

ALLERGENS DEMYSTIFIED

INDOOR ALLERGENS

Dust Mite—The allergens within dust mite are distributed through the by-products of the dust mite. The most common areas in which dust mites can be found are carpets, bare floors, furniture upholstery, pillows, mattresses, box springs, stuffed animals, books and in high humidity and damp areas. Many of these are very difficult to isolate from and therefore maximum amount of cleaning is advocated where mite allergies are a problem. In cases where they occur in carpet, vacuuming regularly with special hepa filter bags is indicated. Bare floors should be mopped and dusted at least 3 times a week.

Kapok—Kapok is typically found in furniture upholstery, pillows and in stuffed animal. In these cases, isolation of the patient from such areas or removal of those items from the home are indicated.

Cockroach—The allergen includes secretions and feces from the cockroach. The allergen is widely distributed in house dust and concentrations are highest in kitchen areas; however, it is detectable throughout the house. They generally live in moist and shady areas. They prefer temperatures around 84°F and do not tolerate cold. Commonly they are found in landscape areas and are abundant in yards, in palm trees and hollow trees. Cockroaches are also common in basements, sewers, crawl spaces, cracks, and crevices in porches and foundations. Typically cockroaches will move indoors in rainy or cold climates and populations will increase visibly during those times. They may enter the house via sewer connections, under doors, around utility pipes and through air ducts.

Cat Allergen—Most domestic cats commonly carry large quantities of allergen. The highest concentration is on the area of the neck, with males shedding a far larger amount of allergen than females. The dander is very lightweight and difficult to remove.

Dog—The belief that short-haired dogs are less likely to shed allergen is a myth. Some breeds however do shed less than others, and if kept clean and trimmed will cause less problems.

Regular bathing of dogs and cats helps reduce their allergen. Allergen reduction typically only lasts a few days and therefore bathing is required 2 to 3 times a week if a patient is allergic to an animal in the home.

Pyrethrum—The pyrethrin class of insecticides was originally formulated from plants of the compositae family, which includes daisies and chrysanthemums. Pyrethrum refers to both the crude plant extract and the marketed formulation of insecticide.

Orris Root (apparently a corruption of “Iris” root)—Orris root are the rhizomes of three species of iris. They are often used as a fixative in potpourri to enhance color and fragrance as well as certain cosmetics, and can be recognized by their violet-scented fragrance.

Jute/Sisal—Jute is the softest among the plant fibers and is generally used as a base for inexpensive hand-woven Persian rugs. Sisal comes from a spiky indoor plant called the Sisal bush. Sisal carpets are very popular, particularly as wall-to-wall type carpeting.

MOLDS

Molds can be found almost anywhere, and all molds produce airborne spores. Typically their growth is stimulated by warmth and increases in humidity. They tend therefore to be most prevalent during hot humid months. Basements, compost piles, cut grass, barns and wooded areas are very typical spots for finding large populations of molds. In an older bathroom, a hot shower will also temporarily increase the mold population. Therefore, molds typically will and can be found in almost any and every home and office environment, both indoor and outdoor. The important point about mold allergy is that it is often related to an overgrowth of *Candida*; this yeast causes cross-reactivity to many other yeasts and mold fungi. Once a *Candida* allergy is triggered, the patient may experience allergies to more common molds.

The following is a list of ways in which mold population can be decreased or diminished to a large extent:

- Keep humidity lower than 35% if possible and not more than 50%.
- Use air conditioning or dehumidifiers in the summer and spray the air filter with mold-killing spray.
- Ventilate the house—a tightly closed house encourages mold growth.
- Keep refrigerators clean.
- Empty water pans below self-defrosting freezers.
- Clean garbage cans frequently.
- Make sure tiles, shower stalls, tub, toilet tank and ceilings are cleaned regularly with a mold-killing solution.
- Dark closets tend to be high breeding spots for molds and placing a low wattage light bulb in the permanently on position can dramatically reduce this.
- A good solution for killing mold is equal parts of household bleach and water.

While molds in general can be found in all the areas listed above, the following are more specific habitats for some individual molds.

Cladosporium—Grow on plants, leather, rubber, cloth, paper and wood. One of the most common causes of mold allergy.

Aspergillus—Found in soil, damp hay, on grain and on fruit.

Phoma—Grows on magazines, books and other paper products.

Penicillium—Grows on fruits, breads and cheese. A mutant form of the penicillium mold is used in the manufacture of penicillin. Allergy to penicillium spores, however, should not be confused with allergy to penicillin as a medication.

Alternaria—Often found growing on carpets, textiles and horizontal surfaces such as window frames. Also found in soil, seeds and plants, as well as in water-damaged buildings.

Helminthosporium—Best known as parasites of cereals and grasses. Frequently they are isolated from grains, grasses, sugar cane, soil, and textiles.

Rhizopus—Typically found in children's sand boxes, in clusters of pine needles and leaves, sweet potato, strawberries, stewed fruit, and amongst the nest, feathers, and droppings of wild birds.

Curvularia—May cause leaf spots and seedling blight. Also seen on castor beans, cotton, rice, barley, wheat, and corn.

Candida albicans—Very seldomly found as an airborne mold spore. They are common in soil, organic debris, and in humans as a saprophyte in the nasal pharynx and feces.

Fusarium—Widely distributed on numerous grasses and other plants and is a common soil fungus. Major parasites of rice, sugar cane, sorghum, and maize grains. Also occurs regularly on fruit and vegetables.

Pullularia—This is the dominant fungus found on leaves. It also grows in the surface layers of many types of soils and is most prevalent following treatment of the soil with nitrogen. It has also been isolated from grasses, seeds, honey comb, nests and feathers of living birds, frozen fruit cake, leather, cotton fabrics, and concrete surfaces.

Nigrospora—Most commonly found as a plant parasite.

Smuts—Most often found on corn, grasses, weeds, flowering plants, and other fungi. Usually the spores are disseminated by wind.

Stemphylium—Isolated from dead plants and cellulose material.

Stachybotrys—Thrives on water-damaged cellulose material such as sheet rock, paper, ceiling tiles as well as cellulose-containing insulation backing and wallpaper.

Saccharomyces—This is common baker's yeast.

MICROBIAL SKIN DISEASE

Natural immunity at the skin surface depends on the structure and integrity of the epidermis—breakdown of which can result in opportunistic microbial infections. Immunity is also dependent on Immunoglobins A and G (IgA and IgG). The most common of the opportunistic infections are caused by Staphylococcal bacteria as well as yeast, most commonly *Malassezia pachydermatitis*.

It is imperative in treating microbial skin disease to not only treat symptomatically but to identify the underlying cause of the infection. While by no means exclusively, one of the more common causes of skin infections is allergic skin disease, the self-destruction paving the way for such secondary opportunistic infections.

Staphylococcal Pyodermas:

Most common of the Staphylococcal pyodermas are caused by *S. intermedius* with some incidence of *S. aureus* and *S. hyicus*. In addition, *S. schleiferi* is increasingly being found in biopsies. It is important to do a microscopic culture and sensitivity (MC&S) for treatment of Staphylococcal infections. Often, recurrence is a result of not only change in sensitivity to antibiotics but also to a change in Staphylococcal species itself. It is not uncommon therefore for a patient with sensitivity to antibiotics and infection by *S. intermedius* to initially respond followed by a complete return of previous symptoms. When this is followed up with a new MC&S the presence of *S. schleiferi* with sensitivity to a host of very different antibiotics is a possibility.

It is very important to get to the root of the infection and manage before trying to proceed with any other therapies and/or diagnoses.

Pyodermas at the surface level often present as alopecia, pruritis and erythromatosis. Most commonly, onset is caused by patients licking and chewing the areas, often due to allergy. Certain breeds, however, have a much greater disposition based just on prevalence within the breed and certain anatomical issues such as skin folds which provide the ideal environment for microbial growth.

Pyodermas may evolve beyond the hair follicle. These deep pyodermas, however, most commonly involve *S. intermedius* and are usually the result of localized trauma, but can also be due to endocrine imbalance or even misuse of corticosteroid drugs. Other deep pyodermas include interdigital, nasal, acral licks, muzzle and bacterial pyodermas.

Treatment of Pyodermas:

Most commonly, treatment of microbial skin disease is carried out with a combination of systemic drugs and topicals. As a general rule of thumb, deep pyodermas will require more aggressive and systemic treatment. While topical treatment may be useful in these cases, and is often indicated, they are typically most effective in the treatment of superficial pyodermas. There have been mixed reports on the use of autogenous staph vaccines. Finally, although using *S. aureus* as the pathogen, the use of Staphage Lysate has met with success in the treatment of many deep pyodermas.