

Here's Why You Don't Ever Want to Eat Moldy Bread

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✓ Fact Checked

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STORY AT-A-GLANCE

- › Mold is a microscopic fungi; there may be up to 300,000 species, some of which are poisonous if you eat them
- › Mold grows by sending out a network of thread-like roots throughout the nutrient source; stalks containing the reproductive part of the fungi grow upward producing visible, colored spores
- › Inhaling or consuming mold may expose you to mycotoxins, poisonous substances often found around the thread-like roots, increasing your risk of gastrointestinal and liver damage
- › Reduce mold growth at home by inspecting food for mold before purchase, purchasing food within expiration dates, keeping humidity at home below 40%, cleaning your refrigerator every week or so and removing moldy or spoiled foods immediately

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Molds are microscopic fungi. To date, no one knows exactly how many species exist, but estimates range from tens of thousands to potentially more than 300,000.¹ As demonstrated in the featured video, fungi are made of many cells and can sometimes be seen with the naked eye.

When mold appears on your food, there are strategies you may use to help determine whether or not the food is safe to eat. Generally speaking, softer foods, such as bread,

should be discarded when you see mold, as the part of the fungi visible is usually just the tip of the iceberg.

Some common foods are developed using mold as an ingredient or part of the process, such as alcoholic beverages, blue cheese and soy sauce. Although these types of mold are safe to eat and digest, if you have a mold allergy, illness or a history of yeast infection, it's best to stay away from these foods.

The list of salvageable foods with mold growth is much smaller than the list that should be discarded immediately. Learning how to differentiate the foods on these lists begins with understanding how mold grows.

How Mold Grows

Mold spreads through spores produced by the fungus as it matures. Mold spores are present on many surfaces but remain dormant until they are in an environment conducive to germination and growth. Food is a perfect breeding ground and even fresh food hosts mold spores.

Once mold has germinated and grown, the visible mold is the reproductive part called the sporangium.² Each sporangium releases tens of thousands of spores to spread the fungi. Beneath the sporangium is a vast network of roots called hyphae. These thread-like roots invade the food sending a stalk to rise above the surface where the sporangia develops.

The spores are what give the mold color. When airborne, spreading the fungus, they are so small you can't see color with the naked eye. Although the roots are difficult to see when the mold is growing on food, they have the potential to spread throughout the food, branching out further than the visible sporangium.

Just as there are types of wild mushrooms which are safe to eat and others that are deadly, some molds may produce mycotoxins, poisonous substances that can make you sick. Dangerous molds often contain mycotoxins around the root threads, meaning the toxins may have spread throughout the food once mold growth is visible.³

Molds prefer warm and humid conditions and require a nutrition source, suitable air quality and adequate moisture for growth. Indoors, they may be found where humidity levels are highest, such as a bathroom.

However, while most prefer warmer temperatures, some are able to grow in the refrigerator as well. Molds are more tolerant of salt and sugar than other food invaders. This means they can grow in refrigerated jams and jellies or on cured salty meats such as ham, bacon or salami.⁴

Will Heat Make Moldy Food Safe?

Since the root system of mold may travel throughout a single piece of food, or from one food to another when they are packed close together, it is unwise to eat any of the bread from a loaf with mold. Even if you can't see the mold, the entire loaf of bread or piece of fruit may be teeming with fungus.

You might be unwilling to throw out food, but a single piece of bread may have dangerous consequences. Just heating food to a boiling point does not kill most molds. This means running your bread through the toaster won't do the trick. Boiling for several minutes at a high temperature or baking, however, will kill many molds and may destroy the dangerous aflatoxin they produce.

What's Causing the Health Problems?

Molds may produce poisonous mycotoxins, a term for poisonous substances produced by fungus. Mycotoxins are found primarily in grain and nut crops, but have been found on [celery](#), [apples](#), [grapes](#) and other produce as well. The Food and Agriculture Organization (FAO) of the United Nations estimates 25% of food crops are affected by mycotoxins.

There are many mycotoxins but only a few are regularly found in grains and seeds with the potential to harm humans and livestock. While visible mold contamination may be superficial, the mycotoxins produced are able to do significant damage.⁵

The effects of illness are acute and often appear quickly. Specific types of mycotoxins called aflatoxins have long-term or cumulative effects on health, including an association with cancer and immune deficiency. Aflatoxins are some of the most toxic chemicals known to exist,⁶ produced by *Aspergillus* mold, found growing in decaying vegetation, hay and grains. Crops most frequently affected include:⁷

- **Cereals** – corn, wheat, rice, sorghum
- **Oilseeds** – peanut, sunflower and cottonseed
- **Spices** – chili pepper, black pepper, coriander, turmeric and ginger
- **Tree nuts** – pistachio, almond, walnut, coconut and Brazil nut

Aflatoxicosis is a disease found in livestock, domestic animals and humans throughout the world. Unfortunately, the U.S. Food and Drug Administration (FDA) and the U.S. Department of Agriculture (USDA) believe even with good manufacturing processes, aflatoxins are unavoidable contaminants of food and feed.⁸

Ergot: A Dangerous Food Mold

Ergot is a fungus found on rye and other cereal grasses, such as wheat. Historically, eating ergot-contaminated foods during the Middle Ages, such as rye bread, was called “Saint Anthony's fire” as the illness was often cured by visiting the shrine of Saint Anthony, located in a region of France that was free of ergot.⁹

Some historians believe the mold played a role in the Salem Witch Hunt of 1692 and, despite serious safety concerns, it has also been used to control excessive bleeding during menstrual periods and before and after miscarriage.

Laws regulate the amount of ergot allowed in food as ergotoxins are active and extremely dangerous even in minute quantities. One example of an ergotoxin is LSD. Unless well-regulated, ergotoxins have the potential to reach dry cereal and wheat breads.¹⁰

Even in tiny doses, it may help explain changes in behavior sometimes attributed to allergies.¹¹ As your liver is unable to keep up with detoxification, it can result in changes in behavior. If this happens at home, try removing all moldy food types, such as cold cereals, nuts and nut butters or store-bought breads and baked goods for at least three weeks to evaluate changes in behavior.

Health Concerns Triggered by Moldy Food

If you've opened a bag of moldy bread, do not sniff it! Inhaling mold spores may trigger difficulty breathing, nasal irritation, eye irritation and wheezing.¹² Ingesting mycotoxin contaminated food may result in illness, including liver, gastrointestinal and carcinogenic diseases.¹³

Aspergillus mold, found on meat and poultry and in the environment, can trigger an infection called aspergillosis.¹⁴ The illness is actually a group of illnesses affecting your lungs or even a whole-body infection. Invasive aspergillosis is the most serious type, invading your blood vessels and spreading throughout your body.

With an aspergillosis infection you may grow a "fungal ball" in your lungs, which is a tangled ball of fungal fiber called an aspergilloma. This may lead to hemoptysis (coughing up blood), wheezing, shortness of breath, fatigue and weight loss. Depending on the severity of the condition, your physician may recommend antifungal medications, steroids, surgery or embolization.¹⁵

Reduce Mold Growth on Your Food

The average U.S. consumer throws away nearly 40% of the food they purchase, usually because it has gone bad.¹⁶ You can drastically reduce this kind of waste by learning the basics of food storage and planning your meals before you go to the grocery store.

A thorough cleaning of your refrigerator once a week or so is also important to reduce the spread of mold spores and to keep your refrigerator sanitary.

Any bacteria or parasite capable of causing food poisoning may be transferred to refrigerator shelves and crisper drawers.¹⁷ While cleaning, it's a good time to use up the food you can and discard anything spoiled. The simplest time to schedule a cleaning is right before trip to the grocery store or farmers market when the refrigerator contains the least amount of food.

When you invest time and money into the food you purchase, you also want to be sure it lasts as long as possible. The following suggestions may help reduce mold growth:¹⁸

- Clean out the inside of the refrigerator with 1 tablespoon of baking soda in 1 quart of water and rinse with fresh clean water and then dry it.
- Keep any dishcloth, towels, sponges and mops clean and fresh. If they smell musty, they're likely spreading mold.
- Seek to keep your home's humidity level below 40%.
- Check foods before you purchase them at the grocery store for visible signs of mold and for expiration dates.

What to Do When You Find Mold on Your Food

If you find mold on your food, do not smell it as it's likely you will inhale spores, potentially triggering a nasty respiratory problem. Instead, throw the food out in a small paper bag, in a covered trash can away from children or animals.¹⁹

Clean the area where the food was stored and check nearby items the moldy food may have touched. Mold spreads quickly between fruits and vegetables. While it's best to throw out any moldy food, you may be able to salvage hard cheese, dry-cured ham and firm produce.²⁰

As it's difficult for the mold to penetrate deeply into these products, you may be able to cut at least 1 inch around and below the mold spot, keeping the knife out of the mold to prevent cross-contamination of other areas. After trimming the mold, store the food in a fresh container.

Sources and References

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