Rubbing Alcohol vs. Hydrogen Peroxide for Killing Germs

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Both hydrogen peroxide and rubbing alcohol can kill germs. Generally, you can use rubbing alcohol on the skin and some surfaces while you can only use hydrogen peroxide on surfaces.

Rubbing alcohol and hydrogen peroxide are two common household cleaners. Chances are, you've probably come into contact with one or both of these chemical compounds at some point.

One isn't necessarily more effective than the other. With that said, their effectiveness can vary depending on how you use them and the types of germs you're trying to kill.

Let’s take a closer look at the key differences between rubbing alcohol and hydrogen peroxide, as well as how to use them effectively.

What’s the difference between rubbing alcohol and hydrogen peroxide?

About rubbing alcohol

The active ingredient in rubbing alcohol is isopropanol, also known as isopropyl alcohol. A bottle of rubbing alcohol typically contains between 60 to 80 percent isopropanol dissolved in water.

Rubbing alcohol has many uses. It’s a powerful germicide, which means it has the ability to kill a wide variety of germs, including bacteria, viruses, and fungi. Rubbing alcohol is used in healthcare settings to disinfect hands and surfaces, but can also be used as a household cleaner.

In concentrations of 70 percent or higher

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, isopropanol has the ability to kill the new coronavirus that causes COVID-19.

About hydrogen peroxide

Unlike isopropanol, hydrogen peroxide is not a type of alcohol. You might recognize its chemical formula, H2O2, as being similar to that of water (H2O). The difference is that hydrogen peroxide has two oxygen atoms instead of one. That one extra oxygen atom makes it a strong oxidizer.

When you buy hydrogen peroxide from a pharmacy, you're getting a solution that contains 3 percent hydrogen peroxide dissolved in water. This formulation is strong enough to kill harmful microorganisms, including bacteria, viruses, fungi, and spores.

Like rubbing alcohol, it also has the ability to destroy SARS-CoV-2, the new coronavirus. Additionally, hydrogen peroxide has many other uses in the home.

While hydrogen peroxide makes a great disinfectant, it's not gentle enough to be used on your skin. That's why you won't find it in hand sanitizer.

Which one is better at killing germs?

There's no definitive answer as to which is better at killing germs. The effectiveness of rubbing alcohol and hydrogen peroxide varies according to:

- the surface you’re cleaning
- the type of germs you want to destroy
- how quickly you want it to work

Disinfecting your skin, surfaces, and fabric

In general, rubbing alcohol is a better option for your skin. This isn’t necessarily because it’s more effective, but because hydrogen peroxide is too harsh to be used on your skin.

Both can be used effectively on hard surfaces such as doorknobs, countertops, porcelain, stainless steel, and glass. However, repeated use of either substance can affect the finish of these surfaces. It’s a good idea to check whether it’s safe to use the product before you apply it.

Rubbing alcohol can also be used to disinfect some fabrics, but you’ll want to avoid using it on anything that’s synthetic or delicate. Using hydrogen peroxide on fabrics can cause yellowing.

The germs they kill

Both rubbing alcohol and hydrogen peroxide have the ability

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to kill many types of bacteria, including:

- *Acinetobacter baumannii*: can cause infections in your blood, urinary tract, and lungs
- *E. coli*: can lead to intestinal infection and sickness
- *Enterococcus faecalis*: can lead to infections in your blood, heart lining, brain and spinal cord, urinary tract, gums, and open wounds
- *Listeria monocytogenes*: usually found in contaminated foods, a listeria infection usually causes mild symptoms, but can lead to bacterial meningitis, endocarditis, and sepsis in some people
- *Pseudomonas aeruginosa*: can cause many types of infections in people with weakened immune systems
- *Salmonella*: a common cause of food poisoning, this bacteria affects the small intestines
- *Staphylococcus aureus*: can cause food poisoning

According to a 2010 study

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, rubbing alcohol doesn't eliminate *C. difficile* spores.

Rubbing alcohol and hydrogen peroxide are also effective at disabling many enveloped viruses, which have a fatty outer membrane. These include:

- coronaviruses, including SARS-CoV-2

- influenza viruses, such as H1N1
- herpes simplex
- Ebola
- Zika

According to the Centers for Disease Control and Prevention (CDC)

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, isopropanol is less effective at killing nonenveloped viruses such as hepatitis A and rotavirus. Hydrogen peroxide is also ineffective against the hepatitis A virus.

Hydrogen peroxide is reported to be most effective when it’s allowed to sit on surfaces for at least 10 minutes at room temperature. If time is of the essence, rubbing alcohol may be a better option for disinfecting surfaces.

How to use rubbing alcohol to kill germs

1. Be sure to use a rubbing alcohol product that contains at least 70 percent
2. Trusted Source
3. isopropanol. Don’t dilute rubbing alcohol with water.
4. First, wash the surface you wish to disinfect with soap and water.

5. Then use a wipe, towel, or spray bottle to evenly apply the rubbing alcohol to the surface.
6. Let it sit for at least 30 seconds.

How to use hydrogen peroxide to kill germs

1. Solutions of at least 3 percent
2. Trusted Source
3. hydrogen peroxide make efficient household disinfectants. Don’t dilute.
4. As with rubbing alcohol, first wipe down the surface with soap and water.
5. Use a spray bottle or a clean rag to apply the hydrogen peroxide to the surface.
6. Allow the solution to sit on the surface for at least 10 minutes. You don’t need to wipe it off.

What about for cuts and scrapes?

Both rubbing alcohol and hydrogen peroxide were once commonly used to clean minor wounds such as cuts and scrapes.

This is no longer recommended. While rubbing alcohol and hydrogen peroxide will kill harmful bacteria, they can be too harsh on the tissue

surrounding the wound. Applying one of these substances may even make it harder for the wound to heal.

Instead, thoroughly rinse a superficial wound with running water to remove any dirt and debris. Then gently clean around the edges of the wound with mild soap to disinfect the area.

Safety precautions

- Don’t ingest either rubbing alcohol or hydrogen peroxide. They’re meant for external use only.
- Avoid getting either substance in your eyes.
- Make sure any indoor area is well ventilated when using either product.
- Try to avoid getting hydrogen peroxide on your hands and skin, as it can cause irritation.
- Store both products in a cool, dry place that’s out of reach of children and pets.
- Rubbing alcohol is flammable and should be kept away from flames.
- Both products can expire. Once expired, they might not be able to kill germs as effectively. Always check the expiration date on the product label before using.

The bottom line

Rubbing alcohol and hydrogen peroxide both kill most bacteria, viruses, and fungi. In general, rubbing alcohol is better at killing germs on your hands, as it’s gentler on your skin than hydrogen peroxide.

Hydrogen peroxide is most effective when it’s allowed to sit on surfaces for at least 10 minutes at room temperature. Rubbing alcohol has the ability to kill pathogens on your skin and surfaces in less time.

When sanitizing with either product, always carefully follow the instructions on the product label.

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