



OTHER HAZARDS

Food is contaminated when it contains a hazard that is naturally present or that is introduced by workers through unsafe food handling practices. The most common hazards are biological, specifically microorganisms. While not a common cause of foodborne illness, chemical and physical hazards can also make food unsafe to eat.

Biological Hazards

A foodborne intoxication occurs when a person eats a food containing toxins (or poisons). Biological toxins can be produced by harmful bacteria or mold found in food or they could come from a plant and seafood.

Common Biological Toxins in Food

Toxin	Source	Associated food	Prevention
Ciguatera toxin	Fish that have eaten algae containing the toxin	Amberjack, barracuda, grouper, and snapper	Cooking does not destroy toxin; buy all fish from an approved supplier.
Scombroid toxin	Histamine produced by bacteria in some types of fish when fish is held at unsafe temperatures after harvest.	Primarily in tuna, bluefish, mackerel, skipjack, roundfish, and bonito; also in mahi-mahi, marlin, and sardines	Cooking does not destroy toxin; buy fish from an approved supplier.
Shellfish toxins	Shellfish that have eaten some types of algae that naturally contain the toxin	Shellfish, especially mussels, clams, and scallops	Cooking does not destroy toxin; buy shellfish from an approved supplier.
Systemic fish toxins	Naturally occurring in some types of fish	Pufferfish, moray eels, and freshwater minnows	Cooking does not destroy toxin; buy fish from an approved supplier.
Plant toxins	Naturally occurring in some types of plants	Poisonous plants or plant parts, such as fava beans, rhubarb leaves	Cooking does not destroy all toxins.
Fungal toxins	Naturally occurring in some types of fungi	Poisonous varieties of mushrooms and other fungi	Cooking does not destroy all toxins; buy wild mushrooms from an approved supplier.

Chemical Hazards

Chemical hazards can also cause a foodborne intoxication. The most common sources of chemical hazards are toxic metals, chemicals, and pesticides.

Common Chemical Toxins that Can Contaminate Food

Chemical	Source	Associated food	Prevention
Toxic metals	Utensils and equipment made from potentially toxic metals, such as lead, copper, brass, zinc, antimony, cadmium, and/or galvanized metal	<p>Any food, but most likely high-acid food, such as tomatoes, pickles, and citrus foods. The acid from high-acid food can cause the metal to leach into its liquid.</p> <p>Carbonated water used to make carbonated beverages is acidic and might leach copper from copper water supply lines.</p>	<ul style="list-style-type: none">• Only use food-grade utensils and equipment.• Never use enamelware.• Never use equipment or utensils made from potentially toxin metals.• Use a backflow-prevention device to prevent carbonated water from flowing back into the copper water lines.
Chemicals	Cleaning products, polishes, lubricants, and sanitizers	Any food that is not properly stored or handled can become contaminated with chemicals	<ul style="list-style-type: none">• Use and store according to manufacturer instructions.• Store away from food, utensils, and food equipment.• Never use tools used to dispense chemicals for use with food.• If chemicals are transferred to another container or spray bottle, clearly label each container.• Use only food-grade lubricants or oils on kitchen equipment or utensils.
Pesticides	Chemicals used in food preparation and storage areas to control pests, such as rodents and insects	Any food	<ul style="list-style-type: none">• A licensed professional should only apply pesticides.• Cover or store all food before pesticides are applied.

Physical Hazards

Physical hazards are items that accidentally get into food and cause an injury. Examples of common physical hazards are as follows:

- Stones, metal fragments – can cause choking, broken teeth, cuts, infection; may require surgery to remove; sources include fields, buildings, machinery, fields, wire, employees
- Insulation -- can cause choking; long-term if asbestos; sources include building materials
- Bone -- can cause choking, trauma; sources include fields, improper plant processing
- Plastic -- can cause choking, cuts, infection; may require surgery to remove; sources include fields, plant packaging materials, pallets, employees
- Personal effects -- can cause choking, cuts, broken teeth; may require surgery to remove; source is workers

Allergens

A food allergy is an immune system response to a food that the body mistakenly believes is harmful. Once the immune system decides that a particular food is harmful, it creates specific antibodies to it. The next time one eats that food, the immune system releases massive amounts of chemicals to protect the body. These chemicals trigger allergic symptoms that can affect the respiratory system, gastrointestinal tract, skin, or cardiovascular system.

Scientists estimate that millions of Americans suffer from true food allergies. At the present time, there is no cure for food allergy. Avoidance is the only way to prevent an allergic reaction.

Although an individual could be allergic to any food, foods such as fruits, vegetables, and meats, are not common causes of food allergies. The following eight foods account for nearly 90% of all food allergies: milk, egg, peanut, tree nuts (walnut, cashew, etc.), fish, shellfish, soy, and wheat.

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