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FOOD SAFETY RISKS ASSOCIATED WITH CONSUMPTION OF RAW MILK

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Introduction

Some consumers are turning to raw (unpasteurized) milk because of perceived preferences in flavor or suggested health benefits. Regulations against the sale of raw milk, instituted in the 1900s to prevent unsuspecting consumers from being exposed to the hazards of unpasteurized milk, are now being overturned by state legislatures due to the consumer wishes. This has in turn created a market which producers have begun to make raw milk more available to consumers. With increasing availability, we have also seen a rise in outbreaks of illness from harmful microorganisms found in raw milk *(1)*. Unfortunately, current and potential consumers of raw milk may not fully understand the risks associated with its consumption. We'll discuss some of the illnesses linked to raw milk; consumers who are most likely to become ill; how raw milk becomes contaminated; and why you can't test at home or otherwise tell if raw milk contains harmful microorganisms.

What are the risks associated with consumption of raw milk?

From 2007 to 2009, 30 illness outbreaks were reported to the Centers for Disease Control and Prevention (CDC) and were attributed the consumption of raw milk, which increased to 51 from 2010-2012 *(1)*. In these 81 outbreaks, 979 people became ill. The types of illnesses associated with consumption of raw milk include campylobacteriosis, salmonellosis and listeriosis, which all can be generalized as infections caused by different bacteria we commonly call pathogens. Infections with these pathogens can cause diarrhea, vomiting, dehydration, reactive arthritis, septicemia, spontaneous abortion and death in the most severe cases.

Who is the most at risk of illness?

Infants and young children, elderly, pregnant women, and people whose immune systems are compromised from underlying illnesses such as cancer, HIV or diabetes are at a much higher risk of becoming ill and of having more serious illnesses from consuming a pathogenic bacterium in food. This is because their immune systems are not able to respond the same way that a typical healthy adult would. Even people within the same age group can have differences in the way their immune systems react when exposed to a harmful microorganism. Members of a family can all consume a pathogen and not have similar outcomes due to the differences in their immune status. Giving raw milk to high-risk groups and especially to infants and young children is a dangerous practice.

How can raw milk make me sick?

Raw milk has a much higher risk of being contaminated by pathogenic bacteria compared to pasteurized milk, which is heated specifically to kill these organisms. Once consumed, even small numbers of pathogens can make susceptible people ill. Bacterial pathogens are most commonly associated with raw milk outbreaks but parasites and even viruses also can be transmitted through milk.

Some bacterial pathogens that are most commonly associated with raw milk include *Campylobacter*, *Salmonella*, *Listeria*, and Shiga toxin-producing *Escherichia coli*. When humans are exposed to one of these types of bacteria, a variety of symptoms can occur such as headaches, nausea, diarrhea, fevers, stomach cramping and vomiting. These sicknesses also can develop into life-threatening diseases such as Guillain-Barre syndrome (*Campylobacter*), which can cause paralysis; hemolytic uremic syndrome (Shiga toxin-producing *Escherichia coli*), which can result in kidney failure and stroke; and finally, meningitis and stillbirths or miscarriages (*Listeria monocytogenes*) that drive a very high rate of death amongst infected individuals. Each ill person's symptoms and outcomes can differ depending on the type of bacteria, the amount of contamination, and the person's immune defenses.

If animals are healthy, can harmful bacteria be present in their milk?

Yes. Even healthy animals can carry pathogens that contaminate milk. This most commonly occurs when these pathogens are shed in feces. During milking and through normal husbandry, feces is common around a cow's udder and can easily get into the milk during milking. Other sources, such as milking equipment and holding tanks which are not properly cleaned and sanitized, may be points of raw milk contamination. Once the bacteria are present in the milk, even if it is a small amount, the bacteria might multiply and grow in the milk prior to consumption. There have been multiple scientific research studies across the U.S. that have demonstrated raw milk to be periodically contaminated with pathogenic bacteria.

Are there tests or other ways to make sure my raw milk is safe to consume?

There is no test that you can do at home to make sure your raw milk is safe to consume. Many dairy farms may test for some indicators of fecal contamination, like coliform bacteria, but this is not a fail-safe assurance that the milk is safe to consume. There have been many instances where these tests indicate milk is within safe thresholds for these organisms and yet still has pathogens that subsequently made people ill. In addition, testing results may not be available until after the product is consumed due to the amount of time the testing requires. It's important to remember that raw milk contaminated with pathogens still looks, smells and tastes fine. The best way to assure that the milk you feed your family is safe is to only purchase pasteurized milk.

Are there other resources to help me answer questions about raw milk?

Listed below are some resources to help answer your questions about the risks associated with raw milk. It is important to make an informed decision when it comes to consuming raw milk.

- Centers for Disease Control and Prevention (CDC) Food Safety and Raw Milk cdc.gov/foodsafety/rawmilk/raw-milk-index.html
- CDC Raw Milk Questions and Answers cdc.gov/foodsafety/rawmilk/raw-milk-questions-and-answers.html
- Food and Drug Administration, The Dangers of Raw Milk: Unpasteurized Milk Can Pose a Serious Health Risk fda.gov/Food/ResourcesForYou/Consumers/ucm079516.htm
- Myths About Raw Milk foodsafety.gov/keep/types/milk/index.html

References

1. Mungai, E. A., C. B. Behravesh, and L. H. Gould. 2015. Increased Outbreaks Associated with Nonpasteurized Milk, United States, 2007-2012. *Emerging Infectious Diseases*. 21:119-122.

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