Original Research

MATRIX RHYTHM THERAPY IN CHRONIC MUSCULOSKELETAL PAIN DISORDERS: A SCOPING REVIEW

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ABSTRACT

Background: Chronic musculoskeletal pain is a major contributor to global disability and reduced quality of life. Conventional physiotherapy approaches show variable outcomes, necessitating exploration of alternative and adjunctive interventions such as Matrix Rhythm Therapy (MRT).

Objective: This scoping review aimed to synthesize the available evidence on the effectiveness of MRT in the management of chronic musculoskeletal pain disorders.

Methods: A comprehensive literature search was conducted across PubMed, Scopus, Web of Science, Science Direct, and Springer databases for studies published between 2016 and 2025. Additional manual searches were performed. Studies investigating MRT in chronic musculoskeletal conditions were included. A total of 250 records were identified, of which 20 studies met the inclusion criteria after screening and eligibility assessment. Data were extracted and synthesized narratively.

Results: The included studies comprised randomized controlled trials, pilot studies, quasi-experimental studies, and case reports. MRT demonstrated consistent improvements in pain reduction, functional ability, and range of motion across various conditions, including chronic low back pain, knee osteoarthritis and neck pain. The effects may be attributed to the factors that MRT revitalizes cellular metabolism and synchronising systemic physiological processes through depth-resonant, rhythmically aligned magneto-mechanical oscillations, which usually work within the clinical frequency of 8-12 Hz (Bhatikar, 2018; Maruthy et al., 2019).

Conclusion: MRT appears to be a promising non-invasive therapeutic approach for chronic musculoskeletal pain management. However, the current evidence is limited by methodological variability, and further high-quality research is required to establish standardized clinical guidelines.

Keywords: Matrix Rhythm Therapy, Chronic Musculoskeletal Pain, Physiotherapy, Rehabilitation, Pain Management.

INTRODUCTION

Chronic musculoskeletal pain is one of the significant health issues worldwide, and is a major cause of disability and loss of quality of life among populations. Chronic musculoskeletal pain is defined using the proposed ICD-11 classification system as 'persistent or recurrent pain that arises as part of a disease process directly affecting bone(s), joint(s),muscle(s), or related soft tissue(s) (Blyth and Noguchi., 2017). It is linked to a high socioeconomic burden, health care usage, and permanent functional incapacity (Cohen et al., 2021).

The epidemiological data reveals that the cases of chronic pain conditions are extremely high and usually multifactorial due to the biological, psychological, and social aspects (Mills et al., 2019).

www.ajmrhs.com
eISSN: 2583-7761

Date of Received: 02-04-2026
Date Acceptance: 10-04-2026
Date of Publication: 06-05-2026

With all developments in health care, chronic musculoskeletal pain is still a challenging issue due to its complex and heterogeneous nature. The existing treatment methods largely concentrate on the pharmacological therapy, physical therapies, and multidisciplinary rehabilitation programs (El-Tallawy et al., 2021). Nonetheless, the lack of full analgesia, recurrence, and patient variable outcomes are some of the limitations that indicate the necessity to use supplementary and alternative therapeutic modalities (Foster et al., 2018).

Physiotherapy is an important aspect of musculoskeletal disorder management, especially with exercise-based interventions to enhance functions and minimise pain (Dantas et al., 2021). Exercise therapy has been broadly suggested as a primary option of treatment because it is effective in dealing with physical and psychosocial impairments (Geneen et al., 2017). The modern rehabilitation methods have a growing focus on a biopsychosocial model, which is a combination of physical,

cognitive, and behavioral interventions to improve the success of treatment (Booth et al., 2017).

Besides standard treatment methods, manual therapy and vibration-based interventions have become the focus of interest as they provide anabolic mechanical signals to bone and musculo-tendinous system which positively influence muscle function and coordination (Cerciello et al., 2016). For instance, massage therapy has proved beneficial effects in the reduction of pain and promoting recovery with the help of mechanical and neurophysiological processes (Field, 2016). Similarly, manipulation and mobilisation methods have been found to be effective in chronic low back pain management and improving functional outcomes (Coulter et al., 2018). In those approaches, the importance of mechanical stimulation to restore tissue functioning and pain are highlighted. There is also an emerging evidence in the support of the role of the innovative forms of physiotherapy which involve the use of behavioural and cognitive factors. The biobehavioral physiotherapy intervention has proved to be effective in management of chronic low back pain through both psychological and physical approaches (Grande-Alonso et al., 2019). Moreover, culturally adapted physiotherapy pain management methods were found to be effective in the increase of patient interaction and treatment success (Brady et al., 2018). The idea of the multidisciplinary intervention and cognitive-behavioural therapy in alleviating pain intensity, functional disabilities, and mood/mental symptoms in chronic musculoskeletal pain adds to the significance of understanding the nature of chronic pain as a multifaceted issue (Cheng and Cheng., 2019).

Central sensitization has been found to be a major process involved in the occurrence of chronic pain, which can cause chronic pain sensations even in the case of tissue injury (Nijs et al., 2019). Thus, to be able to manage pain, interventions that aim to target peripheral and central mechanisms are imperative. Physical therapy interventions such as exercise and movement-based therapies have been illustrated to regulate the occurrence of pain and enhance the functional outcome (Şahin et al., 2017).

Matrix Rhythm Therapy (MRT) is a new encroachment which uses the concept of vibromassage and it works on the principle of that all tissues in the body vibrate oscillate with a frequency of 8 to 12 Hz (on the same frequency range as the alpha rhythm of brain) which maintains the normal physiologic functions of the body and any disturbance such as injury, inflammation, trauma interrupts the rhythm which causes further loss of function and pain in the body (Naik et al. 2018).

It is claimed that this frequency synchronizes with the body to re-establish the disturbed rhythm at cellular level. This therapy is supposed to improve the microcirculation thereby improving the energy production. The immediate effect can be seen as relaxation of tissue, muscle, and fascia. This relaxation remains longer and maintained as the metabolic process at cellular level are regulated and oxygen supply to cells is improved and henceforth healing and regeneration is set in motion (Shrivastava et al. 2015).

Although the focus on MRT is increasing, the existing body of research is scattered across various clinical problems and research designs. There is the necessity to conduct the methodological review of the existing literature to find out its effectiveness and clinical applicability in persistent musculoskeletal pain disorders. Thus, the purpose of the scoping review is to generalise available knowledge on Matrix Rhythm Therapy and its application in patients with chronic musculoskeletal pain, which will give information about the therapeutic potential of this method and future research perspectives.

MATERIALS AND METHODS

Study Design

This scoping review aimed to identify, map, and synthesise the available evidence on the effectiveness of Matrix Rhythm Therapy (MRT) in the chronic musculoskeletal pain disorders in a systematic manner. The scoping review approach was considered appropriate due to the heterogeneity of available studies in the form of their design, intervention protocols, and outcome measures. This was done in accordance with the model proposed by the Joanna Briggs Institute (JBI) and Physiotherapy Evidence Database (PEDro) scale, and the review was done in accordance with the Preferred Reporting Items to Systematic Reviews and Meta-Analysis Extension to Scoping Reviews (PRISMA-ScR) guidelines in order to ensure the methodological rigour and transparency.

Data Sources and Search Strategy

The literature search was extensively carried out in various electronic databases such as PubMed, Springer, ScienceDirect, Scopus, and Web of Science to locate the available studies that are related to the research question.

A systematic combination of keywords and Boolean operators was used to create the search strategy. The major keywords were Matrix Rhythm Therapy, MRT, MaRhyThe, chronic musculoskeletal pain, low back pain, neck pain, osteoarthritis, myofascial pain, physiotherapy, and rehabilitation. These terms were used in conjunction with the Boolean operators like AND and OR which narrowed the search results based on what each database needed.

The PICO framework led to the search strategy whereby the population consisted of people living with chronic musculoskeletal conditions, the intervention was Matrix Rhythm Therapy, the comparators were conventional physiotherapy or other treatment options, and the outcomes were summarised as pain, functioning, and mobility as reported in Table 1. Besides searching the database, manual screening was also done so that all relevant studies were identified and hence the possibility of

missing any important evidence was eliminated. This was done by a systematic examination of reference lists of all the articles that were selected in order to find other studies that were not found using electronic databases. The records that were identified during the manual screening were screened by titles and abstracts with predefined inclusion and exclusion criteria, and full-text assessment was conducted when needed. This systematic and orderly method also provided a clear and orderly study selection process. Only studies that were published in English language were included and search limited to studies that were published within the specified time.

Table 1. PICO Framework of the Study

Component	Description
Population (P)	Individuals with chronic musculoskeletal pain disorders (e.g., chronic low back pain, neck pain, knee osteoarthritis, adhesive capsulitis, diabetic neuropathy)
Intervention (I)	Matrix Rhythm Therapy (MRT), applied alone or in combination with conventional physiotherapy
Comparator (C)	Conventional physiotherapy, exercise therapy, electrotherapy (TENS, interferential therapy, laser), Pilates, or control group
Outcome (O)	Pain reduction, functional improvement, range of motion, mobility, balance, gait, tissue elasticity, and quality of life

Eligibility Criteria

The selection of studies was done in accordance with set-out inclusion and exclusion criteria. Eligibility criteria included studies that examine Matrix Rhythm Therapy as a primary measure or as an adjunct modality in patients with chronic musculoskeletal pain disorders or related clinical conditions, and those who have reported some relevant clinical outcomes, such as pain, functional capacity, range of motion, mobility, balance or quality of life. Studies which did not include Matrix Rhythm Therapy and studies other than those conducted on MRT, acute non musculoskeletal conditions, where no clinical outcome have been reported and non-primary studies like reviews, titles, editorials, conferences and abstracts were excluded. Studies with inadequate methodological or quantitative data were left out.

Data Extraction

The process of data extraction was also structured and standardised to be consistent across the included studies. The data obtained were author(s), year of publication, study design, sample size, participant characteristics, clinical condition, intervention specifics (including MRT protocol, frequency, and duration), comparator interventions where they were used, outcome measures, and important results. The studies included were of various types with randomised controlled trials, pilot studies, quasi-experimental studies, and case reports and this paper reports the variation in the available evidence of Matrix Rhythm Therapy.

Quality Appraisal

Appropriate appraisal tools were used to assess the quality of the methodology of the included studies depending on the study design. Physiotherapy Evidence Database (PEDro) scale (11 items assessing internal validity and statistical reporting) was used to evaluate randomized controlled trials. One point was given to each of the satisfied criteria (except the first one concerning external validity), and the maximum score was 10. Based on their PEDro scores, the studies were classified as poor (≤3), fair (4-5), good (6-8) or excellent (9-10). Observational studies and case reports were critically reviewed with the Joanna Briggs Institute (JBI) critical appraisal checklists which evaluate the quality of methodology based on such domains as participant selection, clarity of intervention, measurement of outcome, and transparency of reporting. They were rated on each item as yes, no, unclear or not applicable and the methodological quality as a whole was interpreted qualitatively by the number of criteria met. Quality appraisal was performed in order to see possible sources of bias and methodological rigor. Nevertheless, no research was eliminated due to the quality scores and the results were discussed in terms of the appraisal results.

Data Synthesis

The results of the selected studies were synthesised in a narrative style. Because of differences in study designs, intervention procedures, and outcome measures, the results were summed up in a descriptive manner. The organisation of the synthesis was done according to the types of musculoskeletal conditions, nature of interventions, and outcomes like pain, functional ability, range of motion, and mobility. This strategy helped in coming up with patterns, trends, and gaps in the literature in relation to the effectiveness of Matrix Rhythm Therapy.

RESULTS

Study Selection

Database searching and manual screening helped to identify 250 records. On removing 85 duplicate records, 165 studies remained to be screened for titles and abstracts. In this step, 60 studies were eliminated because they were not relevant to the aim of the research. The rest 105 articles underwent full-text eligibility, only 85 studies had been ruled out according to pre-determined criteria. Finally, 20 studies that fit the inclusion criteria were incorporated in the qualitative synthesis. Selection of the study is represented in Figure 1 (PRISMA

flow diagram).

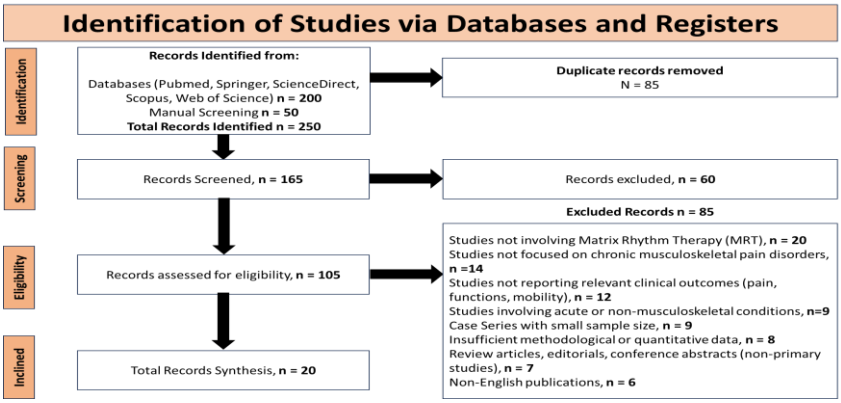

Figure 1. PRISMA Flow Diagram of the Study Selection Process

Characteristics of Included Studies

Table 2 summarises the characteristics of the included studies. The review comprised 20 studies encompassing a wide range of research designs such as randomised controlled trials, pilot studies, quasi-experimental studies, clinical studies and case reports. The quality of methodology of the studies included differed with the study designs. Randomized controlled trials had fair to good quality according to PEDro scoring, and observational studies and case reports had moderate methodological quality according to the Joanna Briggs Institute (JBI) criteria.

Table 2. Characteristics of Included Studies (n = 20)

Author (Year)	Study Design	Population/ Condition	Sample Size (n)	Intervention	Comparator	Outcomes Measured	Key Findings
Bhakaney et al. (2024)	Case study	Distal radius fracture rehabilitation	1	Matrix Rhythm Therapy	Not applicable	Pain, ROM	Improved healing and mobility
Bhatikar (2019)	Randomized controlled trial	Plantar heel pain	30	Matrix Rhythm Therapy	Interferential therapy + Laser	Pain, function	Significant pain reduction
Çankaya & Doğan (2024)	Experimental study	Hamstring tightness	~20–30	Matrix Rhythm Therapy	Control	Strength, flexibility	Improved hamstring strength and flexibility
Çelik & Türkel (2016)	Randomized controlled trial	Frozen shoulder	30	Matrix Rhythm Therapy	Stretching exercises	Pain, ROM	Improved ROM and function
Chamola et al. (2023)	Experimental study	Frozen shoulder	30–40	Matrix Rhythm Therapy	Conventional therapy	Pain, disability, QoL	Improved pain and quality of life
Gohil et al. (2023)	Comparative study	Chronic low back pain	40	Matrix Rhythm Therapy	Pilates	Pain, ROM, posture	Comparable or improved outcomes vs Pilates
Maiya et al. (2023)	Clinical study	Diabetic neuropathy	60	Matrix Rhythm Therapy	Control group	Pain, plantar pressure	Improved pressure distribution and pain
Maruthy et al. (2019)	Clinical study	Myofascial trigger points	20	Matrix Rhythm Therapy	Control	Pain, function	Significant reduction in pain and improved function
Naik et al.	Experimental study	Frozen shoulder	~30	Matrix Rhythm	Conventional	Pain, ROM	Significant improvement in

(2018)				Therapy	therapy		pain and ROM
Naik et al. (2022)	Randomized controlled trial	Forward neck posture	~30	MRT + exercise	Exercise	Pain, strength, QoL	Improved pain, strength, and quality of life
Özcan et al. (2021)	Clinical study	Chronic low back pain	30	Matrix Rhythm Therapy	Exercise therapy	Pain, function, ROM	Significant improvement in pain and disability
Palekar et al. (2025)	Randomized controlled trial	Knee osteoarthritis	40	MRT + Exercise	Conventional therapy	Pain, function, ROM	Improved functional performance
Rawtani et al. (2019)	Experimental study	Hamstring flexibility	~20–30	Matrix Rhythm Therapy	Passive stretching	Flexibility	Greater improvement compared to stretching
Sangaonkar et al. (2024)	Case report	Adhesive capsulitis	1	Matrix Rhythm Therapy	Not applicable	ROM, tissue elasticity	Improved joint mobility and elasticity
Soysal et al. (2022)	Pilot study	Chronic neck pain	20	Matrix Rhythm Therapy	Conventional therapy	Pain, ROM	Improved mobility and symptom reduction
Surya et al. (2023)	Experimental study	Adhesive capsulitis	30–40	MRT + conventional therapy	Conventional therapy	Pain, SPADI, ROM	Significant improvement in pain and disability
Tanna et al. (2024)	Pilot randomized controlled trial	Radiation-induced trismus	30	Matrix Rhythm Therapy	Conventional therapy	Mouth opening, function	Improved functional ability
Taspinar et al. (2013)	Experimental study	Healthy females	20	Matrix Rhythm Therapy	Conventional massage	Circulation	Improved peripheral circulation
Tiwatane et al. (2024)	Quasi-experimental study	Musculoskeletal pain	40	Matrix Rhythm Therapy	Conventional therapy	Pain, function, ROM	Improved functional outcomes
Warutkar et al. (2023)	Case report	Post-operative knee stiffness	1	MRT + Conventional physiotherapy	Not applicable	Pain, ROM, function	Improved mobility and reduced pain

The methodological quality of the selected studies was also evaluated with the help of relevant tools of critical appraisal according to the study design. Randomized controlled trials were evaluated with the Physiotherapy Evidence Database (PEDro) scale that evaluates internal validity and statistical reporting. Table 3 presents the results of this evaluation and shows the methodological rigor of the randomized studies that are included.

Table 3. PEDro Scale Assessment

Study	Design	PEDro Score (/10)	Quality
Bhatikar (2019)	RCT	6	Good
Çelik & Türkel (2016)	RCT	6	Good
Naik et al. (2022)	RCT	7	Good
Palekar et al. (2025)	RCT	7	Good
Tanna et al. (2024)	Pilot RCT	5	Fair

The quality of the methodologies of the non-randomized studies was determined by the use of the

Joanna Briggs Institute (JBI) critical appraisal checklists, which are specifically aimed at measuring the rigor of the observational, quasi-experimental, and case-based study designs. These checklists evaluated vital areas like selection of the participants, the clarity of the intervention, the quality of measuring the outcomes and reporting transparency. This methodology enabled a systematic assessment of possible bias sources and the methodological rigour of the involved studies in general. Table 4 gives the results of this quality assessment and gives an overview of the methodological quality of the non-randomized studies included in this review.

Table 4. JBI Critical Appraisal Summary (Non-Randomized Studies)

Study	Study Design	Checklist Type	Quality
Bhakaney et al. (2024)	Case study	JBI Case Study Checklist	Moderate
Chamola et al. (2023)	Experimental study	JBI Quasi-Experimental Checklist	Moderate
Çankaya & Doğan (2024)	Experimental study	JBI Quasi-Experimental Checklist	Moderate
Gohil et al. (2023)	Comparative study	JBI Analytical Cross-Sectional Checklist	Moderate
Maiya et al. (2023)	Clinical study	JBI Analytical Cross-Sectional Checklist	Moderate
Maruthy et al. (2019)	Clinical study	JBI Analytical Cross-Sectional Checklist	Moderate
Naik et al. (2018)	Experimental study	JBI Quasi-Experimental Checklist	Moderate
Özcan et al. (2021)	Clinical study	JBI Analytical Cross-Sectional Checklist	Moderate
Rawtani et al. (2019)	Experimental study	JBI Quasi-Experimental Checklist	Moderate
Sangaonkar et al. (2024)	Case report	JBI Case Report Checklist	Moderate
Soysal et al. (2022)	Pilot study	JBI Quasi-Experimental Checklist	Moderate
Surya et al. (2023)	Experimental study	JBI Quasi-Experimental Checklist	Moderate
Taspinar et al. (2013)	Experimental study	JBI Quasi-Experimental Checklist	Moderate
Tiwatane et al. (2024)	Quasi-experimental study	JBI Quasi-Experimental Checklist	Moderate
Warutkar et al. (2023)	Case report	JBI Case Report Checklist	Moderate

Overall, the methodological quality of the included studies ranged from fair to good among randomized controlled trials based on PEDro scores. Non-randomized studies, on the other hand, had moderate methodological quality based on JBI appraisal.

DISCUSSION

The current scoping review was used to summarize the existing evidence on the effectiveness of Matrix Rhythm Therapy (MRT) in the management of chronic musculoskeletal pain and related conditions. The effectiveness of MRT on key outcome measures like pain, range of motion, disability and quality of life is organized as under to better interpret its clinical relevance.

Effect of MRT on pain

Pain reduction was the key outcome measure across the included studies. The evidence suggested that MRT was effective across different chronic musculoskeletal conditions. In chronic low back pain, MRT was associated with improvements in pain and disability (Ozcan et al., 2021) while a comparative study also investigated similar results when MRT was evaluated along with other interventions (Gohil et al., 2023). Similar benefits were observed in chronic neck pain highlighting improvement in mobility and symptom reduction (Soysal et al., 2022). The randomized controlled trials further demonstrated the effectiveness of MRT in conditions such as plantar heel pain and osteoarthritis knee, when combined with conventional therapies like electrotherapy and exercise therapy (Bhatikar., 2019; Palekar et al). The similar effects were observed in conditions like adhesive capsulitis and myofascial trigger points in which MRT significantly reduced nociceptive symptoms (Sangaonkar et al., 2024; Maruthy et al., 2019). The reduction in pain intensity could be attributed to restoration of altered cell logistics as MRT acts at cellular level that provide oscillations in the frequency range of 8-12 Hz to the extracellular matrix which increases the fresh oxygenated blood flow and helps in drainage of noxious substances which in turn promotes tissue healing, thereby improving function (Bhatikar et al., 2019).

Effect of MRT on Range of Motion

The evidence reported increased joint range of motion especially in conditions where stiffness and soft tissue restriction is there. Sysal et al. (2022) observed significant improvement in increasing neck mobility in subjects with neck pain. Similarly, improved shoulder range of motion following MRT application was observed in studies on adhesive capsulitis (Surya et al., 2023; Chamola et al., 2023; Naik et al., 2018; Celik and Turkel., 2016).

The previous studies also demonstrated that MRT helps in improving joint mobility and tissue extensibility in post-operative or post traumatic

cases like distal radius fractures and knee stiffness (Bhakaney et al., 2024; Warutkar et al., 2023). Naik et al. (2018) explained the phenomenon could be due to that MRT works at cellular level causing micro extension and relaxation of the muscles, thus producing a good amount of contraction.

Effect of MRT on Disability and Quality of life

Several studies demonstrated improvement in disability and quality of life following MRT intervention. Ozcan et al. (2021) observed that MRT significantly improved functional status and reduced disability scores in subjects with chronic low backache. Similarly, Quasi-experimental studies also demonstrated improvements in functional improvement, suggesting MRT's effectiveness in improving activities of daily living (Tiwatane et al., 2024).

In chronic musculoskeletal conditions like osteoarthritis knee and plantar fasciitis, MRT combined with conventional therapy resulted in better functional outcomes (Bhatikar, 2019; Palekar et al.). Similarly, patients with adhesive capsulitis and post-operative conditions showed improved functional improvement following MRT application (Sangaonkar et al., 2024; Warutkar et al., 2023). Improvements in QoL were observed in studies involving postural dysfunctions, such as forward head posture, where MRT significantly improved overall quality of life (Naik et al., 2022).

The results of this review are aligned with the rest of the literature in the field of physiotherapy that suggests the significance of multimodal and biopsychosocial interventions in chronic pain management (Booth et al., 2017). Combination interventions that involve physical and behavioural interventions have demonstrated better results that are attained in chronic pain populations, which underpins the use of MRT as part of an entire rehabilitation programme (Cheng and Cheng, 2019). In addition, recent findings reveal the importance of innovative and technology-based interventions to enhance the accessibility and outcome of treatment of chronic pain (Toelle et al., 2019). Naik et al., 2020 explained that the improvement in the functional level could be due to pain reduction and increased strength which allows pain free movement of the forearm muscles which were hampered due to muscle overuse.

Although the results are promising, the current evidence base on Matrix Rhythm Therapy is insufficient in terms of methodological inconsistencies, small sample sizes, and the presence of case reports and pilot studies which can limit generalizability. Also, there is a scarcity of standardized treatment procedures in studies, and thus it is hard to establish the optimal parameters of interventions. These constraints are compatible with the past studies that underline the importance of high-quality randomised controlled trials in chronic pain treatment (Skelly et al., 2020).

It is another critical factor that clinician awareness and uptake of MRT to clinical practise should be considered. A recent survey also indicated that there is inconsistency in knowledge and application of MRT by physiotherapists, and more education and training are necessary (Suresh, 2024). Also, new methods are being proposed, including pain neuroscience education and acceptance-based therapies, which emphasise the need to incorporate MRT in a more comprehensive biopsychosocial model (Ordonez-Mora et al., 2022). Such a form of integration may assist in enhancing the effectiveness and the long-term results of the treatment. According to the results of this review, MRT is a promising treatment intervention that may be used in a variety of clinical fields. It may be advantageous to the contemporary physiotherapy practice because of its impact on pain management, functional recovery, and mobility. However, further high-quality research is required to strengthen the evidence base, and standardized clinical guidelines should be established for its effective use.

CONCLUSION

This scoping review synthesized the current evidence on the effectiveness of Matrix Rhythm Therapy (MRT) in the management of chronic musculoskeletal pain and related conditions. The findings indicate that MRT is a promising non-invasive therapeutic intervention with consistent benefits in reducing pain, improving functional ability, and increasing range of motion across a variety of chronic musculoskeletal conditions. The evidence suggests that MRT may contribute to improved tissue flexibility, enhanced microcirculation, and better neuromuscular function, which collectively support recovery and functional outcomes. Furthermore, comparative studies demonstrated that MRT is either comparable to or more effective than conventional physiotherapy interventions in certain conditions, emphasizing its potential role as an adjunct or alternative treatment modality. However, despite the encouraging findings, the current body of evidence is limited by methodological variability, small sample sizes, and the presence of case-based studies. The lack of standardized treatment protocols further limits the generalizability of results. Therefore, future research should focus on well-designed randomized controlled trials with larger sample sizes and standardized intervention parameters to establish robust clinical guidelines. In conclusion, MRT represents a valuable and emerging therapeutic approach in the management of chronic musculoskeletal pain, with significant potential for integration into modern physiotherapy practice.

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How to cite this article: Supreet Bindra, Pankajpreet Singh, Nitin Pruthi, MATRIX RHYTHM THERAPY IN CHRONIC MUSCULOSKELETAL PAIN DISORDERS: A SCOPING REVIEW, Asian J. Med. Res. Health Sci., 2026; 4 (1):29-37