

Frequently asked questions about infection with *Brucella* from food

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Worldwide, brucellosis is among the most common bacterial diseases that can be transferred from animals to humans. The most important transmission path is the consumption of raw milk or cheese made from raw milk or, less frequently, the consumption of raw meat.

In central and northern Europe, brucellosis has been successfully controlled in production animals and is now rarely found. In consequence, hardly any humans in these countries contract this type of infection anymore. In Germany, cattle, sheep and goat populations have officially been deemed to be free of brucellosis since the year 2000; only in pig populations are outbreaks sporadically reported.

However, humans are at risk of contracting an infection through the consumption of animal-derived foods which have been produced in parts of the Mediterranean area, the Arabian Peninsula, in the Middle East, Africa as well as in Central and South America. To protect themselves from brucella infection, consumers should refrain from consuming raw milk, dairy products and meat when travelling to these regions. This also applies to foods such as goat or sheep cheese which are exported from endemic areas.

What are brucellae?

Brucellae are bacteria that do not form spores but are resistant nevertheless. Brucella can cause infections in both humans and animals. However, not all species are pathogenic to humans. *Brucella melitensis* (sheep and goat brucellosis) is responsible for most infections in humans.

What is brucellosis?

Infections caused by *Brucella* are referred to as brucellosis. Worldwide, brucellosis is among the most common bacterial infections that can be transmitted from animals to humans ("zoonoses"). Affected persons suffer from influenza-like symptoms including fever, shivering, loss of appetite and fatigue.

How is brucellosis transmitted to humans?

Brucellosis is transmitted to humans predominantly from sheep, goats, cattle or pigs. The pathogens are either transmitted directly from animals to humans or via animal-derived foods. Human-to-human infection is virtually impossible.

What foods cause *Brucella* infection?

Brucella can be transmitted to humans through raw foods derived from infected animals. Most infections are caused by the consumption of raw goat or sheep milk or by cheese or other products made from raw milk.

Does the pathogen exist in Germany?

The number of patients ill with brucellosis depends on the extent to which the production animals of a country are affected by *Brucella*. In Germany, cattle, sheep and goat populations, are considered to have been free of *Brucella* since 2000. In pig populations, *Brucella* outbreaks occur sporadically. However, a type of bacteria is responsible for this which only very rarely causes infections in humans.

Brucellosis must by law be reported. In the year 2013, 28 newly diagnosed cases were reported in Germany. Most of the patients had contracted the infection during a stay in an

endemic area abroad. In most cases, the consumption of raw goat milk or raw sheep milk was the cause of the infection.

In what regions does a risk of infection from raw foods exist?

Brucellosis is notably found in the Mediterranean area, on the Arabian Peninsula, in the Middle East, in Africa and in Central and South America. Worldwide, up to 500,000 cases of newly diagnosed patients are reported every year.

The most important measure to prevent *Brucella* infections in the long term is to control brucellosis in animal populations. In northern and central Europe, *Brucella* in animals has been almost eradicated through consistent surveillance and control. The number of infected humans in those countries is correspondingly low. In some countries bordering on the Mediterranean, *Brucella* continue to be frequently found in animal populations. Within Europe, Portugal, Spain, the South of Italy, Greece and Turkey in particular are affected.

How can consumers protect themselves from food-borne *Brucella* infection?

Consumers can protect themselves from *Brucella* infection from food by refraining from consuming raw milk and meat. Food should be heated to 72 °C for at least two minutes. This recommendation is particularly relevant for raw goat and sheep milk and raw milk products derived therefrom such as cheese produced in endemic areas. This recommendation not only applies when travelling to these areas but also to the consumption of foods that are exported from these regions, for example to Germany.