

# Hygiene in the Kitchen

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## Hygiene In The Kitchen

### **There are harmful bacteria lurking in your kitchen.**

How do I know that? Well, because that's what they do and you can never eliminate them completely. The trick is to control them.

You see, that shiny stainless steel surface may look like a sterile surface to you, but to a microbe it's a landscape of mountains and valleys with plenty of dark corners to hide in.

Of course a single bug is harmless and it will remain dormant until the conditions are right for it to get active. All that takes is the provision of a microscopic particle of moist food and normal room temperature. It will then neatly divide itself in two. These two bugs will then continue to multiply in number until the food and drink runs out - a bit like a teenagers party.

They are so good at this that, given ideal conditions, one bug can turn into 4 million inside 8 hours.

You won't see them, you won't smell them and, if they get on your food, you won't taste them either. They will strike without warning and with no sign that they even exist.

How's that for the stuff of nightmares?

The disturbing fact is that most food poisoning occurs in the home, and it is often not recognized for what it is. After all, no-one wants to think that their kitchen is an unhealthy place, or that there are germs hanging about in there.

Take heart, it's the same for everyone. There are more potentially dangerous germs in our kitchens than there ever are in our toilets. Fact.

That is why it is so important to practice safe food handling as well as cleanliness, which I know you are already scrupulous about.

For example, I'm sure you wash your tin opener in hot, soapy water each and every time you use it. Right?

You do? You're one in a million!

Can openers are one of the great sources of cross contamination. Fortunately the bugs on them tend to be of the less virulent variety.

That is not necessarily the case when it comes to tea towels, sponges, rubber gloves (!), chopping boards, drainage areas and vegetable storage racks, to name but a few of our food poisoning microbes favorite haunts.

In this book, we're going to deal with the bugs most likely to exist, where they tend to be found, what kills them (and what does not), as well as how they travel around and how

you can prevent that happening.

The point to bear in mind is that everything in this book applies to you, not to some stranger with unsavory habits. Bacteria are a fact of life. They are in the air we breathe. This book is intended to help you live alongside them in peace and harmony without encouraging them too much.

Yes, I know you'd rather eliminate them - so would I - but that's out of the question so let's start out by learning to live the enemy.

## **Know Your Enemy**

There is a difference between germs, bacteria and viruses which is important to know if you are a medic or other professional, but is of no more than passing interest if all you want to do is avoid the lot of them.

So for convenience we'll call them all bugs!

What is important, however, is to understand the nature of the enemies you face as well as when and how they can attack. Prepare to have some myths busted.

Everyone has heard about the hitman of the bug world, Sal Monella, and boy does he need a good press agent, but he's a pussy next to:

## **Campylobacter**

If you have a bug in your kitchen (and you have!) this is it. I'm grateful to the UK's FoodLink organization for the following quote:

"Campylobacter is a microbe that causes food poisoning. It can be found in raw poultry and meat, unpasteurised milk, and untreated water. Pasteurised milk can be contaminated by birds pecking bottle tops on the doorstep. Pets with diarrhoea can also be a source of infection. Campylobacter is the most common identified cause of food poisoning."

Notice in particular the reference to raw meat and poultry. I doubt you eat much of that in the course of a year, do you?

The problem is that, unless you are a vegetarian, you handle it, store it in the 'fridge and prepare it on your work surfaces. We'll deal with all of that a bit later when we discuss 'cross-contamination'.

For the moment, just be aware that you don't need a whole lot of this baby to give you problems such as fever, headache, stomach pain and the runs. It also has a nasty habit of recurring just when you thought you'd got rid of it.

It can take up to 10 days to make itself known, which is worth bearing in mind the next time you get struck by that 'mystery' bug. It is destroyed by thorough cooking at temperatures over 63C.

## **Salmonella**

Okay vegetarians, this is where you get yours!

You see, Sal gets about and his turf includes raw, unwashed vegetables as well as all the usual haunts of campylobacter.

That's because he lives in the gut and droppings of animals as well as humans, so anything that grows in the great outdoors is likely to get contaminated. He's also one tough cookie. You need to be aware of two things about him that are important.

The first is that refrigeration does not kill him (although it does stop him Reproducing), and the second is that it takes thorough cooking to finish him off.

Take him seriously. He's a killer.

His symptoms such as fever, headache, stomach pain, vomiting and diarrhoea usually develop within 48 hours and can last up to three weeks.

This is one mean guest that you need to evict as quickly as possible. Because he will show up some time and that's a fact.

## **Staphylococcus aureus**

Big name for such a little bug!

The problem with Staph is that, like taxes, she is always with us. On our skin, in cuts and boils and up our nose. She is readily transferred to our food from our hands or droplets from the nose or mouth.

See, Grandma was right, coughs and sneezes do spread diseases.

Which is why the most common cause of infection is from already cooked foods which are handled during preparation and then eaten without further cooking.

Staph herself is pretty harmless and it takes a lot of her before the real villain appears. You see, in great numbers she produces a toxin (poison) and it's that which does the damage.

Unfortunately, although cooking kills Staph, it doesn't always destroy the toxin. Which is why basic hygiene in the kitchen is so important.

## **Clostridium perfringens**

This little beauty lives in the soil, animal manure, sewage and is often found on raw meat and poultry.

Which means that just about any raw food can be contaminated and it is particularly important to wash soil-grown vegetables before you peel and prepare them.

Clo has a real neat little survival trick too. She produces spores that may survive being cooked. Then, as the food cools down, the spores germinate and produce bugs which rapidly multiply.

Be very wary of gravy, pies and other meat products that are not reheated to at least 63C before you eat them – and never keep food that has been hanging around for over 2 hours at room temperature.

## **Bacillus cereus**

Or 'very cereus'!

Bacil could be Clo's brother and a cousin to Staph. He too produces spores which survive cooking and then germinate as the food cools down. The resulting bugs then produce a toxin which is not destroyed by heat.

Nasty!

And this is where he lives: rice dishes, occasionally pasta, meat or vegetable dishes, dairy products, soups, sauces and sweet pastry products.

Is nothing safe?

It may come as a surprise to you to learn that rice and pasta can be a source of food poisoning, but they can. Often it's because these dishes are kept warm over considerable periods of time.

Bacil attacks in two ways. The result may be diarrhoea within 8 to 16 hours, or vomiting within 1 to 5 hours.

These attacks usually last for no more than 24 hours.

## **E.coli**

This is the name of a wide variety of bugs, not all of which are harmful, that are carried in the gut of humans and animals, including your much-loved pets.

The most common outcome of infection is diarrhoea that usually clears up reasonably quickly.

However the very young and elderly may be at greater risk, with infection leading to kidney failure and sometimes death. Be very concerned about heavy diarrhoea in these age groups, particularly if bloodstained.

## **What to do next**

Knowing the enemy is the first step in dealing with him.

The six little meanies above are by no means uncommon and most, if not all, of them are somewhere in your home right now. Hopefully though, in manageable numbers.

Now let's take a look at what we do about them.

## **Prepare your defenses**

Unless you want to live in a kitchen that looks like a surgical ward you are never going to eliminate bugs altogether.

So the next best thing is to learn how to control them, and to do that you need to understand their habits.

In order to survive all bugs need four things; food, moisture, warmth and time. Deprive them of any of these and you have them under control.

Please note, that doesn't necessarily mean they will die. It's much more likely that they will simply become inactive, but in the battle against the bugs that's a huge step forward.

## **Food**

Bugs will live on anything we eat and a whole lot more we'd rather not. Bear in mind there doesn't have to be very much of it to feed millions of them. In fact, the morsel may be so small that you cannot even see it.

Which is why cleaning down your work surfaces is so important. This needs to be very thorough indeed and should include scrubbing, especially when changing from handling raw foods to cooked.

That's also why it's very important to clean up anything you spill as soon as possible.

## **Warmth**

Anything between 5° centigrade and 60°C is the equivalent of a bug holiday resort. At temperatures lower than that, such as your fridge, they will become inactive.

Take careful note; the word is "inactive". They do not die. Many will not die even when frozen. They do what anyone with any sense does, they wrap up warm and go to sleep.

At temperatures over 60° C. bugs will start to die and prolonged cooking will wipe them out. But as we have seen, this may not apply to their spores or the toxins they produce.

The lesson here is, whether raw or cooked, when food is not in use keep it in the fridge. And of course the fridge itself must be kept at a temperature below 5° C.

## Moisture

Want to know how to get instant bugs? Just add water.

The important thing is to dry everything thoroughly, including your hands after washing them. This is a fact; wet hands are *1000 times more likely* to transfer germs than dry ones.

Remember what we said about water droplets? The tiniest amount of moisture is all that is needed for bugs to multiply in number.

To give you some idea of what this means, an ordinary wedding ring with moisture trapped between it and the skin could easily be home to a colony of bugs with the same size of population as that of the United States.

Scary? I'll say!

## Time

Think about this. Simply by dividing itself in two again and again, a single bug can become 8 million mischief-making little critters in the space of four hours.

So don't give it the four hours!

I repeat for those who weren't listening the first time, food that is not in use should either be in the fridge or in the cooker.

The exceptions are raw vegetables, which should be stored in a cool dark place, and fruit that may be kept in a bowl and should be washed before eating.

Of the four factors affecting the growth of bugs, time is the most critical one as well as being the one you can do most about.

Here is a general rule of thumb to bear in mind: ***any food, whether cooked or raw, that has been standing at room temperature for two hours or more should be considered contaminated and treated accordingly.***

In the case of cooked food, this means throwing it out.

Yes I really mean that. Only eat it if you are the sort of person who likes a good Old-fashioned game of Russian roulette or runs red lights just for the fun of it.

Raw meat that has been left hanging about should be washed with vinegar (which is a mild disinfectant) and cooked immediately.

**DO NOT** put it back in the fridge and **DO NOT** freeze it for later.

It's also important to thoroughly clean any surface it has been in contact with, including your hands, and any area they may have touched after handling the meat.

That doesn't mean rinsing the tips of your fingers, by the way. It means thoroughly washing your hands with soap and warm water. And if possible, drying them just as thoroughly on a disposable paper towel.

Your personal hygiene is a critical factor in keeping your kitchen safe. It's important to you, I know, and of course you take all the usual precautions. But not every one does.

A recent survey revealed that 50% of men and 25% of women fail to wash their hands after using the toilet.

There are plenty of other instances where hands that should be washed are not, mainly because people are not aware of the potential hazards.

Did you know, for example, that around 50,000 bugs can live on a single strand of hair? Can you honestly say that you have never touched your hair while in the kitchen without washing your hands afterwards?

You're not alone if your answer is 'no'. Not many people can. In fact, most of the time we wouldn't even notice we'd made such a gesture. So how do we avoid contamination?

I have three golden rules which I urge you to adopt. They're very simple and easy to do.

1. Always wash and dry your hands after handling raw foods.
2. Always wash and dry your hands immediately before preparing any food which requires no further cooking.
3. Always wash and dry your hands each time you enter the kitchen.

Make that last one a habit. Make it automatic.

You're in the middle of cooking something and the doorbell goes. You answer it, chat for a while and come back to the kitchen.

***Wash your hands!***

The phone rings while you're preparing the salad. You answer it, chat for a while and hang up.

***Wash your hands!***

Okay. Enough about our personal habits. Let's now turn the page and look at what we can do to make the kitchen a safer place to cook in.

## **Cutting off Supplies**

In the Battle of the Bugs the key to success, as in any other war, is to remove the enemy's support systems.

In other words, deny him everything he needs to succeed.

We've already seen that in the case of bugs this consists of four things. Moisture, warmth, food and time.

Deny the bug troops any of these and they are severely restricted in their ability to attack. Not that the bugs see it that way. They are simply doing what a bug is designed to do. Go forth and multiply.

Your illness is nothing more than a by-product of that process. It's not personal, you understand. It's strictly business.

So make 'em an offer they can't refuse :0)

## **Chopping boards**

Probably the single biggest source of cross-contamination because most people use the same board for everything.

Professional kitchens on the other hand are supposed to have different boards for raw meat, fish, vegetables and dairy products.

Some chefs even use them ÷)

You probably don't want to go that far, but there is something neat you can do. Use a large, easy to clean board and mark one side of it.

That is the side you will always use for raw ingredients and nothing else. You also need to clean it thoroughly after each use. If I catch you just turning it over you'll be on spud peeling duty for a week!

If you have room, use two different boards and store them apart. They can be in the same cupboard – these bugs don't jump – but not touching each other. Color coding them is another good idea.

So have a red board for raw and a blue board for general use. Which kind of rules out wood, doesn't it?

Wooden boards are greeaat. They look cool, don't dull the edge of the knife too much and last a lifetime.

Unfortunately, so do the bugs that live on them.

A worn wooden chopping block is a high rise tenement block for bugs off all kinds.

It's warm, it traps particles of food, it retains moisture and it hangs around in the kitchen at room temperature. Wow!

If you were a bug, would you want to live anywhere else?

Watch a butcher clean his block.

He not only scrubs it down thoroughly, at the end of every day he actually scrapes off the top layer of wood, where the knife cuts are.

And he's only ever going to use it for raw meat!

Use the modern plastic compound boards. They won't damage your knives either and they are easy to keep clean. What's more, they dry out thoroughly.

If you have a dishwasher, you can clean them in it and you can, if you wish, use a surface spray on them as well.

Personally, I never do. I use vinegar, which is a great stand-by antiseptic as well as a natural foodstuff.

You could also use alcohol, but you might have a better use for a quart of Jim Beam than keeping bugs at bay. And anyway, who wants bugs with a hangover?

## **Pots & Pans**

In my ecourse on cooking, modestly titled [The Cool Cook](#), I strongly recommend the use of stainless steel for just about all your kitchenware.

I'm not going to do anything differently here.

Stainless steel is close to being the perfect kitchen metal for a number of reasons (if you want to know what they are – take the course :0). But above all, it can be cleaned thoroughly and easily.

Scrub it clean in warm soapy water – nothing sticks to it – rinse it, then stick it straight on to a hot stove to heat up and dry out. That's it. Bug free.

Don't leave it on the stove though, or you'll find it has another quality – it glows in the dark.

## **Surfaces**

Most modern kitchens have surfaces that are easy to clean and keep sterile. Older ones that still have tiles and wood in them are more of a problem and need special attention.

Your biggest enemy is grease. It gets into very small cracks and provides an ideal habitat for bugs. That's because it is a food in itself and it's permanently moist.

Now here's something which may surprise you. Using disinfectant on a greasy surface will not work. You might as well spray water.

Kitchen disinfectants only work successfully on clean, dry surfaces which are probably short of the things they are designed to kill anyway.

The solution is to use a good detergent to remove all traces of grease. In older kitchens it's not a bad idea to follow this up with a weak solution of household bleach, but remember to wear rubber gloves while you are doing it.

Only after this has dried should you use your surface spray, if you must. Personally I use vinegar which is cheaper and just as effective. I am also confident that it's harmless if swallowed and doesn't irritate your skin.

## **Frozen Food**

Most bugs, but not all, become inactive when frozen. Some even die. But remember the spores we talked about?

Okay. Here's what happens.

You take food out of the freezer to thaw and leave it at room temperature. As soon as the outside of that food reaches the right temperature, the spores hatch out and the bugs wake up and start to divide.

How long does it take to thaw the food out? Two hours or more? You're in trouble!

Which is why you should always plan ahead and thaw food in the fridge.

Yes, I know, a chicken will take 48 hours or more. But at least it will be safe to eat at the end of that time because you will have denied the bugs one of the four things they need to reproduce – warmth.

But let's suppose, half-way through thawing time, you change your mind. You'd prefer an omelet. Can you re-freeze the partially thawed meat?

**Absolutely NOT. No! Under no circumstances!**

Can you see why?

If the food was thawed outside the fridge you now have an increase in the size of the bug colony. When you next thaw out that food, that's the number they're going to start from – they're already halfway dangerous!

But what about if the food is thawed inside the fridge?

The same thing applies. Some bugs can reproduce at lower temperatures. For example, *Listeria monocytogenes*, which causes symptoms ranging from mild flu-like attacks to meningitis and blood poisoning. It is also a threat to pregnant women and the unborn child.

How common is it?

It's found in meat, poultry, raw vegetables, the soil, raw milk, salads, cheese (especially the soft blue varieties) and the gut of humans and animals.

So why haven't I told you about this before?

Because I wanted to use it to impress on you the importance of – and the reasons behind – the no re-freeze rule.

## **The Refrigerator**

Every fridge has a bottom shelf, and this is where the raw meat and fish should go; on a plate and covered in plastic wrap.

Why?

So it can't drip on anything else and contaminate it.

And that shelf should be cleaned at least twice a week and preferably after each time that raw food has been standing on it, whether it was on a plate or not.

Remember we are talking about microscopic particles here. Minute drops of moisture so small that you can't even see them, but which your hands have transferred to the outside of the plate you are storing the food on and any other surface you happened to have touched.

You won't see them fall into the butter/cream/chocolate cake or what have you. You won't see any change in those items if they do. But you now have high risk ingredients in your kitchen.

Save yourself the trouble and always use the bottom shelf for raw meat – and nothing else.

Cooked food should go on the next shelf and other items on the shelves above that. Eggs, by the way, are safest kept in the fridge in the box they come in or some other container.

Make sure that everything is covered and of course clean up any spills immediately. There are a couple of other things to remember.

One is to never reheat food more than once. It's better by far to remove the quantity you need for the meal and leave the rest in the fridge. Any reheated leftovers should be thrown out. The other is to allow food to cool before putting it in the fridge.

The reason for that is pretty straightforward. Hot food raises the temperature of the food next to it, activating Sal and his friends. It may be some time before the temperature falls sufficiently to get them back under control. Instant contamination.

## Children

Kids can have a great time in the kitchen, but their understanding of hygiene is rarely the same as that of an adult.

Make sure they fully understand that utensils which are used for raw ingredients must not be used for cooked, what happens to food dropped on the floor and when hands need to be washed.

The conversation will probably go something like this:

“Ya put sump’n in da dishwasher, ya washes ya hands. Right?”

“Oh Mo-om!”

“Ya put sump’n in da waste bin. Ya washes ya hands. Kapeesh?”

“Oh Mo-om!”

“Ya pat da dawg, ya washes ya hands. Okay?”

Oh Mo-om! Do I have to?”

“You betcha sweet.....”

See you next week on Doctor Phil :O)

## Pets

I love them as much as you do, but neither they nor their feeding bowls belong in the kitchen.

Whether we like it or not they carry bugs that can be harmful to humans if they get on our food. Make the kitchen an exclusion zone if you can, though how you do that with a cat beats me.

Make sure also that they have their own feeding bowls, preferably in stainless steel, and that these are washed after every meal. Don't leave pet food lying around. It's a great source of contamination and a breeding ground for bugs.

It also attracts.....

## Pests

All insects transmit diseases just because they live in places where diseases are to be found. They have dirty feet.

When they walk on your carefully polished surfaces, or take a short cut through the sugar bowl, they leave these traces behind.

They don't mean to do it. It's not a conspiracy (or maybe it is????). That's just how things are in the insect world. Get over it, but don't take it lightly.

One way or another you need to ban insects too, including those hunting spiders which are actually on your side and scare the heck out of you when you see one. The problem is, you don't know where she's been.

Anyway, do you really want to live in the same house as a female who just ate her husband?

Arachnids and insects you prefer not to kill can be safely removed by placing a glass over them and sliding a piece of stiff paper under the glass. Then drop them over the fence and let your neighbors enjoy their company for a while. ÷)

DO NOT use insect surface sprays in the kitchen when there is food about. In fact, to be on the safe side, don't use them at all.

One effective and cheap insect trap is an empty, but still greasy, spread container. Put a little red wine in the bottom of it and leave it near the stove or fridge overnight. In the morning you'll see what secret guests you have and can take action accordingly.

Of course, you may also find the cat staggering about with a glazed look in its eyes.

## Barbecues

In both Australia and the USA barbecues are practically a way of life. We even have them built into our back yards. And generally we know how to use them. The tips are passed down from father to son.

But if you are relatively new to this type of cooking, please bear in mind it's not just a question of buying the latest Weber and away you go. You need to learn how to use it properly and, above all, safely.

Here's just a few 'beat the bugs' tips to be going on with:

- Always make sure the barbecue is at cooking heat before adding food.
- Charcoal fires should be completely gray – no black anywhere
- Cook items such as chicken legs and sausages thoroughly on medium heat
- Cut into chicken joints before serving – no pink anywhere!
- Do the same with sausages and hamburgers
- Keep meat in the fridge until you are ready to cook it
- Keep salads in the fridge and serve only when the meat is ready
- Do not put cooked meat on plates that previously held raw
- Do not put raw steak and raw chicken in the same dish
- Do not add uncooked marinade to cooked meat
- Always clean the barbecue while it's still warm

If you're taking your portable barbie to the beach or somewhere similar, one excellent idea is to pre-cook chicken and sausages in the microwave or oven, and

then finish them off for that authentic barbecue taste.

And of course, all other hygiene precautions we have previously discussed still apply. In particular, throw out leftover chicken joints that have been hanging about for a while.

And treat ANY cooked food that has been left outside for two hours or more as contaminated and unfit to eat.

## **Finally**

I hope you have enjoyed reading this little book and that it has been useful to you. If you get the chance, please visit my recipe website at <http://www.all-about-cooking.com> where you will find lots of new ideas for preparing and cooking your favorite foods.

It's a growing concern and I welcome input from other cooks, so please keep in touch. And, above all, stay healthy!

Best wishes for the future  
Michael Sheridan  
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