The University of Texas at Austin
Dell Medical School

Health & Housing: Mold & Moisture

1. Mold and Moisture in the Home

Molds naturally occur in the environment and thrive in moist conditions both indoors and outdoors. Moisture can accumulate and cause damp areas inside where there are leaks in pipes, windows, roofs, and air conditioners. These leaks can cause chronically damp ceiling tiles, wallpaper, drywall, and carpet. Any visible indoor mold growth needs to be addressed, as it could impact your health.[1,2]

Molds are fungi that occur in clusters and appear in a variety of colors. Mold often has a musty, earthy odor and can grow on ceilings, floors, and walls. Mildew is another term to describe mold growth, and often refers to fungi on shower walls, windowsills, and other areas with high moisture levels.[3] Molds thrive in moist environments. Signs of indoor moisture need to be addressed, as mold can impact your health.

Figure 1: Neglected ceiling leak causes mold in bathroom. Image: BASTA

Signs of increased moisture in the home include: [4]

- Visible water damage
- Damp materials
- Musty, earthy scent

2. Health Effects of Mold Exposure

Mold exposure can cause adverse health effects. Some of the documented health effects of mold exposure include [3,4]:

- Coughing
- Skin and eye irritation
- Runny nose and sore throat
- Shortness of breath
- Wheezing
- Increased asthma symptoms
- Upper respiratory symptoms (nose and throat)
- Increased respiratory infections

[1] Centers for Disease Control and Prevention. (2020). Basic Facts about mold and dampness. Retrieved from https://www.cdc.gov/mold/faqs.htm
[2] World Health Organization. (2009). WHO guidelines for indoor air quality: dampness and mould. Retrieved from https://www.euro.who.int/__data/assets/pdf_file/0017/43325/E92645.pdf
[3] Institute of Medicine 2004. Damp Indoor Spaces and Health. Washington, DC: The National Academies Press. https://doi.org/10.17226/11011
[4] Centers for Disease Control and Prevention. (2020). Mold. https://www.cdc.gov/mold/faqs.htm

Figure 2: Mold and moisture can cause lung disease. Image: Getty Images

2.1 Health Considerations

Infants, children, and senior citizens may be more susceptible to health problems associated with molds than adults. People who have allergies, respiratory problems, or weakened immune systems have a higher risk of experiencing health problems related to mold, leading to hospitalizations. The more time that a susceptible person spends indoors in the presence of mold and dampness, the greater their risk of experiencing health issues. [5]

3. Mold Solutions

3.1 Controlling mold and moisture

The best way to control mold is to control moisture. Any area with visible water damage and damp materials should be inspected for mold. If mold is visible, in most cases it is unnecessary to sample for mold. Mold sampling is potentially useful to verify that mold has been effectively removed from a targeted area indoors. [6]

Figure 3: Mold growing on children's shoes. Image: BASTA

3.2 Immediate actions if mold and moisture are present [7]

- Identify and eliminate the source of moisture.
- Quickly clean moldy surfaces with soap and water and dry completely (within 24 –48 hours).
- Soft (porous) materials cannot be properly cleaned to remove mold and must be dried within 48 hours to prevent mold growth. Porous materials include carpet, upholstery, wallpaper, drywall, ceiling tiles, insulation, clothing, and leather. These items may need to be removed and replaced.
- Clean hard surfaces with soap and water and disinfect with bleach and water after cleaning. Use precautions when handling bleach. The Office of Occupational Health and Safety (OSHA) recommends a ratio of 1/4 cup bleach to a gallon of water.

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[5] Baxi, S. N., Portnoy, J. M., Larenas-Linnemann, D., Phipatanakul, W., Barnes, C., Baxi, S., Grimes, C., ... Williams, P. B. (May 01, 2016). Exposure and Health Effects of Fungi on Humans. *The Journal of Allergy and Clinical Immunology: in Practice, 4,* 3, 396-404.

[6] United States Environmental Protection Agency. (2017). Mold Testing or Sampling. Retrieved from https://www.epa.gov/mold/mold-testing-or-sampling

[7] Occupational Safety and Health Administration. (2013). OSHA Fact Sheet: Mold Hazards During Disaster Cleanup. Retrieved from https://www.osha.gov/Publications/OSHA3713.pdf

- Individuals with asthma that is triggered by strong odors should avoid using bleach solutions.[8] The United States Environmental Protection Agency maintains a list of several alternative disinfectant products.[9]
- Use a fan to ventilate and dry damp areas.
- Avoid spending prolonged amounts of time in areas that are damp and where mold is present.

3.3 Long-term solutions to mold and moisture in the home

- Perform routine building maintenance and inspection, checking for cracks and leaks that lead to dampness and mold growth.
- Maintain Heating Ventilation and Air Conditioning systems, routinely inspecting ducts, insulation, and surrounding areas.
- Ventilate areas that have high moisture levels, like bathrooms and laundry rooms. Clean these areas frequently to prevent mildew growth.
- Keep home well ventilated and keep indoor relative humidity below 60%, ideally between 30-50%.

Figure 4: Use humidity detector to measure and control humidity. Image: BASTA

3.4 Best practices to protecting your health while cleaning up mold

Removing mold from surfaces does not solve the issue – make sure the underlying problem is fixed. When cleaning surfaces with mold:

Figure 5: Get professional help to remediate mold. Image: OSHA

- Keep the area well-ventilated.
- Use proper equipment and protection. Wear gloves, safety goggles, and masks to avoid contact with the mold spores that are released once disturbed. No one should remove mold without proper equipment or protection.
- If the moldy area covers several square feet, professional mold remediation may be required.
- Do not mix bleach with any cleaning product that contains ammonia, mixing bleach and ammonia can produce a highly toxic chlorine gas.
- Remember that bleach will NOT eliminate mold on soft materials. The Environmental Protection Agency has detailed guidelines to ensure safe and effective mold remediation in commercial buildings. This is a good resource for landlords and mold remediation professionals.[10]

[8] UpToDate. (2021). Patient education: Trigger Avoidance in asthma. (2021). https://www.uptodate.com/contents/trigger-avoidance-in-asthma-beyond-the-basics/print

[9] United States Environmental Protection Agency. (2021). Safer choice: DfE-Certified disinfectants. https://www.epa.gov/saferchoice

[10] United States Environmental Protection Agency. (2020). Mold Remediation in Schools and Commercial Buildings Guide. Retrieved from https://www.epa.gov/mold/mold-remediation-schools-and-commercial-buildings-guide-chapter-1

This report was compiled by University of Texas at Austin Community-Driven Initiatives and the Center for Health and Environmental, Education and Research (CHEER) in collaboration with Building and Strengthening Tenant Action (BASTA).

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