WHAT'S THAT SMELL? COULD IT BE mold?

By Alison Main

We all have that friend with a "Black Mold of Death" horror story: The skin-crawling tales of walls ripped down to their studs, the sprawling splotches of a foul-smelling, mud-like substance invading erstwhile cozy bedrooms, eroding sleep, health, and sanity. The dispossessed chronicles of nomadic wanderings through temporary rentals and motels, while "The Remediators" take residence at their home. These anecdotal terrors have made us all hypervigilant to the possibility of unearthing this plague in our humble abodes, lest we fall prey to the same dreaded fate.

Unfortunately, there are many iterations of this scenario, in homes and offices around the world, with multi-layered variables to each. But the mold epidemic isn't limited to "just" black mold. You may never see, smell, or suspect the mold that plagues a building, but when inside your home or workplace, whether hidden or visible, mold can still make you sick, a thought perhaps more panic-inducing than spying a black spot in the corner of your water-logged basement.

With such a wide variety of environmental toxins infiltrating our world, the source of "sick building syndrome" may not always be mold. But when it is, how do you know, what can you do, and how can you heal from its sometimes debilitating effects?

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WATER, WATER EVERYWHERE

It was a misty, damp, spring morning in Maryland. My GPS guided me through an affluent community outside Washington, D.C., to rendezvous with Dr. Mikhail Sogonov, PhD, mycologist and owner of InSitu EcoTesting, an indoor environmental health consulting company. As I walked through the front door, my nasal passages were immediately hit with an intense musty odor. My eyes watered as I coughed and greeted Dr. Sogonov. (This research trip was not the wisest for a writer with environmental sensitivities.)

Molds are fungi that can be found both indoors and outdoors—and they are *everywhere*. It's estimated that there are tens, if not hundreds, of thousands of species. Molds grow best in warm, damp, and humid conditions, and they spread and reproduce by making spores. These spores can survive harsh environmental conditions, and even dry conditions that typically do not support mold growth.[1]

There are a multitude of ways to inspect for mold, and an Internet search will reveal an ongoing debate about the "right" test or the "best" lab. The reality is, all tests are somewhat limited, and no singular test will tell you everything that's happening biologically inside your home environment. Further, there are no EPA or other federal limits set for mold or mold spores, so sampling and testing cannot be used to check a building's compliance with federal mold standards—because those standards do not exist.[2]

So how do you know to suspect a mold problem? If you live in a water-damaged building, if you've recently experienced a leak or a flood indoors, or if you feel sick *inside* your home but well *outside* your home, you should consider mold inspection. Diagnostic methodologies vary based on your specific situation and whom you hire. Some inspections can be accomplished by the homeowner with DIY home test kits. Others require an indoor environmental professional for a more fine-tuned on-site inspection.

As Martine Davis, certified building biologist and CEO of Indoor Environmental Testing, Inc., explained to me, "Mold is like any toxic matter; it's all about the dose. During an inspection, there are two primary things we look at: distribution and indoor/outdoor comparison. Distribution refers to how the mold map looks in a normal (non-water-damaged) house. We also compare to the outdoor environment. Any time of day, there are several species of mold outdoors. A typical home will have a few mold spores from outdoors. But inside molds are usually different from outside molds."

I followed Dr. Sogonov on his comprehensive inspection, up to the water-stained attic ceiling and down to the basement's damp laundry area. He used a moisture meter and a thermal imaging camera to capture initial information, then carefully took samples of suspicious areas. He showed me white stains on wooden chairs and tables that on a cursory glance could easily resemble layers of dust but that in actuality were mold growth on the furniture.

The major difference between Dr. Sogonov's approach and others' is on-site microscopy testing. He quite literally brings the lab into the home. Seated at his workstation in the living room, I peered into his microscopic world; and, yes, there was mold. Dr. Sogonov's report would later reveal high levels of *Aspergillus* and *Penicillium* growth on the furniture in the basement, and further complications on the other floors. My asthmatic response to the house concurred.

MORE THAN MEETS THE EYE

The Environmental Protection Agency advises that the key to mold control is moisture control. Even if you find a mold problem, you can't just clean up the mold and leave same conditions. You have to fix the water problem. Immediacy is vital. If you experience an acute water-damage situation (e.g., a flood, a leak, etc.), it's imperative to dry out all water-damaged areas and affected items within 24 to 48 hours to prevent mold growth.[3]

To set ourselves up for success and a healthy indoor environment, Andrea Fabry, certified building biology advocate and author of *Is Your House Making You Sick? A Beginner's Guide to Toxic Mold,* suggests a return to the foundations of building biology, to earth-based materials and breathing structures. "Mold is ubiquitous outdoors, but the problem is our structures, our shelters," explains Fabry. "Our homes and workplaces used to be simple; well-ventilated and grounded with the earth. Now, they're not. Any home is already compromised. Plumbing really shouldn't be indoors. Showers, dishwashers, laundry machines . . . these are all modern conveniences we have inside the home. Our walls and windows are so tightly sealed that our building structures don't breathe. Drywall is also a big problem. It's cellulose, which is food for molds. All of this together is a recipe for disaster."

Molds can enter indoor environments through doorways, windows, and heating, ventilation, and air-conditioning systems. Spores in the air also land on people and animals, so our clothing, shoes, bags, and pets become carriers. Once inside, molds thrive in environments with excessive moisture. And, as Fabry mentioned, many building materials are suitable nutrient sources for fungal growth. Cellulose substrates, including paper and paper products, cardboard, ceiling tiles, wood, and wood products, are quite favorable for the growth of some molds. Other substrates such as dust, paints, wallpaper, insulation materials, drywall, carpet, fabric, and upholstery also commonly support mold growth.[4]

"Because of climate change, we're seeing higher dew points," says Davis. "So we're going to be seeing more mold." And that includes regions that used to not see much moisture or mold growth. To avoid kickstarting a problem, homeowners can take simple steps to manage the humidity at home, like running a dehumidifier (particularly in the basement), running the AC to dry the air, and using fans to increase air circulation.

For as many ways as there are to inspect for mold, there are equally as many choices for remediation. Davis says, "Everyone talks about toxic black mold, but

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pretty much most molds are capable of producing mycotoxins. So most mold can be toxic. That's why the CDC, EPA, and OSHA all say you have to get rid of the mold when it's indoors." But the key question is: how do you clean up the mold problem without introducing a host of other indoor environmental toxins? Sure, some chemicals might effectively kill the mold, but who wants to be living in a sea of chemical toxins?

May E. Dooley, owner of Create Your Healthy Home, suggests the following: "Mold does not need to be killed before it's gone. If it's gone, it's gone. Protect vulnerable surfaces from mold growth by encapsulation (a sealant), moisture control, proper storage, and good housekeeping with a true-HEPA vacuum cleaner and damp-dusting. Minimize clutter. In-depth spring and fall cleaning are good practices."

Dooley also explains the difference between cleaning products and encapsulants. "Cleaning products don't aim to kill the mold, they just get rid of it. And these cleaning products are temporary, because mold can grow back. Encapsulants are more permanent, but they range from toxic (using pesticides) or least toxic (includes lime). Many remediators are more comfortable using products with pesticides (i.e., mildewcides and biocides)."

Unfortunately, what kills mold also harms humans. We are all biological beings. The balance is to find and use effective products that remediate the mold problem without harming ourselves in the process.

SICK AND TIRED: STORIES OF MOLD SICKNESS

A woman in the mid-Atlantic shared with me her lifelong mold exposure story. Living in water-damaged buildings since childhood, her health gradually deteriorated to full-blown chronic autoimmunity and environmental sensitivities as an adult. "Healing required an intensive, holistic approach. The most important thing I did was leave the mold-infested buildings where I lived and worked. This was something the doctor recommended I do immediately, but it's not easy to uproot yourself like that. I've learned you can't heal if you're constantly being exposed to the very thing that made you sick."

Like those managing other environmental illnesses, she found that healing required a fundamental lifestyle shift. She explained, "I had to practice advanced detox protocols, learn better stress management, and radically change my diet, including a move toward a Paleo diet. Living with mold illness radically changed my life. Water-damaged buildings are a pervasive problem. Unfortunately, the problem is not taken seriously, and many home and business owners do not remediate properly. For those of us living with mold illness, entering unfamiliar buildings is like playing Russian roulette with our health."

Lest anyone think this is just a problem for hurricane-battered coastlines or humid lakeside communities, a woman living in Arizona told me the following cautionary tale: "Before we moved into our new home, we did an air sampling test. The mold inspector said there was a 'hint of mold,' and he suggested it was just behind the dishwasher. So the seller credited us $500. The day we moved in, my son was vomiting for six hours straight; my husband had diarrhea; and I was so sick that I had difficulty walking. After six weeks, we were forced to get a rental home, as the inspectors uncovered more and more mold in our house, and we continued to get sick. Initially, we were excited to get $500 off our home purchase while under contract, but we ended up spending over $100,000 to remediate the whole house. It was devastating. We thought we purchased our dream home, but we had to move out to heal."

There's a vital link between mold exposure, chronic illness, and autoimmunity. Davis explains, "Mold has several components to it. People are most familiar with mold spores, which is more of an allergen. But mold also produces a lot of byproducts. Some of them are allergenic, and some are toxic. Mycotoxins are like chemicals that attach to things like dust, spores, furniture, etc. Molds also release a microbial [volatile organic compound]—which is more like a vapor. That's the musty smell we know. It's not much different from smelling diesel fumes."

Research shows that illness resulting from exposure to water-damaged buildings can be caused by "infection, toxicity, allergy, and inflammatory responses triggered by exposure to one or more of the agents present in water-damaged buildings and are often mediated by oxidative stress."[5]

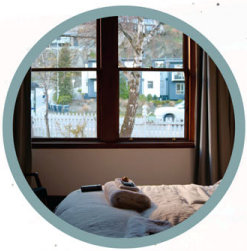
Types of disorders from mold, mycotoxins, and bacteria include infections, chronic and fungal rhinosinusitis, IgE-mediated sensitivity and asthma, other hypersensitivity reactions, pulmonary inflammatory disease, immunosuppression, autoimmune disorders, mitochondrial toxicity, carcinogenicity, neurotoxicity, and mitochondrial DNA mutations.[5]

Symptoms can manifest in many ways, including fatigue, neurocognitive symptoms, headache, insomnia, dizziness, anxiety, depression, gastrointestinal problems, tremors, balance disturbance, palpitations, vasculitis, and autonomic nervous system dysfunction. While oxidative stress is a significant contributing mechanism, usually many mechanisms are interacting at once, which is why an integrative, multifaceted approach is required in treating mold illness.[5]

A study by the late Dr. William Rea used a variety of tests, including intradermal skin testing for individual molds, measurements of serum antibodies, and abnormalities in T and B cells to confirm sensitivities in 100 patients who were exposed to mold in their homes. The study found that 80 percent of the patients had confirmed mycotoxin exposure, with markers including respiratory symptoms, neurological dysfunction, neuropsychological (i.e., memory and concentration) impairment, and autonomic nervous system dysfunction.[6]

> *"FOR THOSE OF US LIVING WITH MOLD ILLNESS, ENTERING UNFAMILIAR BUILDINGS IS LIKE PLAYING RUSSIAN ROULETTE WITH OUR HEALTH."*

A different study, by Ragnar Rylander and Ruth Etzel, revealed the connection between mold growth indoors and childhood respiratory illness, along with general symptoms of fatigue, headache, and central nervous system dysfunction in children. The development of a child's immune system requires natural stimulation with antigens and inflammatory agents. But any disturbances of this process may increase the risk for abnormal reactions to inhaled antigens and irritants in the environment.[7] Many mainstream clinicians are not yet aware of these connections between a child's symptoms and environmental toxins.



> *WHEN IT COMES TO MOLD, THERE'S A FINE LINE BETWEEN HYSTERIA AND DENIAL.*

Dr. Lauren Tessier of Life After Mold in Vermont specializes in treating patients with mold illness. "When I talk about mold illness," explains Dr. Tessier, "there are four different ways people can become ill. There's the true IgE-mediated mold allergy; there's mycotoxicosis; there are fungal infections; and there's Chronic Inflammatory Response Syndrome." Water-damaged buildings serve as a host for mold, bacteria, and biotoxins—tiny, fat-soluble chemicals created from microorganisms. These biotoxins very easily burrow into the cell membrane and can lead to a neuro-inflammatory process.

The same organisms that create biotoxins can also metabolize many of the materials and chemicals used in the construction of buildings, turning them into new chemicals known as inflammogens. Those with CIRS cannot properly remove biotoxins from the body. The immune system goes into a dysfunctional state, releasing many inflammatory compounds. And then we feel sick.

"I'm a big believer that a lot of the very specifically nondescript autoimmunity that we are seeing is really due in large part to environmentally-acquired inflammation," says Dr. Tessier. "And we're only now just starting to pay attention to this when it comes to health impacts."

As a clinician, how do you tell a patient "your home is making you sick"? And given the meticulous detail and financial investment required in testing and remediating a home (without adding further environmental toxins), won't this added stress make a sick person worse?

"No matter what, the conversation has to be approached from a place of empathy," says Dr. Tessier. "It is horrifying to be told that your home (or your office) is now the enemy. I start a dialogue from a supportive and heartfelt space, and then we can discuss what people are able to do within their means."

BREAKING THE MOLD

When it comes to mold, there's a fine line between hysteria and denial. Mold may be a naturally occurring biological agent outside, but when locked indoors in a damp environment, mold can negatively affect both the building and the health of those dwelling inside. Not every dark spot on your floor or weird odor in your kitchen means that you're doomed. But you also should not ignore that water stain on the wall or that slow leak under the bathroom sink. It's better to know than avoid. Your house, and your health, will thank you.

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