

THE REAL SHELF LIFE OF MEDICINES

A woman with short, grey hair, wearing a brown jacket and a grey scarf, is shown in profile in a pharmacy. She is reaching for a medicine bottle on a shelf. The shelves are filled with various bottles of medicine, some in blister packs. The background is slightly blurred, showing more shelves and a bright, clean environment.

**WHAT YOU NEED TO KNOW
ON STORING DRUGS**

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The Real Shelf Life of Medicines: Myths and Facts on Storing Drugs

There are times when you don't finish up a bottle of medicine. Some people would throw it away, other will still keep it for uncertain times. Which one are you? Do you plan to store meds for long time in case you need them?

While the FDA and other sources say you should never take medications past their expiration date, there are some things you should know about the controversy erupting around this topic.

Read this report: your questions on the real life oh drugs are going to be answered.



What Do You Really Know About the Shelf Life of Medicines?

You were supposed to take a pain medication, but felt better before you completed the full course and decided to stop taking it. A few years later you feel pain again, and wonder if the old bottle of painkiller is safe to take.

What the Date on the Bottle Really Means

If you could take a look at the bottle the pharmacist removes your medication from, you'd be surprised to see that the recommended discard date does not match the one on the manufacturer's packaging. Why? The pharmacists store medications in ideal settings, and also because manufacturer packages have features not found in consumer bottles.

For example, the manufacturer may add a desiccant/oxygen absorbent to the package or it may have a more airtight seal. Are you doing this at home? No, you're not, for sure!

Once the medication is transferred to another container, it's expected that ideal storage conditions no longer exist. Even though the shelf life of pharmaceutical supplies also drops each time a bottle is opened, the shelf life is expected to reduce much faster once the drug is in consumer hands.

Many people will tell you that individual drug molecules and stabilizers don't have an alarm clock that suddenly goes off once the date stamped on the bottle is reached. While this may be true in a literary sense, there is no avoiding the fact that some molecules in the bottle begin changing as soon as the manufacturer forms each dose.

Unfortunately, there is not much in the way of accurate or reliable information about just how long medicines will actually last. The only thing the date on the bottle means is that the manufacturer won't ensure the potency of the medication past that date.

Whether or not sufficient changes have taken place to alter the overall effect of the drug may not be known.

Can Medications Expire Before the Date Listed on the Bottle?

Even though manufacturers guarantee that drugs remain at a stable level of potency up until the expiration date, some things can cause them to expire sooner. And here are just a few common things you may be doing that shorten the shelf life of medications more than expected:

Storing medications in a medicine cabinet above a sink

Moisture from the sink can and will find its way into the medicine chest. If the medicine bottles aren't airtight or not sealed properly, then all that moisture can seriously alter the potency levels of the drugs. Aside from that, if you store medications on beside a kitchen sink or even on a nearby counter, all that moisture can wreak havoc.

This is also true for herbal and dietary supplements. You have only to see how these medications will clump together in the bottle after just a week or so of sitting on a sink. Even if you don't open the bottles very often, moisture will still seep in.

Storing medications over a stove or other source of heat

No matter whether you store medications over the kitchen stove or near a heating vent, all that extra heat can have a destabilizing effect.

Sunlight or artificial light reach the meds for prolonged periods of time

While you don't necessarily have to treat all medications like camera film, avoiding light is still very important.

Storing medications in a refrigerator or freezer

If you are going to put them in cold places, pay attention to ideal storage content and moisture build up in these appliances, to keep their potency.

When the Potency Fails

You purchased some antacids, and only needed to use about 5 pills from an entire bottle of 25. You adjusted your diet, or made other lifestyle changes that eliminated the need for antacid for several years. But something happens that triggers a major episode of acid stomach. As you rummage through your medicine chest, you find out that the antacid's expiration date is long past.

In most cases, medications will simply lose their potency at a faster rate once the expiration date is passed. So the antacid may not work at all, or produce very weak results. This is also the case with many other medications used to treat serious illnesses. While this may not seem like much of a problem for a minor condition, it can spell disaster for something more serious.

For example, expired diabetes drugs that lose their potency can cause blood sugar levels to skyrocket. By the same token, reduced potency in antibiotics can allow the disease to do more damage to organs and other bodily tissues.

When the Drug May Increase in Potency

Overall, it is more common for drugs to lose potency over time than to gain it. Nevertheless, this problem can be every bit as dangerous as potency levels that go too low.

For example, if you are taking blood pressure medicine, an increase in potency is like increasing your dosage. This, in turn, can lead to an increased risk for side effects, as well as harm caused by your blood pressure going too low.

As with potency levels that go too low, it is virtually impossible to tell if a drug's potency has increased just by looking at it.

You should also be aware that some drugs may not always cause a lot of harm if the dose is a tiny bit higher one day, or even for a few days.

On the other side, that increased dosage could cause the drug to build up faster in your body, and may lead to kidney, liver, and other organ damage. The cumulative effect of over medication can also act like a poison and cause problems in the very organ system the drug was designed to treat.

Beware! Dangerous Changes Ahead!

Aside from changes in potency levels, fillers and stabilizers may also undergo harmful changes.

For example, some fillers may be added to reduce stomach irritation, reduce risk of rashes, or other problems that might cause you to stop using an otherwise beneficial drug. If these fillers are no longer functioning at optimal level, you might wind up with more pronounced side effects even though the actual potency of the drug remains unchanged.

Depending on your overall medical condition this may just be bothersome. On the other hand, if you are very weak, increasing side effects can spell disaster.

Are Generic Drugs Different?

Technically speaking, generic drugs are supposed to be the functional equivalent of the parent drug. Actually, manufacturers use different fillers or stabilizers that were not listed in the original formula. While these stabilizers and fillers may not change the medicinal effect of the drug, they may still have a different shelf life.

If you want to know more about the specific characteristics of a generic drug when compared to a name brand, start off by finding out who manufactured the generic that was dispensed to you.

From there, check the manufacturer's site and see if they have a package insert listing the optimal storage conditions. This insert may also give you a complete list of ingredients, including fillers and stabilizers. Compare that to the insert for the name brand drug to see if they differ. If a discrepancy in the ingredients appear, check how that affects the shelf life of the drug.

For example, it may be perfectly fine to store a name brand drug at room temperature, while a generic should be put in the refrigerator in order to extend the shelf life as much as possible past the listed discard date.

Non-Therapeutic Components of Drugs and How They Work

When you take a dose of medicine, you may call it by the name assigned to the active ingredient. For example, if you are taking 500 mg of Cipro (or the generic equivalent), you may mistakenly think that the entire pill is made up of the active ingredient.

Depending on the drug and the manufacturer, it may have just a few to dozens of additional chemicals in it. As with the active ingredient, all of these other substances can degrade over time.

Here are some of the main fillers categories that you may find in a single dose of any given drug and how they work. Remember, when discussing shelf life, any one of these

chemicals may degrade faster after the discard date and still cause unexpected results if you take the drug.

- Suspenders – ensure the ingredients do not clump or fall out of orientation in relation to each other.
- binders – mainly used in tablets to ensure the pills do not fall apart easily.
- carriers – used to ensure the active ingredient reaches the targeted tissue or organ.
- coloring agents – supposed to make the drug more visually appealing, and also easier to spot when mixed with other pills.
- flavoring – supposed to make the drug taste better, which is supposed to increase patient compliance.
- viscosity changers – increases or reduces the thickness of the drug. This can make it easier to swallow liquids.
- preservatives – used to ensure one or more ingredients do not degrade as quickly as they otherwise would.
- disinfectants – prevent or reduce the risk of bacteria, fungus, or other infections growing on or in the drug.
- disintegrants – enable tablets to break apart so that the active ingredient is more easily absorbed in the target tissue.
- thermal stabilizers – helps the drug remain at a level potency even if temperatures change too much.
- dilutants – used to make the pill big enough to see and handle easily.
- lubricants – makes the drug easier to swallow.
- release controllers – helps ensure that the active ingredients are released in the right tissue system and at a steady rate over a prolonged period of time.
- buffers – stand as a temporary barrier so that different parts of combination drugs can be introduced as safely as possible or with fewer side effects. For example, many chemotherapy agents are infused with a buffer before and after

the actual chemo shot. This is supposed to help reduce immediate vitamin loss and other problems caused by these drugs.

Check the Recent Studies on Medication Shelf Life

Over the years, the military and others have been wondering if properly stored, unopened drugs are actually potent after the listed discard date.



Studies done conclude that many drugs are still perfectly good 2 – 5 years after the listed discard date.

While these studies can be used to find out about some drugs, they may or may not tell the whole story.

In particular, if the study is based on a name brand drug from the developing manufacturer, that does not mean the generics have the same storage characteristics.

Liquid vs. Pill Based Drugs. Which One is Better?

If you have ever stored foods away for a longer period of time, then you already know that dehydrated foods last longer. In a similar fashion, pill based drugs also have a longer shelf life than liquid versions.

You will also find that drugs suspended in an ointment may have a shorter shelf life. For example, the active ingredient in liquid and ointment based eye treatments may have a shorter life span than the exact same active agent dispensed in pill form.

6 Things to Be Wary of When Using Expired Medications

No matter how hard you try, there may be times when you have to choose between taking a chance on using outdated drugs or having no medication at all. When in this situation, avoid any drugs that show the following characteristics:

- The tablets or gel capsules are stuck together, brittle, or show signs of becoming malformed.
- The medication has an unusual (for the drug) or foul odor
- Liquids that separate out into different layers to do not recombine easily when shaken.
- Insulin, other injectables, or inhaled drugs have a cloudy appearance or they are separated into discernible layers
- The original seal on the medicine bottle has been broken for more than a year. In some cases, such as insulin, the lifetime for an opened vial or pen may be as little as 30 days.
- The drug is in a class or family that is known for having a shortened or reduced shelf life.

When it comes to the shelf life of any given medication, it can be difficult to know how safe the drug actually is. While the manufacturer will guarantee the drug up until a certain date, that does not mean it won't be potent for some time afterward.

If you choose to play it on the safe side and never take a medication past the discard date listed on the bottle, you should still make sure that you store the drug properly within that time frame.



10 Ways to Extend the Shelf Life of Drugs and Medicinal Herbs

Regardless of the reasons, more people are falling victim to a range of illnesses that require supervision and medication from a doctor. From asthma, diabetes, and hypertension to anxiety disorders and cancer, just about every ailment also has a range of medications that can be used to treat it or alleviate the symptoms.

As more people need medications, there is also an increased risk of taking outdated drugs or ones that have been stored incorrectly.

Learning what can extend or reduce shelf life is very important for anyone that wants to get the most out of any medication that may be required for gaining or maintaining optimal health.

Get Medications in Blister Packs

No matter whether a pharmacist dispenses pills, liquids, or capsules, chances those drugs were taken from a larger supply and placed in a new bottle for you.

Once the pharmacist opens the bottle from the manufacturer, the medicine begins to degrade. If the bottle has lower quality than the original packaging, or is missing key parts, the medication will degrade even more. Why? Each time you open a bottle of medicine to take out a dose, oxygen, moisture, light, and even warmth have a chance to get into the bottle.

While the drugs are guaranteed to meet a specific level of safety and potency for a certain period of time, the change from a source package to a consumer based package can cause problems.

To extend the shelf life of drugs, buy ones where individual doses are kept in single dose blister packs. Depending on the drug, it may already come packaged that way.

For example, most hospitals and other facilities actually receive medications in single blister packs in order to avoid mix ups from one patient to another. If you do some research, it may be possible to find a pharmacy that will be willing to offer same service to consumer level buyers.

Keep Them in Cool Place

At an atomic level, heat always acts to speed up reactions. This can include everything from the formation of new molecules the destruction of existing combinations.

Invariably, when reactions are sped up at the atomic level, it leads to a degradation of the surrounding substance.

In other words, in this case, preserving the potency of most drugs is about keeping them as close to their manufactured state as possible. In order to achieve that goal, the medications need to be kept at a cooler temperature.

However, medications may also lose their potency or become unsafe to use if they are stored in conditions that are too cold. While some drugs will last longer if you store them in a refrigerator, others may be damaged.

Find out the optimal storage temperature for different medications, most probably from the manufacturer's site. Most pharmaceutical companies list ideal storage temperatures in the packaging information for each drug the manufacture.

Together with keeping medication in cooler temperatures, also keep the temperature stable. Changes in temperature can cause increased breakdown of the chemicals used to stabilize the active ingredients in each dose of medicine. Therefore, even if a temperature is slightly warmer or cooler than the ideal, keep the medication at that exact level instead of having it bounce in and out of that range.

Make Sure the Location is Dry

If you thought heat could speed up a chemical reaction, then you haven't seen just how powerful water is in this arena. Medications can destabilize rapidly even in the presence of moisture from your breathing. In fact, this is to be expected because many medications can be mixed with water, or work better in the presence of liquids consumed while washing the medicine down.

When choosing a good place to store medications, it might be hard to find a place that doesn't exchange heat for humidity. If you are going to store medications in a refrigerator, they may not last as long as expected because refrigerators can carry high amounts of humidity.

Before storing meds, measure and record humidity levels as surrounding temperatures or other surrounding factors change. If you find that the levels are too high, or if they cannot be adequately controlled, just look for another location.

Avoid Light or Sunlight

Even though most medications come in UV shielding bottles, that does not mean it is safe to keep these medications in natural or artificial light. The heat from sunlight may build up inside the bottle without you even realizing it.

While you don't have to worry about heat building up from LED lights or CFLs, they may still trigger unwanted chemical changes in the medications. This isn't just about changes to the active ingredients, it is also about changes that occur to fillers and additional chemicals that stabilize the drug and ensure its potency.

Refrain from Opening the Bottles

As noted above, one of the worst things you can do to medications is continually open the bottle they are stored in. Try to resolve this problem while still having a reasonable degree of access to your medications:

Store the medications you need in a weekly pill dispenser.

Since each medication has its own compartment, you will not be disturbing the other doses. It may also help preserve the shelf life of the remaining doses in the bottle because you will only be opening it once a week instead of 7 times or more.

Just remember to also place the pill dispenser in an airtight tub or Ziploc bag to ensure a good air seal.

Store each day's supply of medicine in a small Ziploc bag.

This is similar to using a weekly pill dispenser except it is cheaper to replace the bags instead of an entire pill dispenser.

If you happen to be fastidious about reusing containers for medications, a disposable container will be more suitable for your needs. If you don't mind washing out a regular pill dispenser once a week and ensuring it is germ free, then go ahead and use them.

Don't put the half back in the bottle

If you have to cut pills in half, do not return the remaining half to the original bottle. Keep it in an airtight container and use it for the next dose. This will prevent the need for opening the bottle twice, and then having to fish around for the half sliver.

Be careful about opening bottled liquid meds

Unfortunately, there is no easy way to store liquid medications in individual doses unless you buy the medication pre-measured. The best thing you can do is ask the pharmacist to break the order down into smaller bottles.

For example, if your doctor ordered a total of 100 mg of a liquid medication, you can ask the pharmacist to give you 4 bottles with 25 mg each. This way, as you work through the medication in one bottle, you won't be exposing the rest to oxygen and moisture each time you open the bottle.

Buy Insulin Pens with Fewer Units per Pen or Vial

There is no question that insulin can be a difficult medication to store. If you happen to depend on it, the situation can be even worse because mistakes can cost hundreds of dollars to replace even a single vial.

To reduce these risks, you can try buying vials or pre-filled pens with a smaller number of units per pen. So if you leave a pen out of refrigeration for too long, you won't lose as many doses. In addition, if for some reason you go a long stretch without using insulin stored at home (example you go on vacation and forget the open pen or vial in the refrigerator), the remaining pens or vials will last longer because they have not been opened.

No matter what is going on or why it is happening, avoid using insulin past its expiration date, or 30 days after starting a new pen or vial even if you have never had problems with doing so in the past. In a sense, insulin is like essential oils where improper usage can also spell trouble. Just because you get away with applying a

“cooler” essential oil directly to your skin, that doesn't mean you won't develop a rash or worse the second, third, or fourth time you try it.

Old insulin can also trigger swelling and other skin problems at the injection site as well as have unpredictable effects on your blood sugar levels.

Keep Essential Oils in the Refrigerator

Speaking of essential oils, most people that rely on prescription and over the counter drugs often look to essential oils to save money, get rid of unwanted side effects, or reduce disease related symptoms.

In most cases, essential oils will last a bit longer if they are stored in the refrigerator.

You can look up different oils online and see how long they last normally when compared to refrigeration. In some cases, refrigeration may not make much difference, while other oils may have an extended shelf life of 6 months or more.



Ferment Herbs

One of the most overlooked way to preserve medicinal herbs is to ferment them.

Typically, as long as you do not wind up making vinegar instead of alcohol, the herbs can be stored for decades or more within the fermented beverage.

Before you decide to ferment all your herbs, make sure that the herb in question is safe to mix with alcohol. In some cases, alcohol can multiply the effect of the herb, it can cancel it out, or it can create a poisonous compound.



Historically, there are many recipes from different cultures that were used to make medicinal wines. You can study these recipes as well as look for more modern ones.

Start off with herbs you grow for yourself, and then make small batches of wine until you become skilled with each stage of the process. Medicinal wine making can become wonderful past time, and also be an excellent way to store herbs used to treat illness provided you know what you are doing. This also includes knowing how to assign wine doses based on body weight, age, and other physical characteristics.

Contrary to popular belief, a medicinal wine is not the same as a regular beverage wine. Both can make you drunk, however medicinal wines can kill at lower amounts if you take too much of them. Treat them as you would any other medicinal drug and handle with great care.

Never Mix from Different Purchases

Have you ever had just a few pills left in an old bottle of medicine and tossed them into a new one to save space.

While you may not realize it, those old pills are carrying loads of moisture, oils from your hands, and other chemicals that may reduce the shelf life of the fresh drugs. Aside from that, when you mix drugs from different batches, it is all too easy for the pills to get mixed up.

Depending on how much you shake the bottle up or disturb it, older pills may get to the bottom of the bottle and not consumed until they are past their shelf life.

Oxygen Absorbents and Desiccants

If you love to garden, then you may also plant enough of one crop so that you can store it away for use later on. Many people that want to store away foods add desiccants to the outer food tub to absorb any moisture that may get too close to the food. Others also add oxygen absorbents so that the foods do not oxidize or wind up as a feeding ground for bacteria that thrive in oxygen rich environments.

Many oxygen absorbents used for food actually wind up emitting moisture, and makes them virtually useless for storing medications. Today, you can buy a single product such as Pharmakeep that combines a desiccant and an oxygen absorbent. It is made just for medication and can help extend the shelf life of many different drugs.

No matter whether you are taking prescription drugs, OTCs, herbal/dietary supplements, or even using essential oils, every product has a shelf life. It is very important to know more about shelf life and how it works so that you can choose the best methods for each drug in your cabinet.

Aside from helping you save money, good medicine storage practices will also increase the chance your health will not be endangered by taking a medicine that no longer does what it is supposed to do.

Resources

Survivopedia Articles on Medicines

[8 Ways Big Pharma Is Robbing You Blind](#)

[When Meds Disappear: the Survival Crunch of the Ill](#)

[Top 10 Types Of Meds You Need To Stockpile](#)

[How To DIY \\$100 Expedient Medical BOB](#)

[Homemade Penicillin To Survive When SHTF](#)

[5 Ways To Defeat Bacteria Without Antibiotics](#)

[6 Potent Natural Pain Relievers For Preppers](#)

[10 Foods To Solve Your Medical Crisis](#)

[Stay Away From These Supplements That Harm You!](#)

[Easy Home Cures For 15 Types Of Pain](#)