

Ready or Not: Food and Water

UC ANR emergency information and resources—before, during, and after

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Food and water

Survivors of great storms, floods, earthquakes, or other disasters may find themselves temporarily isolated in their homes without electricity, heat, communication, or transportation. Preparation and self-sufficiency are key to survival. Access to safe food and water ranks high on the priority list.

For people in good health, the most important emergency requirements are water and food. The water must be safe to drink. The food, in addition to being easily prepared and kept safe without refrigeration, should satisfy hunger, supply energy, and contribute to good nutrition as much as possible.

Water is vital

You and your family can survive for quite a while without food but only a short time without water.

Did you know?

Your house may be filled with hidden water sources, such as water in your hot water tank, water in your pipes, or even ice cubes in your freezer.



How much food and water do you need?

- Each person needs to drink at least 1 half-gallon of water each day in moderate weather—not very hot or cold. You will need more if your weather is hot and dry.
- Another half-gallon per person per day is recommended for bathing, food preparation, and dishwashing.



- Some of your drinking needs can be met with fruit juice, soft drinks, and canned food such as fruit and vegetables that are packed in liquid.

How do you make sure your water is safe to drink?

In emergency situations, use bottled water if possible; bottled water is the safest choice for drinking and all other uses. If bottled water is not available, the following methods can help make your water safe to drink:

1. **Boiling:** Boiling is the surest method to kill disease-causing organisms, including viruses, bacteria, and parasites. Bring the clear water to a **rolling boil for 1 minute** (at elevations above 6,500 ft, boil for 3 min).
2. **Disinfectants:** Using a chemical disinfectant such as unscented household chlorine bleach (hypochlorite) can kill most harmful or disease-causing viruses and bacteria but **not chemical-contaminated water**.
 - If the water is cloudy, you can filter it first by using a clean cloth, paper towel, coffee filter, or you can allow it to settle.
 - Follow the instructions on the product (bleach), mix, and stir. Read the “Active Ingredient” part of the label to find the sodium hypochlorite percentage (usually, in the United States, it is between 5 and 6% concentration) and add half a teaspoon of bleach per 5 gallons—or add 40 drops if you have a dropper. For further details, visit [cdc.gov/healthywater/emergency/making-water-safe.html](https://www.cdc.gov/healthywater/emergency/making-water-safe.html).
 - Let the water stand for at least 30 minutes before you use it.
 - Store the disinfected water in clean, sanitized containers with tight covers. For further details, visit [cdc.gov/healthywater/](https://www.cdc.gov/healthywater/)

[emergency/creating-storing-emergency-water-supply.html](https://www.cdc.gov/healthywater/emergency/creating-storing-emergency-water-supply.html).

3. **Filters:** Many portable water filters can remove parasites but not bacteria and viruses. You will still need to add disinfectants such as iodine, chlorine, or chlorine dioxide to the filtered water to kill any viruses and remaining bacteria.

To print a quick fact sheet on making safe water during an emergency, visit [cdc.gov/healthywater/emergency/pdf/make-water-safe-during-emergency-pdf](https://www.cdc.gov/healthywater/emergency/pdf/make-water-safe-during-emergency-pdf).

Did you know?

Almost half of the infants who did not survive a disaster actually died of diarrhea because of unsafe water being used in preparing infant formula and washing the bottles. Refer to Issue 4: Emergency Considerations for Children and Families for more information.

Emergency food supply

You may already have a 1- or 2-week supply of nonperishable food in your cupboards. Maintaining your food supply is a simple matter of use and replacement. In addition, you may choose to keep an emergency food supply in a separate location and replace it every 6 months. To ensure good nutrition, keep MyPlate food guidelines in mind as you plan and assemble your disaster food and water kit (fig. 1).

- **Grains:** Nonperishable items in this category include ready-to-eat cereals, crackers, canned breads and canned steamed puddings, canned

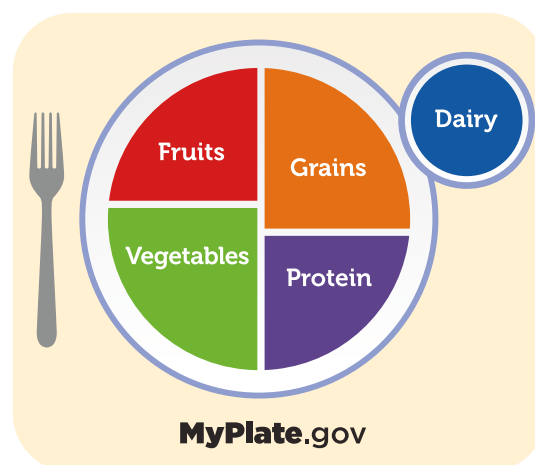


Figure 1. A healthy diet contains balanced amounts of proteins, fruit, grains, vegetables, and dairy products.

spaghetti, rice, and macaroni products. Try to include 50 percent whole grain products and less added sugar when possible. Dried packages keep well but require extra water to prepare.

- **Fruit and vegetables:** Look for canned and dried vegetables and fruit that are low-sodium and without added sugars. Remember that fresh fruit and vegetables stored in the refrigerator should be used first. Garden-grown produce should not be overlooked as a food source. However, produce contaminated by flood waters, chemical wastes, oil, or raw sewage is unsafe and should not be eaten. Fruit bars are good for emergency kits.
- **Proteins:** Some items to include for protein are canned meat, poultry, fish, beans, lentils, peanut butter, nuts, and main dishes such as pasta meals, beef stew, and chili beans.
- **Dairy:** This category includes nonfat dry milk; dry pudding mixes; cocoa mix; canned or sterile milk; soy milk, almond milk, rice milk, oat milk, or other dairy alternatives in cartons; sterile pudding cups (refrigeration not required); and nonrefrigerated processed cheese sold in cartons or individually wrapped.

Don't forget to include nonfood items, such as a can opener; silverware; paper plates; cups; napkins or wet wipes; dish soap; ingredients like salt and oil; matches and candles and/or flashlights and batteries; containers; sharp knives; cookware or pans; and cooking equipment, like portable burners and canned fuel, to heat small amounts of food and water. And don't forget medications!

Store your emergency food supply along with 6 quarts of water for each person in a crush-resistant,



waterproof, food-safe container that is easily accessible and transportable. Keep the container in a dry place where the temperature is fairly cool—not above 70°F and not below freezing. Rotate the food contents at least every 6 months. Consider preparing an emergency food supply for each member of the family to store in the car or at school or work, based on individual needs.

For more information, visit [cdc.gov/disasters/food-water/prepare.html](https://www.cdc.gov/disasters/food-water/prepare.html) and [ready.gov/food](https://www.ready.gov/food).

Refrigerated and frozen foods

Should you lose power following an emergency, foods stored in the refrigerator and freezer should be eaten first. Foods that feel as cold as refrigerated food, 40°F or less, will be safe to eat. Milk, meat, fish, and other protein foods, like yogurt and food with meat mixed in, are perishable and should not be kept at room temperature longer than 2 hours. If there is any doubt about the safety of the food, throw it out!

Foods in a well-filled, well-insulated freezer probably will not begin to spoil until 24 to 48 hours after the power goes off. However, a lot depends on the room temperature, the type and size of the freezer, and how often you open the freezer door. Foods in a full freezer will stay cold longer. It's best not to open the freezer except for very short periods to remove foods for the meal. The same is true of the refrigerator. The refrigerator will keep food safely cold for about 4 hours if it is unopened.

To print a poster with food safety information, visit [cdc.gov/foodsafety/pdfs/eat_safe-r5-infographic2-h.pdf](https://www.cdc.gov/foodsafety/pdfs/eat_safe-r5-infographic2-h.pdf). To view a chart that lists what foods you should throw out and what foods you can refreeze, visit [foodsafety.gov/food-safety-charts/food-safety-during-power-outage#frozen](https://www.foodsafety.gov/food-safety-charts/food-safety-during-power-outage#frozen).

Safe food tips

Bacteria are all around us—on our bodies, in food, and on cooking utensils (fig. 2). In small amounts, bacteria that we normally come in contact with are harmless; however, in large amounts, these bacteria cause foodborne illness. At temperatures below freezing, most bacteria that cause foodborne illness survive but do not grow. Refrigeration slows the growth of bacteria. If the storage temperature of perishable food rises above 40°F for longer than a couple of hours, the number of bacteria may have risen to a level that could cause food poisoning. The following tips should prevent an emergency situation from becoming even more of a crisis:

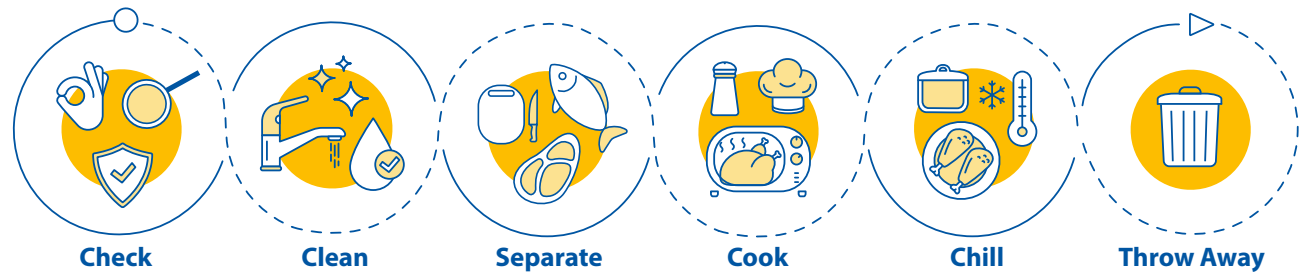


Figure 2. During emergencies, care must be taken to avoid illnesses caused by bacteria in food.

4. **Don't eat food in damaged containers.** Check cans and glass jars for dents, cracks, or bulging lids or tops. Check paper packaging for leaks and stains. Look for ice crystals in food that had been frozen, which indicates the food is still at least as cold as refrigerated temperature. If you are unsure about the temperature, throw the food away! Medical help may not be available.
5. **Keep cold foods cold.** Keep perishable foods cold. Do not eat perishable foods that have been left at room temperature for more than two hours.
6. **Keep foods clean.** Keep bacteria out of food by washing your hands, utensils, and work areas with hot, soapy water when preparing food.
7. **Don't spread bacteria from raw meat and poultry to other food.** Wash your hands and work areas after contact with raw meat and poultry. Use clean utensils to cut meat and wash them again before using on other food.
8. **Keep hot foods hot.** Cook food thoroughly to a safe internal temperature.
9. **Don't leave perishable food at room temperature too long.**

After a flood or storm, food that is not sealed may have been exposed to contaminated water or may grow mold if damp. Throw away the following foods or food containers after a flood or storm:

- food with an unusual odor, color, or texture
- food in packages that are not waterproof
- food in cardboard containers, including unsealed juice, milk, and infant formula
- food containers with screw caps, snap lids, crimped caps, twist caps, flip tops, and snap tops
- home-canned foods, which cannot be disinfected
- canned foods or food containers that are bulging, open, or damaged

- cans or food containers that spurt liquid or foam when opened or contain food that is discolored, moldy, or smells bad (when in doubt, throw it out!)

Remember! If symptoms of foodborne illness (upset stomach, nausea, vomiting, diarrhea, fever, or arching body) develop, rest and drink plenty of fluids. If symptoms persist, see a medical provider!

For more information

Your county UC Cooperative Extension office may be able to advise you on preparing for emergency situations. Remember that being prepared will speed up the recovery process.

Ready-to-print poster on food safety: [cdc.gov/disasters/hurricanes/pdf/flyer-eatsafefood.pdf](https://www.cdc.gov/disasters/hurricanes/pdf/flyer-eatsafefood.pdf)

Food safety during a power outage: [foodsafety.gov/food-safety-charts/food-safety-during-power-outage](https://www.foodsafety.gov/food-safety-charts/food-safety-during-power-outage)

Cold food storage chart: [foodsafety.gov/food-safety-charts/cold-food-storage-charts](https://www.foodsafety.gov/food-safety-charts/cold-food-storage-charts)

How to prevent food poisoning: [cdc.gov/foodsafety/](https://www.cdc.gov/foodsafety/)

UC Food Safety: ucfoodsafety.ucdavis.edu/consumers

UC Master Food Preservers: mfp.ucanr.edu/

About this publication

The Ready or Not Emergency Preparedness Newsletter Series is a resource for individuals and families. Each newsletter addresses a specific topic on how to prepare for a disaster. The series includes the following issues: 1: Planning for an Emergency; 2: Safety Considerations; 3: Food and Water; 4: Emergency Considerations for Children and Families; 5: Finances and Insurance; and 6: Time to Clean Up.

For more information about this publication, visit ucanr.edu/sites/CNH/.

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