

The Effects of Dry Needling on Knee Outcomes: A Systematic Review

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Background

- Musculoskeletal pain associated with trigger points can cause an increased morbidity and a decreased quality of life, impacting work and social activities³
- Dry needling is an intervention to help decrease pain caused by trigger points, but its effects are still being studied¹
- Dry needling has been gaining popularity in the physical therapy profession, especially for knee pain; however, a summary of the literature must be provided²

Dry needling (DN):
 A procedure where a thin needle is inserted into the skin, connective tissue, and muscle, with the intention of inactivating a trigger point^{1,2}

Myofascial trigger points (MTrPs):
 Localized hypersensitive spots within a contracted band of muscle tissue that cause either local or referred pain³



Purpose

The purpose of this systematic review was to evaluate the effectiveness of dry needling on primarily knee pain, in addition to other secondary outcomes such as function, disability, strength, & range of motion (ROM).

Methods

- Inclusion criteria: RCTs; English language; knee pain, ROM, function, disability, strength
- PRISMA guidelines were followed first
- Databases: PubMed, Embase, Scopus, CINAHL
- Exclusion criteria: Acupuncture, injection, wet substance needling

Dry needling may be effective in improving knee outcomes if given early in the treatment process.



Patellofemoral pain
 (Espino-Lopez et. al.)

- **Intervention:** Manual therapy and exercise + 3 sessions of dry needling
- **Control:** Manual therapy and exercise
- **Results:** No significant differences

Atraumatic pain + lacking extension
 (Mason et. al.)

- **Intervention:** Stretching + 2 sessions of dry needling
- **Control:** Stretching + sham dry needling
- **Results:** No significant differences

Knee osteoarthritis + total knee replacement
 (Mayoral et. al.)

- **Intervention:** 1 session of dry needling before surgery
- **Control:** Sham dry needling before surgery
- **Results:** DN group significantly decreased pain at 1 month

Surgical reconstruction of ACL
 (Velazquez-Saornil et. al.)

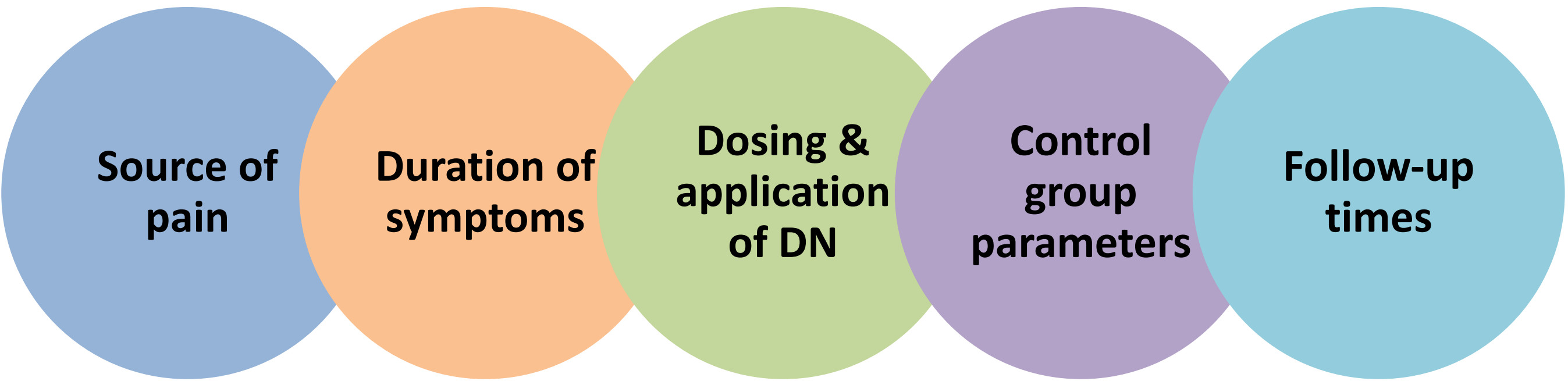
- **Intervention:** Manual therapy and exercise + 1 session of dry needling after surgery
- **Control:** Manual therapy and exercise
- **Results:** DN group had an increase in ROM and functionality but an increase in pain immediately

Results

- Duration of symptoms:** Mixture of chronic, acute, or both onsets of symptoms
- Muscles receiving DN:** Quadriceps only, hamstrings only, or a combination of all muscles crossing the knee
- Dry needling technique:** Hong fast-in-fast-out or pistoning
- Follow-up times:** Only one study (Mayoral) had an adequate follow-up time of 6 months

Discussion/Conclusions

Heterogeneity was found with:



The compiled results of this study were inconclusive due to the amount of variability in multiple aspects of the included studies.

Future research needs to focus on determining the most effective frequency of DN. Future studies should include:

Sham dry needling group as a control	Larger sample sizes	Longer follow-up periods	Longer multimodal treatment periods
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Clinical Relevance

Two out of the four studies suggested that DN may be an effective treatment early on in the treatment process. More research needs to be done to make useful suggestions. Conflicting evidence was found specifically in relation to dry needling and its effects on knee pain.

References

1. Dommerholt, Jan. (2011). Dry needling – peripheral and central considerations. *Journal of Manual and Manipulative Therapy*, 19(4):223-237.
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3. Velazquez-Saornil, Jorge et. al. Efficacy of Quadriceps Vastus Medialis Dry Needling in a Rehabilitation Protocol After Surgical Reconstruction of Complete Anterior Cruciate Ligament Rupture. *Medicine*, 96(17):1-10.
4. Ziaefar, Maryam et. al. (2014). The effect of dry needling on pain, pressure pain threshold and disability in patients with a myofascial trigger point in the upper trapezius muscle. *Journal of Bodywork and Movement Therapies*, 18:298-305.
5. Picture: <http://www.advanced-wellness.net/wp-content/uploads/2013/02/knee-pain.jpg>