

Mission: Safe daily life

The BfR celebrates its 20th anniversary



20
YEARS

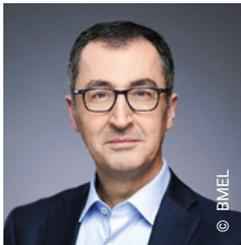


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Professor Dr Dr Andreas Hensel, President
 Professor Dr Tanja Schwerdtle, Vice President
 German Federal Institute for Risk Assessment (BfR)

Dear Readers,

“Who dares, wins” is a time-honoured saying, now perhaps better known as “No risk, no fun!” Risk-taking is back in vogue, it seems. Anyone who shies away from risk achieves nothing, wins nothing and is missing out on what life’s all about. Twenty years ago, when the German Federal Institute for Risk Assessment (BfR) was formed, things were different. Taking risks was the bad-boy move, there was Beck’s “risk society” and the ominous concept of residual risk. As you will find when reading the brochure, the BfR entered the fray to meet this bad boy head on.

And today? It rather looks as though the Institute has become the bad boy itself – or at least a party pooper. The BfR has put everything from tattoo inks to e-cigarettes and superfoods under the microscope to reveal their potential risks. Nothing gets a free pass: every substance is exhaustively verified. Bit of a spoilsport, the BfR?

Well, things aren’t that simple and the problem is more subtle. It is only a slight exaggeration to say that modern detection methods are capable of identifying potentially harmful substances almost anywhere – even as small as the proverbial

drop in the ocean. Detecting these dangers is not the hard part. But what does this mean? Well, we might find a chemical in our water supply, for example. Is it the chemical itself that’s harmful? Or is it the amount of the chemical that we have found?

This is where the real work of the BfR begins: making an exact assessment of the actual risk involved and the dose at which things get dangerous. And to identify where a risk might be hiding out of sight – whether under the skin, in vape smoke or in our (allegedly “super”) foods.

In a nutshell: the BfR tracks down and flags up these risks. Which also makes us all safer. The BfR’s assessments mark out the danger zones so we can work out where our safe spaces lie. Not so much a spoilsport as a referee. How the BfR is structured to ensure fair play in every match is also explained in this brochure.

Dear Readers,

Two decades ago, the establishment of the BfR created an organisation that is today indispensable in the landscape of national and international institutions dedicated to consumer health protection.

The BfR assesses risks in many areas of our daily lives, no matter whether they are associated with food, food packaging, or many other products such as textiles, cosmetics or tobacco products.

The BfR makes these assessments independently, basing them exclusively on scientific evidence. At a time when scientific arguments are frequently misrepresented as just one opinion among many, the BfR offers clear guidance. These exclusively science-based assessments are a solid foundation for decision-making processes in politics and the administration as well as industry and private households. This is why, in addition to the actual assessments, it is of crucial

importance that the BfR communicates such risks in a transparent, clear, and timely manner. The BfR has done pioneering work in many aspects of both areas, which is why it is of utmost importance to the Federal Ministry of Food and Agriculture (BMEL).

Challenges in consumer health protection are continuing to mount. As risk managers, we will continue to be reliant upon independent scientific expertise to enable us to make robust and informed decisions. I therefore wish the BfR every success for the future – so that we can continue to recognise risks early, assess them correctly, and manage them appropriately.



Cem Özdemir
Federal Minister of Food and Agriculture (BMEL)



Shay O'Malley
Acting Executive Director
European Chemicals Agency (ECHA)

Congratulations and happy anniversary from ECHA!

On behalf of the European Chemicals Agency (ECHA), I would like to extend our warmest congratulations and wish you a happy anniversary on this 20-year milestone in your journey.

Significant anniversaries are always an opportune time to reflect on what has been achieved and look forward to the road ahead. Your mission at the BfR – the protection of human health – remains as crucial today as it was in 2002. We, at ECHA, share this goal and know that only by working closely together with our partners from Member States will we succeed.

On this occasion, we wish to highlight the importance of your work and thank you for your valued contribution to ECHA's work since its establishment – for example, making tattoo inks safer and the ongoing work on PFAS.

We also look forward to further strengthening our valuable cooperation as challenges and opportunities arise with the EU's Chemicals Strategy for Sustainability. In this evolving landscape, the value of independent scientific assessment will remain as high as ever.

Together, we will continue to support Member States and the EU to meet our ambitions for EU citizens to live in a safer and more sustainable Europe.

Dear Readers,

Anniversaries are an ideal opportunity to pause, appreciate what has already been achieved, and reflect on the best way to approach the future. The BfR and EFSA have done a lot of good work for consumer protection within the European food safety system. The joint achievements of the past 20 years have made Europe a model region for safe food and have regained the trust of European consumers.

For the future, however, even closer cooperation is needed to meet the complex challenges ahead of us. Central to this cooperation is the need to supply a growing world population with safe food without destroying our planet. This requires highly innovative and sustainable agricultural and food systems that ensure the traceability of commodity flows and related information in complex global supply chains.

To accomplish these and many other important tasks, I believe that new, far-reaching forms of cooperation based on shared goals and values are needed. Such partnerships will enable us to take risks on the basis of trust – to jointly develop and exploit future opportunities. With the BfR as a long-standing and reliable partner, I look forward to the next 20 years with confidence.



Dr Bernhard Url
Executive Director
European Food Safety Authority (EFSA)

Time travel

A look back at the history of the Institute

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In November 2002, the BfR was founded as a central scientific institution for the assessment of health risks of food and feed, everyday products, plant protection products and chemicals. However, the BfR's roots go back much further





The photo shows the service and residential building of the Imperial Health Office in Berlin-Dahlem, taken around 1915.

1876

Founding of the Imperial Health Office, due to increases in food counterfeiting threatening the health of population. The office researches, collects and analyses data on food and consumer goods.

1919

After the fall of the German Empire, the Imperial Health Office was officially renamed the Reich Health Office. It advises the Reich's ministers on bacteriology and health care.

1933–45

During the period of National Socialism, all health institutions are being brought into line and a "racial hygiene and population biological research centre" was set up in the office. After the end of the war in 1945, the department is renamed the Central Institute for Hygiene and Health Services, and reports first to the Magistrate and then to the Senate of Berlin.

1952

Founding of the Federal Health Office as a central research institution in the field of public health. It approves medicines, analyses chemicals and pesticides, researches the spread of pathogens and examines everyday items.



The photo dates from 1973 and was taken in the food hygiene laboratory. It shows an examination of eggs.

1994

In connection with HIV infections through blood and blood products, and the lack of information and problems with coordination that were identified as a result, the Federal Health Office was dissolved. Its tasks now fall within the remit of the newly founded Federal Institute for Consumer Health Protection and Veterinary Medicine within the jurisdiction of the Federal Ministry of Health.



The photo shows an aerial view of the "Versuchsgut" in Berlin Alt-Marienfelde from 1997.

2002

In response to the European BSE crisis, consumer health protection in Europe was restructured and the Federal Institute for Consumer Health Protection and Veterinary Medicine was dissolved as a result. As one of the two successor institutions, the German Federal Institute for Risk Assessment (BfR) was awarded the statutory mandate for risk assessment and risk communication.

2020

By this point, the BfR had published almost 90,000 scientific opinions and provides decision-makers with technically-competent information through independent scientific research and assessment. The Institute is an internationally recognised institution, which cooperates with partners worldwide and repeatedly identifies food-borne infections in particular as significant health risks.



The photo shows the main site in Berlin-Jungfernheide.

2022

The BfR celebrates its 20th anniversary with a number of events, including a knowledge dialogue on the topic of “Trust”, an international symposium with a ceremony and the BfR Science Slam. To mark its anniversary, the BfR has modernised its logo.

More information:
www.bfr.bund.de/en > 20 Years BfR

Our mission statement

**The protection of human health
is at the centre of our work.**

Through our independent
scientific assessment,
research and the
transparent communication
of health risks, we make an
impartial contribution
to the safety of foods and feeds,
products and chemicals.



Hunting for risks

A mission for safe daily life: For 20 years, the BfR has combined practice-oriented science with health assessment

Listeria are adaptable and widespread bacteria. They are mostly harmless, but *Listeria monocytogenes* is extremely undesirable. This species is the cause of listeriosis, an infectious disease associated with diarrhoea and abdominal pain, which can be severe. It is caused by contaminated food. Long-lasting outbreaks of listeriosis are a regular occurrence, and invariably the question arises: which product is the source of the epidemic? Solving the problem requires not only scientific tools but also a detective's intuition.

This was the case from 2012 to 2016, for example, when a listeriosis outbreak in southern Germany puzzled scientists. 78 people fell ill, eight of them died. The search for the origin remained unsuccessful – until the method of genome sequencing, which deciphers the entire genetic

material of the bacterium, led to a breakthrough in March 2016. A sample from smoked pork belly revealed exactly the same genetic information as that of the pathogen found in those infected with the disease. The sale of meat products from the producer was halted and the cause eliminated.

This episode is not an isolated case. Since 2016, more than 60 listeriosis outbreaks have been traced in this way in Germany. It's an example of how successful consumer protection works: with modern scientific methods and through close cooperation between state and federal authorities, in this case with the National Reference Laboratory for Listeria at the German Federal Institute for Risk Assessment (BfR) in Berlin.



Detecting everyday health risks, assessing them and pointing out ways to reduce the risk – these tasks have been the focus of the BfR since its foundation 20 years ago. Whether it's food-borne pathogens, cosmetics and toys or cleaning agents, plant protection products and kitchen appliances: the Institute's approximately 1,200 employees deal with it all.

Identifying risks to protect health

The legal mandate of the BfR is to "assess and evaluate risks of food and feed, substances, micro-organisms and products (...) to human health".

This is stated in the Institute's "Guideline for the Assessment of Health Risks". Furthermore, one of its central tasks is to provide information about health risks and to recommend counter-measures. "Identify Risks – Protect Health": the Institute's motto sums it up. The BfR is part of the portfolio of the Federal Ministry of Food and Agriculture (BMEL).

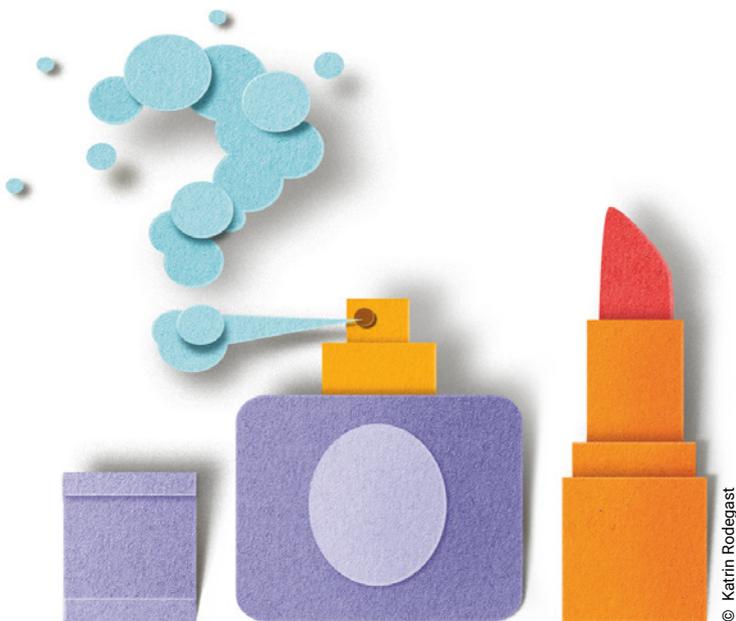
At the same time, the practice of the BfR has changed profoundly in some domains over the past 20 years. This concerns both health risk assessment (see box on page 20) and other key areas of the Institute's work. For example, new regulations for the assessment of plant protection products and pesticides (biocides) have made the Institute's assessments much more detailed. "To put it bluntly: 20 years ago, an assessment fit on a sheet of paper," says Head of Department Dr Tewes Tralau, who is responsible for the safety of pesticides at the BfR.

"Today, we prepare assessment reports that can be 1,000 pages long per active ingredient." This enables a comprehensive classification of the hazard potential and is one reason why plant protection products have become considerably safer.

How safe are cosmetics?

Product safety was established as a new field at the BfR about a decade and a half ago. It focuses on the health risk assessment of products such as toys, clothing, cosmetics, packaging material, e-cigarettes and tattoo ink. In short: pretty much everything we deal with in everyday life.

Consumer and media interest is high. Yet it's not always possible to find simple answers to all questions. Often, the test objects contain several different substances, not just one single suspicious chemical. In addition, there needs to be investigation into how much of a substance is actually absorbed on contact. "Both the material properties and the chemical safety have to be tested," says Head of Department Professor Dr Dr Andreas Luch. "That's why we are collaborating in a multidisciplinary way here at the BfR."





The health risk assessment of pretty much everything you handle in everyday life is the focus of the BfR's work

Analytics: measuring what's inside

As the example of listeriosis shows, detection methods – known as analytics in the technical language – have become extremely refined. This applies to pathogens as well as chemical substances or impurities (contaminants). These days, one can detect the equivalent of a single drop of an undesirable substance in Lake Constance.

The further development of analytical procedures is one of the important scientific tasks of the BfR. Especially the National Reference Laboratories located at the Institute are entrusted with this. “These facilities help to increase food safety and to locate outbreaks better and faster,” explains Professor Dr Karsten Nöckler, whose department (Biological Safety) includes the Reference Laboratory for Listeria.

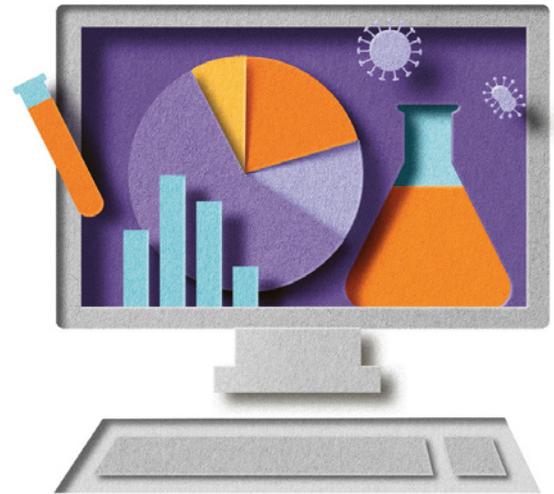
“Good analytics is the basis of any good risk assessment,” says Dr Carsten Fauhl-Hassek, Head of the Department Safety in the Food Chain. Despite all the accuracy, it's always necessary to become even more accurate, as his colleague, private lecturer Dr Robert Pieper, points out. “An example of this is the group of PFAS chemicals, for which the health-based guidance values have been greatly lowered in the EU,” says Pieper.

PFAS stands for per- and polyfluorinated alkyl substances. As stable compounds, they are found in such things as non-stick pans and outdoor clothing, making them water, grease and dirt-repellent. The chemicals accumulate in the environment and end up in our food. This is where detection methods need to be significantly refined, for example to be able to accurately determine the PFAS concentration in food. Analytics is the basis for answering the question of how extensive the PFAS contamination actually is.

Major goal: having data at hand even faster

Whether it's listeria, tattoo inks or PFASs: access to reliable data, such as that generated by high-quality analytics, is crucial for the Institute's work. (Almost) everything at the BfR revolves around good data. They are the main foundation for any serious risk assessment. This always revolves around the question of how high the exposure is, i.e. how much a person is exposed to a substance. The basic rule behind this is that the dose determines the toxicity of a substance. A weak toxin in a high dose can be more dangerous than a strong one that's only ingested in small amounts.

Especially in the event of a crisis, it's crucial to be able to quickly access important data, be it the detection of germs or the concentration of an unwanted chemical. This information makes it possible to assess exposure and determine the risk. In most cases, such measurements take place outside the BfR (for example, by



authorities of the federal states), so they're often not immediately at hand. "We're working on making data available even faster," says BfR President Professor Dr Dr Andreas Hensel. "That is one of our most important goals in scientific risk assessment."

The BfR MEAL study paints a realistic picture of which substances are ingested in Germany in what quantities – it could hardly be closer to reality

What's really in our food

Reliable data are also important when it comes to the question of what's really in our food. The BfR MEAL study provides a comprehensive and realistic picture of which substances are consumed in Germany in what quantities. For this purpose, ingredients are purchased nationwide, prepared in a specially equipped kitchen and then analysed – it doesn't get much closer to reality than that.

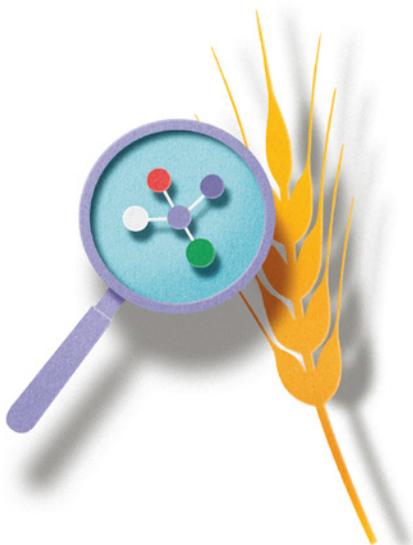
On the one hand, the food itself is analysed for nutrients, mycotoxins (fungal toxins) or residues of plant protection products. On the other hand, impurities that occur during preparation (such as acrylamide produced during roast-

ing), substances that have migrated into the food from the packaging and authorised additives are also examined. "The MEAL study is an example of how the BfR generates its own scientific data and uses these for health risk assessments," explains Head of Department Professor Dr Matthias Greiner.

Cause and effect – a complicated relationship

Even now, animal experiments remain an important basis for assessing the safety of a substance. New perspectives for toxicology (the science of toxins) and risk assessment also arise from substitute methods for animal experiments. Great progress has been made in this area in recent years, for example in the development of organoids or "mini-organs". These provide a link between animal experiments and cell culture. "Organoids enable us to study the influence of chemical substances on human tissue and to detect potential risks," says Professor Dr Gilbert Schönfelder, head of the German Centre for the Protection of Laboratory Animals (Bf3R) at the BfR.

In addition, information from studies with human study participants is increasingly being used for risk assessment at the BfR. Such "human data" often come from epidemiological studies. They have the advantage of being literally closer to humans. Yet human studies do not only have advantages. For example, it's often difficult to clearly assign cause and effect. Is a connection



Examined hazard – this is how risks are assessed

Generally speaking, a health risk assessment consists of five steps.

First, a health hazard must be identified. This can be a microorganism or a chemical, for example.



Afterwards, the harmful effect must be characterised and assessed. Is there a relationship between dose and effect?



Following this, reliable data and methods are used to estimate how much a person is exposed to the hazard. Only once it has been established how much of the hazardous substance a person absorbs, for example through food, skin or the respiratory tract, can the risk be determined.



Based on this information, the risk characterisation is carried out: how likely are health impairments from a potential hazard?



The final result is the assessment report, which summarises the steps and may include recommendations on how to reduce the risk.

between a health disorder and a harmful substance really causal, or is it coincidental instead? “Such questions are a challenge for risk assessment,” says BfR Vice President Professor Dr Tanja Schwerdtle. “We need to develop new guidelines to get clarity about and for the future handling of human data.”

Complete safety remains out of reach

The health risk posed by a substance is determined by relating its inherent hazard potential to exposure. In other words, to the question of how much a person is exposed to the substance, how high the “toxic dose” is. If the dose is large enough, any substance becomes a poison. However, this assessment framework of toxicology is increasingly being called into question.

One current trend is to focus on hazard potential instead of exposure. According to this approach, a chemical can be withdrawn from the market even if it’s safe when used as intended. The idea of making the potential hazard posed by a substance the main criterion for its assessment is met with scepticism at the BfR. The whole world is chemistry – the decisive factor is whether and to what extent humans come into contact with a substance. There’s no such thing as zero risk, but there are acceptable and unacceptable risks.

“The whole world is chemistry – the decisive factor is whether and to what extent humans come into contact with a substance



Risk from the consumer's perspective

Weigh the risks, don't play them up or down: the scientific approach of the BfR is also the guiding principle for the Institute's communication. This is extremely important, since educating the public about health risks is a central part of the Institute's mandate. "We inform the general public in a factual but clear way," explains private lecturer Dr Gaby-Fleur Böl, Head of the Risk Communication Department. In extensive social science studies, her research team also investigates how consumers perceive health risks in everyday life. "Perceived and actual risks are sometimes worlds apart – we bring these together."

Communication, be it of research findings or of recommendations, is a major challenge in the age of social media. Messages need to be concise and visual while remaining accurate. This can also be tricky because, when focusing on health risks, the benefits are sometimes not sufficiently taken into account. Fish, for example, contains undesirable substances such as mercury compounds, but it's also a valuable food with healthy ingredients. And then there are those substances that some interest groups believe should be banned, but for which there are no equivalent substitutes.

Risk and benefit are sometimes closely intertwined. Can and should we weigh the pros and cons here? There's no shortage of challenges for the BfR in the future.



We research and advise in order to minimise animal experiments to an essential minimum and to guarantee the best possible protection level for laboratory animals.

The results of our work promote a factual and social discourse, thus providing decision-makers with a scientifically well-founded basis.

Our mission statement

Insights

Whether it's e-cigarettes, tattooing products or antimicrobial resistance – the BfR's spheres of activity are as diverse as life itself. The focus is always on human health

Cooking for science

The identification and characterisation of substance-related risks are part of the BfR's assessment work. The key question is to what extent we are exposed to potentially harmful substances. In what quantities do we ingest on average not only undesirable, but also desirable substances through our food? Do certain foods vary in their levels of substances depending on the season, cultivation method or region? And what health effects does the type of preparation have on food? Answers are provided by the BfR MEAL Study (meals for exposure assessment and analysis of foods) – Total Diet Study in Germany, launched in 2015. This scientific method is being used to determine the average levels of substances present in already prepared foods.

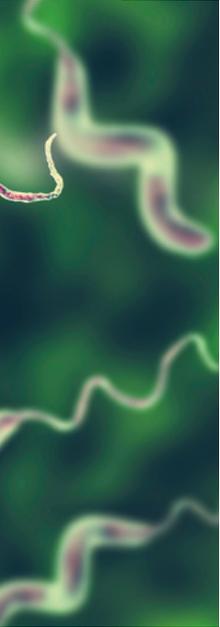
The aim is to obtain representative occurrence data for the German diet and to better identify and quantify food risks. The study team purchased around 60,000 foods during the course of the study, prepared them and analysed them for nearly 300 substances, including mycotoxins, plant protection product residues and nutrients. This makes the BfR MEAL study a highly comprehensive Total Diet Study by global standards.

More information:
www.bfr-meal-studie.de > English



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Tracking down germs in food



Bacteria, viruses and other microbes are omnipresent and can also cause food-borne illnesses. The “EHEC crisis” made this clear in 2011. This disease outbreak was the most serious to date in Germany, caused by enterohaemorrhagic *Escherichia coli* bacteria. More than 4,000 people fell ill and 53 died. At the time, the BfR, in exchange with national and international health authorities, identified imported fenugreek seeds as the cause with a high degree of probability. Since then, software programmed by the BfR has helped to track suspicious foodstuffs and trace outbreaks. Finding the exact product that caused the infections is particularly difficult. The BfR uses whole genome sequencing for this: experts regularly decode and store the genetic make-up (sequence) of bacteria from food samples and other sources. They then compare these with sequences of bacteria isolated from people who have fallen ill. This method has been used to trace around 60 outbreaks of listeriosis in Germany since 2016. These bacteria are particularly hazardous for pregnant women, newborns, immunocompromised people and the elderly. In 2021, the BfR also applied the principle to 45 incidents of infection with *Salmonella*. Incidentally, the most frequently reported bacterial gastrointestinal disease nationwide is the campylobacteriosis, caused by *Campylobacter*. To identify infection chains and track down unknown or altered germs, the BfR researches *Campylobacter* from samples taken from animals, food and the environment. Strategies for the prevention and control of infections are also being developed.

More information:

www.bfr.bund.de/en > A-Z Index: Food infection

Inseparable: people, animals and the environment

The health of humans, animals and the environment is closely linked. Each “system” influences the others. This is why health problems can only be solved with the cooperation of all disciplines. This “One Health” concept is also becoming increasingly important for the work of the BfR. In 2018, the BfR joined forces with 40 European partners in the European Commission’s “One Health European Joint Programme”, which is investigating these interrelationships. Research is being conducted on the aspects antimicrobial resistance, novel infection risks and pathogens that are transmitted from animals to humans. The One Health approach also guides the BfR in its work on antibiotic-resistant germs that are transferred to humans via food and complicate the treatment of infections. For this purpose, the BfR is examining bacterial isolates from animal and food samples regarding their resistance properties. The data represent a contribution to the German and European antibiotic resistance strategy. By the way: in the context of animal health and food safety, feed obviously also plays a central role. Using concepts based on the One Health approach, the BfR is also assessing how living conditions and the health of wild animals, for example, are related to the safety of game meat and honey.

More information:

www.bfr.bund.de/en > A-Z Index: One Health



Making fish safe

Fish are an important source of nutrients. However, consuming certain fish species, mostly from tropical and subtropical oceans, can pose a risk to human health. In Germany, the consumption of imported fish from these regions has, for some years now, been the source of repeated cases of food poisoning, triggered by marine biotoxins of the ciguatera group. These toxins cause ciguatera – one of the world’s most common fish poisonings, symptoms of which can be severe diarrhoea, vomiting and a commonly reported peculiarity reported as a temperature sensitivity (“cold-warm reversal”). The National Reference Laboratory for Marine Biotoxins at the BfR has developed detection methods to track down these toxins – a challenge given the extremely low concentrations at which the compounds are biologically active. These methods can reliably detect ciguaterins in fresh and frozen fish and even after meal preparations. This method can also solve poisoning cases: with the test strategy, used for the first time in Germany, the BfR and its partners succeeded in deciphering a ciguatera outbreak from 2017. To further develop the test strategy, the BfR is cooperating with a number of partners, including an institute from Japan.

More information:
www.bfr.bund.de/en > A-Z Index: Ciguatera

Plant protection products: safety in ingestion and use

What are the health risks associated with the ingestion of residues of various pesticide-active substances? To ensure that food is safe, the BfR is working on concepts for the assessment of “multiple residues”. The respective approaches ensure safe consumption also if different combinations of active substances are taken into account. To this end, the BfR evaluates available data on food consumption, data of the German food monitoring programme, and conducts its own studies. Moreover, it provides advice to authorities and politicians and supports the European Food Safety Authority (EFSA). Plant protection products are also neither to harm the health of people working with the substances (“users”) nor of those living near treated areas. Whether they are sufficiently protected is checked prior to product authorisation by estimating the highest expected intake. The respective estimates were based on varying models across the EU until their harmonisation in 2016. The corresponding harmonised model was developed by a working group initiated and led by the BfR and has been used since for the authorisation of plant protection products at EFSA. The model is adapted on a regular basis and, as such, forms a milestone for European risk assessment.

More information:
www.bfr.bund.de/en > A-Z Index: Plant protection products



Plant substances: not all are without health risks

Plant-based foods are often automatically regarded as natural and harmless. However, some ingredients of plant origin can be harmful to our health. Take pyrrolizidine alkaloids, for example. Some plant species use these substances – over 660 are known – to ward off their natural predators. Since these plants often grow in the fields alongside crops, the substances also end up in our food when they are harvested. In addition, pollen containing unsaturated pyrrolizidine alkaloids can get into honey through bees. Since they can impair the liver and lungs, and animal studies have shown that some of these substances induce changes in the genetic material and trigger cancer, pyrrolizidine alkaloids are undesirable in feed and food. In 2013, the BfR detected high concentrations in teas for the first time and identified health risks for people who regularly consume teas and honey. Current findings show that the concentrations in many types of tea have been significantly reduced. Yet there are still food groups that have high contents of unsaturated pyrrolizidine alkaloids. For this reason, the BfR continues to recommend lowering these contents by refining cultivation, harvesting and cleaning methods, particularly for highly contaminated food groups such as certain seasoning herbs.

More information:

www.bfr.bund.de/en > A-Z Index: Pyrrolizidine alkaloids

Putting animal welfare first

Since 2015, the BfR has been fulfilling the function of the “German Centre for the Protection of Laboratory Animals (Bf3R)”. It coordinates nationwide activities with the aim of limiting animal experiments to a necessary minimum. Furthermore, laboratory animals should be guaranteed the best possible protection and handling. The Centre’s work intends to stimulate national and international research activities and to promote scientific dialogue. In addition, the Bf3R supports the development, validation and use of alternative methods to animal experiments. For example, the team is researching innovative cell and tissue cultures to replace animal experiments. The goals of the Bf3R also include transparent information and open communication about animal experiments in science. For many years, the BfR’s database “AnimalTestInfo” has been providing information about authorised animal experiments in Germany. Since 2021, Bf3R has also been responsible for publishing the annual laboratory animal statistics. The Bf3R has taken over this task from the Federal Ministry of Food and Agriculture (BMEL).

More information:

www.bf3r.de > English



Tiny particles, huge challenges

Nanomaterials are present in countless products such as cosmetics, food packaging, paints and clothing. Their particles have a maximum size of only 100 nanometres and are invisible to the naked eye. Their diversity in terms of materials, size and shape, as well as altered and sometimes new properties, pose enormous challenges for science. To identify risks to health and the environment at an early stage, the foundation for risk assessment at the BfR was laid already in 2006 with broad-based expert interviews on the use of nanotechnology in food and everyday products. Since then, the BfR has been involved in several national and international projects on nanosafety research. In these, the focus has been primarily on intentionally manufactured nanomaterials, but also on substances with naturally nanosized particles (for example, food ingredients), as well as “weathered” plastics. Test methods are being developed for these materials, guidelines are being developed and recommendations published. The intake of nanoparticles into the body via the intestine or lungs, for example, is also being investigated. The BfR is also playing a leading role in establishing the concept of nanomaterial grouping. This involves assessing similar nanomaterials collectively. These approaches will have a decisive influence on risk assessment in the future. In addition, the Institute has regularly used sociological studies, repeated surveys of citizens and the media and representative surveys to capture the mood in society towards nanomaterials.

More information:

www.bfr.bund.de/en >

Questions and answers: Nanomaterials



More than just hot vapour

E-cigarettes enjoy great popularity. Instead of tobacco, as in conventional cigarettes, they usually contain liquids with nicotine. A heating element heats up this liquid, producing a vapour that is inhaled. Even though less harmful substances are produced when “vaping” than when smoking, a health risk for the respiratory tract still exists. This is difficult to assess given the variety of liquids and device models. The BfR has been monitoring the available data and is conducting its own research projects. One focus is given to the addictive substance nicotine – and how much of it is found in the vapour. Another focus is given to components that turn into harmful substances when heated, such as vaporising agents, flavourings and other additives. Some substances are now banned for use in e-cigarettes. But the market is evolving: the technology is changing, and new formulations are constantly being developed, especially for products without nicotine.

More information:

www.bfr.bund.de/en > A-Z Index: Electronic cigarette

Global network



Global trade is growing at a rapid pace, and food crises do not stop at national borders. International relations, scientific exchange and joint research are therefore becoming increasingly important. The BfR cooperates closely with the European Food Safety Authority (EFSA) and maintains links with all EU Member States. As the EFSA's focal point in Germany, it has coordinated its exchange with the German institutions for food and feed safety since 2008. The BfR also maintains close contacts with governmental and nongovernmental institutions across EU borders. It pursues research and cooperation projects with partners around the world. From 2021 to 2025, for example, the BfR, together with the Federal Office of Consumer Protection and Food Safety (BVL), is supporting Tunisia in reforming its official structures for food safety and consumer protection and adapting them to international standards. In Uganda, the BfR is currently participating with partners from Germany and Kenya in an international project to promote the development of agricultural animal facilities (BUILD). The aim is to improve people's knowledge about and awareness of animal diseases. After all, the loss of livestock can quickly threaten the livelihoods of entire families.

More information:

www.bfr.bund.de/en > The Institute > Co-operation

Answers to a new virus

When the novel coronavirus SARS-CoV-2 changed our lives in early 2020, the question also arose as to how the virus could be transmitted – such as via food or objects. Early on, the BfR came to the conclusion that infection with coronaviruses via surfaces such as door handles, toys, mobile phones or food in the supermarket is unlikely – as long as basic rules of hygiene are complied with. The BfR also assessed whether vitamin D can protect against infection. The data situation on this is unclear. So far, it has not been shown that people who are well supplied with vitamin D benefit from supplemental intake. Therefore, a general recommendation for prevention of a coronavirus infection by taking vitamin D supplements is not justifiable at present. In March 2020, the BfR also began researching how the population perceives the risk from the virus. Since then, 1,000 randomly selected people have been interviewed by telephone at two-week intervals on the following questions, including: what protective measures do you take? How does corona affect your daily life? Do you feel safe, and how do you stay informed? Using this BfR-Corona-Monitor, the BfR is creating a representative picture of public opinion on which politicians and the media can base their decisions.

More information:

www.bfr.bund.de/en >

A-Z Index: COVID-19/Corona

Our mission statement

Our work is characterised by an open and respectful approach. Tolerance, reliability and mutual appreciation form our common foundations.

On this basis, we set scientific standards in consumer health protection so that the world becomes a safer place for people to live.



About the BfR

Areas of activity



Food and feed safety

Be it ingredients or additives, residues, contaminants or germs and parasites – on the basis of internationally recognised criteria, the BfR assesses food and feed with regard to toxicological, microbiological and nutritional aspects.



Product safety

The BfR evaluates ingredients and their release from a variety of everyday products such as cosmetics, toys, clothing or packaging and containers for food. It is examined as to whether the substances contained therein can endanger human health.



Chemical safety

The BfR also assesses health risks of chemicals, plant protection products, biocide products and hazardous materials to quickly identify undesirable effects. It also advocates for reliable detection methods.



Risk communication

The BfR examines the risk perception and risk behaviour of the population. To inform the public about health risks, the BfR talks to various stakeholders in society and gives concrete recommendations for everyday life.



Protection of laboratory animals

The BfR performs the tasks of the “German Centre for the Protection of Laboratory Animals (Bf3R)” and coordinates activities countrywide with the goal of restricting animal experiments and ensuring the best possible care for laboratory animals.

Locations



9 Departments

- Administration
- Risk Communication
- Exposure
- Biological Safety
- Food Safety
- Pesticides Safety
- Chemical and Product Safety
- Safety in the Food Chain
- Experimental Toxicology and ZEBET



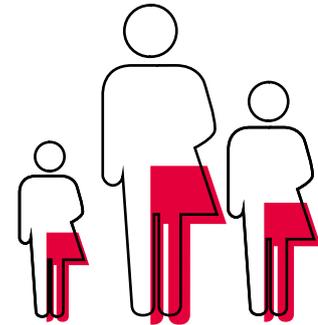
Most clicked:
FAQ "Can the new
type of coronavirus be
transmitted via food
and objects?"



5,748,294
page views

Employees

1,151



Budget



approximately
119 million euro

Opinions



635,678



Most clicked:
"Health risks
from e-cigarette
flavourings:
Research is needed"
(No. 43/2021)

Third-party
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121

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50

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Departments

The Institute is headed by its President, Professor Dr Dr Andreas Hensel, and his Vice-President, Professor Dr Tanja Schwerdtle. They are supported in their work by several staff units and nine departments

Central Department

Temp. Head:

PD Dr Gaby-Fleur Böl

The Central Department is the service provider for all the Institute's departments. It takes care of the infrastructure, staff recruitment, the supervision of employees in personnel matters, the management and control of income and expenditure as well as the organisational and technical maintenance of the Institute's premises and information technology. The department issues organisational regulations for the Institute and is responsible for compliance with legal rules, especially in the area of personnel and labour law issues and public service procurement regulations.



Risk Communication

Head: PD Dr Gaby-Fleur Böl

The interdisciplinary Risk Communication department conducts social science research projects on the perception of risks, reputation and trust as well as early risk detection and impact assessment. Participatory dialogue with stakeholders from science, business, politics, media, associations, non-governmental organisations and the consumer community is of importance. Another focus is on crisis prevention and coordination. The department includes press and public relations, visual communication, the BfR commission system and the BfR Academy. Quality and environmental management is also part of this department.



Exposure

Head: Professor Dr Matthias Greiner

The Exposure Department provides the scientific basis for regulatory action by standardising and conducting exposure estimates in food and product safety. The national registers for products and for poisonings improve the identification and assessment of acute toxicological risks in particular. Other areas are the transport of dangerous goods and the collection of exposure data, for example in the BfR MEAL and KiESEL studies. Concepts and applications of epidemiology, statistics and mathematical modelling support the quality-assured and evidence-based work of the BfR.



Biological Safety

Head: Professor Dr Karsten Nöckler

The department deals with health risks for humans, which emanate in particular from microorganisms, the toxins they produce and other microbial metabolic products. Not only foodstuffs are considered, but also feedstuffs as carriers of biological hazards, and consumer goods (for example food packaging materials, tableware) as well as cosmetics, including the processes of their extraction, production, processing. Supporting the clarification of outbreaks and collecting data for the preparation of the annual zoonoses trend report are among the tasks of the department.



Food Safety**Temp. Head:****Professor Dr Tanja Schwerdtle**

The department assesses the risks posed by substances in foods, including natural ingredients, additives and flavourings and contaminants, as well as undesired substances which find their way into food through manufacturing, storage or treatment processes. Nutritional risks are also assessed along with the risks for certain population groups. Experimental projects on the mode of toxicological action, mechanisms of action of oral intake (bioavailability), internal exposure (biomarkers in human studies) and on the molecular mechanisms of action (toxicogenomics) of relevant substances make up an integral part of the assessment.



Pesticides Safety**Head: Dr Tewes Tralau**

This department is responsible for the health risk assessment of plant protection products and biocidal products. This involves the assessment of the toxicological properties of active substances in pesticides and their metabolites, their classification and labelling as well as the derivation of limit values. After estimating expected exposure, risk assessments are conducted for consumers and persons exposed during application. Additionally, maximum residue levels and methods for monitoring them are evaluated and assessment strategies further developed.



Chemicals and Product Safety**Head: Professor Dr Dr Andreas Luch**

The department assesses the health effects of chemical substances and identifies measures to reduce risks. A further task is to identify, research, assess and prevent health risks that may be associated with consumer products such as cosmetics, tobacco products and commodities (e.g. food packaging, toys, clothing, etc.). Experimental projects focusing on the release, exposure and toxicity of migrating chemical substances form an integral part of these assessment activities.



Safety in the Food Chain

Temp. Head:

Dr Carsten Fauhl-Hassek, PD Dr Robert Pieper

The department assesses the health risks resulting from the intake of contaminants and residues from food and quantifies the transfer of undesirable substances from the feed of farm animals along the food chain into food of animal origin. The analysis of global commodity flows and the traceability of food and feed are further focal points, as is the development of strategies and methods for testing the authenticity of feed and food. The department also conducts research on chemical-analytical testing methods and on the occurrence and behaviour of environmental contaminants, myco- and plant toxins in food and feed.



Experimental Toxicology and ZEBET

Head: **Professor Dr Gilbert Schönfelder**

The department implements the tasks and aims assigned to the BfR in accordance with the German Animal Welfare Act (TierSchG) and with the regulation on the protection of animals used for experiments or other scientific purposes (TierSchVersV). It administers the "German Centre for the Protection of Laboratory Animals (Bf3R)" and coordinates activities countrywide with the goal of reducing animal experiments and ensuring the best possible protection for laboratory animals. The department also deals with the (further) development of toxicological test methods and assessment strategies, which includes the chemical programme of the Organisation for Economic Cooperation and Development (OECD).

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Identify Risks –
Protect Health