. The patients aged between 20 to 40 years with trigger point in levator scapulae muscle were included in this study. The exclusion criteria include: epilepsy, traumatic injury of cervical vertebra, surgery affecting the cervical spine, cervical herniated discs, ankylosing spondylitis and rheumatoid arthritis. The participants were divided into two groups, Group A received shock wave therapy and Group B received conventional Transcutaneous Electrical Nerve Stimulation (TENS) therapy. Pain intensity was measured by NPRS scale, Pressure Pain Threshold (PPT) by algometer and quality of life by Neck Disability Index before and after the intervention.

Results: The results were analysed based on the pre and post values of the outcome measure i.e. NPRS, PPT and Neck Disability Index.Shapiro-wilk test was used as a normality test as total number of participants will be less than 50. SPSS version 22.0 was used for data analysis and paired t-test was used for within group analysis and unpaired test was used for between group analysis.

Conclusion: The findings of the study conclude that shock wave therapy reduce pain, tenderness and improve quality of life in patients with LSS. Group A showed statistical significant results as compare to Group B. The pain pressure threshold was also reduced after the four weeks shock wave intervention protocol.

Keywords: Neck pain, Scapula, Trigger points.

Abstract-237

Prevalence of Obstructive Sleep Apnoea among College going Students: A Study Protocol

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ABSTRACT

Introduction: Obstructive Sleep Apnoea (OSA) is a sleep disorder defined by partial or complete obstruction of the upper airway during sleeping. Occasional episodes of hypopnoea and/or apnoea are caused by the upper airways collapsing due to the change in airway muscle tone during sleep, which primarily occurs during the inspiratory phase of breathing.

Snoring, sleep problems, and exhaustion during the day are common symptoms. The majorities of OSA patients are obese, at high cardiovascular risk, and have other cardio metabolic co morbidities.

OSA is most commonly treated with Continuous Positive Airway Pressure (CPAP). Other treatments for OSA include positional therapy, aerobic exercise, Orofacial Myofunctional Therapy (OMT), lifestyle modifications, and Transcutaneous Electrical Nerve Stimulation (TENS).

Need for this study: This simple and user-friendly tool aims to effectively evaluate individuals who could be at risk for OSA. It offers a rapid and accurate way to find people who can benefit from additional assessment or intervention.

Aim: The aim of the study is to assess the prevalence of OSA among overweight college going students using STOP-BANG questionnaire.

Materials and Methods: Students from university having Body Mass Index (BMI) more than 25 kg will be participating in this study. The STOP-BANG questionnaire will be used as the outcome measure. Those who meet the inclusion criteria will be given OMT, TENS, aerobic exercise, positional therapy, CPAP, and lifestyle change.

Keywords: Continuous positive airway pressure, Partial obstruction, Transcutaneous electrical nerve stimulation.

Abstract-238

Effectiveness of Scapular Retraction Exercises on Forward Head Posture: A Narrative Review

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ABSTRACT

Forward head posture is the anterior positioning of the cervical vertebrae, which is characterised by the extension of the upper neck bone. This condition can lead to musculoskeletal discomfort, particularly in the neck and shoulders, and is often caused by muscle imbalances, poor ergonomics, and prolonged static postures.This posture leads to structural changes and degeneration of the neck muscles by reducing the dispersion of biomechanical loading. This condition has been exacerbated by the increasing use of devices like smart mobile phones and computers for long periods of time in a bad cervical posture. It is common in university students and working professionals. The aim of this narrative review is to explore the effect of scapular retraction exercises in forward head posture. The present study includes all the databases collected from Google Scholar and PubMed from the year 2019-2024 with the keywords “Forward head posture”, “Scapular retraction exercise”, “students”, and “general population” with the result of 18190 articles. Only three Randomised Controlled Trials (RCTs) remained after the duplicate article removal. A total of 180 participants participated in these three recruited RCTs with the outcome measures being forward head angle (≥ 20°), cervical range of motion, neck disability index, shoulder pain and disability index with an average of 4-week shoulder retraction exercise intervention. All three studies suggest that scapular retraction exercises can positively impact both cervical spine alignment and shoulder posture by strengthening the rhomboids, middle trapezius, and lower trapezius muscles, which are critical in stabilising the scapulae and counteracting forward head displacement.Overall scapular retraction exercises are very effective and improve the forward head posture, reduce the forward head angle, strengthen the neck muscle and are effective in forward head posture pain.

Keywords: Anterior positioning, Biochemical loading, General population, Student

Abstract-239

Revolutionising Cancer Cachexia Care: Virtual Reality Interventions for Enhanced Patient Outcomes

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ABSTRACT

Cancer cachexia is a debilitating condition which leads to wasting of muscles, weight loss, and a decline in quality of life. Cancer cachexia is a multifactorial condition that leads to enhanced functional impairment and is defined by an ongoing loss in skeletal muscle mass that is not fully reversed by conventional nutritional treatment. It is necessary to diagnose or treat refractory cachexia early as associated muscle wasting is not completely understood. This highly impacts the patients' Quality of Life (QoL). Exercise Rehabilitation proves to be an effective management strategy to improve QoL. This includes aerobic, resistance, flexibility, and neuromuscular training. Exercise rehabilitation has been shown to significantly improve Cancer-Related Dysfunctions (CRDs). Virtual Reality (VR) is a software application that allows users to navigate through and interact with a virtual environment nearly in real time. Virtual Reality (VR), exercise, nutritional therapy, psychosocial assistance, and pharmacological therapy are the interventions involved in cancer cachexia intervention. The aim of the study is to figure out the impact of VR based interventions on improvement of outcomes of patients suffering from cancer cachexia. This review utilised PubMed, Google Scholar, and Cochrane to search relevant full texts literature and identified 30 studies from the last 10 years comprising randomised controlled trials, qualitative studies, and systematic reviews. After removing duplicates, 15 articles were found to be pertinent to the review.Patients who went through VR based intervention showed a significant improvement in muscle strength, functional ability and overall QoL. This review finds that interventions using VR gave significant promise to the intervention of cancer cachexia, the condition that severely affects cancer patients' quality of life by causing fatigue, muscle wasting.

Keywords: Functional ability, Muscle strength, Patient outcomes

Abstract-240

Effect of Physical Activity on Modulation of Gut Microbiome in Patients with Alzheimer's Disorder

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ABSTRACT

Alzheimer's Disease (AD) is a neurodegenerative disorder with the hallmark of neuropsychiatric symptoms and neurodegenerative dysregulation. Recent researches have suggested that gut microbiome can influence the pathological pathways and progression of AD. All qualitative and quantitative alteration in gut microbial composition can potentially contribute in progression of the AD. Physical Activity (PA) has become a potent strategy for preventing cognitive decline and lowering chronic inflammation. PA also causes notable alterations in gut microbiota composition, functionality, diversity, and Short-chain Fatty Acid (SCFA) production. Physical stress and cognitive abilities are positively correlated in both AD patients and the elderly. Physical activities can be carried out with relatively easy and affordable methods, and even brief interventions that occur seldom appear to have beneficial effects. This review aims to examine the existing evidence to find the effect

of physical activity on modulating gut microbiome and its implication for the progression of AD. The literature search was conducted from various databases including PubMed, PEDro, and Cochrane. This review includes findings from 8 studies which suggest that exercise-induced alterations for the treatment of gut dysbiosis can alleviate the symptoms of AD and improves physical health and psychological wellbeing of patient. Furthermore, exercise has a major impact on gut microbiota.

Keywords: Alzhiemer disease, Exercise, Gastrointestinal microbiome, Neurodegenerative disease

Abstract-241

Review of Various Tools Available to Assess Sleep Quality

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ABSTRACT

Sleep quality is a crucial clinical concept since people frequently report poor sleep quality and its impact on daily functioning. Poor sleep quality is a common sign of various medical and sleep disorders. Objective measures of sleep quality, such as polysomnography, are costly, time-consuming, and unsuitable for epidemiology and research studies, making them inaccessible to many practitioners. However, a number of self-report questionnaires have been developed. This review focusses on the psychometric qualities, concept validity, and factorial structure of sleep quality questionnaires. It compares and discusses their measuring features. This narrative review covered a total of 20 articles. Article were searched from PubMed(12), Scopus(4), PEDro(2), Cochrane library(2). Twenty papers were examined, comprising eight reviews, two experimental studies, three observational studies, five cross-sectional studies, and two surveys. An evaluation of 20 studies that used Polysomnography (PSG), Electroencephalogram (EEG)-based methods, actigraphy, clinician observation, and patient-reported questionnaires was performed. Key findings include the need for standardised criteria for scoring PSG in patient, who commonly have aberrant brain wave patterns. The quantity, sample size, and duration of existing research limit the ability to provide meaningful recommendations for EEG-based measurements and actigraphy. Clinicians should use the Sleep Observation Tool to monitor sleep, and the Richards Campbell Sleep Questionnaire to measure patients' views of sleep quality. To assess the success of programmes to prevent sleep loss, sleep assessment instruments must be trustworthy and valid. There has been significant progress in creating, testing, and applying these techniques in the people. We advocate doing large, multicentre intervention studies to assess many components of sleep and provide additional information on the instruments' reliability, validity, feasibility, and sensitivity. In addition, we support the development of new technologies to improve the functionality and precision of existing tools.

Keywords: Electroencephalogram, Polysomnography, Sleep disorder.

Abstract-242

Circular Training's Function in Post-anterior Cruciate Ligament Tear Rehabilitation: Evaluating How Well it Restores Strength, Mobility, and Endurance

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ABSTRACT

An Anterior Cruciate Ligament (ACL) tear is a potentially fatal injury that frequently necessitates surgery and prolonged recovery. Strength, mobility, and endurance exercises are all part of circular training, a planned programme that has gained popularity as a successful recovery technique. Circular training incorporates several rehabilitation objectives into dynamic, time-efficient sessions, in contrast to standard therapy procedures. The aim of the study is to assess the role that circular training plays in helping people who have had ACL repair regain their strength, mobility, and endurance. By combining previous research and methods, this investigated the function of circular training in the recovery process following an ACL tear. It included activities like resistance training (leg presses, squats), dynamic stretches, and low-impact cardio (cycling, elliptical) and concentrated on how well circular training restored strength, mobility, and endurance. With consideration for patient-reported adherence and difficulties, the review focused on important results, such as increased cardiovascular endurance, knee Range of Motion (ROM), and quadriceps and hamstring strength.Circular training considerably enhanced post-ACL tear healing, according to the review. Through low-impact aerobics, participants saw improvements in knee range of motion, increased muscle strength, particularly in the quadriceps and hamstrings, and greater endurance. Strength, mobility, and endurance were successfully restored by the organised exercise. Strength, mobility, and endurance are all improved by circular training, which is a successful rehabilitation technique for recovering from an ACL damage. It offers a thorough approach to healing by combining low-impact cardio, mobility work, and resistance workouts.

Keywords: Leg presses, Muscle recovery, Resistance exercises.

Abstract-243

Physiotherapy Intervention in Posterior Cruciate Ligament Injury: A Narrative Review

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ABSTRACT

Posterior Cruciate Ligament (PCL) is one of the major ligaments in the knee and plays a crucial role in stabilising the joint.It is the biggest and strongest ligament in the knee joint. In addition to providing anteroposterior consistency, the ligament also serves as a buffer against rotational, varus, and valgus forces. The main objective of this review is identify the significant effects of physiotherapy intervention on the patient with PCL injury. For determining full text publications, databases comprising PubMed, Cochrane, Google Scholar, and Scopus were searched for articles published between 2015 to 2024. The evidence-based reviews, follow up studies and a prospective randomized trial studies in English were browsed, including 975 papers that qualified for full text and 567 articles were eliminated because they contained duplicates. A total of 299 abstract and titles were assessed, out of those, 100 were removed due to other treatment. This review entailed 9 published articles. This study found that physiotherapy and conservative management can lead to maximum stability in an individual with PCL. According to the study, post operative management of the PCL injury could lead to minimum damage and enhance stability. Patients following physiotherapy intervention had shown gradual improvement in the condition. During the rehabilitation process, the physical therapy is a key component of PCL injury rehab. In conclusion, physiotherapy helps to strengthen the muscles around the knee, increase adaptability, and regain movement range, focussing on pain management, restoring function and strength, improving proprioception, facilitating a safe return to activity, and empowering patients with the knowledge and skills for long-term joint health.

Keywords: Knee, Maximum stability, Stabilisation of joint

Abstract-244

Effectiveness of Advanced Non-invasive Electroceutic Interventions on Gait Rehabilitation in Parkinson's Disease: A Literature Review

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ABSTRACT

Gait impairment is a common motor dysfunction in Parkinson's Disease (PD) marked by dragging feet, shorter steps, and slower walking, often leading to disability and poor quality of life. Noninvasive Brain Stimulation (NIBS) techniques like repetitive Transcranial Magnetic Stimulation (rTMS) and transcranial Direct Current Stimulation (tDCS) have shown promising results in addressing these issues by modulating cortical excitability. These painless methods target reduced activity in premotor and primary motor regions, with tDCS also influencing basal ganglia function through a distributed cortical network. This study synthesises current literature on the effectiveness of advanced non-invasive interventions, such as rTMS and tDCS, in improving gait rehabilitation in PD patients. An initial search across databases including PubMed, Google Scholar, Scopus, and the Cochrane Library yielded 22,004 studies using keywords like "transcranial direct current stimulation," "transcranial magnetic stimulation," "gait," and "Parkinson's disease," combined with Boolean operators AND and OR. However, only five studies met the inclusion criteria, specifically assessing the effectiveness of these interventions in this population. The reviewed literature primarily focussed on gait and related parameters, employing outcome measures such as the Timed Up and Go (TUG) test, Unified Parkinson Disease Rating Scale (UPDRS), 10-minute walk test, and 6-minute walk test. Two studies found no statistically significant differences ($p>0.05$) between the tDCS with gait training group and the sham group, while one study highlighted the potential effectiveness of combining anodal tDCS with gait training in improving balance, leaving the evidence inconclusive. Additionally, two studies assessed rTMS, with one demonstrating that frequencies of 1 Hz and 25 Hz were more effective than sham treatment, while the other showed that 10 Hz rTMS improved gait outcomes in PD patients. Future high-quality trials with larger participant samples and long-term assessments are needed to provide more conclusive evidence on the effectiveness of tDCS and rTMS in gait rehabilitation for PD. Comparative studies exploring different frequencies and stimulation protocols are essential to identify optimal treatment strategies. Such research will help establish robust clinical guidelines for non-invasive brain stimulation in this population.

Keywords: Cortical excitability, Transcranial Direct Current Stimulation, Transcranial Magnetic Stimulation

Abstract-245

Evaluating the Role of the Buteyko Breathing Technique in Asthma Management: A Narrative Review

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ABSTRACT

Asthma is a chronic respiratory condition characterised by airway inflammation, hyperresponsiveness, and recurring symptoms. The Buteyko Breathing Technique (BBT) is an eminent technique that helps to improve asthma control. This narrative review aims to consolidate existing evidence on the efficacy and safety of BBT in managing asthma symptoms, focussing on its impact on symptom severity, asthma control, pulmonary function, and medication use. A comprehensive literature search was conducted in PubMed, Google Scholar, and other relevant databases to identify studies investigating the effects of BBT on asthma. Studies included randomised controlled trials, observational studies, and case reports. The evidence consistently demonstrated that BBT significantly improves asthma symptoms and control. Pulmonary function improvements, such as increased FEV1 and PEFR, were noted in some studies, while others showed no significant changes. Comparative studies highlighted the superiority of BBT over other techniques in improving asthma control and quality of life. Methodological limitations, such as small sample sizes and short durations, were noted across several studies.BBT shows promise as an adjunct therapy for asthma, improving symptoms and reducing medication use. Larger, long-term trials are needed to confirm its efficacy and uncover its mechanisms.

Keywords: Asthma control, Breathing exercises, Pulmonary function

Abstract-246

The Effect of Blood Flow Restriction Training on Quadriceps Strength Recovery in Postsurgical Rehabilitation after Knee Joint Surgeries: A Systematic Review Protocol

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ABSTRACT

Introduction: Blood Flow Restriction Training (BFRT) and exercises are a training method that is characterised by the use of specialised tourniquets and cuffs to restrict venous blood flow during the exercise in the working limb to increase metabolic stress. Traditional high-load resistance training may not be appropriate in the early phases of recovery because of joint stress, although it is beneficial in regaining muscle strength. This problem is addressed by BFRT, which enables patients to develop their muscles significantly at lower loads, lowering the mechanical stress on healing tissues and accelerating recovery.

Need for this study: This review will synthesise current literature to provide evidence-based recommendations for integrating BFRT into clinical rehabilitation protocols, ultimately enhancing recovery outcomes for knee surgery patents.

Aim: This review aims to consolidate existing evidence on the effectiveness of BFR training in post-knee joint surgery rehabilitation.

Materials and Methods: This systematic review is formally registered within the PROSPERO Database (PROSPERO ID CRD42024621803) and aims to consolidate existing evidence on the effectiveness of BFR training in post-knee joint surgery rehabilitation. Observing PRISMA guidelines, a structured search will be conducted across databases like PubMed to identify randomised controlled trials comparing BFRT to standard rehabilitation protocols in knee surgery patients.The data extraction will primarily focus on strength improvements assessed through functional tests, such as terminal knee extension and sit-to-stand performance and also considering secondary outcomes, including thigh circumference, range of motion, and pain levels while evaluating the impact of BFRT by specifically examining quadriceps strength, pain management, functional performance, and quality of life, postoperatively.

Keywords: Hypertrophy, Knee joint rehabilitation, Knee joint surgeries, Quadriceps muscle strength.

Abstract-247

Ergonomic Interventions and Technology-assisted Physiotherapy for Text Neck Syndrome: A Synergistic Approach

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ABSTRACT

The appellation “text neck” refers to the discomfort and distress to the neck that results from staring down at a cell phone and excessive use of tablets or other wireless devices for too long. Recent analysis indicates that among 18- to 44-year-olds, 79% are almost always within reach of their mobile phones, with only about two hours daily spent apart from them. In order to enhance patients' emotional responses, body image, and physical function, Virtual Reality (VR) and Augmented Reality (AR) have been integrated with psychological and physical rehabilitation therapies. The main emphasis of the present investigation is on scrutinising the efficacy of ergonomics and physiotherapeutic interventions abetted by technology for addressing patients affected with Text Neck Syndrome.In order to retrieve literature about Text Neck Syndrome, the Cochrane library, PubMed, and Google Scholar databases were reviewed. From an initial pool of 157 potentially relevant articles, forty met the established inclusion criteria for this review and were therefore subjected to in-depth analysis.Combining ergonomic adjustments with motor control exercises proved as effective as pain relief and general exercise in reducing pain and improving function. However, a year later, this combined approach led to significantly greater overall recovery as reported by individuals with Text Neck Syndrome. The discrepancies have been observed, thus underscoring the necessity for further investigation.The present study concludes that providing office workers with highly adaptable seating and ergonomic education is predicted to enhance their ergonomic awareness and abilities, lessen physical burdens and discomfort, and optimize well-being and efficiency. The available evidence strongly suggests that combining Manual Therapies (MTs) with VR and AR has the ability to augment the quality and comprehensiveness of patient care provided by manual therapists.

Keywords: Cervical spine, Ergonomics, Neck Pain, Physical Therapy, Text neck, Virtual reality.

Abstract-248

Physical Activity to Modulate Gut Joint Axis in Microgravity to Prevent Skeletal Health: A Literature Review

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ABSTRACT

Osteoporosis is characterised by decreased absorption of calcium-containing minerals in bones. Metabolic studies suggests that in astronauts, space night is the cause of decreased calcium levels in the body. The gradual reduction in bone mineral density and gut metabolism is associated with the increasing affluence of gut microbiota, suggesting a potential interplay between the gut microbiome and skeletal health and influencing bone metabolism through the immune system and calcium absorption. During spaceflight, the electromagnetic environment changes due to the absence of gravity which plays a role in space induced osteoporosis.The composition, functioning, diversity, and Short Chain Fatty Acids (SCFAs) production of the gut microbiota are all significantly affected by physical activity. Exercise and gut microbiota have a complex relationship, impacting metabolic and muscular performance. Exercise regulates bile acid pools, supporting the host gut microbiota's health and supporting the gut-joint axis.The study aims to address thespace-induced osteoporosis/osteopenia caused by gut bacterial overgrowth. A comprehensive literature search was performed on PubMed, Scopus and Cochrane Library databases between 2015 and 2024 using the keywords (microbiota OR microbiome) AND (microgravity OR physical activity) in this narrative review . The study concluded that in post spaceflight,the abundance of Firmicutes gradually elevated, while the Bacteroides abundance gradually decreased and the spaceflight-induced osteoporosis may be addressed by targeting the gut microbiota. It is analysed that these changes disrupt bone metabolism and influence host metabolic processes, modulating the regulatory metabolites like SCFAs within the gut-bone axis. Hence, provides the evidence of connection between the intestinal microbiome, diet, and physical activity.

Keywords: Astronauts, Bacteroides, Gastrointestinal microbes, Short chain fatty acids.

Abstract-249

Efficacy of Virtual-based Physiotherapy for Chronic Pain Management in Marfan Syndrome: A Systematic Review

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ABSTRACT

Introduction: Marfan syndrome (MFS) is a genetic connective tissue disorder characterised by cardiovascular, musculoskeletal, and ocular complications, often leading to the chronic pain and reduced quality of life. Traditional physiotherapy plays a critical role in managing these symptoms, but virtual-based physiotherapy has emerged as a convenient and accessible alternative.

Aim: This review evaluates the efficacy of virtual physiotherapy in managing chronic pain and improving physical function in individuals with MFS.

Materials and Methods: A systematic review of studies from databases such as PubMed, and Google Scholar was conducted using keywords like this “Marfan syndrome,” “Virtual physiotherapy,” and “Chronic pain”. Inclusion criteria comprised studies that examined virtual interventions for pain management in MFS, while non-virtual or non-MFS studies were excluded.

Results: Virtual physiotherapy interventions demonstrated significant improvements in quality of life, pain reduction, and physical function. Key outcomes included enhanced cardiorespiratory fitness, muscle strength, and flexibility. The programmes were safe, with no adverse

effects reported, and facilitated better adherence due to their accessibility and personalisation.

Conclusion: Virtual physiotherapy is a promising approach for managing chronic pain in MFS patients, offering a safe, effective, and flexible alternative to traditional methods. Further large-scale research is necessary to validate its long-term benefits and establish standardised protocols.

Keywords: Quality of life, Tele-rehabilitation, Virtual physiotherapy.

Abstract-250

Establishing Normative Reference Score of Foot Tapping Test among Healthy College going Students: A Cross-sectional Study

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ABSTRACT

Introduction: The Foot Tapping Test (FTT) is an assessment tool used to evaluate Upper Motor Neuron (UMN) function, particularly in individuals with neurological conditions affecting gait and mobility. However, there is lack of normative values in both healthy and clinical populations regarding the FTT.

Aim: This study aimed to establish normative reference values for the FTT in healthy young adults.

Materials and Methods: A total of 226 healthy individuals (113 males, 113 females) aged 19-24 years were recruited in the study. Participants were asked to perform the FTT in a short sitting position, and anthropometric measurements were recorded.

Results: Data was analysed using IBM SPSS Statistics 26.0. Normality tests were conducted using the Kolmogorov-Smirnov test.Significant variability in foot tap performance was observed across age groups. Those aged 19 years had foot taps range for dominant foot, 12 (14-26) and 9 (17-26) individuals had foot taps range for non-dominant foot, those aged 20 years had 16 (14-30) and 15 (14-29) individuals, those aged 21 years had 18 (20-38) and 23 (17-40) individuals, those aged 22 years had 22 (20-42) and 21 (20-41) individuals, those aged 23 years had 22 (18-40) and 23 (17-40) individuals, while those aged 24 years had 14 (22-36) and 19 (21-40) individuals. While younger participants (19-20 years) exhibited more consistent performance, greater variability was observed in the 21-23-year-old age group.

Conclusion: This study established a normative reference values for the FTT in a healthy young adult population (19-24 years).The findings demonstrate significant variability in foot tap performance across this age group. The findings highlight the importance of considering age-related variability when interpreting FTT results.

Keywords: Gait, Foot tap performance, Upper motor neuron.

Abstract-251

Gut Microbiota and its Influence on Obesity: Physiotherapy as a Non-pharmacological Strategy

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ABSTRACT

Due to its ability to alter adiposity and glucose metabolism, the human gut microbiota has been involved in obesity and related comorbidities. The development of obesity is significantly impacted by gut microbiota metabolites, which are produced by fermentation of food ingredients and bacterial alteration of host molecules. These metabolites play a role in a number of processes that lead to obesity, such as inflammation, altered energy metabolism, and altered gut barrier function. The management of obesity still mostly involves pharmacological and dietary interventions, but physiotherapy provides an additional, non-pharmacological strategy that can use the gut-muscle axis to enhance metabolic results. The aim of this study is to investigate the mechanisms by which gut microbiota contribute to obesity and how physiotherapy can help to curb it. A comprehensive literature search was conducted in which the articles from 2014 to 2024 were included using the search terms "Gut microbiota," "Obesity," and "Rehabilitation," which yielded 11,300 results from various digital databases like PubMed, Google Scholar, Ovid, Web of Science and the Cochrane Library. The search is then further filtered through the inclusion and exclusion criteria. It has been demonstrated that regular exercise, an important component of physical therapy, which can alter the composition of the gut microbiota, and the target physical therapy interventions such as resistance training, aerobic exercise, and core-strengthening regimens, improve gastrointestinal motility, lower visceral fat, and improve insulin sensitivity. While examining the possibility of physical therapy as a therapeutic tool, this review emphasises the dynamic interaction between gut microbes and obesity.

Keywords: Diet, Inflammation, Overweight.

Abstract-252

Effectiveness of Kinesiotaping in Managing Medial Tibial Stress Syndrome in Athletes: A Literature Review

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ABSTRACT

Medial Tibial Stress Syndrome (MTSS) is a common overuse injury affecting athletes, particularly those involved in running and jumping activities. Characterised by pain along the inner edge of the shin bone, they impact the muscles, tendons, and bone tissue in the area. Prevalent among runners and young athletes aged 20 to 30 years, with studies reporting a prevalence rate of 13.6% to 20% in runners, shin splints can significantly hinder performance and overall well-being. This study seeks to review and summarise the current evidence base regarding the effectiveness of kinesiotaping as an adjunct to other interventions, compared to other taping methods, sham taping, or alternative treatments in athletes. A comprehensive search of PubMed, Google Scholar, Scopus and Cochrane Library from 2014 to 2024, using the keywords "kinesiotaping," "shin splints," and "medial tibial stress syndrome" with Boolean operators AND and OR, initially retrieved 492 articles. After removing duplicates, six relevant articles were identified and analysed for further review. Kinesiotaping demonstrated statistically significant improvements ($p<0.05$) on outcome measures such as pain (assessed using Visual Analogue Scale [VAS] and Numerical Pain Rating Scale [NPRS]), navicular heightor drop, plantar pressure distribution (measured using specific foot scan platforms), static balance (using single leg balance tests), dynamic balance (using Y-balance test), postural control, single leg hop tests and sprint tests when compared to sham or placebo taping. However, two studies reported no superior benefits of kinesiotaping over rigid taping. Preliminary evidence suggests that kinesiotaping is effective for managing MTSS. The heterogeneity of outcome measures and the focus on short-term effects limit the ability to draw conclusive evidence on its overall effectiveness. Further, high-quality trials are needed to evaluate the long-term effects of kinesiotaping and compare it with rigid taping or other treatments to provide definitive conclusions.

Keywords: Pain, Postural Balance, Running, Taping.

Abstract-253

Predicting and Modulating Cardiac Autonomic Dysfunction: A Review of Interventions in Hypertensive Patient

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ABSTRACT

Significant health risks are posed by hypertension which is an elevated blood pressure against arterial walls and further influenced by autonomic nervous system. This review aims to address a lacuna in the literature concerning the predictors and modulators of CAF (cardiac autonomic dysfunction) in patients with hypertension, particularly focusing on physiotherapeutic interventions. Taking into account of high prevalence of hypertension and its associated complications, autonomic dysfunction would be manageable by understanding the crucial role of exercises. Databases such as Google Scholar, PubMed, and PEDro were utilised to gather the Randomised Controlled Trials (RCTs) related to prediction and modulation of CAF and related anomalies using the boolean operators to refine the search results, and pertinent studies were selected using a rigorous criteria. After exhaustive search four RCTs involving 364 participants, revealed that various exercise approaches specifically Circuit Weight Training (CT), Aerobic Exercise Training (AExT) and Resistance Training are helpful in modulating cardiac autonomic function in hypertensive individuals and also indicated in the studies that Heart Rate Variability (HRV), sedentary behavior and obesity provide as independent predictors of CAF related anomalies. Particularly, combination of HRV and sedentary lifestyle factors further emphasise their role in autonomic dysfunction. While Breathe-Humming Breathing (BHB) exercises were not observed to have a direct significant effect on CAF, but they may put forth an indirect sway over modulation of HRV. In conclusion, exercise therapy emerges as a promising approach for positively influencing cardiac autonomic function in hypertensive patients. This review warrants inevitability for further such research studies to describe the mechanisms underlying these effects and to optimise the strategies for managing better health outcomes in this population.

Keywords: Aerobic exercise training, Bee-humming breathing, Cardiac autonomic function, Circuit weight training, Hypertention