



Food Irradiation Q&A's

Question: *Is irradiated food safe to eat?*

Answer: *No.*

- Irradiated food has caused a myriad of serious health problems in laboratory animals that ate irradiated foods, including premature death, fatal internal bleeding, a rare form of cancer, stillbirths and other reproductive problems, mutations and other genetic damage, organ malfunctions, stunted growth and vitamin deficiencies.
- Irradiation can lead to the formation of Unique Radiolytic Products (URPs), mysterious chemical compounds that have not been adequately identified or studied for their potential harm to humans. One such type of chemical, called cyclobutanones, was recently found to promote the cancer-development process in rats, cause genetic damage in rats, and cause genetic and cellular damage in human and rat cells. This chemical is a radiation byproduct of palmitic acid, a type of fat that occurs in virtually every food.
- The World Health Organization did not follow its own recommendation to study the toxicity of URPs before proposing in Nov. 2000 that the international irradiation dose limit — equal to 330 million chest x-rays — be removed.
- Irradiation leads to the formation of free radicals, which can set off chain reactions in the body that destroy antioxidants, tear apart cell membranes, and make the body more susceptible to cancer, diabetes, heart disease, liver damage, muscular breakdown and other serious problems.
- Irradiation does nothing to remove the feces, urine, pus, vomit and tumors often left on beef, chicken, and lamb after processing in filthy and inhumane slaughterhouses. These conditions have worsened because government has allowed companies to increase the number of carcasses processed each hour by increasing conveyer belt speeds (more than 300 cows per hour and 100 chickens per minute). Public oversight of slaughterhouses has also been reduced.
- Irradiation can spawn mutant forms of *E. coli*, *Salmonella* and other harmful bacteria, making them more difficult to kill.
- Irradiation destroys vitamins, nutrients and essential fatty acids, including up to 80 percent of vitamin A in eggs and half of the beta carotene in orange juice. In some foods, irradiation can intensify the vitamin and nutrient loss caused by cooking, leading to “empty calorie” food.

- Irradiation can lead to the formation of chemical known and suspected to cause cancer and birth defects, including benzene, toluene and methyl ethyl ketone.
- Irradiation can corrupt the flavor, texture and other physical properties of some foods, leading to meat that smells like a wet dog, onions that turn brown, and eggs that are runny.
- Irradiation kills beneficial microorganisms, such as the yeasts and molds that can help keep botulism at bay, as well as the microorganisms that create the aromas that tell us when food has gone bad.

Question: *Are irradiation facilities safe?*

Answer: *Not always.*

- According to the U.S. Nuclear Regulatory Commission, 45 accidents and violations at U.S. (food and medical-supply) irradiation plants were recorded from 1974-89, at least two of which were covered up by irradiation company executives, some of whom were criminally charged in federal court and given prison time.
- Irradiation plant workers are exposed to dangerous radiation hazards. Several have died or been exposed to near-fatal doses of radiation at facilities throughout the world.
- Certain irradiation plants emit smog-forming, ground-level ozone into the environment.
- Plants that use radioactive cobalt-60, which must be replenished after several years of use, endanger neighbors and the environment. Most of the cobalt-60 is mined in Canada and has to be transported great distances, raising the possibility of accidents involving radioactive materials.
- The U.S. Department of Agriculture is helping a private company develop an irradiation machine that uses cesium-137, a dangerous radioactive waste left over from the production of nuclear weapons. In 1988, a container of cesium-137 sprung a leak at an irradiation facility near Atlanta, leading to a \$40 million, taxpayer-funded cleanup. Several thousand radioactive food and medical supply containers reached the market and were never recalled.
- Irradiation encourages the proliferation of nuclear technology at a point in history when a vast majority of Americans and people throughout the world are demanding that we back away from the use of nuclear material. A company associated with a Canadian outfit (MDS Nordion) that has sold nuclear technology to China, India and Pakistan owns a facility in Florida (Food Technology Services, Inc).

Question: *Did U.S. officials thoroughly study irradiation before legalizing it?*

Answer: *No.*

- The FDA relied on only 7 of more than 400 scientific studies to determine that irradiated food is safe to eat. Of those seven, only three were published in peer-reviewed journals. In two of the studies, researchers used doses of radiation at or far below those approved by the FDA, rendering the studies virtually if not completely useless. Three of the studies were written in French, for which the FDA has no English translations. The FDA has rejected every study that has drawn into question the safety of irradiation.
- In legalizing food irradiation, the FDA relied on laboratory research that did not meet modern scientific protocols, which federal law requires.

- In subsequent rulings, the FDA relied upon dozens of studies that the agency’s own scientists had declared “deficient.”
- The FDA has not followed its own rules and regulations that require elaborate toxicological experiments be conducted before legalizing irradiation. In 2000, for instance, the FDA legalized the irradiation of eggs, juice and sprouting seeds without any specific toxicology data on these foods.
- The FDA has begun to conduct and approve expedited reviews of food irradiation applications from industry, admitting—in at least one case—that certain packaging materials may not be safe when exposed to radiation.

Question: *Can the research into food irradiation be trusted?*

Answer: *Not all of it.*

- Research conducted at public universities is increasingly industry-funded. A prominent Iowa State University professor who’s been researching food irradiation for many years was just hired by Titan Corporation, a leading irradiation company (and erstwhile defense contractor). And, Titan recently entered a research contract with Texas A&M University.
- Much of the early research into food irradiation, done during the 1960s and 1970s, was conducted by an Army-hired firm that was eventually convicted of fraud for fabricating the results of its work on other research projects.
- Very little toxicological testing has been done on irradiated food during the past 20 years. New, updated tests should be performed with the benefit of improved scientific methods.

Question: *Is food irradiation good for the economy?*

Answer: *No.*

- Food irradiation encourages the further consolidation of the food production, processing, distribution, marketing and retailing industries by giving the advantage to giant companies that can afford this prohibitively expensive technology. In the process, the food product marketplace is further homogenized and family farmers are put at a greater disadvantage.
- A top official with the U.S. Department of Agriculture recently stated publicly that “free trade” as envisioned by the World Trade Organization and other international organizations would be “impossible” without irradiation. If the U.S. government allows imported food to be irradiated—as it recently proposed—much more of our fruit, vegetables and meat will come from other countries, resulting in the closure of farms and the loss of agricultural jobs here at home. Plus, this imported food will be older, more bland and less nutritious than food grown in the U.S. In Brazil alone, which is being touted as the “fruitbasket of the world,” 24 food irradiation plants are being planned—enough capacity to irradiate several billion pounds of food a year.
- Food irradiation adds unnecessarily to the cost of food when less expensive alternatives are available. A recent survey by Center for Science in the Public Interest showed that irradiated ground beef being sold in the Midwest cost up to 75 cents more per pound—more than 40 percent higher than non-irradiated beef—and that the irradiated beef contained 25 percent fat.

Question: *Are consumers receiving credible information about irradiation?*


Answer: *No.*

- Food irradiation companies have been increasingly successful in persuading the media to compare irradiation to “pasteurization,” which is an entirely different process by which microorganisms are killed by quickly heating and cooling food. Public Citizen has filed false advertising complaints with the U.S. Federal Trade Commission against two meat companies—Omaha Steaks and Huisken Meats—that have either used the phrase “electronically pasteurized” or outright failed to mention in their advertising material that their products have been irradiated.
- Companies that irradiate with “e-beam” technology such as the Titan Corporation are seeking to distinguish themselves from companies that irradiate with gamma rays from radioactive sources. This is highly misleading, as both e-beam (electrons fired from a linear accelerator at nearly the speed of light) and gamma rays (high-frequency electromagnetic waves) are forms of ionizing radiation—meaning that they obliterate the bonds that hold atoms and molecules together, form new chemical compounds and destroy nutrients.
- Furthermore, Titan and other irradiation companies are comparing irradiating food with cooking food in a microwave oven. This comparison is bogus. The radiation used to irradiate food is ionizing, meaning that it drastically changes the chemical composition of food. Microwave radiation is non-ionizing, meaning that the chemical structure of food is largely left intact.
- Many “unbiased” supporters of food irradiation in reality work on behalf of the food industry. The corporate-funded American Council on Science and Health, for instance, is chaired by A. Alan Moghissi, whose anti-environment and anti-consumer positions include opposing the removal of asbestos from schools and proclaiming that higher levels of carbon dioxide in the atmosphere would be a good thing for the agriculture industry.

Question: *Should vegetarians care about irradiation?*

Answer: *Yes.*

- Food processing companies aren’t irradiating just meat. Fruit and vegetables are being irradiated, too—all of which suffer nutrient destruction as bad as or worse than in meat. Spices such as garlic powder and paprika are being irradiated as well, and can be added to processed foods without being labeled.
- Irradiation does nothing to prevent *E. coli* and other harmful bacteria from winding up in drinking water supplies. Just last May, *E. coli*-tainted drinking water killed at least seven people and sickened more than 2,000 others in Ontario, Canada.
- Currently, imported fruits and vegetables are not allowed to be irradiated. However, in October 2002, the USDA legalized irradiation to control certain fruit flies and weevils. Fully one-fourth of all our fruits and vegetables are imported, and all produce could eventually be irradiated.

 <p>Public Citizen Critical Mass Energy and Environment Program</p>	<p>For more information, contact us at: 202-546-4996 cmep@citizen.org www.citizen.org/cmep</p>
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