Clinical Review Criteria

Dry Needling for Myofascial Pain

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Criteria

For Medicare Members

<table>
<thead>
<tr>
<th>Source</th>
<th>Policy</th>
</tr>
</thead>
<tbody>
<tr>
<td>CMS Coverage Manuals</td>
<td>None</td>
</tr>
<tr>
<td>National Coverage Determinations (NCD)</td>
<td>Acupuncture for Fibromyalgia (30.3.1)</td>
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<tr>
<td></td>
<td>Acupuncture for Osteoarthritis (30.3.2)</td>
</tr>
<tr>
<td>Local Coverage Determinations (LCD)</td>
<td>None</td>
</tr>
<tr>
<td>Local Coverage Article</td>
<td>None</td>
</tr>
</tbody>
</table>

For Non-Medicare Members

There is insufficient evidence in the published medical literature to show that this service/therapy is as safe as standard services/therapies and/or provides better long-term outcomes than current standard services/therapies.

Background

Myofascial pain syndrome (MPS) is a fairly common form of pain that arises from muscles or related fascia. The syndrome is usually characterized by palpable muscle tenderness and trigger points (myofascial trigger points or MTrPs). These are highly localized, hyperirritable spots in a palpable taut band of skeletal muscle fibers. When compressed, MTrPs can cause local and/or referred tenderness and pain, aggravation of existing pain, and /or autonomic phenomena. They can also contribute to impaired range of motion and increased sensitivity to stretch. Active MTrPs are associated with spontaneous local or referred pain and/or pain on movement, while latent MTrPs require direct stimulation to trigger pain symptoms. Palpating a trigger point or inserting a needle into it may elicit a localized twitch response, a brisk contraction of muscle fibers in and around the MTrPs. Trigger points may develop anywhere in the body in response to sudden injury, muscle overload, or repetitive microtrauma. Frequently affected sites include trapezius, supraspinatus, infraspinatus, teres muscle, lumbar paraspinals, gluteus, and pectoralis muscles. It is postulated that the injured muscle fibers shorten forming taut bands in response to the excessive amounts of calcium released from the damaged fibers or to the excessive amounts of acetyl choline released from the corresponding motor end plate. There are no laboratory or imaging tests to establish the diagnosis of MPS or to locate the trigger points. It has been suggested that spot tenderness, taut band, and pain recognition are the three important criteria for the diagnosis of MTrP, and that referred pain and local twitch response can be confirmatory signs for the diagnosis (Chou 2012, Diracoğlu 2012, Furlan 2005, Kietrys 2013, Ay 2010, Tekin 2013 Tough 2009).

The primary goal of treating MPS is to inactivate the trigger points and loosen the taut bands. The most important strategy is to treat the underlying etiological lesion that causes activation of MTrPs. If the underlying pathology is not appropriately and completely treated, the MTrP is inactivated only temporarily not completely. Several treatment modalities have been used to alleviate the chronic myofascial pain but no single strategy proved to be universally successful. These include the use of non-steroidal anti-inflammatory drugs (NSAIDs), NSAID gel or patch, thermotherapy, massage, physical therapy, spray and stretch techniques, exercise, ischemic compression, laser therapy, acupuncture, or local injections of substances as steroids or lidocaine. Trigger point injection with local anesthetic, saline, steroid, botulinum toxin, or even dry needling is believed to be the most effective method for treating MPS (Ay 2010, Chou 2012, Kalichman 2010).

Dry needling (DN) was initially developed to treat musculoskeletal disorders. It was widely used for the treatment of MTrPs in the last three decades after some investigators indicated that needling effect is distinct from that of the...
Dry Needling for Myofascial Pain

Conclusion: There is insufficient published evidence to determine that dry needling has a superior or equivalent effect as acupuncture, other therapies, or injections in reducing pain and improving range of motion (ROM) in patients with injected substance. Trigger-point DN (also called biomedical acupuncture) is different from acupuncture and is not based on the insertion of needles in traditional acupuncture meridian sites. DN is a procedure in which an acupuncture-like needle is inserted into the skin and muscle in the location of an MTrPs without the use of saline or any other liquid agent or medication. The needle is not left in situ but is removed after the muscle has finished twitching and the trigger point inactivated. This should be followed by exercises, usually stretching or ergonomic adjustments, in order to establish a painless full range of motion. It has been suggested that DN is most effective when local twitch responses are elicited, probably because of rapid depolarization of the involved muscle fibers which manifest as local twitches. The actual mechanism by which DN may produce an effect is being debated and several explanations were postulated. Some investigators explain that the localized twitch response that often occurs may interrupt the motor end-plate noise, producing an analgesic effect, while others suggest that eliciting a localized twitch response and stretching exercises relax the actin-myosin bonds in the tight bands. It is also postulated that the mechanical damage of the muscle fibers and nerve terminations leads to an increase of extracellular potassium, depolarization of nerve fibers, inhibition of central feedback mechanisms, local dilution of nerve-sensitizing substances, increasing vasodilatation, and formation of necrosis in trigger point area. A number of other mechanisms were postulated by different researchers. Adverse events associated with the DN include soreness after needling, local hemorrhages at the needling site, and syncopal responses (Ay 2010, Furlan 2005, Kalichman 2010, Kietrys 2013).

Several schools and theoretical models of DN have been developed during the last three decades. The most common are the radiculopathy (also known as intramuscular stimulation) and MTrP models. Dry needling techniques include superficial or deep needling, and needling with or without paraspinal needling. In the superficial needling the needle is only inserted into the tissue overlying the MTrP to a depth of 5-10 mm for 30 seconds. At this level the needle does not necessarily reach the MTrP and local twitches are not expected. In the technique that involved paraspinal needling, needles are inserted at the trigger point as well as in the paraspinal muscle of the same segment that innervates the painful muscles. These last two techniques were the least investigated (Kalichman 2010).

DN is a minimally invasive skilled intervention performed by physical therapists (where allowed by state law) and requires advanced training. The states allowing the procedure have to follow guidelines for education and competency standards for performing it.

Medical Technology Assessment Committee (MTAC)

Dry Needling for Myofascial Pain

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Evidence Conclusion: The results of the published randomized controlled trials (RCTs) and meta-analyses do not provide sufficient evidence to determine that DN is superior or equivalent to acupuncture, physical therapy, injections with lidocaine or botulinum toxin in reducing myofascial pain or increasing the range of motion. The published randomized controlled trials that compared the effect of DN to sham injections, injections with lidocaine, botulinum toxin, acupuncture, or physical therapy had small sample sizes, and insufficient power to detect significant differences between the study groups. The majority of trials were unblinded, had methodological limitations, and none was designed as an equivalence trial. The overall results of the studies show some improvement in pain and range of motion with lidocaine or botulinum toxin injections, physical therapy, or acupuncture, and some no or no improvement with DN. Improvements were observed when the comparisons were made between pre-and post-treatment within each of the study groups. There were no significant between groups differences in the outcomes studied. Many of the authors interpreted the lack of difference between the study groups as equal effects. As indicated earlier, none of the trials were designed as equivalence study, and a lack of significant differences between study groups cannot be interpreted as equal effects as it might be due to the small sample sizes and insufficient power of the trials. Kietrys et al’s (2013) meta-analysis (evidence table 1) pooled the results of 12 trials with a total of 696 participants that compared DN to either sham therapy or other active therapies (lidocaine injection, botulism toxin injection, or acupuncture) for upper quarter myofascial pain. The pooled results of the analysis indicate that DN may be superior to sham needling but less effective than the other active therapies. Tough and colleagues’ (2009) meta-analysis pooled the results of 7 small trials, with significant heterogeneity, that studied the effect of acupuncture and DN of the MTrPs compared to no additional intervention, indirect local DN, or a sham therapy. Four of the included studies were rated to have poor methodological quality. The authors could perform a MA only for 4 (N=134 participants) studies that compared DN to sham needling. The pooled results of these trials showed that DN was not superior to sham therapy in reducing the myofascial pain (standardized mean difference =14.09 (95% CI, -5.81 to 33.99). The results of the two meta-analyses have to be interpreted with caution due to the small number and size of the trials as well as their methodological limitations, and significant heterogeneity between studies.

Conclusion: There is insufficient published evidence to determine that dry needling has a superior or equivalent effect as acupuncture, other therapies, or injections in reducing pain and improving range of motion (ROM) in patients with
myofascial pain syndrome (MPS). The results of trials comparing DN to sham needling are conflicting, and may only provide weak evidence that DN performed by experienced physiatrists may be superior to sham needling in reducing the pain, but not improving the ROM. There is insufficient published evidence to determine the appropriate number of points to be injected. There is insufficient published evidence to determine the duration of pain relief after the injection. There is insufficient evidence to determine whether the patients would need to undergo another needling procedure, and the most appropriate interval between re-injections if needed.


The use of dry needling for myofascial pain does not meet the Kaiser Permanente Medical Technology Assessment Criteria.

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The use of dry needling for myofascial pain does not meet the Kaiser Permanente Medical Technology Assessment Criteria.

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<sup>MPC</sup> Medical Policy Committee

**Revision History** | **Description**
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**Codes**

No specific codes