

Is It Time to Throw Away Your Dust-Mite Mattress Cover?

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The American Academy Of Allergy, Asthma & Immunology (AAAAI)'s website notes that dust mites are a common trigger of year-round allergies and asthma.¹

If conditions are conducive to dust-mite infestations, these "critters" can be ubiquitous. As the World Health Organization recognized in an article in one of its bulletins titled *Dust Mite Allergens and Asthma: A Worldwide Problem*, "After the discovery of house dust mites in 1964 their association with asthma has been reported from many different parts of the world including the developing countries."²

House dust mites (HDMs) feed primarily on the skin scales that human beings shed in great numbers—up to 30 grams/month/person or over 3/4s of a pound per year. That's a lot of skin! Or to put it another way, that's a lot of dust-mite food.

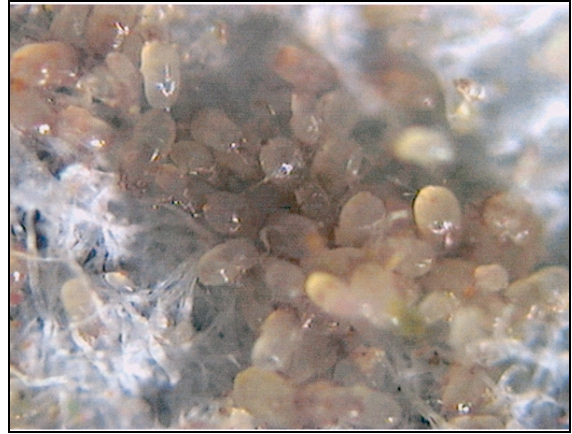
Much of the dust in the spaces that people occupy consists of skin scales. When you are in a theater with other people, you are inhaling small, airborne particles, most of which are skin scales that you and other people in the space are shedding. (You can see airborne particles in the light beam from a projector.) Airborne skin scales are large enough to be trapped in the nose, so you carry home a little bit of every moviegoer in your nose!

Dust mites require moisture that typically comes directly from the air if the relative humidity (RH) is over 75%. Even the moisture on the lids of fish tanks can supply the moisture mites need to imbibe (and the high-protein <skin-like>, errant fish flakes on the tank provide them with nourishment).

Our bodies also supply moisture for mites. If you could measure the RH just under your buttocks on the surface of a cushion on which you've been sitting or a mattress on which you are resting, you might find that the RH is over 80%.

I've actually measured the RH under my body when I was lying on a mattress. All in the name of science, right?

Since mattresses and cushions are full of dust (mostly skin scales), the addition of moisture creates mite heaven. In a dry climate, though, there may not be enough surviving mites to find such heavenly spots.



Mites congregate to conserve moisture
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In more humid climates, pioneer gravid mites (inseminated females) may hitch a ride on clothing and relocate, setting up colonies in beds and cushioned furniture. If the indoor RH is high enough, dust mites may even colonize carpets and rugs.

Dust-Mite Encasings

Dust-mite encasings are of vital importance in reducing exposure to dust-mite allergens. Such an encasing should serve two purposes: keeping 100% of the mite allergens contained within the mattress, and keeping new mites as well as the moisture from our bodies out of the mattress.

The most effective encasings are those with polyurethane linings. Tightly woven encasings without such linings but with pore sizes smaller than five microns are acceptable, however, but only if placed on brand-new mattresses and bed pillows. Encasings should also be put on box springs, if present.

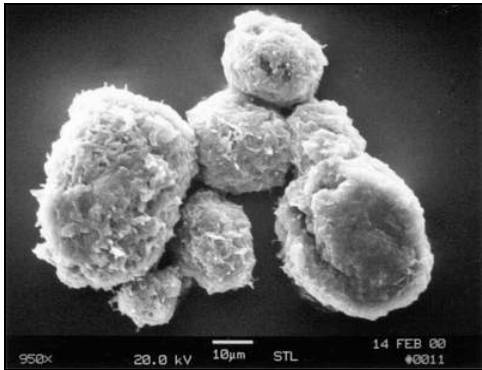
If you or anyone in your family has dust-mite allergy, be sure to put dust-mite encasings on all beds, box springs, and bed pillows in your home, because people sit on other people's beds.

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Getting Rid of the Dust-Mite Encasing

The title of this article asks a question which I have not yet answered. Here's my answer: no, don't get rid of your dust-mite encasing.

If you need to wash the encasing on your mattress, have two encasings installed. Then you can remove the outer encasing and leave the inner encasing in place. If you ever uncover an infested mattress completely by removing all dust-mite encasings, dust-mite allergens in the mattress can become airborne and re-contaminate a room: a result to be avoided!



Dust-mite fecal pellets come in different sizes but all contain allergens

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Steam Vapor

Steam-vapor treatment will kill mites and denature allergens (steam vapor is not the same as “steam cleaning”). Cushioned chairs and couches as well as rugs and carpets that are mite-infested can be treated with steam vapor from a steam-vapor machine. Test an area of the fabric or rug first to be sure that the steam won't damage the material. If done slowly enough, steam treatment kills all mites and can actually destroy some allergens.

I recommend that families with allergies and asthma use leather-covered or vinyl-covered furniture, since mites cannot infest the cushioning, and the coverings are relatively impervious to moisture.

Miticides

Avoid using miticides (chemicals designed to kill mites) in your battle against dust mites. Use steam vapor to treat cushioned furnishings. Washing in hot water and drying in a hot dryer (or dry cleaning) can eliminate mites from clothing; pillows and plush toys can be placed periodically in a dryer to kill mites.

The Contaminated Bear

Believe it or not, even dog beds and stuffed animals can become infested with mites.

I once investigated a home in which a little boy was experiencing allergy symptoms. He was afraid to take a bath, so his parents would “bathe” his stuffed bear with a sponge to give him courage. The bear acquired a dust-mite infestation because of the skin scales and moisture present in the material. The little boy slept with his favorite stuffed bear, so he was exposed to mite allergens.

Avoiding Dust Mites To Begin With

The Mayo Clinic offers recommendations on ways to minimize dust-mite infestations. These recommendations include:³

- Use allergy-proof bed covers
- Wash bedding weekly
- Keep humidity low
- Buy washable stuffed toys
- Remove dust
- Vacuum regularly.

(Note: Be sure to dry bedding thoroughly after it has been washed; otherwise, microbial growth can ensue.)

Vacuuming

Use a vacuum with a HEPA (high efficiency particulate arrestance) filter as well as a bag. (When people empty a bagless vacuum, dust is re-aerosolized.) If you hire outside cleaners, insist that they use your HEPA vacuum and not their own vacuum, because conventional vacuums may spew out particles in their exhaust streams. Then you

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might find cat-dander particles, mold spores, and mite fecal pellets in your home that came from another property.

If you have a central vacuum system, be sure that it exhausts to the exterior and not into your basement or attached garage. Mold growth can occur if dust leaks out of the canister into some space where elevated relative-humidity conditions are present. Then mold-eating mites move in to enjoy the feast (another story!).

Other Species of Mites

Allergy testing doesn't cover all species of mites. In my IAQ investigations I've found mold-eating mites and even mite-eating mites in homes. Even if your allergy-testing results were negative for dust mites, you may still be sensitized to other mites that can be found in an indoor environment, especially where there is mold growth in which mites can forage. Then you and others in your household can be exposed to allergens from the mold as well as the mites.

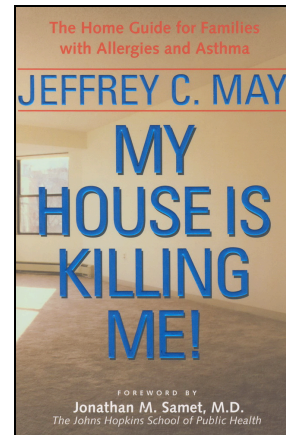


Mold eating mite and Chaetomium spores
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Why Do I Care?

Why do I, as an IAQ professional, care about whether or not mites are present? Because I find mite fecal pellets in samples I take from the air and from surfaces. When sensitized people are exposed to mite allergens, they can cough and wheeze. So dust-mite infestations have a negative effect on the health of an indoor environment.

Refer to my book *My House is Killing Me! The Home Guide for Families with Allergies and Asthma* (go to amazon.com). The second edition should be available in 2020.



End notes

1. <https://www.aaaai.org/>
2. *Bulletin of World Health Organization*, 66(6), (1988), 769-780.
<https://www.ncbi.nlm.nih.gov/pmc/articles/PMC2491145/>
3. <https://www.mayoclinic.org/diseases-conditions/dust-mites/diagnosis-treatment/drc-20352178>