



## *Dust Mite Allergy*

### Why does house dust cause allergies and asthma?

House dust is a mixture of many things that has been shown to include animal dander and hair, fungi or molds, insect proteins (primarily from cockroach), human skin cells, food particles, various fibrous materials of both plant and animal origin and dust mites.

People allergic to dust mites react to proteins in the bodies and feces of the mites. These protein particles are so light that they float easily into the air and are increased when anyone vacuums, runs a fan, walks on a carpet or disturbs bedding (getting into/out of or making the bed). However it is not unusual to be unaware of a relationship between exposure to house dust and worsening of symptoms.

### What are dust mites?

Dust mites are microscopic animals invisible to the naked eye. They belong to the family of eight-legged creatures called Arachnids. This family also includes spiders, chiggers and ticks. Dust mites are hard creatures that thrive and multiply at temperatures  $>70^{\circ}\text{F}$  and relative humidity of 75-80%. They die when the humidity falls below 50% and are rarely found in dry climates or at elevations of  $>1$  mile above sea level. They feed on other components in house dust (primarily human skin cells) and are present in beds and bedding materials, carpets, upholstered furniture, soft or stuffed toys, clothing and closets. They typically occur at concentrations of 100-500 mites/gram of house dust (one gram = weight of a paper clip), though levels up to 19,000 mites/gram of dust can occur. Dust mites don't bite, cannot spread diseases, usually don't live on people and are harmful only if you are allergic to them.

### Why are dust mite avoidance measures important?

Scientific studies have shown that symptoms of asthma, allergic rhinitis and atopic dermatitis may be substantially improved in sensitized individuals by reducing the quantity of dust mites in the indoor environment. It is important to realize that it may take weeks to months to see clinical improvement once dust mite levels are reduced.

Primary prevention studies have also shown that dust mite allergy can be prevented in high risk individuals with environmental control measures. The likelihood of becoming allergic to dust mites is directly related to the level of exposure and this risk is reduced through reduction in dust mite levels.

Since dust mites are at their highest levels in bedding and the amount of time spent in the bedroom is greater compared to other areas of the house, the bedroom is the most important room to enforce environmental control.

# Recommended Measures to Decrease Dust Mite Allergen Levels

~ in order of importance ~

## **Beds**

- ★ Allergen impermeable encasement of mattresses, comforters and pillows is by far most important
  - Encase mattress – may place washable pad/protector on top of encasement for comfort
  - Encase blankets or comforters or wash monthly preferably at >130°F to kill mites.
  - Encase pillows or wash monthly or replace very 3 months. Pillow type is not important.
  - Wash all bedding and wipe encasings with damp cloth weekly.
- ★ Remove all items from bed unless able to wash at least monthly.
- ★ Other items in room (blankets, soft furnishings, stuffed toys) can harbor mites and should be removed or washed/cleaned at least monthly.

## **Floor Coverings**

- ★ There are no good methods to render wall-to-wall carpets free of allergens.
- ★ If possible, replace carpets with smooth flooring and vacuum/damp mop weekly. This is most important in the bedroom.
- ★ Loose rugs over smooth flooring are a possible compromise with washing/cleaning every 3 months. Mites can be killed in rugs by 3 hours direct sunlight or freezing overnight.

## **Soft Furnishings and Clothing**

- ★ Where possible, replace with cleanable items that do not retain dust (leather, vinyl, wood, plastic).
- ★ Compromise is encased cushions with loose coverings that are washed monthly.
- ★ Clothing should be washed weekly and before wearing after prolonged storage.

## **Washing and Cleaning**

- ★ Laundry done at >130°F, with an acaricide or emulsion of essential oil will kill mites.
- ★ Standard washing practices at any temperature will wash out most dust and allergen.
- ★ Allergens accumulate in the dust on hard surfaces, these should be wiped with damp or oiled cloth at least once weekly.
- ★ Dry vacuuming picks up excess dust and reduces reservoirs of allergens in carpets. Vacuum cleaners should have a good air filter and use double thickness bags. A HEPA filter fitted vacuum may be preferable.
- ★ Wet vacuuming may offer an advantage of better allergen removal from carpets and super-heated steam will kill mites and reduce allergen levels. However, if carpets and padding are not effectively dried then mold growth may result.

## **Mechanical Devices and Chemicals**

- ★ HEPA air filtered vacuum cleaners, air filtering units and dehumidifiers may offer some benefits by removing airborne allergen; however these should not be the focus of control measures as other measures listed above are much more important.
- ★ Dehumidifiers are not as effective in humid climates like Dallas; however, a dry indoor climate if achieved will reduce mite allergen production.
- ★ The use of acaricides or other chemicals to reduce mite allergens in carpets is not useful and is no longer recommended.