

HEALTH
HAZARDS

MOLD

Warning signs
structural mold
has come
to visit

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When we think of ways to deter intruders from breaking into our homes or workplaces, most of us envision security alarms or high-tech surveillance systems. But what can we do about the silent, invisible invaders? Each day countless microscopic living particles float undetected into our homes and work areas. Are they friends, foes, or harmless squatters?

MOISTURE IS THE STARTING POINT

We ask this question not in jest, but with all the seriousness our health deserves. In reality, the answer depends on whether there is enough moisture present in the structure to enable these microscopic critters to pitch their tents, so to speak, and start multiplying in the indoor environment.

“Water intrusion into indoor environments leads to the growth of microorganisms,” explains immunotoxicologist Jack Thrasher, PhD. “The adverse health effects have been largely blamed on mold. However, the role of bacteria—which consist of Gram-negative and Gram-positive organisms—has been largely overlooked.”

(The significance of Gram-negative and Gram-positive bacteria is that not all antibiotics treat both. People who become ill from the bacteria in a moldy environment have to be treated with a broad-spectrum antibiotic that targets both Gram-negative and Gram-positive organisms.)

Dr. Thrasher points out that both mold and bacteria are present in water-damaged areas of a home or building. Damp indoor spaces, he says, can have the following contaminants:

- **MOLD SPORES** (either alive and dead—both contain toxic properties)
- **BACTERIAL SPORES** (Gram-positive)
- **PARTICULATE MATTER** ranging from fine (less than one micron) to mold spores (at or greater than 1.25 microns).

He goes on to say that the fine particulate

matter can be up to 500 times more concentrated than mold spores and that the fine particulate matter contains all of the following toxins:

- **MICROBIAL VOLATILE ORGANIC COMPOUNDS (MVOCS)** add to the volatile organic compounds (VOCs) already present.
- **(1-3)-BETA-D-GLUCANS** are polysaccharides shed from mold spore cell walls. They are very irritating to mucous membranes and have been related to the development of sarcoidosis (an inflammatory disease).
- **GALACTOMANNANS** are also polysaccharides shed from mold spore cell walls that are irritating to mucous membranes.
- **ENDOTOXINS** are lipopolysaccharides shed from the cell walls of Gram-negative bacteria. They are synergistic with mold mycotoxins and can cause exacerbation of existing asthma and other respiratory diseases.
- **MYCOTOXINS** are mold toxins that have been identified in the dust from damp indoor spaces. These include aflatoxins, trichothecenes, ochratoxin, gliotoxin, and chaetoglobosins A and B. All affect the immune system.
- **BACTERIAL TOXINS** include enterotoxins associated with infections—e.g. diarrhea and other health problems—and exotoxins.

HEALTH PROBLEMS INCREASE WITH EXPOSURE

As the concentrations of these microbials and the biological compounds they produce increase, the health of the

occupants becomes progressively more at risk in this complex indoor environment. Occupants often experience increases in allergy-related symptoms like nasal congestion, asthma, sinus infections, coughing, shortness of breath, bronchitis, and frequent upper and lower respiratory infections.

Other symptoms often reported by people exposed to the indoor environments of water-damaged buildings include fluid retention, muscle twitching, numbness and tingling, panic attacks, neurological symptoms like tremors, and severe burning pains or strange, sharp icepick-like sensations. People exposed to toxic molds often report that symptoms change from day to day, which can be an important clue in determining exposure to toxic mold and bacteria.

Hidden sources of structural mold are often discovered because the occupants experience ill health. Lisa Nagy, MD, specializes in treating patients with mold-related illnesses. She cites the following symptoms and observations as possible early warning signs of exposure to wet building materials and structural molds in an indoor environment:

- Morning headaches are often an indicator of mold in the bedroom area or home in general
- Development of intolerance to perfume, smoke, newspapers, exhaust, or the detergent aisle of the grocery store
- Fatigue, depression, inability to get dressed and get going, muscle weakness, rashes/hives, anxiety, fast heartbeat, heat intolerance, and apathy
- Dysautonomia, or fast heartbeat on standing, is a common end result and can cause panic attacks and the need for caffeine or other stimulants to constrict the veins in the legs that are dilated due to nerve damage to those veins
- Low blood pressure and the resultant lightheadedness and near-fainting episodes caused by adrenal insufficiency—associated with craving sugar or salt, hypoglycemia, insomnia, inability to handle stress,

- or even weight loss in severe cases
- Symptoms associated with chronic fatigue syndrome (CFS)
- Feeling better when away from the moldy building
- Noticing a “funny” odor upon entering a building

Behavioral changes can also be an indication of exposure to indoor sources of toxic mold and bacteria. “In general, neurotoxicants such as mycotoxins can increase the probability of suicide, violent crimes, and developing depression,” says Raymond Singer, PhD, a forensic neuropsychologist and neurotoxicologist. “Because the entire brain is susceptible to these neurotoxicants, I believe that any neuropsychological, neurological, and psychiatric illness can result from their exposure.”

Dr. Singer further explains, “Repeated indoor water intrusion creates an environment that fosters poor neurological and neuropsychological health. In my experience, neurotoxic substances like mycotoxins can produce ‘neurotoxicity syndrome.’”

Symptoms of neurotoxicity syndrome include:

- Headaches
- Irritability
- Mood changes
- Impairment of memory, concentration, attention, learning, personality, emotion, sleep, energy sustainment, and sexual function
- Impairment of executive function, resulting in difficulty in making decisions, planning, judging, comparing, organizing, and completing occupational duties

HIGH-RISK GROUPS: PEOPLE AND PETS

All of the aforementioned warning signs will be evident first in high-risk people. According to the Centers for Disease Control and Prevention (CDC), the following groups are at high risk when it comes to mold exposure:

- Infants and children
- Pregnant women

- Elderly people
- People with respiratory conditions like allergies, asthma, or COPD
- People who are immune-compromised
- People who have undergone recent major surgeries
- People who take immune-suppressing medication, including oral or nasal steroids

Physical warning signs may also be evident in family pets. Dr. Singer says, “Family pets could be more susceptible to exposure to indoor neurotoxicants as they may have less capacity to detoxify due to their smaller size. Of course, this is also a factor with children—their smaller size means that the concentrations of neurotoxicants within them can be magnified.”

When pets or children become sick, people should look for possible sources of indoor mold. Due to their smaller size, pets and children are like the proverbial canary in the coal mine, often getting sick faster than adults. The sooner structural mold and bacteria is discovered, the more quickly occupants can take steps to prevent further exposure.

AIR PURIFICATION ESSENTIALS

Occupants can use health-preserving equipment similar to what professionals in the mold inspection and remediation industry use. Dr. Thrasher explains: “During the mold remediation process, trained remediators use commercial-grade HEPA air purifiers to scrub the air to reduce airborne levels of these potentially harmful contaminants. Likewise, people can improve indoor air quality in their homes and workplaces both pre- and post-remediation by using nonindustrial HEPA air purifiers to reduce the amount of airborne contaminants 0.3 microns and larger, which can help reduce any associated negative health effects.”

Of course, the use of HEPA air purifiers is not a substitution for moisture control and structural remediation. However, if people find themselves in a situation where they cannot leave

a mold-contaminated environment, they can reduce health risks by using a HEPA air purifier with an activated charcoal filter—like an Austin Air—to create a “clean room” where they spend the majority of their time. A HEPA vacuum cleaner with a sealed design and zero particle exhaust, such as Riccar’s Premium Radiance, can also help reduce exposure because it will clean the air as it picks up the heavier particles that have settled.

If people do suspect they have a structural mold problem in their home or workplace, the first step is to temporarily leave the mold-contaminated environment until it has been sufficiently tested. To find a local certified mold professional, searchable databases are available on the websites of the following nonprofit organizations:

- The National Organization of Remediators and Mold Inspectors (NORMI.org)
- The Institution of Inspection, Cleaning, and Restoration Certification (IICRC.org)
- The American Industrial Hygiene Association (AIHA.org)

If you suspect your home has a mold problem, get it tested—your health depends on it. 

LEE ANN BILLINGS is coauthor of the Amazon best-selling book *MOLD: THE WAR WITHIN*. After mold and chemical exposure from Hurricane Katrina, Billings conducted thorough research and she and her family were able to restore their health through natural means. For more in-depth information and resources, see moldthewarwithin.com.

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