

The Health Dangers Associated with Aspergillus Fungi

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BACKGROUND

Aspergillus is one of the most common fungi and, unlike many fungi, can be found throughout the world in outdoor and indoor environments. Microbiologists have identified over 200 species of aspergillus, a number of which can affect human health in a very serious way. Aspergillus is known to cause a variety of invasive lung diseases, lesions of the lung, sinuses and ear and corneal disease in healthy persons and can lead to liver failure in diabetics.

Aspergillus is unique among fungi as many aspergillus species can grow at body temperature; for this reason, 'fungal balls' can form in the lungs, organs and intestines of humans. Some species of aspergillus produce potent toxins that can withstand environmental elements that destroy most other toxins, therefore, aspergillus has been researched by the United Nations special commission overseeing the elimination of weapons of mass destruction.¹

Due to the large number of patients treated in the U.S. for diseases caused by aspergillus², medical professionals regard it as being more influential on human health than stachybotrys, the fungi commonly known as 'black mold'.

CHALLENGES

In southern states, aspergillus is identified in outdoor air samples year-round. This presents a unique challenge as people who become sensitized to mold have difficulty avoiding exposure unless they remain indoors in a highly protected environment.

Aspergillus is a small spore, under 2.5 microns, which presents additional challenges: 1) air filters have a difficult time capturing particles this small; 2) while humans can cough up larger particles, the lungs have a difficult time protecting people from particles as small as 2.5 microns; 3) aspergillus spores are dry and small, easily become airborne, and very high counts are often detected in indoor air samples. Additionally, many environmental investigators rely on spore traps analyzed under a microscope to gather data on indoor air quality. This is a flawed method as aspergillus spores appear identical to another fungal type, penicillium, when analyzed using microscopy.³

Probably the most alarming fact is that aflatoxin, which is produced by very common species of aspergillus, is a known carcinogen, the effects of which manifest themselves after many years. Therefore, exposure to aspergillus may not cause noticeable health effects until years later.

SOLUTIONS

Property owners and individuals who work in mold-infested environments should consider all indoor fungal growth to be unacceptable and potentially harmful.⁴ Farmers and mold investigators/remediators are at high risk, and according to the CDC, should always wear an N95 mask when working in a dusty or moldy environment. Indoor environments can be protected from high levels of airborne aspergillus through the use of high quality HEPA-grade furnace filters and constantly operating the blower fan.

¹ In 1998, the United Nations Special Commission (UNSCOM) identified *aflatoxin* from *a. flavus* and *a. parasiticus* as being produced by Iraq as part of its program in biological warfare. *Source: Stockholm International Peace Research Institute (SIPRI)*

² Over one million new cases of aspergillosis are diagnosed in the United States each year. Bronchiopulmonary aspergillosis (APBA) is an incurable lung disease that can affect healthy individuals, but is more common in people with asthma or cystic fibrosis. Invasive aspergillosis usually affects people with immune system issues and can cause tissue damage to the lungs and other organs, leading to death of the patient. *Sources: Center for Disease Control (CDC) Division of Foodborne, Bacterial and Mycotic Diseases and <http://www.mold-help.org/content/view/408/>*

³ Cultured air samples or the PCR method of analysis are required to differentiate between aspergillus and penicillium spores

⁴ The time-worn rationale that 'mold is found everywhere' as a defense to correcting an indoor mold issue is not defensible if someone becomes ill. Outdoor counts of airborne aspergillus rarely exceed 1000 spores/m³, and are usually under 200 spores/m³, while indoor counts are often identified at more than 12,000 spores/m³ when visible mold growth is present