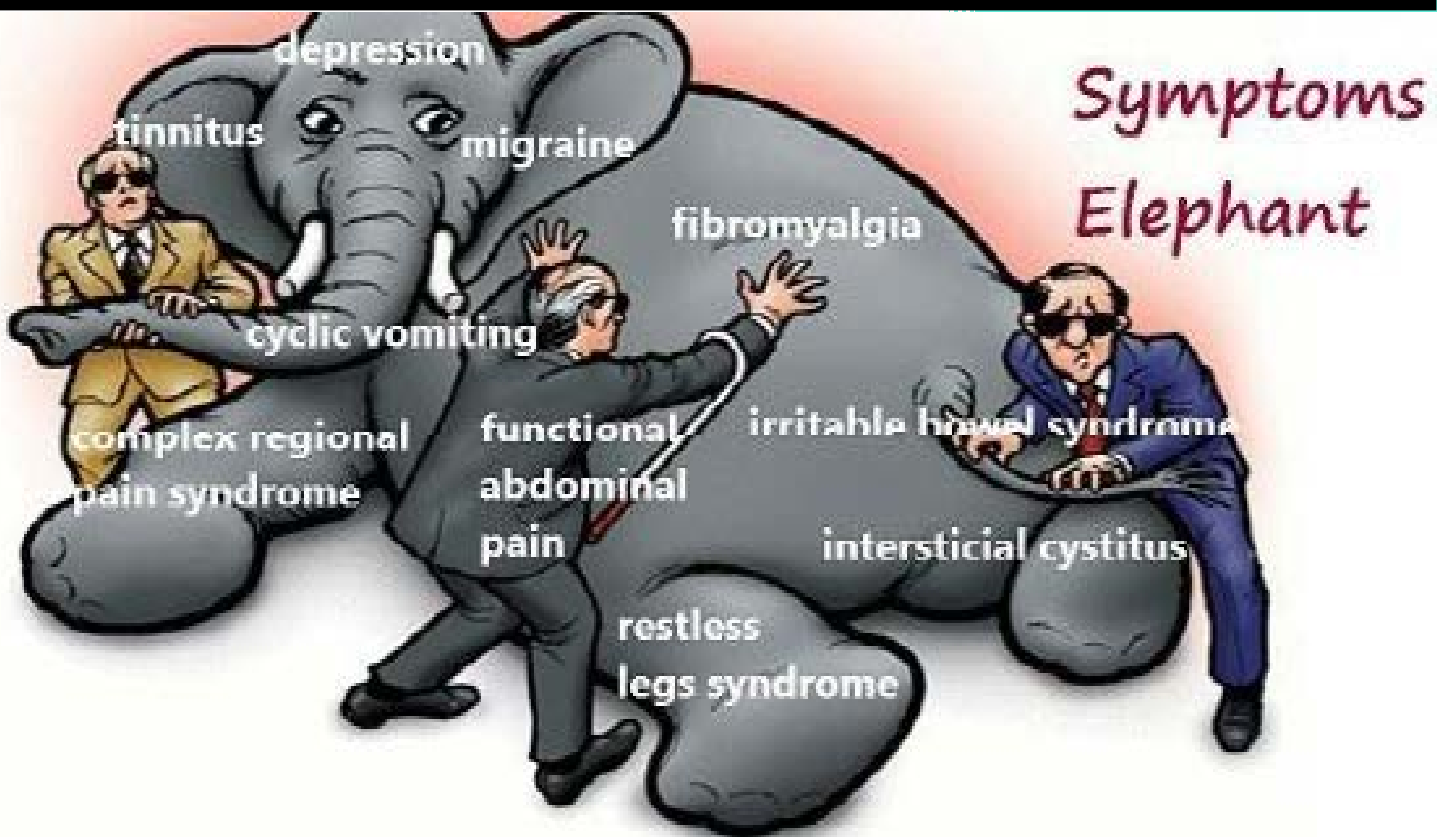


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Molds, Mycotoxins and Your Health

Mycotoxins are toxins produced by molds or fungi. The mycotoxins discussed here are the **Trichothecenes, Aflatoxins, Ochratoxins, Gliotoxin, Chaetoglobosins and Sterigmatocystin.** Where conditions are right, fungi proliferate into colonies and mycotoxin levels become high. Toxins vary greatly in their severity. Some fungi produce severe toxins only at specific levels of moisture, temperature or oxygen in the air. Some toxins are lethal, some cause identifiable diseases or health problems, some weaken the immune system without producing symptoms specific to that toxin, some act as allergens or irritants, and some have no known effect on humans. Some mycotoxins generally have more negative impacts on farm animal populations than on humans. Some mycotoxins are harmful to other micro-organisms such as other fungi or even bacteria (penicillin is one example).

HEALTH RISK FROM MOLD

MOLD	MYCOTOXIN PRODUCED	POTENTIAL HEALTH ISSUES
<i>Aspergillus fumigatus</i>	Gliotoxin	Immunosuppressant
<i>Aspergillus flavus</i>	Aflatoxin	Can cause liver cancer in humans
<i>Aspergillus niger</i>	Ochratoxin	Suspected carcinogen
<i>Aspergillus versicolor</i>	Sterigmatocystin	Carcinogenic
<i>Aspergillus ochraceus</i>	Ochratoxin	Suspected carcinogen
<i>Penicillium brevicompactum</i>	Mycophenolic acid	Immunosuppressant
<i>Stachybotrys chartarum</i>	Macrocyclic Trichothecenes	Highly toxic to humans
<i>Chaetomium globosum</i>	Chaetoglobosins	Toxic to mammalian cells
<i>Wallemia sebi</i>	Walleminol A	Allergy
<i>Aspergillus penicillioides</i>	None Known	Allergic Rhinitis

Did You Know...



Aflatoxins, produced by mold found in many homes, are the most potent natural cancer causing agent known to man. Ingestion is **KNOWN** to cause liver cancer in humans.



Trichothecenes produced by *Stachybotrys* ("Black Mold"), found in water damaged homes, are so lethal they have been used as chemical warfare agents.



Ochratoxins, again produced by indoor fungi, are listed in the National Toxicology Program 13th Report on Carcinogens as "Reasonably Anticipated to be Human Carcinogens"





Animal studies with mycotoxins have shown that inhalation is the most toxic route of exposure. When certain laboratory animals are exposed to mycotoxins by inhalation... they die!



It is not usually the mold itself that causes the most severe health effects... it is the mycotoxins they produce.

What is an Acceptable Level of Exposure for Your Family?

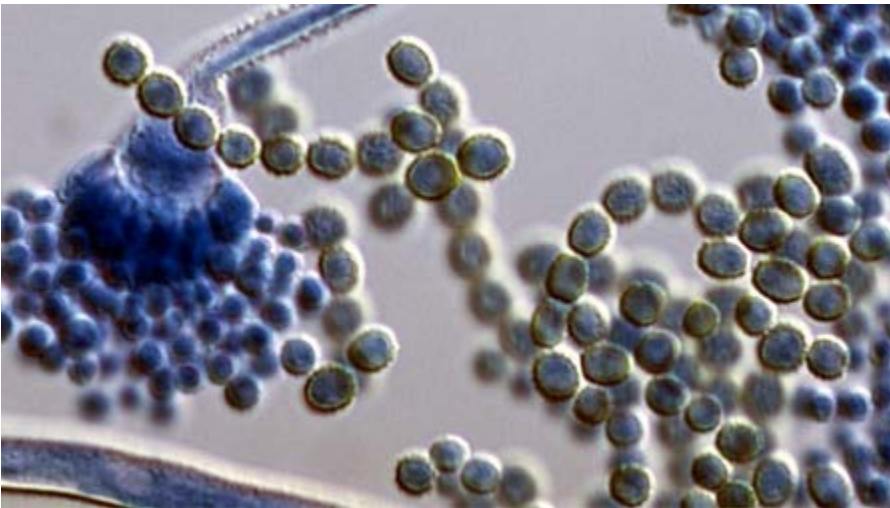
Mycotoxin Producing Mold

MOLD 	MYCOTOXIN 
<i>Aspergillus flavus</i>	Aflatoxin (AT)
<i>A. ochraceus</i>	Ochratoxin A (OTA)
<i>A. niger</i>	OTA
<i>Penicillium verrucosum</i>	OTA
<i>Stachybotrys chartarum</i>	Macrocylic Trichothecenes
<i>A. fumigatus</i>	Gliotoxin
<i>Chaetomium globosum</i>	Chaetoglobosin A, C
<i>P. brevicompactum</i>	Mycophenolic Acid
<i>A. Versicolor</i>	Sterigmatocystin

Aspergillus IS the Most Common indoor mold. Indoor Environmental Assessors discover Aspergillus/ Penicillium-Like Mold in 90% of the homes tested. 6 of the 9 Mycotoxin Producing Mold above are Aspergillus/ Penicillium-Like Mold.

Unfortunately, there are over One-Thousand Asp/Penn-like molds and Common Lab Samples DO-NOT identify Individual Genus Above and Mold Spores are Not Producing Mycotoxin. **Only EMMA Testing can give You and your Doctor the answers you need to Create and Implement a treatment plan so you Feel Better.**

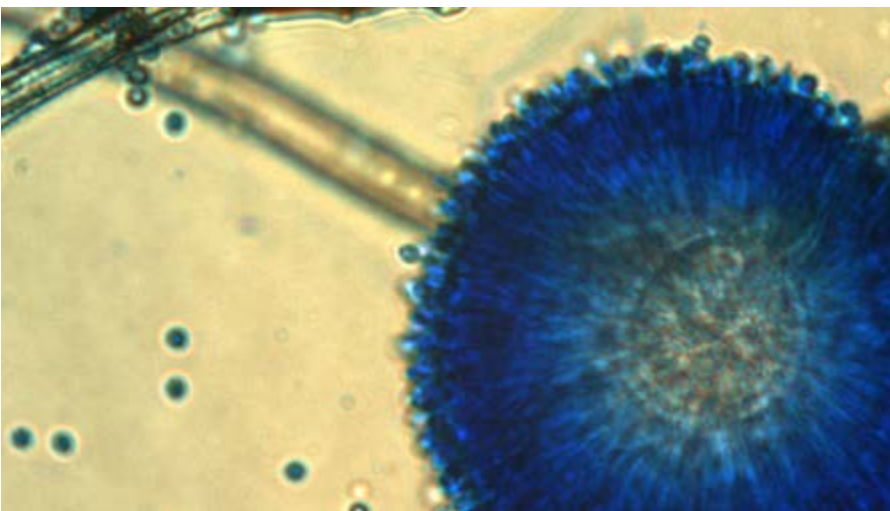
- *Aspergillus flavus*
- *A. ochraceus*
- *A. niger*
- *Penicillium verrucosum*
- *Strachybotrys chartarum*
- *A. fumigatus*
- *Chaetomium globosum*
- *Fusarium sp.*
- *A. Versicolor*



Aspergillus flavus

Mycotoxin; A. flavus produces aflatoxins, the most toxic and potent hepato-carcinogenic natural compounds ever characterized. There are four major Aflatoxins: B1, B2, G1, G2. Aflatoxin B1 is the most potent carcinogen and is the major mycotoxin produced by A. flavus.

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Aspergillus ochraceus

Ochratoxin A has been shown to interfere with cellular physiology in multiple ways. It inhibits synthesis of phenylalanine t-RNA complex, inhibits mitochondrial ATP production, and stimulates lipid peroxidation.

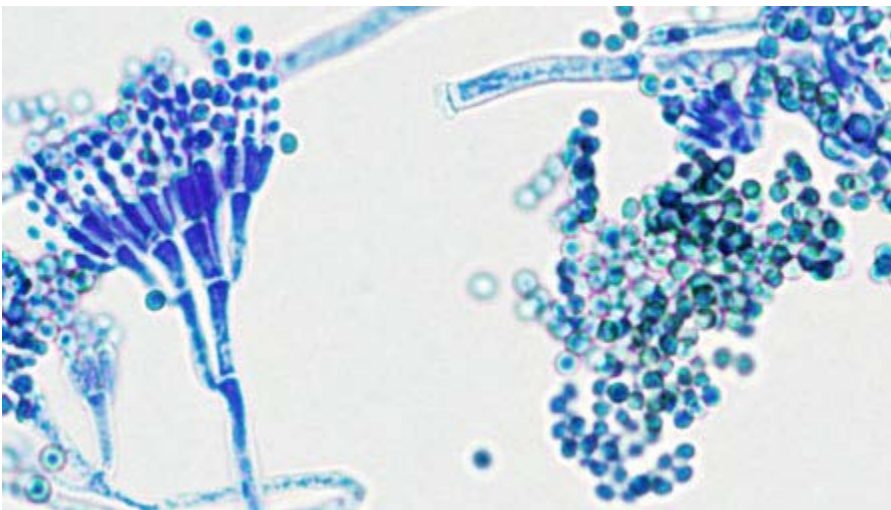
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Aspergillus niger

It has also been associated with urinary tract infections and bladder cancers. Ochratoxin has been detected in blood and other animal tissues and in milk, including human milk.

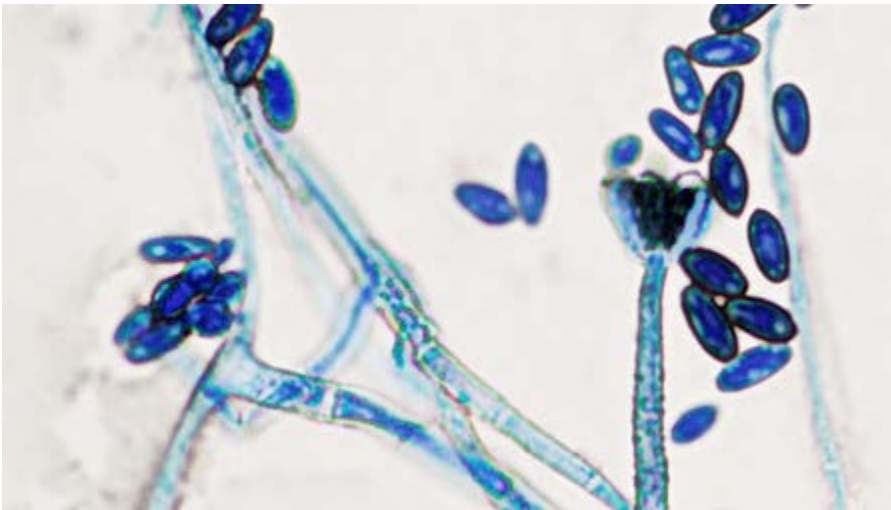
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Penicillium verrucosum

It has also been associated with urinary tract infections and bladder cancers. Ochratoxin has been detected in blood and other animal tissues and in milk, including human milk.

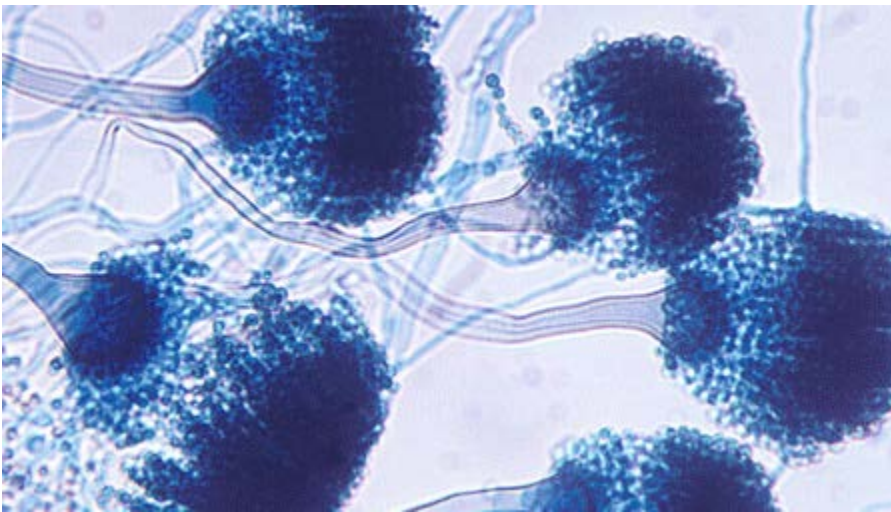
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Stachybotrys chartarum

Stachybotrys chartarum is the well-known “black mold” seen in many water damaged buildings. It produces a number of highly toxic macrocyclic trichothecenes.

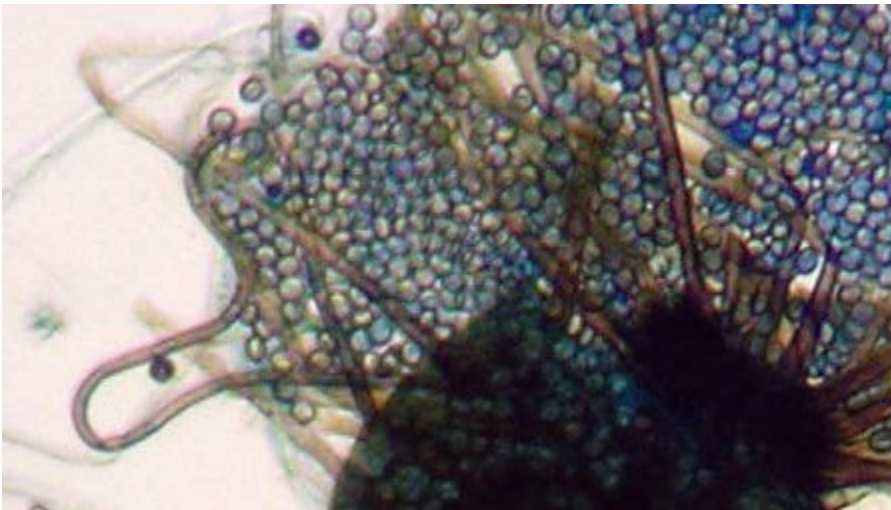
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Aspergillus fumigatus

A. fumigatus is frequently found in homes and buildings. It is considered to be an opportunistic pathogen, meaning it rarely infects healthy individuals, but is the leading cause of invasive aspergillosis (IA) in immunocompromised individuals such as cancer, HIV or transplant patients. A. fumigatus produces Gliotoxin, an immunosuppressive mycotoxin.

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Chaetomium globosum

C. globosum is a common indoor fungal contaminant of water damaged homes or buildings. It is found on wet drywall, wall-paper, carpets, window frames and baseboards. Like Stachybotrys, C. globosum spores are relatively large and due to their mode of release are not as easily airborne as other molds. Mycotoxins produced by C. globosum include chaetoglobosin A & C.

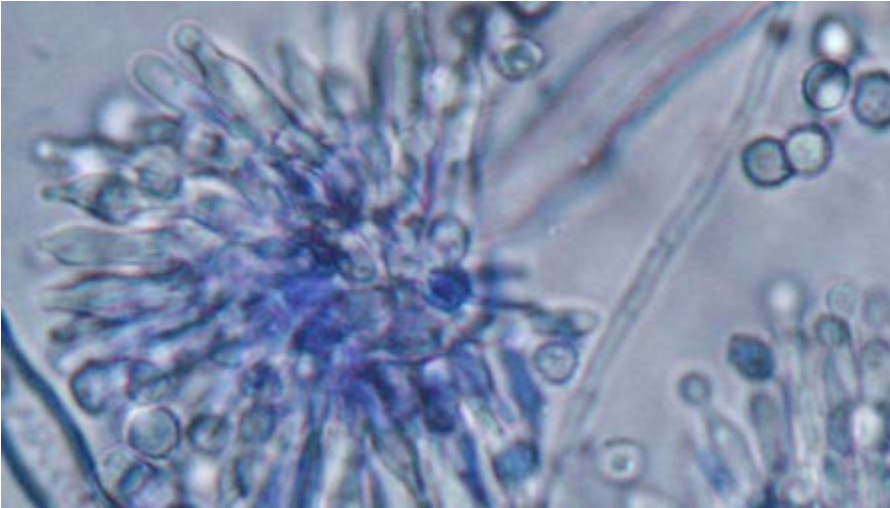
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Fusarium sp.

More than 50 species of Fusarium have been identified. Most are plant pathogens and can infect crops such as wheat, barley, oats and other feedstuff, where they can produce simple trichothecene mycotoxins such as T-2 and DON

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Aspergillus versicolor

A. versicolor is one of the most frequently found molds in water damaged buildings. Spores of A. Versicolor are detected and quantified in the ERMI (Environmental Relative Moldiness Index) test by Real Time PCR. A. versicolor is known to produce a mycotoxin called sterigmatocystin.

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