

Escherichia coli (E. coli) bacteria indicates human health risk from harmful micro-organisms in water that can cause minor illnesses such as ear infections or diarrhoea. The median number of E. coli bacteria in water used for recreation should be below 126 per 100 ml.

We all have E-coli in our stomachs, where low levels of E. coli are normal. There are many types of E.coli, and most are harmless, but some can even cause blood in diarrhoea. Some strains of bacteria (such as one called O157:H7) can cause severe anemia or kidney failure, which can lead to death. High E. coli levels can cause urinary problems. Sanitize all fruits and vegetables by washing them, then peeling them before eating.

Symptoms of E. coli infection

E. coli symptoms change as the infection progresses. Symptoms usually begin two to five days after infection. The initial symptoms include the sudden onset of cramps and abdominal pain, followed by diarrhoea within 24 hours, which can become increasingly watery, and then tainted with blood. People with E. coli infection also often feel nauseated and experience headaches. Less common symptoms include fever and chills.

Diagnosis of E. coli

Toxin-producing E. coli infection can be diagnosed in a doctor's office or hospital by laboratory analysis of a stool sample. Bacteria from patients' stool samples can be compared through laboratory analysis, to match the strains of E. coli in the food or other source from which it came.

Probiotics and E. coli

A deadly E. coli outbreak in Europe was linked to tainted cucumbers and other vegetables. Seventeen people died and over 1,500 became sick with a particularly deadly strain of the bacteria. Medical authorities were uncertain why the unusual strain caused so many severe attacks on kidneys, and seizures, strokes and comas. Research shows that taking a Probiotic supplement can help to prevent and treat certain illnesses, such as those from bacterial pathogens, including E.coli. Probiotics are living micro-organisms (in most cases, good bacteria) that are similar to beneficial micro-organisms found in the human gut. They are also called "friendly bacteria" or "good bacteria."

I've had a digestion problem for ages. After an operation to remove part of a twisted and blocked intestine, I needed an antibiotic. The chemist recommended taking one probiotic capsule (Inner Health Plus) at night, which helped so much that I still take one. I have a lot of faith in chemists' recommendations, but unfortunately some stock supplements containing mercury, manganese and other toxins.

Prevention

- Avoid raw and cooked meats becoming polluted or contacting other foods.
- Wash hands carefully with soap before cooking.
- Cook beef until you see no pink anywhere.
- Don't taste small bites of raw ground beef while you're cooking.
- Don't put cooked hamburgers on a plate that had raw ground or any beef on it before.
- Cook all hamburgers to at least 160°F. Use a meat thermometer to test your hamburgers.
- Defrost meats in the refrigerator or microwave. Don't let meat sit on the counter to defrost.
- Keep raw meat and poultry separate from other foods. Use hot water and soap to wash cutting boards and dishes, if raw meat and poultry have touched them.
- Keep food refrigerated or frozen.
- Keep hot food hot and cold food cold with time limits.
- Refrigerate leftovers right away or dispose of them.
- People with diarrhoea should wash their hands carefully and often, using hot water and soap, washing for at least 30 seconds. People who work in child day-care or elderly centres should wash their hands often.
- In restaurants, always order hamburgers that are thoroughly cooked so that no pink shows.
- Wash, then peel, all fruits and vegetables, especially if eaten raw.
- Hamilton city water is too polluted to wash foods. The hot water from water heaters is much safer than from the cold tap.

Illness from E. coli usually goes away within a week, and does not cause any long-term problems. One should make sure to remain hydrated and get proper nutrition while sick.

Check with your local department of health to find out which restaurants in your area have had problems with sanitation.

Do not allow children to share bath water with anyone who has diarrhea or symptoms of stomach flu

Wash hands thoroughly after any contact with farm animals

Wear disposable gloves when changing diapers of children with diarrhea

Make sure ground meat (such as hamburger patties) reaches an internal temperature of at least 160°F

Avoid drinking any non-chlorinated water

Hemolytic Uremic Syndrome (HUS), a rare but serious complication, follows around 10 percent of E. coli infections. HUS occurs when Shiga toxins get into the bloodstream and cause the part of the kidney that filters toxins out of the blood to break down, causing kidney injury and sometimes kidney failure. Some HUS patients also suffer damage to the pancreas and central nervous system.

Antibiotics are not used as E. coli treatment, as they do not improve the illness, and some studies show that they can increase the risk of HUS.

HUS is treated by hospitalization. Since there is no way to directly cure HUS, treatment includes care to alleviate symptoms.

Preventing infection from E. coli bacteria

Any food that you eat has the potential to be contaminated with E. coli bacteria. This is why it is important to take precautions in preparing food and before eating at restaurants. You should also be aware that E. coli bacteria can survive for several weeks on surfaces, so keeping sink and countertops clean is important.

The sources of E. coli bacteria from 1998-2007 in USA were:

Food 69%

Water 18%

Animals or their environment 8%

Person-to-person 6%

E. coli O157:H7 is most commonly found in cows, although chickens, deer, sheep, and pigs have also been known to carry it. Meat can become contaminated during slaughter, when infected animal intestines or faeces come in contact with the carcass. Ground or mechanically tenderized meats are considered riskier than intact cuts of meat because E. coli bacteria, can be mixed throughout the meat in the grinding process or during tenderization.

Other foods that sometimes become contaminated with E. coli bacteria include unpasteurized milk and cheese, unpasteurized juices, alfalfa and radish sprouts, lettuce, spinach, and water. However, any food is at risk of becoming contaminated with E. coli through cross-contamination. One can also get E. coli bacteria from contact with faeces of infected animals or people.

Rivers and open waters

The Waikato River and Hamilton city waters contain E. coli from dogs polluting them. Hamilton Lake Rotoroa is so badly polluted that signs warn that dogs should not be allowed to drink from it. People should wash their hands after touching it. This pollution is not from farms, but from pet dogs and cities.

E. coli levels in the Waikato River are higher in summer when dogs are taken to it by owners to save washing them, and they excrete there and swim in it more than in winter. There should be a sign to dispose of faeces, but New Zealand now has very strict rules for farmers and none for townies.

Vaughan Jones

ONZM Queen's Honour in 2013, for services to farming.

Author and International Agricultural Consultant & Journalist.

99% pass at Dairying University in 1948.

NZ Dairy Board's most Improved Dairy Farm in Waikato 1959.

Represented New Zealand at Agricultural Journalist Congresses in USA in 1992 & Austria in 1994.

Author and MD of the free www.grazinginfo.com eBook since 1970, to 520 members: mostly farmers, with 60 free farming spreadsheet templates and 260 chapters of practical, profitable farming to farmers and lifestylers.

There are hundreds of emails of thanks and testimonials. We have written 70 chapters on Human Health, to help the third of farmers who are stressed and unwell.

Doubled sales, and exports for companies, including Gallagher, New Zealand, from \$3m to \$23m in four years.