Nonsteroidal Anti-inflammatory Drugs

Nonsteroidal anti-inflammatory drugs (NSAIDs) are a group of medications commonly used to treat pain and inflammation.

Nonsteroidal anti-inflammatory drugs include ibuprofen, naproxen, diclofenac, meloxicam, and celecoxib, along with many others. They are among the most commonly used medications in the world. Many are available over the counter without a prescription. Aspirin is a type of NSAID that works slightly differently than others.

How NSAIDs Work
NSAIDs block a group of proteins called cyclooxygenases (COX), which are involved in the production of prostaglandins and thromboxanes, which are in turn involved in inflammation. There are different types of COX proteins, including COX-1 and COX-2. Some NSAIDs block both COX-1 and COX-2. These are called nonselective NSAIDs and include aspirin, ibuprofen, and naproxen. Selective NSAIDs, such as celecoxib, block only COX-2. There is still much that is not known about how these COX proteins work.

Safety Concerns
Using a low dose of NSAIDs for a short amount of time is generally safe. However, serious side effects can occur, especially with longer use of higher doses. The most serious side effects are increased risks of heart attack, stroke, stomach ulcers, gastrointestinal bleeding, and kidney disease, especially in people who have a history of these problems.

Compared with nonselective NSAIDs, selective NSAIDs tend to have less gastrointestinal side effects but more cardiovascular side effects. In 2004-2005, some selective (COX 2) inhibitors were withdrawn from the US market because of an increased risk of heart attack and stroke in people who took them. In 2005, the US Food and Drug Administration (FDA) added a warning label to prescription NSAIDs about this increased risk of heart attack and stroke.

On July 9, 2015, the FDA strengthened the warning on all prescription and over-the-counter NSAIDs except aspirin in regard to the increased risk of heart attack and stroke. The new warning states that this increased risk can occur as early as the first weeks of use and occurs in people both with and without other risk factors for heart disease and stroke. Although the data for each NSAID are different and each person’s risk is different, some studies have shown that an extra 2 to 8 per 1000 people per year may have a major vascular event from using an NSAID. The warning also notes that people given NSAIDs after a first heart attack were more likely to die in the first year after the heart attack compared with those who were not given NSAIDs and that there is an increased risk of heart failure with NSAID use.

These warnings do not apply to aspirin, which has been proven effective in preventing heart attacks and strokes in people with increased cardiovascular risk. Taking some NSAIDs within 1 to 3 hours of taking aspirin can interfere with the protective effects of aspirin on the heart.

Choosing an NSAID
There is no single best or safest NSAID to use to treat pain. Ask your doctor about which NSAID is best for you, especially if you have a history of heart disease, high blood pressure, gastrointestinal bleeding, or kidney disease. The best way to lower the risk of serious side effects from NSAIDs is to use the lowest amount of NSAIDs for the shortest amount of time needed.

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American College of Rheumatology
www.rheumatology.org/Practice/Clinical/Patients/Medications/NSAIDs__Nonsteroidal_Anti-inflammatory_Drugs/

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