

ALLERGENS

Your house may also be home to a variety of animal and plant life, most of which can become a source for allergens, the triggers of allergic reactions. Pollens are the main cause of seasonal allergic rhinitis. However, if your nasal stuffiness, sneezing, watery eyes, and constant postnasal drip bother you year round, then you most likely have non- seasonal [hay fever](#) or perennial allergic rhinitis. This condition is typically caused by indoor allergens such as dust mites, cockroach parts, mold, and animal dander.

Understanding the nature and location of indoor sources of [allergy](#) is fundamental. The key to managing allergies that are caused by indoor allergens involves reducing your level of exposure to them or avoiding them, if possible.

What actually is house dust?

House dust is a mixture of components that can cause allergies. House dust is concocted of just about anything you can think of, including dried food particles, mold spores, pollen, fabric fibers, animal danders, and insect parts, especially those of dust mites and cockroaches. As is the case with other allergens, these particles contain proteins that are small enough to become airborne and inhaled. The main culprits in house dust that cause allergy symptoms are dust mite and cockroach particles.

What are dust mites?

Dust mites, which were discovered in 1964, are microscopic arachnids (think tiny spiders). They are about one third of a millimeter in length and are not visible to the naked eye. They have eight legs, are blind, and naturally live indoors. Their presence does not indicate that the house is dirty. This is because usual cleaning procedures, such as vacuuming and "dusting," do not eliminate them. Dust mites have "sticky" pads at the ends of their legs. These pads help them firmly attach to fibers, which allows them to live deep within carpeting, upholstery, and mattresses. Most of the mites found in houses are from the Dermatophagoides family with pteronyssinus and farinae being the most common species. (Dermatophagoides comes from Latin and means skin eating. Pteronyssinus comes from Latin and means feather loving. Farinae is Latin for flour.) Fortunately, dust mites do not bite, spread disease, or actually live on us.

What do dust mites consider heaven?

To better protect ourselves from this most vexing problem, we need to understand what the dust mite needs to thrive. After identifying what dust mites need and love, it will be easy to recognize how we comfort-loving humans often "aid and abet" the lifestyle of the dreadful little mite; and that our allergists are not really crazy zealots for trying to remove these comforts from our lives!

Dust mites thrive in warm, humid places. The ideal temperature for dust mites ranges from 65 to 80 degrees F. Does this sound a lot like your ideal bedroom temperature? Since dust mites have no means of drinking, they are totally dependent on the humidity surrounding them for water. They live best at a relative humidity above 55%; so, watch it with the humidifier and carpet steamer! However, also be aware that monitoring the humidity really isn't sufficient to control dust mites. As the humidity falls, dust mites will retreat from the surface. However, even in very dry conditions, it can take quite a few months to eliminate the dust mite population. Additionally, there is the issue of food supply. Face it, they love us, our secretions, and the skin cells we shed. (The average human sheds up to 1.5 grams of skin particles per day. A gram is about the weight of a paperclip.) Plus, they fancy our feather pillows and stuffed animals that collect the stuff they feast on. The most favorable conditions for dust mite growth are found in the bedroom. Their favorite breeding grounds are mattresses, pillows, and box springs, as well as blankets, curtains,

carpeting, and other fabric items in the room. Perfect climatic conditions for dust mites occur in the Mid and Southern Atlantic coast, Gulf coast, Central Midwest, Pacific Northwest, and British Columbia. Dust mites are rarely found in dry climates where the elevation is over 5,000 feet above sea level

How do dust mites make you allergic?

The digestive enzymes that are discharged into the mite feces are the most bothersome of the dust mite allergens. Less potent allergens are found in the mite bodies. The mite's tiny fecal pellets disintegrate to form a very fine powder, which can easily float into the air when disturbed. This commonly occurs during vacuuming, making the bed, turning in bed while sleeping, or walking on the carpet. When an allergic person inhales these particles, [asthma](#) or nasal allergy symptoms may occur. There is also evidence that allergic eczema can be aggravated by this exposure.

Allergy Facts

- Each dust mite lives for approximately 30 days and produces about 20 fecal pellets per day. During that time, females may have added 30 new dust mites to the population.
- 10% of the population is allergic to dust mites. About 80% of asthmatic children are allergic to dust mites.

Cockroaches? You must be kidding!

Over the past 20-30 years, cockroaches have become recognized as a powerful indoor allergen. Cockroach allergy can be a major factor in serious asthma and nasal allergy. Cockroaches tend to be very troublesome in inner city areas, multifamily dwellings, and around areas of food preparation.

Cockroaches are among the oldest of all living species (about 350 million years old). The three species of cockroaches that are commonly found in the United States are *Blattella germanica* (German), *Periploneta americana* (American), and *Blattella orientalis* (Oriental). (The genus name for the American cockroach, periploneta, is derived from the Greek word, planetes, which means wanderer.)

Cockroaches are hardy, adaptable creatures that thrive in areas where food and water supplies are plentiful. They may be found around dripping faucets and kitchen areas. They do stray, however, to other areas and can commonly be found in children's bedrooms where food is often eaten. The major cockroach allergens are found in their digestive enzymes, saliva, and body parts. As is the case with dust mite allergens, these microscopic particles become airborne when disturbed by motion in the room

What about molds?

As if dust mites and cockroaches are not disgusting enough, now we have to deal with mold. Symptoms of hay [fever](#) (allergic rhinitis) and asthma can be caused by the inhalation of mold spores. Molds or fungi tend to grow on any wet surface, whether it be indoors or outdoors. The body of the mold produces spores or seeds, which are smaller than pollen and less potent as allergens. Large amounts of mold spores can be found in the air, especially in the spring and fall. They are usually most abundant at night, especially when it is damp, foggy, or during the rainy season.

Outdoor molds thrive in the soil, grass, dead leaves, haystacks, barns, and stables. They are often found in greater concentration when a hedge is located against a house, especially in shady areas.

Indoor molds can congregate in bathrooms, especially in the shower stalls, damp cellars, drains, potted plants, closets, attics, house foundations, crawl spaces, and sealed off rooms. A "musty" smell often radiates from these areas. On indoor plants, it is often the mold overgrowth and not the flowers that cause allergy.

Allergy Assist

Live Christmas trees can bring pollen, molds, and aromatic oils into the house, all of which can provoke episodes of asthma and allergies. So, after the holidays, when they are on sale, pick up the best artificial tree you can find and enjoy healthier and happier holidays for years to come. Just be sure to store it in a dust free plastic covering.

What about pets?

The "dander," or skin shedding of an animal is more potent in causing allergic reactions than the animal's fur or hair. In addition to the skin sheddings and fur, allergic reactions can occur to the saliva and/or urine of cats, dogs, horses, and rodents.

The scope of the animal allergy problem is enormous. These allergies are believed to affect up to 20% of North Americans and are directly related to the increasing popularity of pets, particularly cats and dogs.

Cats

The most well known indoor allergy is probably due to *Felis domesticus* - the domesticated cat. The main allergen is a protein that is produced by the sweat glands (sebaceous glands) in the skin and appears in the skin flakes or dander that are shed from cats. The allergen is also found to a lesser degree in the fur, saliva, and urine. Even with a past history of tolerance to cats, it is possible for a person with an allergic tendency to develop a sensitivity after constant exposure.

The cat dander allergen is not only confined to the cat, but also clings stubbornly to carpets and furniture. The protein can linger there for months and can serve as a reservoir from which allergens can become airborne when disturbed. The allergen is also lightweight and can float in the air for hours. People can also carry the cat allergen around on clothes, thereby spreading it to work, school, or a friend's house.

Allergy Facts

- An estimated 30% of households in North America have at least one cat.
- About 6% of the population is allergic to cats.

Allergy Assist

A cat is a cat is a cat. The allergy is to the entire species. So, do not get fooled into buying an expensive "hypoallergenic" cat. Cats with less fur may have the same amount of dander as cats with more fur.

Dogs

Domesticated dogs (*Canis familiaris*) are found in over 40% of homes in North America. About 33% of allergic individuals are sensitive to dog dander (as compared with almost 50% of allergic individuals who are cat allergic). Since the allergic reaction is prompted by skin shedding and not fur, it makes little difference whether the dog has long or short hair; you can be as allergic to a Chihuahua as you can to a sheep dog. Small dogs can also cause as many allergy symptoms as large dogs. There is certainly no evidence that one species is less allergy provoking than another

one. Clearly, no breed is non-allergenic. Even poodles and wheaten terriers (often thought to be hypoallergenic) will likely induce allergy symptoms in sensitive individuals upon continuous exposure.

Allergy Alert

If your child has asthma and a known allergy, be especially careful not to allow the child to spend the night at the home of a friend or relative with a pet. Severe allergic reactions and even fatalities have been reported. Do not let this happen to your family or your friends.

Horses

Only 10% of allergic individuals have a sensitivity to horses. The reason is probably due to less exposure since there is little horsehair in furniture or bedding anymore. Also, the age of horse drawn carriages is behind us. Sensitive people, however, must avoid not only horses and stables, but also objects directly related to them, such as bridles, saddles, and riding clothes. Also be aware that horse hair may still be found in antique furniture and old toys. People who have problems with horses may also react to donkeys, mules, and zebras.

Allergy Alert

Remember that a trip to the barn not only exposes you to animal dander, but also to mold, pollen, and lots of other irritants as well. If you are an asthmatic, be careful and be prepared.

Birds

Allergy to birds is more common among bird breeders where the exposure is highest. People who are sensitive to the feathers of chickens, geese, turkeys, and ducks can still eat their meat or eggs. They may well react, however, to the feathers in down comforters, pillows, and duvets. You should also remember that dust mites hide in these bedding accessories.

Rodents

This intriguing family includes hamsters, rabbits, guinea pigs, gerbils, ferrets, mice, and rats. Most allergic reactions are caused by exposure in laboratories, but these animals are also common pets. Mouse urine is an especially potent allergen for personnel that handle laboratory animals. The urine of rats and guinea pigs also contains allergens as do the saliva and fur of rabbits. Rabbit hair can be found in fur coats, glove linings, slippers, foot muffs, pillows, and quilts. The fur of the Angora rabbit is said to be 10 times warmer than that of sheep wool. The soft yarn spun from Angora rabbit can be found in hand-knitted trimming, crochet work, gloves, hosiery and knee pads. Alone or mixed with silk, it is also used in sportswear. And, of course, rabbits often appear in schools as the classroom pet.

Allergy Alert

Frequently, parents will report that their child has "won the privilege" of caring for the classroom pet over the weekend or the holiday vacation. This often leads to the onset of a particular animal sensitivity. If you or your child already has allergies or asthma, do not volunteer for the job

What about indoor pollens and houseplants?

It is surprising, considering how frequently outdoor pollens cause allergies, that few indoor plants are troublesome. Indoor plants are more leafy than flowering and do not pollinate as much. Some offending indoor plants are the weeping fig (*Ficus benjamina*), which can cause eye allergies, and the flowering maple (*Ailanthon hybridum*), which can cause asthma.

Indoor plants, especially those that are kept in damp wicker baskets, are a source of molds. Plant terrariums and large indoor plants are culprits as well. Dried flowers and live Christmas trees should also be avoided, as they are common carriers of molds.

Table 1: Where Animal Allergens Come From

Animal	Source
Cat	Skin, Saliva
Dog	Skin, Saliva
Rat	Urine
Guinea Pig	Urine, Saliva
Rabbit	Urine, Saliva
Gerbil	Skin, Serum
Hamster	Skin
Mouse	Urine
Horse	Skin

Indoor Allergens At A Glance

- House dust is a mixture of components that can cause allergies.
- Dust mites thrive in warm, humid places.
- Cockroach allergy can be a major factor in serious asthma and nasal allergy.
- Symptoms of hay fever (allergic rhinitis) and asthma can be caused by the inhalation of mold spores.
- The "dander," or skin shedding of an animal is more potent in causing allergic reactions than the animal's fur or hair.
- About 6% of the population is allergic to cats.
- Indoor plants, especially those that are kept in damp wicker baskets, are a source of molds.