The Effectiveness of TENS for Patients with Low Back Pain
A Literature Review of the Evidence

March 2011

Clinical Question: For adults in the outpatient setting, what is the effectiveness of transcutaneous electrical nerve stimulation units for patients with low back pain?

Results: A search of various databases and a final review of articles yielded 8 articles relevant to this clinical question. The following key summary of the literature of studies involving TENS units for patients with low back pain (LBP) is offered to provide some guidance:

- At this time, the evidence from the small number of placebo-controlled trials does not support the use of TENS in the long term routine management of chronic LBP (3,6)
- Conflicting evidence fails to consistently demonstrate that TENS (acupuncture, conventional, or biphasic), as compared to sham TENS (placebo), is effective in relief of symptoms and reduction of disability associated with chronic LBP (1,3,4,5,6,7,8) without sciatica (6)
  - Active TENS was more effective than placebo in decreasing visual analog scores for pain following each treatment, although results were not statistically significant (1,8)
  - TENS therapy significantly reduces pain and improves performance on the majority of standardized tests of physical capacity for short term LBP (5)
  - It has not categorically been demonstrated that TENS effects exceed placebo effects (7)
  - It is not known whether TENS effectiveness changes with different types or application areas, duration of treatment, frequencies or intensities (1,7)
    - Frequency of treatment may influence TENS effectiveness upon LBP in people with MS (1)
- TENS was found to be effective and rapid in reducing pain during emergency transport of patients with first episode of acute low back pain (2)

Clinical Options: Based on the literature, the following options are offered for consideration:

- TENS is not recommended for the treatment of chronic LBP (3)
- TENS may be more suited for acute modulation of short-term pain relief (4,5)
- TENS may have clinical relevance as a nonpharmacological method of pain relief for LBP in people with MS (1,8)
- Paramedic administered TENS during emergency transport is a nonpharmacological alternative for patients with acute low back pain (high benefit, low risk) (2)

Recommendation: A systematic review using an expanded search of additional databases could provide further clarification for this medical issue. The Kaiser Permanente Department of Clinical Analysis, Technology Assessment & Guidelines Unit, conducts systematic reviews on these types of clinical topics. (Email request and question to: scal.med-technology-agu@kp.org)
References


### Ranking and Leveling of the Evidence

#### Canadian Medical Association Evidence Scoring System

*(Adapted by KP SCAL Regional Nursing Research Program, 2006)*

<table>
<thead>
<tr>
<th>SCORE</th>
<th>LEVELS OF STUDIES</th>
<th>RELEVANT ARTICLES</th>
<th>ARTICLE NUMBER</th>
</tr>
</thead>
<tbody>
<tr>
<td>10</td>
<td>Meta-Analysis of Randomized Controlled Trials/Systematic Reviews</td>
<td>2</td>
<td>#3, #6</td>
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<tr>
<td>9</td>
<td>Large Sample Randomized Controlled Trials</td>
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<tr>
<td>8</td>
<td>Small Sample Randomized Controlled Trials</td>
<td>5</td>
<td>#1, #2, #4, #5, #8</td>
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<tr>
<td>7</td>
<td>Non-random, Controlled Prospective Studies</td>
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<tr>
<td>6</td>
<td>Non-random, Controlled Retrospective Studies</td>
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<tr>
<td>5</td>
<td>Cohort Studies</td>
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<tr>
<td>4</td>
<td>Case-Controlled Studies</td>
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<tr>
<td>3</td>
<td>Non-Controlled, Clinical, Descriptive Studies</td>
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<tr>
<td>2</td>
<td>Case Studies</td>
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<tr>
<td>1</td>
<td>Expert Consensus, Manufacturers Recommendations (Literature Reviews)</td>
<td>1</td>
<td>#7</td>
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<tr>
<td>0</td>
<td>Anecdotes &amp; *Qualitative Studies</td>
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<td></td>
<td><strong>Total</strong></td>
<td><strong>8</strong></td>
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