German Federal Institute for Risk Assessment

FAQ

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Campylobacter: The diarrhoea pathogen is often found on poultry meat

Campylobacter bacteria are the most common pathogens of bacterial intestinal infections in Germany. The disease they cause - campylobacteriosis - is one of the so-called zoonoses, as the pathogens are usually transmitted from animals to humans. The disease is often caused by poultry meat. Good kitchen hygiene can help to replace an infection.

Important questions and answers about *Campylobacter* and the disease caused by the bacteria are summarised below.

What is Campylobacter?

Campylobacter is the name given to a species of bacteria that are primarily important as pathogens of food-borne infections. These are small, spirally curved, rod-shaped bacteria that place high demands on their environment in order to multiply. Of particular importance are the species *Campylobacter jejuni* and *Campylobacter coli*. In Germany and other European countries, *Campylobacter* is the most common pathogen of bacterial intestinal infections (enteritis). In Germany, 40,000 to 50,000 cases of *Campylobacter* infections (campylobacteriosis) are reported to the Robert Koch Institute (RKI) every year. The pathogen is usually transmitted from animals to humans, often through the consumption of contaminated food. Campylobacteriosis therefore belongs to the zoonosis disease group.

How can humans become infected with *Campylobacter*?

Transmission to humans occurs primarily via contaminated food, whereby even very small amounts of germs can trigger an infection. As *Campylobacter* impurities do not lead to food spoilage, the presence of the bacteria cannot be recognised by the appearance or smell of the food. In addition, contact with *Campylobacter*-infected pets and livestock can trigger infections. Furthermore, the intake of contaminated surface water can also cause *Campylobacter* infections. In recent years, there have been repeated outbreaks of

Campylobacter in Germany following the consumption of raw milk purchased at so-called milk filling stations, i.e. taps for direct marketing.

Which foods are frequently contaminated?

Campylobacter are spread worldwide. They are found in livestock and domestic animals and in the environment. The bacteria are mainly found in the faeces of animals, sometimes in very high concentrations. Infected animals usually do not fall ill. During food production, for example during slaughter or milking, the bacteria can get onto and into the food. *Campylobacter* pathogens are therefore primarily detected in raw or insufficiently heated food from animals, in particular:

- in poultry meat
- on the shell of chicken eggs
- in raw milk
- in raw meat products, e.g. minced pork

How can I protect myself from infection?

The most important protection against *Campylobacter* infection is good kitchen hygiene, especially the replacement of cross contamination. This refers to the transfer of germs from one (usually raw) food to another food that is not contaminated with *Campylobacter*. For example, the bacteria can spread from contaminated chicken meat to lettuce, either through direct contact with the food or through indirect transmission via hands, utensils, work surfaces, knives or other kitchen utensils. While the pathogens are usually killed by the heat when the meat is cooked or roasted, there is an increased risk of infection when lettuce is eaten raw.

Campylobacter bacteria are found particularly frequently on poultry meat. It is even possible for the outer surfaces of packaging or outer packaging of poultry meat to be contaminated with *Campylobacter*. Particular hygienic care is therefore required when preparing raw poultry meat. This includes careful hand washing after contact with poultry meat and the use of different cutting boards for meat/poultry and fruit/vegetables. In addition, meat, poultry and raw eggs should be stored separately from other foods. Further tips for the replacement of *Campylobacter* and other foodborne infections and for good kitchen hygiene can be found in the BfR consumer tips Protection against foodborne infections with *Campylobacter* (in German only) and Protection against foodborne infections in private households. The video „Dem Keim auf der Spur“ ("Tracking down the bacteria", in German only) illustrates how *Campylobacter* can be transmitted from fresh chicken meat.

How great is the risk of infection when handling eggs?

In Germany, laying hens are very frequently colonised with *Campylobacter*. The bacteria can get onto the shell of chicken eggs through contact with faeces from the laying hen during or after laying. It can be assumed that the number of germs is reduced by drying the poultry faeces on the shell, but live *Campylobacter* are repeatedly detected on chicken egg shells. The detection rate on the egg shell is significantly lower than with fresh poultry meat, which is considered the most important source of human campylobacteriosis. Unlike salmonella,

the more well-known food pathogen, *Campylobacter* cannot be found inside the egg. Furthermore, as raw eggs or food containing raw eggs are rarely consumed in Germany, the overall risk of becoming infected with *Campylobacter* when handling eggs is low.

To reduce the risk of infection, the BfR recommends storing raw chicken eggs separately from other foods, cleaning kitchen utensils thoroughly after contact with eggshells and raw eggs and washing hands thoroughly after touching chicken eggs. Only clean hen's eggs should be used for the production of raw egg dishes. For particularly sensitive groups of people whose immune systems are not yet fully developed (small children) or are weakened by old age or pre-existing medical conditions, the following applies in general: eggs and egg dishes should only be consumed thoroughly heated to protect against food-borne infections.

You can find more information in the BfR opinion "Hygiene for chicken eggs - protection from *Campylobacter*".

What do I need to be aware of when consuming raw milk?

The only way to protect yourself from infection via raw milk is to boil the milk before consumption. This also applies to the processing of milk into other milk-containing foods that are not heated before consumption, such as homemade yoghurt. For this reason, the legal requirement also applies that raw milk should only be sold with the instruction that it must be boiled before consumption. Exceptions to this are specially monitored establishments that have to fulfil special hygiene measures and can therefore sell so-called "certified raw milk".

In the past, there have been occasional reports of disease outbreaks with *Campylobacter* in connection with the dispensing of raw milk via vending machines. It is possible that dispensing via such machines leads to a change in consumer behaviour, as the milk is drunk directly on the spot and is not heated beforehand. You can find more information in our FAQ on raw milk.

How can the survival of *Campylobacter* in food be prevented?

In contrast to many other food-borne pathogens, *Campylobacter* are sensitive to numerous environmental influences. They not only require moisture and nutrients to grow, but also temperatures of at least 30 °C and a specific concentration of carbon dioxide and oxygen in the atmosphere.

Campylobacter die slowly in foods that contain little moisture, a lot of salt or preservatives or are acidified. Heating processes such as boiling, frying and pasteurisation are particularly suitable for killing *Campylobacter*. The prerequisite is that a temperature of 70 °C has been reached in the centre of the food for at least two minutes. If contaminated food is stored in the refrigerator, the bacteria do not multiply, but they survive and can trigger an infection as soon as they enter the human body. Freezing food reduces the number of *Campylobacter*, but does not kill them off sufficiently. You can find more information in the BfR consumer tips Protection against foodborne infections with *Campylobacter* (in German only) and in the FAQ on poultry meat.

How does a *Campylobacter* infection manifest itself?

Campylobacteriosis in humans is an intestinal infection with abdominal pain and watery, occasionally bloody diarrhoea and fever. The symptoms usually last from a few days to a week, but many infections go unnoticed. In exceptional cases, the infection can lead to autoimmune diseases that occur several weeks after the acute symptoms have subsided. Late effects such as irritable bowel syndrome, acute inflammation of the joints (reactive arthritis), but also Guillain-Barré syndrome, which causes paralysis of the peripheral nerves, can occur in around 1 in 1000 acute infections. Most of these autoimmune diseases are reversible, but in rare cases irreversible damage and even death can occur. More information on the disease can be found at the Robert Koch-Institute.

Are there people who are particularly frequently affected by campylobacteriosis?

All consumer groups are affected by campylobacteriosis. The infection is particularly common in children under the age of 5 and in young adults aged 20-29. More information on the disease can be found at the Robert Koch-Institute.

Further information on *Campylobacter*

Topic page
https://www.bfr.bund.de/en/campylobacter-54347.html

BfR-Opinion: Hygiene for chicken eggs – protection from *Campylobacter*
https://www.bfr.bund.de/cm/349/hygiene-for-chicken-eggs-protection-from-campylobacter.pdf

BfR-Flyer: Protection against foodborne infections in private households
https://www.bfr.bund.de/cm/364/protection-against-foodborne-infections.pdf

About the BfR

The German Federal Institute for Risk Assessment (BfR) is a scientifically independent institution within the portfolio of the Federal Ministry of Food and Agriculture (BMEL) in Germany. The BfR advises the Federal Government and the States ('Laender') on questions of food, chemicals and product safety. The BfR conducts independent research on topics that are closely linked to its assessment tasks.

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