

Just Dump Your Smelly Sponge

Analysis by [Dr. Joseph Mercola](#)

May 22, 2024

STORY AT-A-GLANCE

- › Using a microwave to clean used sponges does kill some of the bacteria, but not the worst ones, a 2017 study says, as some particularly stubborn bacteria can cause disease
- › About 82 billion bacteria may inhabit a single cubic inch of space in your kitchen sponge, one variety being a particularly prolific microbe called *Moraxella osloensis*, even if the sponge looks clean
- › Thrifty people may pride themselves on making their sponges last a long time by washing them out and “nuking” them in the microwave, but though this may make them smell a little better, it may not do the job
- › You can boil, bleach or microwave your dirty sponges, but make sure you do the job right, for the prescribed amount of time and on a routine basis

Editor’s Note: This article is a reprint. It was originally published August 19, 2017.

What common household item has around 362 different species of bacteria residing inside it? You’ve probably already guessed from the title that it’s your average, everyday kitchen sponge, but did you know killing those little critters takes more than a few minutes in a microwave, as per some “kitchen hacks” advice?

It seems that nuking (microwaving) used sponges does kill some of the bacteria, but not the worst ones, according to a 2017 study published in *Scientific Reports* and titled “Microbiome analysis and confocal microscopy of used kitchen sponges reveal massive colonization.”¹ The study explains something previous research has missed – namely,

that a used kitchen sponge generally carries not just a lot of germs, but a lot of different species of germs. As The New York Times asserts:²

“It may nuke the weak ones, but the strongest, smelliest and potentially pathogenic bacteria will survive. Then, they will reproduce and occupy the vacant real estate of the dead. And your sponge will just be stinkier and nastier and you may come to regret having not just tossed it.”

There are bacteria, then there are **pathogens**, which Science Daily describes as “a biological agent that causes disease or illness.”³

Kitchen Sponge Microbiome – Yikes

In the study, a research team led by Markus Egert, a microbiologist at the University of Furtwangen in Germany, examined the DNA and RNA in samples from 14 used sponges and found 362 bacteria species. Besides the surprise of that, the researchers were flummoxed by the density of all those microbes jammed into such a tiny space. In total, about 82 billion bacteria inhabited a single cubic inch of sponge.

The scientists used a few different tools to detect the different bacteria types, including fluorescence and laser microscopy. Not all the sponges were old or loaded with food particles, and some had been “cleaned.”

With what we know about bacteria, it’s no surprise that they love hanging out in used sponges, what with all the raw chicken juice, seafood and other random food bits, not to mention whatever germs might be on food packaging handled by people who haven’t washed their hands. Such cross-contamination is a leading cause of **foodborne disease**.

And people often use sponges to wipe down the kitchen sink, refrigerators, cutting boards, can openers, garbage pails and countertops, the last of which is the recipient of everything from grocery bags to kids’ toys to your cellphone. These items may have come into previous contact with your bathroom sink, the floor of your car and your neighbor kid’s mouth.

Part of the problem with sponges, in particular, is that they're generally held under a faucet of warm to hot running water, which simply jump-starts additional bacteria, as the moisture and warmth create the perfect living environment for them. One of the worst is a particularly prolific microbe called *Moraxella osloensis*, which lives on human skin and can cause infections in people with weak immune systems.

That nasty dirty-laundry smell is often caused by these bacteria, as is the mildew-meets-microbe odor you may smell the moment you walk toward your kitchen sink. Other dirty-sponge bacteria generally include *E. coli*, *campylobacter* (which is the main cause of many types of diarrhea), *Enterobacter cloacae*, *Klebsiella* (which can cause pneumonia), *Proteus* (a common cause of urinary tract infections), *salmonella* and *staphylococcus*, Fox 8 Cleveland⁴ reports.

Your Kitchen Sponge Contains More Germs Than Your Toilet

As it turned out, the 14 sponges the scientists used in their research ended up containing more bacteria than your average toilet. In fact, a Forbes article asks, "Do you wash your dishes in the toilet?" Of course, not all toilets are the same, just as not all sponges are the same.

It has everything to do with how long they've been used, and by whom and for what. But here's the kicker: Egert equated the number of bacteria with that of human stool samples and commented, "There are probably no other places on earth with such high bacterial densities."⁵

Back to equating your kitchen sponge's dirty innards with that of your toilet's, it may seem a little harsh since you don't (presumably) actually poop in your kitchen sink. Further studies show that **many people don't wash their hands correctly**, or as often as they think they do. In addition, your kitchen, being the hub of the house, is the room most frequented by friends and family, and along with them, their germs.

Thrift – It Only Works When It Does

There's an old saying: "Use it up, wear it out, make it do or do without." That's true much of the time, but it doesn't make sense to keep nuking your sponges if it's not killing potentially illness-causing bacteria. People who take their thrifty nature seriously often do what they can to save money, so they pride themselves on such steps as washing out their sponge and placing it in the microwave on high for a few minutes, believing it will disinfect it.

You may also do this if you're environmentally conscious and looking to avoid or reduce waste. However, while the [sponge may smell a little better](#), that doesn't mean it's done the job, the scientists add.

"The odor is a compound produced by the bacterium's metabolism. It eats fat. It excretes fat. And that fatty excrement stinks ... Disinfecting it, as many have tried, does not necessarily work.

*You can microwave a sponge, throw it in the laundry or dishwasher, douse it in vinegar or other cleansing solutions or even cook it in a pot. But the researchers discovered more of the potentially pathogenic bacteria, like *Moraxella osloensis*, on the sponges collected from people who said they routinely disinfected them,"* The New York Times reported.⁶

To reiterate, the problem is that the bacteria actually gets worse when the sponge is microwaved. If it can't be cleaned completely, it's best to bite the bullet and get a new sponge, especially, Egert says, "if it starts to move."⁷

If you just can't see pitching a sponge that seems, from appearances, to be perfectly fine, you might run it through a laundry cycle at the hottest setting with a natural powder detergent and bleach — in a load of white items, perhaps — then use it somewhere it will be less crucial for it to be pathogen free, such as the bathroom.

Microwaves Don't Work the Way Some People Think They Do

Microwaves also don't kill bacteria in food as many people think they do. The German study revealed that it's great to have a cleaning routine, but as comfortable as you may

be with it, the fact is most people aren't cleaning their sponges as thoroughly as they think they are. In the microwave, they might not be sanitizing their sponges long enough or hot enough.

Here's why: Microwaving or boiling it will wipe out a significant number of the bacteria, but those said to be cleaned regularly did not have any fewer bacteria than the ones that hadn't been cleaned at all. It's like the old saying that you can't read a book by its cover, aka, just because something doesn't look dirty (read: loaded with harmful, disease-causing and along with arguably some [benign microorganisms](#), as well) doesn't mean it isn't.

Another study describes a community picnic in Juneau, Alaska, after which dozens of people took home leftover roast pork (which had been prepared and flown in from a Seattle restaurant) and reheated it. Of the 43 people who ate the leftover pork, 21 of them – 49% – got sick with [salmonella poisoning](#). According to the study:⁸

“Of the 30 persons who ate reheated meat, all 10 who used a microwave oven became ill, compared with none of 20 who used a conventional oven or skillet ... Compared with conventional methods of reheating, microwave ovens had no protective effect in preventing illness. To prevent outbreaks such as this one, care must be taken to assure that food is both properly cooked and handled and properly reheated.”

It should be noted that the restaurant that prepared the roast pork thawed two frozen pigs for several hours at room temperature, then cooked them in a gas-fired flame broiler. One of the pigs was left unrefrigerated for anywhere from 17 to 20 hours after being cooked.

Microwave Your Underwear – What?

Whether or not you're aware, there's a school of thought that [microwaving your underwear](#) will get rid of bacteria better than detergent and do it without exposing you to toxic agents from many of the products on the market.

Some believe the yeast that may be lingering in undergarments need to be zapped in the microwave to be sure the microorganisms are truly and sincerely dead, but honestly is it a good idea? To get rid of potentially bacteria-ridden underwear, microwaves aren't a good way to do it for a plethora of reasons:

- **Synthetic material** in underwear could melt or even catch fire
- Early microwave models can leak radiation

Instead:

- A better way is to wash your undergarments separately, then tumble dry for a minimum of 30 minutes
- Add 2 cups of 10 particles per million (ppm) of colloidal silver, an antibacterial, to the rinse cycle
- Keep your washer clean by routinely doing an empty "load" using hot water and one-half cup of white vinegar and one-half cup of baking soda

Recommended Steps Regarding Used Sponges

The first thing Forbes recommends is that you wash your hands well before, during and often while busy in the kitchen doing things like flipping through your cookbook, using your phone, peeling carrots and putting dishes in the dishwasher. That's usually how it goes in a busy kitchen.

You're not required to pitch the sponge you just got out yesterday (necessarily), but once a week might be good. Only you know how much you use it, and what you've used it for. If you used it to wipe the baby's mouth, soaked up milk spilled from the floor and cleaned the sink drain with it, you probably have some cleaning to do. Forbes⁹ offers three ways to sanitize your sponges, which, as mentioned, may have varying results:

- Boiling them
- Microwaving

- Soaking them in bleach – 1/4 to 1/2 teaspoon of bleach per quart of warm – not hot – water for at least one minute

According to the U.S. Department of Agriculture (USDA), microwaving sponges kills 99.99999% of the bacteria present on them, while dishwashing kills 99.9998%.¹⁰ If using your microwave, Michigan State University¹¹ advises:

- Make sure the sponge is completely wet because otherwise it could catch fire in the microwave (or worse, explode).
- Place the wet sponge in the microwave on high for one minute, which is sufficient to kill bacteria.
- Be careful when removing the sponge as it will be hot. You may want to set a timer for 10 to 15 minutes to give it a chance to cool before removing.

You may be interested in knowing that getting rid of bacteria in sponges appears to work best in a lab environment and not so well in actual kitchens, Fox 8 Cleveland¹² says, maybe because they're getting a wide range of uses that some might raise their eyebrows at (but then, everybody's germ tolerance is different).

However, in light of the aforementioned information, you may want to use other methods. The dishwasher is another idea. Needless to say, sponges with metallic scrub pads shouldn't be disinfected or sanitized in the microwave, so the dishwasher method works. First, use the hottest and longest cycle on your dishwasher, then use the dry cycle.

If you're just not sure, even if it appears to be OK (but especially if it doesn't) dumping your sponge into the nearest garbage pail once a week or so and starting with a new one is your best bet (although one microbiologist advised once a month¹³). Not only will you be assured you're not spreading germs all over your kitchen and to the visitors therein, but it's also just a good habit to get into. Next, you probably want to take a look at your dishcloths.

Sources and References

- ¹ Nature July 19, 2017
- ^{2, 5, 6, 7} The New York Times August 4, 2017
- ³ Science Daily 2017
- ^{4, 12} Fox 8 August 7, 2017
- ⁸ Am J Epidemiol. 1994 May 1;139(9):903-9
- ⁹ Forbes August 5, 2017
- ¹⁰ USDA April 23, 2007
- ¹¹ Michigan State University March 19, 2014
- ¹³ Self February 2, 2017