HYGIENE in the household

Healthy cleanliness made to measure

Imprint

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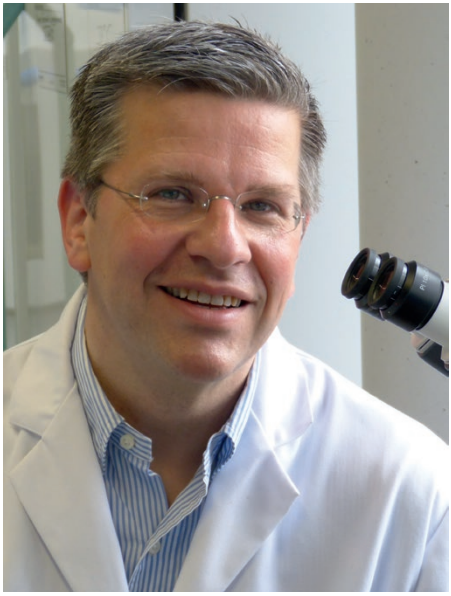
FOREWORD

Prof. Dr. Dirk Bockmühl



Are we too clean? This question is often asked in connection with household hygiene, and it is not easy to answer. Of course, we need to train our immune system, and from what we know, we need contact with microorganisms (especially in early childhood). On the other hand, there are a large number of infectious diseases that are acquired in the home environment. So what needs to be done?

The answer is simple: it is important to do the right thing, and that means first understanding where real hygiene problems exist in the household and where we can turn a blind eye. It then becomes clear that many tried and tested rules still apply today. On the other hand, we are also facing some new challenges that require special measures. Above all, however, good household hygiene is not magic but can be easily achieved with targeted action. This brochure aims to support you in this endeavour. It aims to impart important hygiene knowledge, explain hygiene measures and illustrate their use. In a way, hygiene is the science of the art of staying healthy, and that mainly means preventing problems before they arise; an approach that no one should seriously question.

Speaking of seriousness, you may notice a wink or two between the lines in the text, which is to say: even serious topics (such as maintaining our health) should be approached with a smile. With this in mind, I hope you enjoy reading this report.

Professor Dr. Dirk Bockmühl
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HYGIENE:

What does it actually mean?

Although there is no generally binding definition of hygiene, almost everyone has their own idea about hygiene and how it can be achieved.

The term goes back to Hygieia, the Greek goddess of health, and refers in the broadest sense to preventive measures to avoid illness on the one hand and to maintain or increase well-being and performance on the other. Hygiene can therefore be applied to all areas of life: household, personal, hospital or environmental hygiene are just a few examples.

In everyday use, the term hygiene is usually equated with thorough cleanliness and all measures aimed at achieving this. Hygiene therefore begins with regularly sweeping the floor, emptying rubbish bins and airing bedding.

The gradual introduction of many hygiene measures in Europe - which are taken for granted today - has made a decisive contribution to today's standard of living and health, especially since the beginning of the 20th century. Diseases such as cholera and plague are a thing of the past in Europe, and childbed fever and gangrene have also long since lost their fear here. In contrast, inadequate hygiene conditions in some parts of the world are still the cause of numerous serious illnesses and deaths.

OUR FLATMATES –

microorganisms in the household

We are constantly surrounded by microorganisms. They are not only found everywhere in the environment, but also on our skin and in our intestines. That's nothing to worry about. On the contrary: the vast majority of microorganisms are harmless or even beneficial because they help us with digestion, for example. Only very few are categorised as "pathogens", i.e. they can cause diseases. Such microorganisms are often referred to as germs. However, even pathogens are often only really dangerous to people with a weakened immune system.

What a germ needs to live

There are three main groups of microorganisms: bacteria, fungi and viruses. Under favourable conditions, bacteria and fungi can multiply very quickly. Firstly, the right temperature is important for this, which is between 20°C and 40°C for most bacteria. However, moulds and certain bacteria survive and multiply even in the refrigerator. The most important factor for rapid reproduction is usually sufficient moisture. Although nutrients are also needed, microorganisms can always find them: in dust, in dirt particles or on food. A few germs quickly turn into many, which pose a health risk because the immune system may no longer be able to cope with this large number. Unlike bacteria and fungi, viruses need a host (such as humans or animals) in order to multiply. However, even a few viruses can make us ill if they are transmitted from one person to another via droplets, for example.

A particular problem arises when pathogenic microorganisms have been able to multiply in one place and are then unintentionally spread around the household. In this so-called cross-contamination, microorganisms are transferred from one surface to another through direct contact. This is one of the most common causes of microbial contamination, which can lead to the spread and multiplication of microorganisms in private households in countless ways.

Nowadays, we all benefit from many achievements that make our lives easier when it comes to hygiene. We use fridges to store food at temperatures that significantly slow down the growth of germs, or we can put kitchen utensils in the dishwasher, which not only eliminates food residues but also microorganisms. On the other hand, social change has had a partially negative impact on household hygiene. As consumers, we are no longer able or willing to invest so much time and effort in housework. In addition, many of the household and hygiene rules that our parents and grandparents took for granted have been forgotten.

TARGETED HYGIENE IN THE HOUSEHOLD – the right measure

Hygiene makes sense because it focusses on preventative measures, i.e. in the best-case scenario it prevents problems before they arise. Of course, this also applies to hygiene in the home. This brochure aims to help you achieve a healthy level of cleanliness at home. Household hygiene does not mean buying and using a specific product. Rather, it is crucial to do the right thing. Therefore, below are some simple but effective tips.

In households where the basic rules of hygiene are applied consistently and where all members are healthy, problems do not normally occur. The products available on the market for cleaning hands, kitchens and bathrooms and for washing textiles ensure a high standard of hygiene when used correctly.

In most cases, proper and thorough cleaning is the only thing you need to do for good hygiene.

What to do if? – Special situations

There are situations in which special measures are necessary, for example in the case of infections that are accompanied by diarrhoea and vomiting. In such cases, a disinfectant for hands and surfaces can help to prevent other family members from becoming infected. This is especially true if they belong to risk groups: for example, infants and young children, pregnant women and the elderly are particularly susceptible to pathogens. This also applies to people who are immunocompromised due to illness or medication.

Important: Disinfectants and special cleaning agents with additional benefits against bacteria, fungi or viruses are tailored to specific consumer needs and should only be used in the household to solve very specific hygiene problems. Disinfectants must always be used in accordance with the manufacturer's instructions.

The following pages are intended to help you decide when and where the use of hygiene measures makes sense. This is not difficult, but it may not be possible to cover all cases. If you have any questions about the use of individual products, it is therefore advisable to obtain more detailed information from the manufacturers.

NEW CHALLENGES

Progress in one area often has an impact on other areas. This is also the case with hygiene in the home:

- The requirements of modern textiles, but also a change in environmental awareness, have led to laundry being washed at much lower temperatures today than in the past. To save energy and water, modern washing machines use only a fraction of the water of older appliances and do not always reach the washing temperature indicated. However, temperature and water volume have an important influence on the removal of microorganisms from the laundry.

- Duvets, pillows and fitted sheets are aired and shaken out less often, so house dust mites find more dander and therefore more food.

- Windowless bathrooms are difficult to ventilate. This can lead to increased mould growth due to the increased humidity.

- The positive ecological and economic effects of energy-saving measures when building or renovating a house, e.g. by sealing doors and windows, reduce the exchange of air. This can also promote mould growth.

- Less time spent preparing food often means reheating instead of cooking without heating everything properly (for example in the microwave).

- Many modern kitchen appliances, such as slicers or can openers, are not always easy to clean thoroughly.

- Due to waste separation, many households have several bins for "wet" waste (organic waste, residual waste, packaging waste), which are not emptied as often as a result. However, it would be good to do this every other day at the latest, otherwise this can lead to mould growth and unpleasant odours.

When cleaning, the same applies as everywhere else: first things first. The hygiene tips described in the following chapters are therefore organised according to the potential risk of infection posed by the surfaces to be cleaned::

1 **Very high risk:**
Hands

2 **High risk:**
Surfaces that come into contact with hands or food (e.g. door handles, kitchen worktops and chopping boards, cleaning utensils (dishcloths, sponges) and towels

3 **Medium risk:**
Washbasins, sinks, toilets, bathrooms, clothes, household linen

4 **Low risk:**
Floors, walls, furniture

FROM HAND TO MOUTH –

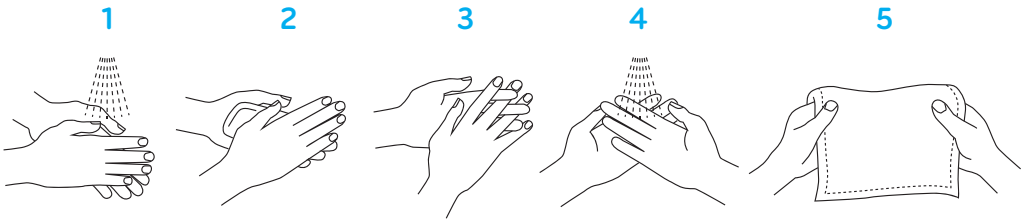
or why hand hygiene is so important

Many diseases are spread via the hands. For example, germs get onto the hands during the preparation of raw food, from where they can be transferred to other surfaces or mucous membranes. Transmission from person to person also occurs most frequently via the hands, either directly or through the spread of germs on so-called hand contact surfaces (door knobs, handles etc.)

The good news is that many of these microorganisms can be removed by washing them off to such an extent that they no longer pose a risk. **Thorough hand washing with soap is therefore the most important hygiene measure in the household.**

Hands should be washed thoroughly:

- before preparing food
- after preparing high-risk foods (e.g. raw meat)
- before the meal, afterwards does not hurt either
- before and after wound treatment or nursing care (if necessary, additionally: disinfection, see page 14)
- after using the toilet
- after changing nappies
- after contact with contaminated objects (rubbish, dirty laundry)
- after contact with animals, food and accessories (e.g. a cat's litter tray)
- after contact with bodily fluids (e.g. blood, vomit)
- after blowing your nose
- generally for dirty hands



1 Moisten hands under running water

2 Soap hands thoroughly and leave soap on for 20 to 30 seconds if possible

3 Also rub the soap into the backs of your hands, wrists, thumbs, palms and between your fingers

4 Rinse thoroughly under running water.

5 Dry carefully with a clean towel (also between the fingers).

Hands off flu viruses!
Droplet infections such as influenza are also often spread via the hands, for example when you rub your eyes after shaking hands with an infected person. Therefore, do not cough or sneeze directly into your hand, as you will then pass on your bacteria or viruses with the same hand, but if possible into a disposable handkerchief or the crook of your arm. If you cannot avoid sneezing or coughing into a hand, wash your hands thoroughly afterwards.

Correct hand disinfection: targeted and thorough!

Thorough hand washing is usually enough to remove germs sufficiently. In the following cases, however, the use of hand disinfectant is also advisable in the household:

- gastrointestinal infections in the family (after contact with sick people and after cleaning due to diarrhoea and vomiting)
- When dealing with seriously ill people or people in need of care in the household. Disinfecting your own hands primarily serves to protect sick people who are at an increased risk of infection.

Follow the instructions for use of the hand disinfectant exactly! If in doubt and in cases of illness, consult the doctor treating you.

Disinfect hands properly:

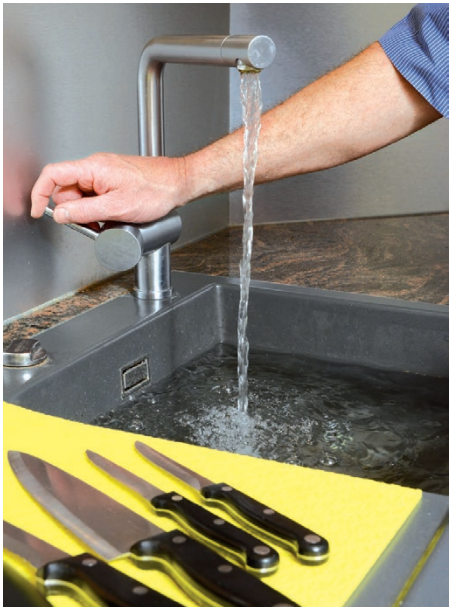
- Use the quantity specified on the instructions for use of the disinfectant.
- Spread thoroughly on all fingers, palms and wrists. Don't forget the spaces between the fingers, thumb surfaces and palms.
- Allow the disinfectant to act for as long as indicated on the product, generally at least 30 seconds.
- Do not use on wet hands, otherwise the disinfectant could become too diluted.
- If hand sanitiser is used frequently, apply hand cream afterwards if necessary.

Incidentally, the active ingredients are listed on the labels of disinfectants; in the case of hand disinfectants, these are usually alcohols such as ethanol or isopropanol.

THE KITCHEN –
the hub of the household

Microorganisms are not equally common everywhere in the household. What surprises many people is that there are usually far more micro-organisms in the kitchen, especially in the sink or on washing-up utensils, than in the bathroom, for example. For this reason alone, kitchen and food hygiene is of particular importance.

Illnesses caused by microbially contaminated food mostly affect the gastrointestinal tract and range from minor stomach upsets to severe diarrhoea and vomiting. In Germany alone, around 200,000 cases of infectious diarrhoea are registered every year – the actual figure is probably ten times higher. The cause is usually food contaminated with microorganisms, and for the most part from processing in private households.



Microorganisms can cause vomiting and diarrhoea in two different ways: either directly through infection or through their poisonous metabolic products (toxins). Fortunately, most of these toxins are not heat-stable. Therefore, the consumption of thoroughly heated food offers quite good protection. Raw foods of animal origin are particularly critical, as are fresh fruit and vegetables. This is because they are not germ-free. However, appropriate hygiene measures can ensure that germs do not multiply in or on the food. This includes the correct selection, storage and processing of food. However, it is also important to clean the utensils and surfaces used afterwards.

[1] Gérard Krause, Doris Altmann, Daniel Faensen, Klaudia Porten, Justus Benzler, Thomas Pfoch, Andrea Ammon, Michael H. Kramer, Hermann Claus (2007). SurvNet Electronic Surveillance System for Infectious Disease. Emerging Infectious Diseases, 13, 2007 (10), 1548-1555.

Pathogens are most frequently found in the kitchen

- via raw foods such as meat, poultry, fish, eggs or vegetables,
- by touching food with hands that have not been carefully washed,
- if relevant, also from pets and pests.

In addition to inadequately cleaned hands, dishcloths and cleaning cloths are also important reasons for the transmission of germs. It goes without saying that a cleaning cloth for the bathroom should not be used in the kitchen. Even if the same cutting board is used for cutting raw meat and vegetables without intermediate cleaning, there is a risk of germ transmission. Kitchen appliances such as slicers, can openers etc. are also not unaffected in terms of hygiene, as they are often difficult to clean. Speaking of cleaning: The best way to clean crockery and kitchen utensils hygienically and safely is to use the dishwasher. Dishwasher-safe utensils are therefore a much better choice when handling "critical" foods (such as raw meat).

Another important trigger for foodborne infections has to do with temperature: lack of or inadequate refrigeration during storage, slow cooling of food, insufficient heating during cooking and reheating and prolonged warming at low temperatures. Poultry and pork as well as fish and seafood are particularly problematic. Above all, food that is not suitable for eating raw can be contaminated with bacteria such as salmonella and must first be properly cooled and then cooked thoroughly.

Hygiene tips for the kitchen

- Wash hands thoroughly before and after handling food (see pages 12-13).
- Always process raw and prepared food in separate areas and with different kitchen utensils. Use utensils that can be cleaned in the dishwasher (e.g. plastic chopping boards).
- Allow dishcloths and cleaning cloths to dry quickly after use and change them frequently.
- Clean storage cupboards twice a year and check food stocks for shelf life and pest infestation, use tightly closing storage containers if possible.
- Clean the refrigerator at least every four weeks. Always keep the refrigerator temperature at a maximum of 7°C (preferably 5°C).
- Never defrost frozen food on the kitchen worktop, but rather in the fridge or in the microwave, and in any case in a bowl that goes in the dishwasher afterwards.
- Always store raw meat in the lower part of the refrigerator, under the prepared food, so that no meat juices can drip onto it.
- All food and prepared dishes should always be stored in closed containers in the refrigerator. If mould is found, dispose of it immediately and clean the refrigerator thoroughly.
- Store leftovers in the refrigerator and consume within a maximum of two to three days.
- Heat all food thoroughly and consume immediately after preparation.
- Empty and clean waste bins regularly.

HYGIENE IN THE BATHROOM AND THE TOILET

Conditions in the bathroom favour the proliferation of micro-organisms, as they also like it warm and moist. There are two major hygiene challenges in the bathroom and toilet.

Mould stains tend to occur in areas that are often damp for long periods of time, such as corners and joints on shower trays and shower cubicles, but also on textiles such as shower curtains or bath mats. The dark discolouration is usually caused by the spores of mould fungi, which are released into the air in large numbers and thus contribute to the spread of the fungus. Not only do the stains look extremely ugly, mould spores can also promote the development of allergies or trigger allergic reactions if an allergy is already present. It therefore makes sense to combat mould stains in good time.

Microorganisms of all kinds from the toilet area originate largely from the human intestine. Although they are not entirely harmless, they usually do not survive long in the toilet. In the event of severe contamination in the case of gastrointestinal infections with diarrhoea and vomiting, the type of contamination changes and the quantity of particularly infectious, pathogenic microorganisms also increases significantly. Although flushing the toilet removes most of the microorganisms in the toilet bowl, it also produces fine droplets that contain microorganisms and can settle on surfaces and objects in the bathroom. This means that not only the toilet seat but also other surfaces in the vicinity of the toilet are contaminated with microorganisms. In addition, microorganisms from dirty hands can also get onto taps, switches, facecloths, towels and door handles and thus be transferred to other people in the household.

If the toilet is not cleaned regularly, microorganisms can also colonise surface deposits. Protected in this shell of limescale and urine scale deposits, they remain viable for longer and can lead to ugly deposits and odours that are not necessarily dangerous, but nevertheless unhygienic.

Hygiene tips for the bathroom and the toilet

Avoid and combat mould

- Ventilate frequently and sufficiently.
- Hang up damp textiles so that they dry as quickly as possible.
- Dry the shower and bath with a squeegee or cloth after use. Pay particular attention to thoroughly drying joints and moving parts.
- In the event of mould infestation, make targeted use of additional anti-mould products, and in accordance with the instructions for use.

Prevent the transmission of germs from the toilet:

- Clean the toilet regularly and thoroughly, including under the rim of the bowl.
- Clean the toilet brush regularly (e.g. leave cleaning agent in the toilet bowl and soak the toilet brush).
- In the case of gastrointestinal infections with diarrhoea, additionally treat the toilet bowl and surfaces such as toilet seats, taps, switches and door handles with suitable disinfectant cleaners or normal cleaners and additional disinfectants.
- Always use disinfectant in a targeted manner and exactly according to the instructions for use!

LAUNDRY - CLEAN AND PURE

Most microorganisms found on textiles that have been used or worn originate from the human body, i.e. usually from skin flora. Microorganisms also find their way onto kitchen textiles through contact with food. By choosing the right detergents and washing machine programmes, these microorganisms are removed again in the washing machine. A few things have changed here: To save water and energy for heating, modern washing machines work with much less water than in the past. New appliances now only need around 45 litres of water for washing and rinsing, whereas 20 years ago they still needed 80 litres. In addition, the care labels on many textiles recommend temperatures of no more than 30°C or 40°C. At higher washing temperatures, sensitive laundry items can lose their shape, shrink or discolour. This is another reason why laundry is now washed at much lower temperatures than in the past.

At the same time, washing machines and detergents have been greatly improved in recent decades, so that today good washing results can be achieved even at low temperatures (30°C or less). This applies to both liquid and solid detergents (i.e. those in the form of powder, tablets or granules). It is important to know this about hygiene: Only solid heavy-duty detergents contain bleach, which not only ensures good washing results at 40°C, but also hygienic cleanliness. In the past, a boil wash cycle was necessary for this.

Please note: If you only use low-temperature washing programmes and bleach-free detergents, so-called biofilms can form, especially in water-saving washing machines. These are layers of slime that are colonised by bacteria and fungi. Biofilms do not normally lead to a harmful bacterial load in the laundry but can cause unpleasant odours in washing machines and on freshly washed laundry.

Laundry hygiene also has a lot to do with washing machine hygiene.

washing temperature, the right washing programme and the right detergent or additive is very important for both.

Tips for washing machine hygiene:

- After removing the clean laundry, leave the door or lid of the washing machine open and pull out the detergent drawer (or "rinse chamber") slightly so that water vapour can escape and the inside of the machine can dry. Germs do not like dryness.
- Clean the detergent drawer and its loading chute regularly by removing detergent or fabric softener residues and dust. The drawer can normally be completely removed for this purpose (see washing machine instructions for use).
- Dry and clean the rubber seal around the door of the washing machine.
- To prevent biofilms, wash at regular intervals, preferably once every fortnight, at higher temperatures (e.g. 60°C) with a detergent containing bleach (e.g. solid heavy-duty detergent in powder, granule or tablet form) or with the addition of stain removers containing bleach.

Incidentally, the temperatures displayed by washing machines are not reached by all appliances and not in all programmes. Short washing times also reduce the hygiene effect. Some washing machines therefore have programmes (e.g. "Intensive", "Hygiene", "Anti-allergy", "Down/bedding") that reach the indicated temperature (60°C) and last long enough. This supports good laundry hygiene, even if detergents without bleach are used.

Hygiene tips for washing laundry in normal circumstances

- Always dry textiles that have been used or worn and especially damp dirty laundry (e.g. sportswear) quickly and thoroughly and wash as rapidly as possible.
- Hang up washed laundry to dry immediately or dry in the tumble dryer, but do not leave it in the washing machine.
- When cleaning, do not forget the dirty laundry basket! Textile laundry bags can also be washed in the washing machine, and those made of plastic or metal should also be cleaned regularly.
- Wash underwear and facecloths at a minimum temperature of 40°C, kitchen textiles such as dishcloths and tea towels are better washed at 60°C with a detergent containing bleach (e.g. heavy-duty detergent in powder, granule or tablet form) or add a stain remover containing bleach.

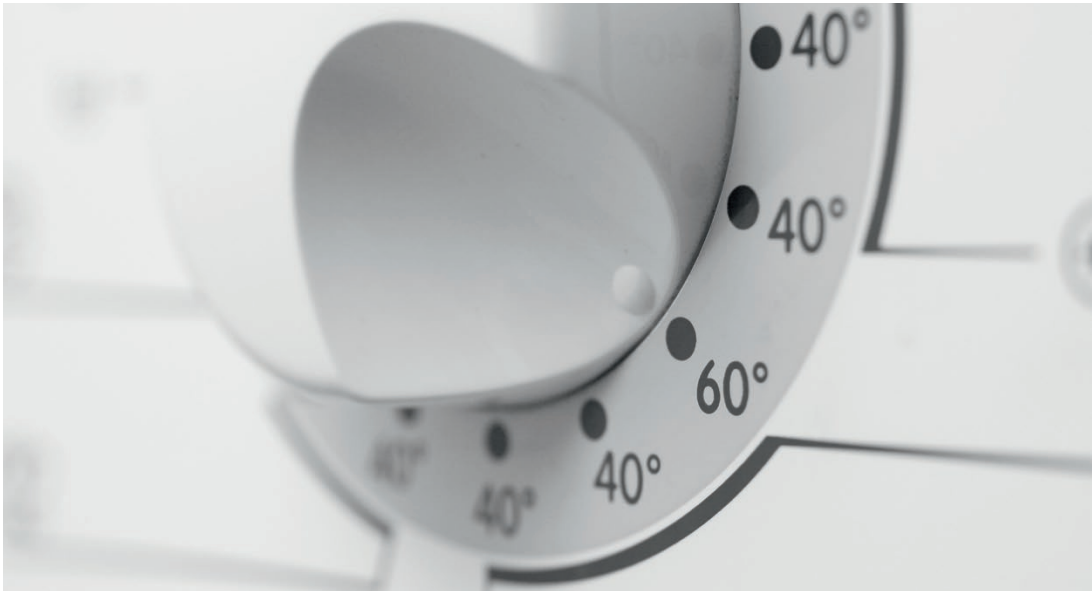
Laundry hygiene in special cases

Special situations in the family require special washing conditions, especially if people living in the household suffer from fungal infections that can also be transmitted via the laundry, e.g.

- on socks (athlete's foot) or underwear (candida albicans);
- in acute cases of gastrointestinal infections that are accompanied by vomiting and diarrhoea and cause severe contamination of textiles.

This is where the fun ends: Laundry contaminated with such fungi or viruses must be washed at 60°C with a detergent containing bleach (e.g. universal or heavy-duty detergent in powder, granule or tablet form) or a stain remover containing bleach as an additive. If the textiles cannot withstand bleach and/or such high temperatures, a disinfectant can help to remove the pathogens from the textiles. If in doubt, your doctor will also be able to advise you.

If several households share a washing machine or use communal facilities such as public laundrettes, it is a good idea to run your first wash cycle at 60°C. You never know what dirty laundry has been washed before yours....



EATING OFF THE FLOOR?

Hygiene of floors, walls and furniture

First of all, the probability of infection with bacteria, viruses or fungi via floors, furniture or walls is rather low.

It is particularly important in households with small children who crawl on the **floors** or with people who are allergic to house dust mites or pollen:

- Vacuum carpets and rugs thoroughly; vacuum cleaners should have special filters for allergy sufferers
- Regularly mop wet or (damp) wipeable surfaces (e.g. tiles, parquet but also furniture). Sweeping is also an important hygiene measure, although some types of broom stir up some of the dust, which settles again after sweeping.
- Any dirt caused by pets (you already know this...) should be removed as quickly as possible – especially if small children are crawling on the floor – and then these areas should be cleaned thoroughly. Do not enter the home with street shoes, this will reduce the amount of dirt that comes in from outside.

HYGIENE IN THE HOME –
It's not magic!

What we have learnt: Hygiene in the home is still an important issue.
And hygiene in the home is very easy to achieve!
Last but not least, the most important points in the form of our top ten tips for hygiene:

Hygiene top ten tips:

1. Washing your hands is the most important hygiene measure.
2. To prevent mould, ventilate regularly and wipe damp surfaces dry immediately, especially in the bathroom.
3. In case of gastrointestinal infections in the family: disinfect the toilet and dirty bathroom surfaces.
4. Clean kitchen utensils in the dishwasher after contact with raw food.
5. Replace the dishwashing brush and cloth at regular intervals.
6. Allow towels and cleaning cloths to dry quickly after use. Only use for a few days and wash regularly at 60°C (preferably on the boil/coloured wash programme).
7. In the event of illness in the family (diarrhoea, fungal infections), wash at 60°C using a heavy-duty or universal detergent in the form of powder, granules or tablets.
8. After washing, pull out and clean the rinsing chamber. It is better to leave the door of the washing machine open.
9. An increased level of hygiene may be necessary in households with pets.
10. Pay attention to people with special hygiene needs, e.g. infants, pregnant women and people in need of care, as well as people who are immuno-compromised due to illness or medication.

GLOSSARY:

Some important hygiene terms

Antibacterial: Effective against bacteria

Antimicrobial: Effective against microorganisms (bacteria, fungi, viruses)

Biofilm: Form of colonisation of surfaces by microorganisms. Biofilms are highly resistant to drying out and chemicals thanks to a layer of slime or a calcareous crust formed by microbial cells

Disinfection: Reduction of pathogens to a harmless level

Germ: common term for micro-organisms, especially for pathogens (e.g. bacteria)

Contaminated: infested by micro-organisms

Cross-contamination: Transfer of microorganisms from one contaminated surface to another through direct contact

Pathogen: Any organism that causes disease

Smear infection: Infection via contact with surfaces (e.g. solid surfaces, skin, food)

Droplet infection: Infection from people who release pathogens into the air by sneezing, coughing or speaking.

Sterile: germ-free, free from micro-organisms capable of reproduction