

Can the new type of coronavirus be transmitted via food and objects?

Updated BfR FAQ dated 23 March 2020

After the outbreak of the respiratory tract disorder COVID-19 caused by an infection with the new type of coronavirus (SARS-CoV-2), and the subsequent epidemic in various regions of China, the virus is now also spreading in Germany and Europe. Disconcerted consumers have asked the German Federal Institute for Risk Assessment (BfR) whether the virus can also be transmitted to humans via food and imported products such as children's toys, mobile telephones, articles such as door handles, tools, etc., as well as dishes and cutlery. Against this background, the BfR has summarised the most important questions and answers on the topic.

What do we know so far about the new type of virus-related respiratory tract disorder?

The new type of respiratory tract disorder COVID-19 is based on an infection with the new type of coronavirus (SARS-CoV-2), according to the current state of knowledge. Knowledge about the exact transmission methods of this coronavirus is still limited. However, the transmission method of other closely related coronaviruses are well known. Different types of coronavirus typically trigger conventional colds in humans. Moreover, other coronaviruses, such as the SARS and MERS coronaviruses, have occurred in the past which have led to severe respiratory tract disorders. The main target organs of the coronavirus in humans are the respiratory tract organs. The most important transmission method is a 'droplet infection', where coronaviruses are emitted by humans or animals into the air via droplets, and then inhaled. Different respiratory tract pathogens can also be transmitted via smear infections. In those cases, pathogens located on the hands enter the mucus membranes of the nose or eyes, where they may lead to an infection.

The Robert Koch Institute is in close contact with the World Health Organisation (WHO) and monitors all up-to-date news about the event

- https://www.rki.de/DE/Home/homepage_node.html and
- https://www.rki.de/SharedDocs/FAQ/NCOV2019/FAQ_Liste.html.

Are there other possible transmission methods?

There are currently no cases which have shown any evidence of humans being infected with the new type of coronavirus by another method, such as via the consumption of contaminated food or via contact with contaminated articles. There are also no known reports for other coronaviruses about infections due to food or contact with dry surfaces. Transmission via surfaces which have recently been contaminated with viruses is, nonetheless, possible through smear infections. However, this is only likely to occur during a short period after contamination, due to the relatively low stability of coronaviruses in the environment.

Can imported goods from regions where the disease has spread be sources of an infection in humans?

Due to the transmission methods recorded thus far, and the relatively low environmental stability of coronaviruses, it is unlikely that imported goods such as imported foods or consumer goods and toys, tools, computers, clothes or shoes may be sources of an infection with the new type of coronavirus, according to the current state of knowledge. This assessment is still valid after the most recent publication on the persistence of the known coronaviruses by scientists from the Universities of Greifswald and Bochum

- <https://www.uni-greifswald.de/en/university/information/current-news/details/n/how-long-coronaviruses-persist-on-surfaces-and-how-to-inactivate-them-60255/>
- <https://www.sciencedirect.com/science/article/pii/S0195670120300463?via%3Dihub>

How can we protect ourselves from being infected by the virus via food and products?

Although it is unlikely that the virus will be transmitted via contaminated food or imported products, general everyday hygiene rules, such as regular hand washing, and hygiene rules for food preparation (<https://www.bfr.bund.de/cm/364/protection-against-foodborne-infections.pdf>) should be observed when handling them. As the viruses are sensitive to heat, the risk of infection can also be further reduced by heating foods.

Can coronaviruses survive and remain infectious on fixed and dry surfaces, outside human or animal organisms?

The stability of coronaviruses in the environment depends on several factors, such as temperature, air humidity and surface conditions, as well as the specific virus strains and the virus quantity. In general, human coronaviruses are not particularly stable on dry surfaces. Inactivation in dry conditions generally occurs within a period from a few hours to a couple of days. According to a preprint article (a publication that has not yet been reviewed in a peer-reviewed procedure customary in science), initial laboratory tests for the new type of coronavirus SARS-CoV-2 show that it can remain infectious for up to 3 hours as an aerosol, up to 4 hours on copper surfaces, up to 24 hours on cardboard and up to 2-3 days on stainless steel and plastic following heavy contamination.

- <https://www.medrxiv.org/content/10.1101/2020.03.09.20033217v1.full.pdf>

Can dock workers, haulage company workers handling containers, or workers who deal with the further processing of semi-finished products, components or other pre-fabricated products imported from China, be infected by the new type of pathogen?

Due to the low environmental stability of coronaviruses, a transmission of the pathogen via this method seems unlikely in most cases. The German Federal Institute for Occupational Safety and Health, and the Committee for Biological Agents, are responsible for assessing possible risks concerning infectious agents in the workplace

- <https://www.baua.de/DE/Angebote/Aktuelles/Meldungen/2020/2020-01-30-Coronavirus.html>.

Can coronaviruses be transmitted from animals to humans?

Information about coronaviruses and pets and livestock can be obtained from the Friedrich Loeffler Institute at

- <https://www.fli.de/de/aktuelles/tierseuchengeschehen/coronavirus/> (in German)

Can the new type of coronavirus SARS-CoV-2 be transmitted via dishes and cutlery in canteens and other places people eat together?

Coronaviruses can generally reach cutlery or dishes through an infected person sneezing or coughing directly on them and they can survive on these solid surfaces for some time. A smear infection then appears to be possible if the virus is transmitted via cutlery or the hands to the mucous membranes of the mouth, throat or eyes. However, the BfR is not yet aware of any infections with SARS-CoV-2 via this transmission path.

Is the virus rendered inactive by washing up by hand or using the dishwasher?

As enveloped viruses, in which the genetic material is coated by a layer of fat (lipid layer), coronaviruses react sensitively to substances that dissolve fat, such as alcohols or surface-active agents, which are contained in soaps and dishwashing detergents as grease remover. Although specific data is not yet available for SARS-CoV-2, it is highly likely that these substances damage the virus surface and render the virus inactive. This applies in particular if dishes are washed and dried in a dishwasher at 60 degrees Celsius or higher.

Can coronaviruses be transmitted by touching money, card terminals, door handles, smartphones or shopping trolley handles?

The BfR is so far unaware of any SARS-CoV-2 infections via this transmission path. Coronaviruses can generally reach surfaces through an infected person sneezing or coughing directly on them and they can survive there for some time. A smear infection to another person appears to be possible if the virus is transmitted shortly afterwards via the hands to the mucous membranes of the mouth, throat or eyes. For protection against virus transmissions via contaminated surfaces, compliance with general hygiene rules that include regular hand washing and keeping hands away from the face is important.

Are special precautionary measures necessary with regard to dishes or cutlery in care facilities for the elderly?

All the usual measures and rules of conduct for protecting against noroviruses or influenza viruses in care facilities for the elderly also help against transmission of SARS-CoV-2.

Can you get infected with SARS-CoV-2 via contaminated frozen food?

The previous coronaviruses SARS and MERS are resistant to cold and can remain infectious at minus 20 degrees Celsius for up to 2 years in a frozen state. However, so far there is no evidence of chains of infection for SARS-CoV-2 through food consumption, including frozen food. Compliance with the general rules of hygiene for preparing food should be taken into account (<https://www.bfr.bund.de/cm/364/protection-against-foodborne-infections.pdf>).

In the current situation, does it make sense to use disinfectants at home as well?

Even in the current situation, the BfR sees no need for healthy people to use disinfectants in their day-to-day lives. Recommendations on the use of biocidal substances at home are set out in FAQs on the topic (https://www.bfr.bund.de/de/fragen_und_antworten_zu_nutzen_und_risiken_von_desinfektionsmitteln_im_privathaushalt-190275.html - in German). The disinfection measures necessary if an infected person lives in a quarantined home should be discussed with the responsible health department or responsible doctor.

Further information on the topic of viruses is available from the BfR website

➤ https://www.bfr.bund.de/en/a-z_index/viruses-130212.html



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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. It advises the German federal government and German federal states ("Laender") on questions of food, chemical and product safety. The BfR conducts its own research on topics that are closely linked to its assessment tasks.

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