DOI: 10.7860/JCDR/2026/87441.23917

Original Article

Physiotherapy Section

# Physiotherapy-based Interventions in the Management of Migraine Headache: A Systematic Review

SHWETA JAIN[1], AMITA AGGARWAL[2]




## ABSTRACT

**Introduction:** Migraine headache is a worldwide disabling problem commonly associated with neck pain and other symptoms, having a significant negative influence on people's quality of life and productivity. Medicines remain a mainstay for the management, but non pharmacological management, including Physiotherapy interventions, is recommended as an alternative treatment option to reduce migraine headaches. The present review presents an updated appraisal on the effectiveness of various Physiotherapy interventions in alleviating headache parameters, as well as what is supported by available scientific literature about physiotherapies for migraine headaches and the gaps that may still exist in our understanding of these interventions.

**Aim:** To provide a thorough overview of variety of physiotherapy treatments available for the management of Migraine headache.

**Materials and Methods:** The present review was conducted in Maharishi Markandeshwar Institute of Physiotherapy and Rehabilitation, Maharishi Markandeshwar (Deemed to be University), Mullana, Ambala, Haryana, India. For the present review, PubMed, Embase and the Cochrane was searched for Randomised Controlled Trials (RCTs) that performed physiotherapy interventions for treating migraine headaches, published between January 2015 and August 2025, with Physiotherapy Evidence Database (PEDro) Scale score 6 or higher.

**Results:** A total 792 studies were identified in the database over the past 10 years, then based on the inclusion/exclusion criteria, 12 publications selected for study. Pooled analyses found various Physiotherapy interventions effective in reducing headache parameters, but still, the literature found no standardised physiotherapy protocol to manage migraine headache.

**Conclusion:** The management of migraine especially that associated with neck pain should include physiotherapy and may also benefit from relaxation training, manual therapy and multimodal care; however, the evaluated RCTs employed a variety of methodologies. Therefore, any conclusion requires future, well-structured RCTs on physiotherapy for migraine.


**Keywords:** Exercises, Migraine disorders, Neck pain, Quality of life

## INTRODUCTION

The International Headache Society has identified two main categories of headache: primary and secondary. Migraine is the most prevalent and disabling primary neurovascular disorder characterised by severe headache attacks with autonomic and neurological symptoms, having a significant negative influence on people's quality of life and productivity, in addition to posing a heavy physical, psychological and financial burden [1,2]. At least 47% of individuals suffer from headaches at some point in their lifetime, according to World Health Organisation surveys [1].

According to the Global Burden of Disease (2022), worldwide prevalence of migraine is 14.0%, with a higher rate in women (17.0%) compared to men (8.6%) [3-5]. Geographically, its prevalence ranged from 15% (Europe) to 5% in Africa. Between the ages of 18 and 65 years are the most prevalent age group and individuals aged under 18 years more often have bilateral pain, whereas in adults, it is usually unilateral. The International Classification of Headache Disorders (ICHD) has two main types: migraine without Aura (the most common type, present in 75% of migraineurs) and migraine with aura (the classic type, present in 25% of migraineurs) [2].

Typical features of a migraine headache without aura include a 72-hour lasting headache attack with unilateral location, pulsating quality, moderate to severe pain intensity and aggravation by or causing avoidance of routine physical activity (e.g., walking or climbing stairs), associated with nausea and/or vomiting. In addition, patients may experience discomfort when exposed to light or noise, or both simultaneously and may also have migraine headaches. The pain is focused on the frontotemporal region of the head, as well as the parietal, frontal and suboccipital regions [2].

The aetiology of migraines is multifactorial; it may be inherited in nature [6] or may occur due to disturbance in the vascular system, central or peripheral nervous system and may be of nociceptive origin [7-9]. Studies suggest that the generation of migraine occurs centrally in the brain stem. Due to the release of vasoactive neuropeptides, there is activation of the trigeminovascular system that stimulates perivascular trigeminal sensory afferent nerves, resulting in vasodilation and transduction of central nociceptive information, which spreads pain impulses to central second and third order neurons and thus causes the activation of brain stem autonomic nuclei and produces symptoms [10]. Studies shows a substantial percentage of migraineurs experience pain in the neck (39.7%) and occiput region (39.8%) [11], likely due to Myofascial Trigger Points (TrPs) in the neck and craniofacial regions especially in the levator scapulae, suboccipital, sternocleidomastoid, scalene and upper trapezius along with the longus capitis muscles and that too on the ipsilateral side of headache in migraine patients [12] that acts as an potential culprits in activation of acute episodes of migraine headaches by stimulating the trigemino-cervical nucleus caudalis that further activates the trigeminovascular system [7-9]. Repetitive episodes of muscle pain can sensitise the central nervous system, causing migraine to progress. Various physiotherapy interventions aid in deactivating these trigger points through manual therapy or soft-tissue techniques, which increase the Pressure Pain Threshold (PPT), improve Cervical Range Of Motion (CROM) and reduce the frequency, severity and duration of headache events [9]. Literature has also supported that more severe neck impairments

and musculoskeletal dysfunctions are noted in patients with chronic migraine, so it is recommended to include neck-based approaches to deal with various neck disabilities in the treatment protocol for migraine [13].

Physiotherapy treatment includes trigger point therapy and dry needling [1], postural training [14], mobilisation and manipulation [15,16], muscle relaxation techniques [17], myofascial release [17], aerobic exercises [18,19], stretching [20], therapeutic exercises [21], which focuses on the origin of the problem and aids in managing migraine symptoms. The application and duration of the treatment vary from individual cases, allowing for the most effective treatment strategy to address the patient's condition.

This paper systematically reviews RCTs with the aim of synthesising the effects of physical therapy on the management of pain, frequency, or duration in patients diagnosed with migraine headache. The present research question was whether physiotherapy interventions are significantly effective for managing migraine headaches in addition to pharmacotherapy.

## MATERIALS AND METHODS

A systematic review of RCTs was conducted at Maharishi Markandeshwar Institute of Physiotherapy and Rehabilitation, Maharishi Markandeshwar (Deemed to be University), Mullana, Ambala, Haryana, India, in accordance with the Preferred Reporting Items for Systematic Reviews and Meta-Analyses (PRISMA) guidelines. The present review was registered in the International Prospective Register of Systematic Reviews (PROSPERO) (registration number: CRD420251275867). An electronic search was conducted for RCTs that performed physiotherapy interventions for treating migraine headaches, published between January 2015 and August 2025 using the following databases: PubMed, Embase and Cochrane.

The search strategy employed a combination of the following keywords: physiotherapy modalities, physiotherapy interventions and physiotherapy, specifically targeting migraine headache [Table/Fig-1a].

**Inclusion and Exclusion criteria:** Studies selected included RCTs published in the last 10 years that examined the effectiveness of physiotherapy techniques on patients with migraine headaches, subjects clinically diagnosed with migraine headaches according to the ICHD. Studies selected must include Physiotherapy treatment as an intervention compared with any other intervention group, control or placebo. Outcome measures were pain intensity, headache frequency and headache duration. RCT, adults diagnosed with migraine headache according to ICHD classification, use of physiotherapy intervention and comparison with placebo, active intervention or no therapy, score ≥6/10 in the PEDro scale were included. Also, articles published before January 2015, study types including reviews, cohort studies, ongoing ones or pilot, quasi experimental studies, conference abstracts, Studies not evaluating the effectiveness of physiotherapy on headache parameters or evaluating the effectiveness of a drug or a block; RCTs with language other than English; and patient populations with other types of headaches, such as Tension-Type Headache, cervicogenic headache, without the inclusion of migraine headache, were excluded.

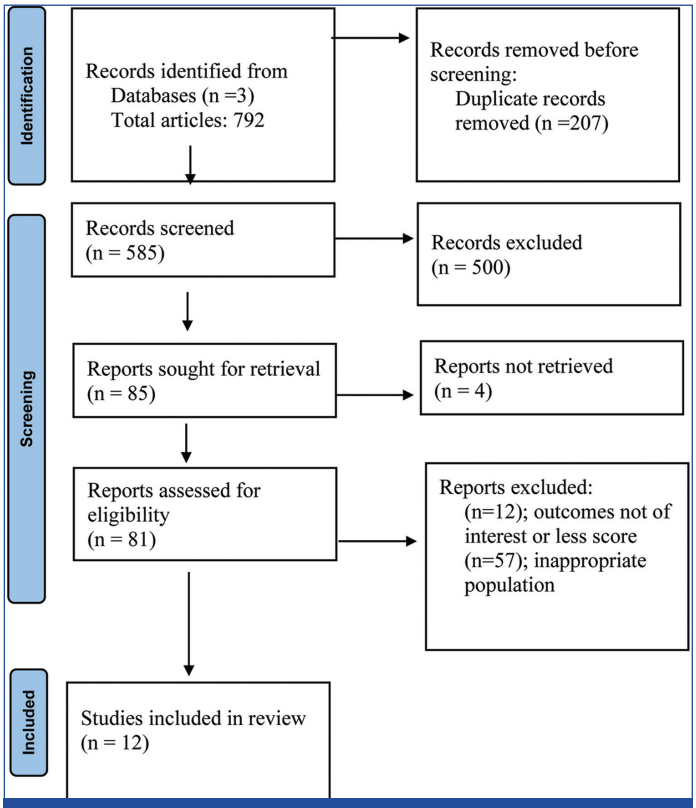
| Database | Keywords and operator combination | Articles hit |
|---|---|---|
| PubMed | {"physical therapy modalities"(MeSH Terms) OR ("physical"(All Fields) AND "therapy"(All Fields) AND "modalities"(All Fields)} OR "physical therapy modalities"(All Fields) OR {"physical"(All Fields) AND "therapy"(All Fields)} OR "physical therapy modalities"(All Fields) OR {"physical therapy modalities"(MeSH Terms} OR {"physical"(All Fields) AND "therapy"(All Fields) AND "modalities"(All Fields)} OR "physical therapy modalities"(All Fields) OR "physiotherapies"(All Fields) OR "physiotherapy"(All Fields))) AND ("migraine disorders"(MeSH Terms) OR ("migraine"(All Fields) AND "disorders"(All Fields)) OR "migraine disorders"(All Fields) OR ("migraine"(All Fields) AND "headache"(All Fields)) OR "migraine headache"(All Fields))) AND ((randomisedcontrolledtrial(Filter)) AND (2015/1/1:2025/8/1(pdat))) | 125 |
| Embase | {((physical therapy) OR (physiotherapy)} AND (migraine headache))/br AND {Randomised Controlled Trial (RCT)}/lim AND (2015-2025)/py | 353 |
| Cochrane | {(physical therapy) OR (physiotherapy)} AND (migraine headache) | 314 |

**[Table/Fig-1a]:** Search strategy.

### Study Procedure

The selection of articles was carried out by reviewing titles and abstracts, with duplicate records being eliminated. Subsequently, full-text articles were assessed based on predefined inclusion and exclusion criteria. The database search in the cited databases produced a total of 792 articles, of which 207 duplicates were removed. For 585 records, 60 were published prior to January 2015, articles with trial sources (CT.gov and ICTRP, a total of 80 articles), not relevant to study following screening of titles and abstracts (360 articles) were rejected leading to 85 articles. Four articles were not available as full studies. Based on full text screening of 81 articles, 57 studies were excluded as not related to physiotherapy, leaving 24 studies that were potentially eligible for inclusion. A total of 11 studies did not evaluate the effectiveness of physiotherapy on the intensity of pain, frequency of headaches, or duration of episodes and one article having a score < 6/10 in the PEDro scale was also excluded. Finally, 12 articles were included in the present systematic review of RCTs [Table/Fig-1b]. Following this, the quality of the selected studies (risk of bias) was independently evaluated by the investigator. During the data extraction phase, key details were gathered from each study, including the first author's name, sample size, primary characteristics of the population (such as age and gender), type and duration of the intervention, features of the comparison group, outcome measures, measurement tools used and results.

**Characteristics of the included studies:** This systematic review included a total of 12 RCTs to evaluate the effectiveness of various physiotherapy interventions in managing migraine headaches,




**[Table/Fig-1b]:** PRISMA flow diagram.

specifically for improving headache frequency, intensity and duration as outcome measures. A total of 875 patients, including both males and females, with an age range of 18 to 70 years, were included. The study duration ranges from two weeks to 12 months, with follow-up post-treatment. The characteristics of each included study are illustrated in [Table/Fig-2] [1,14-24].

**Risk of Bias Assessment within studies:** The risk of bias analysis for the included RCTs and clinical trials, based on the PEDro scale [Table/Fig-3] [14-24], indicated that 16.7% of the studies achieved a score of 6/10, 16.7% scored 7/10, 16.6% scored 8/10, 25% scored 9/10 and 25% scored 10/10. Analysis performed using the RoB 2.0 tool, represented using stacked bar graph to demonstrate the overall distribution of bias across studies and domains [Table/Fig-4].

## RESULTS

Heterogenous treatment approaches for migraine shows significant effect on various outcome measures included manual therapy with gentle massage techniques, stretching exercises targeting neck, shoulder and upper thoracic muscles and postural training [14], cervical and thoracis spine mobilisations and manipulations techniques [15,19], strengthening exercises, coordination and

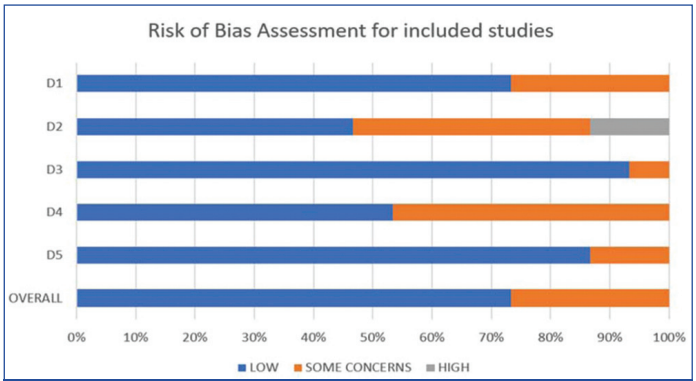
| Authors | Purpose of the study | Population | Intervention | Outcome measures | Findings |
|---|---|---|---|---|---|
| Baykan Çopuroglu Ö and Çopuroglu M [14] | To determine the impact of physiotherapy, structured exercise and relaxation methods on reducing migraine frequency, intensity and duration and on improving quality of life, stress and sleep in pregnant women. | 60 pregnant women with acute migraine | Group-A- Physiotherapy-focused interventions, (manual therapy with gentle massage techniques targeting neck and shoulder tension, stretching exercises of cervical and upper thoracic muscles and postural training. Group-B- Structured exercise programs (low-intensity aerobic exercises and prenatal yoga poses GroupC- Relaxation techniques (diaphragmatic and paced breathing exercises, progressive muscle relaxation (PMR) | Visual analogue Scale (VAS), Short Form Health Survey (SF-36), Perceived Stress Scale (PSS) and Pittsburgh Sleep Quality Index (PSQI) | Physiotherapy, structured exercise and relaxation techniques are safe, non invasive and effective approaches for managing acute migraine episodes during pregnancy. |
| Muñoz-Gómez E et al., [15] | To evaluate the effectiveness of an articulatory-based manual therapy protocol on pain intensity, attack frequency, migraine-related disability, quality of life, medication use and patients' self-reported perceived improvement after treatment. | 50 patients with migraine | Experimental group- manual therapy based on articulatory techniques (Low-velocity, moderate- to high-amplitude movements were applied to cervical, upper-thoracic and sacroiliac joints), Placebo group- Gently positioning the palms of both hands beneath the occiput (no pressure) | Migraine Disability Assessment (MIDAS), Short Form-36 Health Survey (SF-36), migraine dairy and Patients' Global Impression of Change (PGIC) scale | A manual therapy protocol using articulatory techniques decreases migraine pain intensity, attack frequency, disability and medication use, while enhancing quality of life. |
| Meise R et al., [16] | To evaluate the effectiveness of pain neuroscience education combined with physiotherapy in the management of migraine. | 82 patients' migraine with or without neck pain | **Group-A:** Physiotherapy session (Strengthening exercises- neck and shoulder girdle muscles, cervical and thoracic spine mobilisation, coordination and postural exercises and soft-tissue mobilisation) + Pain neuroscience education Group-B: Physiotherapy session alone | Primary: diary and Migraine Associated Disability Score (MIDAS) Secondary: Migraine Specific QOL (MSQoL), Patient Health Questionnaire-9 (PHQ-9), neck pain associated disability (NDI), cutaneous allodynia (ASC-12),and Neurophysiology of Pain Questionnaire (NPQ) | Compared with physiotherapy alone, the addition of pain neuroscience education further reduces migraine frequency, but does not provide additional benefits for overall headache frequency or migraine-related disability. |
| Bevilaqua-Grossi D et al., 2016 [17] | To assess the added benefit of physical therapy in the management of migraine. | 50 patients with migraine | **Control Group:** Medication alone Intervention Group: Medication plus physiotherapy included diaphragm respiratory training, cervical mobilisation and traction, deep massage and myofascial release, digital compression on muscle trigger points. | Migraine diary, global change perception, Pressure Pain Threshold (PPT) and CROM | The physical therapy protocol did not significantly enhance conventional treatment effects on migraine frequency or intensity, though clinically meaningful improvements were associated with better perceived change and treatment satisfaction. |
| Krøll LS et al., 2017 [18] | To assess the effects of aerobic exercise in individuals with migraine accompanied by tension-type headache and neck pain. | 52 patients with migraine | **Intervention Group:** Aerobic exercise (bike/cross-trainer/brisk walking) Control Group: Usual daily activities | Diagnostic headache diary, International Physical Activity Questionnaire short form (IPAQ), World Health Organisation five-item Well-Being Index (WHO-5), Impact of Migraine, Tension-Type Headache and Neck Pain (Impact M-TTH-NP) | Exercise led to significant reductions in migraine burden and improvements in physical activity capacity, along with decreases in migraine frequency, pain intensity and duration; however, these changes were not statistically significant compared with the control group. |
| Gandolfi M et al., 2017 [22] | To assess the feasibility of myofascial and trigger point interventions in chronic migraine patients undergoing prophylactic treatment with on a botulinum toxin A. | 22 with chronic migraine. | **Group A:** Cervicothoracic manipulative treatment with medication Group B: Transcutaneous Electrical Nerve Stimulation (TENS) | VAS, daily headache diary, HIT-6, Migraine Disability Assessment (MIDAS) | Manipulative interventions targeting peripheral nociceptive sources may enhance chronic migraine management and help reduce reliance on acute medications. |
| Espí-López GV et al., 2018 [20] | To evaluate the effectiveness of suboccipital inhibitory techniques in individuals with migraine in comparison with a control intervention consisting of Myofascial Trigger Point (MTrP) therapy and stretching. | 46 adults with migraine | Experimental Group - MTrP therapy to Sternocleidomastoid and upper traps bilaterally with stretching + suboccipital soft-tissue inhibition and suboccipital stretching Control Group - MTrP therapy and stretching | HIT-6, Migraine Disability Assessment (MIDAS) questionnaire, Short Form-36 Health Survey (SF-36) | Soft-tissue interventions incorporating myofascial trigger point therapy and stretching were effective in improving specific migraine-related outcomes. |

| | | | | | |
|---|---|---|---|---|---|
| Rezaeian T et al., 2020 [1] | To examine the effects of dry needling applied to trigger points in the sternocleidomastoid muscle on migraine headache patients. | 40 subjects with a migraine headache | **Intervention Group:** Dry Needling on the myofascial trigger point region<br>Control Group: Placebo needling | Headache frequency, intensity and duration; medication usage; muscle thickness; Pressure Pain Threshold (PPT); and Cervical Range Of Motion (CROM) | The use of dry needling led to a noticeable improvement in the symptoms of migraine patients. |
| Meydanal YE et al., 2025 [19] | To determine the therapeutic effects of distinct and combined exercise interventions on migraine characteristics and coexisting health conditions. | 24 participants with migraine | **Group-A:** Aerobic exercise Group-B: combined exercise (aerobic and resistance exercises of neck, upper back and shoulder muscles) Group-C: Control group - no intervention | International Physical Activity Questionnaire Short Form (IPAQ-SF), Anxiety and Depression Scale (HADS), Migraine Disability Assessment (MIDAS),<br>Astrand bicycle ergometer test | Both aerobic and combined exercise interventions led to a decrease in monthly migraine frequency without reported adverse effects, with a statistically greater reduction observed in the combined exercise group. |
| Altmis Kacar H et al., [21] | To examine the effects of Cervical Stabilisation Training (CST) on headache, neck pain and cervical musculoskeletal function in patients with headache, compared to a control group. | A total of 32 female patients with migraine headache participated in the study | Intervention Group (n=16): Cervical stabilisation training group (CSTG), Control Group (n=16): medical treatment(CG) | VAS, CranioVertebral Angle (CVA), CranioCervical Flexion Test (CCFT), endurance tests, Migraine Disability Assessment (MIDAS), Neck Disability Index (NDI), Short Form 36 Quality of Life Scale (Short Form, SF-36), Pittsburgh Sleep Quality Index (PSQI) and Beck Depression Scale (BDI) | Study indicates that Cervical Spine Therapy (CST) alleviates headache and neck pain by enhancing cervical musculoskeletal function in patients with migraine headache ($p < 0.05$). |
| Kisa EP et al., 2025 [23] | To assess the short-term effects of cold application combined with Jacobson's Progressive Muscle Relaxation (JPMR) on pain intensity, migraine frequency, migraine-related disability and quality of life in individuals with migraine without aura. | 26 participants with migraine without aura | Group-1- JPMR exercises Group-2 - JPMR combined with cold application. | Visual Analogue Scale (VAS), Migraine Disability Assessment questionnaire (MIDAS) questionnaire and World Health Organisation Quality of Life Scale-Short Form (WHOQOL-BREF) | Both JPMR and JPMR combined with cold application are effective. However, the addition of cold application further improves outcomes by reducing the number of attacks. |
| Biber EK and Polat B 2025 [24] | To evaluate the effectiveness of Kinesio Taping (KT) combined with Physical Therapy (PT), in addition to pharmacological management, on pain intensity and frequency, PPT, disability and Quality of Life (QoL) in migraine patients with associated neck pain. | 60 patients with migraine | Treatment group- K -Taping plus physical therapy<br>Placebo group-<br>sham taping plus physical therapy | Headache frequency and intensity, neck pain (headache diary), PPT, Neck Disability Index (NDI), VAS, Digital manual dynamometer,<br>Short Form-36 (SF-36) | The treatment group showed superior reductions in headache and neck pain severity, greater increases in PPT and more pronounced improvements in disability and quality of life compared with the comparison groups. |

**[Table/Fig-2]:** Characteristics of the study [1,14-24].

| Studies | PEDro scale Items | | | | | | | | | | | Total Scores | Quality |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | | |
| Baykan Çopuroglu Ö and Çopuroglu M [14] | Y | Y | N | Y | N | N | Y | Y | N | Y | Y | 6/10 | Good |
| Muñoz-Gómez E et al., [15] | Y | Y | Y | Y | Y | N | N | Y | Y | Y | Y | 8/10 | Good |
| Meise R et al., [16] | Y | Y | Y | Y | N | N | N | Y | Y | Y | Y | 7/10 | Good |
| Bevilaqua-Grossi D et al., [17] | Y | Y | Y | Y | Y | Y | N | Y | Y | Y | Y | 9/10 | Excellent |
| Krøll LS et al., [18] | Y | Y | Y | N | N | N | N | Y | Y | Y | Y | 6/10 | Good |
| Gandolfi M et al [22] | Y | Y | Y | N | Y | Y | Y | Y | Y | Y | Y | 9/10 | Excellent |
| Espí-López GV et al., [20] | Y | Y | Y | N | Y | Y | Y | Y | Y | Y | Y | 9/10 | Excellent |
| Rezaeian T et al., [1] | Y | Y | Y | Y | Y | Y | Y | Y | Y | Y | Y | 10/10 | Excellent |
| Meydanal YE et al., [19] | Y | Y | Y | Y | N | N | Y | Y | N | Y | Y | 7/10 | Good |
| Altmis Kacar H et al., [21] | Y | Y | Y | N | Y | N | Y | Y | Y | Y | Y | 8/10 | Good |
| Kisa EP et al., [23] | Y | Y | Y | Y | Y | Y | Y | Y | Y | Y | Y | 10/10 | Excellent |
| Biber EK and Polat B [24] | Y | Y | Y | Y | Y | Y | Y | Y | Y | Y | Y | 10/10 | Excellent |

**[Table/Fig-3]:** PEDro Scale [14-24].




**[Table/Fig-4]:** Bar graph illustrates the overall distribution of Bias across studies and domains.

posture exercises and soft-tissue mobilisation [16], diaphragm respiratory training, trigger point therapy, passive stretchings [17], Aerobic exercise alone [18] or combined with resistance exercises [19], MTrPs therapy to Sternocleidomastoid (SCM) and upper trapezius bilaterally with stretching, suboccipital soft-tissue inhibition and suboccipital stretching [20], dry needling [1], cervical stabilisation training [21], jacobson progressive Muscle Relaxation [23], kinesiology taping [24] and all have shown useful results in the research. Of the 12 included trials, ten studies showed significant results of physiotherapy on headache intensity and frequency as Kisa EP et al., [23] and Biber EK and Polat B [24], shown similar results among pregnant women $p<0.05$ as in a study by Baykan Çopuroğlu Ö et al., [14] reported that manual therapy is effective, safe and non invasive interventions for managing acute migraines.

Meise R et al., used combined physiotherapy with pain neuroscience education and found significant reduction in migraine frequency (p<0.02) [16], similarly Bevilaqua-Grossi D et al. and Krøll LS et al., also reported same effect using respiratory training, cervical mobilisation, MFR, MTrPs therapy and aerobic exercises respectively along with physiotherapy interventions [17,18].

Likewise, literature also studied the positive effect of physiotherapy approaches on migraine duration and reported effective results with aerobic exercises and also with manipulation at upper and lower cervical, occiput and thoracic spine in studies by, Krøll LS et al. and Gandolfi M et al., respectively [18,22].

Literature showed results on migraine related disability and supported the use of physiotherapy by Meise R et al., along with pain neuroscience education (p<0.02) by respiratory training, massage and MFR [16], MTrPs, passive stretching (p>0.05) and same results supported by Bevilaqua-Grossi D et al., [17]. In a study by Kisa EP et al., showed that Jacobson progressive muscle relaxation for each tightened muscle group with deep breaths for 30 minutes, three times/week for six weeks showed significant improvements in pain intensity, migraine frequency, disability and QoL scores (P<0.05) [23].

Although there was some promising evidence found in some of the studies, the authors concluded that the efficacy of either intervention in controlling quality of life, sleep quality, neck related disability, impact of individual life on headache, depression, anxiety, PPT and CROM has been convincingly demonstrated through various clinical trials.

The controlled trials included in the present review were too heterogeneous in terms of the clinical characteristics, control groups and outcome measures evaluated. Based on predefined criteria, there was moderate evidence that physiotherapy has short and long-term effects for the treatment of migraine headache. Interventions performed by experienced physiotherapist for the treatment of migraine reported effective in reducing migraine symptoms frequency, duration, or disability.

## DISCUSSION

The present review aimed to examine the effectiveness of various physiotherapy interventions in reducing migraine-related symptoms, disability and enhancing function and overall quality of life. The findings consistently supported the beneficial effects of physiotherapy approaches across the included trials, with meaningful improvements in migraine-related biomechanical dysfunction and a reduction in migraine symptoms. To the best of the authors knowledge, this is the first review to specifically examine the impact of diverse physiotherapy modalities on individuals with migraine.

A recent study related to the systematic review by Krøll LS et al., concluded that non pharmacological treatment approaches for migraine headaches are safe, non invasive and have minimal or no adverse effects, with positive outcomes [18]. Similarly, Luedtke K et al., (2016) reviewed 26 RCTs and reported that physiotherapy interventions appeared to have beneficial effects across all headaches [25]. None of the meta-analyses showed any negative impact of physiotherapy on any headache type or outcome measure. The clinical trial conducted by Bevilaqua-Grossi D et al., (2016) implemented a structured physical therapy program over four weeks, resulting in significant improvements in migraine symptoms due to the correction of muscular dysfunction [17]. Additionally, sensory input from the treated structures reduces hypersensitivity in the trigeminocervical nucleus of the craniocervical muscles, ultimately diminishing sensitisation in the region and contributing to a reduction in headache frequency. Likewise, a trial by Krøll LS et al., (2018) evaluated the role of aerobic exercise in migraine management, indicating that a certain level of physical fitness is required to achieve reductions in migraine frequency [18]. Regular physical activity can mitigate the negative functional impact of migraine on daily life. Rezaeian T et al., in 2020 showed that trigger point therapy on cervical and shoulder muscles among migraine patients reduces TrP, which helps in the restoration of the muscle sarcomeres' length, leading to reactive hyperaemia within the taut band, resulting in elongation of the connective tissue and reduction of sensitisation substances associated with TrPs [1]. Similar to the findings of Luedtke K et al., several studies included in this review reported significant improvements after four to eight weeks post-intervention [25].

In a systematic review by Onan D et al., five suitable RCTs {Aerobic Exercise (AE), Osteopathic Manipulative Treatment (OMT), Occipital Transcutaneous Electrical Stimulation (OTES), acupressure, hydrotherapy, Instrument-Assisted Soft-Tissue Mobilisation (IASTM), Facial Proprioceptive Neuromuscular Facilitation (FPNF) and Connective Tissue Massage (CTM)} were evaluated for meta-analysis on various physiotherapy and rehabilitation interventions for chronic migraine [26].

The included studies demonstrated a significant reduction in headache parameters, with reported p-values of <0.001 and <0.05 following physiotherapy treatment. Beyond improvements in headache frequency, intensity and duration, several studies also investigated additional outcomes, including migraine-related disability, quality of life, sleep quality, levels of depression and anxiety, neck disability, PPT, CROM and cervical muscle thickness. Most of the studies included in the present review have reported results for the variables 'headache frequency' and 'headache intensity [1,14,16-18,20-24], a lower percentage only for the variable 'headache duration' [14,20-22]. Many studies have even shown results related to migraine disability and quality of life [14-17,19-24].

Overall evidence supports the idea that physiotherapy, along with aerobic and therapeutic exercises for the cervical muscles, has a positive effect on headache symptoms due to the observed reduction of neuromuscular tension, improved local circulation and decreased nociceptor sensitivity. To maintain the effect of treatment, it is always recommended to combine various physiotherapy approaches to emphasise an internal locus of control. Sub-analyses for the different physiotherapy interventions showed that aerobic exercise, strength training and a combination of physical and psychological interventions were effective for reducing migraine attack duration.

### Limitation(s)

The present review may suffer from a few weaknesses. One possible shortcoming of this systematic review is the overall heterogeneity of the studies and the absence of comprehensive treatment protocols for the long-term management of prevalent migraine headaches.

## CONCLUSION(S)

Results from the present review suggest a positive effect of Physiotherapy approaches on migraine headache. Moreover, these techniques are low-cost, safe, non invasive and relaxing with minimal or no side-effects. However, clinicians should recommend physiotherapy as an adjunct to medicine to migraine patients to reduce their burden and improve overall efficiency in the long term. Therefore, there is also a strong need to establish a standardised comprehensive Physiotherapy protocol for the management of migraine headache.

## REFERENCES

[1] Rezaeian T, Mosallanezhad Z, Nourbakhsh MR, Noroozi M, Sajedi F. Effects of dry needling technique into trigger points of the sternocleidomastoid muscle in migraine headache: A randomized controlled trial. Am J Phys Med Rehabil. 2020;99(12):1129-37.
[2] Ferrari MD. Migraine. Lancet. 1998;351:1043-51.

[3] Ferracini GN, Florencio LL, Dach F, Chaves TC, Palacios-Ceña M, Fernández-de-las-Peñas C, et al. Myofascial trigger points and migraine-related disability in women with episodic and chronic migraine. Clin J Pain. 2017;33(2):109-15.
[4] Tietjen GE. The epidemiology and burden of headaches. In: Comprehensive review of headache medicine. 2025:49.
[5] Coppola G, Brown JD, Mercadante AR, Drakeley S, Sternbach N, Jenkins A, et al. The epidemiology and unmet need of migraine in five European countries: Results from the National Health and Wellness Survey. BMC Public Health. 2025;25(1):254.
[6] Goadsby PJ. Migraine pathophysiology. Headache. 2005;45(Suppl 1):S14-S24.
[7] Wattiez AS, Sowers LP, Russo AF. Calcitonin gene-related peptide (CGRP): Role in migraine pathophysiology and therapeutic targeting. Expert Opin Ther Targets. 2020;24(2):91-100.
[8] Kostopoulos D, Rizopoulos K. The manual of trigger point and myofascial therapy. Routledge; 2024 Jun 1.
[9] Giamberardino MA, Tafuri E, Savini A, Fabrizio A, Affaitati G, Lerza R, et al. Contribution of myofascial trigger points to migraine symptoms. J Pain. 2007;8(11):869-78.
[10] Tepper SJ, Rapoport AM, Sheftell FD. The pathophysiology of migraine. Neurologist. 2001;7(5):279-86.
[11] Ferracini GN, Chaves TC, Dach F, Bevilaqua-Grossi D, Fernández-de-las-Peñas C, Speciali JG. Relationship between active trigger points and head/neck posture in patients with migraine. Am J Phys Med Rehabil. 2016;95(10):707-13.
[12] D'Amico D, Leone M, Bussone G. Side-locked unilaterality and pain localization in long-lasting headaches: Migraine, tension-type headache, and cervicogenic headache. Headache: The Journal of Head and Face Pain. 1994;34(9):526-30.
[13] Carvalho GF, Schwarz A, Szikszay TM, Adamczyk WM, Bevilaqua-Grossi D, Luedtke K. Physical therapy and migraine: Musculoskeletal and balance dysfunctions and their relevance for clinical practice. Musculoskelet Sci Pract. 2022;62:102659.
[14] Baykan Çopuroğlu Ö, Çopuroğlu M. Multistrategic approaches in the treatment of acute migraine during pregnancy: The effectiveness of physiotherapy, exercise, and relaxation techniques. Medicina (Kaunas). 2024;61(1):28.
[15] Muñoz-Gómez E, Inglés M, Serra-Añó P, Espí-López GV. Effectiveness of a manual therapy protocol based on articulatory techniques in migraine patients: A randomized controlled trial. Musculoskelet Sci Pract. 2021;54:102386.
[16] Meise R, Carvalho GF, Thiel C, Luedtke K. Additional effects of pain neuroscience education combined with physiotherapy on the headache frequency of adult patients with migraine: A randomized controlled trial. Cephalalgia. 2023;43(2):03331024221144781.
[17] Bevilaqua-Grossi D, Gonçalves MC, Carvalho GF, Florencio LL, Dach F, Speciali JG, et al. Additional effects of a physical therapy protocol on headache frequency, pressure pain threshold, and improvement perception in patients with migraine and associated neck pain: A randomized controlled trial. Arch Phys Med Rehabil. 2016;97(6):866-74.
[18] Krøll LS, Hammarlund CS, Linde M, Gard G, Jensen RH. The effects of aerobic exercise for persons with migraine and co-existing tension-type headache and neck pain: A randomized, controlled, clinical trial. J Headache Pain. 2018;19(1):65.
[19] Meydanal YE, Şenışık S, Şirin H. The effect of different exercise types on migraine frequency in individuals with migraine: A pilot study. Headache. 2025;65(9):1593-602.
[20] Espí-López GV, Ruescas-Nicolau MA, Nova-Redondo C, Benítez-Martínez JC, Dugailly PM, Falla D. Effect of soft-tissue techniques on headache impact, disability, and quality of life in migraine sufferers: A pilot study. J Altern Complement Med. 2018;24(11):1099-107.
[21] Altmis Kacar H, Ozkul C, Baran A, Guclu-Gunduz A. Effects of cervical stabilization training in patients with headache: A single-blinded randomized controlled trial. Eur J Pain. 2024;28(4):633-48.
[22] Gandolfi M, Geroin C, Valè N, Marchioretto F, Turrina A, Dimitrova E, et al. Does myofascial and trigger point treatment reduce pain and analgesic intake in patients undergoing on a botulinum toxin A injection due to chronic intractable migraine? Eur J Phys Rehabil Med. 2018;54(1):1-12.
[23] Kisa EP, Kara Kaya B, Yalman M, Akin AE. Effectiveness of cold application combined with progressive muscle relaxation in migraine without aura: A randomized controlled trial. Medicine (Baltimore). 2025;104(40):e44760.
[24] Biber EK, Polat B. Effects of kinesiotaping combined with physical therapy in patients with migraine-associated neck pain: A randomized controlled study. BMC Musculoskelet Disord. 2025;26(1):990.
[25] Luedtke K, Allers A, Schulte LH, May A. Efficacy of interventions used by physiotherapists for patients with headache and migraine—systematic review and meta-analysis. Cephalalgia. 2016;36(5):474-92.
[26] Onan D, Ekizoğlu E, Arıkan H, Taşdelen B, Özge A, Martelletti P. The efficacy of physical therapy and rehabilitation approaches in chronic migraine: A systematic review and meta-analysis. J Integr Neurosci. 2023;22(5):126.

**PARTICULARS OF CONTRIBUTORS:**
1. PhD Scholar, Maharishi Markandeshwar Institute of Physiotherapy and Rehabilitation, Maharishi Markandeshwar (Deemed to be University), Mullana, Ambala, Haryana, India.
2. Professor, Maharishi Markandeshwar Institute of Physiotherapy and Rehabilitation, Maharishi Markandeshwar (Deemed to be University), Mullana, Ambala, Haryana, India.

**NAME, ADDRESS, E-MAIL ID OF THE CORRESPONDING AUTHOR:**
Dr. Amita Aggarwal,
Professor, Maharishi Markandeshwar Institute of Physiotherapy and Rehabilitation, Maharishi Markandeshwar (Deemed to be University), Mullana, Ambala-133207, Haryana, India.
E-mail: amita15pgi@gmail.com

**PLAGIARISM CHECKING METHODS:** [Jain H et al.]
- Plagiarism X-checker: Feb 02, 2026
- Manual Googling: Apr 25, 2026
- iThenticate Software: Apr 28, 2026 (15%)

**ETYMOLOGY:** Author Origin

**EMENDATIONS:** 8

**AUTHOR DECLARATION:**
- Financial or Other Competing Interests: None
- Was Ethics Committee Approval obtained for this study? No Registered under PROSPERO
- Was informed consent obtained from the subjects involved in the study? NA
- For any images presented appropriate consent has been obtained from the subjects. NA

Date of Submission: **Jan 22, 2026**
Date of Peer Review: **Feb 12, 2026**
Date of Acceptance: **Apr 30, 2026**
Date of Publishing: **Jul 01, 2026**