

Is Ultrapasteurized Milk Hurting Your Health?

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STORY AT-A-GLANCE

- › Ultrapasteurized milk arose in response to the emergence of pasteurization-resistant pathogens like *Listeria* and antibiotic-resistant *Salmonella* that couldn't be killed using lower temperatures
- › The shift toward grain-based diets for dairy cows, encouraged by the U.S. Department of Agriculture since the mid-1980s, fosters antibiotic resistance and exacerbates milk contamination issues
- › Ultrapasteurization, which uses temperatures significantly higher than traditional pasteurization, has detrimental effects on milk nutrients, enzymes and proteins
- › A 2019 study found that all forms of milk processing tested caused "formation of protein oxidation products which impair spatial learning and memory in rats." That includes boiling, microwave heating, spray drying and freeze-drying, and ultrapasteurization exposes the milk to far higher heat than boiling (284 F compared to 212 F)
- › For optimal health benefits, opt for organic, grass fed raw (unpasteurized) milk, ideally certified by the American Grassfed Association (AGA), which ensures the highest quality grass fed products

Last winter, I spent nearly a month in Mexico and aimed to maintain my daily habit of drinking a glass of milk. My preference is organic milk, but the only type I could find was ultrapasteurized milk, which is widely available in grocery stores there. I was unaware of the risks associated with this product and feel it's important to share my concerns with you and why I suggest you seriously consider avoid ever using this product.

In a recent article,¹ Sally Fallon Morell, author of “Nourishing Traditions” and president of the Weston A. Price Foundation, discusses the implications of ultrapasteurization of milk, which arose in response to the emergence of pasteurization-resistant pathogens like *Listeria*, and antibiotic-resistant *Salmonella*.

It began in 1983 when an outbreak of listeriosis sickened 49 individuals, resulting in 14 fatalities. The outbreak was traced back to pasteurized milk, yet inspections of the plant where the milk was made uncovered no evidence of improper pasteurization.

Regulatory officials involved in the investigation noted that *Listeria* is notably resilient to heat and that the intracellular nature of *L. monocytogenes* might allow it to survive pasteurization. “These results ... raise questions about the ability of pasteurization to eradicate a large inoculum of *L. monocytogenes* from contaminated raw milk,” they wrote.²

Antibiotic-Resistant Pathogens That Survive Pasteurization

Further outbreaks occurred in 1984 and 1985, linked to *Salmonella typhimurium*. Disturbingly, investigations revealed this pathogen had developed resistance to commonly used antibiotics. An estimated 168,791 and 197,581 people were sickened and at least five people died in these outbreaks.

“Health officials concluded that the milk was contaminated after pasteurization by *Salmonella*, which persisted in the plant despite efforts to eradicate it,” Fallon writes.³ But just how did the *Salmonella* become so hardy?

As explained by Fallon, in the mid-1980s, the U.S. Department of Agriculture (USDA) started urging dairy farmers to enhance their efficiency by confining cows to barns and providing them with grain-based diets, which necessitates the use of antibiotics to keep the animals healthy. This, in turn, set the stage for antibiotic resistance to develop.

“Large amounts of grain are not a natural diet for cows,” Fallon explains,⁴ “nor is it natural for cows to live in close quarters with no way of distancing themselves from their fresh manure. To keep the cows alive in such conditions

of filth, antibiotics became necessary. It was a recipe for antibiotic resistance and stronger, mutated pathogens.

With the outbreaks of the mid-1980s, the dairy industry realized that under these new conditions, pasteurization was not working. Unfortunately, their solution to the problem was not to go cleaner, but to go hotter. Enter UHT-ultra-high temperature processing.

Old-fashioned, 'low-temperature' pasteurization takes milk to 150 F – hot enough to destroy most of the enzymes in milk, many of which protect against pathogens, while others attach to vitamins and minerals in order to make them easy to absorb. High-temperature pasteurization (also called flash pasteurization) takes milk to 161 F, hot enough to kill all the enzymes and denature some of the proteins.

Ultrapasteurization takes milk to 284 F – hotter, much hotter, than the boiling point – by rushing this most fragile, delicate food past superheated stainless steel plates.

The process kills bacterial endospores – tough, dormant structures produced by many pathogens, which allows them to 'hibernate' and come back to life when conditions are sufficiently favorable (such as the small intestine). The process also kills everything else, including nutrients, enzymes, and proteins."

Ultrapasteurized Milk Is Harmful to Your Health

According to Parmalat,⁵ which sells ultrapasteurized milk in Europe, the product is "the same as fresh milk" and "contains a lot of nutrients that are good for your body, just like fresh milk." Scientific studies, however, strongly suggest otherwise.

For example, a 2019 study⁶ from China found that all forms of milk processing tested caused "formation of protein oxidation products which impair spatial learning and memory in rats." That includes boiling, microwave heating, spray drying and freeze-drying, and as noted by Fallon, ultrapasteurization exposes the milk to far higher heat

than boiling (284 F compared to 212 F). So, clearly, ultrapasteurized milk doesn't even come close to real milk.

“All four techniques (even freeze-drying) caused ‘various degrees of redox state imbalance and oxidative damage in plasma, liver, and brain tissues,’” Fallon writes.⁷ “Feeding damaged milk proteins to rats resulted in learning and memory impairment – why would any parent want to give UHT [ultra-high temperature] milk to their kids?”

According to the authors of that study, the industry ought to “control milk protein oxidation and improve the processing methods applied to food.” Other researchers have come to similar conclusions.

A 2021 study⁸ in the journal *Polymers* noted that “The major protein modifications that occur during UHT treatment are denaturation and aggregation of the protein, and chemical modifications of its amino acids.”

Damaged milk proteins may contribute to allergic reactions, Fallon notes, and milk allergy is now commonplace. According to the Asthma and Allergy Network, an estimated 20 Americans die each year from anaphylactic shock caused by conventional milk⁹ – a shocking reminder of just how far modern milk has strayed from real, raw milk, which rarely causes any allergic reactions.

One-Third of Conventional Milk Contains Risky Contaminants

Nonorganic pasteurized milk also has other downsides. Aside from potentially hazardous pathogens, conventional milk has also been found to contain a variety of drugs and agricultural chemicals, including:^{10,11}

- Antibiotics such as amoxicillin, oxytetracycline and sulfadimethoxine, as well as sulfathiazole and sulfamethazine, both of which are banned for use in dairy production due to human health concerns, which include acute and potentially life-threatening allergic reactions.¹²

- Pesticides such as chlorpyrifos (an insecticide known to disrupt brain development and cause brain damage, neurological abnormalities, reduced IQ and aggressiveness in children), atrazine (linked to reproductive harm in animals, birth defects and cancer), diazinon, cypermethrin and permethrin (a synthetic pyrethroid¹³ insecticide linked to behavior problems in children).

None of these pesticides and antibiotics were found in organic milk samples, however. As noted by the authors:¹⁴

“Among the conventional samples, residue levels exceeded federal limits for amoxicillin in one sample (3%) and in multiple samples for sulfamethazine (37%) and sulfathiazole (26%). Median bGH and IGF-1 concentrations in conventional milk were 9.8 and 3.5 ng/ml, respectively, twenty and three times that in organic samples ...

Current-use antibiotics and pesticides were undetectable in organic but prevalent in conventionally produced milk samples, with multiple samples exceeding federal limits. Higher bGH and IGF-1 levels in conventional milk suggest the presence of synthetic growth hormone.”

Why You Shouldn't Avoid Milk

While it may sound as though avoiding milk altogether might be your best bet, that's not the case at all. As detailed in [“The Amazing Benefits of Dairy Fat,”](#) whole or full-fat dairy contains the odd-chain saturated fats (OCFAs) pentadecanoic acid (C15:0) and heptadecanoic acid (C17:0), which have significant health benefits.

These OCFAs are primarily found in dairy fat, and your body cannot make C15:0, so you must get it from your diet. This fat is so beneficial that researchers now speculate that it may be an overlooked essential fat. Higher circulating levels of OCFAs in the blood is associated with lower risks of obesity, chronic inflammation, cardiovascular disease, metabolic syndrome, Type 2 diabetes, NASH, COPD, pancreatic cancer and all-cause mortality.

And, importantly, OCFAs do not have an inhibitory effect on glucose burning because they are not converted to acetyl-CoA; rather, they enter the Krebs Cycle as succinyl-CoA. What this means in practical terms is that you don't need to restrict your consumption of full fat dairy, as it won't affect your ability to burn glucose.

Raw organic grass fed milk also has important immune-boosting benefits. According to a 2015 study¹⁵ in The Journal of Allergy and Clinical Immunology, children who drank raw organic grass fed milk had 30% lower rates of viral and respiratory tract infections, including regular colds, than those who drink ultrapasteurized milk. So, milk can indeed “do your body good,” as the old marketing slogan used to say, but you must drink the right kind of milk.

Organic Raw Grass Fed Milk Is the Safest Option

The healthiest and safest variety of milk is raw, unpasteurized milk sourced from organically raised, grass fed or pastured cows. Contrary to widespread belief, raw milk is significantly less likely to harbor hazardous bacteria linked to foodborne illness compared to pasteurized counterparts.

Despite assertions by the U.S. Food and Drug Administration¹⁶ and the USDA¹⁷ regarding the increased health risks associated with raw milk consumption, empirical evidence from foodborne illness data contradicts these claims. According to an investigation by Dr. Ted Beals,¹⁸ the likelihood of falling ill from raw milk is 35,000 times lower than from other food sources.

Similarly, a 2012 investigation by Mark McAfee, CEO of Organic Pastures Dairy – which included a FOIA request to the CDC for data on deaths claimed to be related to raw milk – revealed:¹⁹

- Zero deaths attributed to raw milk consumption in California over a 37-year span
- The two deaths the U.S. Centers for Disease Control and Prevention lists as being related to raw milk were actually due to illegal Mexican bathtub cheese, and not raw milk produced in the U.S.

- The last people to die from milk died from contaminated pasteurized milk
- According to a Cornell study which used CDC data, 1,100 illnesses were linked to raw milk between 1973 and 2009. Meanwhile, 422,000 illnesses were traced back to pasteurized milk. And, while no one died from raw milk, at least 50 Americans died from pasteurized milk or pasteurized cheese

Both FDA and USDA caution against the potential presence of disease-causing bacteria in raw milk, yet fail to acknowledge that these pathogens stem from industrial farming practices, which contribute to animal health issues. Animals raised on pasture under healthier conditions typically do not harbor harmful levels of pathogenic bacteria.

Their cautionary stance on raw milk consumption would only be warranted if explicitly targeting unpasteurized milk from concentrated animal feeding operations (CAFOs), where risks are indeed elevated. Raw organic grass fed milk, when handled according to proper sanitary protocols, seldom poses health hazards as organic dairy farms are mandated to adhere to stringent guidelines, enhancing safety measures.

Consider Goat Milk as an Alternative

I, along with many others, have a distinct preference for raw goat's milk over cow's milk. This choice isn't just about taste; it's also influenced by the nutritional and physical properties of goat milk. One of the notable differences between goat's milk and cow's milk is the composition of fat. Goat milk has smaller fat globules and a different type of fat, which means it naturally remains more homogenous.

Unlike cow's milk, which often requires mechanical homogenization to prevent its fat from separating, goat milk naturally maintains a consistent mixture. This characteristic not only affects its texture and taste, making it smoother and more palatable, but it also makes goat milk easier to digest for many people. Additionally, goat milk predominantly contains A2 casein.

Unlike most cow's milk, which can have both A1 and A2 casein, goat's milk, along with sheep and buffalo milk, generally contains the A2 type of casein that is considered to be

easier to digest for some people and less likely to cause the adverse effects associated with A1 casein. This makes goat's milk a preferred option for those sensitive to dairy products derived from cows with A1 casein.

Most Store-Bought Milk Is Ultrapasteurized

Upon its introduction to the U.S. market in the early 1990s, ultrapasteurized milk was sold in specialized sterile containers, originally developed in Europe. This product required no refrigeration and boasted a shelf-life of up to nine months.

However, American consumers were leery about buying unrefrigerated milk. Consequently, the industry reverted to traditional packaging methods and relocated the product back to the refrigerated aisle. Fast-forward to today and most of the milk sold is ultrapasteurized, even if it's organic.

Fermented products like sour cream and cheese, however, are typically made from pasteurized milk, but not ultrapasteurized, as milk that has undergone ultra-high heat treatment cannot ferment. "That's another way of saying that UHT milk is indigestible, as fermentation is a form of digestion," Fallon notes. She goes on:²⁰

"A recent listeria outbreak causing two deaths and more than 20 hospitalizations initiated a Feb. 5 recall of pasteurized cheese, yogurt, and sour cream – an indication that pasteurization doesn't ensure safety in fermented dairy foods.

UHT milk has served as a temporary fix for the dairy industry, but it will ultimately be its undoing. Milk consumption in the United States has declined by half since 1970, and the dairy industry has been unable to reverse the trend. It blames competition from sodas and plant-based 'milk' but won't admit that UHT processing makes milk unpalatable, allergenic, and indigestible."

Where to Find Raw Milk

Though organic milk stands as a preferable option compared to conventional counterparts, it's crucial to recognize that any organic milk sold in mainstream grocery stores is either pasteurized or ultrapasteurized, thus compromising some of its advantages. Pasteurization, responsible for eliminating harmful bacteria, also eradicates beneficial bacteria and may harm essential enzymes.

To learn more, see RealMilk.com's article, "The 15 Things That Milk Pasteurization Kills."²¹ What's worse – regulatory loopholes permitting CAFO dairies to produce "organic" milk, even though the cows are not grass fed on pasture? I discuss this in "[How Organic is Your Organic Milk?](#)"

For optimal health benefits, opt for organic, grass fed raw (unpasteurized) milk, ideally certified by the American Grassfed Association (AGA), which ensures the highest quality grass fed products.

The AGA website allows you to search for AGA-approved producers²² certified according to strict standards that include being raised on a diet of 100% forage; raised on pasture and never confined to a feedlot; never treated with antibiotics or hormones; and born and raised on American family farms.

Other resources that can help you find raw grass fed milk locally include Raw-Milk-Facts.com²³ and RealMilk.com.²⁴ They can tell you what the status is for legality in your state, and provide a listing of raw dairy farms in your area. The Farm to Consumer Legal Defense Fund²⁵ also provides a state-by-state review of raw milk laws.²⁶ California residents can also find raw milk retailers using the store locator available at www.rawfarmusa.com.²⁷ As noted by Fallon:²⁸

"My prediction: Within 20 years UHT milk will be a thing of the past, recognized as a misuse of technology, a rust belt solution that ruins the goodness of Nature's perfect food.

We have many elegant technologies today – stainless steel, on-site testing, a national cold chain, and moveable electric fencing that makes grazing feasible – which allow us to get clean raw milk safely to every person in America. 'Get

bigger, go hotter' is not the future. The future is small and medium grass-based farms selling raw milk directly to grateful customers."

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