



Food Safety Questions and Answers

Commonly asked home owner food safety questions.

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Question: Can you explain why reheating potatoes can make them harmful to eat?

Answer: The problem with reheated potatoes is not the re-heating process, but how you store the potatoes after they are cooked. If they are left to

cool at room temperature and then left unrefrigerated, conditions may be right for growth of *Clostridium botulinum* (botulism); especially if they are sealed in foil so that oxygen is kept out of the potato. This has actually happened in a few cases.

Question: Hard cider fermentation problems. Cider blew its top!

I have an unusual question for you. A man called for his friend. Seems his friend tried to make some hard cider and blew the lid off of his barrel! Anyway, the guy wants to stop the fermentation process before he gets to the explosion part. This man went to buy boric acid from a pharmacist and thus, the pharmacist has called me. Got any suggestions?

Answer - It sounds like he has not given the cider a sufficient time to completely ferment before sealing. He should measure the sugar content with a hydrometer and

periodically take measurements as it ferments until the readings level off to a minimum value. Or he can attach a tube to a fermentation vessel allowing the escaping gas to bubble through a water trap. When the bubbles stop, the cider is done. At this time, the sugar has been fermented to alcohol and very little additional CO₂ will be generated.

Question: Is it safe to make apple butter in a copper kettle that had been lacquered on the inside?

Answer: Most decorative copper pieces are factory-coated with a protective lacquer that keeps them from turning green. If you are planning to use a copper kettle or large pot for cooking, such as preparing apple butter, the lacquer must be removed before using. To remove lacquer, place the item in 2 gallons of boiling water to which 1 cup of washing soda has been added. The lacquer should peel off. An alternate method to remove lacquer is to rub with a cloth saturated with acetone or alcohol. Do this in a well ventilated area and be very careful to work far away from open flames. Wash the kettle thoroughly with soapy water before using.

There is some evidence that small amounts of copper can dissolve during cooking and get into the food. Although not likely to be at toxic levels, its a good idea to switch to stainless steel cookware to make apple butter.

Question: Are canned foods unsafe to eat if the can is dented?

Answer - Dents in cans can put stresses on seals and cause them to leak. If this happens, microorganisms can enter the product and cause it to spoil.

Question: Are carrot tops safe to eat?

Answer - I don't see any problem from a food safety point of view. Most people throw them out or put them in the compost pile. However, I understand they are used in soups and some eat them like other cooked greens. They usually are boiled to get out the toughness and bitterness.

Question: How do you make elderberry juice?

Today I got a call from a lady who wants to know how to make elderberry juice. Is this the same process as grape juice? She said it is used for a cough medicine. The jar she has says it contains elderberries, alcohol and sugar.

Answer - I would suggest the process for grape juice described in the [USDA Complete Guide to Home Canning](#)

Question: Concerned with flesh eating bacteria on Bananas. Is there truth to this?

I just received a phone call questioning the safety of bananas. This caller said a friend had told her there is information on the Internet telling everyone to discard their bananas because of a flesh-eating bacteria! Do you know anything about this?

Answer - The rumors, circulating on the Internet, concerning a so-called flesh eating bacteria carried by Costa Rican bananas are false, according to the Center for Disease Control and Prevention (CDC) in Atlanta. Also visit the Rumors, Myths, and Urban Legends in the Food Safety website at Bad Science .

Question: Is it safe to re-use food packaging materials?

Answer - Here are some tips from the University of Illinois extension.

1. Packages from products other than food should never be used as food containers. They have not been tested for safety with food systems, and they may contain small amounts of nonfood residues. (For example, do not use plastic laundry detergent buckets for storing dry cereal.)
2. Glass can be reused for all foods and for all processes. This is true regardless of what food was originally packaged in the glass container. There is an exception to this rule: single-use glass jars should not be used for pressure processing in the home canner. The lid or cover, however, is subject to recommendations discussed below (number 3).
3. Reuse packaging materials only with the following:
 - foods similar in acidity and in sugar, fat, or alcohol content to the food originally packaged in the material. Do not use a plastic shortening container to make salad dressing containing a substantial amount of vinegar.
 - foods that will be exposed to the same types of processes. Do not melt butter in the micro-wave oven using a plastic margarine container. In general, do not subject food packages to heat unless the instructions on the original package

give heating information. Many food products are “hot-filled” into containers at low temperatures. These packages will not tolerate heating.

4. Do not reuse porous packaging materials such as paper, paperboard, and expanded foams (for example, styrofoam cups and foam meat trays). They have air spaces that will harbor food particles and microorganisms.
5. Do not reuse microwave packages that contain “heat susceptors” for browning or crisping. The adhesives that hold the susceptor to the package may be damaged by the original use. The material is more likely to migrate into the food if it is used again.
6. It is better not to store foods with strong odors or flavors in re-used food packages; the packaging material might absorb the chemicals that produce the odor or flavor and release them into a subsequently stored product. Additionally, some packaging materials allow certain chemicals to pass through them, transferring odors or flavors to other foods stored in the same area.

Question: Are green potatoes safe to eat?

Answer - When potatoes are exposed to light, metabolic activity in the skin increases as it prepares to send out shoots. As a result, chlorophyll is formed, which provides the green color. Another product formed is solanine, which is a glycoalkaloid toxin. It has a bitter taste and can irritate the gastrointestinal tract. If enough is eaten it could cause symptoms such as vomiting and diarrhea. Because of the bitter taste, it is rare for someone to eat enough to actually get sick.

Small green spots can be trimmed off. If more extensive greening occurs, throw the potato out.

The tendency for potatoes to turn green and form solanine varies among varieties. To prevent it from happening, inspect potatoes at the store before purchasing and store them at home in a cool dark place with good air circulation.

Question: How can one make butter at home?

Answer - How the client makes butter will depend on how much they would like to make. For a small amount, place 40% fat cream into a glass jar. Leave sufficient room for the product to be agitated. Warm the cream up to about 60°F and then begin shaking the cream. In a while (time undefined), the cream emulsion will break and butter “granules” will begin to form. Once the butter granules begin to form,

continue mixing, but, don't mix too vigorously or you will "whip the butter" and make it difficult to handle. When it appears the butter granules have reached a maximum size, pour off the milk liquid (butter milk). Now wash the butter particles with cold water. To wash them, add cold water and work them together with a wooden spoon. Wash several times (3-4) until the butter milk is clear or just slightly cloudy. At this point, separate the butter from the butter milk. I find putting the butter in a clean baking dish works well. If you want to salt, add about 0.5-1% salt to the product and work it into the butter mass. I have no idea of the shelf life of this product.

If the person intends to make large batches of butter, they should give me a call. **In no case should raw cream or fat from raw milk be used without prior pasteurization.**

Bob Roberts, Penn State Food Science

Question: I am concerned about pesticides in my food. Is this something I should be worried about?

Answer - The issue of pesticide residue in food is quite controversial. Pesticides are used because they have beneficial properties in terms of crop production and yield. With the use of pesticides, farmers can maximize their efforts in the field, thus minimizing the cost of the produce to the consumer. Pesticides are used by farmers to prevent fungal invasion, insect damage, and the growth of unwanted (and often poisonous) plants. This has a positive benefit in terms of public health because fungi, insects, and non-crop plants can contaminate crops with many natural toxins.

Pesticides are probably one of the most regulated chemical products used in the U.S. Several major organizations regulate the use of pesticide. These include the Environmental Protection Agency, the Food & Drug Administration, and the U.S. Department of Agriculture. There are more than 14 separate regulations governing the use of pesticides. All of these regulations are in place to help protect human health.

Despite the many regulations, pesticide residues are found in our food supply. Because residues are an inevitable by-product of pesticide use, many of the current regulations are in place to address the public health implications of pesticide use. Therefore, there are very strict restrictions on the amount of pesticides residues that are allowed in food.

One of the regulations that is currently in place requires that pesticide manufacturers conduct toxicity testing on the pesticide before it can be permitted for use on products either directly or indirectly destined for human consumption (this includes animal feed). This toxicity testing not only determines the health effects of pesticides, but also the level at which there are no toxic effects on the most sensitive population (i.e. children and the elderly). This 'No Toxic Effect Level' (NOEL) becomes the basis for the permitted residue limit. The regulations set the permitted residue level at a level that is from 10 to 100 times lower than the NOEL. Furthermore, if a pesticide is tested and a NOEL can not be determined, then it is unlikely to be permitted for use on food crops. This helps ensure that if a person, child or adult, eats a larger than normal amounts of a particular food, or several different foods with the same or similar pesticide residue, they will still not reach the level of exposure required for a toxic effect to occur, even if they are more sensitive than the general population.

So, while pesticides may be found in many products, the levels at which they are present fall far below the levels known to not cause any health effects. The fact that they are found at all is only due to the significant advances in analytical chemistry. The tests are now so sensitive that the detection level that can be easily reached is equivalent to detecting one teaspoon of salt in one million gallons of water. Levels even lower than that can sometimes be detected. The mere presence of a trace amount of a pesticide does not mean that the product is unhealthy. On the contrary, eating a diet full of a variety of fruits, grains, and vegetables has been shown to significantly decrease your risk of a variety of health problems from high blood pressure to cancer. Variety is the key to good health.

From: The [National Institute of Environmental Health Sciences](#) (NIEHS) is one of 27 Institutes and Centers of the National Institutes of Health (NIH), which is a component of the Department of Health and Human Services (DHHS).

Question: Is it safe to re-use oil used for frying?

Answer - What is the proper food safety for the handling of deep fat frying oil? Allow the used oil to cool completely before pouring it into containers for refrigerator or freezer storage.

Does it need to be strained? Straining removes the large food particles and prevents charring of them during subsequent frying. Removal of food particles also removes food so bacteria won't grow.

Can it be reused? Yes. You can refrigerate or freeze used oil for no more than one month. (According to USDA Meat and Poultry Hotline) Don't reuse the oil if foaming occurs during heating, changes color (darkens or lightens) during heating or acquires an off/odd odor.

Does it need to be refrigerated? Yes. Keep in mind that oil and bacon can produce an anaerobic environment that could allow for *Clostridium botulinum* growth. Refrigeration will slow bacterial growth.

If a consumer makes a blooming onion in some hot oil can that oil be left out at room temperature for 1 or 2 days and then reused? NO. Leaving it out for 1-2 days is not recommended. Bacteria can grow on the food particles at room temperature. Therefore, strain and refrigerate after cooling.

I did look in the 4th edition page 260 of ServSafe manual and it says to filter hot oil before bringing it up to temp. Is this done for safety? Filtering removes the food particles to prevent bacterial growth.

Restaurants should follow state or FDA food codes with regard to handling oil.

Question: I read that kidney beans are harmful when eaten raw, what is the danger to children?

Answer - Red Kidney Bean Poisoning is an illness caused by a toxic agent, Phytohaemagglutinin (Kidney Bean Lectin). Different types of lectins are found in many species of beans, but are highest in concentration in red kidney beans. The unit of toxin measure is the hemagglutinating unit (hau). Raw kidney beans contain from 20,000 to 70,000 hau, while fully cooked beans contain from 200 to 400 hau. White kidney beans, another variety of *Phaseolus vulgaris*, contain about one-third the amount of toxin as the red variety; broad beans (*Vicia faba*) contain 5 to 10% the amount that red kidney beans contain.

Several day care and nursery schools have dry beans (different varieties) out for kids to play with. What danger would there be if a child ate a few of these raw beans?

As few as 4 or 5 kidney beans can bring on symptoms within 1 to 3 hours. Symptoms include extreme nausea, vomiting, diarrhea, and abdominal pain. Some persons have been hospitalized, but recovery usually occurs about 3 - 4 hours after symptoms appear.

Lectins are inactivated with cooking so fully cooked or canned kidney beans are safe to eat. Undercooking may actually increase lectin activity and increase the hazard. This could be a problem when using slow cookers (crock-pots) if time/temperature conditions are not adequate to fully cook the beans. Therefore, when kidney beans are called for in slow cooker recipes, make sure they become fully tender, or use pre-cooked or canned beans rather than raw beans.

Question: Some stores sell pasteurized cider at room temperature, label reads "Refrigerate after opening." Is it safe?

Answer - Pasteurized cider should be kept refrigerated to prevent growth of spoilage yeasts and molds. Despite the heat treatment applied, pasteurization only kills a fraction of the spoilage organisms present. Those that remain may grow rapidly if the product is not refrigerated.

Some stores display unrefrigerated cider in the produce aisle. Generally, this cider is severely heat treated to delay growth of spoilage microbes. The label may say "Keep Refrigerate after Opening" but should not more generally say "Keep Refrigerated".

Question: Should you rinse poultry before cooking?

Answer - No. Washing poultry risks spreading harmful bacteria.

The U.S. federal government guidelines advise cooks not to rinse poultry and that the turkey should go straight from bag to pan to avoid spreading potentially harmful bacteria, such as Salmonella or Campylobacter, all over the kitchen.

Fergus Clydesdale, who runs the food science department at the University of Massachusetts at Amherst and was on the U.S. Agriculture Department's Dietary Guidelines Advisory Committee, was quoted as saying, "The risk of cross-contamination through washing poultry is far greater than shoving it in the oven without washing it, which makes the risk almost zero."

According to the guidelines, which are revised every five years, rinsing is one of the most common ways bacteria contaminate food.

Lydia Medeiros, a professor of nutrition at Ohio State University, says, "It's pretty simple and logical. When you wash the poultry, you have to think of where that bacteria is going. The water splashes on the counter and goes into the sink and gets into the crevices around the drain. You're actually setting up colonies of pathogens."

Not washing the Christmas turkey may be a radical change in behavior for many home cooks, but it is not the first time government safety recommendations have bumped up against the opinion of cooks, particularly Christmas cooks.

Government scientists suggest cooking the turkey with a thermometer in its thigh until the temperature reaches 180F. Chris Kimball, the editor of *Cook's Illustrated*, was cited as saying that's a temperature so high it can render the turkey too dry, and that the cooks in his test kitchen recommend a temperature of 170F for thighs. Breast meat is at its best 10 degrees lower, adding, "I'm not against food safety. But I'm not eating turkey cooked to 180 degrees, thank you very much."

Rinsing is, the story says, a part of Kimball's routine and because brining is often believed to make the bird more tender, he soaks his turkey in a salt solution for four hours before roasting. But a brined turkey that is not rinsed would be too salty to eat.

According to Linda Harris, a microbiologist at the University of California, brining slows the growth of bacteria but does not kill it. She and other food scientists have been trying to get Americans to stop rinsing poultry since the late 1990s.

Certainly a thorough hand washing with hot water and soap and an equally attentive sink scrubbing would eliminate much of the risk of cross-contamination. But meticulous sink and counter maintenance often goes out the window, particularly on Christmas, when cooks are dealing with high volumes of food and the distraction of a houseful of guests.

From: *The National Post*, December 24, 2004

Question: How safe are Home Grown Sprouts?

A participant in a food safety class I offer became concerned after I said that "at-risk" persons for food borne illness should eat sprouts cooked, not raw. She eats sprouts often, especially in winter months. She has a sprout grower. It is three tiered. The seeds, which come packaged, are put in the top tier. Water is in the

bottom, which she changes every day. She says that she often will walk by and take out some sprouts and eat them. Do you think it is safe for her to do this?

Answer - The recommendation for at risk people to not eat raw sprouts stands since contamination, if it does occur, happens before the seeds reach the consumer. It doesn't matter how they were sprouted.

Read [What You Should Know about Sprouts](#)

Question: Is there a food safety concern about soaking dry beans overnight before cooking?

Answer - It is possible that vegetative pathogenic microorganisms if present could grow to harmful levels. However, the high temperatures required to cook the beans would be sufficient to kill them. Spore forming bacteria or toxins produced by bacteria might survive the cooking process.

To be on the safe side, it would be advisable to use the quick soak method: Bring water and beans to a boil, cover and boil for 2 minutes. Remove from heat and let stand 1 hour. Drain and further cook.

Or simply soak the beans in the refrigerator overnight.

Question: Why does "fatter" milk tend to last longer than skim milk?

I could have skim and 2% in my fridge for the same period of time, and the skim will go off/sour faster. What is it about the fat content that makes it last longer? And why does milk go sour - what is the process causing that?

Answer - It is difficult to answer your question with confidence without more information.

First, I am not sure what you mean by "sour" or "off". It is very unlikely your milk actually goes sour (that is fermented by lactic acid bacteria) as this doesn't occur at refrigeration temperatures. It is more likely the milk goes "off" which means the flavor changes, usually as a result of growth of cold-loving (psychrotrophic) bacteria.

There are two or three potential reasons why the skim might "go off" faster. First, the rate of spoilage depends on how often it is in and out of the refrigerator. If the skim is out more often than the fat-containing milk, it would spoil faster. Second, because of the lack of fat in the skim milk, any small change in flavor is noticed more quickly than in fat containing milk. Finally, it is possible, if all other things are equal, that the free fatty acids (naturally present in the fat containing milk) are acting as natural preservatives in the system.

Note the above answers assume you purchased these products at the same time, and they have the same original date of manufacture (or sell by date) and were manufactured by the same company.

Bob Roberts, Associate Professor of Food Science

Question: Can you tell me if there are any type of preservatives put on fresh strawberries before shipping?

The client says she vomits from the sulfites put on lettuce when eating out and wants to know if she can safely eat strawberries. Her reaction to sulfites has not been medically diagnosed. Isn't it law that an eating establishment that uses sulfites must state this fact? I would appreciate any information that you can provide.

Answer - I am not aware of anybody using sulfites on strawberries. If they did they would have to label it as such.

The excerpt below is from FDA Consumer Magazine.

"FDA requires that the presence of sulfites be disclosed on labels of packaged food (although manufacturers need not specify the particular agent used). This information will be included in the ingredient portion of the label, along with the function of the sulfiting agent in the food (for instance, a preservative).

"When food is sold unpackaged in bulk form (as with a barrel of dried fruit or loose, raw shrimp at the fresh fish counter), store managers must post a sign or some other type of labeling that lists the food's ingredients on the container or at the counter so that consumers can determine whether the product was treated with a sulfiting agent."

Question: I heard that Ziploc plastic bags can be used to make omelettes in the microwave. Is this a safe practice?

Answer - Probably not. Cooking foods in Ziploc, or other brands of seal-able plastic bags, is not a recommended practice. This is because the material is not designed to withstand the extreme heat of boiling and there is a possibility of plastic compounds leaching into the food. Use plastic containers only for the use they were designed.