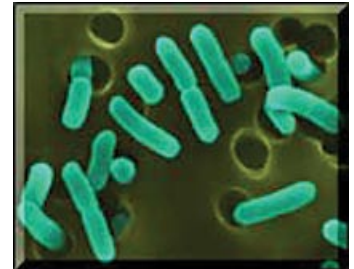


ESCHERICHIA

What is Escherichia?

Escherichia coli, abbreviated *E. coli*, is a bacterium that is found in the large intestine or feces of healthy warm-blooded animals and humans. Most *E. coli* strains are harmless and serve a useful function in the body by stopping the growth of harmful bacteria species and by making necessary vitamins.



What is E. coli O157:H7?

E. coli O157:H7 is a rare, specific strain of *E. coli* that, when swallowed, will release a powerful toxin that will cause severe illness by damaging the lining of the intestine. Hemorrhagic colitis is the name of the acute (having rapid onset and following a short but severe course) disease caused by *E. coli* O157:H7.

What are the symptoms and the incubation time?

After someone ingests a sufficient quantity of *E. coli* O157:H7 (the infective dose being as low as 10 infectious particles), the bacteria travels through the stomach and small intestine, attaches itself to the inside surface of the large intestine and causes inflammation of the intestinal wall. The symptoms of *E. coli* O157:H7 include: severe abdominal cramping, vomiting, little or no fever, and diarrhea that is initially watery, but becomes grossly bloody as the infection period continues. Some infections will only cause watery diarrhea or won't show any symptoms at all. The incubation period (period from ingestion of the bacteria to the start of the symptoms) is typically three to nine days. Both shorter and longer periods have been recorded, but symptoms do not usually appear less than 24 hours after the ingestion of *E. coli*.

How long do the symptoms last?

In most infected individuals, recovery from the symptoms of *E. coli* O157:H7 occurs in five to ten days, with the average time being one week.

How is it diagnosed?

Hemorrhagic colitis (infection with *E. coli* O157:H7) is diagnosed by identifying the bacterium in the feces of the infected individual. Most laboratories that test feces samples do not test for *E. coli* O157:H7, so if infection is suspected, it is important to request that the sample be tested for the bacteria.



Who is at risk?

While everyone is susceptible to becoming infected with *E. coli* O157:H7, children under the age of five, the elderly and the immunocompromised (those with weakened immune systems) are at an increased risk of severe illness and also have a greater chance of developing long term complications from the infection.

Am I at severe risk for disease?

The main complication of *E. coli* O157:H7 infection is Hemolytic Uremic Syndrome (HUS). About 2%-7% of infections will lead to this disease that is characterized by haemolytic anaemia (too few red blood cells in bloodstream resulting in insufficient oxygen delivery to tissues and organs) caused by the destruction of red blood cells and renal failure (permanent loss of kidney function). HUS is a life-threatening condition usually treated in an intensive care unit, with blood transfusions and kidney dialysis often being required.

In addition to HUS, the elderly are also at increased risk of developing a more severe complication called Thrombotic Thrombocytopenic Purpura (TTP), which is known "adult HUS." The symptoms are similar to those of HUS, but TTP also induces fever and neurological (nervous system) symptoms. This illness can have a mortality rate in the elderly as high as 50%.

How does *E. coli* O157:H7 spread?

Healthy cattle are reservoirs ('holding tanks') for *E. coli* O157:H7. The bacteria can live in their intestines and will not make them sick. Meat can become contaminated during slaughter, and the bacteria can be mixed into beef when it is ground. *E. coli* O157:H7 can also live in the intestines of humans and is spread to others by fecal-oral transmission. The bacteria in infected feces can be passed from person to person if poor hygiene habits are practiced. Other sources of infection include: lettuce, cheese curds, salami, unpasteurized juice and swimming in or drinking in sewage-contaminated water.

How can I prevent getting *E. coli* O157:H7?

To avoid infection try to: avoid swallowing recreational water when swimming, thoroughly cook ground beef, avoid unpasteurized dairy products, practice good hygiene (always wash your hands after using the bathroom, and ensure young children do the same), avoid cross-contamination of raw meats with other foods that may be served raw, such as vegetables, wash all vegetables and fruits thoroughly, and only drink water that has been sufficiently treated according to safe drinking water guidelines.

How do I prevent spreading it to others?

To prevent spreading the *E. coli* infection to others, thoroughly wash your hands after using the bathroom, avoid preparing food for others and avoid swimming in recreational waters.

What is the treatment for *E. coli* O157:H7?

Most people who become infected with *E. coli* O157:H7 recover without antibiotics or other specific treatments in 5-10 days. Some medical researchers believe that taking anti-diarrheal medications may increase the risk of complications. Therefore, apart from good supportive care and home therapy treatments, there is no specific treatment for *E. coli* O157:H7.

How prevalent is *E. coli* O157:H7 in surface water/well water?

E. coli O157:H7 comes from animal and human wastes. During heavy rainfalls, snow melts, and other precipitation, it may be washed into creeks, rivers, streams, ponds or groundwater. When these waters are used as sources of drinking water and the water is not properly treated before consumption, *E. coli* may end up in the drinking water with the potential of infecting large amounts of people.

How can we protect our water supplies?

Water from community water systems should meet all health-based standards. If extra precaution is desired, it is advised to bring water to a rolling boil for one minute, and for a longer time period if at higher altitudes. If your water supply comes from a private well, your well should be tested for the presence of *E. coli*. If contamination is a frequent problem, drilling a new well or installing a disinfection unit (using chlorine, ultra-violet light or ozone) is recommended.

Is my water safe? How can I tell?

If you get your water from a public water system, your water system is required by law to notify you if your water is not safe in the United States. In other jurisdictions this may not be always occur. The infrequent sampling and poor treatment of many rural water supplies leaves many rural users at risk. If you have a private well, it should be tested periodically to ensure it is free from contamination.

What are some ways I can treat my water to ensure its safety?

Water, especially water from a private water source like a well, can be treated using chlorine, ultra-violet light, or ozone, all of which act to kill or inactivate *E. coli*. Systems using surface water sources are required to disinfect to ensure that all bacterial contamination, such as *E. coli*, is inactivated.