

The following summary from “[Medscape](#)” noted below essentially addresses: **How much Acetaminophen (APAP) and Ibuprofen is enough to take to achieve pain relief. It also reports on how much medicine is “too much” because the extra medicine taken, does not help reduce the pain further.**

If there is any question how this applies to you, please talk to your physician to obtain the answers you need.

Is There a Limit to the Analgesic Effect of Pain Medications?

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Question

Is there a limit to the analgesic effect of pain medications?

Response from Sergey M. Motov, MD, and Tamar D. Ast, BSN

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The analgesic ceiling effect of a drug refers to the dose beyond which there is no additional analgesic effect. Higher doses do not provide any additional pain relief but may increase the likelihood of side effects as well as the cost of treatment. This concept, often disregarded in the treatment of pain in the emergency department (ED), should be carefully considered when using common analgesics such as acetaminophen and ibuprofen.

Acetaminophen

A great body of literature supports the oral dose of acetaminophen (APAP) as 325 to 1000 mg every 4 to 6 hours, not to exceed 4 grams in 24 hours. Studies on patients with dental pain and/or postprocedural pain reveal that acetaminophen has an analgesic ceiling of 1000 mg.^[1]

Skoglund and coworkers^[1] compared different doses of APAP with an APAP/codeine combination and placebo in a randomized, single-dose, double-blind, parallel-group trial. They found that 2000 mg of APAP had only marginal pain relief superiority over the 1000-mg dose, and the analgesic ceiling effect was reached at 1000 mg.

Clinical Pearls:

1. Acetaminophen has a demonstrated ceiling effect at 1000 mg.
2. Acetaminophen is effective and safe for mild pain but is often inadequate for more severe pain.

Ibuprofen

The analgesic ceiling effect of nonsteroidal anti-inflammatory drugs (NSAIDs) is well studied. Although ibuprofen is commonly used in dosages as high as 800 mg for acute pain, the analgesic

ceiling is only 400 mg/dose, to about 1200 mg/day.^[2] However, 2400 mg daily can relieve inflammation without providing additional pain relief.

In a double-blind, single-dose study of postoperative dental pain involving 148 patients, Seymour and colleagues^[3] showed that there is little analgesic advantage to doses of ibuprofen above 400 mg (Figure).

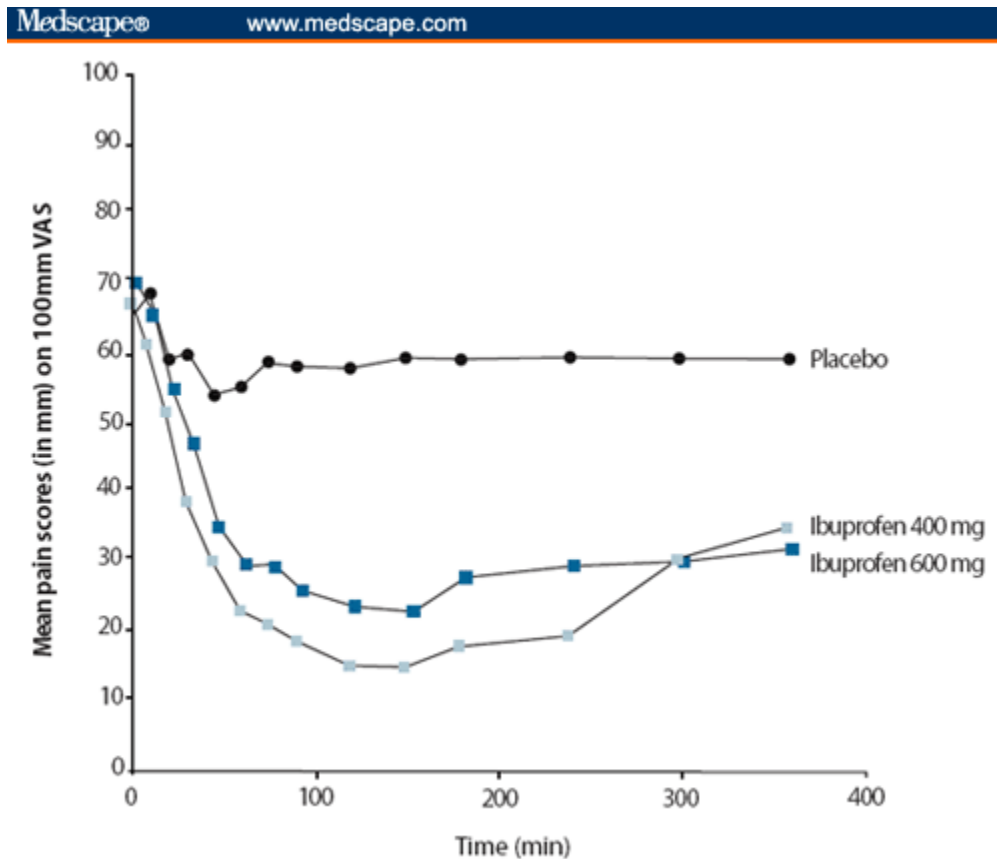


Figure. Comparison of 400 mg vs 600 mg of ibuprofen vs placebo in patients with postoperative dental pain by Seymour and coworkers.^[3]

The literature clearly demonstrates that for pain relief the commonly prescribed doses of 600 mg or 800 mg of ibuprofen every 6 to 8 hours should be replaced with a maximum dose of 400 mg every 8 hours. Dosages over 1200 mg daily offer no additional pain relief and are known to cause cardiac and gastrointestinal toxicities. Higher dosages of ibuprofen may, however, be beneficial in the treatment of inflammation.

Clinical Pearls:

1. Inflammation does not equal pain.
2. Analgesic doses of NSAIDs are small and have a ceiling.
3. Anti-inflammatory doses of NSAIDs are much higher and have no ceiling.

References

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