

## **ESCHERICHIA COLI (*E coli*)**

### ***Introduction***

*Escherichia coli* is a cause of illness usually derived from food. Infection may result in sickness and diarrhoea, which can often be severe sometimes containing blood. The poisons produced by the bacteria can cause complications, such as kidney failure. Most cases have been associated with eating undercooked, contaminated minced beef, foods chilled after they have been cooked and salads. *E. coli* can be prevented by heating food until it is piping hot throughout, not drinking unpasteurised milk and following very stringent hygiene practices, such as cleaning and disinfecting all kitchen work surfaces properly. It is also important to store food on the correct position in the fridge. For example, don't store raw food above cooked or ready to eat food as it can contaminate them.

### ***What is Escherichia coli?***

Many different strains of *E. coli* are found naturally in all animal species, including humans, and in the soil as a result of contamination from droppings. It is common for many foods, e.g. raw meat and unwashed vegetables, to be contaminated accidentally which is why infections can happen after poor kitchen and food handling process.

However, unlike the majority of *E. coli* strains which are harmless, one called *E. coli 0157:H7* can produce a powerful poison as the bacteria multiply within the intestines. This is why the bacteria can cause severe illness, which may be life-threatening.

The *E. coli* bacterium is one of 500 different types of bacteria within the normal intestine of humans, many of which help with digestion. However, as it is so virulent, it can overwhelm the harmless types.

### ***Infections in Animals***

*E. coli* 0157:H7 may be found in the faeces of all animal species. In most cases they do not cause a problem for the animal and the animal becomes a carrier of the bacteria. Like humans, if there is a problem caused by the bacteria, the animal will have diarrhoea, be very debilitated and may even die.

### ***Escherichia coli and Humans***

Meat can become contaminated after the animal is slaughtered, but most of the contamination is on the surface of the meat, so thoroughly cooking of the outside is usually effective in destroying the bacteria. However, when meat is prepared, as with hamburgers or minced meat, then this surface contamination can be driven into the centre of the product. This is why all prepared meat must be properly cooked to the centre. The bacterium is also very susceptible to heat, disinfectants and radiation.

Drinking raw unpasteurised milk is not recommended as cow's, goat's and ewe's udders are close to their bottoms. The bacteria can then easily contaminate the milk, despite the most thorough udder and teat cleanings.

Although the exact number of organisms required to cause the disease in humans is not known, it is suspected only a small number can cause problems. Within hours of being eaten, they can multiply rapidly in the intestine and give rise to the common signs of 'food poisoning'. Symptoms may appear within a few hours or 36 hours or more after the bacteria have entered the intestines. The first signs may be nausea and stomach pains. Fever and collapse may accompany the eventual sickness and diarrhoea.

Infection can result from poor hygiene such as not washing hands after going to the toilet. Handling contaminated foodstuffs and kitchen utensils is an easy way the organism can infect a new victim. Contracting the disease is not an animal's fault but due to human actions.

Because of the risk of transfer of the bacteria from contaminated meat, it is highly advisable that raw meats are not fed to pets.

### ***Diagnosis***

Infection with *E. coli* 0157:H7 is diagnosed by detecting bacteria in the faeces. You should consult your doctor if you show any of the symptoms described, particularly if you have been abroad, have eaten out or if another family member has shown signs of an infection.

### ***Human Treatment***

Most people recover in five to ten days with home care, specific intestinal medications and fluids by mouth (fluid replacement) without the need for antibiotics or other specific treatment. In extreme conditions your doctor may prescribe them to avoid any further complications.

### ***Prevention of E. coli in animals***

*E. coli* is found naturally in all animal species and there are no easy ways to prevent an animal becoming infected with *E. coli* 0157:H7.

### ***Prevention of E. coli in humans***

All minced beef and hamburgers should be cooked thoroughly to the centre so that the meat is grey without any pinkness. Avoid spreading harmful bacteria in your kitchen; keep raw meat separate from ready-to-eat foods, i.e. at the bottom of the fridge. After touching raw meat, wash your hands in hot soapy water. Clean counters and utensils with antibacterial products after they have been used in preparing food. Wash fruit and vegetables thoroughly, particularly those that will remain raw.

Make sure that anyone with diarrhoea, especially a child, washes their hands carefully with soap and water after going to the toilet to reduce the risk of spreading infection. People should wash their hands after changing dirty nappies.

### ***Conclusion***

People can prevent *E. coli* 0157:H7 infection in humans by thoroughly cooking minced meats, avoiding unpasteurised milk, practicing strict kitchen hygiene

and washing hands thoroughly after touching food or going to the toilet. The PHC recommends that pet and non-pet owners keep this issue in perspective and that a sensible hygiene routine should always be followed:

- Always wash hands after handling pets and after gardening (ideally wear gloves that can be washed)
- Keep pets away from food preparation areas and equipment
- Ensure your pet follows a preventative health routine with regular visits to the vet
- Clear up after your pet
- Thoroughly wash fruit and vegetables before eating
- Thoroughly cook all raw meats
- Adopt strict hygienic measures in the kitchen
- Avoid unpasteurised milks
- Drink properly sterilised water
- Be careful and watchful when eating out

Remember that E. coli 0157:H7 is only caught by humans because faeces and food have been mixed!

### ***Pets are Good for People***

Pets provide us with loyalty, companionship, love and affection, as well as the many physical and psychological benefits. The least we can do to repay this is to ensure that we keep them in the best of health. A healthy pet is a happy pet and a happy pet can help us enjoy a much fuller and more rewarding life.

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**For further information, please contact the Pet Health Council on:**

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