

Dry needling in adults with myofascial trigger points- A Mini Review

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Abstract

Myofascial pain syndrome is a common cause of chronic musculoskeletal pain and functional limitation in adults around the globe. Dry needling has gained attention as a rehabilitative intervention for myofascial trigger points. This mini review examined the effectiveness of dry needling for adults with myofascial pain by synthesizing evidence from randomized controlled trials. An online search of PubMed, CINAHL, and the Cochrane Library identified six trials meeting inclusion criteria. These studies suggested dry needling was associated with reductions in pain intensity, improvements in range of motion, and decreased muscle stiffness, with most evidence focussed on cervical and upper-extremity conditions. Several trials reported better outcomes when dry needling was combined with interventions such as manual therapy, exercise, or electrical stimulation. Although variability in treatment protocols limit standardization, findings suggest that dry needling can be used within multimodal rehabilitation. These results are particularly relevant for occupational therapists and rehabilitation professionals seeking efficient, low-resource strategies to improve pain and movement outcomes in adults with myofascial pain.

Keywords: myofascial pain syndrome, musculoskeletal pain, occupational therapy, pain management, range of motion, rehabilitation.

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Introduction

Myofascial pain syndrome is highly prevalent and commonly affects adults with chronic musculoskeletal pain. Dry needling has been used as an intervention for clients with persistent musculoskeletal pain or discomfort, postural imbalances, chronic headaches, sports injuries, and myofascial trigger points (MTrPs) resulting in reduced range of motion, muscle stiffness, and pain.¹ This technique is performed in outpatient clinics, chiropractic offices, and sports medicine settings

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by trained healthcare providers such as occupational therapists, physical therapists, acupuncturists, and chiropractors. In occupational therapy, dry needling is considered a preparatory intervention used to reduce pain and stiffness prior to engaging in meaningful occupations.² Additional treatments for MTrPs include nonsteroidal anti-inflammatory drugs, massage, physical therapy, transcutaneous electrical nerve stimulation, and acupuncture.^{3,4} In developing countries, where access to imaging, medications, and specialized care is often limited, dry needling offers a low-cost, low-equipment option supporting pain management and functional independence within expanding rehabilitation services.

Myofascial trigger points are hypersensitive nodules within taut muscle bands that may contribute to pain, fatigue, muscle spasms, and restricted movement.⁵ Adults may develop MTrPs due to repetitive activity, overuse, poor posture, or chronic stress.⁶ Without treatment, MTrPs may contribute to chronic pain and decreased occupational performance, while dry needling combined with therapy can improve pain and functional outcomes.^{7,8}

Techniques and Procedure of Dry Needling

There are no imaging tests to diagnose MTrPs; clinicians rely on palpation and client response to identify tender nodules. Equipment needed for dry needling includes single-use monofilament needles, alcohol wipes, gloves, and a sharps container. The needles used in dry needling are the same as acupuncture needles. However, the techniques are very different. Dry needling uses a thin, sterile monofilament needle inserted into MTrPs. After the needle is inserted, the needle is pistoned to stimulate the muscle and elicit a visible twitch, increasing blood flow to the area and reducing pain.⁹ The pistoning technique involves rapid, repeated movement of the needle up and down while staying within the muscle belly.⁹ Precautions are required for individuals who bleed easily, fear needles, have local infections, or are immunocompromised.⁵ Dry needling is generally considered a safe intervention when performed by appropriately trained practitioners; however, adverse events may occur. The most commonly reported adverse events include post-needling soreness, bruising, minor bleeding, and mild discomfort, which typically resolve without further intervention.^{4,5} Risk mitigation strategies include appropriate patient

screening, obtaining informed consent, adherence to aseptic technique, and monitoring patient response during and after treatment.¹⁰ Safe practice also requires formal post-professional training and competency in anatomy, technique, and adverse event recognition.¹⁰ Within occupational therapy practice, dry needling should be utilized as an adjunct preparatory intervention to support engagement in functional, occupation-based activities consistent with the Occupational Therapy Practice Framework.² Contraindications include patients with needle phobia, children under the age of 12, localized oedema, localized or systemic infection, the first trimester of pregnancy, vascular disease, and individuals with cognitive impairments.¹⁰

Literature Review

This mini review determined whether dry needling is beneficial for adults with myofascial pain syndrome. MeSH terms such as dry needling, myofascial trigger points, pain, and range of motion, were applied across three databases: PubMed, Cochrane Library, CINAHL. After screening and eligibility assessment, six studies met inclusion criteria for final review. Inclusion criteria were English language, patient population of adults over 18 years of age, published after 2000, and included intervention of dry needling. All six studies were randomized controlled trials resulting in a strong body of evidence.

Participants (n= 252) in the included studies comprised of male and female adults aged 18 to 65 presenting with chronic pain, muscle stiffness, reduced range of motion, or diagnosed with myofascial pain syndrome. Outcome measures commonly reported included pain intensity scales^{4,11-13} and range of motion testing.^{3,11,13,14}

The Value of dry needling in myofascial pain syndrome

All six studies suggested that dry needling may be an effective intervention to reduce pain in adults with myofascial pain syndrome.^{4,8,11-14} Individuals with neck pain experienced benefits within a week.^{4,13} Together, these studies support dry needling as a practical option for pain management.

Dry needling is effective in increasing range of motion (ROM) and decreasing muscle stiffness. Significant improvements in cervical ROM following treatment, with increased flexion, extension, and rotation.¹² Similar increases in neck ROM and control along with decreased stiffness within a week.^{3,13} These findings suggest dry needling can reduce stiffness and enhance ROM.

Combining dry needling with other therapies can

increase effectiveness. Manual therapy plus dry needling improved muscle stiffness, tone, and pain more than intervention alone, particularly in combat athletes.³ Additionally, combining dry needling with physiotherapy is shown to increase ROM and depression in patients with chronic neck pain.¹⁴ Similarly, dry needling with electrical stimulation improved pain and stiffness in patients with upper trapezius soreness.⁴ These findings highlight the benefit of integrating dry needling with other interventions.

The reviewed studies report reductions in pain, improvements in range of motion, and decreased muscle stiffness. Dry needling has been associated with immediate pain reduction, with limited evidence suggesting potential longer-term benefits. Overall, the included studies demonstrated generally sound methodological design, although formal quality appraisal was not performed.

Limitations

Although studies were high quality, there are some limitations to consider. Due to the relatively small sample size, generalizability may have been affected throughout some of the studies. In addition, differences in intervention techniques between studies do not allow for the development of best practice protocols.

Relevance to Developing Countries

Musculoskeletal pain is a leading contributor to disability in low- and middle-income countries, where access to imaging, pharmacological management, and long-term rehabilitation services is often limited. Dry needling has been shown to result in effective reduction of pain and has demonstrated results with increased participation and function in adults.¹ With a focus on scalable, low-resource interventions provided by qualified rehabilitation professionals, rehabilitation is becoming more widely acknowledged as an essential health service. Dry needling may be a helpful adjunct when used alongside multimodal care because of its low cost, short treatment duration, and minimal equipment requirements. When integrated with exercise, manual therapy, and patient education, dry needling may enhance functional outcomes as part of a multimodal rehabilitation approach.^{3,5} However, appropriate implementation requires adherence to practitioner training standards, established safety protocols, and local scope-of-practice regulations to ensure ethical and effective clinical use.¹⁰

Conclusion

The studies reviewed support dry needling as an effective

intervention for adults with myofascial pain syndrome for pain relief, reducing stiffness, and increasing ROM. Combining dry needling with other therapies, such as electrical stimulation or manual therapy, can increase the effectiveness of the intervention. These findings may inform occupational therapy practice by supporting selective incorporation of dry needling within multimodal rehabilitation programmes, particularly in developing countries where limited access to long-term rehabilitation increases the need for efficient, low-resource interventions.

AI Use Declaration

Generative artificial intelligence was used to assist with formatting and organization of citations. All content was reviewed and verified by authors.

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References

1. Navarro-Santana MJ, et al. Dry needling versus trigger point injection for neck pain symptoms associated with myofascial trigger points: A systematic review and meta-analysis. *Pain Med.* 2022;23:515–525.
2. American Occupational Therapy Association. Occupational therapy practice framework: Domain and process (4th ed.). *Am J Occup Ther.* 2020;74(Suppl 2):7412410010. <https://doi.org/10.5014/ajot.2020.74S2001>
3. Kuźdzał A, Clemente FM, Klich S, Kawczyński A, Trybulski R. Combination of manual therapy and dry needling effectively improves acute neck pain and muscular tone and stiffness in combat sports athletes: A randomized controlled study. *J Sports Sci Med.* 2024;23:852–862. <https://doi.org/10.52082/jssm.2024.852>
4. Sharma MK, Chaudhary S, Shenoy S. Short-term effect of frequency specific intramuscular electrical stimulation on post dry needling soreness of upper fibers of trapezius: A randomized controlled trial. *J Bodyw Mov Ther.* 2024;40:217–223. <https://doi.org/10.1016/j.jbmt.2024.04.003>
5. Fernández-de-las-Peñas C, Nijs J. The effect of therapeutic physical modalities on pain, function, and quality of life in patients with myofascial pain syndrome: A systematic review. *BMC Musculoskelet Disord.* 2023;24:418. <https://doi.org/10.1186/s12891-023-06418-6>
6. Shah JP, Gilliams EA. Uncovering the biochemical milieu of myofascial trigger points using in vivo microdialysis: An application of muscle pain concepts to myofascial pain syndrome. *J Bodyw Mov Ther.* 2008;12:371–384. doi: 10.1016/j.jbmt.2008.06.006. Epub 2008 Aug 13. PMID: 19083696.
7. Gerwin RD. Classification, epidemiology, and natural history of myofascial pain syndrome. *Curr Pain Headache Rep.* 2001;5:412–420.
8. Kietrys DM, Palombaro KM, Azzaretto E. Effectiveness of dry needling for upper-quarter myofascial pain: A systematic review and meta-analysis. *J Orthop Sports Phys Ther.* 2013;43:620–634.
9. Cagnie B, Dewitte V, Barbe T, Timmermans F, Delrue N, Meeus M. Physiologic effects of dry needling. *Curr Pain Headache Rep.* 2013;17:348. <https://doi.org/10.1007/s11916-013-0348-5>
10. McAphee D, Bagwell M, Falsone S. Dry Needling: A Clinical Commentary. *Int J Sports Phys Ther.* 2022;17:551–555. doi:10.26603/001c.35693
11. Külekçioğlu S. A prospective clinical study to evaluate the comparative effectiveness of dry needling and laser therapy in neck and upper back myofascial pain syndrome. *Folia Med (Plovdiv).* 2024;66:842–848. <https://doi.org/10.3897/folmed.66.e130873>
12. Mahdizadeh M, Bagheri R, Taghizadeh Delkhoush C, Tohidast SA. The effect of upper trapezius trigger points dry needling on postural control in patients with chronic neck pain. *J Bodyw Mov Ther.* 2024;40:1079–1085. <https://doi.org/10.1016/j.jbmt.2024.07.015>
13. Martín-Rodríguez A, Sáez-Olmo E, Pecos-Martín D, Calvo-Lobo C. Effects of dry needling in the sternocleidomastoid muscle on cervical motor control in patients with neck pain: A randomized clinical trial. *Acupunct Med.* 2019;37:151–163. <https://doi.org/10.1177/0964528419843913>
14. Sami Alattar S, Alzahrani H. Effectiveness of adding dry needling of the upper trapezius muscle to the usual physiotherapy for managing chronic neck pain: A randomized controlled trial with a 7-week follow-up. *Sci Pract.* 2024;74:103155. doi: 10.1016/j.msksp.2024.103155. Epub 2024 Aug 18. PMID: 39217854.