

Allergy & Immunology, PLC's
Asthma and Allergy Center

www.AsthmaAndAllergyCenter.net

Lynchburg

1715 Thomson Dr. Lynchburg, VA 24501
P. 434.846.2244 F. 434.846.0602

Dane McBride, M.D.

Roanoke

1505 Franklin Rd, SW, Roanoke, VA 24016
P. 540.343.7331 F. 540.343.7349

Luis Matos, M.D.

Saju Eapen, M.D.

Thomas Fame, M.D.

Salem

3529 Keagy Rd Salem, VA 24153
P. 540.343.7331 F. 540.725.1356

Larissa Norman, FNP

House Dust Allergy

Many people recognize allergy symptoms such as a runny or stuffy nose, itchy, watery eyes and sneezing (allergic rhinoconjunctivitis) from dust exposure related to common household chores such as vacuuming, sweeping, and dusting. House dust exposure can also trigger asthma symptoms such as wheezing, coughing, chest tightness and shortness of breath.

Why does house dust cause allergic reactions?

House dust is a mixture of many substances. Its content may vary from home-to-home, but the most common allergy triggers are:

- dust mites
- cockroaches
- fungi (mold)
- animals.

Any of these allergens can cause a response in the immune system which results in the production of a special antibody (Immunoglobulin E or IgE). IgE brings about an allergic inflammatory response. Exposure to only small amounts of the offending allergen can cause allergy symptoms.

Is dust allergy a sign of a dirty house?

No. A dirty house can make a house dust allergy problem worse, however. Normal housekeeping may not be enough to get rid of house dust allergy symptoms. This is because many of the substances in dust cannot be removed by normal cleaning procedures. Vigorous cleaning methods can actually put more dust into the air, making symptoms worse. Even if the house is very clean, some people are so allergic that even minimal exposures may trigger their symptoms.

Dust Mite Allergy

Dust mites are the most common cause of allergy from house dust. They belong to the family of eight-legged creatures called arachnids that also includes spiders, chiggers and ticks. Dust mites are hardy creatures that live and multiply easily in warm, humid places. They prefer temperatures at or above 70 degrees Fahrenheit with a relative humidity of 75 percent to 80 percent. They die when the humidity falls below 40 percent to 50 percent. They are not usually found in dry climates.

High levels of exposure to dust mites are an important factor in the development of asthma in children. People who are allergic to dust mites react to proteins within the bodies and feces of the mites. These particles are found mostly in pillows, mattresses, carpeting and upholstered furniture. They float into the air when anyone vacuums, walks on a carpet or disturbs bedding, but settle out of the air soon after the disturbance is over.

Dust mite-allergic people who inhale these particles frequently experience allergy symptoms. There may be many as 19,000 dust mites in one gram of dust, but usually between 100 to 500 mites live in each gram. (A gram is about the weight of a paper clip.) Each mite produces about 10 to 20 waste particles per day and lives for 30 days. Egg-laying females can add 25 to 30 new mites to the population during their lifetimes.

Mites eat particles of skin and dander, so they thrive in places where there are people and animals. Dust mites don't bite, cannot spread diseases and usually do not live on people. They are harmful only to people who become allergic to them. While usual household insecticides have no effect on dust mites, there are ways to reduce exposure to dust mites in the home. (See below.)

Cockroach Allergy

Many houses have dust that contains parts of cockroaches. This is most common in older, multifamily housing and in the southern United States where complete extermination of cockroaches is very difficult. Individuals allergic to cockroach protein, particularly those with asthma, tend to have increased symptoms if they live in such houses.

You do not have to actually see cockroaches to have a problem. The allergen is derived from saliva, fecal material, secretions, skin casts, and body parts. It is

usually at the highest levels in kitchens, but may be found throughout the home, including the bedroom and bed. The levels in bedrooms may be most associated with allergic disease. They are often found in schools and commercial buildings. Cockroaches require food and moisture to survive, so eliminating sources of each can help reduce exposure.

Indoor Mold Allergy

Molds found indoors come from the outdoors. It is possible to see relatively-high levels of molds inside if they are high outside. Any house can develop a mold problem given the right conditions. Certain molds, such as *Aspergillus* and *Penicillium*, are more commonly found indoors. You might not see it growing on the walls, but it may still be present in your home.

Molds require two factors to grow indoors: (1) free moisture from condensation, leakage from pipes or foundations, or any ongoing source of water; and (2) something to grow on that provides them a food source. Molds particularly like to grow on wallboard, damp wood, fabrics, leather, and paper products. They can also grow on concrete or the dirt on windows or window frames. Food products, particularly vegetables, fruits and breads provide a good place for mold to grow. Molds spread by producing spores that can become airborne when they are disturbed directly or by air currents. These spores end up on surfaces where they grow. Dust from mold-contaminated houses can cause allergy symptoms if a person who is allergic to the molds inhales them. Some molds produce bad odors. These odors may be irritating (like any strong odors) without actually causing an allergic response.

Animal Allergies

Cats and dogs are the most common cause of animal allergy, but any warmblooded animals (guinea pigs, hamsters, etc) can trigger allergy symptoms. It's not just the hair or skin particles that contain the allergens, but also the urine and saliva. Mice can trigger allergies if present in sufficient numbers. Allergens from domestic animals, especially cats, may be carried on the clothing of pet owners outside the home into the work place and schools. In fact, cat allergen, is one of the most common allergens found in the dust in schools. There are no "non-allergenic" cats or dogs.

How do I know if I have an allergy?

If you think you may have an allergy to any of the components of house dust, consult a board-certified allergist-immunologist. To pinpoint the cause of your symptoms, the allergist will ask detailed questions about your work and home environments, family medical history, frequency and severity of symptoms, exposure to pets and a variety of other questions. Sometimes the history will reveal obvious triggers, like people who develop symptoms every time they are around a certain animal. More often though, the history may suggest triggers, but it may not be obvious in identifying the exact ones.

Sometimes the medical history may not suggest any triggers, yet allergy may be the cause. In this case, your allergist finds out what you are allergic to by doing skin tests. Skin tests involve either pricking the skin (prick tests) or injecting into the skin (intradermal tests) with different allergens and observing for a reaction. A positive reaction (a raised welt with redness around it) may indicate you are allergic to that allergen. Occasionally, your allergist may order a blood test in addition to the skin test to confirm the diagnosis of allergy. The blood tests are generally less sensitive than skin testing.

What can I do to relieve house dust allergy symptoms?

Once your allergy triggers have been identified, steps should be taken to avoid them. Research has confirmed that targeted avoidance (environmental control aimed at relevant triggers) can be as effective as medications in reducing symptoms. The usual case requires targeted avoidance, medications prescribed by your allergist, and in many cases, specific allergen immunotherapy (allergy shots) to bring the problems under control.

Tips for reducing house dust allergens.

1. Measure the indoor humidity and keep it below 55 percent. Do not use vaporizers or humidifiers. You may need a dehumidifier. Use vent fans in bathrooms and when cooking to remove moisture. Repair all water leaks. (Dust mite, cockroach, and mold allergy.) Excellent references regarding mold prevention and remediation can be found at: <http://www.epa.gov/moldand> <http://www.nyc.gov/html/doh/html/epi/moldrpt1.shtml>

2. Remove wall-to-wall carpets from the bedroom if possible. Use a central vacuum or a vacuum with a HEPA filter regularly. If you are allergic, wear a N95 filter mask while dusting, sweeping or vacuuming. Remember, it takes over two hours for the dust to settle back down, so if possible clean when the allergic patient is away and don't clean the bedroom at night. (Dust mite, animal and mold allergy.)
3. Keep pets out of the bedroom at ALL times. Consider using a HEPA Air Cleaner in the bedroom. It is best to remove the animal from the home. (Animal allergy.)
4. Encase mattresses and pillows with "mite-proof" covers. Wash all bed linens regularly using hot water. (Dust mite allergy.)
5. Do not leave out uncovered food at night. Dispose of food wastes (including fast food wraps) in a tightly sealed garbage can. Use roach traps. Schedule regular professional pest control utilizing integrated pest management (IPM) methods. (Cockroach, mouse and mold allergy.)
6. Install a high efficiency media filter with a MERV rating of 11 or 12 in the furnace and air-conditioning unit. Leave the fan *on* to create a "whole house" air filter that removes particulates. Change the filter at least every three months (with the change of the seasons) to keep the air cleaner year round. Have your heating and air-conditioning units inspected and serviced every six months. (Animal, mold and dust mite allergy.)
7. Your board-certified allergist is the best resource for effective help with these issues. Many expensive, unproven products are of no benefit.