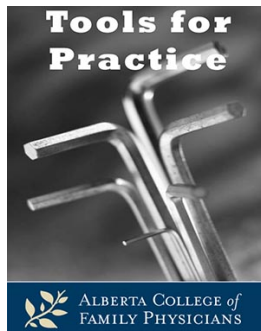


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NSAIDs: Inflamed effects on inflammation?

Clinical Question: Do non-steroidal anti-inflammatory drugs (NSAIDs) reduce swelling and inflammation in acute injury?

Bottom Line: Randomized Controlled Trials (RCTs) of NSAIDs effect on musculoskeletal injury swelling show highly inconsistent results: Some slight improvements (2-11%), some slight worsening (8%) and most no effect. It is unlikely NSAIDs have any reliable effect on acute injury swelling but they do improve pain for ~ 1 in 4 over one week.

Evidence:

- NSAIDs versus other drugs:
 - Systematic review, ten soft tissue injury RCTs:¹
 - Mostly found no difference between adequately dosed NSAIDs (like diclofenac 150 mg/day or ibuprofen 1600 mg/day) versus acetaminophen, dihydrocodeine, or acetaminophen-opioid combinations.
 - One RCT (68 patients, mixed injuries): Naproxen 1100 mg/day statistically reduced swelling ~6% versus dextropropoxyphene (Darvon™) at three days.
 - One RCT (86 patients, ankle sprain): Diclofenac 150 mg/day statistically worse swelling ~8% versus acetaminophen at three days.²
 - Limitations: Groups treated differently,³ inconsistent blinding,¹ suboptimal doses sometimes,¹ and swelling secondary outcome.¹
- NSAID versus placebo:
 - No systematic review. Eight individual RCTs, statistically significant results in swelling versus placebo.
 - 66 knee injury patients:⁴ Diclofenac reduced (undefined) swelling.
 - No swelling: 71% diclofenac versus 35% placebo.
 - 364 ankle sprain patients:⁵ Piroxicam 40 mg made no difference in swelling by volumetric assessment.
 - Piroxicam increased clinically assessed swelling (no swelling: 20% piroxicam versus 48% placebo).
 - 60 ankle injury patients:⁶ Nimulsid 200 mg/day reduced swelling by volumetric assessment ~11% more than placebo.⁶
 - 44 hamstring injury patients:⁷ Diclofenac 150 mg/day no difference.

- 92 ankle injury patients:⁸ No difference with diclofenac 150 mg/day or piroxicam 20 mg/day.
- 68 ankle injury patients:⁹ Ibuprofen 2400 mg/day no difference.
- Two ankle sprain RCTs (60 and 108 patients):^{10,11} Diclofenac 150 mg/day and piroxicam 20 mg/day reduced swelling by ~25 mL (1.65%) more than placebo at three days.^{10,11}

Context:

- Swelling should be assessed by volume (example water displacement) but frequently was not.
- According to systematic reviews of topical NSAIDs and older RCTs, NSAIDs are effective for pain relief in acute injury.^{4-6,8,12}
 - Topical NSAID example, 50% reduction in pain for acute musculoskeletal injury: Number Needed to Treat (NNT)=4 at 6-8 days and =10 at 9-14 days.

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Conflicts of Interest:

Authors do not have any conflicts to disclose.

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