The Ugly Part of Water Purification: Top 5 Mistakes You Make

Water is part of the survival triad – water, food, shelter.

You can only live for about three days without it and even after twenty-four hours, you start experiencing physical and cognitive decline.

Right now, it's easy to turn on the tap and get fresh, clean water, but even without a SHTF situation, many of us are doing what we can to live off the grid. I've written several articles on collecting rain water and purifying water, and now I'd like to discuss how to make sure that your water is safe to drink.

Water purification is a primary skill that you need to have even if you don't know much about other facets of survival because if you don't have clean water, you'll die. It's that simple.

The EPA warns that as much as 90 percent of all of the water on the planet is contaminated in some way, so this is becoming a bigger issue for many of us who are trying to go off the grid. Even rainwater can be contaminated, and it's best to assume that *all* ground water needs purified.

Even though being able to purify water during daily life and in an emergency situation is critical, you need to do it right. Improperly purified water can be just as fatal – but much more miserable – than having no water at all, so be sure not to make these mistakes.

Mistaking Water Filtering and Water Purification

There are many water filters out there; there's a good chance that you have one in your fridge right now. But don't make the mistake of thinking that filtered water is the same as purified water. Most water filters do exactly what they say: they filter out physical impurities such as debris, minerals, and pollutants such as insecticides. Most of them don't purify the water, though, because illness-causing microbes are too small to be caught in the filter, nor are the filters designed to kill them.

Your water may look clean and clear and delicious, but it may also be deadly. There are only two ways to ensure that your water is pure – heat and chemicals.

Not Getting Water Hot Enough

Though pathogens start to die as the water heats, at 160 degrees F to be exact, there are many disease-causing bacteria and viruses that won't die until the water reaches the boiling point of 212 degrees F. Keeping that in mind, you need to maintain a rolling boil for at least one minute, and three is better, especially at higher elevations.

If you're short on water and worry about losing it to evaporation, putting a lid on the pot will help with that. Then just leave it covered until it cools.

Using Chemical Purification

Incorrectly

There are a few ways that you can mess up chemical purification. First, you can use too much. This is most definitely not a case of more being better because whether you're using iodine, sodium hypochlorite (bleach) or calcium hypochlorite (pool shock), too much of it can make you sick or even kill you.

- If you're using iodine, use 5 drops/quart for clear water and 10 drops/quart if cloudy
- If you're using bleach, use 5 drops/quart for clear water and 10 drops/quart if cloudy
- If you're using calcium hypochlorite, dilute a teaspoon of the powder in a gallon of water, then add 2/3 ounce of that to a gallon of water. A small shot glass is useful because it usually holds one ounce.

There are also a few things to keep in mind when choosing your water purification method. Liquid bleach has a shelf-life of six to twelve months, so it expires and loses its strength. Pool shock keeps forever and a one-pound bag will treat 10,000 gallons. Iodine makes the water taste weird, but if you let it sit for an hour, you can add vitamin C (Tang drink mix or something similar) to eliminate most of the bad taste after the purification period is up.

Make sure that if you're using bleach or pool shock that the product is pure without any additional additives such as perfumes. Let the water sit for at least 30 minutes before drinking.

Cross Contamination

This one seems like it may be simple, but it's easy to re-contaminate purified water. Make sure that you don't use the same containers or utensils for the clean water that you used

before it was purified. In other words, don’t gather the water from a stream in your water bottle, boil it, then put it back in your bottle. You just re-contaminated your water and wasted time and fuel.

If you’re purifying in your bottle, make sure to pour some of the chemical into the lid and around the threads/ mouth of the container.

Failing to Purify AND Filter

This is another reason that you need to understand that filtering and purifying are two different processes. You need to filter your water to rid it of illness-causing pathogens, but you need to purify it to remove chemical toxins such as fertilizers and insecticides.

Of course, it also removes any other debris such as sand, rocks, and minerals. It doesn’t really matter what order you do it in, but I’d recommend filtering first then purifying just because it’s cleaner and there’s less risk of cross-contamination.

Either way, strain water that has visible debris in it before you purify it or filter it. Run it through a coffee filter or a densely woven cloth such as a bandana. Just a note: chemical purification is most effective if the water is at least 60 degrees F.

Studies show that at 50 degrees, only 90 percent of Giardia cysts were inactivated after thirty minutes. Warm up the water in the sun (or after it cools a bit from purifying), or let the water sit for an hour.

Failing to purify your water can cause such diseases as cholera, E.coli, rotavirus, hepatitis, staphylococcus, cryptosporidium and Giardia. These cause everything from upset stomach and cramps to severe vomiting, diarrhea, and even

death. In other words, it’s nothing to mess around with, unless you want to die a slow miserable death. Don’t put your life at risk! You need only clear water to stay safe!