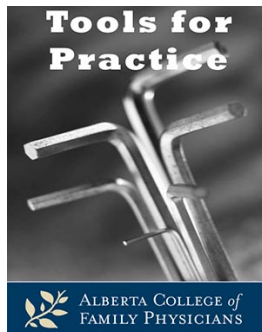


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**Reviewed: February 10, 2015**  
**Evidence Updated: Systematic review added**  
**Bottom Line: Unchanged**  
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## **Topical NSAIDs: Do they top Placebo or Oral NSAIDs?**

**Clinical Question: Are topical non-steroidal anti-inflammatory (NSAIDs) effective in reducing pain in acute and chronic (including osteoarthritis) musculoskeletal pain?**

**Bottom-Line: In acute and chronic (like osteoarthritis) musculoskeletal pain, topical NSAIDs are superior to placebo and equivalent to oral NSAIDs. Topical NSAIDs adverse event rates are not statistically greater than placebo.**

### **Evidence:**

- Acute musculoskeletal pain: Systematic review of 47 randomized controlled trials (RCTs) with 5,512 patients (within 24-48 hours onset).<sup>1</sup>
  - Clinical success (defined as 50% pain reduction, good pain relief, or equivalent): Statistically significantly greater with topical NSAID vs. placebo, relative benefit 1.5 [Confidence Interval (CI) 1.4-1.6].
    - Topical NSAID 65% vs. placebo 43%, Number Needed to Treat (NNT)=5.
  - Topical diclofenac, ibuprofen, ketoprofen, and piroxicam were all effective.
  - Adverse events and withdrawals were not different.
  - Benefit decreased over time: 6-8 days NNT=4 and 9-14 days NNT=10.
    - This may be due to recovery over time in the placebo arm.
- Chronic musculoskeletal pain (including osteoarthritis): Four systematic reviews comparing topical NSAIDs to placebo.<sup>2-5</sup>
  - Short-term (two weeks) effects: Consistent statistically significant improvement.<sup>2,3</sup> Example, relative benefit 1.9 (CI 1.7-2.2), NNT=5 for improved pain over placebo.<sup>3</sup>
  - Long-term (=12 weeks) effects: Statistically significant pain reduction vs. placebo, NNT=11.<sup>5</sup>
  - Comparing topical to oral NSAIDs: Pain control is similar (relative risk 1.1, CI 0.9-1.3).<sup>3,5</sup> Overall withdrawals for adverse effects is also similar.<sup>5</sup>

**Context:**

- Other meta-analyses<sup>6,7</sup> support topical NSAIDs in acute musculoskeletal pain or single joint osteoarthritis.
  - Present evidence does not support topical NSAIDs in back pain, neuropathic conditions or widespread pain.<sup>7</sup>
- UK osteoarthritis guidelines place topical NSAIDs (or acetaminophen) as first line pharmacotherapy for knee and/or hand osteoarthritis.<sup>8</sup>
  - Intra-articular NSAID levels are therapeutic with topical or oral but circulation levels of topical NSAIDs are 15% of oral NSAIDs.<sup>8</sup>
- Recommending specific formulations is challenged by the lack of trials comparing different formulations (types of gels/creams) on clinical outcomes.

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