

# A Basic Guide to Mold and the Health Effects of Mold

**What is Mold?** The tasty mushroom – delight of the gourmet – has much in common with the black mold that forms on stale bread and the mildew that collects on damp shower curtains. All of these life forms belong to the Kingdom Fungi, a diverse group of more than 100,000 known species. Fungi are heterotrophs – meaning that they absorb their food through the cell wall and cell membrane. They reproduce by means of spores, which may be produced sexually or asexually. Their main purpose on the earth is to break down dead materials. Without fungi, the earth would be full of dead things – dead leaves, dead trees, dead insects and dead animals. Life on earth could not exist, as we know it, without the action of fungi. The same powerful digestive enzymes that enable fungi to decompose wastes and dead organisms also permit them to reduce wood, fiber, and food into their components with great efficiency. Various molds produce incalculable damage to stored goods and building materials each year. These same molds cause great damage to housing, compromising the health of the residents and the structural soundness of the building.

**Where Does Mold Come From?** Molds are simple, microscopic organisms whose purpose in the ecosystem is to break down dead materials. Molds can be found on plants, dry leaves, and just about every other organic material. Man has found some molds to be useful, such as those used to make antibiotics, beer, cheese and wine. Some molds are known to be highly toxic when ingested, such as types that invade grains and peanuts. Still others cause negative health effects, such as asthma or allergic reactions when their reproductive spores are inhaled. Most of the mold found indoors comes from outdoors. The spores float in on the air currents and find a suitable spot to grow. If mold spores land on a suitable surface, they will begin to grow.

Molds need three things to thrive:

- 1) Moisture
- 2) Food
- 3) Surface to Grow on

Mold growth can often be seen in the form of discoloration and can be many colors – white, orange, pink, blue, green, black or brown. When molds are present in large quantities, called colonies, they can cause health problems in some people. Molds many times develop from roof, basement or bathroom water intrusion.

## 3 Basic Groups of Mold

**Allergenic Molds** are normally not dangerous, but can cause allergic or asthmatic symptoms such as wheezing or runny nose.

These molds do not usually produce life threatening health effects, and are most likely to affect those who are already allergic or asthmatic. Indoor fungal allergens probably affect fewer people than do allergens from cats, mites, or cockroaches. Yet, significant proportions (10-32%) of all asthmatics are sensitive to fungi. These include those most often encountered in housing, such as *Penicillium*, *Aspergillus*, *Cladosporium* and *Alternaria*.

**Toxins** from mold (called mycotoxins) can cause serious health effects in almost anybody. These agents are fungal metabolites that have toxic effects ranging from short-term irritation to immunosuppression and even cancer. Virtually all the information related to diseases caused by mycotoxins concerns ingestion of contaminated food. However, mycotoxins are contained in some kinds of fungus spores, and these can enter the body through the respiratory tract. At least one case of neurotoxic symptoms possibly related to airborne mycotoxin exposure has been reported. Skin is another route of mycotoxins. Toxins of several fungi have caused cases of severe dermatosis. In view of the serious nature of the toxic effects reported for mycotoxins, exposure to mycotoxin-producing agents should be minimized.

**Pathogenic Mold** can cause serious health effects in persons with suppressed immune systems, those taking chemotherapy, or in those with HIV/AIDS. Opportunistic fungal pathogens (Disease-causing organisms) such as *Aspergillus* are common in indoor air. A normal, healthy individual can probably resist infection by these organisms regardless of dose, although high exposures may cause hypersensitivity pneumonitis. However, any mold that can grow at body temperature can become a pathogen in immunocompromised individuals.

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