HEALTH BASICS

Over-the-counter pain relievers

Over-the-counter pain relievers are medicines sold without a prescription for short-term pain or fever.

WHAT IT IS
Nonprescription medicines for short-term pain or fever

WHERE IT COMES UP
Pharmacies, medicine labels, home first-aid supplies

WHY IT MATTERS
Benefits and risks differ by ingredient

WHAT IT IS NOT
Not a disease or a single medicine

WHO TO ASK
A pharmacist or primary care clinician

HOW IT IS CHECKED
Drug Facts label and medication review

Overview

Over-the-counter, or OTC, pain relievers are medicines you can buy without a prescription. They may help with short-term problems such as headache, muscle pain, menstrual cramps, dental pain, minor injuries, or fever.

"OTC pain reliever" is a category, not one medicine. The main active ingredients work differently and have different risks.

Common types include:

Brand names can be confusing. Two products with different names may contain the same active ingredient. Cold, flu, sleep, and prescription medicines may also contain a pain reliever.

OTC status differs between countries and sometimes by package size or strength. Being available without a prescription does not mean a medicine is safe for every person or in every amount.

- Acetaminophen , also called paracetamol in many countries
- Nonsteroidal anti-inflammatory drugs like ibuprofen or naproxen , or NSAIDs, such as ibuprofen and naproxen

- Aspirin , an NSAID with additional effects on blood clotting
- Topical products applied to the skin, such as diclofenac, lidocaine, menthol, or capsaicin

How it works

Acetaminophen reduces pain and fever. Its exact action is not fully understood, but it mainly works within the central nervous system-the brain and spinal cord. It does not reduce swelling as strongly as an NSAID.

NSAIDs reduce the production of prostaglandins. These are substances involved in pain, fever, inflammation, stomach protection, kidney blood flow, and blood clotting. Reducing them may ease pain and swelling, but it also explains several NSAID risks.

Aspirin acts like other NSAIDs but has a longer-lasting effect on platelets, the blood cells that help form clots. Low-dose aspirin may be prescribed for certain heart or blood vessel conditions. That use is different from taking aspirin for pain and should not be started or stopped without clinical advice.

Topical pain relievers act in or near the area where you apply them. Diclofenac reduces inflammation. Lidocaine temporarily reduces nerve signals. Menthol creates a cooling sensation, while capsaicin changes how certain pain-sensing nerves respond. Some topical medicines still enter the bloodstream, so their warnings remain important.

Why it matters for your health

The right choice is affected by the type of pain, your age, pregnancy status, health conditions, other medicines, and how long you need treatment.

Acetaminophen may be suitable when reducing inflammation is not important or when an NSAID is unsuitable. Too much can cause serious liver injury. Accidental excess often happens when someone takes more than one product containing acetaminophen or paracetamol.

NSAIDs may be helpful when inflammation contributes to pain, such as with some sprains, menstrual cramps, or arthritis pain. They can irritate the stomach, affect kidney function, raise blood pressure, cause fluid retention, and increase cardiovascular risks in some people.

Your personal risk may be higher if you have kidney, liver, heart, stomach, bleeding, or blood pressure problems. Age, dehydration, alcohol use, pregnancy, and medicines such as blood thinners like warfarin or apixaban can also matter.

Pain relief can make daily activities easier, but it does not always address the reason for the

pain. Pain that keeps returning, changes without a clear reason, or requires frequent medicine deserves routine clinical review.

What can go wrong

Acetaminophen poisoning and liver injury can result from taking more than the label allows, combining products with the same ingredient, or making repeated dosing errors. Early poisoning may not cause obvious warning signs. If an overdose may have occurred, contact a poison centre or emergency service promptly rather than waiting to feel unwell.

Stomach ulcers and gastrointestinal bleeding can occur with NSAIDs, including aspirin. Warning signs include vomiting blood, vomit resembling coffee grounds, black or bloody stools, fainting, or severe weakness. These require urgent medical assessment.

Kidney injury is another NSAID-related risk. It is more likely with kidney disease, dehydration, heart failure, older age, or certain interacting medicines. A marked decrease in urination, new swelling, confusion, or severe weakness needs prompt medical advice.

Heart attack, stroke, high blood pressure, and worsening heart failure are associated with NSAID use in some people. Call emergency services for chest pressure, sudden shortness of breath, one-sided weakness, facial drooping, or difficulty speaking.

Severe allergic reactions can happen with any medicine. Emergency signs include trouble breathing, swelling of the face or throat, collapse, or a rapidly spreading blistering rash.

Medication-overuse headache may develop when medicines for headache are used frequently over time. The headache disorder-not the pain reliever itself-should be assessed. A clinician can help review how often headaches and medicines occur.

Pregnancy-related complications are a concern with NSAIDs, particularly from 20 weeks of pregnancy onward. If you are pregnant or could be pregnant, ask a pharmacist, midwife, or prescribing clinician before using an NSAID.

Reye syndrome , a rare but serious condition affecting the brain and liver, has been linked to aspirin use in children and teenagers with certain viral illnesses. Do not give aspirin to a child or teenager unless a clinician has specifically advised it.

What you can do

Read the Drug Facts or patient information label every time, including when buying a familiar brand. Check the active ingredient, purpose, warnings, directions, and maximum amount

allowed within the stated time.

You can also:

Do not use two NSAIDs together unless a clinician has told you to. For example, ibuprofen, naproxen, and aspirin are all NSAIDs. Also avoid taking more than one acetaminophen-containing product at the same time unless a pharmacist or clinician has confirmed that the plan is safe.

Ask for routine follow-up if pain lasts longer than the label's self-care period, repeatedly returns, disrupts sleep or daily life, or leads you to use pain medicine often. Review is also sensible before use if you have significant kidney, liver, heart, bleeding, or stomach disease; take a blood thinner; or are pregnant.

There is no blood test that identifies the best OTC pain reliever for you. A medication review and an accurate record of your health conditions usually provide the most useful information.

For a possible overdose, severe allergic reaction, signs of internal bleeding, chest pressure, stroke signs, or serious breathing difficulty, use emergency services or a poison centre immediately.

- Compare active ingredients across pain, cold, flu, migraine, and sleep products
- Use the measuring device supplied with a liquid medicine
- Record the product, amount, and time when several caregivers are involved
- Ask a pharmacist about interactions with prescriptions, supplements, or alcohol
- Keep medicines in their original packaging and away from children
- Check before using an adult product for a child

Common questions

Is acetaminophen an NSAID?

No. Acetaminophen reduces pain and fever but is not an NSAID and has little anti-inflammatory effect at usual labeled use.

Are ibuprofen and naproxen the same?

They are both NSAIDs, but they are different medicines. Their timing, label directions, interactions, and approved uses may differ. Do not treat them as interchangeable doses.

Can I take an OTC pain reliever with a cold medicine?

Possibly, but first compare the active ingredients. Many multi-symptom products already

contain acetaminophen or an NSAID. A pharmacist can check an unfamiliar combination.

Are topical pain relievers risk-free?

No. They may expose the rest of the body to less medicine than some tablets, but they can still cause skin reactions, interactions, or other side effects. Do not apply them to broken skin unless the label specifically allows it.

Should I take aspirin to protect my heart?

Only when a clinician has recommended it for your situation. Aspirin can reduce clotting but can also cause serious bleeding. It is not appropriate for everyone.

Can I use pain relievers for every headache?

Occasional use according to the label may be reasonable for many people. Seek routine review if headaches are frequent, changing, or require medicine repeatedly. A sudden, extremely severe headache or one with weakness, confusion, fainting, or difficulty speaking needs urgent assessment.

Sources

- U.S. Food and Drug Administration - The Over-the-Counter Drug Facts Label
- U.S. Food and Drug Administration - Acetaminophen
- U.S. Food and Drug Administration - Nonsteroidal Anti-inflammatory Drugs
- U.S. Food and Drug Administration - Avoid NSAIDs in Pregnancy at 20 Weeks or Later
- MedlinePlus, U.S. National Library of Medicine - Pain Relievers
- National Institute of Neurological Disorders and Stroke - Reye's Syndrome