Dear Alice,

Why do many doctors and nurses say aspirin is bad for you? They say to take Advil or some other pain killer instead.

— Pain killing confused

Answer

Dear Pain killing confused,

Painkillers come in all sorts of shapes, sizes, types, and strengths. While there may be lots of different colored boxes and bottles on the shelf, there are two main types of over-the-counter (OTC) pain relievers (also called analgesics): acetaminophen and nonsteroidal anti-inflammatory drugs (NSAIDs), including aspirin, ibuprofen, and naproxen. While both acetaminophen and NSAIDs work to relieve pain and reduce fever, only NSAIDs also reduce inflammation. However, acetaminophen generally has fewer side effects. Each has their benefits and drawbacks, and which works best for you will depend on your own particular health concerns.

Acetaminophen and NSAIDs have different pathways through which they work in the body. Acetaminophen mainly works by targeting the parts of the brain that receive pain messages, as well as the parts of the body that control body temperature. NSAIDs target a hormone-like substance in the body, called prostaglandin, that irritates nerve endings, causing the feeling of pain. However, both drugs also have side effects.

**Acetaminophen** (also known as paracetamol) was first introduced in 1955. It’s usually used to relieve headaches, ease other common aches and pains, and treat arthritis and other chronic, painful conditions. It has about the same pain-relieving power as aspirin, but is less effective for inflammatory pain, so it might not work as well on aches related to inflammation, such as menstrual cramps. Of all the analgesics, acetaminophen it’s the least likely to irritate the stomach. However, even at a recommended dose, some of the drug is converted into a byproduct that’s toxic to the liver. So, taking more than the recommended dose of acetaminophen at a time, taking more than one type of medication that contains acetaminophen, or taking it with alcohol may lead to severe liver damage — which could require a liver transplant...
or even result in death.

Aspirin, also known as acetylsalicylic acid, is one of the three major NSAIDs and the oldest analgesic on the market. Because of its anti-inflammatory properties, it’s often used to treat arthritis, toothaches, and other pains aggravated by inflammation. It’s also taken to treat minor body aches and pains, reduce headache symptoms, and reduce fevers. Aspirin has antithrombotic and antiplatelet properties, meaning it may help reduce the formation of blood clots. This is why some people take it regularly; while clotting helps stop bleeding when you cut yourself, clots also play a big role in causing strokes and heart attacks when blood vessels are already partially blocked by cholesterol. Fewer platelets means smaller chance of heart attack or stroke, so health care providers often prescribe aspirin to combat this risk. However, aspirin has two major side effects beyond anti-clotting. Aside from the fact that it may irritate the stomach, it may also irritate any tissue it comes into contact with (thus chewing aspirin gum isn’t recommended because it may irritate the gums and mouth). In addition, people who know they’re allergic to salicylic acids in general are urged to avoid aspirin. But many who take aspirin, even on a regular basis, don’t have stomach irritation.

Ibuprofen is one of the most recently developed pain relievers, approved by the Food and Drug Administration (FDA) in 1974. It’s been recommended to relieve aches, tenderness, and swelling, to lessen the stiffness associated arthritis, and to reduce fever. In addition, it’s been shown to be the most effective analgesic for menstrual pains. In fact, all of the pain relievers marketed exclusively for the purpose of combating menstrual cramps and related pains contain ibuprofen, but they tend to cost more because they’re marketed as a “high tech” pain reliever. Ibuprofen, like all NSAIDs, is a stomach irritant. There have been some concerns that ibuprofen may contribute to kidney damage, so it’s advised that those with kidney concerns consult with a health care provider before taking it.

Naproxen is the third major NSAID. It became available without a prescription in the U.S. in 1994, and it’s the strongest OTC pain reliever currently available. However, this power may come at a cost — naproxen has the greatest risk amongst all analgesics for possible gastrointestinal (GI) side effects. This drug is used to relieve the symptoms of arthritis (such as inflammation, swelling, stiffness, and joint pain) and to treat mild to moderate pain, including acute gout and menstrual cramps.

The most common side effect of NSAIDs is that they pose a GI risk to those who are taking the drugs, including an increased risk of stomach bleeding, stomach ulcers [3], and perforation of the stomach and intestines, which could lead to death. These symptoms may occur at any point when taking NSAIDs and without any warning signs. Those who are elderly are at a higher risk of adverse effects. In addition, when taking the NSAID aspirin specifically, children and teenagers have a higher risk of developing Reye’s syndrome [4], which could lead to death. While some NSAIDs are stronger than others, the GI risks may occur with any NSAID on the market. However, most minor side effects are easily reversible through discontinuation of the drug. If you’re taking an NSAID, to reduce the chances of GI irritation, you may consider taking these drugs with a full meal or with an antacid. You might also want to limit alcohol intake or ask your health care provider for a prescription drug that may reduce stomach irritation. In addition, remember to take only one type of OTC pain reliever at time (unless a health care provider advises otherwise), since some may have similar ingredients which could increase the risk of
adverse effects.

Regardless of what pain reliever used, remember to follow the directions on the label — just like with prescription medications. It may also be helpful to check out the Prescription & Over-the-Counter Drugs [5] category in the Go Ask Alice! Alcohol & Other Drugs [6] archives for more information.

Here’s to relief from pain and confusion,

Alice!

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