



E. coli bacteria magnified 1000 times.
(not true colors)

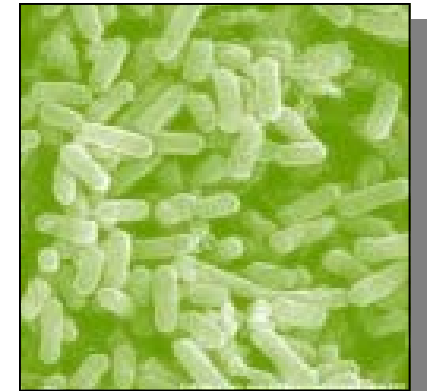
Sources of information in this brochure:

U. S. Environmental Protection Agency:
(EPA) <http://www.epa.gov/safewater/contaminants/ecoli.html>

Missouri Department of Health and Human
Services (Mo DHSS)
<http://www.dhss.mo.gov/CDManual/EHEC.pdf>

Centers for disease control and prevention
(CDC) <http://www.cdc.gov/ecoli/>

E. coli



▶ **In Summary:**

- Protect yourself by cooking meats thoroughly, washing raw foods in clean water.
- Wash hands after using the restroom.
- Do not drink water while swimming.
- Do not swim with open wounds.
- Be aware that heavy rain increases runoff of surface water that may be contaminated.
- Do not dump trash or waste water in streams, lakes or sink holes.
- Maintain your septic system to ensure it is working properly (have it pumped out every 3 to 5 years).
- Do not dump pet wastes or trash in storm drains or drainage areas.
- Have your well water tested periodically.



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- ▶ **What is it?**
- ▶ **Where does it come from?**
- ▶ **How does it affect us?**
- ▶ **How does it affect water quality?**

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What is *E. coli*?

E. coli is short for *Escherichia coli*. It is one of the many bacteria species living in the intestines of humans and warm-blooded animals (pets, livestock & wildlife). *E. coli* aid digestion in their host animal. There are hundreds of different kinds, or strains, of *E. coli*, some of which are harmful, but most of which are not.

E. coli can also live and grow outside of the gut in warm, nutrient-rich environments. *E. coli* are important to cattle as they aid in the breakdown of forage & feed. Some strains of *E. coli* (O157:H7) can make people & animals sick if ingested from food/water or during recreational activities such as swimming. The forms of *E. coli* that can cause illness in humans & animals are known as pathogenic. Remember, not all *E. coli* are pathogenic.

How Does *E. coli* Affect Us?

Pathogenic *E. coli* produce a toxin, or poison once ingested which in most cases can cause temporary mild diarrhea or stomach cramps. You may even have had a mild case of *E. coli* yourself and never realized it! But in some cases *E. coli* can cause severe illness and even death. This is often due to dehydration from extreme diarrhea. The most severe cases tend to be with young children and elderly people because their immune systems are not as able to fight the infection.



How Can I Protect Myself & Family?

Be sure to cook meats properly and thoroughly, eating undercooked meat can spread the bacteria, even though the meat may look and smell normal.

Raw vegetables, sprouts, and fruits that have been grown or washed in dirty water can carry *E. coli*. Wash all raw foods in clean water. *E. coli* can get into drinking water, lakes, or swimming pools that have sewage in them so try not to drink water while swimming. It is also spread by people who have not washed their hands after going to the toilet.

Public drinking water supplies are regulated by the local authority and by the U.S. Environmental Protection Agency which requires the water to be treated to keep it safe for drinking.

If you have a private well, you should have your water tested periodically. (You may contact the Safe Drinking Water Hotline at 1-800-426-4791 for the phone number of your local laboratory equipped for testing.)

In Stone County the health department does well water testing for *E. coli* and other contaminants. Contact them at (417)-357-8200. www.stonecountyhealthdepartment.com/res_water.html

How Does *E. coli* Affect Water Quality?

E. coli is recommended by the EPA as an indicator species for fecal contamination of water bodies. *E. coli* bacteria have been commonly found in recreational waters and its presence may indicate recent fecal contamination, but *E. coli* presence may not be indicative of pathogenic contamination.

Ideally we would test for pathogenic bacteria, however this type of test is expensive and time consuming, which prohibits large scale screening efforts. *E. coli* testing is easy and inexpensive, thus it is used to indicate a possible contamination for further investigation.

E. coli can get into water through human and animal fecal waste. During heavy rains *E. coli* in the form of animal manure from livestock operations may be washed into creeks, rivers, streams, lakes, ground water and wells.

Another source of *E. coli* in more urban settings is pet wastes from yards which can wash off with the rain. In addition, wildlife such as geese and ducks, a common sight in parks, as well as deer produce *E. coli* in their feces.

Human sewage contains *E. coli* which can get into streams, lakes and ground water through septic systems that are not working properly. Sewage treatment plants must disinfect their wastewater before discharging into recreational water bodies.

Illegal dumping of sewage into drainage areas, lakes, streams or even sink holes can cause fecal contamination. Sink holes are natural passages, similar to caves, which are direct routes into ground water. Dumping anything into sink holes will pollute ground water and wells.

Understanding *E. coli* test results in lakes or streams can be difficult since *E. coli* do not survive long in the open water because they are killed by exposure to sunlight. A sample at a specific location and time may show high *E. coli* levels while a short distance away or a little while later results may differ greatly.