



Department of Health

**Bureau of Environmental Health
and Radiation Protection**

"Protect and improve the health of all Ohioans by preventing disease, promoting good health and assuring access to quality care."

Total and Fecal Coliform Bacteria

Answers to Frequency Asked Health Questions

What is coliform?

Total coliform bacteria are a collection of relatively harmless microorganisms that live in large numbers in soils, plants and in intestines of warm-blooded (humans) and cold-blooded animals. Coliform aid in the digestion of food.

Where do you find coliform?

There are 16 species of total coliform found in soils, plants and in animal and human waste. A subgroup of coliform, called fecal coliform bacteria, is different from the total coliform group because they can grow at higher temperatures and are found only in the fecal waste of warm-blooded animals. There are six species of fecal coliform bacteria found in animal and human waste. *E. coli* is one type of the six species of fecal coliform bacteria. A **rare** strain of *E. coli* that you may have seen in the news can cause potentially dangerous outbreaks and illness. This strain is called *E. coli* 0157.

How do you come in contact with coliform?

Coliform are a family of bacteria common in soils, plants and animals. You can come in contact with these bacteria by eating or drinking (ingesting) soils on plants and in water sources such as ponds, lakes and rivers. Fecal coliform bacteria can be found in water contaminated by domestic sewage or other sources of human and animal waste.

Can coliform harm your health?

Finding coliform or other bacteria in water does not necessarily always mean you will become ill. However, if these organisms are present, other disease-causing organisms

may also be present. The presence of fecal contamination is a sign that a possible health risk exists for individuals exposed to this water. Health symptoms related to drinking or swallowing water contaminated with fecal coliform bacteria generally range from no ill effects to cramps and diarrhea (gastrointestinal distress). Sanitarians and those who test water look for total and fecal coliform bacteria to alert people to the possible dangers and suggest proper treatments to remove potentially harmful bacteria from the water. The presence of any fecal coliform in drinking water is of immediate concern as many diseases can be spread through fecal transmission.

How can you reduce coliform contamination?

Groundwater (underground drinking water) in a properly constructed well should have minimal-to-no coliform bacteria. If coliform are found in a well it generally means bacterial and mineral slimes have built up and your well needs to be professionally cleaned by a registered private water system contractor.

Homeowners who use cisterns, springs or ponds as a drinking water source should use treatment devices to disinfect and filter the water to remove coliform bacteria. The presence of total coliform in a water sample means the disinfection system is not working properly. Improperly maintained treatment devices can be sources of contamination.

Home water filters and other water-treatment devices should be changed and maintained in accordance with manufacturer's recommendations.

References:

Ohio Department of Health, Bureau of Environmental Health, Private Water Program, 2004.

Vermont Department of Health, Safe Water Resource Guide, A Fact Sheet on Coliform Bacteria in Water (electronic).

Kentucky Water Watch, Fecal Coliform Bacteria (electronic).

Where Can I Get More Information?

Ohio Department of Health
Bureau of Environmental Health and Radiation Protection
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This fact sheet was developed in cooperation with the Agency for Toxic Substances and Disease Registry

E. coli

Answers to Frequently Asked Health Questions

What is *E. coli*?

Simply put, *E. coli* is a bacterium. *E. coli* is the abbreviated name of the bacterium named Escherichia coli.

Where do you find *E. coli*?

E. coli bacteria are everywhere in the environment. *E. coli* and other kinds of bacteria are found in our intestines and are necessary for us to digest food and remain healthy. *E. coli*, along with other species of bacteria in our intestine, provide many necessary vitamins including Vitamin K and B-complex vitamins. We have billions of *E. coli* bacteria in our bodies, making things we need, helping digest our food and maintaining our health. Because these bacteria can be found in human and animal intestines, you can find these bacteria in the waste (feces) we produce. Sanitarians and those who test water look for these bacteria to alert people to the possible dangers and suggest proper treatments to remove the *E. coli* bacteria from the water.

Can *E. coli* harm your health?

Although most *E. coli* are harmless and are a needed bacterium for health, there are some strains of *E. coli* bacteria that can be very harmful to our health. A **rare** strain of *E. coli* that you may have seen in the news can cause potentially dangerous outbreaks and illness. This strain is *E. coli* O157:H7. This *E. coli* can produce a toxin called Shiga-like toxin (SLT).



How do you come in contact with *E. coli*?

You come into contact with *E. coli* by ingesting (eating and drinking) *E. coli* bacteria-contaminated items. Again, *E. coli* bacteria are everywhere in the environment. Because they are found in virtually all animals, any time we eat something, drink something or put our hands on something that has been near where persons or animals are, there is always the potential we might ingest these bacteria. The harmful *E. coli* bacteria have been found in unpasteurized apple juice and milk, meat (especially ground beef), sprouts, lettuce, salami and in sewage-contaminated water.

What are some of the health effects of harmful *E. coli*?

The harmful strain of *E. coli* bacteria can cause abdominal cramping, diarrhea* and occasionally vomiting. Usually little or no fever is present. Dehydration, even in mild cases of diarrhea, can easily occur. Normally the illness resolves in 5 to 10 days. In 5%-10% of cases, hemolytic uremic syndrome (HUS), which is characterized by kidney failure and loss of red blood cells, can occur. In severe cases of the disease, 2%-7% may have permanent kidney damage. Dehydration is particularly dangerous to small children who are too small to tolerate much blood and fluid loss. The presence of these bacteria can also be very dangerous to the elderly population or persons who are already ill.
* Sometimes persons may have bloody diarrhea.

How to avoid E. coli contamination:

- Always wash hands, counters and utensils with hot, soapy water after they touch raw meat.
- Never use the same plate, tray or utensils for the cooked meat that you use for the raw meat, unless you thoroughly wash the plate, tray or utensils in between uses.
- Do not place ready-to-eat foods near raw meat.
- Cook a hamburger to the temperature of 160° F. Measure the internal temperature at its thickest section of the patty.
- Wash fruits and vegetables thoroughly, especially those that will not be cooked.
- Drink only pasteurized milk, juice or cider.
- Drink water that has been treated with chlorine or other effective disinfectants.
- Use proper water well construction.
- Use disinfection and filtration water treatment systems on other private water sources (cisterns, springs and ponds) to remove harmful bacteria.
- Avoid swallowing lake or pool water while swimming.
- Persons with diarrhea, especially children and their caregivers, should wash their hands carefully with soap after bowel movements to reduce the risk of spreading infection. Anyone with a diarrheal illness should avoid swimming in public pools or lakes for two weeks.
- Persons with diarrhea illness should also avoid sharing baths with others and preparing food for others until the diarrhea has ceased (stopped).



References:

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<http://people.ku.edu/~igmdoc/ecoli.html>)

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<http://www.mayoclinic.org/diseases-conditions/e-coli/basics/definition/con-20032105>

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