

## WE CARE ABOUT YOUR AIR

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### CANADIAN HEALTH MINISTRY LINKS MOLD TO MEDICAL CONDITIONS

Taken from: Health Risks Associated With the Indoor Presence of Molds—a report for the INSPQ (Quebec)  
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#### Effects on Human Health

When the conditions conducive to fungal growth are present indoors and are not controlled, molds can proliferate, colonize various substrates and eventually end up in the ambient air. The effects of molds on the occupants' health depend on the mode and extent of exposure, the nature of the agent in question and the susceptibility of the exposed individuals (health status, age, etc.)

In northern regions, such as Quebec, where the average annual temperature is relatively low, people spend an average of 90% of their time indoors. Indoor exposure to molds is therefore different from outdoor exposure firstly by its duration. It also differs by the proximity of fungal components sometimes present in high concentrations, by the possibility of simultaneous presence of sensitizing, allergenic and potentially toxic or infectious species, and by the possibility of differences in species or quantities present. Similarly, nonexistent or poor indoor ventilation contributes to the different fungal components.

#### - Exposure threshold concept

The occurrence of health effects related to fungal components necessitates direct contact with these components. Exposure can occur by inhalation or, to a lesser extent by skin contact or, more rarely, by ingestion. At present, no reliable data exists to establish a threshold below which there is no effect on health. There is also no reference list to evaluate the health risk for a given mold species. In fact, for an allergic person who is already sensitized to molds, most indoor species can pose a risk of reaction, even in low concentrations. On the other hand, non-allergic persons can be affected. However, it must be noted that repeated exposure to high concentrations seem to be necessary to induce a reaction. Finally, except for infections, the nonviable structures if a given species can be just as harmful as its viable structures.

Several authors recently proposed guideline values to classify the degree of contamination. Apparently the World Health Organization will soon propose a classification scale based on the proportion of the contaminated surfaces covered by molds or on the fungal metabolite concentrations in the air, which will allow some grading of the health risk.

#### Population at risk

Certain individuals or groups of individuals, because of their underlying health status, are more likely to develop health problems when exposed to fungal contaminants. The populations most often mentioned are atopic individuals, those suffering from certain diseases (e.g. cystic fibrosis), those suffering from respiratory problems such as asthma and chronic obstructive pulmonary diseases, infants and young children, the elderly and immunodepressed individuals, particularly in hospital settings. Since they generally spend more time indoors, the vulnerable people are those most exposed.

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# DAMP, MOLDY HOMES MAY CAUSE DEPRESSION

By Alan Mozes

HealthDay Reporter Thu Aug 30, 7:00 PM ET

THURSDAY, Aug. 30 (HealthDay News) -- People who live in damp, moldy homes may be prone to depression, a new study suggests.

The possible link was uncovered in an analysis of mold and health conditions in several cities in eastern and western Europe. And it could one day lead to the addition of emotional problems to the list of health woes caused by mold, the study authors said.

But, the researchers cautioned, it's still too soon to tell if exposure to mold is directly related to depression, or whether an already depressed person might simply relinquish control of their surroundings to the degree that mold may develop.

"There is some preliminary evidence which suggests that high levels of exposure to mold may lead to depression," said study lead author Edmond D. Shenassa, an assistant professor of community health at Brown University School of Medicine.

"But it's not a certainty," he stressed. "We have found an association between mold and risk of depression, but we have more work to do to see if this is causal situation."

The study results are published in the October issue of the American Journal of Public Health.

Molds are ubiquitous and toxic microscopic organisms called fungi that come in a variety of species numbering in the tens -- or even hundreds -- of thousands. Mold spores -- spread through air, water or insects -- are found year-round both indoors and out, and survive and multiply most readily in warm, damp, shady, and humid conditions, according to the U.S. Centers for Disease Control and Prevention.

Typically, routine cleaning with soap, water and bleach can prevent mold from accumulating in the most susceptible areas, such as the seal of a refrigerator door, showers, windows, and air conditioners.

But, a serious mold problem -- easily evidenced by either the smell of a musty odor or the sighting of slimy, furry and discolored patches on walls or ceilings -- can develop and fester after excessive and continuous water damage.

The U.S. government has not established general guidelines for acceptable levels of residential mold. And no study

has conclusively linked mold exposure to mental health problems.

However, the CDC cautions that inhaling living or even dead mold spores can provoke an allergic respiratory reaction among sensitive individuals. Wheezing, shortness of breath, and even lung infections can ensue, as can the onset of a stuffy nose, cough, headaches, and skin, throat, or eye irritations.

Those most at risk include men and women suffering from allergies, asthma, or the immune suppression that accompanies HIV infection, chemotherapy treatment for cancer, and organ transplants.

To explore the possible link between mold and mental health problems, Shenassa and his colleagues reviewed World Health Organization data collected between 2002 and 2003 in eight European cities: Angers, France; Bonn, Germany; Bratislava, Slovakia; Budapest, Hungary; Ferreira do Alentejo, Portugal; Forli, Italy; Geneva, Switzerland; and Vilnius, Lithuania.

Almost 6,000 men and women in almost 3,000 households were questioned in person about their health, including whether they had been clinically diagnosed as depressed in the prior 12 months. The participants, who ranged in age from 18 to 104, were divided equally between men and women and were chosen by random.

They were asked if they had experienced any of four symptoms of depression in the previous two weeks, such as problems sleeping, low self-esteem, poor appetite, and/or a decreased interest in activities. Those with three or more symptoms were deemed to be depressed.

Residents were also asked to assess their living conditions, while, at the same time, the researchers conducted visual inspections to calculate the levels and location of any dampness and mold in each home.

Finally, each study participant was asked whether or not they felt in control of their home environment, as well as whether they had any of six conditions that can be associated with exposure to mold, including: cold or throat problems; wheezing; asthmatic attacks or other respiratory problems, fatigue; or headaches.

Housing characteristics -- such as light, ventilation, size, crowding and heating conditions -- were also noted, as were basic demographic information such as employment status. The researchers pointed out that such factors, as well as general health, are sometimes associated with depression.

Shenassa and his colleagues found that 57 percent of all the residents lived in homes that were free of dampness or mold, although the prevalence of mold varied greatly depending on region -- ranging from more than 80 percent in Portugal to a little more than 25 percent in Slovakia.

Meanwhile, nine percent of all residents were determined to be depressed. Women, the elderly and the unemployed were most likely to have depressive symptoms, while those living in crowded conditions also appeared to run a higher risk for depression.

But, even after accounting for such key mitigating factors, the researchers connected the dots and found that having mold in the home appeared to be associated with depression.

"Basically, the risk for depression went up about 40 percent among people who lived in moldy homes," said Shenassa. "And to the extent that there are the same types of mold in Europe as they are in the U.S., the results should also apply to U.S. households."

"But although we saw that there is more depression among people who live in moldy homes, we don't know which came first," Shenassa cautioned. "We think there are multiple pathways to depression. So, we need to do more work."

Kelly A. Reynolds, a research microbiologist with the University of Arizona, described the study as "very interesting" but agreed that further research is needed.

"Knowing that the mold-health effects are long-term and chronic and sometimes cumulative means they [the study authors] might be very far from determining which is the chicken and the egg," she said. "So, although there's a lot of speculation, it's difficult to prove a mental health connection. But what we always tell people is that if you can smell or see mold in your house, there's really no reason to not get rid of it."

For more on the health risks of mold, visit the U.S. Centers for Disease Control and Prevention. Copyright © 2007 HealthDay. All rights reserved.



# MOLD OF THE MONTH

## Stachybotrys sp.



Stachybotrys sp. - Considerable recent media attention has been focused on the fungi *Stachybotrys chartum* due to infant deaths in Cleveland from pulmonary hemosiderosis which may be associated with contamination of residences with this fungi. *Stachybotrys* thrives on water damaged cellulose rich materials such as sheet rock, paper, ceiling tiles, cellulose containing insulation backing and wallpaper. The presence of this fungus in buildings is significant because of the mold's ability to produce mycotoxins, which are extremely toxic, such as Satratoxin H. Exposure to these toxins can occur through inhalation, ingestion or dermal exposure. Symptoms include dermatitis, cough, rhinitis, nose bleeds, a burning sensation in the mouth and nasal passage, cold and flu symptoms, headache, general malaise, and fever. Inhalation of conidia may also induce pathological changes (pneumomycotoxicoses). Satratoxin H has been reported to be abortogenic in animals and in high doses or chronic low doses it can be lethal. *S. chartum* produces other macrocyclic and trichoveroid trichothecenes and, like *Memnoniella echinata*, produces phenylspirodrimanes, which are immunosuppressive. *Stachybotrys* typically appears as a sooty black fungus occasionally accompanied by a thick mass of white mycelia. As a general rule, air sampling for *Stachybotrys* yields unpredictable results mainly due to the fact that this fungus is usually accompanied by other fungi such as *Aspergillus* and *Penicillium* that normally are better aerosolized than *Stachybotrys*. Bulk or surface sampling of suspect materials can be analyzed in a laboratory for identification by light microscopy. Cultivation - Corn meal agar, 24°

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### Toxic Effects of Molds

Most of the toxic effects caused by mold inhalation have been associated with exposure in industrial or agricultural environments, that is, in areas where the mold concentration is high and where exposure is repeated or chronic. Apart from hypersensitivity pneumonitis, high exposure to organic dust contaminated by molds could cause Organic Dust Toxic Syndrome (ODTS). This disorder can be characterized by a sudden fever, flu-like symptoms and respiratory problems occurring within hours of a single high exposure. More recently, symptoms associated ODTS have also been noted in occupants of apartments highly contaminated by molds as well as in workers performing renovation work.

The other toxic effects caused by molds occur in cases of repeated exposure to environmental contamination, resulting in a high cumulative dose and

manifest themselves over the medium and long term. The term "mycotoxicosis", mainly used in cases of poisoning resulting from ingestion of mold-contaminated food containing mycotoxins, also refers, by extension, to the systemic effects due to environmental exposure to large doses of fungal toxins.

Since 1994, *Stachybotrys chartarum*, recognized to cause various mycotoxicoses, has been associated with cases of pulmonary hemorrhage in young children. This is a rare syndrome of unknown origin, associated with bleeding in the lungs. Following these events, the American Academy of Pediatrics had issued a notice calling on physicians to look for exposure to toxic molds upon discovery of cases of pulmonary hemosiderosis in children and to remove them from environments contaminated by such molds. The review of the studies on the 1993-1994 outbreak showed that the etiological link was not clearly established. However, reports of similar cases continue to be published and the recent New York City Guidelines recommend that infants suffering from pulmonary hemorrhage who come from a contaminated residence only return home after remedial action.

Some recent articles report neuropsychological effects in people exposed to toxigenic molds, such as difficulty concentrating extreme mental fatigue, irritability, headaches, etc. Other systemic symptoms have been identified, such as change in lymphocytes, fever and painful joints, as well as gastrointestinal symptoms. However, additional research is necessary to confirm these observations.

### Conclusion

Given the data gathered by the Task Force, it is appropriate, within a public health perspective, to be concerned about problems of indoor proliferation of molds and the conditions conducive to their growth.

The summary and scientific report are available in their entirety on the INSPQ Web site: <http://www.inspq.qc.ca>

## OUR VISION, OUR MISSION

To develop a state of the art procedure and provide services for sampling the Interior Air Quality of commercial and residential buildings.

To develop the Certified Home Environmental Inspector (CEHI) program to offer memberships throughout the United States and Canada.

To provide our staff and CEHIs world-class education in the techniques, technologies and ethics of delivering such services to the public.

## OUR VALUES

**Excellence.** We will strive to provide a level of excellence in service, which meets our customers' expectations.

**Integrity.** We will conduct our business with integrity, fairness and accountability.

**Respect.** We appreciate and respect the diversity of our clients, business colleagues, industry professionals and all who interact with us.

**Healthful Living.** We commit time, talent and financial resources to promote the principles of healthful living and illness prevention in our community.

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### Improving Your Home's Indoor Air Quality this Winter

- \* Change the filters in the furnace and humidifier every month.
- \* If you family is experiencing symptoms such as headaches, drowsiness, allergies, throat irritations-investigate installing a whole-house mechanical ventilation system.
- \* Have an electronic air cleaner installed to trap minute airborne particles or install a High Efficiency Particulate Air (HEPA) filtration unit which not only traps airborne contaminants, but purifies the air as well.
- \* Have the carpeting in your home professionally cleaned at least once a year with hot water extraction method that will reach deep into the fibers and extract contaminants.
- \* When renovating older homes that may have lead-based paints, vacuum; rather than sweep, the renovation dust and follow with damp-mop to remove remaining particles.



I am pleased to share the progress that ESP has made since the beginning of this calendar year. In the last update, it was mentioned that ESP has pioneered the Environmental Inspection Industry by developing and implementing new protocols. These methods and systems of inspection have allowed us to re-examine the way we value our homes, health and the way we live.

ESP has already successfully acquired several businesses throughout the United States that meet our standards of excellence. We also have sought out experienced and qualified management personnel to lead us in obtaining more National Market Share as we continue our quest to provide the highest level of customer service to our clients.

Today, many people experience health problems and issues derived from the environment, some are aware, some are un-aware of the fact that the source of the problem stems from where they live or work. Just as we care quarterly and annually for our automobiles and personal health, we need to look upon our living environment in the same manner by having it inspected. It is time that every one of us considers ordering a home and workplace inspection because of how these environments may or can affect our health and the health of our families, and loved ones.

ESP, with the combined efforts of the National Association of Moisture Management (NAMM), the Mortgage Bankers Association and various groups in the Insurance Industry are prepared to offer Annual Inspections through our Certified Environmental Home Inspectors (CEHI's). This Annual Inspection, identified under the "MM Program", will assist individuals in obtaining "peace of mind" for their families, homes and health by validating that their environments are indeed safe.

This "Home Assurance" suite of services has come to the forefront now in our strategic planning process and ESP is launching a National Campaign in November 2007 to educate, promote and make available the Annual Inspection Program to millions of residential homeowners. Please look for our ads and let us know your response.

The Leaders of ESP are committed to maintaining the highest level of professionalism in support of our Shareholders, Client/Customers and Employees. Our Team is dedicated to operating the Company in an effective manner with the intent of minimizing dilution and maximizing our profit potential. All of this allows more resources for us to continue our successful track record of expansion and growth.

We are confident that working together, our decisions will be made in a mindful manner considering what is in the best interest of the Company and its Shareholders. Your straightforward comments, enthusiasm and continued interest are appreciated. You are the major reason for our successful and optimistic outlook. As we officially close and acquire additional business opportunities, we will then be able to disclose more details and good news to you.

Edward L. Torres, Chairman and CEO  
Environmental Service Professionals, Inc.