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Black Mold Is More Likely to Trigger Allergies Than Cause Toxic Reactions

Analysis by Dr. Joseph Mercola | July 24, 2025

STORY AT-A-GLANCE

- Black mold's toxic reputation stems from a debunked 1990s study that falsely linked it to infant deaths — subsequent reviews exposed major flaws in the study's data and methods
- Stachybotrys chartarum (black mold) rarely becomes airborne and doesn't grow well in the human body, making it unlikely to cause lung toxicity or systemic infections in healthy individuals
- While it does not directly cause deaths, black mold still causes significant health issues, especially allergies, asthma, respiratory irritation, and fungal infections in sensitive or immunocompromised individuals
- Mold thrives in damp indoor environments like wallpaper, drywall, and insulation — detecting it often requires inspecting hidden spots, checking for musty smells, or using moisture meters
- Effective mold remediation involves more than cleaning — avoid using bleach or ammonia (use vinegar and baking soda instead) and call certified professionals for serious infestations to prevent regrowth and contamination

We live in a fungal world, and it's likely that 30% to 40% of homes and offices contain some type of mold. And when you inhale air every day, it's not unlikely that you're also breathing in mold spores. One particular type, black mold, has gained a negative reputation over the years due to its toxicity.

But does the science regarding black mold truly add up? Apparently, it does not. In fact, recent reports have debunked the claims regarding the dangers of this fungus — and it's all because of a flawed study dating back to the 1990s.

What Is Black Mold?

Mold is a fungus that plays a key role in nature by breaking down organic matter. It reproduces through tiny spores that travel through the air and settle on surfaces. When those spores land on a moist surface with the right nutrients — like wood, paper, or fabric — they begin to grow.

- **There are thousands of mold species —** While many are harmless, others cause allergic reactions, irritate the respiratory system, or in rare cases, trigger more serious health effects.[1]

- **Mold thrives in damp or moist environments —** The presence of mold indoors usually means there's a water leak, poor ventilation, or high humidity. Once mold starts growing, it releases spores back into the air, which you then inhale. For sensitive individuals, that exposure leads to irritation, allergies, or other chronic respiratory issues.[2]

- **Black mold is one of the more notorious types —** While it does not refer to just one fungus, there is one species that most people refer to as black mold, called Stachybotrys chartarum.[3]

- **S. chartarum thrives in areas that stay wet for long periods —** It often grows on materials high in cellulose, a fiber found in plants, fruits, and vegetables. Drywall, insulation, and ceiling tiles contain this fiber. Unlike faster-growing molds, S. chartarum is slow to spread, however, it will persistently thrive in environments that remain damp.[4]

- **Black mold can grow on your wallpaper** — One study[5] found that aside from S. chartarum, Penicillium brevicompactum and Aspergillus versicolor are examples of fungi that thrive in household wallpaper (which also contains cellulose).

Bad Science Erroneously Linked Black Mold to Infant Deaths

So how did black mold get its bad reputation? It all started with an outbreak of acute idiopathic pulmonary hemorrhage (AIPH), in Cleveland, Ohio during the mid-1900s. Between 1993 and 1998, around 37 infants were diagnosed with this bleeding-lung disease, and at least 12 died.[6]

- **The U.S. Centers for Disease Control and Prevention (CDC) immediately launched an investigation —** Their hastily concluded study found a link between S. chartarum and the bleeding disorder, suggesting that mycotoxins caused the outbreak. According to an article in The Conversation:

  > *"The fungus typically associated with black mould S. chartarum can produce several mycotoxins. These include roridin, which inhibits protein synthesis in humans and animals, and satratoxins, which have numerous toxic effects including bleeding in the lungs."*

  The authors were careful to note that the link was purely epidemiologic, as they did not find a cause-and-effect relationship. But when the paper came out in the Morbidity and Mortality Weekly Report in 1997, it caused paranoia among the public.[7,8] Black mold was demonized, and considered toxic and dangerous. However, there were several issues with the study.

- **One of the key flaws had to do with the way mold exposure was measured —** S. chartarum spores are embedded in a sticky, slimy mass — they don't float easily through the air. That matters, because for mold to enter your lungs in significant amounts, it has to be airborne.

The original study assumed the spores were inhaled by infants while they slept, but that's not how S. chartarum behaves. It's far more likely to stay stuck to surfaces like drywall, wood, or carpet. If you're not tearing out rotting walls, you're probably not inhaling it.

- **The reports suggest the affected infants were exposed to toxic levels of mycotoxins, but this was also flawed —** In fact, the concentrations of mold spores were incorrectly calculated. When the data was corrected, the link between S. chartarum and the disease basically disappeared.[9]

- **S. chartarum does not have the potential to invade lung tissues —** According to one study, this species does not grow and germinate well at 98.6 degrees F (37 degrees C), and this is the maximum temperature by which this fungus grows. This makes it impossible for the species to grow in the lungs.[10]

- **It was supposed to be a "blind" study, but the investigators knew the homes of the sick babies —** An article in The Sydney Morning Herald narrates:

  > *"Not wanting to miss any spores, the investigator pounded air ducts and furniture, stirred up dust, and took twice the number of samples in the sick babies' homes compared to the control houses. That totally skewed the data."*[11]

- **The CDC thoroughly re-examined its own study by 1999 —** They retracted the findings, admitting that "Serious shortcomings in the collection, analysis, and reporting of data resulted in inflated measures of association and restricted interpretation of the reports."[12]

The report's correction also emphasized that the health problems seen in the Cleveland infants might have been due to multiple overlapping factors, including chronic respiratory infections, socioeconomic stressors, and possibly even prenatal complications. The mold may have been present — but presence alone doesn't prove toxicity.

Don’t Let Your Guard Down — Black Mold Still Causes Allergies and Other Symptoms

While these findings help debunk the fatality of black mold, it does not necessarily mean it’s safe, and that you should not do anything about it. In fact, black mold affects humans in different ways that are not related to mycotoxins alone.[13]

- **Allergy symptoms —** Molds, including black mold, produce microbial volatile organic compounds (mVOCs). These are responsible for the musty smell associated with these fungi. If your immune system is hypersensitive to the spores or mVOCs, you might experience allergic rhinitis.

  Symptoms may immediately arise when you come into direct contact with spores. However, if you don’t have any sensitivity to the spores, you may not feel any symptoms for a long time.[14]

- **Asthma attacks —** If you’re allergic to mold, it can trigger or exacerbate asthma attacks. Coughs, wheezing, respiratory infections, bronchitis, conjunctivitis (red eyes), and eczema are also triggered by black mold.[15]

- **Mold also triggers more severe reactions —** These include allergic fungal sinusitis, allergic bronchopulmonary aspergillosis, and hypersensitivity pneumonitis.

- **Fungal infections —** Frail seniors, young children and those who are immunocompromised may be prone to mold infections.

What Are the Health Effects Associated with Mold Exposure?

If your indoor air is not clean because of mold, you may notice certain symptoms arising (even before you spot the signs of mold growth). If you struggle with any of the issues listed below, consider evaluating your indoor air quality and have your home checked to see if your health problems are related to mold.

- Frequent headaches

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

Mold expert Dr. Michael Gray has also provided several adverse health effects associated with fungi. These include:[16,17,18]

- Alimentary toxic aleukia (a lack of leukocytes arising from food poisoning)
- Dendrodochiotoxicosis (alimentary mycotoxicosis caused by Dendrodochium toxicum 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)

- Onyalai (a rare form of thrombocytopenia; abnormally low platelet count)

How to Check if Your Home Has a Mold Problem

Molds often cleverly hide around your home, lurking in places that are not within line of vision. One of the first steps is to conduct a thorough visual inspection. Look behind furniture, inside closets, in hidden corners in your bathroom, and even inside your coffeemaker (appliances that use water are sometimes hidden sources of mold).

- **Check with your nose —** Sniff around the areas you suspect may have a mold problem. If you notice a musty, mildew odor, that's a sign that mold is hiding in the area.

- **Use a moisture meter —** If you can't see any visible signs, 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%.

- **Don't rely 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.

- **Consider doing 24-hour monitoring —** Unfortunately, this requires hiring a high-level mold expert, as this testing cannot be performed by a typical mold inspector. In addition to air sampling, proper lab testing of bulk samples of the mold growth is recommended.

Remediate Your Mold Problem at Its Source

If you find only a small area of surface mold, it's possible to clean it without calling in an expert. However, only attempt to clean mold if it's limited to the surface of a small area. If it's already deep-rooted, you will need professional assistance.

- **Don't use bleach or ammonia —** If you do this, the mold will disintegrate as it dies, releasing toxins into the air. Once the toxins are released, the mold will grow right back, and depending on how widely it spreads, you may actually end up with an even greater problem.

- **Do this instead —** Wipe the area with visible mold with straight white vinegar. Next, add a couple of tablespoons of baking soda into a quart of water, then scrub off any surface residue of the mold.

- **Consider using an ozone generator —** This will help eliminate mold toxins from your air. Ozone generators generate photocatalytic oxidation that helps destroy airborne mold. Be careful, though — don't use an ozone generator at levels higher than the EPA recommends if you (or your pets) are in the room.

- **If the mold problem is already severe, it's time to call in a professional —** To avoid contaminating the rest of the house, you need to hire a contractor familiar with mold remediation as they will be meticulous about isolating and cleaning the mold-infested area. They will also use a HEPA filtration machine to trap minute particles.

- **Moldy organic materials need to go —** While metal objects can be cleaned, any organic material (such as wood, particle board, carpets, or wallpaper) needs to be completely removed and replaced. This is why you'll require professional help — even if you're handy with a hammer, if you miss a spot and don't get all the mold out, then it'll simply grow back.

- **Hire a qualified expert certified by one of the agencies below —** Make sure to 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)

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.

Frequently Asked Questions (FAQs) About Black Mold

Q: Is black mold as dangerous as people say?

A: Black mold, particularly Stachybotrys chartarum, has been wrongly blamed for severe health conditions due to a flawed 1990s study. While it can cause allergies, its toxic reputation has been largely debunked by later research.

Q: Can black mold grow inside the human body?

A: No, S. chartarum does not grow well at human body temperature. It typically stays on moist surfaces and is unlikely to invade lung tissue or cause internal fungal infections in healthy individuals.

Q: What symptoms can black mold exposure cause?

A: Exposure can lead to allergic reactions such as sneezing, congestion, skin rashes, and asthma attacks. In sensitive individuals, it may also contribute to more serious respiratory or sinus conditions.

Q: How can I tell if there's mold in my home?

A: Mold may be hidden behind walls, furniture, or in appliances. A musty smell, visible growth, or high moisture readings using a meter are signs that mold could be present.

Q: What are the safest ways to deal with black mold?

A: Small surface patches can be treated using vinegar and baking soda. For larger or embedded infestations, it's recommended to hire a certified professional trained in safe mold remediation techniques.

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