

INJURED? THINK TWICE BEFORE POPPING THAT PILL.

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Pain sucks. When we get injured or sore or uncomfortable, we instinctually try to fix it. We reach into our medicine cabinets, pop some pills, and “get back out there.” But are we really doing ourselves a service? Can we actually be inadvertently putting ourselves at risk? Turns out, maybe so.

Non-steroidal anti-inflammatory drugs (NSAIDs), which include ibuprofen (Motrin, Advil), naproxen (Aleve), celecoxib (Celebrex) and a ton of others, are available over-the-counter and are widely used by the general population for, well, everything. Studies have found a disproportionately high use of NSAIDs amongst athletes, particularly elite athletes, as well as a lack of awareness of key dangerous side effects¹.

Standard care in medical practice is to discourage prophylactic use (taking medications in advance of preventing a problem, as opposed to treating an existing problem) of NSAIDs². But what about NSAID use after injuries? NSAIDs have traditionally been part of hallmark treatment, particularly for facilitating an early return to activity. But there is a controversy in sports medicine about whether NSAID use in the first few days after acute sports injuries can actually *compromise* the healing process. Let’s examine how that might be so.

HOW DO NSAIDs WORK?

NSAIDs have anti-inflammatory and analgesic (pain-relieving) effects by inhibiting an enzyme called cyclooxygenase (COX), which is responsible for catalyzing the formation of inflammatory signaling molecules called prostaglandins.

HOW MIGHT NSAIDs INHIBIT MUSCULAR HEALING?

As per my previous article on ICI about the medical consequences of overexercising/overtraining, the first step in muscular repair is actually **inflammation**. Inflammatory cells flock to the site of injury, release pro-inflammatory signaling molecules called cytokines to recruit a whole slew of other inflammatory cells. It’s a big inflammatory cell party. After this inflammatory stage concludes, only then can new cells start to lay down new collagen fibers to repair tissue strength.

New research, beginning in animal models, suggests that use of NSAIDs in the first few (3-5 days) of acute injury actually PREVENT this inflammatory stage from occurring³ – and thus compromise the later repair phase. This may be why we see so many recurrent injuries in athletes who pop NSAIDs to cope with their discomfort (or, worse, attempt to prevent discomfort in the first place)⁴.

Prophylactic use of NSAIDs certainly makes people feel less discomfort. But can it contribute to injury? As it turns out, yes. Athletes who take NSAIDs regularly before training/competing in hopes to prevent discomfort may inadvertently be predisposing themselves to future injury by reducing tissue adaptation to loads (again, see my overtraining article for a description about how muscle strength is built through the process of creating microtears via overloading the muscle fiber). Prolonged use of NSAIDs can delay healing⁵. Standard medical care is to discourage prophylactic use of NSAIDs⁶.

Not all injuries require inflammation to be shut down. A nerve impingement or a swollen, leaky knee is very different than muscle pain. (NSAIDs may indeed block the pain (because of their analgesic effects) but may not actually contribute much value-added towards the actual problem⁷.

WHY ELSE MIGHT WE WANT TO AVOID NSAIDs WHEN POSSIBLE?

Beyond the gastrointestinal complications (i.e., nausea, diarrhea, and increased risk of ulcers) that tend to make their way to the public knowledge base, NSAIDs are known to exacerbate asthma, and possibly cause serious cardiac and (not uncommonly) kidney problems⁸. If I have learned *anything* in my medical school training thus far, it is this: Do NOT mess with the kidney unless you really, really, REALLY have to.

WHAT MIGHT WE DO INSTEAD?

Ice, compression, and elevation are ideal treatment mechanisms for acute injuries. If pain is intolerable and prohibits routine life functioning and/or sleeping, first try a non-NSAID like acetaminophen (Tylenol), an analgesic without anti-inflammatory properties (in the absence of a relevant pre-existing medical condition like liver disease). If signs of inflammation persist after 3-5 days (when the initial phase of muscular healing is complete), NSAIDs are appropriate for no longer than 1 week⁹.

Early mobilization is key. After taking 1-2 days of rest, a return to light, easy movement is helpful to healing, not harmful¹⁰. Movement should not cause pain.

Recently, at a sports medicine workshop I attended, one of the primary care doctors said it best: “When you get a sports injury, it’s going to hurt. You’re going to be sore. You’re going to be uncomfortable. It’s going to suck. There’s no quick fix. You want to pop a pill and ‘make it all go away’ – but you can’t. You’re going to need to go through the process of getting yourself moving, stretching, strengthening – and of being uncomfortable. If you can’t suck it up and be uncomfortable in the short-term, you may be asking for real problems in the long-term.”

¹ Gorski T, Cadore EL, Pinto SS, da Silva EM, Correa CS, Beltrami FG, Kruel LFM. **Use of Nonsteroidal anti-inflammatory drugs (NSAIDs) in triathletes: prevalence, level of awareness, and reasons for use.** *Brit J Sports Med.* August 2009

² Warden SJ. **Non-steroidal anti-inflammatory drugs by athletes: Prophylactic misuse and recommended use of.** *Br. J. Sports Med.* 2009;43;548-549

³ Ibid.

⁴ Reider B. **Feeling No Pain.** *Am J Sports Med* February 2009. 37(2): 243-245

⁵ Paoloni JA, Milne C, Orchard J, Hamilton B. **Non-steroidal anti-inflammatory drugs in sports medicine: guidelines for practical but sensible use.** *Br. J. Sports Med.* 2009;43;863-865.

⁶ Warden SJ. **Non-steroidal anti-inflammatory drugs by athletes: Prophylactic misuse and recommended use of.** *Br. J. Sports Med.* 2009;43;548-549

⁷ Paoloni JA, Milne C, Orchard J, Hamilton B. **Non-steroidal anti-inflammatory drugs in sports medicine: guidelines for practical but sensible use.** *Br. J. Sports Med.* 2009;43;863-865.

⁸ Ibid.

⁹ Ibid.

¹⁰ Silbernagel KG, Thomee R, Erisson BI, Karlsson J. **Continued sports activity, using a pain-monitoring model, during rehabilitation in patients with Achilles tendinopathy: a randomized controlled study.** *Am J Sports Med* 2007;35:897-906.