

# Dry Needling for Treatment of Osteoarthritis: A Systematic Review

## Abstract

**Objective:** To review current literature about the effectiveness of dry needling interventions for osteoarthritis (OA).

**Methods:** Literature was gathered through PubMed, CINAHL, and Google Scholar and assessed for the effectiveness of dry needling interventions on osteoarthritis.

**Results:** The majority of literature supported the stance that dry needling interventions have a favorable effect for decreasing pain, increased mobility, and increase range of motion for patients with osteoarthritis.

**Conclusions:** Dry needling interventions show promising results for patients with osteoarthritis. The interventions mentioned in this review should be researched further to find how they can decrease pain and increase mobility in patients with osteoarthritis. When different methods were directly compared, these studies didn't identify a preferred method for best improving pain and mobility in patients with osteoarthritis.

## Introduction

Osteoarthritis is the most common form of arthritis, affecting about three million people in the United States per year.<sup>1</sup> In the United States, knee osteoarthritis alone, affects about 10% of men and 13% of women 60 years and older.<sup>2</sup> These rates are predicted to increase in the coming years due to the obesity epidemic and growing elderly population.<sup>2</sup> It is estimated that about \$185.5 billion is spent on osteoarthritis in the United States each year.<sup>3</sup> That's about \$149.4 billion from insurance (\$4,833 per female patient, and \$4,036 per male patient) and \$36.1 billion out-of-pocket (\$1,379 for women and \$694 for men).<sup>3</sup>

Osteoarthritis occurs when the protective cartilage on the ends of bones wears down over time. Eventually, this wear will completely degrade the cartilage and bone will come in contact with bone whenever the patient moves.<sup>1</sup> This condition usually affects older individuals, as it requires many years for the cartilage to deteriorate. Osteoarthritis can cause pain, swelling, stiffness, loss of flexibility, grating sensation, and bone spurs,<sup>1</sup> often resulting in chronic joint pain, making things like normal daily tasks difficult to accomplish.<sup>1</sup>

Usual treatments for OA include physical therapy, medication, and sometimes surgery. Some research has shown that dry needling (DN), the insertion of needles into myofascial structures, may to help reduce hypertonicity, pain, inflammation, and increase range of motion by increasing blood flow around the joints.<sup>4</sup> Dry needling is a relatively new possibility for clinicians and therapists to use, thus there is little long-term research on its effectiveness in treating OA.

Therefore, the purpose of this study is to review whether, in people with osteoarthritis, the use of therapeutic dry needling is effective in increasing mobility and reducing pain. The findings of this study should raise awareness about the potential benefits of dry needling as a treatment for osteoarthritis.

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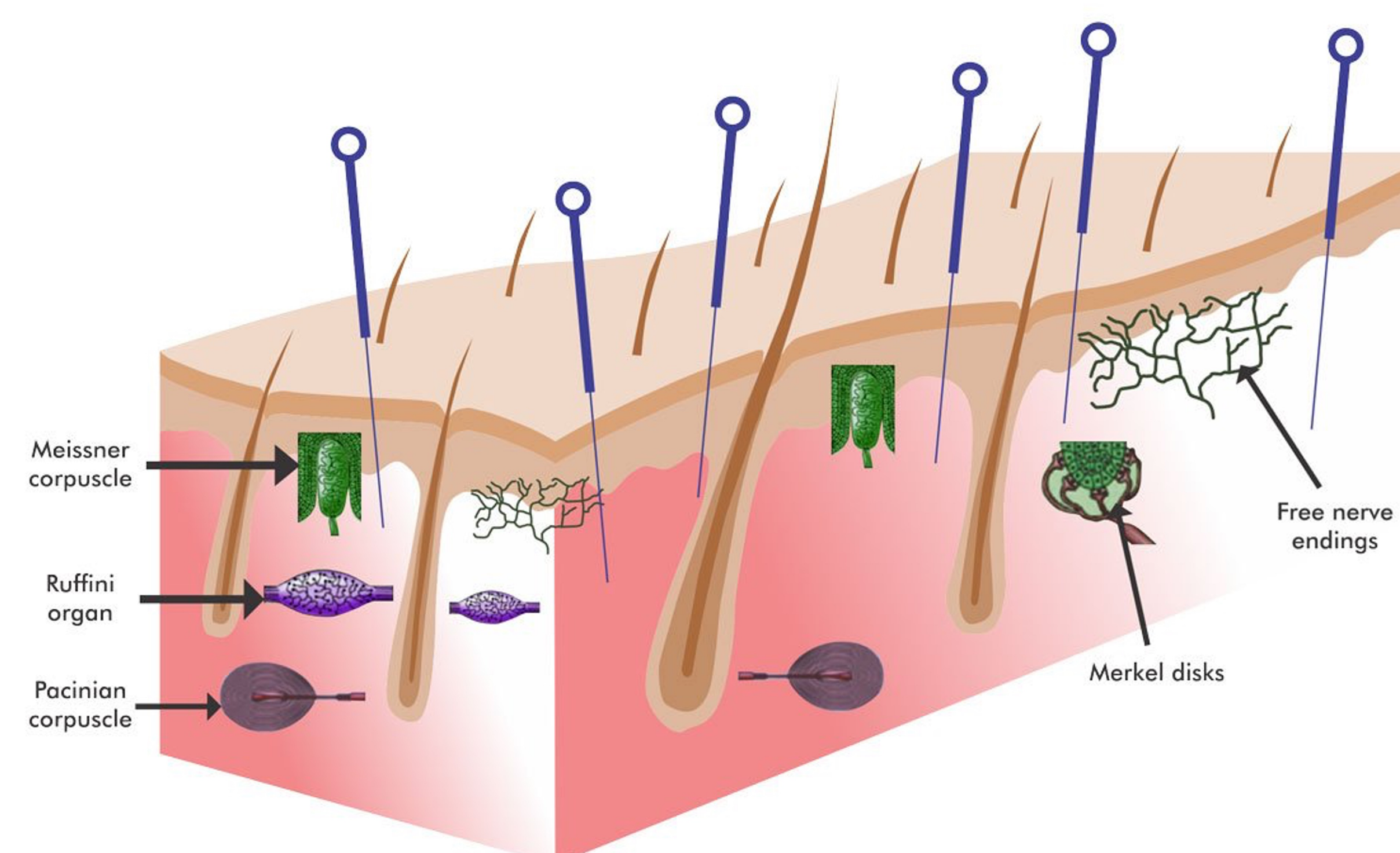


Figure 1: A view of functional integrated dry needling

## Methods

- ❑ For this review PubMed, CINAHL, and Google Scholar were searched in September and October of 2021
- ❑ Search terms used in these three engines are as follows, osteoarthritis AND dry needling AND mobility AND pain
- ❑ The search began with 205 articles identified and was narrowed down to 69 after duplicates and irrelevant articles were excluded. PubMed produced 26 of the starting articles and CINAHL produced 179 of the starting articles. Eight sources were used for this review.



Figure 2: Upper body dry needling trigger points

## Results

Overall, the use of DN showed favorable results for osteoarthritis in most studies. The case study showed improvements in pain, range of motion (ROM), function, and MFTP.<sup>5</sup> Most of the double-blind clinical trials showed increased functional activity, sensitivity, and balance and decreased pain in patients with knee OA in short term following DN.<sup>6,8,10</sup> Sessions of DN were more effective than sham DN for improving pain intensity, pressure pain threshold, and psychological distress in patients with mild to moderate hip OA in the short term.<sup>10</sup> Pain, hip ROM, and physical function improved after the application of DN increased in active myofascial trigger points of the hip muscles in patients with hip OA.<sup>8</sup> Although this was the case for most studies, two of the double blind clinical trials showed that knee OA did not seem to improve pain intensity and functionality for both DN and sham-DN combined with exercise.<sup>7,9</sup> Another of the studies found that 90.3% of the DN group had reduced medication consumption vs only 26.3% in the sham DN group, but they concluded that the addition of DN to an exercise program doesn't reduce pain or disability in patients with knee OA.<sup>9</sup> The randomized clinical trials showed that DN might not be effective. One study found that the inclusion of DN into a MT and exercise program was more effective for improving pain, function, and related disability than the application of MT and exercise alone in people with painful knee OA,<sup>11</sup> and the other found that the inclusion of three sessions of DN in a manual therapy and exercise program did not result in improved outcomes for pain and disability in individuals with patellofemoral pain at the three-month follow-up.<sup>8</sup>

## Conclusions

Most studies analyzed in this review provide evidence that DN had favorable effects on osteoarthritis pain and disability. These studies, demonstrate the multiple ways to combine the different treatments (dry needling, manual therapy, exercise). When different methods were directly compared, these studies didn't identify a preferred method for best improving pain and mobility in patients with osteoarthritis. Some of the approaches that were found to be beneficial included the use of DN combined with exercise,<sup>5,11</sup> three sessions of DN,<sup>6,10</sup> and DN and active MFTP.<sup>8</sup> The findings of this systematic review can guide clinical practice to relieving osteoarthritis with DN.

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