

Milk and infant nutrition: Risk communication in practice

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Federal Institute for Risk Assessment (BfR)



- Risk Assessment
- Recommendations on risk reduction
- Scientific advice to the relevant federal ministries and other institutions
- Research on topics which are closely related to the assessment tasks
- Communication

The BfR is independent in its scientific evaluations, research and communication.

Risk Communication at the BfR

• Legal remit to communicate risk



Risk communication is defined as a continuous and interactive process and characterised by a participatory dialogue with various stakeholders.

Principles:

Transparency

Reliability

Greatest possible openness

Timeliness

Principles are essential to establishing and maintaining trust and contribute to rebuilding trust when it is low.



Source: Fotolia

Risk communication is an integral part of risk analysis: Examples

Infant nutrition/Infant formula

1



- Health assessment of Infant nutrition
- BfR-Opinions and Challenges in Risk Communication

Breastfeeding

2



- Benefits and Possible Risks
- Herbicide Glyphosate in Breast Milk?

Milk

3

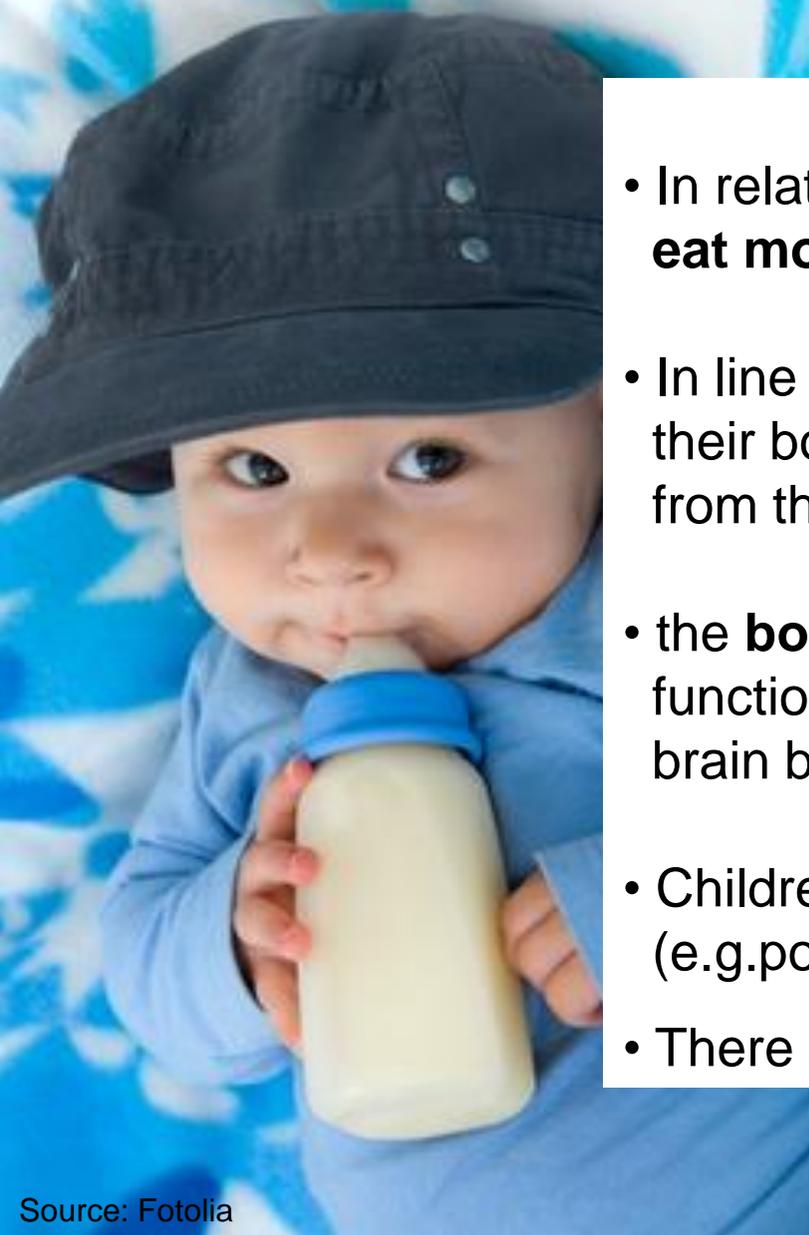


- Hormones in milk
- Risks of Raw milk

All Pictures Source: Fotolia

Health assessment of infant nutrition: Risks for children must be assessed differently from risks for adults

Children are not small adults



- In relation to their body weight children have a **larger skin surface, eat more and breathe more rapidly** than adults.
- In line with their age they have an elevated metabolic rate and their body ingests **larger amounts of substances more quickly** from the gastro-intestinal tract.
- the **body's detoxification systems**, for example liver and kidney functions and other protective mechanisms such as the blood-brain barrier, **are not fully developed yet**.
- Children **perceive risks differently** and behave differently (e.g. poisoning accidents).
- There are **concerns** and a high risk perception among **parents/family**.

Source: Fotolia

Food Safety will never be absolute: Food Preparation is key

Infant Formula is not sterile.

A WHO / FAO expert group has discussed *Salmonella* and *Cronobacter* spp. as main sources for neonatal infections than can be triggered by baby food.

**BfR press release 37/2012:
Infant formula in baby bottles to be prepared as fresh as possible**

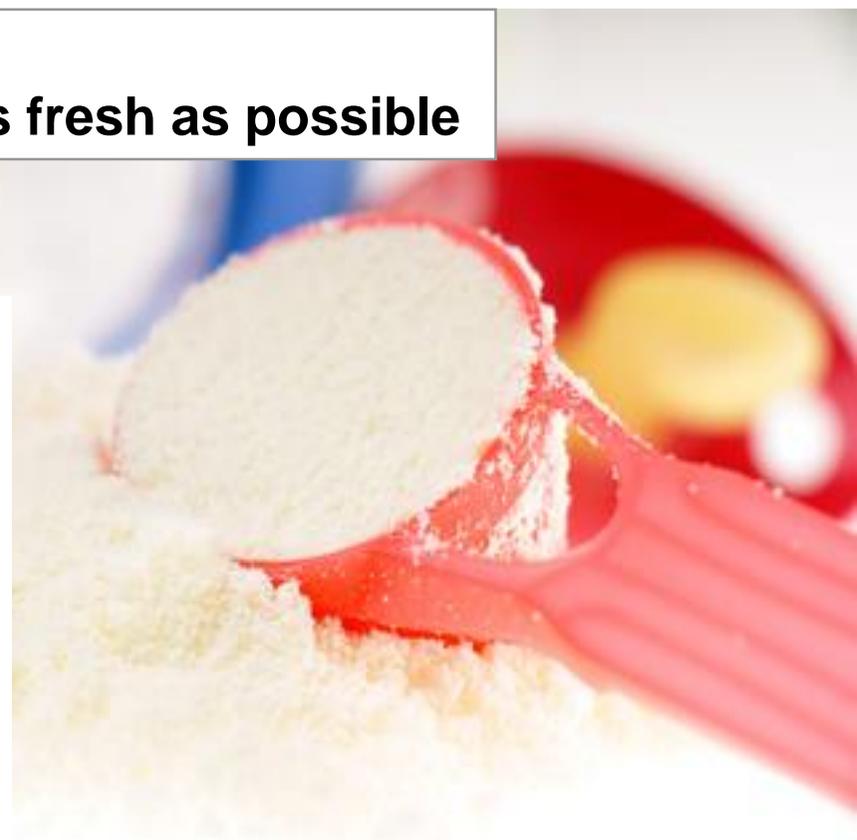
Source: Fotolia

The hygienic requirements for infant formula **are very high.**

Infections caused by pathogenic germs **are rare.**

In exceptional cases: Contamination of baby food may occur:

- Germs survive the manufacturing process and can then multiply in the prepared food
- Baby formula can be contaminated with germs when the formula is prepared



Source: Fotolia

BfR-Opinions comprise an easily understandable summary (“grey box”)

BfR Opinion 40/2012

Recommendations on the hygienic Preparation of Infant Formula in Powder form



Source: Fotolia

Example (“grey box”)

www.bfr.bund.de



Bundesinstitut für Risikobewertung

Recommendations for the hygienic preparation of infant formula in powder form

BfR opinion No 040/2012, 6 November 2012

The hygienic requirements for infant formula are very high. For this reason, infections caused by pathogenic germs are rare. Nevertheless, in exceptional cases, contamination of the baby food may occur, because many types of germs survive the manufacturing process for food in powder form. They can then multiply in the prepared food. In addition, baby food can be contaminated with germs via spoons, teats or baby bottles when the formula is prepared.

Against this background, the Federal Institute for Risk Assessment (BfR) recommends that infant formula in powder form is prepared only shortly before consumption. Preferably, water that has been boiled should be used for preparing infant formula in the first months of a baby's life. To shake the powder, water temperatures of up to 50 °C are sufficient for healthy babies born after a full-term pregnancy. Longer periods of more than two hours from the time the formula is prepared to consumption or during cooling and reheating with storage above 5° C should be avoided at all costs. Any residue of prepared food should be disposed of. Contamination with germs during preparation can be prevented by washing the kitchen utensils used for this purpose in the dishwasher at 65 °C or by thoroughly cleaning them with hot water and detergent.

These recommendations apply to the preparation of infant formula in powder form for healthy babies born after a full-term pregnancy who live in private households, childcare facilities and also in clinics. The BfR believes that in clinics, special milk rooms should, wherever possible, be set up for the production of infant formula in which comprehensive hygienic requirements are implemented. This notably also applies to the infant preparation for prematurely born and immunodeficient babies. In addition, the health situation of such infants requires that individualised nutrition recommendations are made from a medical viewpoint.

The following risk assessment refers to contamination with *Cronobacter* spp. Although *Cronobacter* spp. infections are very rare, they can have serious health consequences such as meningitis. Babies with a birth weight below 2500 g and immunodeficient infants are especially at risk, because their immune system cannot provide sufficient protection against infection. The recommendations resulting from the risk assessment not only apply to preventing infections from *Cronobacter*, but they also provide protection from other germs.

The full version of the BfR information in German is available on <http://www.bfr.bund.de/cm/343/empfehlungen-zur-hygienischen-zubereitung-von-pulverfoermiger-saeuglingsnaehrung.pdf>

- Infant formula in powder form is prepared only shortly before consumption.
- Preferably, water that has been boiled should be used for preparing infant formula in the first months of a baby's life.
- To shake the powder, water temperatures of up to 50 °C are sufficient for healthy babies born after a full-term pregnancy.

More BfR-Opinions with an easily understandable summary (“grey box”)



Source: Fotolia

BfR-Opinion 025/2015 **Infant and follow-on formula:** **No evidence for health benefits of probiotic additives**

- No indications from the currently available study results to suggest that these strains have any unwanted effects **on healthy infants.**
- **Further data** to make reliable judgements in the routine use in infant formula is needed.



Source: Fotolia

BfR-Opinion 034/2014 **Flavouring substances in baby food**

- Flavouring substances are neither required to improve acceptance of such products nor to support development of taste sensation
- Recommendation: case-by-case assessment.



Source: Fotolia

BfR-Opinion 12/2012 **Aluminium contents in infant and follow-on formula**

Only infant food should be marketed whose aluminium content in the finished product is so low that its consumption **at least** does not result in an exceeding of the **tolerabe weekly intake.**

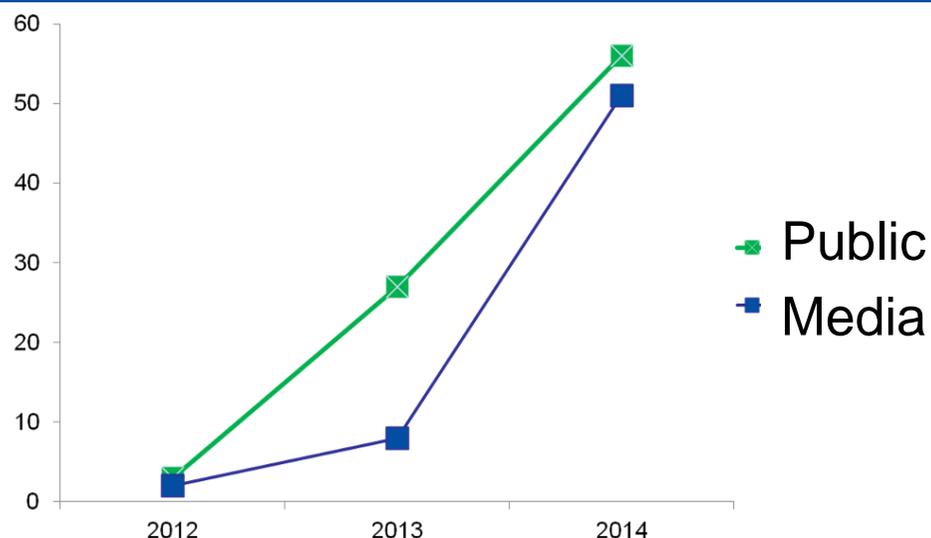


Source: Fotolia

Source: Fotolia

Example Aluminium: New formats in risk communication

Aluminium: Questions from the public and the media



15th BfR Consumer Protection Forum 2014: Aluminium in everyday life: a health risk? (Livestream German and English)

Source: Fotolia



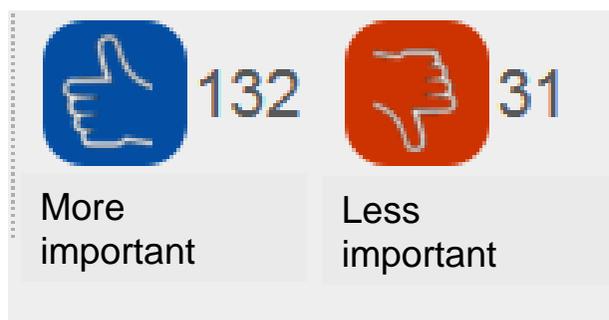
Are there any indications of a causal connection between aluminium exposure and Morbus Alzheimer?

Are there any indications of a possible causal connection between aluminium and breast cancer?

Interactive Online Forum, Live Stream and Consumer Questions

Fifth edition of the interactive online forum "Consumers Ask Questions - the BfR Provides Answers"

- Consumers can ask questions online
- Opportunity to assess all submitted queries
- The three questions that get most votes were answered by the BfR in a video message
- In addition, scientists answered further questions at the 15th BfR Consumer Protection Forum



More BfR-Opinions with an easily understandable summary (“grey box”)

BfR Opinion No. 047/2007,
**Infant formula and follow-up formula may contain harmful 3-MCPD
fatty acid esters**

Source: Fotolia

Free 3-monochloropropane-1,2-diol (3-MCPD) has been identified as a contaminant for a long time in various foods like liquid seasoning or bakery goods heated to high temperatures.

In animal experiments 3-MCPD has led to an increase in the cell count (hyperplasia) in renal tubules and, at higher levels, it triggered benign tumours.

There are no findings from human studies.



Source: Fotolia

According to the current level of scientific knowledge, babies in particular may ingest levels of 3-MCPD esters from infant formula and follow-up formula for which, **in the worst case scenario, the safety margin to the effects observed in animal experiments would be deemed to be too low.**

Questions from the consumers and media

Frequently Asked Questions about 3-monochloropropane-1,2-diol (3-MCPD)

Source: Fotolia

Should mothers refrain from giving their babies infant formula and follow-up formula as a precautionary measure?



Source: Fotolia

Mothers should continue feeding their infants as usual.

For infants who are not breastfed there is no alternative to formula and follow-up formula.

Mothers should not switch to cow's or other animal's milk as they do either not contain all essential nutrients in adequate amounts and/or too high amounts of other nutrients such as protein and are thus no adequate food for infants.

As the contamination of products with 3-MCPD fatty acid esters is not restricted to individual types or manufacturers, the problem must be solved rapidly from the technological angle.

Melamine in dairy products – no requests from the public and press in the last years to BfR



Source: Fotolia

Adulterated foods investigated: modern analytical methods verify that foods are genuine

04/2015, 18.02.2015

BfR hosts the European conference of Food Law Enforcement Practitioners (FLEP)

Food adulteration can pose health risks.

In China melamine was used to give the impression that dairy products were high in protein.

Due to this contamination, many infants fed with these adulterated products became ill.

As a consequence of the melamine crisis of 2008, special regulations on the importation of certain protein-containing products are now in place for goods originating or imported from China.

National Breastfeeding Committee at BfR: Babies should be breastfed exclusively for the first four to six months

About the National Breastfeeding Committee at BfR



- founded in 1994 with the aim of promoting a breastfeeding culture in the Federal Republic of Germany and to ensure that breastfeeding becomes the normal form of nutrition for infants.
- members of medical professional associations and organisations who are committed to the issue of breastfeeding in Germany.

Source: Fotolia



National Breastfeeding Committee at BfR: Babies should be breastfed exclusively for the first four to six months

Differences in the composition of breast milk and industrially produced infant formula and follow-on formula and their effects on the health of infants

Opinion of the National Breastfeeding Committee, 2012



Source: Fotolia



Source: Fotolia

- Exclusive breastfeeding in the first 4 to 6 months reduces the **number of infections in infants by 40 to 70 %** and lowers **hospital admissions during the first year of a baby's life by more than 50 %**.
- For example, breastfeeding reduces the risk of **infections of the lower respiratory tract in babies by over 70 %**.
- Other illnesses which are found less often in breastfed babies are otitis media, gastrointestinal infections as well as possibly overweight and diabetes mellitus Type 2 later in life.

National Breastfeeding Committee at BfR: Babies should be breastfed exclusively for the first four to six months

Breastfeeding - Nutrition for Body and Soul

16/2013, 10.06.2013

The National Breastfeeding Committee is publishing updated brochures with information and recommendations for pregnant and breastfeeding women



Source: Fotolia

GERMAN NATIONAL
BREASTFEEDING COMMITTEE

Recommendations on Breastfeeding



Recommendations for breastfeeding in infancy



available in **German, Turkish, Russian, English, French and Italian.**

0,00€




Herbicide Glyphosate in breast milk?

Media attention and Questions to BfR

25. June 2015



One Parliamentary Group: "**very concerning**".

In 16 breast milk samples glyphosate residues above the permitted for drinking water maximum residue level of 0.1 ng / ml (nanograms per milliliter) were found.

26. June 2015

Evaluation of glyphosate contents in breast milk and urine

BfR communication No 019/2015, 26 June 2015



Source: Fotolia

The ELISA tests known to the BfR are intended for detecting glyphosate in water samples they **are not suitable for milk.**

If the limit value in drinking water is exceeded, this does not necessarily mean that a health risk exists, since **the drinking water limit value represents a precautionary level for all pesticides rather than being toxicologically derived** for individual substances.

For pesticide residues in baby foods, the maximum value is one hundred times higher than the cited drinking water value.

Herbicide Glyphosate in breast milk?

High Media attention and Questions to BfR

30. June 2015



The National Breastfeeding Committee and the BfR recommend that mothers continue to breastfeed

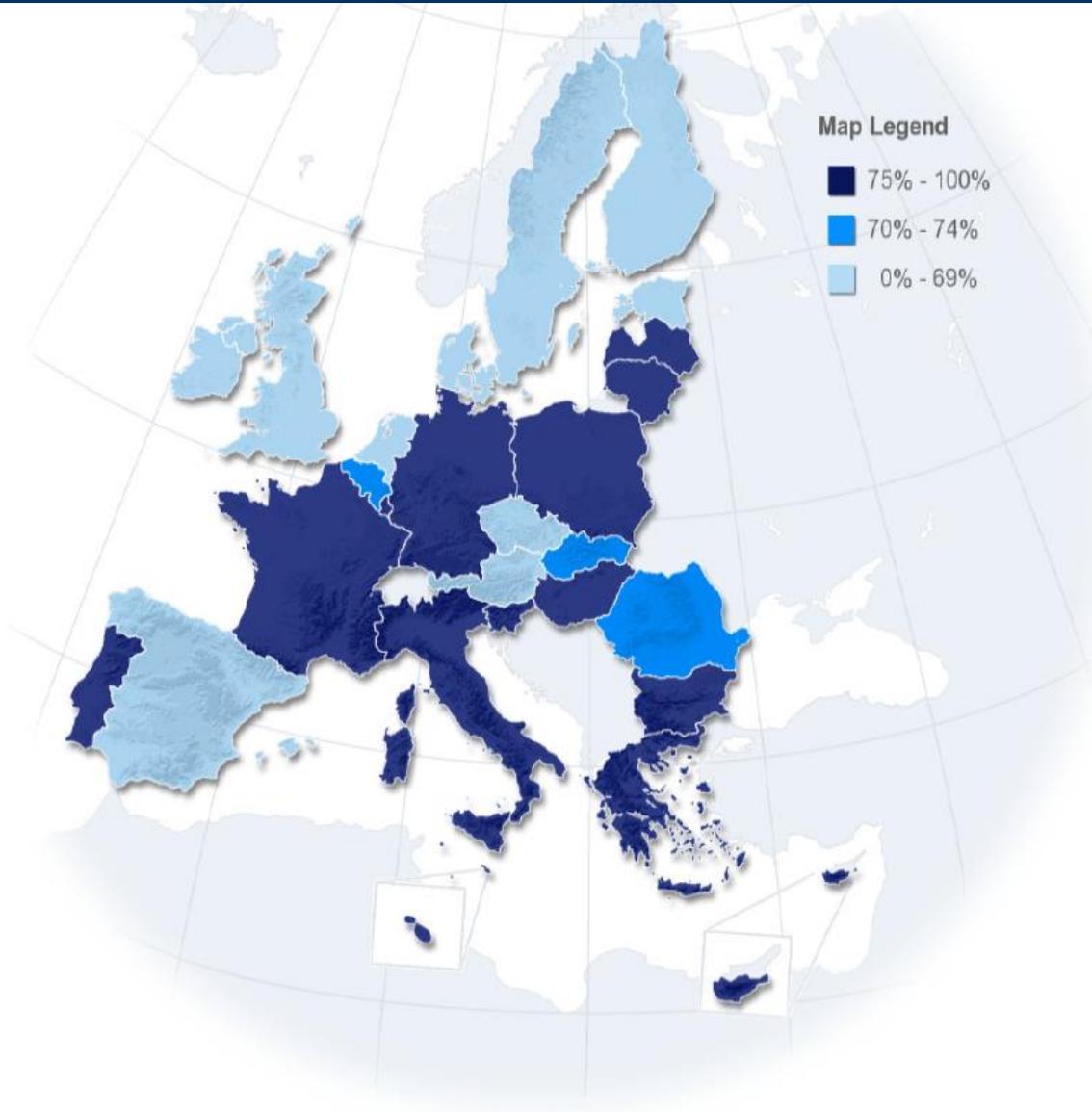
Press release 16/2015, 30.06.2015

Source: Fotolia

- The published levels would lead to glyphosate intake levels in newborn babies which are lower by a factor of over 4000 than the EU reference value defined as posing no health risk.
- There are significant doubts regarding the methodology of the tests.
- Mothers should continue to breastfeed their children as before.

Perception of Pesticide Residues

Pesticide residues in fruit, vegetables or cereals: Geographical distribution of “Total worried”



75 % are **worried** about pesticide residues in fruit, vegetables or cereals (Germany)

78 % associate the term ,**toxic**‘ with food produced with pesticides (Germany)

67 % think that pesticide residues in **food** are **illegal** (Germany)

Sources: Eurobarometer 2010, BfR 2009

Milk in the News

Neue Westfälische Zeitung, 11.06. 2012

Professor : **Too much milk makes you sick**

Warning against excessive consumption of the protein-rich beverage

Osnabrücker Zeitung, 29.05. 2012

Medicine professor warns :

Too much milk is harmful to health

Spiegel, 10.09.2015

Does milk make you sick?

Source: Fotolia

Translation: BfR

Challenges in Risk Communication: One Expert Opinion is not a Risk Assessment

Milk intake and risk of mortality and fractures in women and men cohort studies

Michaëlsson K, Wolk A, Langenskiöld S, Basu S, Lemming EW, Melhus H, Byberg L (2014) Milk intake and risk of mortality and fractures in women and men: cohort studies. *BMJ* 349:g6015.

Authors: Given the observational study designs with the inherent possibility of residual confounding and reverse causation phenomena, a cautious interpretation of the results is recommended.

Milk - the promoter of chronic Western diseases

Melnik BC: Milk - the promoter of chronic Western diseases. *Med Hypotheses* 2009;72:631-639

A hypothesis is presented, showing for the first time that **milk protein consumption is an essential adverse environmental factor promoting most chronic diseases of Western societies.**

Are any health risks due to hormone levels connected with the consumption of milk?



Questions and Answers on Hormones in Meat and Milk FAQ to the BfR of 11 June 2014

With consumption of normal quantities of milk under consideration of an orientation value for the daily intake of milk (including yoghurt) of 200-250 g, the **hormone quantities that can be expected to be ingested should be seen as very low compared to the natural self-synthesis** of these hormones in humans.

Furthermore, the **hormones are metabolised very quickly** (pronounced “first pass” effect of the liver with peroral intake).

The available scientific data **do not currently give any reason to assume any relevant health risk.**

Risks at a glance: the BfR risk profile

BfR risk profile on ...							
A	Affected group	Group of persons					
B	Probability of health impairment	Practically impossible	Improbable	Possible	Probable	Certain	
C	Severity of health impairment	No impairment	Slight impairment [reversible / irreversible]	Moderate impairment	Serious impairment		
D	Validity of available data	High: the most important data is available and there are no contradictions	Medium: some important data is missing or contradictory	Low: much important data is missing or contradictory			
E	Controllability by the consumer	Control not necessary	Controllable through precautionary measures	Controllable through avoidance	Not controllable		

Assessment of a possible connection between milk consumption and the development of type 2 diabetes mellitus

Updated BfR Opinion No. 017/2013 of 2 July 2013*

		BfR risk profile: Milk consumption and diabetes (Opinion No. 17/2013)		
A Affected group	General population 			
B Probability of health impairment due to the consumption of milk	It is not assumed that a positive relationship exists between milk consumption and type 2 diabetes mellitus			
C Severity of health impairment due to the consumption of milk	No impairment	Slight impairment [reversible/irreversible]	Moderate impairment [reversible/irreversible]	Serious impairment [reversible/irreversible]
D Robustness of the available data	High: The most important data are available and are free of contradictions	Average: some important data is missing or is contradictory	Low: much important data is missing or is contradictory	
E Possibility of consumer control	Control not necessary	Can be controlled by taking precautionary measures	Can be controlled by refraining from consumption	Not controllable

Text fields with dark blue background highlighting characterise the properties of the risk assessed in this opinion (for more detailed information, please refer to the text in BfR Opinion No. [No./Year] dated [Day/Month/Year]).

Explanations

The risk profile is designed to visualise the risk outlined in the BfR Opinion. It is not designed to permit risk comparisons. The risk profile should only be read in conjunction with the opinion.

FEDERAL INSTITUTE FOR RISK ASSESSMENT (BfR)

Raw milk may be contaminated with pathogens such as campylobacter or EHEC



Source: Fotolia

Raw milk: boiling protects against infections

Press release 11/2014, 20.05.2014



Source: Fotolia

Every year, the BfR receives reports on outbreaks of disease caused by the consumption of raw milk on farms or during holidays in the countryside.

Especially in the summer months, holidaymakers are fond of buying fresh milk directly from farmers. In addition, farms with cows and milk tasting are popular excursion destinations for school and kindergarten groups.

Children, pregnant women, elderly and sick persons should refrain from consuming raw milk and raw milk products.

Poisoning accidents among children: New App Facilitates First Aid and Prevention

The app is an important information source and reference work, even without a direct internet link. In an emergency, the app can be used to call the responsible poison information centre directly.



Vergiftungsunfälle bei Kindern

Im Notfall
bin ich vorbereitet.

In der kostenlosen App des BfR finden Sie Informationen zur Vorbeugung von Vergiftungsunfällen bei Kindern und zu Erste-Hilfe-Maßnahmen. Alle Hinweise zu Gefahrenstoffen im Haushalt sind auch ohne Internet abrufbar. Im Notfall kann direkt aus der App ein Giftinformationszentrum angerufen werden.



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Thank you for your attention

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