

## Are Expired Drugs Safe to Take?

by [Nicole Pajer](#)

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Have you ever reached for a box of Aspirin or pulled a prescription drug bottle out of your cupboard and turned it over to find that according to date on the packaging, it was expired? Is it time to toss the medicine? Or can you still safely ingest it? What is the best plan of attack in this commonly encountered scenario?

What does a drug's expiration date mean?

In 1979, the [Food and Drug Administration](#) (FDA) began requiring that drug manufacturers label containers of prescription drugs and over-the-counter medications with an expiration date. This date is usually printed on the label of a bottle of pills or stamped somewhere on the box or carton of a medication. Typically, the date is denoted on the packaging as "EXP," which is followed by a month and year. This date is meant to advise customers on how long a drug manufacturer can still guarantee the full potency and safety of a medication. But medical authorities are quick to state that many expired drugs are safe to take years after their expiration date. According to a report by Harvard Medical School, it's true the effectiveness of a drug may decrease over time, but much of the original potency still remains [even a decade after the expiration date](#). And modern research has shown that drugs are often just as effective well past the dates that their packaging says that they have expired.

2012 study suggests that it's safe to use many drugs well past the expiration date

A 2012 [study](#) tested the effectiveness of eight medications with 15 different active ingredients (such as aspirin, hydrocodone, and codeine) that had expired between 28 and 40 years ago. The results showed that all eight of these drugs remained just as potent as they were on the day that they were initially manufactured. And in 86% of cases, the researchers behind the experiment found that the amount of an active ingredient present in the drugs was at least 90% of the amount that was indicated on the label, which is the generally recognized minimum acceptable potency as advised by the FDA. Per the study's documentation, "the US Food and Drug Administration (FDA) permits 'reasonable variation,' such that most medications marketed in the United States contain 90% to 110% of the amount of the active ingredient claimed on the label."

'Better safe than sorry'

The majority of medications are given expiration dates of one to five years from their creation date. But experts say that this number doesn't necessarily coincide with a drug's long-term safety or effectiveness. "All [the expiration date] means from the manufacturers' standpoint is that they're willing to guarantee the potency and efficacy for the drug for that long," explains Lee Cantrell, a professor of clinical pharmacy at the University of California, San Francisco, who also served as the lead author on the study. "It has nothing to do with the actual shelf life." And per the findings by Cantrell and his team, their research "provides additional evidence that many prescription pharmaceuticals retain their full potency for decades beyond their manufacturer-ascribed expiration dates." Thus, the team advises that the current practices of drug expiration dating be reconsidered, especially due to the potential cost-savings benefits to consumers.

Some drugs may degrade or become dangerous after expiration

[The Medical Letter](#) stated that "many drugs stored under reasonable conditions retain 90 percent of their potency for at least five years after the expiration date on the label, and sometimes much longer." There are, however, exceptions to the rule:

A 2000 [study](#) found that Epinephrine bioavailability from an outdated **EpiPen autoinjector** was significantly reduced compared with epinephrine bioavailability from the in-date autoinjectors. For this reason, the team behind the research suggests that caregivers opt for nonexpired EpiPen and EpiPen Jr. autoinjectors. They note, however, that an EpiPen is still safe to use if it remains the only option at the time of anaphylaxis. "If the only autoinjector available is an outdated one, it could be used as long as no discoloration or precipitates are apparent because the potential benefit of using it is greater than the potential risk of a suboptimal epinephrine dose or of no epinephrine treatment at all."

The Harvard Medical School adds that while "it's true that the effectiveness of a drug may decrease, much of the original potency still remains, even a decade after the

expiration date.” But their exceptions to the rule include: **nitroglycerin, insulin, and liquid antibiotics**. A report by [Global Healing Center](#) adds that in general, liquid supplements have a shorter expiration date than those in a pills or capsule form. “Many require refrigeration or storage in an environment that is not too hot or too cold — making them less portable.” And warns, “if liquids are stored improperly, their potency is jeopardized.”

Store your medications in a cool and dry place

Mohammad Nutan, an associate professor of pharmaceutical sciences at the Texas A&M Health Science Center, in Kingsville, notes that the drugs tested in Cantrell’s study were in their original containers and were unopened. Therefore, how a drug is stored may play a huge role in its effectiveness down the line. “Medications that are already opened or those stored in less than optimal conditions might be a different story altogether, since humidity, temperature, and even exposure to light can all affect how well a drug stands the test of time,” he explains. For this reason, it’s important to [store medications in a cool, dry place](#), away from bright light. Also make sure to always check the label of your prescriptions and over-the-counter pills, as there are always exceptions to this rule. Insulin, for instance, needs to be refrigerated before opening.

Always consult your pharmacist before taking an expired medication

The issue with expired medications usually involves exactly how potent the drug will still be. “If the expiration date passed a few years ago and it’s important that your drug is absolutely 100% effective, you might want to consider buying a new bottle,” says a spokesperson for Harvard Medical School. In rarer cases, expired drugs with unstable ingredients could be dangerous to take. So swapping that expired bottle of pills out for a new refill is always the safest route.

Regardless of recent studies that tout the effectiveness of outdated drugs, the FDA maintains that it is best to avoid taking expired medications in general:

*Expired medical products can be less effective or risky due to a change in chemical composition or a decrease in strength. Certain expired medications are at risk of bacterial growth and sub-potent antibiotics can fail to treat infections, leading to more serious illnesses and antibiotic resistance.*

Whether or not an outdated prescription can be safely used boils down to a variety of factors, like the way the drug is stored and the stability of its active ingredients. For that reason, remember to always consult your doctor or pharmacist for questions about expired pills.