

# Topical nonsteroidal anti-inflammatory drugs

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■ Cite as: *CMAJ* 2023 September 18;195:E1231. doi: 10.1503/cmaj.230578

## 1 Topical nonsteroidal anti-inflammatory drugs (NSAIDs) provide local analgesia and anti-inflammatory effects with minimal systemic uptake

Nonsteroidal anti-inflammatory drugs inhibit the cyclooxygenase enzyme, reducing inflammation and pain. Compared with oral formulations, topical NSAIDs work locally, with systemic uptake limited to around 5%.<sup>1</sup> High-quality evidence supports the analgesic role of several topical NSAIDs, including diclofenac and ketoprofen.<sup>1</sup> Salicylate-containing rubefaciants are excluded from this discussion given their distinct mechanism of action.

## 2 Topical NSAIDs are effective for specific painful conditions

Systematic reviews of placebo-controlled randomized controlled trials confirm the efficacy of several topical agents in treating pain from soft-tissue injuries and chronic osteoarthritis.<sup>1</sup> For acute sprains and strains, topical diclofenac (number needed to treat [NNT] 2) and ketoprofen (NNT 3) improved pain by 50% from baseline within 1 week. For chronic hand and knee osteoarthritis, topical diclofenac (NNT 5) and ketoprofen (NNT 7) improved pain by 50% within 6 weeks.<sup>1</sup>

## 3 Topical NSAIDs provide comparable pain relief to oral NSAIDs in patients with specific painful conditions

Meta-analyses have shown that topical NSAIDs provided similar pain relief to oral NSAIDs for patients with chronic osteoarthritis and for patients with acute musculoskeletal pain.<sup>1,2</sup>

## 4 Topical NSAIDs are safer than oral NSAIDs

Substituting topical NSAIDs for oral NSAIDs reduces the incidence of severe gastrointestinal adverse events, with 1 study showing a decrease from 26% to 17%.<sup>2,3</sup> Common adverse events from topical agents are mild and include local skin reactions (e.g., dry skin) and pruritus (number needed to harm 7).<sup>3</sup>

## 5 Topical NSAIDs are recommended as first-line treatments over oral NSAIDs in some guidelines

Topical NSAIDs are indicated for management of musculoskeletal pain and pain from chronic osteoarthritis.<sup>4,5</sup> Although use of NSAIDs has no recommended time limit, providers should evaluate their effectiveness after 6–12 weeks. No recommendations are available for the use of topical NSAIDs in patients with typical contraindications to NSAIDs (e.g., heart failure, anticoagulant use, renal failure).

## References

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**Competing interests:** Hans Rosenberg is a medico-legal expert for the Canadian Medical Protective Association and sits on the editorial board of the *Canadian Journal of Emergency Medicine*. No other competing interests were declared.

This article has been peer reviewed.

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