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PHYSIO CONNECT
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PhysioConnect 6

INTERNATIONAL CONFERENCE

ABSTRACTS BOOKLET

THEME

Breaking Barriers:

Physiotherapy for a Healthier Tomorrow

GLOBAL PERSPECTIVES

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22 FEB 2026

THE NORTHCAP UNIVERSITY, GURUGRAM HARYANA

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Message from the Conference Organising Chairman and Founder of The Mayra Foundation,

DR. SARVOTAM CHAUHAN (PT)

Dear Delegates, Contributors, and Esteemed Colleagues,

It is a privilege to present the Scientific Abstracts Publication of PhysioConnect 6 International Conference, held at **The NorthCap University**, Gurugram, Haryana, on **22nd February 2026**, and proudly organised by **The Mayra Foundation**.

PhysioConnect 6 marked another significant milestone in our journey of advancing physiotherapy as a science and a vital component of modern healthcare. The remarkable participation and the high quality of research submissions reflect the growing commitment of professionals toward innovation, excellence, and evidence-based practice.

The abstracts compiled in this publication embody the essence of this year's theme, **"Breaking Barriers: Physiotherapy for a Healthier Tomorrow."** They highlight progressive ideas, clinical advancements, and research-driven insights that will contribute to shaping the future of physiotherapy and allied health sciences.

This **publication** is not merely a collection of academic work, but a reflection of the collective vision and dedication of a global community striving to elevate standards of care and professional practice. It serves as a valuable resource for learning, inspiration, and continued scientific exploration.

I extend my sincere appreciation to all authors, reviewers, members of the scientific committee, and the organising team for their unwavering efforts in making both the conference and this publication a success.

Wishing you all continued growth and excellence in your professional journey.

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

Message from the Conference Scientific Chairman

PROF. (DR.) NITESH MALHOTRA

Dear Delegates, Researchers, and Esteemed Contributors,

It is with great satisfaction that I present the Scientific Abstracts Publication of **PhysioConnect 6** International Conference, held at The NorthCap University, Gurugram, Haryana, on **22nd February 2026**, proudly organised by **The Mayra Foundation**.

The success of this conference is clearly reflected in the exceptional quality and diversity of research presented. The abstracts compiled in this publication represent a wide spectrum of scientific inquiry, clinical innovation, and evidence-based practice within physiotherapy and allied health sciences.

In line with this year's theme, **"Breaking Barriers: Physiotherapy for a Healthier Tomorrow,"** the research contributions highlight emerging trends, novel methodologies, and interdisciplinary approaches that are shaping the future of rehabilitation and patient care. These studies not only add to the existing body of knowledge but also encourage critical thinking and further exploration in the field.

The scientific review and selection process was carried out with great diligence to ensure academic rigor and relevance. I sincerely appreciate the efforts of all authors for their valuable contributions and commend the reviewers and scientific committee members for their dedication to maintaining high scholarly standards.

This publication stands as a testament to the spirit of inquiry and collaboration that defines the physiotherapy community. We hope it serves as a meaningful resource for learning, reference, and inspiration for future research endeavors.

Warm regards,

Prof. (Dr.) Nitesh Malhotra

Scientific Chairman

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Manav Rachna International Institute of Research and Studies, Faridabad

Message from the Conference Organising Vice Chairman

DR. SHWETA SHARMA

Dear Authors and Esteemed Colleagues,

It is with immense pride and gratitude that I reflect on the successful culmination of **Physio Connect 6**, an inspiring conference centered on the theme **"Breaking Barriers: Physiotherapy for a Healthier Tomorrow."** Organized under the visionary leadership of **Dr. Sarvotam Chauhan** and supported by the dedicated efforts of **The Mayra Foundation**, the event stood as a strong testament to innovation, collaboration, and the evolving role of physiotherapy in modern healthcare.

As the Organising Co-Chairman, it was both an honor and a deeply enriching experience to contribute to an event that brought together distinguished academicians, clinicians, researchers, and students from across the country. The conference served as a dynamic platform for knowledge exchange, skill development, and meaningful discussions aimed at advancing physiotherapy practice.

The theme **"Breaking Barriers"** acted as a powerful call to action, encouraging participants to challenge conventional approaches, embrace interdisciplinary collaboration, and explore innovative strategies to enhance patient care. The sessions were thoughtfully curated, focusing on emerging trends, evidence-based practices, and technological advancements shaping the future of physiotherapy. From insightful keynote addresses to impactful research presentations, every segment added value to a holistic learning experience.

I extend my sincere appreciation to **Dr. Sarvotam Chauhan** for his exceptional guidance and leadership. I also thank all speakers, delegates, and participants for their enthusiastic involvement. Special acknowledgment goes to the organizing team and volunteers for their tireless efforts. **Physio Connect 6** has truly inspired us to continue striving toward a healthier tomorrow.

Warm regards,

Dr. Shweta Sharma

Organising Vice Chairman

Associate Professor

SGT University, Gurugram

Message from the Conference Organising Secretary

DR. POOJA SHARMA

Dear Delegates, Authors, and Esteemed Colleagues,

It is a matter of great satisfaction to present the Scientific Abstracts Publication of PhysioConnect 6 International Conference, held at **The NorthCap University**, Gurugram, Haryana, on **22nd February 2026**, proudly organised by **The Mayra Foundation**.

The success of this conference was driven by the active participation and valuable contributions of researchers, clinicians, academicians, and students from across the country and beyond. The abstracts compiled in this publication reflect the scientific rigor, innovative thinking, and clinical relevance that define the spirit of PhysioConnect.

This year's theme, **"Breaking Barriers: Physiotherapy for a Healthier Tomorrow,"** is well represented through diverse research topics and evidence-based approaches showcased in these abstracts. The compilation highlights emerging trends, interdisciplinary perspectives, and practical insights that will contribute to the continuous growth of physiotherapy and allied health sciences.

The preparation of this publication has been a collaborative effort. I would like to sincerely acknowledge the dedication of the scientific committee, reviewers, and all contributing authors for their commitment to maintaining high academic standards. Special thanks to the organizing team and volunteers whose hard work ensured the smooth execution of the conference.

We hope this publication serves as a valuable academic resource and inspires ongoing research, collaboration, and excellence in practice.

Warm regards,
Dr. Pooja Sharma
Organising Secretary
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Abstract No.: 01

Effect of Blood Flow Restriction Training Combined with Sprint-specific Plyometrics on Strength, Endurance, and Agility in Semi-professional Football Players: A Pilot Study

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

ABSTRACT

Introduction: Football is a high-intensity intermittent sport that involves repeated sprinting, jumping, rapid acceleration, and frequent changes in direction. These demands often lead to muscular fatigue, reduced performance, and delayed recovery. Blood Flow Restriction Training (BFRT) enables low-load exercise to produce physiological adaptations similar to high-intensity training by creating a hypoxic muscular environment. Sprint-specific plyometric drills further enhance neuromuscular coordination and explosive performance. However, limited evidence exists regarding the combined effect of BFRT with sprint-specific plyometric training on functional performance in football players.

Aim: To evaluate the effects of BFRT combined with sprint-specific plyometrics on strength, endurance, and agility in semi-professional football players through a 4-week study.

Materials and Methods: Ten male semi-professional football players aged 18-30 years were randomly assigned to the control group (n=5) and the experimental group (n=5). Both groups trained three times per week for four weeks. The control group performed sprint-specific plyometric drills with SHAM BFRT, while the experimental group performed BFRT combined with sprint-specific plyometric drills. Outcome measures included vertical jump height, the Illinois agility test, and the wall sit endurance test. Pre- and post-intervention data were analysed and presented as mean±SD.

Results: Baseline values were comparable between the groups. After four weeks, the experimental group demonstrated greater improvements across all outcome measures compared to the control group. Vertical jump height increased from 149.6±2.1 to 151.0±1.6 cm in the control group and from 158.8±2.6 to 168.8±2.6 cm in the experimental group. Illinois Agility Test performance improved from 20.26±0.24 to 20.04±0.19 s in the control group and from 19.30±0.22 to 18.30±0.22 s in the experimental group. Wall-sit endurance increased from 300.0±7.9 to 310.0±7.9 s in the control group and from 332.4±5.6 to 375.0±7.9 s in the experimental group. No adverse events were reported during the intervention period.

Conclusion: The findings of this pilot study suggest that combining BFRT with sprint-specific plyometric drills may be a safe and effective low-load training strategy to improve strength, endurance, and agility in semi-professional football players. The observed improvements support the feasibility of this intervention and indicate the need for larger randomised controlled trials to confirm its effectiveness.

Keywords: Illinois agility test, Low-load exercise, Vertical jump height, Impact of blood flow, Restriction training on muscle fatigue, Strength and Running.

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Abstract No.: 02

Performance in Recreational Runners: A Pilot Study

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

ABSTRACT

Introduction: Recreational running has cardiovascular and musculoskeletal benefits, but muscle fatigue from prolonged or repetitive running may lead to reduced performance and slower recovery. Blood Flow Restriction Training **(**BFRT) creates a hypoxic muscle environment, allowing for low-load exercise to mimic the physiological responses of higher-load strength training. BFR training has shown promise in strength training and rehabilitation, but there are currently few published studies examining BFRT and its effect on muscle fatigue and performance in recreational runners.

Aim: To evaluate the effects of BFRT on muscle fatigue and physical performance in recreational runners.

Materials and Methods: Eighteen male recreational runners aged 20 to 35 years were randomised into a control group (n=9) and a BFRT group (n=9). The control and BFR groups trained three times a week for four weeks. Blood lactate, 1-RM squat strength, 12-minute Cooper test distance, and single-leg sit-to-stand endurance were measured pre-test and post-test. Values are presented as means±Standard Deviations (SD).

Results: The group's base data was recorded. At four weeks, we saw post-exercise lactate levels drop in the BFR group (13.5±1.2 to 10.8±0.8 mmol/L), which in the control group (11.9±1.2 to 10.9±0.8 mmol/L). Also, in relation to the controls (2222.2±117.3 to 2358.3±115.7 m), the BFR group performed better in the Cooper test, which saw improvements go from (2163.3±119.5 to 2394.4±130.5 m). Additionally, the BFR group saw greater improvement in lower limb strength, which went from (56.8±4.8 to 68.9±5.3 kg) as opposed to the controls' which improved from (60.4±3.6 to 65.9±4.2 kg). Also, we saw the BFR group do better in sit-to-stand repetitions, which improved from (40.0±3.8 to 46.0±3.8), whereas the control group improved slightly from (39.1±2.5 to 42.3±1.7). There were no reported adverse events.

Conclusion: This pilot study provides results to suggest that BFRT is a safe and effective low-load exercise intervention for increasing strength, endurance, and running performance in recreational runners with decreased muscle fatigue. These data add to the evidence for the use of BFRT and further strengthen the rationale for performing a larger randomised controlled trial.

Keywords: Cooper test, Recreational runner, Strength training.

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Abstract No.: 03

Effects of Open Kinetic Chain versus Closed Kinetic Chain Exercise with Common Use of Blood Flow Restriction Therapy among Athletes with Hamstring Strain: A Pilot Study

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

ABSTRACT

Introduction: Hamstring strain injuries are frequent in athletes and often result in pain, reduced strength, poor movement control, and delayed return to sport. Inadequate rehabilitation increases the risk of reinjury. Blood Flow Restriction Training (BFRT) enables strength and functional improvements at low exercise loads by creating controlled muscular hypoxia. However, limited evidence exists comparing the effects of BFRT combined with Open Kinetic Chain (OKC) and Closed Kinetic Chain (CKC) exercises in hamstring rehabilitation.

Aim: To compare the effects of OKC exercises with BFRT, CKC exercises with BFRT, and BFRT alone on pain, hamstring strength, and functional performance in athletes with hamstring strain.

Materials and Methods: Ten athletes with grade I hamstring strain were allocated into three groups: OKC+BFRT (n=4), CKC+BFRT (n=4), and BFRT-only (n=2). All groups trained three times per week for six weeks using 20% of one-repetition maximum with 40% arterial occlusion. Pain intensity {Visual Analogue Scale (VAS)}, hamstring strength, and functional performance scores were assessed pre- and post-intervention. Data were analysed using mean±standard deviation.

Results: Pain reduction was observed in all groups, with the greatest reduction in the CKC+BFRT group (4.8±0.5), followed by OKC+BFRT (3.5±0.6) and BFRT-only (2.0±0.7). Strength gains were highest in the CKC+BFRT group (23.0±1.8 kg), compared with the OKC+BFRT group (18.0±2.1 kg) and the BFRT-only group (8.0±1.4 kg). Functional performance improved most with CKC+BFRT (27.5±2.1 points), followed by OKC+BFRT (22.3±2.4), while smaller gains were seen with BFRT alone (10.0±1.6). No adverse events were reported.

Conclusion: BFRT enhances hamstring rehabilitation outcomes when combined with exercise. CKC exercises with BFRT provide superior strength and functional recovery, while OKC exercises with BFRT are effective for early strength restoration. BFRT alone reduces pain but does not produce optimal functional recovery.

Keywords: Athletic rehabilitation, Functional recovery, Hamstring strain injury.

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Abstract No.: 04

Effect of Dry Needling on Compensatory Trigger Points in Overhead Athletes with Supraspinatus Tendonitis: A Pilot Study

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

ABSTRACT

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

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

Materials and Methods: Twelve overhead athletes (both genders), aged 18 to 35 years, diagnosed with supraspinatus tendinitis and having active or latent trigger points in the upper trapezius, infraspinatus, or levator scapulae muscles, participated in this 4-week pilot randomised controlled trial. Participants were randomly allocated into two groups: Group A (conventional physiotherapy only, n=6) and Group B (dry needling combined with conventional physiotherapy, n=6). Both groups received intervention sessions over the study period. Individuals with needle phobia, a history of shoulder surgery, or systemic conditions were excluded. Outcome measures included pain intensity, shoulder Range of Motion (ROM), and functional disability, which were assessed pre- and postintervention. Data were analysed and presented as mean±SD.

Results: The experimental group (Group B) demonstrated statistically superior improvements across all clinical parameters compared to the control group (Group A). Following the intervention, Numerical Pain Rating Scale (NPRS) scores in Group B decreased from 7.1±1.2 to 3.0±0.8 ($p<0.001$), while Group A showed a minor reduction from 6.9±1.3 to 5.5±1.1 ($p=0.04$). Similarly, functional disability (SPADI) scores in Group B significantly improved from 70±8% to 25±7% ($p<0.001$), compared to a decrease from 69±9% to 52±8% ($p=0.03$) in Group A. Range of motion (ROM) in Group B also showed highly significant gains ($p<0.001$), with flexion increasing from 105°±12 to 145°±10, abduction from 90°±11 to 125°±9, and external rotation from 35°±6 to 65°±7.

Conclusion: The results of this pilot study indicate that the integration of dry needling with conventional physiotherapy is significantly more effective than physiotherapy alone in treating overhead athletes with supraspinatus tendinitis. The experimental group achieved superior outcomes in pain reduction, functional recovery, and joint mobility. These findings suggest that addressing compensatory myofascial

trigger points through dry needling can accelerate the rehabilitation process and improve overall shoulder performance in this population. A larger-scale randomised controlled trial is warranted to confirm these preliminary findings.

Keywords: Dry Needling, Supraspinatus Tendonitis, Overhead Athletes, Myofascial Trigger Points.

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Abstract No.: 05

Efficacy of Pre-operative Physiotherapy and Patient Education on Post-operative Outcomes following Knee Arthroplasty

PRAGYA KUMAR[1], SHUBHAM BIPIN MISHRA[2]

ABSTRACT

Introduction: One of the effective interventions that can be used to treat knee Osteoarthritis (OA) is Total Knee Arthroplasty (TKA), since OA is the cause of most disability. Nevertheless, a lot of people complain due to functional impairment and unresolved pain. Prehabilitation is used in an attempt to enhance functional results in the patient before the operation and is composed of therapeutic interventions. Nevertheless, no research has been done in India.

Aim: The study aimed to identify the outcomes of a developed protocol of preoperative physiotherapy and patient education on postoperative outcomes of TKA with a specific focus on pain, Range of Motion (ROM) of the knee, functional mobility, Fear of Falling (FOF), and Length of Stay (LOS) in the hospital.

Materials and Methods: A Randomised Controlled Trial (RCT) involved 20 TKA patients, of whom 10 participated in the experimental group (n=10) that received 1-week-long preoperative physiotherapy and patient education, and a control group (n=10) that received standard postoperative care. At the time of the baseline and 6 weeks after the operation, outcomes measured were pain (Visual Analogue Scale), ROM (goniometer), functional mobility {Timed Up and Go (TUG) test} and fear of falling {Falls Efficacy Scale–International (FES-I)}. Statistical tests were used based on normal distribution for within (paired t-test) and between group comparisons (unpaired t-test) and non-parametric (Wilcoxon Signed-Rank test and Mann-Whitney U test).

Results: The results of the outcomes indicated a considerable improvement in the parameters of both groups. Nevertheless, the experimental group had much better results in terms of functional independence (TUG test: mean 5.6 s vs 7.5 s, p=0.002) and lower fear of falling (p<0.001). Importantly, the experimental group exhibited a much lesser mean length of stay at the hospitals (5.3 days versus 9.78 days, p<0.001). Groups were not different in pain and ROM.

Conclusion: The experimental preoperative intervention is very effective in broadening relief and functional independence, mental assurance, and medical proficiency by minimising hospitalisation for TKA patients.

Keywords: Prehabilitation, Quality of life, Total knee arthroplasty.

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Abstract No.: 06

Effect of TECAR Therapy on Pain Reduction, Improvement in Range of Motion and Functional Recovery in Athletes after Anterior Cruciate Ligament Reconstruction: A Pilot Study

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

ABSTRACT

Introduction: Anterior Cruciate Ligament (ACL) reconstruction using hamstring tendon grafts is commonly performed in young athletes to restore knee stability and function. However, post-operative pain, limited Range of Motion (ROM), and delayed functional recovery often pose challenges during rehabilitation. Transfer of Energy Capacitive and Resistive (TECAR) therapy has gained attention as an adjunct modality in musculoskeletal rehabilitation, though evidence following ACL reconstruction remains limited.

Aim: To evaluate the effect of TECAR therapy on pain reduction, improvement in joint range of motion, and functional recovery in athletes following ACL reconstruction.

Materials and Methods: This pilot study was conducted as a single-blind, randomised, parallel-group, active-controlled trial. Twelve athletes (male and female), aged 18–25 years, who underwent hamstring tendon graft ACL reconstruction, were randomly allocated into two groups (n=6 each). The intervention commenced 15 days post-operatively. The experimental group received TECAR therapy along with conventional physiotherapy, while the control group received conventional physiotherapy alone. Both groups underwent a six-week rehabilitation programme. Pain was assessed using the Numerical Pain Rating Scale (NPRS), knee joint ROM using a goniometer, and functional ability using the Lower Extremity Functional Scale (LEFS). Pre and post-analysis of outcome measures were compared to baseline, with significance set at $p<0.05$.

Results: After six weeks of intervention, both groups demonstrated significant within-group improvements in pain intensity, knee joint range of motion, and functional ability ($p<0.05$). In the control group, NPRS scores reduced from 6.33±0.52 to 2.67±0.52, knee joint ROM increased from 34.17°±2.86° to 106.67°±2.94°, and LEFS scores improved from 39.67±2.58 to 56.67±2.16. In the experimental group, greater improvements were observed, with NPRS scores decreasing from 6.17±0.75 to 1.17±0.41, knee joint ROM increasing from 34.50°±3.45° to 127.00°±2.37°, and LEFS scores improving from 38.17±2.56 to 68.50±2.17. Between-group analysis demonstrated statistically significant superiority of the experimental group over the control group for all outcome measures at six weeks ($p<0.05$).

Conclusion: This pilot randomised controlled trial suggests that TECAR therapy, when combined with conventional physiotherapy, leads to superior improvements in pain, joint ROM, and functional recovery following ACL reconstruction. Larger trials are warranted to confirm these findings.

Keywords: Lower extremity functional scale, Numerical pain rating scale, Rehabilitation.

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Abstract No.: 07

Effect of Pulsed Electromagnetic Field (PEMF) Therapy in Racket Players with Lateral Epicondylitis: A Pilot Study

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

ABSTRACT

Introduction: Lateral epicondylitis is a common overuse injury among racket sports players, causing pain, reduced grip strength, and impaired functional performance. Pulsed Electromagnetic Field (PEMF) therapy may help to reduce inflammation and promote tissue healing; however, sport-specific evidence remains limited.

Aim: To evaluate the effects of PEMF therapy on pain, grip strength, and functional performance in racket players with lateral epicondylitis.

Materials and Methods: Twenty racket sports players aged 18-35 years with clinically diagnosed lateral epicondylitis were randomly assigned to a control group (n=10) receiving conventional physiotherapy and a trail group (n=10) receiving PEMF therapy (MAG-30, intensity-30 mT, time period-15 minutes) along with conventional physiotherapy. Both groups received intervention, 5 sessions per week for 4 weeks. Outcome measures included pain using the Visual Analogue Scale (VAS), grip strength assessed by hand dynamometer, and functional performance by Patient-Rated Tennis Elbow Evaluation (PRTEE) score. Pre- and post-intervention data were analysed and presented as mean±SD.

Results: Baseline values were comparable between groups. Following four weeks of intervention, pain levels decreased more in the trail group (7.8±0.7 to 2.1±0.5) compared to the control group (7.3±0.8 to 3.3±0.7). Grip strength improved from 14.8±2.0 kg to 26.1±2.3 kg in the trail group, as compared to the control group from 16.0±2.1 kg to 22.6±2.4 kg. Functional performance showed better improvement in the trail group (62.3±3.9 to 23.8±3.6) as compared to the control group (60.1±4.2 to 31.9±4.0). No adverse events were reported.

Conclusion: This pilot study suggests that PEF therapy is a safe and effective adjunct to conventional physiotherapy for reducing pain and improving strength and functional outcomes in racket players with lateral epicondylitis. The findings support the need for larger randomised controlled trials to confirm their clinical efficacy.

Keywords: Grip strength, Lateral epicondylitis, Pain, Pulsed electromagnetic field therapy, Racket sports.

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Abstract No.: 08

Patient Satisfaction, Adherence, Functional Independence and Quality of Life following Telerehabilitation in Conservatively Managed Knee Pain and Patellofemoral Pain Syndrome: A Systematic Review of RCTs

HASHMITA TEKCHANDANI[1], PANKAJ KUMAR MALIK[2]

ABSTRACT

Introduction: Millions of people worldwide suffer from knee discomfort, which includes Osteoarthritis (OA) and Patellofemoral Pain Syndrome (PFPS). With potential benefits in terms of accessibility, affordability, and patient convenience, telerehabilitation has become a viable substitute for conventional in-person physical

treatment. Nevertheless, there is still a lack of synthesis regarding the effects of telerehabilitation on patient-centred outcomes, particularly patient satisfaction, independence, compliance/adherence, and quality of life.

Aim: The purpose of this systematic review was to assess the impact of telerehabilitation-based physiotherapeutic therapies on these crucial patient-centred outcomes in populations with PFPS and non-surgical knee pain.

Materials and Methods: An extensive review of published articles was carried out across various databases, including Scopus, PubMed, PubMed Central, Google Scholar, and Science Direct, from January 2016 to December 2025. Search terms included telerehabilitation, knee pain/ PFPS, and patient-centred outcomes. Inclusion criteria specified to Randomised Controlled Trials (RCTs) evaluating digital physiotherapy interventions in non-surgical knee pain and non-athletic adults with knee pain reporting at least one of the outcomes: patient satisfaction, compliance/ adherence, independence or quality of life. In total, 708 records were screened, with 184 papers after the deduplication process. Full-text assessment was run on eligible studies. The quality assessment was run by using the PEDro Scale and Cochrane Risk of Bias 2.0 tool.

Results: From a total of 184 unique papers, title and abstract screening excluded almost 154 records (primarily, which were systematic reviews, meta-analyses, and other studies not meeting population or intervention criteria). 30 records underwent full text assessment, resulting in nine RCTs meeting all the inclusion criteria. The included studies enrolled a total of 1211 participants with knee OA or PFPS. Telerehabilitation modalities include telephonic coaching, video conferencing, and mobile applications-based physiotherapeutic interventions. Intervention durations ranged from 4 to 26 weeks. Quality of life outcomes were most reported (6 studies), with significant improvements observed in telerehabilitation groups compared to controls or usual care. Patient satisfaction was high across studies reporting this outcome (mean satisfaction of 8.2–9.2 out of 10). Compliance/adherence rates ranged from 70.7% to 82.7%, generally comparable to exceeding traditional face-to-face interventions. Functional independence measured via performance-based tests and self-reported disability scales showed a considerable improvement in the Telerehabilitation groups. The quality of the included studies, assessed using PEDro scores, ranged from 4 to 8 out of 10. Risk of bias assessment demonstrated low to moderate concerns across studies, with lack of participant blinding being the most common limitation due to the inherent nature of telerehabilitation interventions.

Conclusion: Telerehabilitation shows strong potential as an effective and patient-centred approach for managing non-surgical knee pain and patellofemoral pain syndrome. Across included studies, remote physiotherapy was associated with improvements in quality of life, high patient satisfaction, good adherence, and meaningful gains in functional independence, often comparable to conventional in-clinic care. However, variability in intervention design, outcome measures, and follow-up duration limits firm conclusions. Future research should emphasise standardised outcome reporting, longer-term follow-up, and evaluation of cost-effectiveness to support broader clinical adoption of telerehabilitation.

Keywords: Compliance, Digital health, Remote physiotherapy.

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Abstract No.: 09

Association between Lumbo-pelvic Rhythm and Dynamic Balance among Male Hockey Players: A Pilot Study

ANSHU KUMAR RAY[1], JOYDIP SAHA[2]

ABSTRACT

Introduction: Field hockey requires lateral dominance with sustained forward flexed and asymmetrical positions, which may affect lumbo-pelvic biomechanics. Alterations in lumbo-pelvic rhythm may impact lower limb function. Although dynamic balance is considered crucial, its relationship with Lumbo-Pelvic Rhythm (LPR) in young hockey players is unclear.

Aim: To determine the association between lumbo-pelvic rhythm and dynamic balance among developmental male field hockey players.

Materials and Methods: Fourteen male field hockey players (mean age: 16.71±2.27 years) participated in this pilot study. The Star Excursion Balance Test (SEBT) was used to measure dynamic balance, and two-dimensional (2D) video analysis software KINOVEA was used to measure lumbo-pelvic rhythm in the sagittal plane during forward trunk flexion. Composite reach scores were calculated for dominant and non-dominant limbs. The relationship between LPR and dynamic balance was examined using the Chi-square test with Phi/Cramer's V as a measure of effect size.

Results: The participants demonstrated homogeneity in demographic and anthropometric characteristics, with a mean age

of 16.71±2.27 years, height of 164.50±6.24 cm, and body weight of 51.57±6.97 kg. The mean scores of the composite dynamic balance were 96.24±9.07% for the dominant limb and 95.66±7.32% for the non-dominant limb, whereas the mean lumbo-pelvic rhythm ratio was 1.77±0.26. A statistically significant association was observed between LPR and dynamic balance for both the dominant limb (χ^2=9.545, p=0.002; Phi=0.826) and the non-dominant limb (χ^2=5.83, p=0.016; Phi=0.645), indicating a strong to moderate association.

Conclusion: The results of this pilot study clearly suggest a strong association between lumbo-pelvic rhythm and dynamic balance in developmental male field hockey players.

Keywords: Biomechanical phenomena, Field hockey, Lower extremity.

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Abstract No.: 10

Effect of Plyometric Training on Performance Variables in Wrestlers: A Systematic Review

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ABSTRACT

Introduction: Wrestling is high demand sports requiring strength, power, speed, agility, balance, and endurance. Plyometric exercises enhance muscle power, agility and neuromuscular efficiency; however, systematic evidence on their specific effects in wrestlers is limited.

Aim: The purpose of this review is to compile and synthesise the body of data on the effects of plyometric training on wrestlers' performance variables.

Materials and Methods: A systematic literature search (2015 and 2025 of PubMed, Google Scholar, ResearchGate, Wiley Online Library, TRIP Database, and Cochrane Library identified trials on Plyometric interventions in wrestlers from all competitive levels including strength, power, agility, speed, balance, or coordination. Study quality was evaluated using the Cochrane Risk of Bias assessment tool and the PEDro score, and due to heterogeneity in intervention and outcomes, narrative synthesis was performed.

Results: Thirteen studies were included in the study. Plyometric exercises consistently improved muscle strength, power, agility, balance, coordination and endurance across age and competitive levels, with a 6-12-week programme (2-3 sessions/week) effective on land or in water, likely due to enhanced motor control, neuromuscular activation and stretch-shortening cycle efficiency.

Conclusion: Plyometric exercises are a safe, inexpensive, and highly effective way to improve strength, power, agility, coordination, and endurance, improving performance and lowering the chance of injury.

Keywords: Agility, Anaerobic capacity, Athletic conditioning, Balance, Explosive strength, Neuromuscular performance, Power, Wrestling.

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Abstract No.: 11

Digital Neuro-rehabilitation in Stroke – A Review of Technology-driven Innovations in Recovery: A Narrative Review

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ABSTRACT

Introduction: Stroke is a leading cause of long-term disability. It affects movement, balance, and daily activities. Traditional physiotherapy is important for recovery; however, limited access and low engagement are major barriers. Digital neurorehabilitation provides patient-centred solutions. These technologies are improving neuroplasticity and functional recovery.

Aim: The purpose of this study is to review and synthesise existing literature on digital and technology-driven rehabilitation interventions in stroke and their effectiveness in improving motor function, gait, balance, and overall functional recovery.

Materials and Methods: All papers included in this review discussed interventions using digital or technology-assisted rehabilitation approaches such as virtual or augmented reality, robotic-assisted therapy, functional electrical stimulation, brain–computer interfaces, AI-based systems, wearable technologies, or tele-rehabilitation for stroke rehabilitation. The articles had to be written in the English language. A narrative review of literature was conducted using electronic databases such as PubMed, Google Scholar, and PEDro. Peer-reviewed articles published in English focusing on digital technology approaches in stroke were included. The results of the relevant clinical outcome studies were synthesised and then analysed.

Results: The reviewed literature demonstrated that technology-driven stroke rehabilitation improves motor recovery, gait, balance, and functional independence. It improves high-intensity, repetitive, task-specific training with real-time feedback and higher motivation, delivering better outcomes than traditional therapy alone.

Conclusion: Digital neurorehabilitation increases stroke recovery by overcoming traditional physiotherapy limits. VR, robotics, digital rehab apps, and tele-rehab enhance motor recovery, neuroplasticity with engaging, intensive and personalised training.

Keywords: Digital neurorehabilitation, Gait and balance improvement, Motor recovery, Neuroplasticity, Stroke rehabilitation, Technology-driven physiotherapy.

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Abstract No.: 12

Effects of Plyometric Training on Agility, Speed and Explosive Power in Recreational Young Adult Football Players: A Systematic Review

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ABSTRACT

Introduction: Recreational football, similar to professional football, showcases high-intensity movements that require agility, speed, and explosive power. While vast literature is available on plyometric training in elite and professional players, its efficacy in recreational young adult football players remains insufficiently studied. This review addresses this gap by evaluating current evidence on plyometric training's impact on agility, speed, and explosive power in this population.

Aim: This paper aimed to review studies that analysed the effect of plyometric components on three major performance indicators in football: agility, speed and power and summarise their findings.

Materials and Methods: Search terms included plyometric/jump training in recreational or amateur soccer/football players, with outcomes of agility, speed, sprinting, acceleration, change of direction, or power. Eligible studies included recreational football players (18-30 years) undergoing ≥4 weeks of plyometric training, compared to control or alternative training groups. Five databases were searched up to December 2025. Two independent reviewers performed study screening, data extraction, and bias assessment using Cochrane RoB and ROBINS-I. A narrative synthesis was conducted, with GRADE used to assess the certainty of evidence.

Results: Four controlled trials involving recreational football players met the inclusion criteria. Plyometric training interventions (6-10 weeks, 1-2 sessions/week) significantly improved agility, speed, and explosive power across all studies compared to control conditions. Risk of bias was low to moderate. Certainty of evidence was rated low to moderate using GRADE.

Conclusion: Plyometric training effectively improves speed, agility, and explosive power in recreational and amateur football players.

Keywords: Agility, Explosive Power, Plyometric Training, Recreational Football, Speed Performance.

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Abstract No.: 13

Effect of Kinesio Taping on Scapular Dyskinesia: A Review

JAMBHORKAR CHAITANYA[1], JOYDIP SAHA[2]

ABSTRACT

Introduction: Scapular dyskinesis is commonly linked with altered scapular motion and muscle activation, which may contribute to shoulder pain and dysfunction, especially in overhead athletes. Taping techniques such as rigid taping and Kinesio taping are widely used in clinical and sports settings to influence scapular biomechanics.

Aim: To review the effects of kinesio taping on individuals with scapular dyskinesia.

Materials and Methods: The inclusion criteria comprised experimental studies involving individuals diagnosed with scapular dyskinesia. Eligible studies investigated kinesio taping as the primary intervention and reported outcomes related to scapular position and/or scapular kinematics. A systematic literature search was conducted using relevant keywords and subject headings across multiple databases, including PubMed, Scopus, Cochrane Library, MEDLINE, and EMBASE, in accordance with PRISMA guidelines. The literature search was conducted using the keywords scapular dyskinesia, scapular position, and kinesio taping, combined with the Boolean operators 'AND' and 'OR.' Filters were applied to limit the results to free full-text articles published within the last five years. A total of 20 articles were

identified, of which 15 were available as free full text, and 5 experimental studies met the eligibility criteria.

Results: In scapular dyskinesis, upper trapezius taping reduced upper trapezius muscle activation and increased scapular posterior tilt, particularly in type II dyskinesis patterns. In asymptomatic and athletic populations, taping consistently increased scapular posterior tilt and external rotation during shoulder elevation. Rigid and Kinesio taping were also shown to reduce scapular dyskinesis prevalence and improve pectoralis minor length, although changes in scapular upward rotation were inconsistent.

Conclusion: Taping be a useful adjunct for managing scapular dyskinesis and for injury prevention in overhead athletes, although long-term effects and functional outcomes require further investigation.

Keywords: Kinesio taping, Scapular position, Shoulder pain.

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Abstract No.: 14

Association between Shoulder Proprioception and Scapular Protrusion Angle among Female Weightlifters: A Pilot Study

ANJALI LALJIBHAI SAKARIYA[1], JOYDIP SAHA[2]

ABSTRACT

Introduction: Effective shoulder stability in weightlifters relies on the coordinated interaction between proprioceptive control and proper scapular positioning. The repetitive overhead nature of weightlifting, combined with high training loads, places considerable stress on the shoulder complex. Deficits in shoulder proprioception or altered scapular alignment may therefore negatively influence performance and increase the risk of injury. Although both factors are recognised as important for shoulder function, limited research has examined their relationship in developmental weightlifters, particularly among female athletes.

Aim: To examine the association between shoulder proprioception, measured using the Upper Quarter Y Balance Test (YBT-UQ), and scapular protrusion angle in female developmental weightlifters.

Materials and Methods: A cross-sectional pilot study was carried out on 13 female developmental weightlifters aged 14–17 years. Shoulder proprioception was assessed bilaterally using the Upper Quarter Y Balance Test, while scapular protrusion angle was measured using a vernier calliper-based scapulometer. The association between shoulder proprioception and scapular protrusion angle was evaluated using the Chi-square test, and the strength of association was determined using Phi/Cramer's V.

Results: The mean YBT scores were 90.13±3.25 for the right upper limb and 89.16±3.13 for the left upper limb. The mean scapular protrusion angle was 1.41±0.60. Statistical analysis revealed a significant association between shoulder proprioception and scapular protrusion angle (χ^2=9.244, df=1, p=0.002). A strong effect size was observed (Phi/Cramer's V=0.843), indicating a strong relationship between the two variables.

Conclusion: This pilot study demonstrates a significant and strong association between shoulder proprioception and scapular protrusion angle in female developmental weightlifters.

Keywords: Chi-square test, Cross-sectional study, Female, Proprioception.

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Abstract No.: 15

Immediate Effect of Ankle Prophylactic Support to Improve Dynamic Balance among Taekwondo Players: A Pilot Study

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ABSTRACT

Introduction: Taekwondo is a high-intensity Olympic combat sport and is reported to be among the top five sports with the highest injury prevalence. Repetitive kicking, rapid directional changes, and frequent single-leg stance make athletes vulnerable to lower limb injuries, especially involving the ankle joint. Recurrent ankle injuries may lead to chronic ankle instability, negatively affecting balance and performance. Preventive strategies such as ankle prophylactic supports are commonly used, including athletic taping, Kinesio-taping, and ankle binders applied prior to high-intensity activity.

Aim: To evaluate the immediate effectiveness of different ankle prophylactic supports as a preventive measure to improve dynamic balance among taekwondo athletes using a clinical trial design.

Materials and Methods: Twelve young taekwondo athletes (seven males and five females) were recruited based on age, playing experience, and the Athletic Identification Scale. Participants were equally allocated to three intervention conditions: athletic taping, Kinesio-taping, and ankle binder. Dynamic balance was assessed using the SEBT as a pre-test, followed by application of the respective ankle support and an immediate post-test. Data were analysed using SPSS version 20.0, and non-parametric tests were applied due to distribution characteristics.

Results: The mean age of participants was 14.00±0.74 years, indicating a homogeneous sample. Mean height and weight were 155.17±8.59 cm and 48.25±8.68 kg, respectively. Age and height showed near-normal distribution, whereas body weight demonstrated positive skewness with high kurtosis. The mean CPRELT and CPPRERT values were 92.65±8.34 and 88.52±12.62, respectively. Kruskal–Wallis analysis revealed higher mean ranks for athletic taping on the right and left limbs (10.5 each) compared to Kinesio-taping (3.25 right, 4.25 left) and ankle binder (5.75 right, 4.75 left).

Conclusion: Athletic taping demonstrated significant immediate improvement in dynamic balance compared to Kinesio-taping and ankle binders in the taekwondo athlete population studied.

Keywords: ankle injuries, athletes, elastic tape.

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Abstract No.: 16

Knowledge, Attitude and Training towards First Aid Management among Developmental Athletes in Bhubaneswar: A Descriptive Study

BISHWAS RANJAN[1], JOYDIP SAHA[2]

ABSTRACT

Introduction: In most sports-related injuries, timely and effective first aid can reduce the risk of death to less than 60%. However, many training centres, schools, and grassroots sports academies lack designated medical personnel, well-equipped first aid kits, and formal injury management protocols. As a result, the responsibility for managing emergencies often falls on coaches, teachers, or teammates, most of whom are not adequately trained in first aid.

Aim: To assess collegiate athletes' knowledge, attitudes, and training related to first aid management.

Materials and Methods: This was an online survey-based study conducted among collegiate athletes from the Abhinav Bindra

Sports Institute using Google Forms. A structured, self-reported questionnaire based on a 2-point Likert scale was distributed to 250 athletes aged 19–25 years, of whom 118 were female and 132 were male. A total of 206 completed responses were received. The collected data were analysed using Microsoft Excel.

Results: After scrutiny of the response, a total of 206 (116 female and 90 male) responses were recorded, yielding a response rate of 82%. The mean scores of the Knowledge, Attitude, and Training (KAT) questionnaire (maximum score: 15) were 12.6, 9.3, and 9.7, respectively. The results showed that 62% of athletes had knowledge of Cardiopulmonary Resuscitation (CPR), while the highest level of knowledge was observed in heat-related emergency management (90%).

Moderate levels of knowledge and attitude were noted regarding bleeding and wound management among collegiate athletes.

Conclusion: The findings of this study indicate that collegiate athletes demonstrate good knowledge of first aid management; however, comparatively poor responses were observed in the domains of attitude and formal training.

Keywords: Cardiopulmonary resuscitation, Emergencies, Self-report.

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Abstract No.: 17

Effect of Different Periodisation Methods to Improve Performance among Runners: A Literature Review

BAIBHAVESWAR SAHOO[1], JOYDIP SAHA[2]

ABSTRACT

Introduction: Periodisation is the deliberate planning of training to minimise the risk of injury and overtraining while achieving peak performance at a certain time. Rather than training at the same level all year long, athlete can divide their program into distinct cycles, each of which has a distinct focus and entails the deliberate manipulation of food intake, particularly the distribution of macronutrients, to correspond with various stages of an athlete's training and competition cycle.

Aim: The review is to examine how various periodisation training affects the performance of endurance runners.

Materials and Methods: In accordance with PRISMA recommendations, we conducted a comprehensive data search on PubMed, Science Direct, Cochrane, and Embase using MeSH terms such as middle-aged runners, periodisation, and metabolic energy. A total of 42 articles were identified in the database, whereas, as per our inclusion and exclusion criteria, we selected three articles after manual screening and duplicate removal.

Results: Periodisation improves athletic performance through planned training cycles. The Accumulation, Transmutation, and Realisation (ATR) approach improves body composition and performance by rotating between basic abilities and sport-specific intensity. In endurance running, shifting from a pyramidal to a polarised intensity distribution in the final phases maximises running economy time trial improvements. Furthermore, if sessions are appropriately divided, concurrent training (combining strength and endurance) increases running economy without an 'interference effect'. Finally, maintaining gut microbial stability through optimal dietary periodisation is crucial, as abrupt changes, particularly to high-protein diets, can cause gut stress and impair performance.

Conclusion: As per our review for recreational and well-trained athletes, the most effective approach for peak performance involves a polarised training intensity distribution supported by concurrent strength training and a stable, carbohydrate-sufficient diet to ensure both physiological adaptation and gastrointestinal homeostasis.

Keywords: Diet, Homeostasis, Middle-aged, Physical therapist.

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Abstract No.: 18

Stabilisation-based Rehabilitation Strategies for Upper Cross Syndrome: A Systematic Review

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ABSTRACT

Introduction: Upper Cross Syndrome (UCS) is a common postural disorder caused by muscle imbalance, leading to forward head posture, rounded shoulders, pain, reduced range of motion, and functional limitations. Stabilisation-based physiotherapy interventions such as scapular and cervical stabilisation, corrective exercises, neuromuscular control training, and breathing exercises are commonly used for its management.

Aim: This systematic review evaluated the effectiveness of stabilisation-based rehabilitation strategies on pain, posture, range of motion, muscle activation, and functional outcomes in individuals with UCS.

Materials and Methods: A systematic search of PubMed, Google Scholar, Scopus, PEDro, ResearchGate, and Wiley Online Library was conducted for studies published between 2015 and 2025. Keywords included Upper Cross Syndrome, scapular stabilisation, cervical stabilisation, corrective exercises, breathing exercises, and rehabilitation. Randomised controlled trials and controlled clinical studies incorporating stabilisation-based interventions were included. Review articles, case reports, conference abstracts, and studies without stabilisation components were excluded.

Results: Out of 7,895 identified studies, 14 met the inclusion criteria. The findings demonstrated that stabilisation-based interventions were more effective than generalised or passive exercise programmes. Scapular stabilisation, deep cervical flexor training, neuromuscular corrective exercises, and programmes integrating breathing or respiratory training showed significant improvements in pain reduction, postural alignment, muscle balance, cervical and shoulder range of motion, proprioception, and functional performance. Combined and comprehensive stabilisation programmes consistently produced superior outcomes compared to isolated interventions.

Conclusion: Stabilisation-based rehabilitation strategies are effective in the management of UCS. Evidence supports the inclusion of scapular and cervical stabilisation, neuromuscular control training, and corrective exercise programmes to address postural dysfunction and functional impairment.

Keywords: Cervical stabilisation, Performances, Scapular stabilisation, Stabilisation exercises.

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Abstract No.: 19

EMG Analysis of Peak Muscle Activity of the Dominant and Non-dominant External Oblique during Fast Bowling: A Pilot Study

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ABSTRACT

Introduction: Fast bowling is a biomechanically complex action that begins with a run-up to generate linear momentum, which is subsequently converted into angular momentum and transferred through the trunk and upper limbs during ball delivery. The abdominal musculature plays a crucial role in providing trunk stability, facilitating efficient energy transfer from the lower limbs to the upper body, and protecting the lumbar spine from repetitive high-force stresses associated with fast bowling.

Aim: The purpose of this study was to identify the pattern of external oblique muscle activation in collegiate fast bowlers.

Materials and Methods: This cross-sectional pilot study was conducted at ABSMARI and included 12 collegiate male athletes aged between 19 and 25 years. Participants were instructed to

perform fast bowling in an indoor net to assess external oblique muscle activity. Surface electromyography (EMG) electrodes were placed over the external oblique muscles, and peak muscle activity was recorded for both the dominant and non-dominant sides.

Results: The participants had a mean age of 23.75±2.13 years, a mean height of 171.92±9.78 cm, and a mean body weight of 63.92±7.86 kg. The mean peak muscle activity of the dominant external oblique was 1072.00±376.68, while that of the non-dominant external oblique was 1330.17±382.28. One-sample t-test analysis demonstrated that peak muscle activity on both sides was statistically significant (p=0.001, df=11), with higher activity observed on the non-dominant side.

Conclusion: The study demonstrated significantly greater external oblique muscle activity on the non-dominant side during fast bowling.

Keywords: Cross-sectional study, Electromyography, Energy transfer.

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Abstract No.: 20

Effect of Caffeine Consumption on Rehabilitation Outcomes and Return to Sports Readiness among Athletes: A Literature Review

KASHVI SHAH[1], JOYDIP SAHA[2], PRATEEK SHARMA[3]

ABSTRACT

Caffeine is one of the most widely used ergogenic aid in sports for its effect of enhancing strength, endurance, reaction time and perceived exertion in healthy athletes yet its specific role within the context of injury rehabilitation and return to sports readiness remains under-explored compared to its acute performance-enhancing effects. This review aimed to see the current evidence on the effects of caffeine on rehabilitation outcomes and Return to Sports **(**RTS) readiness in athletes, with specific emphasis on the potential risk of false clearance due to altered neuromuscular and perceptual responses. An extensive search was done via PubMed (352), ScienceDirect (628), Embase (369) and Cochrane (1101) database using [(caffeine) AND (rehabilitation OR recovery OR performance OR return to sport)]as per PRISMA guidelines. Studies were included publish from 2020 to 2026 which were examining caffeine's effects on neuromuscular function, pain perception, fatigue, proprioception, motor control, and psychological factors related to rehabilitation and RTS. Both male and female athletic populations were considered. After extensive data screening, total eight articles were selected for this review. Total population was 149 which included both males and females. Result indicates that caffeine has a positive effect on muscle strength, power, reaction time, and endurance as well as reducing pain perception and perceived exertion. These effects may temporarily improve rehabilitation performance, potentially masking underlying impairments in neuromuscular movement or tissue healing. Limited evidence also suggested alter risk-taking behaviour and confidence levels after caffeine ingestion, which may affect RTS decision-making. Caffeine has positive impact on the short-term physical and perceptual performance in athletes; however, its ergogenic and analgesic properties raised concerns regarding the accuracy of functional testing and RTS clearance.

Keywords: Decision making, Endurance, Performance.

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Abstract No.: 21

Fatigue-induced Changes in Movement Quality, Neuromuscular Control, and Postural Stability in Athletic Population: A Literature Review

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ABSTRACT

Introduction: Sports involve repeated high-intensity accelerations, decelerations, directional changes and, landings under the state of progressive fatigue. These tasks demand precise neuromuscular coordination to maintain stability. While exhaustion is an unavoidable consequence of high-intensity training and competition, its immediate effects on movement quality, neuromuscular control, and postural stability remain under-investigated across different sports and fatigue protocols.

Aim: The aim of this review was to synthesise recent evidence on fatigue-related changes in movement quality, neuromuscular control, and explore their relevance to injury risk.

Materials and Methods: Database search was done according to PRISMA guidelines using PubMed, Embase, ScienceDirect and Cochrane with keywords acute fatigue, exercise-induced fatigue, movement, movement quality, kinematics, biomechanics, neuromuscular control, stability, postural control, athlete, sports, players by boolean operators etc. Multiple studies published between 2021-2026 were found among which 14 were selected.

Results: Total 460 participants included in our review where 322 were males and 138 were females. Evidence showed that fatigue was associated with increased centre-of-pressure sway, altered kinematics and lower-limb loading pattern suggesting its negative effect on neuromuscular control.

Conclusion: Fatigue induces alterations in movement quality in sports related tasks, postural stability and neuromuscular control, with potential implication of injury risk. Balance assessment taken during non-fatigued states may not be able to capture these changes.

Keywords: Athletes, Kinematics, Postural control.

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Abstract No.: 22

Workload Measurement for Reducing Overuse Injury Risks among Fast Bowlers: A Systematic Review

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ABSTRACT

Introduction: Fast bowlers face a significantly higher risk of overuse injuries. Evidence suggests that injury rates across all age groups correlate more closely with the frequency of bowling sessions and the year-round nature of the T20 format than with the intensity of a single match.

Aim: To explore different methods to measure workload of fast bowlers.

Materials and Methods: We searched multiple databases, including PubMed Central, ScienceDirect, Cochrane, and Embase, in accordance with PRISMA guidelines. The search strategy utilised Boolean operators (AND, OR) and MeSH terms such as 'cricketers,' 'fast bowlers,' 'training,' 'practice,' and 'workload management'. Total 12 articles were identified in the database and following the removal of duplicates and application of specific inclusion and exclusion criteria, 4 articles were selected.

Results: This synthesis identifies workload volatility and acute-on-chronic spikes as the primary drivers of injury pathogenesis. Evidence confirms that injury risk is not merely a function of cumulative volume but of "under-preparation," particularly when transitioning from T20

to First-class formats. Clinically, exceeding 234 deliveries in 7 days increases Lumbar Stress Fracture (LSF) odds 11-fold while bowling >100 overs in 17 days correlates with an 80% increase in absolute injury risk. Monitoring via an exponentially-weighted 9:21 day ratio (acute vs. chronic) proved most effective for capturing fatigue within schedules. Maintaining a stable, moderate-high chronic base of 21–28 overs/week significantly attenuates risk by fostering 'injury resiliency'. To detect harmful week-to-week spikes (e.g., >22 overs/week) and implement phased 'loading bridges' during format changes.

Conclusion: Evidence supports maintaining a stable chronic base of 21–28 overs/week and utilising an exponentially-weighted 9:21 day monitoring ratio. Preventing 'under-preparation' during format transitions clinically paramount to reduce high incidence of LSF.

Keywords: Cricket sport, Fractures, Resilience, Workload.

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Abstract No.: 23

Identifying Barriers to the Female Athlete Triad among Collegiate Athletes in India: A Qualitative Biopsychosocial Analysis

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ABSTRACT

Introduction: The Female Athlete Triad (FAT) is characterised by low energy availability, menstrual dysfunction, and impaired bone health, and presents a significant yet understudied health risk for female athletes in India. Despite global recognition, research on the sociocultural and institutional barriers to its identification and management within the Indian context remains scarce, particularly among developmental athletes.

Aim: This study aimed to explore and construct a comprehensive barrier framework hindering the recognition, reporting, and management of the Female Athlete Triad among developmental female athletes in India.

Materials and Methods: A qualitative study was conducted using semi-structured interviews with two developmental female athletes (aged 13-19) purposively sampled from sports academies in Bhubaneswar, Odisha. Data were analysed using reflexive thematic analysis, guided by the Biopsychosocial (BPS) model as the theoretical framework to categorise emerging barriers.

Results: Seven key themes were identified across three BPS domains. In the Biological Domain, themes included Normalised Physiologic Distress (dismissal of symptoms like fatigue and amenorrhoea as normal) and Unmistakable Performance Decline (direct impact on athletic output). The Psychological Domain revealed, Knowledge Void and Awareness Gap, Performance Driven Body Image (internalisation of the "lean=fast" ideal) and The Dual Fear: Stigma and De-Selection (fear of judgment and reduced playing time). The Sociological Domain highlighted the Absence of Safe, Confidential Institutional Channels, Gendered Dynamics in Coach-Athlete Communication, and a Culture of Silence and Judgment.

Conclusion: Addressing the Female Athlete Triad (FAT) among Indian developmental athletes is hindered by barriers. These barriers are interconnected across biological, psychological, and socio-cultural domains, necessitating an integrated and multi-faceted approach for the holistic development of the female athlete.

Keywords: Body image, Communication, Fatigue.

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Abstract No.: 24

Identification Method of Relative Energy Deficiency in Sport (RED-S) in Male Athletes: A Literature Review

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ABSTRACT

Introduction: Relative Energy Deficiency in Sport **(**RED-S) is a well-established condition in female athletes; however, its prevalence and consequences in male athletes remain underrecognised. Growing evidence indicates that low energy availability in men results in adverse health and performance outcomes, including impaired bone health, endocrine dysfunction, and psychological disturbances such as exercise dependence. Increased awareness of RED-S in male athletes is essential for early identification and prevention of long-term complications.

Aim: This systematic review aimed to synthesise current evidence on the presentation, risk factors, and health consequences of RED-S specifically in male athletes.

Materials and Methods: A systematic literature search was conducted according to PRISMA guidelines using PubMed, Scopus, Cochrane, MEDLINE, and EMBASE databases. Search terms included relative energy deficiency, bone mineral density, exercise dependence, and male athlete, combined using Boolean operators AND/OR. Filters were applied to include free full-text articles published within the last five years. A total of 22 articles were identified, of which 15 were available in full text. Seven studies met the inclusion criteria, involving male athletes with LEA and reporting outcomes related to bone health, endocrine function, athletic performance, or psychological risk factors.

Results: Analysis of the included studies revealed a high prevalence of RED-S risk, ranging from 51% to 72%, particularly among endurance athletes. LEA was consistently associated with reduced bone mineral density, altered endocrine markers, and impaired athletic performance. Exercise dependence emerged as a significant psychological contributor. Several studies questioned the applicability of female-derived diagnostic thresholds for identifying RED-S in male athletes.

Conclusion: RED-S is a prevalent and clinically important syndrome in male athletes, driven by LEA and psychological factors, leading to impaired bone health and performance. Current diagnostic frameworks require modification to incorporate male-specific physiological characteristics.

Keywords: Athletic performance, Fatigue, Psychology.

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Abstract No.: 25

Self-reported Flexibility Scale to Assess Flexibility among Recreational Athletes: A Protocol Development Study

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ABSTRACT

Introduction: Flexibility is a crucial element of physical fitness and plays a significant role in movement quality, functional ability, and injury prevention in recreational athletes. Most existing flexibility measures focus on clinician-assessed joint range of motion and may not adequately capture perceived flexibility during functional and sport-related movements.

Need of the study: There is a need for self-report instruments that assess flexibility as a functional and movement-based construct.

Aim: The purpose of this research is to develop a self-reported qualitative flexibility scale to measure the quality of flexibility in recreational athletes using a mixed-methods approach.

Materials and Methods: Following an initial literature review and semi-structured interviews with 14 participants, key domains related to flexibility were identified. These included the flexibility of the upper limbs, lower limbs, trunk, ankle dorsiflexion mobility, shoulder flexibility, quadriceps flexibility, and overall functional movements involving balance and coordination. Based on these domains, a 10-item questionnaire was drafted using a 4-point Likert scale. The scale will be sent to six experts for content validation. Content Validity Index (CVI) will be calculated, and reliability testing will be conducted in subsequent phases.

Conclusion: A valid and reliable self-reported flexibility scale will help to measure flexibility among recreational athletes without any equipment.

Keywords: Flexibility, Functional movement, Recreational athletes, Reliability, Scale development, Self-reported assessment, Validity.

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Abstract No.: 26

Efficacy of Blood Flow Restriction Training on Biomechanical Recovery following ACL Reconstruction: A Systematic Review

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ABSTRACT

Introduction: Anterior Cruciate Ligament (ACL) reconstruction is a common surgical procedure aimed at restoring knee stability after ligament rupture. Blood Flow Restriction Training (BFRT) involves performing low-intensity exercise under partial vascular occlusion, inducing physiological adaptations similar to those achieved through high-intensity resistance training. Its use in post-operative rehabilitation has gained attention for promoting early muscle recovery without excessive mechanical stress on the healing graft.

Aim: This systematic review aimed to evaluate the efficacy of BFRT on biomechanical recovery following ACL reconstruction and to synthesize current evidence supporting its therapeutic role in post-operative rehabilitation.

Materials and Methods: A comprehensive literature search (2014–2025) was conducted across PubMed, Web of Science, Research Gate, and Google Scholar using keywords such as blood flow restriction, ACL, exercise, and rehabilitation. Studies were screened following PRISMA guidelines, and data were extracted using the PICO framework. Out of 121 identified articles, 12 met the inclusion criteria. The selected studies involved adult participants (≤35 years) of both sexes who underwent ACL reconstruction.

Results: Across the 12 included studies, BFRT demonstrated significant benefits in enhancing muscle hypertrophy, strength restoration, and functional performance following ACL reconstruction. No major adverse effects were reported, indicating its safety and feasibility during early rehabilitation phases.

Conclusion: BFRT is a safe and effective adjunct to early-stage rehabilitation after ACL reconstruction. It facilitates muscle recovery and functional improvement without overloading the healing graft, offering a valuable alternative when high-load resistance training is contraindicated.

Keywords: Anterior Cruciate Ligament, Muscle strength, Physiotherapy, Rehabilitation.

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Abstract No.: 27

Effect of Physiotherapy Rehabilitation after Tendon Grafting in Hand: A Case Study

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ABSTRACT

Flexor tendon injuries of Zone II are among the most challenging hand injuries due to the complex anatomical relationship between flexor tendons and pulley systems. Delayed diagnosis and inappropriate initial management can lead to significant functional impairment, flexion deformities, pain, and restriction in Activities of Daily Living (ADLs). Early surgical intervention followed by structured physiotherapy rehabilitation is essential for optimal functional recovery. A 43-year-old female sustained a glass-cut injury to the left hand 1 year back, which was initially managed with a dressing by a nurse without assessment of tendon integrity. Over time, the patient developed progressive pain, difficulty in performing household activities, and a visible flexion deformity of the left middle finger. Clinical evaluation revealed a Zone II flexor tendon injury involving the Flexor Digitorum Profundus (FDP) tendon of the left middle finger. Surgical management involved exploration and flexor tendon reconstruction using a Palmaris longus tendon graft. Postoperatively, the hand was immobilised in a static splint for 20 days, followed by controlled active mobilisation. The patient was then referred for physiotherapy rehabilitation. Physiotherapy interventions included paraffin wax therapy, wrist flexor and extensor stretching, lumbrical strengthening exercises, soft tissue and scar mobilisation, therapeutic ultrasound over the surgical scar, and progressive grip-strengthening exercises, along with a structured home exercise programme. Pain intensity measured using the Visual Analogue Scale (VAS) reduced from 8/10 pre-physiotherapy to 2/10 after 1.5 months of physiotherapy management. Significant improvement was observed in MCP joint flexion deformity and overall functional hand use. This case highlights the importance of early diagnosis and appropriate surgical management in Zone II flexor tendon injuries. A comprehensive and structured physiotherapy rehabilitation programme following tendon reconstruction is effective in reducing pain, correcting deformity, and restoring functional independence of the hand.

Keywords: Activities of daily living, Flexor Tendon Zone II injury, Hand rehabilitation.

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Abstract No.: 28

Caregiver Perspective and Knowledge of Neurological Patients Undergoing Physiotherapy Management: A Survey-based Study

MIRTHIVADA RAJAREDDY[1], SUNANDA BHOWMIK[2]

ABSTRACT

Introduction: In neurological rehabilitation, caregivers play a crucial role in patients' recovery from neurological disorders. Caregivers' perspectives and knowledge about physiotherapy may influence patient motivation and the consistency of the home-based rehabilitation protocol. Since caregivers are integral to the rehabilitation process, assessing their knowledge and perceptions toward physiotherapy is important for optimising treatment adherence, enhancing functional recovery, and strengthening collaborative care.

Aim: To find out the perspective and knowledge of caregivers of neurological patients toward physiotherapy.

Materials and Methods: This survey-based study included participants with a minimum age of 18 years. Caregivers were assigned to neurological patients receiving physiotherapy management at clinics and rehabilitation facilities. The principal investigator created a total of 20 questions in the knowledge and perspective domain. After that, 12 physiotherapists verified the questionnaire. According to their suggestions, modifications were made, and the final draft of the questionnaire was shared via Google

Form with the participants. Within two days of receiving the form, the participants were asked to respond to the questions and submit them.

Results: A total of 45 responses were collected through Google Form. A total of 84.7% of the responses had an understanding of the benefits of physiotherapy in neurological patients, while 15.3% were not aware of physiotherapy practice. However, 73.4% of participants agreed that physiotherapy adherence is necessary if the recovery process is slow, but 2.2% were disagreed.

Conclusion: Overall, the responses indicate a highly positive and engaged perspective, with a significant majority of caregivers either agreeing or strongly agreeing with the positive statements about physiotherapy management and their role in recovering the patients from neurological disorders.

Keywords: Neurological rehabilitation, Patient participation, Treatment adherence.

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Abstract No.: 29

Effectiveness of Heated IASTM on Superficial Back Line of Fascia for Low Back Pain in Professional Male Rowers: An Experimental Trial

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ABSTRACT

Introduction: Low back pain is widely reported in rowing due to repetitive lumbar loading and posterior-chain demands during training and ergometer work. Instrument-Assisted Soft Tissue Mobilisation (IASTM) is used in sports physiotherapy to address myofascial restrictions and pain; however, evidence in rowing-specific populations and for heated IASTM applications targeting the superficial back line remains limited. Establishing short-term clinical effects may support evidence-informed rehabilitation strategies for performance athletes.

Aim: To determine whether a 2-week heated IASTM programme improves (1) low back pain intensity, (2) superficial back line/posterior-chain flexibility, and (3) rowing-specific performance in professional male rowers.

Materials and Methods: A total of sixty-eight (68) professional male rowers were available at the Chandigarh Sports Department Rowing Training Centre during the study period. From this population, 32 professional male rowers were selected and included in the study. Participants were recruited based on their professional rowing status and the presence of low back pain consistent with repetitive posterior-chain loading demands associated with rowing training. An experimental pre–post trial was conducted over 2 weeks (a total of 6 sessions for each included rower; 3 sessions/week). Outcomes were recorded at baseline (T0) and post-intervention (T2). Pain was measured using the Numeric Pain Rating Scale (NPRS), flexibility using the Sit-and-Reach Test (cm), and performance using a 500 m rowing ergometer test (time in seconds). Quantitative analysis was performed in SPSS using paired t-tests with $p<0.05$.

Results: All primary outcomes improved significantly from T0 to T2. NPRS decreased from 4.09±1.38 to 0.75±1.05 ($p<0.001$). Sit-and-Reach increased from 10.20±11.79 cm to 17.48±8.23 cm ($p<0.001$). 500 m ergometer time improved from 124.84±15.57 s to 116.81±12.79 s ($p<0.001$).

Conclusion: Heated IASTM was associated with clinically meaningful reductions in low back pain and significant improvements in posterior-chain flexibility and rowing performance over 2 weeks. Future controlled trials should confirm efficacy and assess the durability of effects.

Keywords: Instrument-assisted soft tissue mobilisation, Posterior-chain flexibility, Sports rehabilitation.

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Abstract No.: 30

Effectiveness of Alfredson Protocol on Achilles Tendinopathy in Security Personnel of Chandigarh University: A Pilot Study

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ABSTRACT

Introduction: Achilles tendinopathy is a common overuse problem in security personnel because their work involves long hours of standing, marching, and physically demanding duties that place repeated stress on the Achilles tendon. This often leads to persistent pain and difficulty in performing daily and job-related activities. The Alfredson protocol, which consists of eccentric heel-drop exercises performed daily for a 12-week period, is highly effective in reducing pain and improving function in people with mid-portion Achilles tendinopathy. It works by promoting gradual tendon adaptation and strengthening. However, despite its wide use, there is very little research focusing specifically on university security staff, such as those working at Chandigarh University. This gap in the literature provides a strong rationale for conducting the present pilot study.

Aim: This pilot study evaluated whether the Alfredson exercise programme could reduce pain and improve functional ability in security personnel with chronic mid-portion Achilles tendinopathy.

Materials and Methods: Fifteen security personnel from Chandigarh University (age range: 30–45 years) diagnosed with unilateral mid-portion Achilles tendinopathy {Victorian Institute of Sports Assessment–Achilles (VISA-A) questionnaire score <50} were enrolled in this pilot study. All participants completed a 12-week Alfredson eccentric loading programme consisting of three sets of 15 repetitions of heel-drop exercises with the knee in both straight and flexed positions, performed twice daily on a step. Progression was made from bilateral to unilateral loading as tolerated. Primary outcome measures included pain intensity assessed by the Visual Analogue Scale (VAS) during activity and functional status assessed using the VISA-A questionnaire. Assessments were conducted at baseline, 6 weeks, and 12 weeks. Adherence was monitored using exercise logs, and no concurrent therapeutic interventions were permitted during the study period.

Results: The Alfredson protocol yielded striking improvements across the 15 participants, with VISA-A scores rising from 42.5±8.2 at baseline to 68.3±10.1 at 6 weeks and a robust 82.7±7.4 at 12 weeks ($p<0.001$), indicating superior functional recovery. VAS pain scores dropped dramatically from 6.8±1.2 cm to 3.2±1.0 cm and further to 1.5±0.8 cm ($p<0.001$), underscoring the protocol's potent pain-relieving effects. Adherence reached 85%, with only transient mild soreness and no dropouts, affirming its tolerability in this occupational cohort.

Conclusion: The observed improvements support the potential use of this protocol as a standard conservative intervention in occupational groups exposed to high physical demands. However, further studies with larger sample sizes are required to confirm these findings and strengthen the evidence base.

Keywords: Eccentric exercise, Visual analogue pain scale, VISA-A score.

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Abstract No.: 31

Lateral Epicondylitis Prevalence and Functional Consequences of the Condition in Occupational and Clinical Populations: Systematic Review of Observational Studies

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ABSTRACT

Introduction: Lateral epicondylitis is a degenerative tendinopathy of the common wrist extensor origin that leads to lateral elbow pain, reduced grip strength, and difficulty with activities of daily living and work. Although numerous epidemiological and clinical studies have been published, the overall prevalence in working populations and its specific impact on hand function remain fragmented across individual observational reports.

Aim: To systematically review observational studies reporting the prevalence of lateral epicondylitis and its effects on hand and upper-limb function in community and occupational populations.

Materials and Methods: A systematic search of published observational studies was performed in major databases, supplemented by manual searching of reference lists. Eligible studies included cross-sectional, cohort, and case–control designs that reported point or period prevalence of clinically diagnosed lateral epicondylitis and at least one quantitative measure of hand function (e.g., grip strength, wrist extensor strength, or patient-reported functional scales). Data on population characteristics, diagnostic criteria, functional outcomes, and key risk factors were extracted, and findings were synthesised narratively. Prevalence and factors associated with lateral epicondylitis among hospital healthcare workers were assessed.

Results: Across working and general adult populations, the reported prevalence of lateral epicondylitis ranged approximately from 1% to over 10%, with higher values in physically demanding or repetitive upper-limb occupations such as healthcare workers, agricultural labourers, and food-service workers. Affected individuals showed consistently lower grip and wrist-extension strength on the symptomatic side and greater self-reported pain and disability on instruments such as the patient-rated tennis elbow evaluation. Age, smoking, dominant-side involvement, manual labour, and concurrent shoulder pathology were frequently identified as associated factors.

Conclusion: Lateral epicondylitis is a frequent work-related disorder that substantially compromises hand function and work capacity. Standardised diagnostic criteria and core functional outcome sets are needed to enable pooling of data and to inform preventive and rehabilitative strategies.

Keywords: Elbow tendinopathy, Functional disability, Grip strength, Hand function, Occupational health, Tennis elbow, Work-related musculoskeletal disorders.

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Abstract No.: 32

Effectiveness of McKenzie Exercises versus Mulligan Mobilisation in Treatment of Cervicogenic Headache: A Systematic Review of Randomised Controlled Trials

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ABSTRACT

Introduction: Cervicogenic Headache (CGH) is a secondary headache due to dysfunction of the cervical spine and its associated structures. Various physiotherapy interventions have shown good results in treating cervicogenic headache. Mulligan Mobilisation techniques showed good efficacy in many experimental studies. On the other hand, McKenzie exercises, based on the principle of centralisation of pain, have also shown good effectiveness for treating cervical dysfunction, resulting in decreasing cervicogenic headache intensity and frequency.

Aim: Many comparative studies have been done to find the effectiveness of physiotherapy interventions on the treatment of cervicogenic headache, but there are very few studies available comparing the McKenzie exercise protocol versus Mulligan Mobilisation Techniques. The review aims to systematically review different randomised controlled trials done to evaluate the treatment efficiency of Mulligan Mobilisation and McKenzie Protocol and to find out the most effective physiotherapy intervention.

Materials and Methods: A literature search was performed on research databases like Scopus, Web of Science, PubMed, Cochrane and search engines such as Google Scholar using MeSH keywords. This systematic review was done in accordance with the PRISMA guidelines and suitable articles were included following the PICOS model. The quality of articles, internal validity, and data statistics of included studies were assessed using the PEDro Scale.

Results: Out of the reviewed articles,15 Randomised Controlled Trials (RCTs) were found suitable as per PICOS criteria, with a total sample of 1079 participants. All included trials had random allocation and baseline comparability. The blinding of participants was achieved in three studies, while the blinding of therapists was only achieved in two studies. All trials have reported between-group comparisons and point estimates with measures of variability, indicating adequate statistical reporting.

Conclusion: Mulligan Mobilisation provided immediate pain relief and is particularly beneficial in acute symptom management, whereas the McKenzie protocol provided long-term benefits, focusing on posture correction and patient-led self-management of cervicogenic headache.

Keywords: Acute symptom, Internal validity, Physiotherapy intervention.

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Abstract No.: 33

Development and Content Validation of Assistive and Adaptive Technology Dependency Rating Scale (AATD_ RS) among Individuals with Neurological Disorders

NIKITA SWAIN[1], SUNANDA BHOWMIK[2]

ABSTRACT

Introduction: Assistive and Adaptive Devices (AAD) are specifically tailored to assist individuals with disabilities. People with Non-Progressive Neurological Disorders (NPND) tend to depend on AAD for their age-appropriate functioning. Surprisingly, there is no such pre-existing standardised scale to measure the level of dependency of NPND patients on AAD.

Aim: The primary aim is to develop and validate the content of the Assessment of Activities of Daily Living in Neurological Disorders Rating (AATD_RS) scale. The secondary aim is to check the reliability of the developed scale.

Materials and Methods: Patients diagnosed with NPNDS for at least six months will be included in the study. Both male and female participants aged between 18 and 35 years with Mini-Mental State Examination (MMSE) scores greater than 26 will be eligible for participation. Individuals clinically diagnosed with cognitive impairment or cerebral palsy will be excluded from the study. The formulation of the scale will incorporate the opinions of six to ten medical and allied health professionals in an offline setting. The AATD-RS will consist of approximately five questions in each category, and its development and content validation will be carried out in three phases. Phase 1 will involve an extensive literature search using databases such as PubMed, Cochrane Library, and ScienceDirect to identify relevant domains and items. Phase 2 will include seven subphases: Domain and item generation, grouping of items into domains, content validation, preparation of the first draft, preparation of the final draft, pilot testing and revision of the scale based on feedback and findings. Phase 3 will involve reliability testing of the developed scale to determine its consistency and applicability.

Results: Each item of the instrument will be evaluated for content validity using the Item-Level Content Validity Index (I-CVI), while the overall scale validity will be assessed using the Scale-Level Content Validity Index (S-CVI). The S-CVI will be calculated using both the Universal Agreement method (S-CVI/UA) and the Average Calculation method (S-CVI/Ave). According to Lynn's recommendations, when the number of experts ranges from 6 to 10, an I-CVI value of at least 0.78 and an S-CVI/Ave value of 0.90 or higher indicate excellent content validity.

Conclusion: This scale may prove to be an effective tool to identify the degree of dependency on AAD among patients with nonprogressive neurological disorders.

Keywords: Disabled persons, Nervous system disorders, Quality of life, Surveys and questionnaires, Young adults.

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Abstract No.: 34

Identification of Barriers and Facilitators towards Cerebral Palsy Patients' Rehabilitation Accessibility: A Step-wise Qualitative Feasibility Analysis

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ABSTRACT

Introduction: Perceived barriers and facilitators represent the individual's subjective perspective that limit or support adherence to physiotherapy intervention. Individuals with chronic disabilities like Cerebral Palsy (CP) often necessitate consistent physiotherapy care. But it has been noticed that many of these patients are non-adherent to a sustained rehabilitation programme. There is insufficient research on how patients' lived experiences and views affect their adherence to long-term care.

Aim: The primary aim was to identify perceived barriers and enablers to getting physiotherapy care among CP patients. The secondary aim was to create patient-centred rehabilitation techniques.

Materials and Methods: Adults aged 18–36 years with clinically diagnosed CP (GMFCS I, II), either non-adherent to physiotherapy or had never accessed physiotherapy services, were included in the study. An in-depth semi-structured interview was conducted using open-ended questions by the principal investigator. All interviews were audio-recorded with participants' consent and transcribed verbatim for analysis. Data were analysed using Braun and Clarke's thematic analysis framework, involving systematic coding and theme development. Specific perceived barriers and facilitators were analysed using both an inductive and deductive approach.

Results: Two female participants (mean±SD: 25±2 years) were interviewed (mean±SD: 11±5 min). Qualitative analysis revealed that pain, low endurance, and poor energy expenditure serve as key biological barriers. Psychologically, poor motivation of caregivers, anxiety, poor understanding of long-term benefits, and patients' dependency contributed to discontinuation. Facilitators include therapist support and vocational participation. However, Financial constraints, transportation difficulties, social stigma, cultural beliefs, poor transition from paediatric to adult care, and inadequate policy implementation act as barriers. while supportive public policies facilitated sustained participation

Conclusion: The findings may provide a focused framework for the most frequently encountered barriers and facilitators by CP patients. This might help in developing a more appropriate rehabilitation strategy.

Keywords: Permanent disorder, Physical disability, Young adults.

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Abstract No.: 35

Correlation between Function in the Sitting Test and Prediction of Fall Risk among Paraplegic Patients

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ABSTRACT

Introduction: Falls are a common and potentially serious complication among individuals with paraplegia, often occurring during sitting activities and transfers. Assessment of sitting balance and functional control is therefore critical in identifying individuals at higher risk of falls. The Function in Sitting Test (FIST) is a reliable and clinically feasible tool to evaluate sitting balance; however, its role in predicting fall risk among paraplegic patients has not been adequately explored.

Aim: To find a relationship between FIST and the prediction of fall risk among paraplegic patients.

Materials and Methods: The study was conducted in a rehabilitation centre at Bhubaneswar. Fifteen participants below T6 involvement paraplegic patients aged 18 to 65 years were included. The 16-element containing spinal cord injury fall concern scale was used to assess the fall history. The FIST, which includes 14 items to test balance, was then administered.. The participants performed each test three times, after which the mean was determined for analysis of the data. To maintain the circadian rhythm, all assessments and tests were conducted in the morning.

Results: The finding demonstrated a significant negative correlation (r=-0.86) between FIST score and fall risk, indicating that lower sitting function was associated with a high risk of falls.

Conclusion: The FIST may be an effective clinical tool for the prediction of fall risk among paraplegic patients.

Keywords: Accidental falls, Paraplegia, Rehabilitation centres, Spinal cord injury.

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Abstract No.: 36

Impact of a Structured Multimodal Physiotherapy (MENT) Protocol on Pain, Grip Strength, and Function in Cervical Radiculopathy: A Pilot RCT

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ABSTRACT

Introduction: Cervical radiculopathy is a common neuromusculoskeletal disorder that causes pain in the neck that spreads to the upper limb. It is often accompanied by changes in sensation, less grip strength, and limitations in function. Conventional physiotherapy is commonly used for conservative management; however, increasing attention has been directed toward structured multimodal approaches that integrate pain modulation, neuromuscular control, neural mobility, and postural retraining.

Aim: To evaluate the preliminary effectiveness of a Motor control training, Ergonomic retraining, Nerve mobilisation and TENS+hot pack (MENT) protocol on pain intensity, grip strength, and functional ability in individuals with cervical radiculopathy.

Materials and Methods: A pilot randomised controlled trial was conducted involving 16 individuals diagnosed with cervical radiculopathy. Participants were randomly allocated into two equal groups: the experimental group (n=8), which received a structured multimodal intervention based on the MENT protocol, and the control group (n=8), which underwent conventional physiotherapy treatment. The intervention period lasted four weeks. Outcome measures were recorded at baseline and post-intervention using the Numeric Pain Rating Scale (NPRS) for pain intensity, the Patient-Specific Functional Scale (PSFS) for functional ability, and a handheld dynamometer for grip strength assessment.

Results: Following the intervention, both groups exhibited improvements; however, the experimental group achieved greater and more consistent gains. Pain intensity declined more substantially in the experimental group compared to the control group, accompanied by larger improvements in functional ability and grip strength. While inferential statistical analysis was not conducted due to the pilot nature of the study, the observed mean differences consistently favoured the MENT protocol over conventional physiotherapy.

Conclusion: The findings of this pilot study indicate that the MENT protocol is both feasible and potentially more effective than conventional physiotherapy in reducing pain, enhancing grip strength, and improving functional ability among individuals with cervical radiculopathy. To validate and expand upon these preliminary results, larger and adequately powered randomised controlled trials are required.

Keywords: Motor control exercise, Neck pain, Neural mobilisation, Physical therapy modalities, Rehabilitation.

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Abstract No.: 37

Effect of Physiotherapy Rehabilitation in Adhesive Capsulitis of the Shoulder: A Case Study

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ABSTRACT

Adhesive capsulitis is a common musculoskeletal disorder characterised by shoulder pain and progressive restriction of both active and passive range of motion. It is frequently associated with diabetes mellitus and may be triggered or aggravated by minor trauma. Physiotherapy plays a crucial role in reducing pain, improving joint mobility, and restoring functional independence. A 45-year-old male presented with complaints of pain and progressive stiffness of the right shoulder for 1.5 years following a minor traumatic incident in which his shoulder was hit by a car door. Radiological examination at the time of injury revealed no fracture or structural abnormality. The patient had a 10-year history of type 2 diabetes mellitus with irregular glycemic control. Clinical examination showed marked limitation of both active and passive shoulder Range of Motion (ROM), particularly in abduction and external rotation, associated with pain. Pain intensity measured using the Visual Analogue Scale (VAS) was 7/10. Based on clinical findings, a diagnosis of post-traumatic adhesive capsulitis of the right shoulder was made. The patient underwent a structured 2-month physiotherapy rehabilitation programme. Initial management focused on pain relief using ultrasonic therapy and Grade I–II Maitland mobilisations. As symptoms improved, treatment progressed to include Grade III–IV mobilisations, Spencer's technique, capsular stretchings, theraband strengthening for rotator cuff and scapular stabilisers, and conventional shoulder exercises to restore functional movement. Following rehabilitation, the patient showed significant improvement in shoulder ROM and functional ability. Pain intensity decreased from 7/10 to 3/10 on the VAS, and the patient regained independence in activities of daily living. This case study demonstrates that a comprehensive physiotherapy rehabilitation programme is effective in managing post-traumatic adhesive capsulitis, even in diabetic patients.

Keywords: Adhesive capsulitis, Shoulder mobilisation, Physiotherapy.

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Abstract No.: 38

Associating Screen Time and Environmental Risk Factors with Autistic-like Symptoms in Paediatric Populations: A Narrative Review

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ABSTRACT

The last decade has contributed much to our understanding of neurodevelopmental conditions and shifted our view from a rigid diagnostic scope to a more flexible dimensional approach. Globally, the prevalence of autism has been on a rising trend, with approximately 1 in every 100 children having the diagnosis. This study aims to identify factors that are linked to the expression of autism-like symptoms. This review also tries to shift the view from "diagnosis-based" to a "need-based" approach and care. Open access and full-text articles were filtered according to the population age, relevance, and languages and were included in the study from different database sources. The study focuses on children between ages of 0 and 12 years. It attempts to explore the available peer-reviewed articles on autism-like symptoms and the factors that influence them.

The study results in identifying multiple factors that are linked to influencing the already existing autism-like symptoms. These factors are screen exposure, low vitamin D, nutritional deficit, decreased parent-child interaction, and others. While none of the independent risk factors cause the symptoms, they do have an impact on them. Autism-like traits are observable behaviors in temperament, social responsiveness, language enrichment, and socio-motor variability. It

is not just about the presence or absence of symptoms but also the variability in their expression.

Keywords: Neurodevelopmental conditions, Prevalence, Sub-threshold autism.

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Abstract No.: 39

Post Isometric Inhibition Technique to Improve Initial Range and Quadriceps Strength among ACL Repair Patients: A Literature Review

JAYESH JOSHI[1], JOYDIP SAHA[2]

ABSTRACT

Introduction: Rehabilitation following Anterior Cruciate Ligament Reconstruction (ACLR) is frequently complicated by Atherogenic Muscle Inhibition (AMI), pain, and restricted Range of Motion (ROM).

Aim: Our literature review aimed to find out the effectiveness of performing the PII technique among ACL reconstructive patients in improving strength and ROM.

Materials and Methods: In accordance with PRISMA recommendations, we conducted a comprehensive data search on PubMed, ScienceDirect, Cochrane and Embase using MeSH terms such as post-isometric inhibition and ACLR with Boolean operators AND, OR. As per our inclusion and exclusion criteria, we selected three articles after article screening and duplicate removal. We searched multiple databases, including PubMed Central, ScienceDirect, Cochrane, and Embase, in accordance with PRISMA guidelines. The search strategy utilised Boolean operators (AND, OR) and MeSH terms such as 'isometric contraction,' 'anterior cruciate ligament reconstruction,' 'muscle strength,' and 'range of motion'. A total of 12 articles were identified in the database, and following the removal of duplicates and application of specific inclusion and exclusion criteria, three articles were selected.

Results: Evidence suggests that integrating isometric exercises with PII significantly reduces postoperative knee joint contracture compared to conventional protocols. Specifically, the application of PII and related PNF techniques has been shown to increase knee flexion by up to 52.8 degrees and improve extensor strength by 40% over four weeks. These techniques utilise the neurophysiological refractory period following an isometric contraction to facilitate muscle relaxation and mitigate the inhibitory effects of joint effusion on the alpha-motoneuron pool.

Conclusion: Post-isometric inhibition facilitates early recovery of ROM, reduces pain, and addresses neuromuscular deficits more effectively than static stretching or isolated strengthening.

Keywords: Anterior Cruciate Ligament, Isometric contraction, Muscle strength, Range of motion.

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Abstract No.: 40

Physiotherapeutic Interventions in Stiff Person Syndrome: A Narrative Review of Case-based Evidence

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ABSTRACT

Stiff-Person Syndrome (SPS) is a rare autoimmune neurological disorder characterised by progressive rigidity of axial and proximal limb muscles, with painful, stimulus-sensitive spasms, largely due to impaired GABAergic inhibition and frequently associated with anti-GAD antibodies. SPS predominantly affects axial muscles, including the paraspinal and abdominal regions, leading to reduced joint range of motion, gait disturbances, and marked limitations in performing Activities of Daily Living (ADLs), often accompanied by anxiety and phobic disorders, and worsening disability. Early recognition with specialised diagnosis criteria and integration of physiotherapy within multidisciplinary care are essential, as targeted interventions including physiotherapy can reduce stiffness and spasms, improve mobility and balance, and enhance functional independence. This narrative review aims to synthesise and describe the role of physiotherapeutic interventions in SPS over the last two decades. This review is focussed on the effect of physiotherapy interventions on muscle rigidity, balance and functional independence. A narrative review design was adopted to examine the role of physiotherapeutic interventions in SPS. Published literature was searched and identified from electronic databases, including PubMed, Cochrane, Scopus, and Embase, over two decades (2005-2025). The combinations of terms related to 'Stiff-Person Syndrome' and 'physiotherapy' or 'physical therapy' were used. The case reports with physiotherapy interventions without restrictions on age, sex and disease duration were included. Data were extracted qualitatively for patient characteristics, diagnostic criteria, physiotherapy assessment findings, intervention protocols, adjunctive treatments, and reported clinical and functional outcomes. Interventions were subsequently grouped into categories targeting symptom relief (e.g., stiffness and spasms) and functional restoration (e.g., mobility and activities of daily living), and findings were synthesised descriptively due to heterogeneity and low study level. Eleven case studies were available with physiotherapeutic interventions and were associated with a reduction in muscle rigidity and stimulus-sensitive spasms, along with improved joint range of motion. The interventions used in the case reports were stretching, relaxation techniques, hydrotherapy, balance and coordination training, and manual therapy after tailored according to the needs of the patient. Overall, the patients showed improvement in mobility and ADLs. The improvement seen in the reduction in fear and anxiety is limited. Physiotherapeutic interventions may reduce rigidity and spasms and enhance muscle function and promote greater independence in ADLs in individuals with SPS; based on existing case-based literature. Severe cases may progress to Progressive Encephalomyelitis with Rigidity and Myoclonus (PERM), underscoring the importance of early recognition. Limited evidence precludes definitive conclusions regarding long-term prognosis, emphasising the need for further research.

Keywords: Muscle rigidity, Muscle spasms, Physiotherapy.

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Abstract No.: 41

Effectiveness of Myofascial Release Techniques in Reducing Pain and Improving Function in Iliotibial Band Syndrome: A Systematic Review

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ABSTRACT

Introduction: Iliotibial Band Syndrome (ITBS) is a common overuse injury characterised by lateral knee pain, particularly among runners, cyclists, and physically active individuals. Increased iliotibial band tension and soft tissue restrictions are frequently implicated in the pathomechanics of the condition. Myofascial Release (MFR) techniques are commonly used in clinical practice; however, evidence regarding their effectiveness in ITBS remains variable.

Aim: To systematically review the available evidence on the effectiveness of MFR–based techniques in reducing pain and improving functional outcomes in individuals with ITBS or iliotibial band tightness.

Materials and Methods: A systematic literature search was conducted across PubMed, Cochrane Library, PEDro, ScienceDirect, and Google Scholar for studies published between 2005 and 2025. Randomised controlled trials, controlled clinical trials, and quasi-experimental studies evaluating myofascial release interventions were included. Outcomes assessed included pain intensity, functional outcomes, iliotibial band flexibility, pressure pain threshold, and range of motion. Study selection followed PRISMA guidelines. Methodological quality was assessed using the PEDro scale and the Joanna Briggs Institute checklist. A narrative synthesis was performed.

Results: Twelve studies met the inclusion criteria. The findings indicated that myofascial release techniques, including manual myofascial release, self-myofascial release using foam rollers, trigger point release, and instrument-assisted soft tissue mobilisation, were effective in reducing pain and improving flexibility-related outcomes. Combined interventions involving myofascial release and exercise showed better functional outcomes than exercise alone.

Conclusion: MFR techniques appear to be effective adjuncts in the conservative management of ITBS, contributing to pain reduction and improved functional outcomes.

Keywords: Functional outcomes, Instrument-assisted soft tissue mobilisation, Pain and function, Self-myofascial release.

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Abstract No.: 42

Association between Bruxism and Pain, Sleep Quality, and Psychosocial Factors among College Students: A Systematic Review

CHETNA CHAPRANA[1], PREETI SAINI[2]

ABSTRACT

Introduction: Bruxism, the habit of clenching or grinding teeth during sleep or while awake, is increasingly seen among college students. It is often linked to jaw pain, headaches, poor sleep, and psychological issues such as stress, anxiety, and depression. Because existing studies report mixed findings, a systematic review is needed to bring the evidence together.

Aim: This review aims to examine published research on the relationship between bruxism, pain, sleep quality, and psychosocial factors in college students.

Materials and Methods: Electronic databases, including PubMed, Scopus, Web of Science, and Google Scholar, were searched for observational and analytical studies. Eligible studies assessed bruxism alongside validated measures of pain, sleep quality, and

psychosocial outcomes such as stress, anxiety, and depression. Data extraction focused on study design, diagnostic criteria, outcome measures, and findings. Study quality was evaluated using standardised appraisal tools.

Results: Previous studies suggest that bruxism is more common among students with high stress levels. It has been associated with orofacial pain, temporomandibular discomfort, headaches, cervical pain, poor sleep quality, and daytime fatigue. Psychosocial factors—particularly academic stress and emotional distress—appear to play a strong role, pointing to a multifactorial origin.

Conclusion: Bruxism in college students is linked to pain, sleep problems, and psychosocial stress. Early identification and multidisciplinary management, including stress reduction, sleep hygiene, and physiotherapy, may help. Future longitudinal studies are needed to clarify causal pathways and guide preventive strategies.

Keywords: Academic stress, Orofacial pain, Stress reduction.

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Abstract No.: 43

Survey of Sleep Disturbances and their Association with Anxiety in Patients with Neurological Conditions: A Cross-sectional Study

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ABSTRACT

Introduction: Sleep disturbances and anxiety are commonly found among patients with neurological conditions, often affecting quality of life and complicating treatment outcomes. Even being frequently co-occurring, the relationship between the two has not been much researched in Indian clinical settings.

Aim: This study aims to assess the association between sleep quality and anxiety levels in patients with neurological disorders using a survey-based method. A total of 30 participants diagnosed with conditions like Parkinson's disease, epilepsy, multiple sclerosis, and functional neurological disorder were recruited from a neurology outpatient department. Data was collected using two valid tools: the Pittsburgh Sleep Quality Index (PSQI) and the Generalised Anxiety Disorder-7 (GAD-7) scale.

Results: The results showed that a significant proportion of participants reported poor sleep quality along with mild to severe anxiety symptoms. Statistical analysis showed a moderate positive correlation between the scores measured by PSQI and GAD-7 tools, suggesting that higher sleep disturbance levels were generally associated with higher anxiety.

Conclusion: This study highlights the need for routine psychological and sleep-related screening in neurological care settings. Though this study had a small sample size, the findings encourage the need for larger studies and the need to approach the issue for better patient care.

Keywords: Neuropsychiatric symptoms, Neurological disorders, Sleep quality.

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Abstract No.: 44

Influence of Strabismus and Binocular Vision Disorders on Gross Motor Function in Children with Cerebral Palsy: A Systematic Review

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ABSTRACT

Introduction: Motor impairment in cerebral palsy is often accompanied by disturbances in visual processing. Strabismus and binocular vision disorders may interfere with depth perception, spatial orientation, and postural control, potentially influencing motor performance.

Aim: This review explored whether abnormalities such as strabismus and impaired binocular vision are associated with reduced gross motor ability in children diagnosed with cerebral palsy.

Materials and Methods: Relevant studies were identified through database screening of published research examining visual dysfunction alongside standardised motor assessments in paediatric cerebral palsy populations. Studies meeting predefined eligibility criteria were reviewed, and findings were organised through qualitative synthesis due to variation in materials and methods and outcome measures.

Results: The analysed literature consistently indicated that visual abnormalities are more frequent in children with greater motor severity. Persistent ocular misalignment, reduced stereoacuity, and binocular coordination deficits were linked with poorer performance on gross motor classification scales. Evidence across studies suggested that compromised visual input may influence postural stability, coordination, and overall movement control.

Conclusion: Evidence indicates a meaningful association between binocular visual disorders and motor limitations in children with CP. Visual dysfunction appears to influence motor performance beyond being a coexisting condition.

Keywords: Gross motor function, Motor impairment, Visual processing.

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Abstract No.: 45

Association between Sleep Quality Disturbances and Motor Learning Outcomes in Cerebral Palsy: A Systematic Review

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ABSTRACT

Introduction: Cerebral Palsy (CP) is a non-progressive neuro-developmental disorder characterised by persistent motor impairments that limit functional performance. Motor learning is central to physiotherapy interventions in CP and depends on repeated practice, retention, and neuroplastic mechanisms. Sleep plays a critical role in motor memory consolidation and synaptic reorganisation. Individuals with CP frequently experience sleep disturbances, including insomnia, sleep fragmentation, sleep-disordered breathing, pain-related awakenings, and medication-related sleep alterations. These disturbances may adversely influence motor learning and rehabilitation outcomes; however, the evidence has not been comprehensively synthesised.

Aim: To systematically review and synthesise evidence on the association between sleep quality disturbances and motor learning outcomes in individuals with CP.

Materials and Methods: This systematic review was conducted in accordance with the PRISMA-2020 guidelines. A comprehensive

search of electronic databases identified studies examining sleep quality or sleep disturbances in relation to motor learning outcomes in individuals with CP. Observational and interventional studies reporting subjective and/or Aim sleep measures alongside motor learning outcomes were eligible. Thirteen studies met the inclusion criteria and were included in the qualitative synthesis. Due to heterogeneity in study designs, outcome measures, and assessment tools, a narrative synthesis was performed.

Results: Across the 13 included studies, poor sleep quality in individuals with cerebral palsy was consistently associated with reduced motor skill acquisition, impaired retention, and suboptimal consolidation of learned motor tasks. Both subjective and aim sleep disturbances were reported to negatively affect motor learning, particularly for tasks requiring sustained attention, repetition, and practice-dependent adaptation. Variability in findings was observed according to age, type of sleep disturbance, and the nature of motor learning tasks.

Conclusion: Evidence from 13 studies suggests that sleep quality disturbances are negatively associated with motor learning outcomes in individuals with cerebral palsy. Identification and management of sleep-related problems may enhance motor learning capacity and improve physiotherapy and rehabilitation outcomes. Future research employing standardised sleep assessments and motor learning measures is needed to strengthen the evidence base and inform clinical practice.

Keywords: Neuroplasticity, Physiotherapy, Sleep disturbances.

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Abstract No.: 46

When Mind Meets Balance: Barriers to Rehabilitation among Adolescents with Intellectual Disability: A Narrative Review

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ABSTRACT

Intellectual Disability (ID) is a neurodevelopmental disorder that is typified by a profound loss of intellectual functioning and adaptive behaviour, which begins in the period of development. A 2022 study reported the prevalence of intellectual disability in India to be about 1.4-2%. Adolescence is a pivotal phase in life, as a significant number of adolescents with ID experience disruption in rehabilitation due to various barriers. The purpose of this narrative review was to review these barriers in rehabilitation among adolescents with Intellectual Disability. A literature review was performed through PubMed, Wiley online library, Science Direct, Frontiers, and Google Scholar with search results between 2012 and 2026. Twenty-six articles were reviewed, of which 15 met the inclusion criteria. The results showed that there were four significant types of barriers, including structural and service-level barriers such as lack of adolescent-specific programs, financial constraints, transport problems and poor coordination of the services; Environmental barriers related to poor accessibility of infrastructure and insufficient therapeutic services; Psychosocial and family barriers including low motivation and decreased participation in rehabilitation; Transition-gap barriers due to poor rehab planning in this age group. These mutually supporting barriers cause a decreased involvement in rehabilitation and service discontinuity in the process of transitioning between school and community contexts. To sum up, adolescent intellectual disability embodies multidimensional barriers to rehabilitation, which are structurally determined. There is a need to have barrier-focused planning and organised transition systems to enhance functional outcomes and accessibility to rehabilitation services.

Keywords: Access to healthcare, Adaptive behaviour, Transition services.

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Abstract No.: 47

Stability in Motion: Physiotherapy Interventions to Target Postural Control in Adolescents with Intellectual Disability: A Narrative Review

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ABSTRACT

Intellectual Disability (ID) is a neurodevelopmental condition that is characterised by severe intellectual functioning and adaptive functional shortcomings. A 2022 study stated that the prevalence of intellectual disability in India was approximately 1.4-2%. Poor postural control, normally observed in adolescents with ID, is the inability to maintain the center of mass of the body during the base of support in combination with visual, vestibular and somatosensory information and results in an increased postural sway and slower motor coordination. The purpose of this narrative review was to estimate the effectiveness of physiotherapy and exercise-based interventions to enhance both the static and dynamic balance of adolescents with ID. A literature search was conducted using major electronic databases, including PubMed, Google Scholar and Science Direct, for studies published between 2012 and 2025. Studies involving adolescents aged 10–19 years with intellectual disability and evaluating physiotherapy or exercise-based interventions targeting balance were included, of which 20 studies met the inclusion criteria. Structured balance training, hippotherapy, trampoline exercises, neuromuscular training, virtual-reality-based exercises, and a dual-task balance training program were some of the identified interventions. The duration of interventions was between 8 and 12 weeks. A majority of the studies have found dramatic changes in the field of both static and dynamic balance, postural control and functional mobility. Findings of meta-analysis showed that the effect sizes are large, which implies that physiotherapy interventions are very effective in increasing balance performance among adolescents with intellectual disability. In conclusion, physiotherapy-based exercise interventions, especially those that include the use of progressive balance tasks and post-sensory-motor training ones, are useful in enhancing balance and postural stability among adolescents with intellectual disability. The use of structured physiotherapy programmes in rehabilitation and school-based physical activity programs could be used to improve functional independence and decrease the risk of falls in this population.

Keywords: Adolescents, Balance Training, Intellectual Disability, Physiotherapy Interventions, Postural control.

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Abstract No.: 48

High-risk Movement Patterns in Athletes Returning after ACL Reconstruction: A Systematic Evidence Review

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ABSTRACT

Introduction: Despite advances in surgical techniques and rehabilitation, athletes who return to sport after Anterior Cruciate Ligament Reconstruction (ACLR) remain vulnerable to a second ACL injury. Increasing attention has been directed toward subtle biomechanical and neuromuscular deficits that may persist at return to sport but are not routinely captured by standard clinical criteria.

Aim: To systematically synthesise evidence on high-risk movement patterns observed in athletes returning to sport following ACL reconstruction.

Materials and Methods: This systematic review followed PRISMA 2020 guidelines. A comprehensive literature search was conducted

in PubMed, Scopus, ScienceDirect, Web of Science, and BMJ Open Sports and Exercise Medicine for studies published between January 2000 and March 2025. Eligible studies involved athletes post-ACLR and reported Aim movement-based outcomes, including biomechanical, kinematic, kinetic, or neuromuscular measures assessed at or near return to sport. Due to methodological variability across studies, findings were synthesised narratively.

Results: Forty-three studies were included in the qualitative analysis. Across a range of dynamic tasks such as landing, cutting, hopping, and sport-specific movements, athletes commonly demonstrated persistent movement deficits. These included increased frontal-plane knee motion, reduced knee flexion strategies, inter-limb asymmetries, altered joint loading, and impaired neuromuscular control. Notably, several studies reported these high-risk patterns even in athletes who satisfied conventional return-to-sport benchmarks.

Conclusion: Evidence consistently indicates that movement-related risk factors may persist at return to sport after ACL reconstruction. Reliance on time-based or performance-based criteria alone may be insufficient. Integrating movement-quality and biomechanical assessment into return-to-sport decision-making could enhance reinjury prevention strategies.

Keywords: Anterior cruciate ligament, Biomechanics, Movement quality, Neuromuscular control, Return to sport, Secondary injury.

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Abstract No.: 49

Tactile-kinesthetic Stimulation and Soft Tissue Manipulation as Modulators of Blood Cortisol Levels in Preterm Neonates: A Narrative Review

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ABSTRACT

Preterm neonates admitted to paediatric and neonatal care settings are frequently exposed to environmental and procedural stressors that activate the Hypothalamic–Pituitary–Adrenal (HPA) axis, leading to elevated blood cortisol levels. Persistent stress responses in this vulnerable population may adversely affect neurodevelopmental and physiological outcomes. Non-pharmacological, touch-based interventions such as Tactile-Kinaesthetic Stimulation (TKS) and Soft Tissue Manipulation (STM) have emerged as potential strategies to attenuate stress and promote autonomic stability. This narrative review aims to synthesise existing evidence on the role of TKS and STM in modulating blood cortisol levels among preterm neonates. A narrative analysis of published literature was conducted using electronic databases, including PubMed, Scopus, and Google Scholar. Studies exploring TKS, massage therapy, STM and related manual interventions in preterm neonates were reviewed, with particular emphasis on outcomes related to blood cortisol levels and stress regulation. The reviewed evidence suggests that TKS and STM are associated with reductions in blood cortisol levels, improved autonomic regulation, enhanced sleep patterns and better weight gain in preterm infants. Proposed mechanisms include modulation of the HPA axis, vagal stimulation, and improved parent–infant interaction. However, heterogeneity exists in intervention protocols, duration, intensity, and outcome assessment methods. TKS and STM appear to be promising, safe, and cost-effective interventions for stress modulation in preterm neonates. While current evidence supports their beneficial effects on blood cortisol levels, further well-designed clinical studies are required to establish standardised protocols and strengthen causal inference.

Keywords: Cortisol, Neonates, Touch, Pain.

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Abstract No.: 50

Neurophysiological Perspectives of Sensory Integration, Motor Dysfunction and Cognitive Impairment among Children with Attention Deficit Hyperactivity Disorder: A Narrative Review

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ABSTRACT

Introduction: Attention Deficit Hyperactivity Disorder (ADHD) is being increasingly recognised as a heterogeneous neurodevelopmental disorder that transcends beyond the core behavioural symptomatology. Children with ADHD exhibit issues with sensory integration and motor planning, along with impairment in the cognitive domain, pertaining chiefly to attention control. An understanding of the neurophysiological mechanisms that underlie the interactions between sensory-motor function and cognition is needed for a comprehensive understanding of the disorder.

Aim: This review aims to synthesise current evidence on the neurophysiological manifestations and identify their impact on sensory integration deficits, motor dysfunction, and cognitive impairment among children with ADHD.

Materials and Methods: A narrative review of the literature was conducted across PubMed, Scopus, and Web of Science databases. The inclusion criteria focused on studies in sensory processing, motor function, and cognition among children with ADHD and their corresponding neurophysiological mechanisms. Data were extracted and synthesised from neurodevelopmental studies, neuroimaging and electrophysiological findings for functional outcomes.

Results: Neurophysiological findings demonstrate disruption in cortical and subcortical connectivity and defects in temporal processing affecting neural synchronisation. The findings from this review are indicative of atypical sensory processing and motor coordination difficulties in ADHD, which correlate with deficits in executive function and attention regulation, making it harder for children to learn and carry out motor-related activities and ability to perform everyday tasks effectively.

Conclusion: There is a favourable association between somato-sensory discrimination and motor planning that leads to sensory processing differences among children with ADHD. Recognising these interactions may aid in improving understanding of ADHD pathophysiology and provide direction for developing more targeted neurorehabilitation approaches to improve functional outcomes among these children.

Keywords: Brain, Cognition, Quality of Life, Motor function, Sensory Integration.

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Abstract No.: 51

Combined Effect of Gross Arm Pull Technique and Suboccipital Inhibition on Pain, Range of Motion, and Disability in Patients with Cervical Spondylosis with Radiculopathy: A Case Series

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ABSTRACT

Introduction: Cervical Spondylotic Radiculopathy (CSR) is a common degenerative cervical condition characterised by neck pain, radiating arm pain, restricted cervical mobility, and functional disability. Conventional physiotherapy interventions such as traction, electrotherapy, and exercises may require prolonged treatment and may not adequately address persistent symptoms. Myofascial restrictions are increasingly recognised as contributors to pain and dysfunction in CSR.

Purpose: To examine the effectiveness of gross arm pull and suboccipital inhibition in reducing pain, improving cervical mobility, and decreasing disability in individuals with CSR.

Participants: Three participants (two females and one male) with radiologically confirmed cervical degeneration and symptoms persisting for more than three months, including neck pain radiating to the upper limb, restricted cervical range of motion, and difficulty with activities.

Materials and Methods: Pain intensity was assessed using the Numerical Pain Rating Scale (NPRS), cervical range of motion using a universal goniometer, and disability using the Neck Disability Index (NDI) and Quick Disabilities of the Arm, Shoulder, and Hand questionnaire (Quick-DASH). Participants received a three-week intervention consisting of three sessions per week, each lasting approximately 25 minutes. The treatment protocol included gross arm pull technique, and postural re-education exercises. Pre- and post-intervention scores were compared.

Results: Significant improvements were observed across all outcome measures. NPRS scores decreased from 7.67±0.57 to 2.67±0.57 ($p<0.01$). NDI scores improved from 59.16±2.88 to 25.00±2.50 ($p<0.01$), and Quick-DASH scores reduced from 55.83±2.88 to 13.33±1.44 ($p<0.01$). Cervical range of motion improved in all planes following the intervention.

Conclusion: Gross arm pull and cranial base release combined with postural re-education demonstrated meaningful improvements in pain, cervical mobility, and disability in individuals with CSR.

Keywords: Cervical mobility, Degenerative, Myofascial release therapy.

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Abstract No.: 52

Applications of Dynamic Taping in Musculoskeletal Rehabilitation: A Narrative Review

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ABSTRACT

Dynamic Taping (DT) has gained increasing attention in musculoskeletal rehabilitation due to its ability to modulate mechanical load during movement. Unlike traditional rigid or kinesiology taping, DT is designed to absorb external loads and reduce tissue stress during movement. Despite its growing clinical use, evidence regarding its effectiveness across musculoskeletal rehabilitation remains unclear. This review aims to critically synthesise and appraise current literature on the application of DT in musculoskeletal rehabilitation, with emphasis on pain, movement performance, functional outcomes, and quality of life.

Electronic databases, including PubMed and Google Scholar, were searched using terms “dynamic taping”, “musculoskeletal rehabilitation”, “pain”, “function”, and “movement”. Articles published in English involving adults with musculoskeletal conditions were included. Data were extracted on study design, populations, taping protocols, outcome measures, and key findings. The methodological quality of included studies was evaluated qualitatively by considering design, sample size, use of control groups, and outcome measures. Due to heterogeneity in methodologies, a qualitative narrative synthesis was performed. The overall strength of evidence ranges from low to moderate. Moderate-level evidence supports the use of dynamic taping as an adjunct to standard rehabilitation in conditions such as plantar fasciitis and chronic neck pain, with reported improvements in pain, function, and patient-reported outcomes. In contrast, findings related to low back pain and tendinopathies were variable, with some studies indicating functional improvements but limited benefits in pain reduction.

DT appears to be a promising adjunct in musculoskeletal rehabilitation, particularly for enhancing movement and functional outcomes. However, variability in application techniques and limited long-term data highlight the need for further high-quality research.

Keywords: Dynamic taping, Musculoskeletal rehabilitation, Pain.

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Abstract No.: 53

Comparison of Isometric Squat-derived Concentric and Eccentric Force and Inter-limb Asymmetry between Athletic and Non-athletic Individuals Three Months after ACL Reconstruction

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ABSTRACT

Introduction: Anterior Cruciate Ligament Reconstruction (ACLR) alters the biomechanics of lower limbs, causing inter-limb asymmetries. Squat assessment is one of the crucial tests to examine asymmetry and the force produced in post-ACLR patients.

Aim: This study aims to examine and compare forces of the ascent phase (concentric force) and descent phase (eccentric force) along with their inter-limb asymmetries during a 90-degree isometric squat between ACLR athletes and ACLR non-athletes.

Materials and Methods: For this retrospective study, 25 subjects were divided into two groups: 14 athletes and 11 non-athletes. Patients were aged between 20 and 35 years old. Squat assessment was performed 3 months after surgery. ACL reconstructed patients with or without menisectomy were included. They performed a 90-degree isometric squat on a dual force plate of ForceDecks 3 months post-ACL reconstruction. Squat assessment was done to measure concentric peak force (N) with inter-limb asymmetry (%) and eccentric peak force (N) with associated inter-limb asymmetry (%). After obtaining descriptive statistics of the two groups, an Independent t-test was performed to compare the two groups using SPSS software.

Results: Concentric force asymmetry $p<0.05$:$t(23)=-3.58$, $p=0.004$ and eccentric force asymmetry $p<0.05$:$t(23)=-3.992$, $p=0.001$ were significantly higher for ACLR non-athlete group. There was no significant difference for concentric peak force $p>0.5$t$(23)=1.107$, $p=0.280$ and eccentric peak force $p>0.5$t$(23)=1.001$, $p=0.327$ between the two groups.

Conclusion: Three months post-ACLR, inter-limb symmetry (%) of both concentric and eccentric force remains impaired. This suggests that the neuromuscular deficit remains after 3 months of surgery.

Keywords: Anterior cruciate ligament, Asymmetry, Concentric force, Eccentric force, Isometric Squat.

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