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 activities.
- Dry needling is an intervention to help decrease pain caused by trigger points, but its effects are still being studied.
- Dry needling has been gaining popularity in the physical therapy profession, especially for knee pain; however, a summary of the literature must be provided.

**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.

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

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

**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:

<table>
<thead>
<tr>
<th>Source of pain</th>
<th>Duration of symptoms</th>
<th>Dosing &amp; application of DN</th>
<th>Control group parameters</th>
<th>Follow-up times</th>
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</thead>
<tbody>
<tr>
<td>Sham dry needling group as a control</td>
<td>Larger sample sizes</td>
<td>Longer follow-up periods</td>
<td>Longer multimodal treatment periods</td>
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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

**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**