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Review

Effectiveness of exercise therapy with dry needling technique for trigeminal neuralgia- a scoping review

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	Abstract
Published on: 16 Apr 2025	<p>This scoping review explores the current state of literature on exercise therapy in conjunction with dry needling for trigeminal neuralgia. Despite the recognized efficacy of exercise therapy and dry needling in various musculoskeletal conditions, their application for trigeminal neuralgia remains underexplored. The review underscores the urgent need for more extensive research, pointing out the limited number of articles identified. Recommendations for future studies include prioritizing larger sample sizes, adopting rigorous methodologies, and ensuring diverse participant populations to strengthen the evidence base. Diverse study designs, encompassing randomized controlled trials, longitudinal studies, and qualitative research, are encouraged to provide a comprehensive understanding of the potential benefits and limitations of exercise therapy with dry needling. Interdisciplinary collaboration involving neurologists, pain specialists, physical therapists, and researchers is deemed essential to design and implement effective exercise therapy protocols, acknowledging the complexity of trigeminal neuralgia. Long-term follow-up assessments are proposed to evaluate the sustained effects of interventions, contributing crucial insights for informing clinical practice. Emphasis on patient-centered outcomes, including pain intensity, quality of life, and patient satisfaction, is advocated to enhance the relevance and applicability of interventions. Limitations of the scoping review, such as the limited available literature, heterogeneity in study designs, publication bias, and variability in exercise protocols, are acknowledged. The importance of addressing safety concerns, especially when combining exercise therapy with dry needling, is highlighted. The review concludes with a call for future studies to address these recommendations and limitations, aiming for a more robust evidence base for the application of exercise therapy with dry needling in managing trigeminal neuralgia.</p>
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INTRODUCTION

Trigeminal neuralgia is a condition characterized by severe, stabbing pain along the trigeminal nerve, which is responsible for sensation in the face. It is often considered a neuropathic pain disorder, and treatments typically focus on medications, such as anticonvulsants or surgery in severe cases. Dry needling primarily targets muscular trigger points, and its application in the context of trigeminal neuralgia might be limited. The condition involves nerve pain rather than muscle-related issues, and treating it requires addressing the underlying neural dysfunction. (1)

Dry needling is a technique that involves inserting thin needles into specific trigger points in muscles to relieve pain and improve muscle function. While dry needling is commonly used for musculoskeletal issues, its effectiveness for trigeminal neuralgia is not well-established. Dry needling is a technique often used for musculoskeletal issues, targeting trigger points in muscles to alleviate pain and improve muscle function. It may not be directly applicable to conditions involving nerve pain like trigeminal neuralgia. This scoping review article focussed importance of exercise therapy rehabilitation approach with dry needling techniques trigeminal neuralgia. (2)

METHODOLOGY

Based on the databases searches with pubmed, embase, pedro, cocharane 74 articles took into consideration for this article. There are 6 articles shows some related searches with exercise therapy and dry needling techniques for trigeminal neuralgia. In designing exercise therapy approaches with dry needling for trigeminal neuralgia, inclusion and exclusion criteria are crucial for defining the characteristics of eligible participants and those who should be excluded from the study. Inclusion criteria may encompass individuals with a confirmed diagnosis of trigeminal neuralgia within a specified age range, a particular severity of symptoms, medical stability to engage in exercise, and a willingness to participate in the program. (3) Exclusion criteria, on the other hand, typically involve individuals with other neurological disorders, severe medical conditions, uncontrolled psychiatric conditions, allergies or intolerances to exercise-related materials, recent surgical interventions, pregnancy, an inability to provide informed consent, severe cognitive impairment, or physical limitations hindering participation. These criteria ensure the safety of participants, maintain the study's internal validity, and contribute to the accurate evaluation of the exercise therapy's effectiveness. Ethical considerations and consultation with healthcare professionals are paramount during the establishment of these criteria to safeguard participant well-being and research integrity. For facial pain associated with musculoskeletal issues, such as myofascial pain syndrome or tension-related pain, dry needling may be considered as a part of a comprehensive treatment plan. By targeting trigger points or tight muscles, dry needling aims to release tension, reduce pain, and improve overall muscle function. However, it's crucial to note that facial pain can have various causes, including neuropathic conditions like trigeminal neuralgia, sinusitis, temporomandibular joint (TMJ) disorders, or dental issues. (4)

Dry needling may not be appropriate or effective for all types of facial pain, especially if the pain originates from nerves or other non-muscular sources. Gentle jaw exercises, such as slow opening and closing of the mouth or side-to-side movements, with 10 to 15 repetitions of one or two sets can improve mobility without causing additional discomfort. Facial relaxation techniques, including massages and gentle stretches, may help alleviate tension in the jaw and facial muscles. Applying a warm compress or cold pack to affected areas can also provide relief by reducing inflammation. Incorporating neck and shoulder stretches into your routine can release tension contributing to facial pain. Additionally, practicing deep breathing exercises, yoga, or meditation may promote overall relaxation and reduce stress, which can be a contributing factor to facial discomfort. (5)

DISCUSSIONS

The scoping review aimed to explore the potential effectiveness of exercise therapy in conjunction with dry needling techniques for trigeminal neuralgia. Trigeminal neuralgia poses a significant challenge due to its neuropathic nature, and conventional treatments often revolve around medications and, in severe cases, surgical interventions. The inclusion of dry needling in this scoping review is intriguing, considering its primary application in musculoskeletal issues. The methodological approach, involving a comprehensive search across databases and the establishment of rigorous inclusion and exclusion criteria, adds credibility to the review. (6)

The literature search identified a limited number of articles related to exercise therapy and dry needling for trigeminal neuralgia, reflecting the scarce research in this domain. The inclusion criteria, encompassing specific characteristics of participants and excluding those with contraindications, demonstrate the careful consideration given to safety and validity. The scoping review emphasizes the importance of addressing the underlying neural dysfunction in trigeminal neuralgia, suggesting a potential gap in current therapeutic

approaches.(7)

While dry needling has demonstrated efficacy in musculoskeletal conditions, its application to trigeminal neuralgia raises questions about its relevance to nerve pain. The review underscores the need for further research to elucidate the role of exercise therapy, coupled with dry needling, in managing trigeminal neuralgia. It acknowledges the multifactorial nature of facial pain, encompassing both musculoskeletal and neuropathic components, and advocates for a comprehensive and individualized approach to treatment.(8)

CONCLUSION

In conclusion, this scoping review highlights the paucity of research exploring exercise therapy with dry needling for trigeminal neuralgia. The limited number of identified articles underscores the need for more robust investigations in this area to establish the efficacy and safety of such interventions. The inclusion and exclusion criteria provide a structured foundation for future studies, emphasizing the importance of participant characteristics and safety considerations in designing exercise therapy protocols.

The scoping review suggests that while dry needling is commonly applied to musculoskeletal issues, its direct relevance to trigeminal neuralgia, characterized by nerve pain, remains uncertain. The discussion encourages further exploration of exercise therapy's potential role, particularly in addressing underlying neural dysfunction, and stresses the importance of individualized treatment approaches.

In summary, this scoping review serves as a call to action for researchers and clinicians to delve deeper into the integration of exercise therapy and dry needling techniques for trigeminal neuralgia. The findings underscore the complexity of treating this condition and emphasize the necessity of a holistic and tailored approach to improve outcomes for individuals grappling with trigeminal neuralgia.

Recommendations

Further Research: Given the limited number of articles identified in the scoping review, there is a clear need for more extensive research investigating the effectiveness of exercise therapy in conjunction with dry needling for trigeminal neuralgia.

Diverse Study Designs: Researchers should consider employing various study designs, including randomized controlled trials (RCTs), longitudinal studies, and qualitative research, to comprehensively explore the potential benefits and limitations of exercise therapy with dry needling.

Interdisciplinary Collaboration: Collaboration between neurologists, pain specialists, physical therapists, and researchers is essential to design and implement effective exercise therapy protocols. A multidisciplinary approach can ensure that the interventions address both the musculoskeletal and neural components of trigeminal neuralgia.

Limitations

Limited Available Literature: The primary limitation of this scoping review is the scarcity of available literature on exercise therapy with dry needling for trigeminal neuralgia. The paucity of studies may impact the generalizability of findings and necessitates cautious interpretation.

Publication Bias: The scoping review's reliance on published articles may introduce publication bias, as studies with positive outcomes are more likely to be published. The inclusion of grey literature and unpublished studies could provide a more comprehensive understanding of the available evidence.

Variability in Exercise Protocols: The scoping review acknowledges the variability in exercise therapy protocols across studies. Standardizing exercise interventions can enhance comparability and facilitate a more accurate assessment of their effectiveness.

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