

Answers to a cold case

How chilly is the cold heart of German households? A study by the BfR and MRI sheds light on refrigerator temperatures and cooling habits.



Properly cooling food slows down or even stops the proliferation of most bacteria. This helps reduce the risk of foodborne infections. Every year there are around 100,000 registered cases of illness in Germany that may have been caused by microorganisms (especially bacteria, viruses, or parasites) in food. For people whose immune system is either not yet fully developed or else compromised (small children, pregnant women, elderly persons or those with pre-existing medical conditions), such illnesses may, in extreme cases, even be life-threatening.

Therefore, proper refrigeration is important. It is crucial to adhere to the storage temperatures indicated on food packaging, which are often between 4 and 8 degrees Celsius (°C). However, if the domestic refrigerator does not display the temperature, it can be hard to get right. "The study showed that less than half (41%) of refrigerators in Germany display the temperature or have a separate thermometer," says Martina Hoffmann, psychologist and head of the study at the BfR. "This means many consumers have no means of knowing what the actual temperature of their refrigerator is." Only around a third (34%)

of the refrigerators allow users to set a specific temperature, while the vast majority offer only temperature levels (for example, using numbers).

COOL TRENDS

To achieve more clarity around the topic, the German Federal Institute for Risk Assessment (BfR) and the Max Rubner Institute (MRI) monitored the refrigerator location, temperature, load, and time spent open in almost 1,400 representatively chosen households over the course of a year. For the first time nationwide and in each household for a period of one month. In addition to measuring actual temperatures and collecting protocols of refrigeration usage, the survey also examined opinions about temperatures and ways of dealing with food that is meant to be kept cool.

The results show that most people in Germany have the same habits when

it comes to refrigerator location, use, and temperature settings. Almost all households (94%) keep their refrigerator in the kitchen. A few households keep their refrigerator in the utility room, the pantry or storage room, or the living room (2% respectively in each case) or hallway (1%).

EIGHT DEGREES AND GETTING COLDER

In around half of the households surveyed, adjacent devices might influence the refrigerator temperature. In a quarter (24%) of households, small electronic devices such as a microwave, coffee machine, or toaster are located directly next to the refrigerator. In 18 percent of households surveyed there is an oven and in 11 percent a cooker directly next to the refrigerator.

The temperatures recorded show that 80% of households maintain a refrige-

refrigerator temperature of between 4 and 10 °C. In the majority (32%) the temperature is between 6 and 8 °C, in a quarter (24%) between 8 and 10 °C. The mean value is 6.6 °C.

These findings correspond to some degree with the opinions of respondents. More than half (63%) of respondents indicated that the ideal refrigerator temperature is between 4 and 7 °C. Almost a quarter (22%) assumed it was 8 °C or above. Only 4 percent claimed the ideal refrigerator temperature was below 4 °C. "The BfR recommends setting the refrigerator temperature at a maximum of 7 °C and to regularly check the temperature at various places in the refrigerator," says Martina Hoffmann. "As a rule, you should always follow the temperature recommendations of the manufacturer when it comes to prepacked food."

Different parts of a refrigerator have different temperatures. But are private households even aware of this? 52 percent of respondents claimed that the bottom of the refrigerator is the coldest part. 22 percent believed the middle part and an additional fifth of respondents (21%) believed the upper part to be coldest. "The right answer is that the bottom of the refrigerator, above the fruit and veg compartment, is coldest, and suited to meat, fish, and sausage," says Martina Hoffmann. "By the way, the compartments in the refrigerator door are the least cold areas."

DOOR OPEN, DOOR CLOSED

The study participants were also requested to record how often they open their refrigerator over a 24-hour period. On average, the refrigerator door opened and closed 11.9 times. The maximum number of times the refrigerator was opened in one household was 46, while 30 households opened it just once.

The findings of the study provide useful scientific indicators for policymakers, for example with respect to determining cooling instructions for the food industry. —

More information



BfR-FAQ
"Refrigerating foods in private households"



94% of households keep their refrigerator in the kitchen, 2% in the pantry or storage room or living room, and 1% in the hallway.

TIPS

CORRECT COOLING

- ✓ Highly perishable animal and plant foodstuffs (such as meat, cheese, milk, eggs, fish, as well as chopped vegetable salad as well as chopped fruit) should be brought home and refrigerated as quickly as possible after purchasing
- ✓ Use a cool box to transport food in warm temperatures
- ✓ Avoid overfilling the refrigerator, so that the cool air can circulate
- ✓ Set the refrigerator temperature to max. +7 °C (preferably +5 °C) and check the temperature regularly
- ✓ Store raw meat, poultry, and raw fish at the bottom of the refrigerator, above the fruit and veg compartment and near the back of the refrigerator or in a 0 °C compartment
- ✓ Clean the inside of the refrigerator several times a year

COOL FRIDGE FACTS



The refrigerator temperature should be set to a maximum of 7 °C.

On average, households open and close the refrigerator door **almost 12 times** in a 24-hour period.

