

More On Water

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FEMA, the Red Cross and other civil authorities warn us that in the event of a major natural disaster, we should expect little outside help for at least three days (72 hours). I personally think it will be more like three - five days if not longer, depending on where you live.

Storms, earthquakes, hurricanes, fire, and even civil unrest will mean that you face the possibility of extended periods without power, or access to fresh water or even possibly food. During any type of disaster or even when camping, diseases should be a major concern. Maintaining good personal hygiene will prevent illnesses and help morale.

This requires water. Clean drinking water is essential to survival. Which makes water one of the most important and a necessary item for survival. Some of the most common requirements are: Drinking, cooking, washing your hands, proper dental care, washing clothes (clean and dry clothing does wonders for morale), take a bath (in safe water as often as practical), if no shower or bath facilities are available, at the minimum wash where you perspire (personal hygiene areas).

Minimum daily water requirements are determined by several different factors, mainly the climate, temperature and daily physical activity. In a survival situation water is a fundamental consideration.

During an emergency, an adult requires about one gallon of water per person per day (a normally active person requires a minimum of 1/2 gallon of water per day for drinking and cooking, more in hot weather, and slightly less in cold.): two quarts for drinking and cooking and two more quarts for washing body and clothes. Assuming no physical activity, a man can go without water for up to ten days in temperatures of 50 degrees Fahrenheit, seven days at 90, and two days in temperatures of 120. Some of the need for liquids can be met by using juices from canned fruits and vegetables. Avoid caffeine (cola, coffee and tea) as it increases water loss and promotes dehydration. Children require only slightly less, depending on their age. For a family of four, that's a minimum of 28 gallons per week. Don't forget to figure in your pet's needs as well. It would also be a good idea to learn and pay close attention for any signs of dehydration. Not enough water in hot climates or weather means you face the threat of heat stroke, too little in cold climates or weather means you may expose yourself to cold weather injuries such as frostbite or cracked skin, which can lead to infections and possibly other diseases.

Probably the best method for setting water aside is to purchase food grade (food-grade containers are any store-bought plastic or glass containers that have previously held food or beverages) 55-gallon drums. These are available new through commercial sources, though they tend to be expensive. However, any food-grade plastic or glass containers can be used for storing water, provided that they have been completely cleaned. Some examples include two-liter soda bottles, water, juice, and punch or milk jugs. Wash your container(s) with hot soapy water. Next, rinse the soapy container well with plain water. Then sanitize by rinsing with a solution of 1/2 teaspoon of chlorine bleach per pint of water. Finally, rinse with clean water. If water is to be

stored in used plastic milk jugs, special care must be taken to clean, sanitize and rinse the inside handle area to remove any residue.

Empty bleach containers should never be used for two reasons. First, they are not food-grade containers and a young child may not be able to understand that some bleach bottles are safe to drink out of and others are not.

It is not necessary to treat water for storage, providing the water comes from a safe water supply. All public water supplies are already treated and should be free of harmful germs. If stored properly, this water should have an indefinite shelf life. But you may want to rotate and replace this water every 6-12 months with fresh safe water. Water that might be contaminated should be boiled for 10 minutes before storage. Water from untested and untreated water supplies, such as a farm pond or private well, should be purified and treated before storage. Clearly mark all containers "drinking water", with the current date and store the tightly capped containers in a cool, dry place away from direct sunlight. Containers should be stored in cabinets or on shelves that will not tip over or allow the containers to fall off and break as a result of any type of natural disaster. To improve the taste of "safe" water stored for a long time, pour from one clean container to another clean container, several times. Another method of storing water for an extended period of time is to freeze it. Freezing water will allow you to store it in a safe state, and use it, as you need it. If you should ever lose electricity, the frozen water will also help keep the foods in your freezer frozen until power is restored. Make sure you leave enough head space in containers before freezing (2-3 inches). This will help prevent the containers from spilling and breaking. One problem with freezing the family water supply is you will use up a lot of freezer space. Purify them before filling them by using a gallon or so solution of 50/50 pure bleach and water. Rinse the barrel once, but do not worry about the bleach remaining in the barrel. It will help purify your water. Since the barrel will weigh 440 lbs when full, (For every gallon of water there is 8 lb.'s weight) fill your water barrel in the location you will store it. Now that is a lot of weight and bulk. If you plan on relocating to another location, then you need to make sure that you scout out possible watering spots when you plan your routes. Lakes, rivers, streams, melted snow; even man-made water sources can be planned on but should never be counted on. Constantly refill (if water is available) at every stop.

Once your barrel is full, add nearly 1/4 cup (2 oz.), or 5-6 Tbsp (180 drops/tablespoon) of pure chlorine bleach. It will dissipate from the water quickly, so be sure to cap the drum tightly. Make a note on your family calendar to check the contents at least once every six months. Cover the barrel to protect it from sunlight, this will extend the life of the barrel and will minimize the growth of algae, etc., in the water. To extend the life of the stored water, you can add pure chlorine bleach every three months or so. Exchange the stored water for fresh at least once or twice a year.

An average hot water heater holds 25-40 gallons. The back of your toilet tank, from 2-5 gallons. A spa or hot tub holds 300-500 gallons or more, depending on its size. However, you should not count on these, because they could be damaged, especially during any type of serious natural disaster. Other sources of water supply can come from ice cubes, frozen containers of water, your hot water tank or your toilet tank (not the bowl). Do not drink from the toilet tank if a chemical disinfectant or purifier has been added to the water. Make sure your water heater is

strapped or secured to a wall to keep it from falling. Be sure you know where to shut off incoming water to avoid any chance of contamination. To obtain a free flow of water from the hot water tank, it is sometimes necessary to open the valve at the top of the tank as well as the faucet at the bottom of the tank. The flow of water will also be increased if any hot water faucet in the home is turned on before draining water from the hot water tank. Be sure to turn off gas or electricity to the tank before draining off water for emergency use. Stored water will probably not be fresh from the tap when you go to use it. Before drinking it, you should purify it. There are three methods, each with advantages and disadvantages. You also invest in some type of water testing kit.

Heat Treatment

Boiling kills pathogens after three minutes and removes most dissolved gases (chemicals). It uses considerable fuel and it does not remove solids or dissolved solids.

Chemical Treatment

For individuals and small groups, disinfectants have the advantage of being inexpensive as well as easy to transport and store.

There are basically two varieties of chemical treatments: iodine and pure chlorine bleach. Iodine is available in local stores. For clear water, use 5 drops per quart for cloudy water, 10 drops per quart. Do not use iodine if a member of the family has thyroid problems. Pure chlorine bleach is readily available. Make sure you purchase a brand that does not contain any additives. For clear water, use 2 drops per quart for cloudy water, 4 drops per quart. Stir or shake thoroughly. Let stand for 30 minutes. When using chlorine, you should be able to smell it afterwards; otherwise, add more. You can also buy commercial purification tablets. They will usually contain iodine or chlorine and are typically more expensive than either of the other options. While killing pathogens, chemical treatment does not actually remove them. Neither iodine nor chlorine remove solids or dissolved solids. Chlorine bleach is a safe, inexpensive, proven method. After you add the bleach, you can help rid the water of the chlorine smell by pouring it back and forth between containers, or by letting it sit for 24 hours. This is not necessary to make the water safe to drink. Tap water already contains small amounts of chlorine added by your city water department. Then use a filter to remove solids and, if you like, the now dead pathogens. You should probably purchase a replacement cartridge at the same time. Store your filter with your water.

Filters

Filters come in two types: micropore (usually ceramic or another like material) and adsorption (typically activated charcoal). Micropore filters remove pathogens but not dissolved gases or dissolved solids. The filter has a finite life--it can filter only so many gallons before it must be replaced. Adsorption filters remove dissolved gases and dissolved solids, but do not kill or remove pathogens. Some filters will do both. It is a good idea to first treat stored water chemically to kill any possible pathogens. Do not drink pool or spa water until it has been filtered for both pathogens and chemicals using an adsorption-type filter.

A few things to remember are:

Always plan for more water than you need.

No matter what do not drink water from a non-potable source. One of the worst hazards to survival is waterborne disease. You need to treat all water either by boiling for at least one minute or by using water treatment tablets.

Water may look and smell fine, but be full of germs and other harmful substances.

Be on the look out for ways to decrease the amount of water you need to purify.

If you do not have water or are able to get water, you will not survive.

Once you do find a source or supply, make sure it does not get contaminated.