

# Wallpaper Can Be a Source of Toxic Mold

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## STORY AT-A-GLANCE

- › An estimated 40% of American buildings, including at least 25% or more of all homes, are believed to be affected by toxic mold that can cause serious health problems
- › Poor construction and water intrusion are common sources of microbial growth. Researchers are now warning that wallpaper can be a significant source of fungi that contribute to sick building syndrome
- › Guidelines to identify mold intrusion and remediate the problem are discussed, as is guidance on diagnosing mold-related illness and its treatment

***Editor's Note: This article is a reprint. It was originally published July 12, 2017.***

Did you know an estimated 40% of American buildings, including at least 25% or more of all homes, are believed to be affected by toxic mold?<sup>1</sup> Some of the mycotoxins produced by molds can be more problematic than pesticides and heavy metals even, in part because their concentration can be far larger, but also because they tend to affect more biological systems than pesticides and heavy metals do.<sup>2</sup>

For example, the mold *Stachybotrys* produces mycotoxins called trichothecene. This mycotoxin inhibits protein synthesis, and infects every single organ of your body.<sup>3</sup> Fungi also have a tendency to mutate quickly, producing novel species capable of evading the human immune system.

One example of this is *Cryptococcus*, which used to be endemic to the deserts of the southwest United States. There is also a mutated form that is highly pathogenic, killing

up to 30% of those infected.<sup>4</sup> Shoddy construction and water intrusion are among the most common reasons for microbial growth in buildings, but certain home decorating trends can also contribute to the problem.

## **Is Your Wallpaper Making You Sick?**

Researchers are now warning that wallpaper can be a significant source of fungi that contribute to toxic air pollution and sick building syndrome. The study<sup>5,6,7,8</sup> in question discovered three types of fungi living in household wallpaper: *Penicillium brevicompactum*, *Aspergillus versicolor* and *Stachybotrys chartarum*.

These three fungi are also common food contaminants. When these fungi grow in wallpaper (or elsewhere), their mycotoxins can easily spread into the air and dust, thus gaining access to your lungs. As reported by NBC News:<sup>9</sup>

*"Mold growing in buildings can make people sick, especially people who are allergic to various fungi. It's also known that various molds and fungi produce mycotoxins – chemicals that can sicken and even kill people and animals. What's not been entirely clear is how mold growing in and on walls or elsewhere in buildings might make people sick.*

*Jean-Denis Bailly of the University of Toulouse in France and colleagues tested three common types of fungi that can grow inside buildings and found that their mycotoxins could and did disperse into the air [under] normal conditions.*

*'These toxins can subsequently be aerosolized, at least partly, from moldy material,' they wrote ... 'This transfer to air requires air velocities that can be encountered in 'real life conditions' in buildings.'*

Unfortunately, many modern energy-efficient homes make the situation worse rather than better, by preventing air distribution between outside and inside. Appliances that use water, including coffee makers, can also be hidden sources of toxic mold in your home.

## **The Toxic Roots of Many Illnesses**

Several years ago, I interviewed the late Suzanne Somers – a well-known actress turned health guru and proliferate author – about her book "TOX-SICK: From Toxic to Not Sick," in which she delved into the toxic roots of disease.

Despite eating organic foods, sleeping well and exercising, Suzanne and her husband both struggled with health issues stemming from toxic overload, including toxic black mold that (unbeknownst to them) had invaded the air conditioning ducts from standing water in an unfinished basement room.

In her husband, the black mold settled into his cranium, sinuses, cerebellum and central nervous system, causing symptoms of Parkinson's disease. In Suzanne, it settled into the intestines, where it degraded her immune system and activated a dormant fungus called coccidioidomycosis, also known as Valley Fever.

One of the difficulties with molds is that the effects they produce are limited only by the organs in your body. They can affect just about anything. They can also aggravate just about any health problem you already have.

Mold can also affect your mental and emotional state.<sup>10</sup> In fact, neurological symptoms are a hallmark of sorts for mold toxicity. Unfortunately, environmental disasters such as hurricanes or floods are often the cause of mold infestation in a home, and when victims experience psychological problems, it's usually attributed to depression or post-traumatic stress. Mold rarely enters the diagnostic equation.

Any area where humidity is over 60% will lead to growth of mold and bacteria, which helps explain why wallpaper and the glue backing is a candidate for housing these toxic microbes. Growing right along with mold are also gram negative and gram positive bacteria, which, like mold, require moisture and organic material to thrive. The synergistic action between mold and bacteria further increases and worsens inflammatory health conditions.

Gram negative bacteria are particularly hazardous. When they die, they release their cell walls, referred to as lipopolysaccharides or endotoxins. These endotoxins can severely exacerbate asthma and other conditions as they are highly inflammatory. The inflammation they cause can also affect your brain and other organs.

## **Common Symptoms of Mold Exposure**

Common health problems that can be attributed to poor and potentially toxic indoor air quality courtesy of mold growth include but are not limited to the following. If you have any of these issues, it may be worthwhile to consider your indoor air quality, and the possibility that your health problems may be related to mold.

<b>Frequent headaches</b>	<b>Depression</b>	<b>Chronic fatigue</b>
<b>Allergies</b>	<b>Neurological problems; poor concentration and forgetfulness</b>	<b>Skin rashes</b>
<b>Stomach and digestive problems, such as dysbiosis, leaky gut and frequent diarrhea</b>	<b>Chronic sinusitis</b>	<b>Joint aches and pains</b>
<b>Muscle wasting</b>	<b>Frequent fevers</b>	<b>Asthma or trouble breathing</b>

Scientific research has connected mold exposure with a variety of health conditions for which the causes were previously unknown. Mold expert Dr. Michael Gray (featured above) has compiled a database of conditions reported in the literature of adverse health effects of fungi in man and other species. These include but are not limited to the following conditions:<sup>11,12</sup>

Alimentary toxic aleukia (a lack of leukocytes arising from food poisoning)	Dendrochiotoxicosis (alimentary mycotoxicosis caused by <i>Dendroochium toxicum</i> fungus)	Kashin-Beck disease (a bone and joint disease)
Usov's disease	Stachybotryotoxicosis	Cardiac beriberi
Ergotism (the effect of long-term poisoning by ergot fungus)	Balkan nephropathy (a form of kidney disorder)	Reye's syndrome (condition that causes swelling of your brain and liver)
Hepatocellular carcinoma (liver cancer)	Onyala (a rare form of thrombocytopenia; abnormally low platelet count)	

## How to ID a Mold Problem

How do you know whether hidden mold might be posing a health risk? The first step would be to conduct a visual inspection. A musty, mildew odor is a tipoff that you need to check the area in question for any visible signs of mold. If you can't see any visible traces of mold, take an air sample, and use a moisture meter to determine the moisture level in the area.

Wood flooring should have a maximum moisture content of 10% to 12%. Anything above that is a breeding ground for mold. Exterior walls should not have a moisture content above 15%. Avoid relying on mold spore counts alone. Mold spore counts in air samples vary diurnally, depending on the time of day or night it is, so it's not a reliable way to test for mold contamination in the air. You need to identify the mold itself, and not just look for spores in the air.

One of the best options is to do 24-hour monitoring. Unfortunately, this requires hiring a high-level mold expert, as this testing cannot be performed by a typical mold inspector. (See resources below.) In addition to air sampling, proper lab testing of bulk samples of the mold growth is recommended.

This will require cutting out a piece of the affected area. The U.S. Environmental Protection Agency (EPA) has developed a test called Environmental Relative Moldiness Index (ERMI), which tests for 31 different species of mold.

## **Step 2: Remediation**

Once you've identified the problem, you have to remediate the problem at its source. While metal objects can be cleaned, any organic material (such as wood, particle board, carpets or wallpaper) must be completely removed and replaced. This is not a job for the average homeowner, even if you're handy with a hammer. To avoid contaminating the rest of the house, you need to hire a contractor familiar with mold remediation.

They must use a HEPA filtration machine to trap minute particles, and be meticulous about isolating and cleaning the mold-infested area. Speaking from experience, it's worth every effort to find a qualified remediator if you have water intrusion and/or mold. If not done properly the first time, it can turn into a costly venture.

So, be sure to hire a qualified expert certified by one of the agencies below, and evaluate the remediator's overall qualifications. I would also suggest getting several bids, and make sure they're properly insured (liability as well as workman's comp).

- **IICRC** (Institute of Inspection, Cleaning and Restoration Certification)
- **ACAC** (American Council for Accredited Certification), a certifying body that is third-party accredited
- **The IAQA** (Indoor Air Quality Association), a membership organization with no certification program (the ACAC handles this by agreement)
- **RIA** (Restoration Industry Association)

- **NORMI** (National Organization of Remediators and Microbial Inspectors)

## **Is It Safe to Clean Mold on Your Own?**

If all you have is a small area of surface mold, you probably don't have to call in an expert. However, only attempt to clean it if it's limited to the surface of a small area. Any deep-rooted mold will require professional assistance.

An oft-cited recommendation is to kill off mold with bleach or ammonia. Do NOT do this. As the mold dies, it will disintegrate, releasing toxins into the air. Once the toxins are released, the mold will grow right back, and depending on how widely it spread, you may actually end up with an even greater problem.

Instead, for minor visible surface mold, first wipe the area with straight white vinegar. Mix a couple of tablespoons of sodium bicarbonate (baking soda) into a quart of water, and scrub off any surface residue of the mold. You could also use an ozone generator to help rid the air of any mold toxins. Ozone generators generate photocatalytic oxidation that can help destroy airborne mold.

Some caution is required, however. Ozone generators should not be used when you (or your pets) are in the room at levels higher than the EPA recommends. That said, ozone dissipates quickly, so after airing the area out for about 20 minutes, it's safe to return.

Keep in mind that this is different from an air filtration system, including an ozone air purifier; the ozone generator actually purifies the air and neutralizes any odors at the source, on the molecular level.

## **Addressing Mold-Related Disease**

Unfortunately, there is no precise formula for rebuilding perfect health after being damaged by mold or its toxins. No one set of interventions will work for everyone. Diagnosis begins with a series of diagnostic blood tests that are readily available by commercial labs such as LabCorp and Quest.

The results of these tests will guide the treatment, which will ultimately depend on the type of mold you were exposed to, length of exposure, your overall health, medications, allergies, genetics and other factors. Your best approach is to find a well-informed physician with expertise in environmental medicine. Together you can devise an appropriate treatment plan.

That said, here's a sampling of treatments found to be helpful. It's also well worth noting that some of the most commonly used conventional treatments for mold-related symptoms – steroids, antibiotics and antifungal drugs – are typically ill advised and can make the situation far worse rather than better. For this reason, should you suspect mold as a culprit, make sure you find a doctor who is well-versed in mold treatment.

**Avoid all sugars and other mold-sensitive foods<sup>13</sup>** – Eliminating sugars, grain-based foods, anything made from refined white flour, packed and processed foods of all kinds, simple carbohydrates, milk and most fruit, will help starve the mold, as fungi thrive on a diet high in fructose, sucrose (table sugar), lactose (milk sugar) and other sugars.

Other foods to be avoided due to their high rate of mold contamination include alcohol, peanuts, cottonseed oil, corn, most grains (especially wheat, rye, barley and sorghum) and hard cheeses.

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**Pancreatic enzymes** – The late Dr. Nicholas Gonzalez,<sup>14</sup> featured in Somer's book, "TOX-SICK," treated mold exposure using pancreatic enzymes, taken away from meals. The reason for this is because pancreatic enzymes eat debris, and mold qualifies as a food source for these enzymes.

Taken in conjunction with food, the enzymes help digest your food. But when taken an hour before or after your meal, the enzymes start looking for something to digest, and will gobble up any mold it comes across. It's not a quick fix, but over time will help rid your body of mold lodged in your gastrointestinal tract.

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**Fermented foods and/or a high-quality probiotic** – Probably the most important supplement for recovering from mold-induced illness is a good probiotic. Your



gastrointestinal tract is your first line of defense against mold and its toxins, and having a GI tract populated with beneficial flora is crucial for optimal immune function. Probiotics help repopulate your GI tract with these beneficial bacteria.

The "good" bacteria help keep the "bad" bacteria (and other organisms like mold and yeast) in check. This is why antibiotics are so counterproductive if you have a fungal infection. Without the proper microflora, fungi and their toxins can break through the walls of your intestinal tract and enter your bloodstream.

When your bowel is toxic, the rest of your body soon follows. Sensing this toxicity, your immune system reacts with a vengeance, trying desperately to overcome this perceived assault, which results in systemic inflammation. And when your blood is full of toxins, your organs responsible for cleansing it (liver, kidneys, skin, lymph) become overloaded and multisystem health problems can occur, which is what many people experience after mold poisoning.

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**Cholestyramine (CSM)** – CSM is a rarely used cholesterol drug that binds very effectively to small, negatively charged molecules with anion rings. When CSM binds to the toxin, it prevents it from being reabsorbed.

This treatment is part of a more comprehensive treatment devised by Shoemaker, who claims 75% of patients experience a 75% reduction of mold-toxicity symptoms with cholestyramine alone (less if there is ongoing mold exposure). Bentonite clay is another binder that can help eliminate toxins of different kinds.

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**Organic coffee enemas** – Coffee enemas help detoxify your liver. Please note, however that conventional coffee should NOT be used for enemas. The coffee MUST be organic, naturally caffeinated coffee, and were you to do this at home, you'd also want to use unbleached filters to avoid introducing toxins into your colon.

You can also find organic coffees online that are specifically processed for use as enemas. Most of these you simply boil and strain rather than putting through a coffee maker.

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**Herbal remedies** – A study published in the Journal of Agricultural Food Chemistry found extract of **artichoke leaf** was toxic to many types of fungi, including both molds and yeasts.<sup>15</sup> Other helpful antifungal herbal remedies include berberine, oregano and **garlic**.<sup>16</sup>

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## Sources and References

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