

### Sources of Biological Aeroallergens/Irritants

**By Dr Sharyn Martin (PhD) March 2010**

Exposure to aeroallergens can in sensitive and atopic people produce symptoms such as sneezing, congested nose, cough, itchy eyes, nose and throat, and watering eyes. They can also exacerbate asthma producing symptoms such as cough, wheeze and shortness of breath. Other symptoms produced following exposure to aeroallergens are fatigue, headache, hoarseness of voice and insomnia.

There are many different moulds and allergens in the home as well as the outdoor that can cause allergic rhinitis or exacerbate asthma symptoms. Variables that have an effect on the severity of allergic rhinitis or asthma in the home include

- House age and condition
  
- Type and condition of heating and cooling systems
  
- Humidity
  
- Air flow
  
- Indoor tobacco use
  
- Pets

- Hygiene habits

For inhaled allergens, the size of the particle determines its ability to penetrate into the airways. Small particles (2.5 microns or less) can penetrate deep into the lungs producing immune reactions symptoms in the lower respiratory tract – e.g. asthma. Larger particles (10 – 100 microns) are deposited higher up in the airways and produce symptoms in the upper respiratory tract – e.g. rhinitis, conjunctivitis. Particles between these (2.5 to 10 microns) tend to be deposited in the trachea-bronchial area.

### **Dust Mites:**

Microscopic mites that live indoors and feed off human skin scales and produce allergen particles greater than 10uM (similar to pollen). Their waste products, which are proteins, actually provoke the allergic reaction.

**Location:** Indoors . Particularly in temperate and humid climates. House dust mites live in bedding, upholstered furniture, and carpets, thrive in summer and die in winter.

**Allergy/Health States** Major allergens associated with asthma and most common cause of perennial allergic rhinitis, conjunctivitis

### **Cockroach allergens:**

The allergens are relatively large and derived from the saliva, faecal material, secretions & dead bodies of cockroaches.

**Location:** Indoors. In all areas of the house, anywhere there is warmth and a food supply. Attracted to human food and waste

**Allergy/Health States** Asthma, Rhinitis, conjunctivitis

### **Animal allergens:**

Allergens on the fur & skin, and in saliva and urine.

**Location:** Indoor/Outdoor.

- Allergens can remain on carpet and furniture for 4 to 6 weeks
- Allergens can also be transferred while patting the animal.
- Allergies to animals can take 2 years or more to develop and may not decrease until 6 months or more after ending contact with the animal.

**Allergy/Health States:** Asthma, Rhinitis, conjunctivitis

### **Moulds and Fungus:**

Moulds belong to the fungus family. They are made of many cells (hyphae) and reproduce by producing spores that provoke the allergic reaction.

**Location:** Indoor and Outdoor. Moulds & fungi can be found wherever there is moisture, oxygen, and a source of nutrients. Various types occur Perennially (year round) and Seasonally.

Indoor: damp areas – closets, bathrooms, refrigerator drip trays, garbage bins, mattress, upholstery on furniture, foam pillows

Outdoor: compost, rotting logs, leaves, grains, certain grasses and weeds

**Allergy/Health States:** Allergic rhinitis, Asthma

In a small number of susceptible people, mould allergy symptoms can be elicited or worsened by eating foods such as some cheeses, mushrooms and foods with yeast

### **Pollen:**

Small, light dry pollen grains that are easily transported on the wind. Produced by trees, grasses, weeds. E.g. ragweed pollen.

**Location:** Indoor and Outdoor

The ASCIA website <http://www.allergy.org.au/content/category/3/48/241/> Provides information about the Allergenic Pollen plants, and what times of the year the plants usually flower all over Australia.

**Allergy/Health States:** Allergic rhinitis, conjunctivitis, asthma

### House Dust Aeroallergens

**Location:** Indoor. Perennial and Seasonal for pollen

House dust containing Dust Mite allergens, Cockroach allergens, Dander from animals, Cotton lint, feathers, stuffing materials, Bacteria, pollen

**Allergy/Health States:** Triggers asthma, Rhinitis, Sinusitis

### Further Information

For more information on allergic diseases and the prevention of allergic reactions to aeroallergens please visit the following sites. These sites also provide ways of reducing these allergens in the home.

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ASCIA [www.allergy.org.au](http://www.allergy.org.au)

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Asthma Foundation [www.asthmaaustralia.org.au](http://www.asthmaaustralia.org.au)

National Institute of Allergy and Infectious diseases <http://www.niaid.nih.gov/>

World Allergy Association [www.worldallergy.org](http://www.worldallergy.org)

RPAH allergy clinic [www.sswahs.nsw.gov.au/rpa/allergy/](http://www.sswahs.nsw.gov.au/rpa/allergy/)

National Asthma Council of Australia <http://www.nationalasthma.org.au/content/view/460/632/#ar>